Final Project Document

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Project Description and Summary (NEED GOAL, APPROACH, and CONCLUSION AND THIS NEEDS TO BE ONE PAGE?!!?)

The goal of this project is to find the most accurate model using a variety of statistical model building techniques in order to predict medical outcomes relating to breast cancer. We will use the BRCA Multi-Omics (TCGA) data from Kaggle, and predict outcomes for the `PR.Status`, `ER.Status`, `HER2.Final.Status`, and `histological.type`. For our approach, we will first perform the necessary data cleaning operations, then [method 1] and [method2] to build classification models for `PR.Status` and [method1] and [method2] for `histological.type`, using classification error and AUC respectively as the evalution criteria. Next, we will use [method] to build a model with the goal of accurately predicting **all four** outcomes. Finally, [INSERT CONCLUSION HERE].

- can include any difficulties or describe outcomes for models

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
brca_data = read.csv("https://raw.githubusercontent.com/mgarbvs/STAT-432-final-project/main/cl
# remove X.1 and X columns
brca_data = brca_data %>% select(-c("X.1", "X"))
head(brca_data, 10)
```

```
##    rs_CLEC3A    rs_CPB1 rs_SCGB2A2 rs_SCGB1D2    rs_TFF1  rs_MUCL1   rs_GSTM1
```

```
## 1  0.8928184  6.5801033  14.123672  10.606501 13.1892374  6.649466 10.5203345
## 2  0.0000000  3.6913108  17.116090  15.517231  9.8676160  9.691667  8.1795215
## 3  3.7481499  4.3752550   9.658123   5.326983 12.1095391 11.644307 10.5173296
## 4  0.0000000 18.2355185  18.535480  14.533584 14.0789925  8.913760 10.5574647
## 5  0.0000000  4.5837237  15.711865  12.804521  8.8816692  8.430028 12.9646066
## 6  0.6028369  1.0266584   9.248794   5.095713  0.0000000  6.085525  7.7737478
## 7  5.6543124  2.8420737   8.231955   7.062477  7.2857055  8.490481  0.0000000
## 8  2.3709454  0.4304994   0.000000   2.635987  0.7617108  2.788999  5.4519199
## 9  0.0000000  0.6035967   2.213130   1.027933  1.8470749  0.000000  5.9492338
## 10 0.0000000  8.1872872   5.250765   3.058923 10.2939666  0.000000  0.4930324
##       rs_PIP rs_ADIPOQ  rs_ADH1B rs_S100A7 rs_HMGCS2 rs_CYP2B7P1 rs_ANKRD30A
## 1  10.338490 10.248379 10.229970 0.0000000 7.9046093    8.754801    9.681176
## 2   7.911723  1.289598  1.818891 0.4448791 1.2895984    5.698288    7.885523
## 3   5.114925 11.975349 11.911437 4.1260560 9.3833794    8.630913    9.610310
## 4  13.304434  8.205059  9.211476 0.0000000 4.3479916    7.836265    9.732374
## 5   6.806517  4.294341  5.385714 0.8418926 6.1115697    7.701901   10.759198
## 6  11.080776  6.916635  7.935318 8.6711483 5.8463755    4.665484    0.000000
## 7   6.823051  5.907011  6.793263 6.2878176 2.7623063    2.390172    4.593306
## 8   2.552943  7.388579  6.464041 0.4304994 1.6259250    1.453491    0.000000
## 9   1.622087  1.027933  0.000000 0.0000000 1.8470749    1.847075    0.000000
## 10  0.000000  9.300252  9.766249 0.0000000 0.8598106   10.320869   10.693062
##     rs_PRAME    rs_TAT rs_SERPINA6    rs_AGR3 rs_TFAP2B rs_CYP4Z1   rs_DHRS2
## 1   9.363258  2.146395   1.4402081 12.8062722 11.675896  2.618427  8.3757172
## 2   1.818891  2.415164   0.0000000  9.7985024 11.575206  3.039682 11.5046951
## 3   4.733674 16.173177   6.7910248  7.7283654  8.290137  2.776694 16.1894747
## 4   9.069201  2.974217   2.9742172 11.1906014  3.666688  1.386094  4.7452104
## 5   1.370053  2.795538   8.4805103 11.2354539 11.450052 10.795992 14.1196321
## 6  11.487244  2.039840   0.6028369  0.0000000  6.074463  9.990951  1.0266584
## 7   8.209576  8.075750   0.0000000  4.6608488  6.309025  2.762306  2.2799170
## 8  11.821034  1.625925   0.0000000  0.4304994  5.713278  0.000000  0.4304994
## 9   8.118521  2.366364   0.0000000  0.0000000  0.000000  5.545975  5.6541233
## 10  1.945570  1.394898   1.6026944 11.8005372  9.364972  5.052494  9.0145637
```

```
##     rs_KCNJ3 rs_MYBPC1 rs_C4orf7   rs_KRT14    rs_MUC6 rs_UGT2B11  rs_GABRP
## 1  0.8928184  6.437639  6.056274 12.5348840 10.2097588   3.878617  7.533045
## 2  3.2182387  8.544378  6.833406 11.6219124  0.7843365   8.881055  9.883700
## 3  4.9876392  2.328779  2.613815 11.8206888  0.0000000   1.068602  8.652057
## 4  4.3762904  5.464894  2.442997  9.6514597  5.4382962   3.046439  7.524791
## 5  1.7558276  5.099316  6.354454  9.4952185  4.6306268   4.719441  7.295552
## 6  0.6028369  5.806822 17.680023  8.7874827  1.3538878   0.000000 14.546592
## 7  2.1605653  9.744704 16.707036 11.4526397  8.1579148   0.470615 12.992628
## 8  0.4304994  5.146729  7.101317 10.8453526  1.4534912   0.000000 14.301986
## 9  0.0000000  6.293015  2.366364  9.3726564  0.0000000   0.000000 13.610573
## 10 5.9941701  1.784295  2.090616  0.4930324  8.5617034   0.000000  6.643882
##     rs_SOX10 rs_SLC30A8  rs_STAC2 rs_VSTM2A rs_COL2A1   rs_KRT5 rs_TUSC5
## 1   8.279545  8.7901337 10.540809  7.265341  7.131664 12.639518 7.305826
## 2   8.374239  0.7843365  9.061837  0.000000  3.880078 11.379258 0.000000
## 3   6.592058  3.8972695  6.635168  3.022492 11.648423 12.322540 9.238884
## 4   5.397454  1.7742494  6.043347  0.000000  5.503896  9.735108 4.889644
## 5   4.653519  2.3109217  5.465498  3.393512  3.498391  9.354743 2.795538
## 6  12.169065  1.0266584  7.869648  0.000000  3.295341  7.192078 4.219935
## 7   7.431422  0.4706150  9.416209  1.550063  3.778902 13.066285 4.003647
## 8  12.670116  2.8598106 11.761590  0.000000 10.509098 13.287832 4.997672
## 9  12.935384  0.0000000  8.669900  0.000000  4.753679 11.600758 0.000000
## 10  1.394898  6.0484629  1.394898  3.894575 12.455744  2.558023 7.357253
##    rs_CEACAM5  rs_CALML5     rs_GP2   rs_GSTT1    rs_LEP   rs_FABP7 rs_C1orf64
## 1   2.8926047  5.1750894 10.4901429  0.5144000  4.514034  2.7157177 11.5537498
## 2   5.2139421  4.5026616  7.7075241  9.3362381  0.000000  4.9863199  8.3328234
## 3   8.5725039  9.8595803  4.0324095  3.9322596 10.124532  3.7868995  7.3459170
## 4  15.6571121  6.6061402  7.3068583 10.2633142  1.774249  2.0797706 10.8747911
## 5   4.7837290  6.3474513  7.7317867  9.0931968  1.130008  0.4815056 10.7710224
## 6   4.2980864 11.3891025  0.6028369  0.6028369  2.502840  7.9863734  1.0266584
## 7   1.5500634  6.3229917  3.3030501  8.3543067  2.279917 11.4958568  4.4732024
## 8   0.0000000 11.7072643  1.9191112  9.2030257  4.450492  9.7848988  0.4304994
## 9   0.6035967  7.7345443  0.0000000  0.0000000  2.504849 10.1427418  0.0000000
```

```
## 10  5.2036906  0.4930324  4.2730459  9.4912118  6.552909  0.8598106 10.6410080
##     rs_CRABP1  rs_FABP4   rs_KRT6B  rs_KLK11    rs_CST9   rs_CST1   rs_PIGR
## 1   4.6183679  9.310698  8.8583053 11.622206  1.8360857 10.461061  7.109456
## 2   5.6367870  3.474086  9.0061799  1.488412  0.4448791  7.803937  7.088217
## 3   2.3287790 11.459524  9.4177359  2.697551  3.1179942  9.113967  6.022692
## 4   3.1808798  7.364504  5.9045010  1.144242  2.8981890  6.086809  7.118659
## 5   4.3514587  6.144263  7.0631340  2.620727  7.0372581  9.903603  7.213202
## 6  10.1724379  7.998128  8.8967029  6.731869  0.0000000  8.687575 10.289464
## 7   5.8598876  6.487041  8.0736864  4.746248  0.0000000  3.737784 10.634014
## 8  14.7092297  7.475712  6.9143373  2.927328  0.0000000  7.455847  2.370945
## 9  12.4853796  3.371824 11.9314477  0.000000  0.0000000  6.438383  2.504849
## 10  0.8598106 11.247954  0.4930324  0.000000 10.6006968 11.295498  1.784295
##     rs_CIDEC  rs_SYT13   rs_KLK5  rs_OLFM4 rs_HOXB13    rs_LTF   rs_TFF3
## 1  7.8003376  4.146305  7.760989  6.189267 2.5140970 10.219641 13.849524
## 2  0.4448791  3.949171  8.111446  5.626279 0.0000000 11.232154 11.589648
## 3  9.3096173 10.090086  8.306898  2.697551 0.4497462  7.810588 10.077443
## 4  4.6087442 12.634136  4.909144  2.211293 0.0000000 12.975535 16.420502
## 5  1.2811344  7.473329  5.257105  4.485079 3.9319761  8.387990 10.316920
## 6  5.6957127  6.745880  9.221477 10.150221 1.3538878 14.484815  5.461064
## 7  3.4629684  2.160565  6.064943  5.770985 4.4980338 17.796624  8.282862
## 8  4.8314263  5.934474  7.481338  1.919111 9.1252063  7.193312  1.453491
## 9  3.1363883  9.192224 11.573226  2.631221 7.4037236  5.162279  3.136388
## 10 7.3644043 12.187940  1.602694  1.151989 0.0000000 11.238984 10.649449
##     rs_MUC5B rs_BMPR1B rs_CEACAM6  rs_TCN1 rs_SLC34A2 rs_CRISP3   rs_CLCA2
## 1   9.431978  8.961093  6.5207617 5.208903   5.746678 3.3214231  6.6678183
## 2   6.303945  9.164374  6.6792535 6.767980   8.075198 2.5983890 10.1999062
## 3   6.883319  8.187072  8.5430956 2.851719   6.640468 2.8517191  4.5202902
## 4  12.010550 14.149194 18.3298913 8.053380   6.308618 7.0144725  0.8535167
## 5   2.059909 10.259790  7.3279316 4.172848   4.630627 6.4025431  6.0351840
## 6   7.319344  3.633524  8.9231486 6.427308  11.294559 8.4642533  7.1293253
## 7  10.824312  6.731774  6.2222617 3.651867  11.895029 5.0106859  4.6161753
## 8  12.815764  9.294545  0.4304994 0.000000   8.567333 0.4304994  4.9002389
```

```
## 9   9.718820  6.497649  1.3553546 6.554575   7.312362 2.5048492  5.3758978
## 10  2.454597 13.764188  5.9849197 4.332601   0.000000 2.0906163  1.6026944
##      rs_AGR2 rs_ABCC11   rs_GRIA2  rs_KRT17  rs_NPY1R rs_C20orf114   rs_DSG3
## 1  14.534077 11.120876  0.8928184 11.670787  9.155700    7.8440309 8.3663834
## 2  11.003313 13.253582  2.5983890 11.270201  5.971707    9.4627247 9.1405693
## 3  13.154467  7.393773  0.4497462 11.943948  9.463305   11.0590752 8.7582475
## 4  13.413434  8.978652 10.7132678  9.053951 11.232326    8.3636586 4.8896439
## 5  12.248138  9.248804  4.7628272  9.631171  9.833915    8.8780291 6.6950877
## 6   1.845350  3.134237  2.6291701  9.890466  9.513277    1.0266584 3.3696200
## 7   8.422379  5.503037  1.1090262 10.909795  5.189038    4.1980540 6.4556905
## 8   2.788999  3.756863  6.6353060 11.561016  5.344892    0.7617108 6.3518156
## 9   1.355355  0.000000  3.4424658 13.063663 11.697815    1.6220870 4.6380275
## 10 13.535010  4.573811  0.0000000  4.523587 10.724320    8.8510816 0.8598106
##     rs_OBP2B  rs_KIF1A rs_CYP4F8 rs_TNNT1   rs_LRP2  rs_PROM1  rs_PVALB
## 1  3.4959126  2.806881 5.1049866 4.592983  9.228598  6.860970  3.920036
## 2  0.4448791  3.101684 4.7742125 4.735620 12.110205  8.371095  5.493795
## 3  1.3005338  1.300534 5.8504669 8.669012  9.729484  7.662167  1.500292
## 4  0.8535167  0.000000 1.3860936 4.510025 13.090098  6.025587 12.631387
## 5  5.2420804  1.575796 5.3299667 8.349955 11.951210 10.342679  3.393512
## 6  5.9708997  3.856538 0.6028369 0.000000  7.436288 12.797616  1.353888
## 7  5.5393791  2.279917 0.4706150 7.033041 10.933886 10.678147  2.588205
## 8  1.7799321 10.670165 0.0000000 5.604062 11.848774 11.863524  0.000000
## 9  8.0034763 11.541894 0.0000000 4.181508  0.000000 11.784296  0.000000
## 10 0.8598106  0.000000 2.3431520 4.006693  9.796307  8.590960  8.612144
##     rs_FAM5C   rs_ELF5  rs_GFRA1 rs_CYP2A6    rs_PGR    rs_CGA   rs_GPD1
## 1  0.5144000  9.116151 14.487078 2.5140970 12.787348 0.0000000  8.897714
## 2  6.2501980  5.921013  8.041977 0.0000000 12.176893 0.0000000  1.488412
## 3  6.0468403  4.520290 11.307703 7.0156392 11.885023 9.3037839 10.030279
## 4  0.4889263  5.205752  8.493677 2.2112926 13.033314 0.4889263  5.824595
## 5  0.0000000  2.190868 14.324104 0.4815056 14.057517 0.4815056  4.903149
## 6  9.5734429 12.356237  7.328684 0.6028369  4.509962 1.0266584  6.181437
## 7  1.5500634 10.944653  9.465836 0.4706150  6.972303 0.0000000  5.027844
```

```
## 8  1.7799321 12.492772 10.372347 0.4304994  4.116331 0.4304994  6.189453
## 9  0.0000000 11.888995  9.145342 1.3553546  3.136388 0.0000000  2.631221
## 10 0.0000000  2.343152 14.570822 2.6545272  7.055308 5.5432020  8.777982
##      rs_VGLL1  rs_PLIN1     rs_CP  rs_KCNC2  rs_MUC16 rs_KRT6A     rs_ALB
## 1   1.6516832  9.482964  5.303492 2.9735194  2.715718 4.514034  2.4016305
## 2   5.2554516  2.974878  6.555482 0.0000000  4.811800 4.305963  6.9090578
## 3   3.3937868 10.926799 11.132440 1.0686020  6.842515 4.565567 10.1136177
## 4   2.3317912  6.759052  4.898842 2.3317912  4.535344 1.386094  0.0000000
## 5   3.8550628  6.304706  9.171710 1.1300083  4.676053 1.370053  3.2203454
## 6  10.9127900  6.591495 10.599596 0.0000000  2.952837 7.018264  4.8058599
## 7   6.8666125  5.234084 10.771184 3.1856604  7.973205 6.192139  9.3707101
## 8  11.6096657  6.382206  6.286606 0.7617108 10.950750 4.116331  0.7617108
## 9  13.2890179  1.622087  0.000000 0.0000000  5.937052 4.512290  2.3663642
## 10  0.4930324  8.898656  2.984371 0.0000000  1.945570 0.000000  7.1201207
##      rs_AQP5  rs_WIF1   rs_KLK6    rs_KLK7  rs_CBLN2  rs_KRT81  rs_CIDEA
## 1   2.973519 4.992999  7.007468  7.3966544  1.999567  9.058201 6.1375322
## 2   2.907025 4.407659  6.243338  7.5130153  6.865038  8.748358 0.4448791
## 3   1.973207 3.625235  7.075554  7.7183767  3.393787  9.123460 7.5227690
## 4   2.079771 0.000000  2.817910  3.4171504  0.000000  6.194044 4.2595964
## 5   1.130008 1.130008  3.446905  4.2348692 10.063846  7.710113 0.4815056
## 6  11.472573 4.832363  9.284030  4.9580538  0.000000  5.095713 3.0463863
## 7   5.878924 7.534050  5.277765  4.8268739  2.030407  5.830859 1.3463045
## 8   9.585811 7.243835  7.133830  6.8153590  3.277003 12.217832 2.9273276
## 9  12.235071 6.705841 10.995248 10.6108407  1.355355  4.006020 0.0000000
## 10  1.394898 0.000000  1.151989  0.4930324  9.536238  3.483545 5.6524062
##    rs_EEF1A2 rs_SERPINA11    rs_LBP    rs_MMP1   rs_BPIL1  rs_KRT16  rs_PI16
## 1   6.715648     6.828709  1.836086  0.8928184  8.2310008  4.933563 6.472857
## 2   5.002662     6.310524  1.059009  3.4264124  7.9710699  6.113905 1.059009
## 3  13.627842     9.041707  6.732674  8.0263381  4.7137013  6.183812 8.301890
## 4  13.395235     7.972268  1.144242  3.9183862 14.6273582  3.956373 7.711308
## 5  10.352330     9.323860  2.310922  5.4525032  5.5410997  4.844677 2.421748
## 6   2.364404     1.026658  3.803930  3.6335242  0.0000000 10.054956 6.659692
```

```
## 7   4.396022     4.939946 11.111356 10.5291064  2.9894660 10.532867 5.801231
## 8   2.714531     1.779932  3.756863  9.3245874  0.0000000 11.115600 1.257554
## 9   7.234863     0.000000  0.000000  7.6807632  0.6035967 11.217382 3.574162
## 10 10.107292     7.588602  6.021571  8.0048193  2.2224027  1.784295 7.320952
##     rs_KLK10    rs_MSLN   rs_A2ML1  rs_NLRP2 rs_COL17A1 rs_SLC6A14  rs_PROL1
## 1   9.488997  2.7157177  2.1463945 10.448731  11.082059   3.835975 7.2378438
## 2   5.516737  6.6379971  1.2895984 10.780614  10.541477   6.004540 9.9447150
## 3   5.217774  4.0324095  0.7921057  4.400463  10.691141   3.490865 0.4497462
## 4   2.898189  2.2112926  1.5931625 10.104797   8.635068   3.798019 3.3616140
## 5   3.894032  2.4217484  0.4815056 10.367553   8.309089   3.157674 3.9319761
## 6   6.346854 11.8562043 10.6854031  8.556578   4.407910  11.529876 1.0266584
## 7   5.277765  9.4340145 11.1639531 11.435868   9.120826   9.346129 6.4365467
## 8   8.663260  8.0052495 13.7596159 10.140454   5.497050   5.229288 0.0000000
## 9  10.535576  4.5765282  9.4138974  1.355355   6.676830   9.847245 0.0000000
## 10  1.394898  0.8598106  1.3948982  2.654527   3.584987   0.000000 0.0000000
##    rs_PPP1R1B rs_SLC5A8  rs_PTPRT    rs_CA9  rs_NXPH1  rs_MUC15  rs_SFRP1
## 1   12.344325 5.6141562  9.965838 0.5861162  3.495913 6.8662775 11.825586
## 2    7.219871 8.0260736  8.501892 4.6335242  2.760945 5.0026620 11.347218
## 3    7.087244 4.8295858 10.351931 0.0000000  1.675726 4.1559678 10.991993
## 4    5.297404 0.0000000  6.991786 0.0000000 10.623148 2.8179097  9.272980
## 5    9.917263 0.0000000 11.406076 2.2119778  1.130008 0.4815056  8.341169
## 6   13.202557 3.1342374  3.803930 8.2980387  0.000000 7.9505227 12.524434
## 7   10.155098 0.0000000  5.943631 2.0760117  0.000000 4.7041803 12.081038
## 8   10.018550 0.7617108  7.509142 7.9970061  0.000000 9.5427402 14.810752
## 9   11.161867 5.9370524  2.041699 9.3520670  0.000000 5.0308834 13.473901
## 10  10.303765 0.4930324 12.598863 1.4367482  5.592759 0.0000000  6.577735
##    rs_CALML3 rs_PPP2R2C rs_CNTNAP2      rs_C7 rs_SLITRK6  rs_PLIN4   rs_BEX1
## 1  9.5918927   9.873319   9.885785 10.9445654  10.158225  9.073195 4.8503094
## 2  8.9619367   2.205236   9.344277  4.1965520   7.350121  5.156668 3.1611460
## 3  8.6716023  10.562348   8.652057 11.0283264   8.103197 11.145712 8.2438837
## 4  5.4780108   7.915544  12.586292  8.9040731   5.267495  6.759052 0.4889263
## 5  6.8762935   9.646942  10.732571  8.7310824   5.565445  7.146185 4.1080309
```

```
## 6  9.6592335   2.745323   4.335633  8.7410193   4.635691  7.876033 3.3696200
## 7  7.6326659   3.857772   3.857772  8.9923481   5.142544  6.523786 2.1605653
## 8  2.7889989  10.006407   7.895760  4.6027835   3.756863  7.560540 2.8598106
## 9  2.6312207   8.018008   7.598070  0.6035967   5.683590  4.051929 3.8587966
## 10 0.4930324   1.784295  10.548670  7.1031199   6.767721 10.588915 2.2224027
##    rs_SCGB2A1 rs_CYP4Z2P rs_KLHDC7A rs_SLC6A4    rs_ORM1 rs_SCGB3A1 rs_C10orf82
## 1    8.347532  7.0122636  10.508928 6.3719961  1.9995671  5.6759062    8.110945
## 2    6.380986  7.0958548   4.591787 0.7843365  0.0000000  0.4448791    5.626279
## 3    5.036697  4.4252377  10.497754 1.0686020  1.0686020  1.5002922    6.348294
## 4   10.336261  0.8535167   2.442997 0.4889263  0.8535167  2.4429966    5.236956
## 5    9.334523  9.3031981  10.504485 7.6170994  0.8418926  3.6426669    8.276279
## 6    6.983207  6.5914954   2.364404 3.2170446  7.0581151 12.8722686    0.000000
## 7    2.842074  2.3901724   3.606916 3.5605071 10.8310467  5.6978377    2.390172
## 8    4.581984  0.0000000   2.714531 1.7799321  1.7309225  1.6259250    2.046002
## 9    1.847075  2.6312207   0.000000 0.6035967  1.3553546  3.2192150    0.000000
## 10   2.222403  7.3464579   8.571007 7.9700794  0.4930324  2.3431520   10.181547
##    rs_LRRC31   rs_HBA1   rs_PCK1  rs_RPS28   rs_ESR1 rs_CDC20B rs_PDZK1
## 1  7.9123265 1.0109946 4.7156628 10.547018 12.947072 8.6799213 8.839540
## 2  7.9627399 1.8188915 0.0000000  8.234184 10.333104 5.5615553 2.415164
## 3  3.2897017 6.7766567 6.8052512  4.242153 12.194072 1.3005338 8.787206
## 4  6.5388764 5.1246590 0.8535167  8.696683 13.647783 0.4889263 7.843885
## 5  1.3700527 1.0794976 0.0000000  2.620727 13.870330 6.8368356 9.786161
## 6  3.1342374 5.0170177 3.5075917  4.407910  9.926284 0.6028369 4.694674
## 7  1.7285301 1.4333334 1.3463045  9.859952  7.024519 0.4706150 3.057866
## 8  0.0000000 3.0389629 2.4648251  9.696365  4.883342 0.7617108 3.277003
## 9  0.0000000 1.0279325 2.2131295 10.664011  2.954959 0.0000000 2.631221
## 10 0.4930324 0.9719573 4.5738108  9.700659 13.743724 3.5351572 5.937754
##      rs_SYT9   rs_DLK1  rs_IGSF1 rs_MAGEA6    rs_GRPR   rs_FOLR1  rs_S100P
## 1  7.9046093 0.8928184 1.9995671 0.0000000 10.2564863  6.2874834  8.018631
## 2  7.8833178 0.0000000 6.3621069 0.0000000  2.9070252  4.6132311  6.917703
## 3  4.5876830 0.4497462 9.5629535 0.0000000  4.6094654  5.2597018  9.918025
## 4  0.4889263 5.6030210 2.3317912 0.8535167  3.1152330  3.3616140 13.008752
```

```
## 5  8.0361170 0.0000000 4.9031492 0.0000000  9.9954984  4.5103797  6.103279
## 6  1.0266584 1.0266584 1.0266584 0.0000000  1.6204457 10.6151030  9.399329
## 7  0.4706150 4.6608488 3.1856604 0.0000000  2.2799170  6.3019900  2.588205
## 8  2.5529426 0.4304994 9.6933383 0.4304994  1.7799321  5.6547334  8.913685
## 9  0.0000000 0.0000000 3.5098225 0.0000000  0.6035967  2.2131295  8.838204
## 10 9.0337556 0.0000000 0.4930324 0.0000000  6.4287739  0.4930324  4.979847
##    rs_CXCL13    rs_DCD rs_FOXI1   rs_DSC3  rs_MMP13 rs_COL11A1    rs_MIA
## 1   9.197355  0.000000 2.514097  8.805410  4.372019   7.723464  7.324223
## 2   7.195195  7.847570 4.432004  9.343475 10.495660  15.428795  6.322163
## 3   9.038700  0.000000 3.748150  8.789593  9.819843  10.318020  6.079984
## 4  13.888390  0.000000 6.500823  6.380236  3.755561   9.008341  3.530283
## 5   8.070544  5.399322 3.687721  6.655946  9.528880  13.222142  4.089007
## 6   9.712827 13.817452 7.863235  3.803930  2.039840   8.858523  8.306052
## 7  12.138191  0.000000 5.110693  8.356006  8.521094  10.836230  7.695587
## 8  10.511162  1.919111 7.003052 12.491466  2.714531   9.785468 10.539385
## 9   3.858797  0.000000 7.209766 10.714845  8.142592  11.455921 11.850903
## 10  4.669305  0.000000 4.112417  2.090616 10.308871  13.400911  2.662912
##    rs_SCARA5 rs_SERPINB5 rs_CD300LG  rs_ROPN1  rs_PYDC1 rs_ANKRD30B rs_CXCL17
## 1   5.192096    8.035218   6.444752  2.973519 3.9200360    7.363260  6.255482
## 2   2.314029    8.073265   2.835843  3.039682 0.7843365    2.509696  3.915043
## 3   6.322150    8.492708   7.899469  1.068602 0.4497462    2.613815  5.440706
## 4   6.487911    7.592698   4.787970  2.211293 0.0000000    7.000904 10.330849
## 5   2.421748    7.166220   1.370053  1.575796 5.5654449    6.806517  5.164517
## 6   3.633524    6.337631   3.692595 10.078677 5.7243010    0.000000 11.522264
## 7   4.903231    6.430110   4.638682  6.364098 0.8248086    3.512556  9.739506
## 8   6.486594   12.065932   2.927328 11.490584 3.1127335    0.000000  1.625925
## 9   1.622087   11.791504   1.622087 10.039694 0.0000000    0.000000  8.232561
## 10  6.307860    7.081584   6.329947  0.000000 0.0000000    3.768703  1.945570
##    rs_PLA2G2A   rs_DIO1 rs_NBPF4   rs_AQP7 rs_ABCA12  rs_GLRA3  rs_SAA2
## 1    9.278217  6.727361 1.192320 5.7466782  3.960299  1.999567 6.458872
## 2    6.060259  5.868472 0.000000 0.4448791  7.796926  1.663071 3.520221
## 3    8.150395  5.203522 8.133581 7.5955163  4.520290 10.621832 9.263136
```

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## 4    6.532604  3.993394 1.386094 3.1808798  3.798019  6.145539 3.115233
## 5    1.575796 10.535625 2.421748 0.8418926  6.678442  5.358108 2.951457
## 6    7.281367  2.852818 3.369620 4.0941347  5.280329  1.353888 7.134660
## 7    5.781137  1.887369 0.000000 1.7285301  3.303050  2.677892 7.751031
## 8    4.305803  2.859811 0.000000 2.3709454  3.470446  2.270559 6.640343
## 9    0.000000  0.000000 3.909562 0.6035967  3.751592  0.000000 3.909562
## 10   9.133407 10.984603 3.535157 6.4624908  2.090616  0.000000 5.504881
##      rs_CHAD  rs_ASCL1  rs_LRP1B rs_SLC5A1 rs_ATP13A5 rs_PTPRZ1   rs_WNK4
## 1  10.284012 0.0000000 1.8360857 8.2715667   1.836086  5.225518 12.320352
## 2   7.057254 0.0000000 3.5202211 5.1566676   3.982519  4.655192  8.595678
## 3   8.922782 0.7921057 4.3752550 3.5818212   1.675726  3.117994  8.640083
## 4  11.670077 7.7113084 6.5941409 3.5719923   1.144242  2.331791  8.292155
## 5   9.684243 0.0000000 2.3109217 4.0401648   2.421748  3.023522  9.862373
## 6   3.692595 0.0000000 1.8453495 9.3960006  10.494246  4.049648  1.777115
## 7   6.397481 0.8248086 0.4706150 6.9135190   4.037918  3.895642  5.066378
## 8   3.600210 3.6410026 2.4648251 7.7588621   1.625925  7.754223  4.279954
## 9   6.031748 1.3553546 1.8470749 7.7485538   2.854913  3.509822  4.976689
## 10 10.468802 0.8598106 0.8598106 0.4930324   0.000000  1.394898 12.526292
##     rs_CST5  rs_PEG10  rs_CLIC6 rs_MS4A15 rs_ABCC8 rs_PPAN.P2RY11 rs_SORCS1
## 1  2.806881  8.435851 11.526563 9.8600791 7.546333       5.722769 7.6576493
## 2  0.000000 11.121915  7.061161 0.0000000 8.069391       4.761594 3.1016837
## 3  1.300534 10.506124 10.287521 2.9230351 4.693448       4.663982 6.2125616
## 4  7.299487  7.058801  5.411196 4.1326262 8.017892       5.128491 8.0922878
## 5  0.000000 14.331636 12.483022 7.0197453 8.426710       7.044983 6.0610979
## 6  0.000000 11.433066  8.041375 1.3538878 1.026658       0.000000 2.3644043
## 7  0.000000  8.501270  5.869437 0.4706150 4.807139       7.745986 2.8420737
## 8  0.000000 14.706249  4.795746 0.4304994 0.000000       0.000000 6.1825632
## 9  0.000000  9.087271  5.162279 2.5048492 0.000000       8.309660 0.6035967
## 10 6.247252 13.497588 11.548385 9.3407011 6.421935       4.726373 9.8983762
##    rs_NKAIN1   rs_SAA1 rs_SLC44A4  rs_RBP4 rs_ARHGAP36 rs_SDR16C5  rs_GSTA1
## 1   8.773282  8.532488  11.543019 6.992985   0.0000000   2.715718 0.8928184
## 2   5.626279  6.028684  10.680037 2.509696   0.0000000   8.128303 4.3059632
```

```
## 3  11.042407 11.296836  11.501083 8.856016   4.1559678   9.506027 3.2347159
## 4   7.686094  6.769759  12.661615 3.522206   0.0000000   9.507754 1.3860936
## 5   8.917573  5.907691  10.854274 2.059909   2.4217484   9.161665 0.4815056
## 6   3.369620  8.222639   3.571932 4.094135   0.0000000   4.372221 5.9468385
## 7   3.462968 10.256370   6.199729 7.338225   4.8463479   2.390172 3.9685332
## 8   5.174778  7.675429   3.470446 5.892865   3.6002103   3.277003 5.7510298
## 9   7.570732  7.952947   2.631221 3.371824   0.0000000   8.916299 4.3745387
## 10 11.460388  7.257065  12.093860 7.186187   0.4930324   6.871761 1.7842946
##       rs_TF rs_C2orf54   rs_LY6D rs_S100A7A  rs_KRT15 rs_CYP4F22 rs_GLYATL2
## 1  9.380979  9.0535556 1.9995671   0.000000  9.793387 11.9018640  5.9503121
## 2  5.516737  6.6379971 1.0590091   0.000000  9.646874  7.5744429  7.7685330
## 3  8.097427  5.4407064 1.0686020   1.832120  8.320169  3.7481499  4.8295858
## 4  3.417150  7.0761582 2.2112926   0.000000  8.163035  2.8981890  0.4889263
## 5  5.999892  6.9004176 2.4217484   0.000000 13.052273  3.6877214  5.3993215
## 6  7.440602  3.2953410 8.3519379   2.952837 12.505127  1.0266584  9.1769231
## 7  7.612906  5.3613473 5.2920344   2.030407 12.733787  5.8694372 10.1879031
## 8  5.044031  2.7889989 4.0268355   0.000000 13.778411  1.4534912 10.6349478
## 9  7.702516  3.9585922 0.0000000   0.000000 12.434968  0.6035967  3.7515923
## 10 5.104672  0.4930324 0.4930324   0.000000  8.663782  8.6256004  6.3372348
##    rs_BBOX1  rs_CAPN8 rs_SOSTDC1 rs_TMPRSS4    rs_DSG1 rs_CASP14   rs_LCN2
## 1  6.154984 8.6662943  5.3519639  2.4016305  2.2796496 0.0000000 3.9602986
## 2  6.098780 7.4156716  7.5907517  2.9070252  4.2246963 0.4448791 4.9361432
## 3  5.675655 8.7740052  5.7657071  7.2381859  2.2197106 2.4301782 6.1320791
## 4  4.099060 7.1680593  3.7555606  1.7742494  1.5931625 0.0000000 1.1442422
## 5  3.548104 8.4100027  3.1576743  2.5246655  2.1908677 4.0401648 4.5596876
## 6  9.361152 6.1606661  7.7000943  4.4767446  4.8583938 0.0000000 8.2548425
## 7  7.569630 3.1856604  3.8956419  0.8248086  5.0106859 2.9894660 7.3139532
## 8  9.282511 0.4304994  7.8999671  0.4304994 12.7570409 0.0000000 4.9169447
## 9  3.635766 0.0000000  9.7347428  7.9529468  2.0416986 0.0000000 9.4919621
## 10 0.000000 6.4954377  0.8598106  0.8598106  0.4930324 0.0000000 0.4930324
##    rs_PGLYRP2  rs_SPAG6  rs_CAPN6 rs_TMEM132C  rs_CCL21    rs_PI3 rs_SLC7A4
## 1    8.629313 0.8928184  7.321366    7.499284  6.756235 1.4402081  7.336741
```

```
## 2    4.455945 0.4448791  3.880078    3.039682  6.393435 0.7843365  5.647222
## 3    5.174590 4.2968758  6.795783    6.776657  8.890897 1.0686020  7.418662
## 4    2.642609 0.8535167  5.894750    4.319127  7.838810 1.7742494  6.487911
## 5    6.297457 0.4815056  3.393512    3.157674  6.462105 1.1300083  5.180367
## 6    4.981930 1.0266584 10.495283    4.298086 11.133022 5.0736617  1.026658
## 7    1.346305 2.0304067 12.586067    3.651867  8.154014 6.8425741  2.030407
## 8    1.030830 1.6259250  7.963652    1.919111  6.841841 1.2575538  2.270559
## 9    0.000000 0.0000000  4.576528    1.622087  6.302542 2.5048492  6.937512
## 10   6.239492 0.4930324  4.078029    4.863522  5.928133 0.4930324  6.057316
##     rs_NBPF6 rs_MAGEA3 rs_TSPAN8 rs_SCUBE2 rs_SLC19A3   rs_KLK8  rs_RIMS4
## 1  0.0000000 0.0000000 1.4402081 12.607789   5.723471 4.3594228  7.957783
## 2  0.0000000 0.0000000 1.0590091 12.411103   2.598389 4.7673423  4.774213
## 3  6.5644437 0.0000000 8.4912426 11.634049   7.831590 4.3752550  9.257973
## 4  0.0000000 0.0000000 7.1841573  7.426718   3.711814 1.5931625  5.782920
## 5  0.0000000 0.0000000 2.3109217 13.674621   3.687721 0.4815056  8.732427
## 6  0.6028369 0.0000000 6.8916452  6.717719   6.118208 3.6925946  3.692595
## 7  0.0000000 0.4706150 4.2574406  8.993440   4.704180 2.3901724  4.167422
## 8  0.0000000 0.4304994 1.4534912  6.339478   4.702486 3.8853108  6.216692
## 9  0.0000000 0.0000000 5.8872669  7.234863   5.119796 8.1818390  7.621097
## 10 2.4545971 0.0000000 0.8598106 12.214649   5.592759 0.0000000 10.573183
##    rs_ROPN1B  rs_MSMB   rs_IL20 rs_NEK10  rs_EDN3 rs_SLC13A2 rs_S100A8
## 1  2.8068808 8.081586 6.3794390 8.647922 8.141909  6.3110289  1.651683
## 2  3.3771237 4.252295 2.4151637 4.279382 4.936143  2.8358432  3.273173
## 3  1.5002922 5.300446 4.3752550 6.282025 2.430178  1.6757256  4.987639
## 4  2.3317912 5.326703 1.1442422 3.243669 2.442997  2.4429966  2.546240
## 5  1.1300083 5.358108 4.9221265 6.993071 1.370053  1.9158650  3.280407
## 6  9.7047790 7.787361 2.8528179 2.364404 4.219935  9.5596270  9.378119
## 7  4.8463479 1.346305 1.8873693 3.123186 7.521991  3.3583541 10.514727
## 8  9.7410178 3.327845 0.7617108 2.552943 7.815635  0.4304994  7.500857
## 9  9.9845317 2.747387 0.0000000 2.954959 4.096431  5.9492338  6.283424
## 10 0.4930324 5.580528 6.2854281 3.316595 0.000000  0.4930324  5.187653
##    rs_TRIM29   rs_SYT8    rs_ORM2  rs_PON3  rs_FAM3B    rs_FGB rs_S100A9
```

```
## 1  10.534572 6.8768337  0.5144000 8.529096  8.108708 0.0000000  4.401562
## 2  10.014380 5.5504821  0.0000000 2.681966  3.564939 0.7843365  5.963379
## 3   9.457312 6.4116550  0.4497462 7.114159  4.609465 1.8321204  6.288790
## 4   8.008882 2.4429966  0.0000000 1.935083 11.452869 0.0000000  5.369568
## 5   7.542413 3.7314114  0.0000000 1.130008  5.465498 0.8418926  4.762827
## 6   9.591014 7.9012923  8.6452175 6.614588 10.514849 0.0000000  8.985003
## 7   9.207137 7.2274937 10.5192834 5.840599  5.869437 1.1090262 11.261910
## 8  11.338094 7.7518968  0.5484366 0.000000  4.403861 0.0000000  8.393248
## 9  11.090446 0.6035967  3.0485326 6.748291  5.357735 0.0000000  7.570732
## 10  2.986611 0.0000000  0.4930324 1.945570  6.231692 0.0000000  5.397423
##     rs_LPPR3  rs_HS6ST3 rs_SERPINA5  rs_WFDC2 rs_CHRDL1   rs_ZIC1   rs_CST4
## 1  8.9310179  9.2368164    9.864727  9.365133  7.766676 7.1360642 10.618738
## 2  4.5254613  8.2984824    7.999852  7.017591  4.138569 3.7310963  6.374720
## 3  9.5168736  8.2263693   12.931184  9.276813  9.818674 0.0000000  3.055890
## 4  2.8179097  0.8535167   13.455387  9.170651  8.144643 0.0000000 12.984683
## 5  7.1582401  8.6451760   10.549803  6.562279  5.478376 1.1300083  3.393512
## 6  0.0000000  4.1792085    5.426681 13.285460  8.351938 2.9528367  3.956317
## 7  1.1090262  0.8248086    6.918127 10.659349  7.331332 0.0000000  3.358354
## 8  0.4304994  7.7726926    3.112733  6.655353  8.014980 8.1196939  2.552943
## 9  5.9851771  6.1941107    1.355355 12.463516  7.066135 5.2826993  1.622087
## 10 6.8413291 10.0290071   10.233247 11.425981  7.677420 0.8598106  5.753923
##    rs_PCOLCE2 rs_NCRNA00052  rs_ERBB4 rs_C2orf40   rs_DARC rs_C16orf89
## 1    5.381917      6.394211 11.029807   7.755279  9.895552    4.973460
## 2    2.974878      3.650408  9.899606   6.405778  4.969786    1.488412
## 3    8.344726      5.391266  8.813249   5.755974 10.274798    5.868645
## 4    3.115233      0.000000 10.860462   4.584692  8.158968    6.519976
## 5    2.421748      0.000000 10.672550   4.583724  7.447365   11.474162
## 6    7.387964      0.000000  5.636775   1.845350  7.739143    5.994564
## 7    7.131559      1.109026  5.539379   6.370837  9.049117    6.523786
## 8    8.849879      1.919111  6.987323   7.056794  6.497740    2.370945
## 9    6.836196      1.027933  1.355355   6.131340  2.854913    4.051929
## 10   6.783813      3.193504 10.090678   2.343152  7.761085   10.579343
```

```
##     rs_ACTL8   rs_TMC5 rs_ABCA8 rs_SLC9A2 rs_COL10A1  rs_FOXJ1  rs_ANXA8
## 1  1.6516832 10.750501 6.295374 6.9734437  10.775751 8.8381898 7.3595018
## 2  0.0000000 10.232753 6.342980 1.4884122  14.358588 5.6156900 7.1844886
## 3  0.0000000  8.285070 8.772799 4.6520677  10.669270 1.8321204 9.1101523
## 4  0.4889263  3.918386 6.882576 0.8535167   9.106635 1.1442422 5.0737260
## 5  1.9158650 11.333068 5.242080 7.8455001  12.853613 8.4283702 5.9896749
## 6  8.6264059  9.235200 5.241295 4.5741984  10.651379 0.6028369 8.0611217
## 7  0.0000000  6.752563 4.903231 5.1737071  10.377170 1.5500634 6.7831947
## 8  5.2557915  1.453491 1.257554 4.1449682   8.403655 1.6259250 5.3324967
## 9  0.0000000  1.027933 1.847075 2.0416986  11.006951 0.6035967 9.5709547
## 10 0.0000000 10.416863 6.462491 0.4930324  12.296380 3.4300176 0.6435792
##    rs_THRSP rs_ABCC13 rs_MARCO rs_PPP1R1A  rs_PI15  rs_WDR72 rs_AKR1C2
## 1  6.661727 3.8786175 2.514097   8.255477 6.263549 2.2796496  5.835947
## 2  6.546201 0.0000000 2.087599   6.926296 6.052429 1.0590091  4.279382
## 3  7.015639 1.5002922 1.500292   7.949430 5.956247 2.3287790  8.833056
## 4  8.351237 0.0000000 3.993394   3.115233 5.706959 8.4969025  4.928385
## 5  8.972085 6.0438738 2.059909   6.347451 7.599524 0.0000000  4.653519
## 6  7.872844 0.6028369 5.494643  10.986559 6.766646 0.6028369  8.751475
## 7  4.003647 0.4706150 8.357703   4.522451 9.982156 1.8873693  3.651867
## 8  2.927328 0.0000000 9.580579   9.638375 7.034007 2.8598106  3.224287
## 9  2.213130 0.0000000 4.139592   6.775913 9.750492 1.0279325  9.413897
## 10 5.171435 1.1519887 6.387245   6.057316 5.879042 9.7265603  6.841329
##     rs_SPDYC rs_ATP6V0A4 rs_ALOX15B  rs_TRPA1 rs_ELOVL2 rs_SLC26A3 rs_LGALS12
## 1  0.8928184    6.507236   9.395735 0.8961556  4.850309  5.9799910  5.3519639
## 2  0.0000000    4.046980   8.600491 2.6876430  4.525461  9.1806273  0.4448791
## 3  2.6138145    4.987639   6.978458 1.5002922 11.236874  3.7083307  5.3400708
## 4  0.0000000    1.935083   4.376290 1.1599520 10.756301  1.9350825  3.5222064
## 5  7.6141849    4.140803   7.906328 3.7014049 11.801363  3.1576743  2.9514572
## 6  4.5099618    8.791896   2.745323 0.6223682  4.335633  0.6028369  4.2980864
## 7  0.8248086    5.027844   6.936413 4.6386821  3.185660  1.8873693  1.5500634
## 8  0.0000000    5.417117   4.623282 3.8981503  5.268861  0.0000000  2.2705588
## 9  0.6035967    5.899874   3.858797 1.6220870  7.009087  0.0000000  0.0000000
```

```
## 10 0.4930324    2.454597   5.764776 5.1309103  9.734862  1.3948982  5.0346735
##    rs_SMYD1    rs_TRH   rs_SYTL5  rs_KNDC1 rs_CHIT1   rs_HGD rs_CHST8  rs_VTCN1
## 1  1.440208 1.1923204  6.4588725 5.0869154 5.675906 8.858305 7.588688 10.866273
## 2  2.681966 1.6630713  8.2009275 1.8188915 3.949171 8.612522 2.415164 12.648143
## 3  1.500292 3.7083307  7.2658822 6.9909583 6.448377 7.606390 6.062718 10.775752
## 4  3.711814 7.6633062 10.4121182 0.4889263 5.706959 7.392487 6.940585  4.928385
## 5  2.620727 3.9319761  6.8956250 3.5481037 6.260656 6.743901 7.920554 13.418577
## 6  3.134237 3.1342374  4.8839629 0.6028369 2.952837 6.745880 2.502840 11.849934
## 7  5.440351 0.8248086  2.6778916 1.5500634 8.983582 5.361347 1.728530 11.705961
## 8  5.174778 1.0308304  0.7617108 0.4304994 8.009150 1.257554 5.417117 12.093515
## 9  4.911438 0.0000000  5.8487656 1.3553546 1.622087 0.000000 1.622087 12.727193
## 10 0.000000 3.4835449  7.1031199 0.0000000 1.784295 1.784295 1.945570  9.164468
##      rs_ROBO2  rs_MRAP rs_INSM1  rs_HOTAIR rs_C14orf180   rs_PKP1    rs_CR2
## 1   7.2088918 2.340733 4.458894  8.2854993    3.3214231 10.287477 3.5496815
## 2   5.8323508 0.000000 0.000000  0.7843365    0.0000000  7.406488 0.7843365
## 3   3.2897017 4.966020 1.675726  3.5370599    5.4885054  8.443533 3.9664212
## 4  10.6294076 0.000000 8.434344  0.0000000    1.3860936  6.169995 1.5931625
## 5   4.3514587 0.000000 3.968948  7.0631340    0.0000000  6.706079 7.6881090
## 6   3.2170446 1.101852 3.633524  7.7668933    2.9528367  5.710076 8.8840881
## 7   0.8248086 0.000000 2.492571  5.6543124    1.3463045  6.967866 7.6631802
## 8   5.0741243 1.242816 2.788999  6.2826159    1.4534912 12.114823 4.2802140
## 9   0.0000000 0.000000 3.219215  8.4214867    0.6035967 12.073168 4.7256267
## 10  3.7687031 3.425097 5.155033 10.8004473    3.5849865  5.354970 1.3948982
##     rs_NPY2R   rs_SYT1 rs_GPR98 rs_ALDH1L1 rs_LOC100271831   rs_BCAS1 rs_HOXC11
## 1  1.1923204  5.351964 8.891220   6.231006        0.000000  8.9208518  8.432277
## 2  0.0000000  6.562830 7.883318   2.509696        0.000000  9.5687551  3.769803
## 3  1.6757256  5.939149 7.603679   6.883319        4.334246  7.2206018  4.473547
## 4  0.4889263  8.773173 8.171135   2.079771        5.220345 12.9013233  0.000000
## 5  1.3700527  6.831827 8.796819   1.575796        0.000000  8.7942459  6.340415
## 6  0.0000000  5.590937 8.388125   6.752836        7.305267  6.8337819  7.309943
## 7  2.6778916  4.198054 4.136118   2.030407        3.122540  5.1737071  5.388165
## 8  2.0460020  3.756863 4.450492   2.464825        0.000000  2.7889989  7.112236
```

```
## 9  0.0000000  1.622087 1.622087   2.366364        5.242279  0.6035967  8.354364
## 10 0.0000000 11.309693 8.967199   4.497804        0.000000  9.5179148  8.910919
##    rs_LOC728606 rs_HORMAD1   rs_SLPI rs_HEPACAM2 rs_ANXA8L2 rs_FREM2 rs_ATP1A2
## 1      5.140464   1.999567  7.743791    5.031303  5.7466782 2.279650  5.575796
## 2      1.818891   0.000000  5.912386    4.755048  6.1063630 4.332071  3.474086
## 3      3.748150   0.000000  8.362473    5.803994  6.8562450 7.865929  7.753039
## 4      9.974910   0.000000  8.287469    8.643825  4.4040516 8.407170  6.973377
## 5      2.795538   0.000000  5.385714    6.035184  5.1158947 8.663617  4.294341
## 6      4.909082   8.524424 13.824329    1.353888  5.3735229 6.328348  4.372221
## 7      1.550063   7.135521 13.608576    1.728530  5.3061674 1.887369  3.818871
## 8      1.625925   8.408093  9.180722    0.000000  4.4273648 9.873135  2.464825
## 9      3.909562   7.819951 10.122040    1.027933  6.6397256 8.368041  0.000000
## 10     2.090616   0.000000  3.256362    7.331939  0.8598106 9.165492  3.535157
##     rs_FSIP1 rs_PIK3C2G rs_CYP4B1  rs_TUBA3D  rs_FOXA1   rs_NAT1    rs_CA4
## 1   8.049286   6.401540  7.989744  9.9812066 12.696589 12.982938 0.5144000
## 2   4.969786   6.180072 11.720006  7.8293593 12.464073  8.699063 0.4448791
## 3   4.296876   4.126056  8.192495  5.7363099 12.638795  8.172513 5.2318855
## 4   6.872676   4.889644  4.608744 13.1380180 13.753339  7.292080 0.4889263
## 5   6.043874   4.108031  8.507462  2.5246655 13.444034 10.464187 0.0000000
## 6   1.620446   8.591914  2.211230  0.6028369  7.879214  6.281021 0.0000000
## 7   1.728530   5.189038  3.358354  2.2799170  8.492028  5.361347 1.1090262
## 8   2.270559   7.826726  1.257554  1.6259250  3.680662  4.795746 0.0000000
## 9   2.041699   3.635766  3.958592  0.0000000  5.809211  6.321410 0.0000000
## 10 11.436623   1.784295 10.949367  4.5738108 13.745351 11.273110 4.0066930
##     rs_KRT13   rs_CCL19 rs_PPP4R4  rs_TTYH1    rs_EPYC rs_SLC28A3 rs_TIMP4
## 1  0.8928184  9.5187910 1.6516832  4.074754  1.4402081  1.6516832 6.709755
## 2  2.5983890  1.9594734 1.2895984  5.877361 10.1870021  4.5026616 3.377124
## 3  4.9539822  8.7931660 1.9732072  3.708331  3.7481499  2.2197106 7.643814
## 4  0.4889263  6.4215616 1.7742494  2.211293  0.8535167  0.4889263 4.584692
## 5  5.2866927  7.1977111 7.5362674  3.855063  7.2208861  2.1908677 1.575796
## 6  1.6204457  9.8967595 2.9528367  3.046386  0.6028369  7.4057244 3.295341
## 7  0.8248086 11.1387582 0.8248086  5.334021  7.0749100  5.7504618 2.762306
```

```
## 8  0.0000000  7.9796407 6.3518156 11.637489  4.4038608  3.5582431 5.751030
## 9  1.6220870  0.6035967 2.0416986 10.359067  3.9585922  3.0485326 1.622087
## 10 4.3897939  7.1493976 4.8431899  2.343152  5.1046721  1.6026944 5.465517
##     rs_AGTR1 rs_IGDCC3 rs_FGFBP1 rs_HSD17B2 rs_SLC7A2  rs_VSIG2 rs_FLJ45983
## 1   5.601483 4.3418577 1.4402081  2.7157177 11.791121 4.7619554    3.321423
## 2   7.068943 2.9070252 2.3140294  2.4151637 12.855548 2.5096958    4.811800
## 3   7.418662 8.4750200 0.7921057  2.3287790 13.952654 4.6309238    5.286992
## 4   5.740005 1.1442422 2.5462401  2.8179097 14.968028 2.2112926    9.142091
## 5   6.128009 6.7385584 2.9514572  3.8550628 10.412281 8.3464468    7.247461
## 6   2.502840 1.3538878 3.7493305  7.7144166  6.418588 1.0266584    4.049648
## 7   4.660849 1.1090262 4.2862454  6.1691293  8.392889 4.3421778    2.842074
## 8   2.370945 0.4304994 4.0572856  2.5529426  7.622951 0.4304994    1.779932
## 9   2.747387 2.8549133 6.1525688  5.2436653  6.925229 0.0000000    0.000000
## 10 12.013970 9.4615060 0.0000000  0.4930324 11.968640 1.6026944    9.948015
##    rs_KIAA0408  rs_FAM5B   rs_GLDC rs_FAM196A  rs_PNMT rs_CYP4X1 rs_NCCRP1
## 1     3.648109 5.0686149 1.8360857   9.226536 6.018636  5.104987  5.909766
## 2     2.565329 2.9070252 1.8188915   4.695966 8.039998  5.505313  3.273173
## 3     5.878904 2.9909912 8.0323979   5.259702 8.845730  5.259702  6.501766
## 4     0.000000 9.5825344 0.4889263   8.904073 1.935083  5.834830  3.571992
## 5     0.000000 2.0599090 8.8473330   5.888522 3.393512 10.373598  5.917181
## 6     0.000000 0.6028369 6.5914954   1.845350 1.353888 10.375909 11.003425
## 7     4.758223 0.8248086 6.2949221   5.527368 3.895642  2.989466  5.094498
## 8     3.852338 1.4534912 9.2589582   2.370945 2.046002  3.515019  9.216581
## 9     3.442466 6.7827375 4.6678240   1.355355 2.213130  9.738257  4.139592
## 10    2.497893 5.0346735 3.5849865   7.103120 7.085916  9.000861  3.584987
##    rs_TMPRSS6  rs_KRT23 rs_CNTFR  rs_MS4A1   rs_PAX7 rs_UGT2B15 rs_MMP12
## 1    4.567144  9.843357 5.663766  5.758143 8.5408096   4.784556 1.192320
## 2    5.018826  8.623132 1.059009  2.760945 0.4448791   6.091158 3.101684
## 3    9.199034  9.580981 6.373974  5.633754 0.7921057   5.511825 7.537047
## 4    6.421562  6.052144 3.046439  3.711814 0.0000000   5.221436 1.774249
## 5    5.257105 11.677877 7.530096  8.248356 0.4815056   4.004996 3.731411
## 6    1.620446 12.376362 4.442738  9.560618 0.0000000   4.605269 5.180693
```

```
## 7    2.588205 11.002749 3.358354 10.148740 0.4706150   5.821049 8.134347
## 8    1.453491 13.085291 9.260595  6.037356 0.4304994   0.000000 8.073883
## 9    3.136388 11.915819 8.283967  0.000000 0.0000000   0.000000 4.479069
## 10   5.250765  4.242320 4.714779  3.679762 0.0000000   3.892595 3.256362
##     rs_GRB14    rs_FGG rs_C2CD4A rs_TFPI2 rs_ZBTB16   rs_ART3  rs_NPY5R
## 1  2.5140970 0.0000000 2.5140970 6.128726  8.996616 0.5144000 0.8928184
## 2  0.4448791 0.0000000 8.4190720 3.691311  6.653606 0.4448791 0.4448791
## 3  7.8816781 4.0643052 3.1179942 4.296876  8.534582 0.4497462 4.9709089
## 4  2.8179097 0.0000000 1.1442422 3.361614  5.326703 0.4889263 4.3762904
## 5  2.9514572 0.0000000 3.3380678 5.503794  5.099316 1.3700527 3.4983913
## 6  9.5336124 0.6028369 3.8039296 6.222099  2.745323 8.7091910 5.5435949
## 7  9.3245971 0.4706150 6.6784508 6.081470  4.725365 6.2949221 0.4706150
## 8  7.8178605 0.4304994 0.7617108 4.495670  2.927328 7.3552648 2.0460020
## 9  2.0416986 0.0000000 3.1363883 1.027933  0.000000 8.7539030 7.6586764
## 10 5.0346735 0.0000000 0.4930324 4.078029  4.042802 0.4930324 2.2224027
##    rs_DCDC2  rs_PCSK1N rs_UGT2B28 rs_PPP1R14C rs_ONECUT2     rs_DCX  rs_RGS22
## 1  2.401630  3.7920328  1.1923204    4.180792  3.0501360  8.0281326 4.4588938
## 2  6.955975  3.8442450  1.9594734    6.060259  2.2052361  2.2052361 8.3991463
## 3  9.537550  3.2347159  0.7921057    5.416198  4.1559678  3.0558898 4.2139927
## 4  8.444688  0.4889263  1.3860936    2.079771  2.2112926  1.9350825 8.1071396
## 5  7.528889  2.7955384  1.1300083    4.535244  2.5246655  0.4815056 5.2571049
## 6  3.217045  6.6817275  1.8453495   10.790957  3.2170446  6.1606661 1.6204457
## 7  6.142599  3.1231861  0.0000000    8.305901  6.4365467  7.9951781 2.4925711
## 8  3.073340  4.9976718  0.0000000   12.126426  4.1163315 10.6355786 0.7617108
## 9  3.371824 11.0000135  0.0000000    7.943843  5.7822251  1.0279325 0.0000000
## 10 0.000000  1.1519887  0.0000000    1.151989  0.4930324  1.6026944 7.8554721
##     rs_GJB1 rs_C1orf173  rs_RBM24 rs_TRPV6 rs_ATP13A4 rs_AKR7A3 rs_C19orf33
## 1  5.920010   5.2419431 10.468932 4.691947   2.279650 10.493148   10.794691
## 2  3.273173   0.7843365  2.598389 5.050615  11.222156  2.681966    9.426565
## 3  3.537060   2.6138145  8.391051 4.609465   2.776694  8.897552   10.131319
## 4  2.442997   3.6201172  7.335969 2.442997   1.593163 10.497130   10.101288
## 5  5.767827   8.2445917  8.454676 5.601209   3.687721 10.607727    7.988388
```

```
## 6  3.134237   1.8453495  4.298086 9.901462   8.721652  4.665484    8.079496
## 7  3.651867   2.7623063  4.257441 8.241179   2.842074  3.358354    5.310940
## 8  3.224287   1.6259250  1.919111 9.270377   3.327845  2.859811    1.698841
## 9  5.513525   0.0000000  1.847075 7.288587   2.504849  5.782225    4.788268
## 10 1.151989   1.7842946  8.525475 1.394898   1.784295 11.130168   10.389497
##      rs_KRT4    rs_DES rs_TMPRSS3   rs_ZIC2    rs_OGN rs_C3orf57 rs_CACNG4
## 1  0.8928184  2.146395   9.315556 8.0138564  8.918299   8.124297 11.854748
## 2  2.5983890  1.818891   5.034806 1.4884122 12.380161   7.384829 12.144098
## 3  1.3005338 10.010462   6.308898 1.9732072  9.682732   8.217532 10.941901
## 4  0.4889263  1.774249   4.829505 1.3860936  7.893683   5.772311  8.728591
## 5  1.3700527  2.710790  10.684756 1.9158650  9.590972  11.565442 11.845677
## 6  0.6028369  9.134948   9.118887 0.0000000  5.621656  11.893069  4.137299
## 7  1.1090262  5.414494   7.033041 8.8537072  6.480826   4.104127  5.597990
## 8  0.0000000  5.841296   7.385582 8.5024134  3.558243   3.793501  7.498085
## 9  1.0279325  4.222233   9.329037 7.5941962  4.576528  10.737852  4.860744
## 10 0.0000000  1.784295   8.563258 0.4930324  9.233469  11.959224 12.451658
##    rs_LOC642587 rs_ATRNL1    rs_AFP   rs_NDP rs_GABRB3   rs_LRG1   rs_AREG
## 1      8.060904  3.258232 1.1923204 3.381962  4.486727 10.249395 10.205054
## 2      7.518709  8.253093 3.5649390 4.196552  4.848438  6.518052 10.073601
## 3      6.014552  7.206379 4.5876830 3.966421  4.323478  6.183812  7.279534
## 4      4.808890  1.935083 0.4889263 1.144242  6.916698  9.598388  5.980210
## 5      8.044801  5.945282 2.7955384 8.530832  4.264912 10.561575  9.506264
## 6      7.324022  2.952837 0.6028369 3.217045  2.039840  9.684916  6.977280
## 7      6.803261  2.030407 0.8248086 8.425619  2.030407  5.791220  5.388165
## 8      2.927328  8.634514 0.0000000 6.351816  9.502499  3.470446  5.722810
## 9      8.948516  7.713272 0.0000000 4.638027  5.835702  1.027933  6.829620
## 10    10.059621  3.724912 4.8635222 8.047656  3.852468  7.809050  8.352847
##    rs_GRIK3  rs_TPRG1 rs_AKR1B10    rs_IGJ   rs_PSCA    rs_DKK1  rs_GRIA4
## 1  7.865391  7.241933  1.8360857 13.790641 8.1309262  3.2582325 6.8395439
## 2  7.451834  7.049409  3.3771237 11.101667 5.5053130  4.5254613 4.8664085
## 3  9.988292  6.062718  7.1065200 12.968732 7.2521005  5.3269831 3.7868995
## 4  8.062117 10.098440  1.3860936 11.859761 0.4889263  1.3860936 3.5222064
```

```
## 5  9.482490  6.253182  2.4217484 11.029934 9.5693170  5.7252422 2.5246655
## 6  5.299453  4.407910  1.3538878 11.458017 7.4362885  6.9350978 3.7493305
## 7  5.770985  5.061556  0.4706150 14.317628 7.7458565  2.7623063 5.2777654
## 8  3.224287  3.793501  0.7617108 11.392664 3.4704458  5.0741243 0.4304994
## 9  4.006020  3.635766  2.2131295  8.959098 4.2618467 11.0000135 0.0000000
## 10 8.772616 11.293158  1.7842946  6.373133 4.2423205  0.8598106 0.0000000
##    rs_CYP2A7   rs_COMP   rs_TSIX  rs_GRM4  rs_FIGF rs_HRASLS5  rs_FAT2
## 1  4.6678354 11.396651  4.665887 4.372019 1.999567   8.011463 8.396041
## 2  2.2052361 13.642377  3.573278 1.663071 1.663071   3.880078 9.128518
## 3  0.0000000 11.555223  5.382055 5.534774 6.205428   6.169220 7.117963
## 4  1.9350825 10.018770  3.939029 8.755775 4.678590   7.556055 5.684499
## 5  0.0000000 12.289828  5.852471 5.226898 1.130008  11.320160 6.455607
## 6  0.0000000 12.514237 10.807005 3.507592 3.956317   6.470140 8.121480
## 7  0.8248086 11.810035  6.947545 3.651867 4.746248   4.228057 7.282135
## 8  0.0000000  9.408185  7.821524 4.116331 2.927328   4.026835 8.793334
## 9  0.0000000 11.211388  9.658607 2.747387 2.854913   6.775913 6.748291
## 10 0.4930324 12.820789  8.275573 6.846446 1.945570   9.231514 2.343152
##      rs_CCNO rs_ADCY5  rs_TDRD1    rs_F7   rs_TPSG1     rs_C6 rs_KRT6C
## 1  9.6705975 8.823258 0.5144000 9.100474  8.2330564 5.8785905 4.784556
## 2  7.3533118 6.236443 1.2895984 6.460051  2.0875986 0.7843365 2.760945
## 3  3.3937868 7.938715 2.1017173 2.697551  1.8321204 5.3269831 2.851719
## 4  0.4889263 6.950031 0.8535167 1.935083  1.1442422 3.9183862 1.144242
## 5  7.9806240 6.326237 2.3109217 6.885992  8.0026766 3.0921567 1.575796
## 6  5.5595469 3.803930 1.3538878 1.353888  0.0000000 2.8528179 6.346854
## 7  4.7871242 4.593306 9.9543854 2.588205  1.3463045 4.8071385 4.104127
## 8  3.4704458 5.118123 0.7617108 2.162661  0.0000000 2.1626612 3.112733
## 9  4.8607443 1.027933 0.0000000 1.622087  0.6035967 0.6035967 6.340035
## 10 4.9033517 6.358881 8.0498752 2.454597 10.3309299 5.1550327 0.000000
##     rs_ACTG2   rs_LGR6  rs_S100B rs_ADH1C  rs_FUT3 rs_CARTPT rs_POF1B rs_PRSS21
## 1   9.306799  8.888614  6.326514 5.336751 5.086915  0.514400 5.086915  2.806881
## 2   8.907640  7.758943  4.432004 1.959473 2.907025  0.000000 8.105783  1.663071
## 3  10.037829  4.733674  7.027823 6.070591 2.328779  0.000000 6.176534  2.524916
```

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## 4   7.972268  4.347992  3.571992 3.956373 3.798019  1.935083 8.126013  1.386094
## 5   7.482947  7.158240  3.773817 3.338068 3.731411  0.000000 7.280925  1.370053
## 6  10.425177  5.073662  7.820841 2.211230 7.840563  0.000000 6.820603  5.909979
## 7   8.620570  7.551950  9.590868 1.550063 5.453109  0.000000 3.606916  4.787124
## 8  15.539413 10.361711  9.457540 0.000000 6.097204  0.000000 2.162661  2.046002
## 9  10.434667  8.810091 11.006586 0.000000 5.861715  0.000000 1.355355  0.000000
## 10  7.041990  2.222403  5.491879 3.430018 2.222403  0.000000 1.602694  0.000000
##    rs_FAM83E rs_MAPK4 rs_PTCHD1  rs_IRX1 rs_SYNPO2L  rs_GLYAT    rs_MYT1
## 1   8.239206 2.618427  0.514400 7.925097  4.1463049 1.9995671  4.2144746
## 2   8.366366 3.326077  3.101684 7.854341  7.4812917 0.0000000  1.0590091
## 3   6.635168 2.697551  2.851719 6.656250  2.6138145 5.3400708  5.9043275
## 4   8.754428 2.211293  1.593163 5.312128  7.3251210 0.0000000 11.0093477
## 5   4.351459 1.575796  2.190868 5.553324  9.2241660 0.4815056  0.8418926
## 6   4.137299 3.692595  8.321853 3.856538  2.0398403 1.0266584  1.6204457
## 7   5.719118 7.589987  7.331332 5.781137  0.8248086 0.0000000  0.8248086
## 8   3.327845 8.224046  9.366992 8.755528  0.4304994 2.1626612  1.7799321
## 9   2.504849 7.706111  1.027933 8.794982  1.8470749 1.3553546  2.7473874
## 10  6.866732 1.394898  1.602694 3.374414  8.7234033 3.2563616  5.8690200
##     rs_PRODH rs_SHISA9  rs_DEFB1 rs_VIPR2   rs_SOX2    rs_AR  rs_TP63    rs_IYD
## 1  10.459306  3.192147 7.7581366 5.674455 6.0562735 9.782902 9.756706 0.8928184
## 2   9.400867  3.520221 5.6050231 2.718833 0.7843365 9.716652 9.342673 0.0000000
## 3   3.537060  4.733674 5.3912659 4.562664 0.0000000 8.866230 9.073400 3.2347159
## 4  11.879359  1.144242 0.8535167 2.516040 2.6426092 7.883860 7.000904 0.4889263
## 5   7.101100  9.579065 3.6877214 3.733127 0.0000000 8.798103 6.494163 4.5596876
## 6   4.635691  4.137299 8.7427672 1.813771 0.6028369 1.026658 6.063317 4.0941347
## 7   7.368843  4.616175 8.7189181 3.260146 0.0000000 4.342178 8.481170 2.1605653
## 8   8.394740  9.973852 4.2276256 3.889717 1.6259250 1.779932 4.280214 1.2575538
## 9   6.748291  1.027933 3.4424658 2.034392 2.3663642 0.000000 3.509822 2.6312207
## 10  1.945570  8.071886 2.8300930 1.239276 0.0000000 7.403118 5.425046 0.4930324
##     rs_PLCH1 rs_SLC27A6    rs_HPX rs_PP14571   rs_DLX2 rs_SPAG17  rs_PRG4
## 1  3.1228880   6.472857 11.558061  6.2795493 9.2979895 6.8067945 7.377752
## 2  6.6274959   5.785888 11.166573  1.0590091 1.4884122 0.4448791 5.850162
```

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## 3  5.0041778   6.442322  6.914276  3.6252354 2.3287790 3.6252354 7.679493
## 4  2.0797706   6.785672  6.676108  8.6611817 6.7590519 6.9963526 4.495906
## 5  8.0097463   4.004996  7.363076  7.6991532 0.4815056 4.3791912 4.270260
## 6  9.8027041   1.620446  4.605269  0.6028369 0.0000000 3.3696200 5.757877
## 7  9.7085865   4.865558  6.207278  3.3030501 0.0000000 1.7285301 4.327285
## 8  9.0276506   8.848792  2.162661  1.0308304 3.9957197 1.6259250 5.011581
## 9  8.0967821   1.355355  3.219215  0.0000000 5.1411957 4.4790688 1.631803
## 10 0.8598106   4.523587  6.684450  6.9113632 7.6366514 0.0000000 9.762606
##      rs_MMP7   rs_UGT8  rs_NEURL   rs_AFF3  rs_MS4A8B   rs_APOD rs_TMEM213
## 1   8.035218  3.192147  9.914248 10.700865 10.3465821 12.848114  5.8785905
## 2   9.132237  6.500894  5.708289 12.023256  0.7843365 10.943454  0.4448791
## 3   9.003144  4.126056  7.476108 12.488857  2.9230351 14.961188  1.0686020
## 4   8.015645  2.211293 10.165350 13.848029  3.4171504 10.200399  1.9350825
## 5   8.849813  3.092157  6.506789 11.614757  4.6760530 10.821485  0.0000000
## 6  12.713106  7.968559  2.039840  5.651738  0.0000000  7.910652  8.3297591
## 7  15.139454  3.560507  3.057866  7.331332  0.0000000 11.007622  4.2862454
## 8  10.001522 11.747069  8.887441  7.144506  0.0000000  8.308755  4.5177355
## 9  10.876276  9.831700  5.053633  4.936129  0.0000000 13.258518  6.5704356
## 10  8.032021  2.090616  8.844703 12.334662  6.6787241 10.198654  3.3165947
##      rs_TLX1  rs_ZFP57   rs_FOSB  rs_TUBA3E   rs_CHGB    rs_HP   rs_FAM3D
## 1  1.1923204 1.1923204  8.858305  8.7171126 4.3110526 5.909766  2.4016305
## 2  0.0000000 4.7159318  7.080538  5.1998333 2.5983890 0.000000  1.2895984
## 3  0.4497462 0.7921057  9.590596  5.4161980 1.5002922 3.393787  1.5002922
## 4  2.3317912 0.0000000 12.053903 11.7168205 1.3860936 2.732920  2.0797706
## 5  0.0000000 0.4815056 10.106466  3.5961599 1.1300083 1.755828  0.8418926
## 6  5.2213783 1.8453495 12.566737  0.0000000 3.2170446 3.749330 13.5777995
## 7  6.7317738 8.6471810  6.606048  0.0000000 1.7285301 4.314479  5.4531093
## 8  8.5189191 4.9976718  6.382206  0.0000000 0.4304994 4.495670  3.6410026
## 9  9.7382575 0.0000000  7.189369  0.6035967 0.6035967 0.000000 10.0790311
## 10 0.0000000 1.6026944  8.246547  5.6406730 0.4930324 4.273046  1.1519887
##    rs_RERGL rs_CXADRP3  rs_CHST9   rs_CD36 rs_CYP4F11 rs_CD177 rs_TBC1D3G
## 1  4.110973  4.5929832 5.5627797  9.675896   8.311023 2.806881  4.2795753
```

```
## 2  1.663071  3.3771237 6.0757915  5.757274   4.196552 2.314029  0.0000000
## 3  4.375255  0.4497462 3.5818212 11.117011   8.325114 3.490865  0.4497462
## 4  2.331791  2.8179097 3.3616140  9.712393   6.769759 1.144242  0.0000000
## 5  3.968948  4.7628272 2.5246655  7.566735   7.450636 3.220345  3.6426669
## 6  5.117433  0.0000000 8.7392692  9.662007   4.933776 2.502840  0.0000000
## 7  3.778902  1.5500634 5.4013881  7.313953   3.818871 3.123186  2.9894660
## 8  3.277003  0.4304994 4.9659228  8.425707   3.112733 3.224287  2.6359865
## 9  0.000000  1.0279325 2.0416986  5.861715   2.366364 1.355355  0.0000000
## 10 2.454597  2.7449791 0.4930324 11.294796   1.945570 1.394898  0.0000000
##    rs_NKX2.2 rs_S100A2  rs_SPDEF rs_GLYATL1 rs_MMP10  rs_RELN   rs_SMOC1
## 1  6.7156477  6.637100 12.739878  8.3757172 3.258232 3.549681  4.4588938
## 2  0.0000000  6.824240 12.194769  4.7356197 5.823176 3.880078  1.9594734
## 3  1.0686020  7.824623 11.151756  2.7766936 7.202802 7.641172  7.6305591
## 4  0.0000000  3.361614 13.446186  0.4889263 2.732920 5.297404  3.6666884
## 5  0.0000000  6.069633 12.135014  7.0545598 4.720092 3.023522  3.5961599
## 6  1.0266584  7.968559 10.099970  6.1501677 1.353888 5.201179 11.5584406
## 7  0.0000000 10.008322  8.518062  3.3583541 4.422206 4.570074  9.1843656
## 8  0.4304994  7.060558  7.498085  4.1163315 3.112733 2.788999 10.8867451
## 9  0.0000000 10.824722  6.632190  3.4424658 3.635766 2.631221  6.5939035
## 10 0.0000000  3.193504 12.078721  9.0213665 2.090616 2.558023  0.8598106
##    rs_PCDHA11 rs_BCL11A    rs_RET rs_ANKRD43   rs_WT1 rs_PLA2G2D rs_KCNF1
## 1    6.867548  5.878590 11.166764   9.403969 5.970166  6.8012634 7.935233
## 2    5.219966  5.955006  9.390036   6.847047 5.018826  3.5202211 2.509696
## 3    6.130498  5.557364  9.682090   4.672906 2.219711  4.7336743 6.361191
## 4    7.901908  3.798019 15.360428   3.571992 1.593163  3.3616140 4.099060
## 5    6.718399  5.242080  9.921985   7.690878 5.164517  4.5837237 8.303672
## 6    5.191792 10.064072  4.778855   2.211230 2.629170  6.1814365 4.179208
## 7    6.623195  8.822094  7.621408   5.142544 5.740088 10.3108244 3.358354
## 8    6.219858 10.331661  8.245694   4.702486 4.355665  7.5790232 6.029696
## 9    0.000000 11.358232  4.374539   4.337947 2.854913  0.6035967 5.053633
## 10   1.661476  2.744979  7.206227   5.807381 3.483545  3.0589225 4.780415
##    rs_CCL18 rs_CHI3L2 rs_SLC7A10 rs_NTNG1  rs_FXYD1 rs_SLC6A15  rs_MKRN3
```

```
## 1  3.549681  6.394211  0.8994850 1.440208 7.0453938  1.4402081 0.5144000
## 2  2.415164  8.232453  0.4448791 2.509696 2.3140294  2.6819664 1.6630713
## 3  5.726376  6.116951  4.7390164 1.500292 5.4407064  1.6757256 0.7921057
## 4  4.404052  5.369568  0.0000000 0.000000 4.4312820  0.4889263 0.8535167
## 5  3.220345  6.531715  1.5967444 1.575796 2.9514572  0.8418926 1.5757964
## 6  6.400985 12.112058  2.3379965 2.745323 4.6356906  4.5741984 3.8039296
## 7  9.501582 11.409929  0.4786095 2.762306 3.9325526  0.0000000 5.1737071
## 8  9.685439 12.490507  2.2829735 3.898150 0.4304994  7.6631062 1.0308304
## 9  2.504849  8.267034  4.3981930 4.300395 4.3745387  0.6035967 0.0000000
## 10 6.996684  6.488909  3.0020904 1.394898 3.9696478  0.0000000 0.0000000
##    rs_ZNF385B rs_CLDN8 rs_FAM83A rs_SHISA2 rs_MYEOV   rs_SBSN rs_AKR1C1
## 1    7.450650 6.778925  5.425714  8.727357 4.247396 0.5144000  6.812304
## 2    5.112166 8.654503  6.323593  9.464201 3.101684 0.4448791  4.479489
## 3    3.490865 6.702588  6.613773 10.255068 7.789275 0.7921057  8.495636
## 4    5.761620 4.560226  4.319127  3.755561 6.069582 0.0000000  3.210732
## 5    6.711543 6.655946  2.875603 13.040313 1.370053 0.4815056  5.013440
## 6    4.219935 9.049973  5.336965  5.681202 2.852818 6.9653537  9.218968
## 7    5.490715 6.523786  4.593306  7.355315 5.374817 4.5933060  5.204211
## 8    4.427365 2.859811  1.257554  5.674514 2.552943 5.1885987  4.057286
## 9    1.622087 6.937512  9.704518  8.630726 1.027933 3.8587966  8.524614
## 10   2.830093 4.979847  1.784295 12.310219 3.483545 1.9455702  7.660089
##    rs_ABCC12 rs_NOVA1 rs_SOX11    rs_FUT6  rs_SCRG1   rs_AK5  rs_TTC36
## 1  4.8715776 5.989750 8.139719  6.4867063 1.4402081 7.192084 7.0453938
## 2  5.2139421 6.753567 7.457774  2.0875986 1.9594734 8.681404 3.3771237
## 3  1.0686020 7.282926 4.652068  0.7921057 4.4971077 5.654857 6.4423215
## 4  2.2112926 4.947376 5.844991 10.4467262 1.5931625 4.064685 3.4171504
## 5  2.6207272 7.228529 5.819349  0.8418926 1.1300083 6.684012 7.5817316
## 6  0.6028369 4.407910 8.685759  5.8201253 4.7232800 3.507592 0.0000000
## 7  0.8248086 5.173707 7.944130  2.8420737 7.1315586 6.436547 0.8248086
## 8  0.0000000 2.991808 8.554047  4.4038608 9.4221462 3.680662 0.0000000
## 9  5.6689304 2.366364 9.141365  3.3718237 7.6953021 4.808205 0.0000000
## 10 0.0000000 7.677420 5.171435  0.4930324 0.8598106 4.922859 4.7804151
```

```
##      rs_TOX3  rs_IRX4   rs_CA3 rs_SCNN1G  rs_TPSD1 rs_PCDHA12 rs_TSPAN1
## 1   9.330033 4.973460 5.236382  5.960273  0.000000   4.469534 12.384874
## 2   8.843301 5.002662 4.735620  4.382902  6.622216   4.326890 11.031216
## 3   9.001086 7.890601 6.722415  6.268397  1.300534   7.945004  7.309785
## 4  11.438471 1.386094 3.417150  6.007608  3.918386   3.372325 10.186981
## 5   9.317603 2.951457 2.421748  3.092157  6.086555   7.047794  9.950571
## 6   8.503958 1.353888 6.640320  5.606377  2.952837   5.326933  4.219935
## 7   6.410621 3.778902 3.982327  6.487041  0.000000   6.902308  6.073229
## 8   5.814804 7.895760 4.408827  6.910171  0.000000   2.585900  4.900239
## 9   5.393838 8.397237 2.631221  2.366364  1.355355   0.000000  1.847075
## 10  8.431563 0.000000 3.193504 10.072780 11.029442   1.263936 10.004611
##    rs_LOC389033  rs_PART1   rs_CRYM rs_HOXC10   rs_DBC1 rs_SLC6A11  rs_ACADL
## 1      4.592983 2.7157177 4.4867272 10.873868 4.3418577  0.5144000 2.4016305
## 2      4.811800 2.2052361 3.8442450  7.397245 5.2554516  0.7843365 1.2895984
## 3      0.000000 3.7481499 0.4497462  6.536291 5.0841408  0.0000000 4.2421528
## 4      2.732920 8.3278791 0.4889263  3.115233 3.2436691  6.5513422 0.8535167
## 5      4.510380 0.8418926 2.9514572  9.313117 3.0235215  0.8418926 1.3700527
## 6      0.000000 9.1987355 2.5028398 10.313772 6.0744626  3.6335242 6.4185880
## 7      0.000000 6.5596172 8.5628884  8.531657 5.2777654  5.5979900 5.3201597
## 8      0.000000 8.5857302 0.7617108  9.430168 8.0738829  7.6754292 4.8833422
## 9      0.000000 8.7642831 1.3553546 10.399028 1.0279325  7.8232641 0.0000000
## 10     3.969648 1.6026944 1.9455702 10.963859 0.4930324  0.0000000 1.3948982
##    rs_CXCL14   rs_MKX rs_CLDN19  rs_FGF10  rs_MMP11    rs_NTS  rs_KCNG1
## 1  12.824365 4.037602 6.1977121 2.1463945 10.745470 0.0000000 3.2582325
## 2  11.758863 3.807509 5.0662485 5.4937946 13.784815 0.0000000 3.2182387
## 3  10.117423 3.999793 4.1260560 3.7868995 12.276160 1.6757256 2.7766936
## 4   9.383420 3.115233 3.1152330 1.1442422  9.209511 0.8535167 0.4889263
## 5  12.115824 9.830780 2.1908677 3.7314114 13.938613 0.0000000 1.7558276
## 6   9.480132 2.852818 0.0000000 0.0000000 12.337420 6.8337819 6.6222041
## 7  10.458898 2.762306 3.8188710 0.8248086 12.210058 1.3463045 2.3901724
## 8   6.732863 2.788999 1.0308304 0.0000000 10.853510 0.0000000 9.6921259
## 9   6.283424 2.854913 0.0000000 1.6220870 12.887717 0.6035967 8.8134269
```

```
## 10 16.811749 2.454597 0.4930324 4.0428019 14.094352 0.0000000 0.4930324
##     rs_PITX1  rs_DOK7  rs_CAPN9 rs_RASAL1 rs_MAGEA1   rs_RHCG    rs_SCGN
## 1  10.811269 7.040707 7.6879376 2.8926047  1.440208 3.3214231  1.4402081
## 2   8.982684 5.539320 6.7341216 1.4884122  0.000000 0.7843365  7.3437205
## 3   7.181146 8.022284 4.1852719 3.7868995  4.126056 2.8517191  0.0000000
## 4   8.046792 9.195682 5.9238029 0.8535167  2.442997 1.1442422 10.7163845
## 5   9.455063 6.449079 3.3380678 3.2804070  0.000000 0.4815056  0.8418926
## 6   7.622477 2.211230 5.4779525 7.6450827  0.000000 6.4869219  0.0000000
## 7   7.456979 2.492571 0.4706150 7.2459386  0.000000 7.5219914  1.3463045
## 8   8.540637 3.864107 0.4304994 7.6431679  0.000000 4.1163315  1.0308304
## 9   8.934797 8.015113 0.6035967 9.5895586  0.000000 6.8621997  0.0000000
## 10  2.558023 7.005859 1.3948982 1.7842946  0.000000 3.1935037  1.9455702
##      rs_OSR1 rs_S100A1 rs_CITED1 rs_ADAMDEC1  rs_PLP1  rs_ANO3  rs_NELL2
## 1   8.847612  9.299952 6.8341360    5.086915 6.547437 5.909766  7.179348
## 2   6.512356 10.572261 0.4448791    4.357707 4.547912 2.415164  4.811800
## 3   6.896668  7.464203 9.0526800    5.784978 5.145066 3.786900  7.159161
## 4   5.603021  8.945981 2.8981890    1.774249 3.839274 1.144242  9.609607
## 5   5.099316  8.804510 4.1080309    3.931976 2.524666 1.575796 10.008875
## 6   5.606377 13.418392 5.0285250    8.083363 2.211230 2.039840  5.543595
## 7   5.263350  8.485833 4.5700743    9.563188 2.842074 0.470615  7.671391
## 8  10.061435 13.008714 3.3278454    7.842112 5.229288 2.788999  6.863543
## 9  10.309723  8.145242 2.0416986    4.261847 3.751592 0.000000  2.631221
## 10  3.633152  7.542055 2.9866112    6.373133 2.558023 2.222403 11.047327
##    rs_CAPN13 rs_HAPLN1    rs_NMU  rs_EMX1 rs_GPRIN2 rs_C19orf21    rs_CSN3
## 1  9.7285707  3.050136 0.5144000 7.699877  4.992999   11.588886  1.4402081
## 2  7.9332002  6.052429 1.8188915 1.059009  5.493795   10.414763  1.2895984
## 3  8.5459224  3.289702 4.2697738 1.500292  2.328779   10.234627  0.4497462
## 4  7.9299348  2.732920 0.0000000 4.319127  3.303839    9.529968  1.9350825
## 5  9.6304502  7.557663 0.4815056 4.804332  6.811615    9.889209  0.0000000
## 6  4.4767446  2.629170 5.2011790 0.000000  7.626270    1.845350 18.2317808
## 7  3.9325526  6.559617 1.3463045 1.550063  6.336824    4.921708  9.9854529
## 8  1.6259250  5.950788 7.0108537 1.257554  8.108831    7.112236  1.2575538
```

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## 9  0.6035967  6.862200 6.4122192 0.000000  9.151945    5.924765  4.3003947
## 10 9.6444838  4.303130 0.4930324 3.633152  1.945570   10.288337  1.1519887
##    rs_C2orf82  rs_GABBR2 rs_PLA2G3   rs_CLGN   rs_MYOC  rs_GPR26   rs_VWDE
## 1   2.1463945  1.1923204 6.8287090  7.012264 0.5144000 0.0000000 6.1722275
## 2   0.4448791  0.4448791 5.2690294 10.338345 0.7843365 0.0000000 5.4704816
## 3   1.6757256  2.2197106 1.0686020  9.417736 5.7063012 0.4497462 3.5370599
## 4   1.3860936  0.0000000 0.4889263  6.575954 1.7742494 1.5931625 5.9333578
## 5   0.8418926  0.0000000 3.4469046  7.539343 0.0000000 2.3109217 1.3700527
## 6   4.9580538  7.6928798 0.0000000  5.710076 0.6028369 2.0398403 6.4359769
## 7   2.2799170  2.2799170 0.4706150  2.917642 1.5500634 6.0732290 2.2799170
## 8   0.7617108 11.4409216 0.7617108  3.558243 0.7617108 1.9191112 6.8933901
## 9   2.3663642  4.9114375 5.5619310  2.041699 0.6035967 1.0279325 1.0279325
## 10  0.0000000  0.0000000 4.0428019  7.313581 2.6545272 5.5805284 0.4930324
##    rs_ANGPTL7 rs_ACTA1 rs_LOC283392  rs_C4BPA   rs_MAOB rs_KCNJ16  rs_GPX2
## 1    3.050136 3.381962    3.2537019 1.4402081  9.870020 3.3214231 4.037602
## 2    0.000000 2.760945    1.2485348 1.8188915  9.315944 2.4151637 4.332071
## 3    1.675726 4.672906    4.3926952 0.0000000  8.973005 1.9732072 7.087244
## 4    1.774249 3.180880    0.9288061 0.8535167  6.911871 0.4889263 4.608744
## 5    0.000000 2.795538    2.0011537 0.0000000 12.242841 1.1300083 3.894032
## 6    3.633524 2.952837    1.9898656 4.2980864  8.797608 7.6636542 1.353888
## 7    1.887369 2.279917    0.0000000 6.1613758  9.335834 3.5125556 4.787124
## 8    2.046002 2.162661    0.0000000 0.7617108  6.464041 2.7889989 1.453491
## 9    1.027933 3.694836    0.0000000 0.0000000  8.547031 4.1815081 2.041699
## 10   0.000000 3.852468    2.1957255 0.0000000 10.748437 1.1519887 3.256362
##    rs_SLC15A1  rs_DEGS2    rs_MUC2  rs_CALB2  rs_CHRM1  rs_CCL14 rs_PCDH10
## 1   0.0000000 10.471111  2.9735194  5.396663 7.9327061 10.113719 1.8360857
## 2   0.7843365  9.647524  0.0000000  7.734687 2.5096958  6.201471 5.6882195
## 3   0.7921057  8.776414  0.4497462  7.452198 2.9909912  9.847590 1.8321204
## 4   0.0000000  9.416161 16.8518069  4.535344 5.2825251  7.502432 0.4889263
## 5   0.4815056 11.333732  0.0000000  5.541100 3.4469046  7.622911 3.2203454
## 6   6.7735019  5.859321  0.0000000 10.545213 7.9535446  7.228809 2.6291701
## 7   0.0000000  4.546456  0.0000000  9.453985 5.0615559  6.989920 0.0000000
```

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## 8  10.6997243  3.719260  0.7617108  8.658302 8.8596320  5.255792 2.8598106
## 9   4.5765282  5.098078  0.0000000  8.333604 7.5185454  4.960410 0.0000000
## 10  0.8598106 10.469631  3.3165947  6.192044 0.4930324  7.519776 1.1519887
##    rs_CTNND2  rs_CECR2 rs_SPINK8   rs_LY6K   rs_PEG3  rs_CST2 rs_FERMT1
## 1   9.003857 4.6433136  3.321423  7.819616  8.197286 7.526356  6.222754
## 2   8.005946 1.2895984  4.046980  3.949171  8.314152 2.509696  6.748730
## 3   8.879737 5.7559745  0.000000  6.944583 12.233405 3.932260  6.536291
## 4   8.827992 1.3860936  0.000000  2.817910  5.409554 7.893683  3.303839
## 5   9.705622 5.1960444  4.559688  3.596160 11.649508 6.094941  4.140803
## 6   4.635691 3.4402612  4.137299  8.126844 10.278041 1.026658  7.314651
## 7   4.546456 1.3463045  0.000000 10.229742  5.952373 4.725365  7.886516
## 8   7.758862 4.0572856  0.000000  9.450387 13.164389 2.046002  6.552213
## 9   1.027933 2.3663642  0.000000  4.607608 10.304955 3.858797  8.083027
## 10  9.702071 0.8598106  1.151989  4.497804  7.855320 4.444813  2.090616
##     rs_MMRN1 rs_SERHL2 rs_SEZ6L  rs_TNNI3   rs_EREG rs_ADAMTS15   rs_PAX2
## 1   9.383757  7.152578 3.699918 3.4400619 2.2796496    7.772341 4.7845563
## 2   5.636787  7.557201 2.760945 0.7843365 1.8188915    6.579271 2.5983890
## 3  10.228042  8.867722 1.675726 4.7533746 0.7921057    6.154478 5.0841408
## 4   7.823475  8.904353 4.319127 1.1442422 0.8535167    8.107140 0.4889263
## 5   6.598121  8.541931 2.190868 5.7989603 2.5246655    7.166220 4.6073658
## 6   7.266864  6.170049 1.353888 0.0000000 3.4402612    2.852818 1.3538878
## 7   4.522451  4.987375 1.109026 0.0000000 3.5125556    3.411603 0.0000000
## 8   3.719260  4.332443 0.000000 0.0000000 3.5150185    2.714531 1.9191112
## 9   2.041699  4.587173 0.000000 0.0000000 0.0000000    1.355355 1.6220870
## 10  4.922859  6.162317 1.602694 0.0000000 0.8598106    4.998353 0.4930324
##     rs_TNNT3 rs_B3GNT3 rs_LOC440905   rs_CD19 rs_ADH1A  rs_RIMS2 rs_ALOX15
## 1  3.9994679  3.601518    10.139717 4.4867272 3.601518 1.6516832 1.1923204
## 2  1.2895984  3.731096     5.877361 0.7843365 0.000000 1.0590091 0.0000000
## 3  6.2752269  4.753375     3.748150 2.7766936 4.733674 2.9230351 0.7921057
## 4  2.4429966  5.970962     7.101809 1.1442422 2.331791 1.1442422 0.4889263
## 5  1.1300083  3.931976     3.023522 4.5352443 0.000000 1.1300083 7.5082844
## 6  3.4402612 11.393281     5.590937 7.1505475 1.353888 5.9099795 3.0463863
```

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## 7  2.4925711  5.620783     3.057866 8.2970832 0.470615 3.8956419 2.2799170
## 8  0.4304994  6.435344     2.464825 4.3309456 1.257554 5.6843026 2.3709454
## 9  0.0000000  8.370308     3.574162 1.6220870 0.000000 0.6035967 1.0279325
## 10 4.7588681  2.910464     7.186187 1.3948982 3.127782 0.0000000 2.6545272
##    rs_ADAMTS19 rs_NTRK3 rs_RNF183   rs_FLT3   rs_TNMD rs_GPR12  rs_IBSP
## 1    1.6516832 6.778925 6.6183503  8.539149 1.4402081 1.999567 3.258232
## 2    0.4448791 6.143689 3.8800782 10.573971 0.7843365 2.598389 3.949171
## 3    5.1745902 5.590599 2.6138145  8.894229 5.4885054 2.613815 5.036697
## 4    5.9802104 4.319127 0.8535167  9.351701 1.5931625 1.935083 4.984617
## 5    3.5961599 3.498391 3.6426669  2.710790 1.1300083 1.575796 3.498391
## 6    2.0398403 5.970900 3.0463863  4.179208 1.0266584 6.085525 5.028525
## 7    0.4706150 7.238589 2.1605653  6.259048 1.1090262 3.737784 4.546456
## 8    0.4304994 9.917385 1.0308304  4.759166 7.8766759 9.367751 3.829231
## 9    0.0000000 8.113117 3.5741621  2.747387 3.1363883 3.442466 4.479069
## 10   1.3948982 9.204869 2.5580227  9.128164 4.6693046 0.000000 6.455811
##    rs_COL4A6 rs_CLSTN2 rs_FIBCD1  rs_CES1 rs_CADM3 rs_AKR1B15 rs_PCDHA10
## 1   6.938599 10.995101 1.6516832 8.263544 7.837398   0.514400   6.106474
## 2   6.399621  8.758018 5.8046525 8.367944 4.715932   3.807509   4.990424
## 3   5.981524  8.896445 2.8517191 9.108241 7.813570   4.587683   5.658517
## 4   3.620117 11.659140 1.9350825 6.069582 3.689433   0.000000   3.215119
## 5   4.433106  9.503904 4.1080309 7.882304 6.107181   3.157674   7.495481
## 6   3.633524  5.355362 1.3538878 6.337631 5.602688   6.780326   6.131719
## 7   4.787124  5.078123 3.4629684 6.634328 6.607932   2.677892   5.679717
## 8   1.257554  5.344892 3.8641069 6.901806 5.288248   2.464825   2.717583
## 9   3.509822  5.030883 1.0279325 2.213130 1.622087   3.048533   0.000000
## 10  1.602694 10.967973 0.4930324 5.947311 5.127720   2.454597   0.000000
##    rs_HIF3A   rs_GPM6A rs_CXCR2P1 rs_DACH1 rs_C1orf95 rs_HEPACAM rs_TMEM45B
## 1  4.913196  5.1228342  4.6183679 8.527472   3.878617  2.8400402   6.465881
## 2  1.663071  1.8188915  0.7843365 8.870273   3.218239  0.4448791   8.195606
## 3  6.176534  3.9997926  1.9732072 7.430948   8.984512  4.8199032   9.412324
## 4  2.898189 11.6046749  3.6666884 9.340074   3.243669  1.1442422   6.931077
## 5  1.755828  2.8756032  0.0000000 7.440800   2.795538  0.4815056   8.958362
```

```
## 6  6.916635  2.9528367  6.1182081 4.476745   2.629170  1.1765781   3.440261
## 7  2.279917  3.9325526  7.5159245 4.865558   2.989466  2.3901724   2.160565
## 8  9.257320  0.7617108  7.3491237 3.719260   8.248996  1.6013637   1.257554
## 9  6.321410  0.0000000  1.8470749 1.847075   5.030883  0.0000000   3.219215
## 10 2.910464  0.8598106  1.6026944 9.140715   5.311227  2.8820561   7.403118
##      rs_VIT rs_CXCL2   rs_FMO2    rs_HBB  rs_CDSN rs_KCNIP2 rs_CCL28 rs_C8orf85
## 1  6.928486 2.806881  9.210977  6.189267 7.233743  5.699885 5.367018   7.588688
## 2  2.760945 3.101684  7.387943  5.097021 7.568965  2.205236 6.028684   6.257028
## 3  5.300446 2.430178  5.036697 10.921911 6.478281  8.144812 7.209948   6.288790
## 4  5.923803 3.798019  7.350307  7.595710 4.484248  4.723340 6.563701   6.366195
## 5  3.280407 3.731411  6.487808  4.433106 7.383759  4.459327 6.621529   8.344690
## 6  7.568311 8.326523 10.047197  4.958054 3.633524  5.621656 9.305475   6.107397
## 7  4.167422 6.678451 12.749305  4.766834 4.104127  5.110693 6.894939   9.083367
## 8  8.079458 3.376971  6.327035  5.307378 4.683090  5.307378 5.229288  13.510640
## 9  9.971152 2.504849  6.340035  4.607608 4.544770  5.183062 2.854913   8.598215
## 10 3.256362 3.852468  6.632079  7.225993 5.266119  5.753923 5.104672  10.773502
##     rs_CRYAB rs_LOC84740 rs_PPAPDC1A  rs_IL33 rs_AQP7P1 rs_MAGEA4   rs_ACE2
## 1   9.250073    3.260809    5.769518 9.165420 3.4400619 0.0000000 2.6184266
## 2   8.412970    2.418109    9.490515 6.044558 0.0000000 0.0000000 0.4448791
## 3  10.288787    1.974529    5.273411 8.235153 4.2968758 0.4497462 2.3287790
## 4   6.687447    2.445144    3.361614 7.204031 1.9350825 0.0000000 0.8535167
## 5   7.608338    2.314378    8.330555 7.166220 0.0000000 0.0000000 0.4815056
## 6  12.445739   11.232794    6.271366 7.295726 3.2953410 0.0000000 8.5525972
## 7   9.674269    7.999359    6.694656 7.478977 1.3463045 0.4706150 6.6675459
## 8  10.826690    8.507895    5.451920 5.884398 2.4648251 0.0000000 3.2242873
## 9   9.767791    4.480743    9.481515 4.374539 0.6035967 1.0279325 3.1363883
## 10  8.604614    1.151989    7.893047 7.028547 3.4300176 0.0000000 1.1519887
##     rs_MYH11 rs_LOC100124692 rs_HS3ST4  rs_SELP  rs_PADI3 rs_ACVR1C rs_AMY1A
## 1  11.838799       0.0000000 1.6516832 7.769511 4.6183679  5.012278 0.514400
## 2  11.078597       3.5649390 2.8358432 4.735620 1.2895984  2.314029 0.000000
## 3  11.843764       2.1017173 0.0000000 7.635876 1.5002922  6.805251 1.500292
## 4  10.230389       2.0797706 0.8535167 6.822135 0.4889263  4.484248 1.774249
```

```
## 5   9.599368       0.0000000 2.3109217 6.468574 1.3700527  2.710790 1.575796
## 6  11.815484       3.9563169 0.0000000 7.466218 3.8565376  3.907285 7.453467
## 7  11.255411       0.8248086 4.3421778 8.150102 0.0000000  4.939946 7.151262
## 8   8.558937       7.0717884 6.2890469 5.074124 0.0000000  3.376971 6.979393
## 9   7.952735       3.8587966 0.0000000 2.041699 1.0279325  0.000000 0.000000
## 10  7.983867       1.9455702 0.0000000 6.167723 0.0000000  4.622351 1.151989
##     rs_OXTR rs_DEFB132   rs_APOB rs_SPHKAP rs_DPYSL5 rs_HEPN1 cn_ISG15 cn_PLCH2
## 1  9.080063   5.321376 0.8928184 1.6516832  0.000000 2.860625        0        0
## 2  5.505313   2.509696 0.4448791 3.7698035  0.000000 0.000000       -1       -1
## 3  6.335281   4.296876 3.7083307 0.0000000  0.000000 4.554828        0        0
## 4  7.223634   0.000000 1.5931625 0.8535167  0.000000 0.000000        0        0
## 5  6.382129   3.092157 0.0000000 0.8418926  0.000000 1.755828        0        0
## 6  8.217621   0.000000 0.6028369 3.1342374  3.692595 0.859413        1        1
## 7  7.289266   0.000000 0.8248086 1.5500634  2.677892 0.000000        0        0
## 8  7.376553   0.000000 1.2575538 1.9191112  8.543329 2.565719        0        0
## 9  5.973294   0.000000 0.0000000 2.3663642  4.808205 1.027933        2        2
## 10 7.955946   2.986611 1.3948982 0.8598106  0.000000 2.139469        0        0
##    cn_SAMD11 cn_TNFRSF18 cn_BAI2 cn_TEKT2 cn_DNALI1 cn_RSPO1 cn_KIAA0754
## 1          0           0       1        1         1        1           1
## 2         -1          -1       0        0         0        0           0
## 3          0           0       0        0         0        0           0
## 4          0           0       0        0         0        0           0
## 5          0           0       0        0         0        0           0
## 6          1           1       0        0         0        0           0
## 7          0           0       0        0         0        0           0
## 8          0           0       1        2         2        2           0
## 9          2           2      -1        2         2        2           1
## 10         0           0       0        0         0        0           0
##    cn_KCNQ4 cn_CITED4 cn_EDN2 cn_CLDN19 cn_CDC20 cn_ARTN cn_HPDL cn_TSPAN1
## 1         1         1       1         1        1       1       1         1
## 2         0         0       0         0        0       0       0         0
## 3         0         0       0         0        0       0       0         0
```

```
## 4         0         0       0         0       0       0       0         0
## 5         0         0       0         0       0       0       0         1
## 6         0         0       0         0       0       0       0         0
## 7         0         0       0         0       0       0       0         0
## 8         0         0       0         0       0       0       1         1
## 9         1         1       1        -1      -1      -1      -1        -1
## 10        0         0       0         0       0       0       0         0
##    cn_CYP4B1 cn_CYP4Z2P cn_CYP4X1 cn_CYP4Z1 cn_PDZK1IP1 cn_RAB3B cn_DIO1
## 1          1          1         1         1           1        1       1
## 2          0          0         0         0           0        0       0
## 3          0          0         0         0           0        0       0
## 4          0          0         0         0           0        0       0
## 5          0          0         0         0           0        0       0
## 6          0          0         0         0           0        0       0
## 7          0          0         0         0           0        0       0
## 8          1          1         1         1           1        1       1
## 9         -1         -1        -1        -1          -1       -1      -1
## 10         0          0         0         0           0        0       0
##    cn_TTC22 cn_PCSK9 cn_PRKAA2 cn_C1orf168 cn_KANK4 cn_FOXD3 cn_IL12RB2
## 1         1        1         1           1        1        1          1
## 2         0        0         0           0        0        0          0
## 3         0        0         0           0        0        0          0
## 4         0        0         0           0        0        0          0
## 5         0        0         0           0        0        0          0
## 6         0        0         0           0        0        0          0
## 7         0        0         0           0        0        0          0
## 8        -1       -1        -1          -1       -1       -1         -1
## 9        -1       -1        -1          -1        2        2          2
## 10        0        0         0           0        0        0          0
##    cn_DIRAS3 cn_C1orf173 cn_SLC44A5 cn_ST6GALNAC5 cn_AK5 cn_PTGFR cn_DNASE2B
## 1          1          -1         -1            -1     -1       -1         -1
## 2          0           0          0             0      0        0          0
```

```
## 3          0           0          0             0      0        0          0
## 4          0           0          0             0      0        0          0
## 5          0           0          0             0      0        0          0
## 6          0           0          0             0      0        0          0
## 7          0           0          0             0      0        0          0
## 8         -1          -1         -1            -1     -1       -1         -1
## 9          2           1          2             2      2        2          2
## 10         0           0          0             0      0        0          0
##    cn_LPAR3 cn_CLCA2 cn_CLCA4 cn_GBP5 cn_TGFBR3 cn_BRDT cn_EPHX4 cn_ABCA4
## 1        -1       -1       -1      -1        -1      -1       -1       -1
## 2         0        0        0       0         0       0        0        0
## 3         0        0        0       0         0       0        0        0
## 4         0        0        0       0         0       0        0        0
## 5         0        0        0       0         0       0        0        0
## 6         0        0        0       0         0       0        0        0
## 7         0        0        0       0         0       0        0        0
## 8         1        1        1       1         1       1        1        1
## 9         2        1        1       1         1       1        1        2
## 10        0        0        0       0         0       0        0        0
##    cn_COL11A1 cn_AMY1A cn_NTNG1 cn_NBPF4 cn_NBPF6 cn_GSTM1 cn_GSTM2 cn_GSTM5
## 1          -1       -1       -1       -1       -1       -1       -1       -1
## 2           0        0        0        0        0        0        0        0
## 3           0        0        0        0        0        0        0        0
## 4           0        0        0        0        0        0        0        0
## 5           0        0        0        0        0        0        0        0
## 6           0        0        1        1        1        1        1        1
## 7           0        0        0        0        0        0        0        0
## 8           1        1       -1       -1       -1       -1       -1       -1
## 9           1        0        2        2        2        2        2        2
## 10          0        0        0        0        0        0        0        0
##    cn_GSTM3 cn_SLC6A17 cn_CHI3L2 cn_KCND3 cn_FAM19A3 cn_AMPD1 cn_CASQ2 cn_VTCN1
## 1        -1         -1        -1       -1         -1       -1       -1        1
```

```
## 2         0          0         0        0          0        0        0        0
## 3         0          0         0        0          0        0        0        0
## 4         0          0         0        0          0        0        0        0
## 5         0          0         0        0          0        0        0        0
## 6         1          1         1        1          1        1        1        1
## 7         0          0         0        0          0        0        0        0
## 8        -1         -1        -1       -1         -1        1        1        1
## 9         2          2         0        0          1        0        1        2
## 10        0          0         0        0          0        0        0        0
##    cn_SPAG17 cn_HSD3B2 cn_HMGCS2 cn_FMO5 cn_PDZK1P1 cn_PDZK1 cn_ZNF695
## 1         -1        -1         1       1          1        1         2
## 2          0         0         0       0          0        0         1
## 3          0         0         0       1          1        1         1
## 4          0         0         0       0          0        0         1
## 5          0         0         0       0          0        0         0
## 6          1         1         1       1          1        1         1
## 7          0         0         0       0          0        0         1
## 8          1         1         1       2          2        2         2
## 9          2         2         2       2          2        2         1
## 10         0         0         0       0          0        0         0
##    cn_TRIM58 cn_CHL1 cn_CNTN4 cn_LRRN1 cn_EGOT cn_ROBO2 cn_CADM2 cn_NPFFR2
## 1          2       0        0        0       0        0        0         0
## 2          1       0        0        0       0        0        0         0
## 3          1       0        0        0       0        0        0         1
## 4          1       0        0        0       0        0        0         0
## 5          0       0        0        0       0        0        0         0
## 6          1       1        1        1       1       -1        1         2
## 7          1       0        0        0       0        0        0         0
## 8          2       2        2        2       2       -1       -1         2
## 9          2      -1       -1        1       1       -1       -1         0
## 10         0       0        0        0       0        0        0         0
##    cn_ALB cn_AFP cn_RASSF6 cn_IL8 cn_CXCL1 cn_CXCL5 cn_CXCL2 cn_EREG cn_AREG
```

```
## 1       0      0         0      0        0        0        0       0       0
## 2       0      0         0      0        0        0        0       0       0
## 3       1      1         1      1        1        1        1       1       1
## 4       0      0         0      0        0        0        0       0       0
## 5       0      0         0      0        0        0        0       0       0
## 6       2      2         2      2        2        2        2       2       2
## 7       0      0         0      0        0        0        0       0       0
## 8       2      2         2      2        2        2        2       2       2
## 9       0      0         0      0        0        0        0       0       0
## 10      0      0         0      0        0        0        0       0       0
##    cn_CDKL2 cn_CXCL9 cn_ART3 cn_CXCL10 cn_CXCL11 cn_CCDC158 cn_CXCL13
## 1         0        0       0         0         0          0         0
## 2         0        0       0         0         0          0         0
## 3         1        1       1         1         1          1         1
## 4         0        0       0         0         0          0         0
## 5         0        0       0         0         0          0         0
## 6         2        2       2         2         2         -1        -1
## 7         0        0       0         0         0          0         0
## 8         2        2       2         2         2          2         2
## 9         2        1       1         1         1          1         2
## 10        0        0       0         0         0          0         0
##    cn_LRRC14B cn_PLEKHG4B cn_IRX4 cn_C5orf38 cn_IRX2 cn_IRX1 cn_ADAMTS16
## 1           0           0       0          0       0       0           0
## 2           0           0       0          0       0       0           0
## 3           1           1       1          1       1       1           1
## 4           0           0       0          0       0       0           0
## 5           0           0       0          0       0       0           0
## 6           2           2       2          2       2       2           2
## 7           0           0       0          0       0       0           0
## 8           2           2       1          1       1       1           1
## 9           0           0       0         -1      -1      -1          -1
## 10          0           0       0          0       0       0           0
```

```
##    cn_ADCY2 cn_ROPN1L cn_CTNND2 cn_DNAH5 cn_MARCH11 cn_NPR3 cn_IL7R cn_CAPSL
## 1         0         0         0        0          0       0       0        0
## 2         0         0         0        0          0       0       0        0
## 3         1         1         1        1          1       1       1        1
## 4         0         0         0        0          0       0       0        0
## 5         0         0         0        0          0       0       0        0
## 6         2         2         2        2          2      -1      -1       -1
## 7         0         0         0        0          0       0       0        0
## 8         1         1         2        2          2       1       1        1
## 9        -1        -1        -1        0         -1      -1       0        0
## 10        0         0         0        0          0       0       0        0
##    cn_UGT3A2 cn_RANBP3L cn_FGF10 cn_GZMK cn_CDC20B cn_CCNO cn_IL6ST cn_PART1
## 1          0          0        0       0         0       0        0        0
## 2          0          0        0       0         0       0        0        0
## 3          1          1        1       1         1       1        1        1
## 4          0          0        0       0         0       0        0        0
## 5          0          0        0       0         0       0        0        0
## 6         -1         -1       -1      -1        -1      -1       -1       -1
## 7          0          0        0       0         0       0        0       -1
## 8          1          1        1      -1        -1      -1       -1       -1
## 9          0          0        0      -1        -1      -1        0        2
## 10         0          0        0       0         0       0        0        0
##    cn_GTF2H2B cn_CARTPT cn_FOXD1 cn_F2RL2 cn_PDE8B cn_THBS4 cn_CKMT2 cn_HAPLN1
## 1           0         0        0        0        0        0        0         0
## 2           0         0        0        0        0        0        0         0
## 3           1         1        1        1        1        1        1         1
## 4           0         0        0        0        0        0        0         0
## 5           0         0        0        0        0        0        0         0
## 6          -1        -1       -1       -1       -1       -1       -1        -1
## 7          -1        -1       -1       -1       -1       -1       -1        -1
## 8          -1        -1       -1       -1       -1       -1       -1        -1
## 9          -1         0       -1       -1        0       -1        0        -1
```

```
## 10          0         0        0        0        0        0        0         0
##    cn_EDIL3 cn_GPR98 cn_FAM81B cn_C5orf27 cn_PCSK1 cn_ERAP2 cn_EFNA5 cn_TSLP
## 1         0        0         0          0        0        0        0       0
## 2         0        0         0          0        0        0        0       0
## 3         1        1         1          1        1        1        1       1
## 4         0        0         0          0        0        0        0       0
## 5         0        0         0          0        0        0        0       0
## 6        -1       -1        -1         -1       -2       -1       -1      -1
## 7        -1       -1        -1         -1       -1       -1       -1      -1
## 8        -1       -1        -1         -1       -1       -1       -1      -1
## 9        -1       -1         0          0       -1       -1       -1      -1
## 10        0        0         0          0        0        0        0       0
##    cn_TRIM36 cn_CDO1 cn_AQPEP cn_MEGF10 cn_FBN2 cn_SLC27A6 cn_ADAMTS19
## 1          0       0        0         0       0          0           0
## 2          0       0        0         0       0          0           0
## 3          1       1        1         1       1          1           1
## 4          0       0        0         0       0          0           0
## 5          0       0        0         0       0          0           0
## 6         -1      -1       -1        -1      -1         -1          -1
## 7         -1      -1       -1        -1      -1         -1          -1
## 8         -1      -1       -1        -1      -1         -1          -1
## 9         -1      -1       -1        -1      -1         -1          -1
## 10         0       0        0         0       0          0           0
##    cn_SHROOM1 cn_FSTL4 cn_PITX1 cn_C5orf20 cn_CXCL14 cn_PCDHA1 cn_PCDHA3
## 1           0        0        0          0         0         0         0
## 2           0        0        0         -1        -1        -1        -1
## 3           1        1        1          1         1         1         1
## 4           0        0        0          0         0         0         0
## 5           0        0        0          0         0         0         0
## 6          -1       -1       -1         -1        -1         0         0
## 7          -1       -1       -1         -1        -1        -1        -1
## 8          -1       -1       -1         -1        -1        -1        -1
```

```
## 9          -1       -1        0          0         0        -1        -1
## 10          0        0        0          0         0         0         0
##    cn_PCDHA4 cn_PCDHA10 cn_PCDHA11 cn_PCDHA5 cn_PCDHA6 cn_PCDHA12 cn_PCDHA13
## 1          0          0          0         0         0          0          0
## 2         -1         -1         -1        -1        -1         -1         -1
## 3          1          1          1         1         1          1          1
## 4          0          0          0         0         0          0          0
## 5          0          0          0         0         0          0          0
## 6          0          0          0         0         0          0          0
## 7         -1         -1         -1        -1        -1         -1         -1
## 8         -1         -1         -1        -1        -1         -1         -1
## 9         -1         -1         -1        -1        -1         -1         -1
## 10         0          0          0         0         0          0          0
##    cn_IL17B cn_GPX3 cn_FAT2 cn_GRIA1 cn_ITK cn_FABP6 cn_ATP10B cn_FBLL1
## 1         0       0       0        0      0        0         0        0
## 2        -1      -1      -1       -1     -1       -1        -1       -1
## 3         1       1       1        1      1        1         1        1
## 4         0       0       0        0      0        0         0        0
## 5         0       0       0        0      0        0         0        0
## 6         0       0       0        0      0        0         0        0
## 7        -1      -1      -1       -1     -1       -1        -1       -1
## 8        -1      -1      -1       -1     -1       -1        -1       -1
## 9        -1      -1      -1       -1     -1        2         2        0
## 10        0       0       0        0      0        0         0        0
##    cn_FAM196B cn_FOXI1 cn_GABRP cn_STC2 cn_MSX2 cn_CPLX2 cn_UNC5A cn_FGFR4
## 1           0        0        0       0       0        0        0        0
## 2          -1       -1       -1      -1      -1       -1        0        0
## 3           1        1        1       1       1        1        1        1
## 4           0        0        0       0       0        0        0        0
## 5           0        0        0       0       0        0        0        0
## 6           0        0        0       0       0        0        0        0
## 7          -1       -1       -1      -1      -1       -1       -1       -1
```

```
## 8          -1       -1       -1      -1      -1        1        2        2
## 9          -1       -1        0       0      -1       -1       -1       -1
## 10          0        0        0       0       0        0        0        0
##    cn_RASGEF1C cn_SCGB3A1 cn_BTNL9 cn_IRF4 cn_FOXC1 cn_TUBB2B cn_ELOVL2
## 1             0          0        0       0        0         0         0
## 2             0          0        0       0        0         0         0
## 3             1          1        1      -1       -1        -1         0
## 4             0          0        0       0        0         0         0
## 5             0          0        0       0        0         0         0
## 6             0          0        0       2        2         2         2
## 7            -1         -1       -1       0        0         0         0
## 8             2          2       -1       1        1         1         1
## 9            -1         -1       -1       0        0         0         0
## 10            0          0        0       0        0         0         0
##    cn_RNF182 cn_RBM24 cn_ID4 cn_DCDC2 cn_KIAA0319 cn_LRFN2 cn_PGC cn_GNMT
## 1          0        0      0        0           0        0      0       0
## 2          0        0      0        0           0        0      0       0
## 3          0        0      0        0           0        0      0       0
## 4          0        0      0        0           0        0      0       0
## 5          0        0      0        0           0        0      0       0
## 6          2        2      2        2           2       -1     -1      -1
## 7          0        0      0        0           0        0      0       0
## 8          1        1      1        1           1        1      1       1
## 9          0        0      0        1           1        0      2       2
## 10         0        0      0        0           0        0      0       0
##    cn_DLK2 cn_C6orf223 cn_GSTA1 cn_HMGCLL1 cn_BMP5 cn_COL9A1 cn_RIMS1 cn_KCNQ5
## 1        0           0        0          0       0         0        0        0
## 2        0           0        0          0       0         0        0        0
## 3        0           0        0          0       0         0        0        0
## 4        0           0        0          0       0         0        0        0
## 5        0           0        0          0       0         0        0        0
## 6       -1          -1       -1         -1      -1         0        0        2
```

```
## 7        0           0        0          0       0         0        0        0
## 8        1           1        1          1       1         1        1        1
## 9        2           2        0          1       0        -1       -1       -1
## 10       0           0        0          0       0         0        0        0
##    cn_DDX43 cn_MRAP2 cn_CGA cn_CNR1 cn_EPHA7 cn_FUT9 cn_SIM1 cn_POPDC3 cn_WISP3
## 1         0        0      0       0        0       0       0         0        0
## 2         0        0      0       0        0       0       0         0        0
## 3         0        1      1       1        1       1       1         1        1
## 4         0        0      0       0        0       0       0         0        0
## 5         0        0      0       0        0       0       0         0        0
## 6         0       -1     -1       0        0       0      -1         1       -1
## 7         0        0      0       0        0       0       0         0        0
## 8         1       -1     -1       1       -1      -1      -1        -1       -1
## 9        -1        2      0      -1       -1      -1       1        -1       -1
## 10        0        0      0       0        0       0       2         2        2
##    cn_COL10A1 cn_RFX6 cn_PKIB cn_FABP7 cn_TRDN cn_KIAA0408 cn_ENPP3 cn_EYA4
## 1           0       0       0        0       0           0        0       0
## 2           0       0       0        0       0           0        0       0
## 3           1       1       1        1       1           1        1       1
## 4           0       0       0        0       0           0        0       0
## 5           0       0       0        0       0           0        0       0
## 6          -1      -1      -1       -1      -1          -1        2       2
## 7           0       0       0        0       0           0        0       0
## 8          -1      -1      -1       -1      -1           1        1       1
## 9          -1      -1       0        0      -1          -1       -1      -1
## 10          2       2       2        2       2          -1       -1      -1
##    cn_MYB cn_IL2ORA cn_IL22RA2 cn_GPR126 cn_SAMD5 cn_ULBP1 cn_PPP1R14C cn_IYD
## 1       0         0          0         0        0        0           0      0
## 2       0         0          0         0        0        0           0      0
## 3       1         1          1         1        1        1           1      1
## 4       0         0          0         0        0        0           0      0
## 5       0         0          0         0        0        0           0      0
```

```
## 6       2         2          2         2        2        2           2      2
## 7       0         0          0         0        0        0           0      0
## 8      -1        -1         -1        -1       -1       -1          -1     -1
## 9       2         0          0        -1       -1       -1          -1      2
## 10     -1         0          0         0        0        0           0      0
##    cn_ESR1 cn_PNLDC1 cn_SLC22A3 cn_DACT2 cn_FRMD1 cn_AMZ1 cn_ITGB8 cn_ABCB5
## 1        0         0          0        0        0       1        1        1
## 2        0        -1         -1       -1       -1       0        0        0
## 3        1         1          1        1        1       1        1        1
## 4        0         0          0        0        0       0        0        0
## 5        0         0          0        0        0       0        0        0
## 6        2         2          2        1        1       1        1        1
## 7        0         0          0        0        0       0        0        0
## 8       -1        -1         -1       -1       -1      -1       -1       -1
## 9        1        -1         -1       -1       -1      -1       -1       -1
## 10       0         0          0        0        0       0        0        0
##    cn_DNAH11 cn_MGAM cn_PRSS1 cn_PIP cn_CNTNAP2 cn_KCNH2 cn_WDR86 cn_DPP6
## 1          1       1        1      1          1        1        1       1
## 2          0       0        0      0          0        0        0       0
## 3          1       0        0      0          0        0        0       0
## 4          0       0        0      0          0        0        0       0
## 5          0       0        0      0          0        0        0       0
## 6          1       2        2      0          0        0        0       0
## 7          0       0        0      0          0        0        0       0
## 8         -1       0        0      0          1        1        1       1
## 9         -1       1        1      1          2       -1       -1       1
## 10         0       0        0      0          0        0        0       0
##    cn_EN2 cn_MNX1 cn_PTPRN2 cn_VIPR2 cn_CSMD1 cn_DEFB1 cn_BLK cn_GATA4
## 1       1       1         1        1        0        0      0        0
## 2       0       0         0        0        0        0      0        0
## 3       0       0         0        0        1        1      1        1
## 4       0       0         0        0        0        0      0        0
```

```
## 5       0       0         0        0       -2       -2     -2       -2
## 6       0      -1        -1       -1       -1       -1     -1       -1
## 7       0       0         0        0       -1       -1     -1       -1
## 8       1       1         1        1       -1       -1     -1       -1
## 9       0       0         0        0       -1       -1     -1       -1
## 10      0       0         0        0        2       -1     -1       -1
##    cn_SLC7A2 cn_FGL1 cn_NAT1 cn_LPL cn_NPM2 cn_HR cn_EGR3 cn_PEBP4 cn_ADAMDEC1
## 1          0       0       0      0       0     0       0        0           0
## 2          0       0       0      0       0     0       0        0           0
## 3          1       1       1      1       1     1       1        1           1
## 4          0       0       0      0       0     0       0        0           0
## 5         -2      -2      -2     -2      -2    -2      -2       -2          -2
## 6         -1      -1      -1     -1      -1    -1      -1       -1          -1
## 7         -1      -1      -1     -1      -1    -1      -1       -1          -1
## 8         -1      -1      -1     -1      -1    -1      -1       -1          -1
## 9          2       2       2      2      -1    -1      -1       -1           1
## 10        -1      -1      -1     -1      -1    -1      -1       -1          -1
##    cn_NEFL cn_SCARA5 cn_NRG1 cn_ADAM32 cn_IDO1 cn_C8orf4 cn_ZMAT4 cn_SFRP1
## 1       -2        -2      -2         1      -2        -2       -2       -2
## 2        0         0       0         0       0         0        0        0
## 3        1         1       1         1       1         1        1        1
## 4        0         0       0         0       0         0        0        0
## 5       -2        -2      -2         1       1         1        1        1
## 6       -1        -1      -1        -1      -1        -1       -1       -1
## 7       -1        -1      -1        -1      -1        -1       -1       -1
## 8       -1        -1      -1         1       1         1        1        1
## 9        0        -1      -1        -1      -1        -1       -1       -1
## 10      -1        -1      -1         2       2         2        2        0
##    cn_ANK1 cn_EFCAB1 cn_PXDNL cn_OPRK1 cn_RP1 cn_SDR16C5 cn_PENK cn_CA8
## 1       -2         1        1        1      1          1       1      1
## 2        0         0        0        0      0          0       0      0
## 3        1         1        1        1      1          1       1      1
```

```
## 4        0         0        0        0      0          0       0      0
## 5        1         1        1        1      1          1       1      1
## 6       -1         1        1        1      1          1       1      1
## 7       -1         2        2        2      2          2       2      2
## 8        1         1        0        0      0          0       0      0
## 9       -1        -1       -1        0      0          2       2      1
## 10       2         0        0        0      0          0       0      0
##    cn_TRIM55 cn_C8orf46 cn_CPA6 cn_PREX2 cn_C8orf34 cn_XKR9 cn_EYA1 cn_TRPA1
## 1          1          1       1        1          1       1       1        1
## 2          0          0       0        0          0       0       0        0
## 3          1          1       1        1          1       1       1        1
## 4          0          0       0        0          0       0       0        0
## 5          1          1       1        1          1       1       1        1
## 6          2          1       1        1          1       1       1        1
## 7          2          2       2        2          2       2       2        2
## 8         -1         -1      -1       -1         -1      -1      -1        1
## 9          0          0       0        0          0       0       0        0
## 10         0          0       0        0          0       0       0        0
##    cn_PI15 cn_CRISPLD1 cn_HNF4G cn_PKIA cn_FABP4 cn_CA3 cn_CA2 cn_ATP6V0D2
## 1        1           1        1       1        1      1      1           1
## 2        0           0        0       1        1      1      1           1
## 3        1           1        1       1        1      1      1           1
## 4        0           0        0       0        0      0      0           0
## 5        1           1        1       1        1      1      1           1
## 6        0           0        0       0        0      0      0           0
## 7        2           2        2       2        2      2      2           2
## 8        1           1        1       1        1      1      1           1
## 9        2           2        2       2        0      1      1           1
## 10       0           0        0       0        2      0      0           0
##    cn_MATN2 cn_C8orf47 cn_RGS22 cn_RIMS2 cn_PKHD1L1 cn_CSMD3 cn_SLC30A8
## 1         1          1        1        1          1        1          1
## 2         1          1        1        1          1        1          1
```

```
## 3         1          1        1        1          1        1          1
## 4         0          0        0        0          0        0          0
## 5         1          1        1        1          1        1          1
## 6         0          0        0        0          0        0          2
## 7         2          2        2        2          2        2          2
## 8         1          1        2        2          2        2          2
## 9         2          2        2        2          0        0          0
## 10        2          2        2        2          2        2          2
##    cn_TNFRSF11B cn_COL14A1 cn_FAM83A cn_GSDMC cn_FAM135B cn_COL22A1 cn_BAI1
## 1             1          1        1        1          1          1       1
## 2             1          1        1        1          1          1       1
## 3             1          1        1        1          1          1       1
## 4             0          0        0        0          0          0       0
## 5             1          1        1        1          1          1       1
## 6             2          2        2        2          2          2       2
## 7             2          2        2        2          2          2       2
## 8             2          2        2        2          2          2       2
## 9             2          2        2       -1          0          0       1
## 10            2          2        2        2          2          2       2
##    cn_ARC cn_PSCA cn_LY6K cn_SLURP1 cn_LY6D cn_GPIHBP1 cn_MAPK15 cn_GPT
## 1       1       1       1         1       1          1         1      1
## 2       1       1       1         1       1          1         1      1
## 3       1       1       1         1       1          1         1      1
## 4       0       0       0         0       0          0         0      0
## 5       1       1       1         1       1          1         1      1
## 6       2       2       2         2       2          2         2      2
## 7       2       2       2         2       2          2         2      2
## 8       2       2       2         2       2          2         2      2
## 9       1       1       1         1       1          1        -1     -1
## 10      2       2       2         2       2          2         2      2
##    cn_SLC1A1 cn_RLN2 cn_IL33 cn_GLDC cn_TYRP1 cn_FREM1 cn_SH3GL2 cn_SLC24A2
## 1          0       0       0       0        0        0        -1         -1
```

```
## 2          0       0       0       0        0        0         0          0
## 3         -1      -1      -1      -1       -1       -2        -1         -1
## 4          0       0       0       0        0        0         0          0
## 5          0       0       0       0        0        0         0          0
## 6          2       2       2       2        2        2        -1         -1
## 7          2       2       2       2        2        2         2          2
## 8          1       2       2       2        2        2         1         -1
## 9          1       1       1       1        2        2         2          2
## 10         0       0       0       0        0        0         0          0
##    cn_CDKN2A cn_DMRTA1 cn_ELAVL2 cn_TMEM215 cn_AQP7 cn_AQP3 cn_PRSS3 cn_DNAI1
## 1         -1        -1        -1          0       0       0        0        0
## 2          0         0         0          0       0       0        0        0
## 3         -1        -1        -1         -1      -1      -1       -1       -1
## 4          0         0         0          0       0       0        0        0
## 5          0         0         0          0       0       0        0        0
## 6         -1        -1        -1          1       1       1        1        1
## 7          2        -1        -1          2       2       2        2        2
## 8         -1        -1        -1         -1      -1      -1       -1       -1
## 9          2         2         1          1       1       0        0       -1
## 10         0         0         0          0       0       0        0        0
##    cn_ENHO cn_CNTFR cn_CCL19 cn_CCL21 cn_KIAA1045 cn_CA9 cn_HRCT1 cn_MELK
## 1        0        0        0        0           0      0        0       0
## 2        0        0        0        0           0      0        0       0
## 3       -1       -1       -1       -1          -1     -1       -1      -1
## 4        0        0        0        0           0      0        0       0
## 5        0        0        0        0           0      0        0       0
## 6        1        1        1        1           1      1        1       1
## 7        2        2        2        2           2      2        2       2
## 8       -1       -1       -1       -1          -1     -1       -1      -1
## 9       -1       -1       -1       -1          -1      1        1       1
## 10       0        0        0        0           0      0        0       0
##    cn_PAX5 cn_CNTNAP3 cn_PGM5 cn_GPR144 cn_LCN2 cn_ENTPD8 cn_CACNA1B cn_TUBBP5
```

```
## 1        0          0       0         0       0         0          0         0
## 2        0          0       0         0       0         0          0         0
## 3       -1         -1      -1        -1      -1        -1         -1        -1
## 4        0          0       0         0       0         0          0         0
## 5        0          0       0         0       0         0          0         0
## 6        1          2       2         2      -1        -1         -1        -1
## 7        2          2       2         0       0         0          0         0
## 8       -1         -1      -1         1       1         1          1         1
## 9        1          1       1         2       1        -1         -1        -1
## 10       0          0       0         0       0         0          0         0
##    cn_AKR1E2 cn_AKR1C1 cn_AKR1C2 cn_CALML5 cn_CALML3 cn_ITIH5 cn_ITIH2 cn_GATA3
## 1          1         1         1         1         1        1         1        1
## 2          0         0         0         0         0        0         0        0
## 3          1         1         1         1         1        1         1        1
## 4          0         0         0         0         0        0         0        0
## 5          0         0         0         0         0        0         0        0
## 6          1         1         1         1         1        1         1        1
## 7          1         1         1         1         1        1         1        1
## 8          1         1         1         1         1        1         1        1
## 9          2         2         2         2         2        2         2        2
## 10         0         0         0         0         0        0         0        0
##    cn_MCM10 cn_BEND7 cn_ITGA8 cn_ST8SIA6 cn_MRC1 cn_ARMC3 cn_C10orf107
## 1         1        1        1          1       1        1            1
## 2         0        0        0          0       0        0            0
## 3         1        1        1          1       1        1           -1
## 4         0        0        0          0       0        0            0
## 5         0        0        0          0       0        0            0
## 6         1        1        1          1       1        1            0
## 7         1        1        1          1       1        1            1
## 8         1        1        1          1       1        0           -1
## 9         2        2        1          1       1        0            2
## 10        0        0        0          0       0        0            0
```

```
##    cn_SYNPO2L cn_DUSP13 cn_PLAC9 cn_SFTPA2 cn_MAT1A cn_DYDC2 cn_C10orf90
## 1           1         1        1         1        1        1           1
## 2           0         0        0         0        0        0           0
## 3          -1         1       -1        -1       -1       -1          -1
## 4           0         0        0         0        0        0           0
## 5           0         0        0         0        0        0           0
## 6           0         0        0         0        0        0          -1
## 7           1         1        1         1        1        1           1
## 8          -1        -1       -1        -1       -1       -1          -1
## 9           1         1       -1        -1        1        1           2
## 10          0         0        0         0        0        0           0
##    cn_FAM196A cn_KNDC1 cn_SYCE1 cn_WT1 cn_ELF5 cn_EHF cn_SLC1A2 cn_LRRC4C
## 1           1        1        1      0       0      0         0         0
## 2           0        0        0      0       0      0         0         0
## 3           1        1        1      0       0      0         0         0
## 4           0        0        0      0       0      0         0         0
## 5           0        0        0      0       0      0         0         0
## 6          -1       -1       -1      1       1      1         1         1
## 7           1        1        1      0       0      0         0         0
## 8          -1       -2       -2     -1      -1     -1        -1        -1
## 9           2        1        1      1       2      2         2         2
## 10          0        0        0      0       0      0         0         0
##    cn_CTSW cn_SPDYC cn_ZNHIT2 cn_SYT12 cn_ACY3 cn_ALDH3B2 cn_GAL cn_MYEOV
## 1        0        0         0        0       0          0      0        0
## 2        0        0         0        0       0          0      0        0
## 3        1        1         1       -1      -1         -1     -1       -1
## 4        0        0         0        0       2          2     -1        2
## 5        0        0         0        0       0          0      0        0
## 6        0        0         0        0       0          0      0        2
## 7        0        0         0        0       0          0      0        0
## 8        1        1         1        1       1          1      1        1
## 9        1        1         1        0       1          1      1        1
```

```
## 10       2        2         2        2       2          2      2        2
##    cn_FOLR1 cn_PLEKHB1 cn_CHRDL2 cn_MOGAT2 cn_DGAT2 cn_WNT11 cn_KCTD14 cn_THRSP
## 1         0          0         0         0        0        0         0        0
## 2         0          0         0         0        0        0         0        0
## 3        -1          1         1         2        2        2         2        2
## 4         2          2         2         2        2        2         2        2
## 5         0          0         0         0        0        0         0        0
## 6         2          2        -1        -1       -1       -1        -1       -1
## 7         0          0         0         0        0        0         0        0
## 8         1          1         1         1        1        1         1        1
## 9        -1         -1        -1         0        0        2         2        2
## 10       -1         -1        -1        -1       -1        2         2        2
##    cn_FAM181B cn_PGR cn_MMP7 cn_MMP10 cn_MMP1 cn_MMP3 cn_MMP12 cn_MMP13
## 1           0      0       0        0       0       0        0        0
## 2           0      0       0        0       0       0        0        0
## 3          -1      2       2        2       2       2        2        2
## 4          -1     -1      -1       -1      -1      -1       -1       -1
## 5           0      0       0        0       0       0        0        0
## 6          -1      1       1        1       1      -1       -1       -1
## 7           0      0       0        0       0       0        0        0
## 8           1      1      -1       -1      -1      -1       -1       -1
## 9          -1     -1      -1       -1      -1      -1       -1       -1
## 10         -1     -1      -1       -1      -1      -1       -1       -1
##    cn_GRIA4 cn_C11orf92 cn_POU2AF1 cn_CRYAB cn_NCAM1 cn_DRD2 cn_ZBTB16
## 1         0           0          0        0        0       0         0
## 2        -1          -1         -1       -1       -1      -1        -1
## 3         2          -1         -1       -1       -1      -1        -1
## 4        -1          -1         -1       -1       -1      -1        -1
## 5         0           0          0        0        0       0         0
## 6        -1          -1         -1       -1       -1      -1        -1
## 7         0           0          0        0        0       0         0
## 8        -1          -1         -1       -1       -1      -1        -1
```

```
## 9        -1          -1         -1       -1       -1      -1        -1
## 10       -1          -1         -1       -1       -1      -1        -1
##    cn_DSCAML1 cn_TMPRSS4 cn_SCN2B cn_CD3E cn_CD3D cn_CD3G cn_TTC36 cn_CXCR5
## 1           0          0        0       0       0       0        0        0
## 2          -1         -1       -1      -1      -1      -1       -1       -1
## 3          -1         -1       -1      -1      -1      -1       -1       -1
## 4          -1         -1       -1      -1      -1      -1       -1       -1
## 5           0          0        0       0       0       0        0        0
## 6          -1         -1       -1      -1      -1      -1       -1       -1
## 7           0          0        0       0       0       0        0        0
## 8          -1          1        1       1       1       1        1        1
## 9          -1         -1       -1      -1      -1      -1       -1       -1
## 10         -1         -1       -1      -1      -1      -1       -1       -1
##    cn_TRIM29 cn_GRIK4 cn_VSIG2 cn_HEPACAM cn_HEPN1 cn_PKNOX2 cn_BARX2
## 1          0        0        0          0        0         0        0
## 2         -1       -1       -1         -1       -1        -1       -1
## 3         -1       -1       -1         -1       -1        -1        0
## 4         -1       -1       -1         -1       -1        -1       -1
## 5          0        0        0          0        0         0        0
## 6         -1       -1       -1         -1       -1        -1       -1
## 7          0        0        0          0        0         0        0
## 8         -1       -1       -1         -1       -1        -1       -1
## 9          0        0       -1         -1       -1        -1        1
## 10        -1       -1       -1         -1       -1        -1       -1
##    cn_TMEM45B cn_ADAMTS8 cn_ADAMTS15 cn_IGSF9B cn_B3GAT1 cn_GLB1L2 cn_B4GALNT3
## 1           0          0           0         0         0         0           1
## 2          -1         -1          -1        -1        -1        -1           1
## 3           0         -1          -1        -1        -1        -1           2
## 4          -1         -1          -1        -1        -1        -1           0
## 5           0          0           0         0         0         0           0
## 6          -1         -1          -1        -1        -1        -1          -1
## 7           0          0           0         0         0         0           0
```

```
## 8          -1         -1          -1        -1        -1        -1           2
## 9          -1         -1          -1        -1        -1        -1           0
## 10         -1         -1          -1        -1        -1        -1           0
##    cn_LRTM2 cn_KCNA1 cn_NTF3 cn_SCNN1A cn_CLEC4E cn_A2ML1 cn_KLRB1 cn_BCL2L14
## 1         1        1       1         1         1        1        1           1
## 2         0        0       0         0         0        0        0           0
## 3         2       -1      -1         1         1        1        1           2
## 4         0        0       0         0         0        0        0           0
## 5         0        0       0         0         0        0        0           0
## 6        -1       -1      -1         2         2        2        2          -1
## 7         0        0       0         0         0        0        0           0
## 8         2        2       2         2         2        2        2           2
## 9         0        2       2         2         2        2        2           2
## 10        0        0       0         0         0        0        0           0
##    cn_MGP cn_ERP27 cn_LMO3 cn_RERGL cn_SLCO1A2 cn_C12orf39 cn_TUBA3C cn_GJB2
## 1       1        1       1        1          1           1         0       0
## 2       0        0       0        0          0           0         0       0
## 3      -1       -1      -1       -1         -1          -1         0       0
## 4       0        0       0        0          0           0        -1      -1
## 5       0        0       0        0          0           0         0       0
## 6       1        1       2        2          2           2         1       1
## 7       0        0       0        0          0           0        -1      -1
## 8       1        1       1        1          1           1         1       1
## 9       0        0       0        0          0           0         0       0
## 10      0        0       0        0          0           0         0       0
##    cn_GJB6 cn_FGF9 cn_SGCG cn_ATP8A2 cn_SHISA2 cn_GPR12 cn_FLT3 cn_DCLK1
## 1        0       0       0         0          0        0       0        0
## 2        0       0       0         0          0        0       0        0
## 3        0       0       0         0          0        0      -2       -1
## 4       -1      -1      -1        -1         -1       -1      -1       -1
## 5        0       0       0         0          0        0       0        0
## 6        1       1       1         1          1        1       1        1
```

```
## 7       -1      -1      -1        -1        -1       -1      -1       -1
## 8        1       1       1         1         1        1       1        2
## 9        0       0      -1        -1        -1       -1       0       -1
## 10       0       0       0         0         0        0       0        0
##    cn_FREM2 cn_PCDH20 cn_PCDH9 cn_KLHL1 cn_DACH1 cn_SCEL cn_SLAIN1 cn_POU4F1
## 1         0         0        0        0        0       0         0         0
## 2         0         0        0        0        0       0         0         0
## 3        -1        -1       -1       -1       -1      -1        -1        -1
## 4        -1        -1       -1       -1       -1      -1        -1        -1
## 5         0         0        0        0        0       0         0         0
## 6         1        -1       -1       -1       -1      -1        -1        -1
## 7        -1        -1       -1       -1       -1      -1        -1        -1
## 8        -1         1        1        1        1       1         1         1
## 9         1        -1       -1       -1       -1       0         0         0
## 10        0         0        0        0        0       0         0         0
##    cn_SLITRK1 cn_SLITRK6 cn_SLITRK5 cn_CLDN10 cn_HS6ST3 cn_OXGR1 cn_SLC15A1
## 1           0          0          0         0         0        0          0
## 2           0          0          0         0         0        0          0
## 3          -1         -1         -1        -1        -1       -1         -1
## 4          -1         -1         -1        -1        -1       -1         -1
## 5           0          0          0         0         0        0          0
## 6          -1         -1         -1        -1        -1       -1         -1
## 7          -1         -1         -1        -1        -1       -1         -1
## 8           1          1          1         2         2        2          2
## 9          -1          0         -1        -1        -1        0          0
## 10          0          0          0         0         0        0          0
##    cn_ZIC5 cn_ZIC2 cn_FAM155A cn_F7 cn_DHRS2 cn_NOVA1 cn_COCH cn_PAX9 cn_FOXA1
## 1        0       0          0     0        0        0       0       0        0
## 2        0       0          0     0        0        0       0       0        0
## 3       -1      -1         -1     1        0        0       0       0        0
## 4       -1      -1         -1    -1        0        0       0       0        0
## 5        0       0          0     0        0        0       0       0        0
```

```
## 6       -1      -1         -1    -1        1        1       1      -1       -1
## 7       -1      -1         -1    -1        0        0       0       0        0
## 8        2       2          2     2       -1       -1      -1      -1       -1
## 9        0       0         -1    -1       -1       -1      -1      -1       -1
## 10       0       0          0     0        0        0       0       0        0
##    cn_SSTR1 cn_ABHD12B cn_PRIMA1 cn_IFI27 cn_PPP4R4 cn_SERPINA6 cn_SERPINA1
## 1         0          0         0        0         0           0           0
## 2         0          0         0        0         0           0           0
## 3         0          0         0        0         0           0           0
## 4         0          0         0        0         0           0           0
## 5         0          0         0        0         0           0           0
## 6        -1         -1         1        1         1           1           1
## 7         0          0         0        0         0           0           0
## 8        -1         -1        -1       -1        -1          -1          -1
## 9        -1         -1        -1       -1        -1          -1          -1
## 10        0          0         0        0         0           0           0
##    cn_SERPINA11 cn_SERPINA5 cn_SERPINA3 cn_TCL1B cn_TCL1A cn_DEGS2 cn_DLK1
## 1             0           0           0        0        0        0       0
## 2             0           0           0        0        0        0       0
## 3             0           0           0        0        0        0       0
## 4             0           0           0        0        0        0       0
## 5             0           0           0        0        0        0       0
## 6             1           1           1        1        1        1       1
## 7             0           0           0        0        0        0       0
## 8            -1          -1          -1       -1       -1       -1      -1
## 9            -1          -1          -1       -1       -1       -1       1
## 10            0           0           0        0        0        0       0
##    cn_DIO3 cn_TDRD9 cn_C14orf180 cn_PLD4 cn_CRIP1 cn_ADAM6 cn_KIAA0125 cn_THSD4
## 1        0        0            0       0        0        0           0       -1
## 2        0        0            0       0        0        0           0        0
## 3        0        0            0       0        0        0           0        0
## 4        0        0            0       0        0        0           0        0
```

```
## 5        0        0           0       0       0       0          0        0
## 6        1        1           1       1       1       1          1       -1
## 7        0        0           0       0       0       0          0       -1
## 8       -1       -1          -1      -1      -1      -1         -1        1
## 9        1       -1          -1      -1      -1      -1         -1       -1
## 10       0        0           0       0       0       0          0        0
##    cn_GRAMD2 cn_C15orf59 cn_CRABP1 cn_RASGRF1 cn_KIAA1199 cn_TMC3 cn_AP3B2
## 1         -1          -1         1          1           1       1        1
## 2          0           0         0          0           0       0        0
## 3          0           0         0          0           0       0        0
## 4          0           0         0          0           0       0        0
## 5          0           0         0          0           0       0        0
## 6         -1          -1        -1         -1          -1      -1       -1
## 7         -1          -1        -1         -1          -1      -1       -1
## 8          1           1         1          1           1       1        1
## 9         -1          -1         0         -1           1       1       -1
## 10         0           0         0          0           0       0        0
##    cn_BNC1 cn_NTRK3 cn_ACAN cn_RHCG cn_PLIN1 cn_MESP1 cn_ANPEP cn_ST8SIA2
## 1        1        2       2       2        2        2        2          2
## 2        0        0       0       0        0        0        0          0
## 3        0        0       0       0        0        0        0          0
## 4        0        0       0       0        0        0        0          0
## 5        0        0       0       0        0        0        0          0
## 6       -1       -1      -1      -1       -1       -1       -1         -1
## 7       -1       -1      -1      -1       -1       -1       -1         -1
## 8        1        2       2       2        2        2        2          2
## 9       -1       -1      -1      -1       -1       -1       -1         -1
## 10       0        0       0       0        0        0        0          0
##    cn_RGMA cn_SYNM cn_ARHGDIG cn_HBA1 cn_HBA2 cn_RGS11 cn_FBXL16 cn_METRN
## 1        2       1          1       1       1        1         1        1
## 2        0       0          1       1       1        1         1        1
## 3        0       0          1       1       1        1         1        1
```

```
## 4        0       0          0       0       0        0         0        0
## 5        0       0          1       1       1        1         1        1
## 6       -1       1          0       0       0        0         0        0
## 7       -1      -1          0       0       0        0         0        0
## 8        2       1          1       1       1        1         1        1
## 9       -1       2          0       0       0        0         0        0
## 10       0       0          2       2       2        2         2        2
##    cn_CCDC78 cn_HAGHL cn_GNG13 cn_MSLN cn_SOX8 cn_CACNA1H cn_TPSAB1 cn_TPSB2
## 1          1        1        1       1       1          1         1        1
## 2          1        1        1       1       1          1         1        1
## 3          1        1        1       1       1          1         1        1
## 4          0        0        0       0       0          0         0        0
## 5          1        1        1       1       1          1         1        1
## 6          0        0        0       0       0          0         0        0
## 7          0        0        0       0       0          0         0        0
## 8          1        1        1       1       1          1         1        1
## 9          0        0        0       0       0          0         0        0
## 10         2        2        2       2       2          2         2        2
##    cn_TPSD1 cn_TPSG1 cn_BAIAP3 cn_IGFALS cn_NPW cn_RAB26 cn_PRSS33 cn_PRSS21
## 1         1        1         1         1      1        1         1         1
## 2         1        1         1         1      1        1         1         1
## 3         1        1         1         1      1        1         1         1
## 4         0        0         0         0      0        0         0         0
## 5         1        1         1         1      1        1         1         1
## 6         0        0         0         0      0        0         0         0
## 7         0        0         0         0      0        0         0         0
## 8         1        1         1         1      1        1        -1        -1
## 9         0        0         1         1      1        1         1         1
## 10        2        2         2         2      2        2         2         2
##    cn_ZG16B cn_KREMEN2 cn_PKMYT1 cn_CLDN6 cn_C16orf89 cn_ABAT cn_GRIN2A
## 1         1          1         1        1           1       1         1
## 2         1          1         1        1           1       1         1
```

```
## 3         1          1         1        1           1       1         1
## 4         0          0         0        0           0       0         0
## 5         1          1         1        1           1       1         1
## 6         0          0         0        0           0       0         0
## 7         0          0         0        0           0       0         0
## 8        -1         -1        -1       -1          -1       1        -1
## 9         1          1         1        1          -1      -1        -1
## 10        2          2         2        2           2       2         2
##    cn_TNFRSF17 cn_SHISA9 cn_ABCC6 cn_MPV17L cn_MYH11 cn_PLA2G10 cn_SYT17
## 1            1         1        1         1        1          1        1
## 2            2         0        0         0        0          0        0
## 3            1         1        1         1        1          1        1
## 4            0         0        0         0        0          0        0
## 5            1         1        1         1        1          1        1
## 6            0         0        1         1        1          1        1
## 7            0         0        0         0        0          0        0
## 8           -1         1        1         1        1          1        1
## 9           -1         0       -1        -1       -1         -1       -1
## 10           2         2        2         2        2          2        2
##    cn_TMC5 cn_GP2 cn_ACSM5 cn_ACSM1 cn_DNAH3 cn_CRYM cn_SCNN1G cn_SCNN1B
## 1        1      1        1        1        1       1         1         1
## 2        0      0        0        0        0       0         0         0
## 3        1      1        1        1        1       1         1         1
## 4        0      0        0        0        0       0         0         0
## 5        1      1        1        1        1       1         1         1
## 6        1      1        1        1        1       1         1         1
## 7        0      0        0        0        0       0         0         0
## 8        1      1        1        1        1       1        -1        -1
## 9       -1     -1       -1       -1       -1      -1        -1        -1
## 10       2      2        2        2        2       2         2         2
##    cn_HS3ST4 cn_CD19 cn_ASPHD1 cn_DOC2A cn_FAM57B cn_SEZ6L2 cn_PYDC1 cn_ABCC12
## 1          1       1         1        1         1         1        1        -1
```

```
## 2          0       0         0        0         0         0        0         0
## 3          1       1         1        1         1         1        1         1
## 4          0       0         0        0         0         0        0         0
## 5          1       1         1        1         1         1        1         1
## 6          1       1         1        1         1         1        1         1
## 7          0       0         0        0         0         0        0         0
## 8         -1       1         1        1         1         1        1         1
## 9         -1      -1        -1       -1        -1        -1       -1         1
## 10         2       2         2        2         2         2        2        -1
##    cn_ABCC11 cn_CBLN1 cn_TOX3 cn_IRX6 cn_SLC6A2 cn_CES1 cn_MT1M cn_MT1A cn_MT1G
## 1         -1       -1      -1      -1        -1      -1      -1      -1      -1
## 2          0        0       0      -1        -1      -1      -1      -1      -1
## 3          1        1       1       1         1       1       1       1       1
## 4          0        0       0       0         0       0       0       0       0
## 5          1        1       1      -2        -2      -2      -2      -2      -2
## 6          1        1       1      -1        -1      -1      -1      -1      -1
## 7          0        0       0       0         0       0       0       0       0
## 8          1        1       1       2         2       2       2       2       2
## 9         -1        0      -1      -1        -1      -1      -1      -1      -1
## 10        -1       -1      -1      -1        -1      -1      -1      -1      -1
##    cn_CCL17 cn_RRAD cn_CES3 cn_RLTPR cn_CDH3 cn_CDH1 cn_HAS3 cn_IL34 cn_CALB2
## 1        -1      -1      -1       -1      -1      -1      -1      -1       -1
## 2        -1      -1      -1       -1      -1      -1      -1      -1       -1
## 3         1       1       1        1       1       1       1       1        1
## 4         0       0       0        0       0       0       0       0        0
## 5        -2      -2      -2       -2      -2      -2      -2      -2       -2
## 6        -1      -1      -1       -1      -1      -1      -1       1        1
## 7         0       0       0        0       0       0       0       0        0
## 8         1       1       1        1       1       1       1       1        1
## 9        -1       1       1       -1      -1      -1      -1      -1        2
## 10       -1      -1      -1       -1      -1      -1      -1      -1       -1
##    cn_CHST4 cn_TAT cn_HP cn_SYCE1L cn_ADAMTS18 cn_CLEC3A cn_PKD1L2 cn_SDR42E1
```

```
## 1        -1     -1     -1        -1          -1        -1        -1         -1
## 2        -1     -1     -1        -1          -1        -1        -1         -1
## 3         1      1      1         1           1         1         1          1
## 4         0      0      0         0           0         0         0          0
## 5        -2     -2     -2        -2          -2        -2        -2         -2
## 6         1      1      1         1           2         1         2          2
## 7         0      0      0         0           0         0         0          0
## 8         1      1      1         1           1         1         1          1
## 9         2      2      2        -1          -1        -1        -1         -1
## 10       -1     -1     -1        -1          -1        -1        -1         -1
##    cn_HSD17B2 cn_CPNE7 cn_DPEP1 cn_TUBB3 cn_CCDC144B cn_MFAP4 cn_ALDH3A1
## 1          -1       -1       -1       -1          -1       -1         -1
## 2          -1       -1       -1       -1           0        0          0
## 3           1        1        1        1          -1       -1         -1
## 4           0        0        0        0          -1       -1         -1
## 5          -2       -2       -2       -2           0        0          0
## 6           2        2        2        2          -1       -1         -1
## 7           0        0        0        0           0        0          0
## 8           1        1        1        1          -1       -1         -1
## 9          -1       -1       -1       -1          -1       -1         -1
## 10         -1       -1       -1       -1          -1       -1         -1
##    cn_SLC13A2 cn_CORO6 cn_SLC6A4 cn_RHBDL3 cn_CCL11 cn_CCL13 cn_CCL7 cn_CCL8
## 1           0        0         0         0        0        0       0       0
## 2           0        0         0         1        1        1       1       1
## 3           1        1         1         1        1        1       1       1
## 4           0        0         0         0        0        0       0       0
## 5           0        0         0         0        0        0       0       0
## 6          -1       -1        -1        -1       -1       -1      -1      -1
## 7           0        0         0         0        0        0       0       0
## 8          -1       -1        -1        -1       -1       -1      -1      -1
## 9          -1       -1        -1        -1       -1       -1      -1      -1
## 10          0        0         0         0        0        0       0       0
```

```
##    cn_GAS2L2 cn_CCL14 cn_CCL18 cn_TBC1D3C cn_TBC1D3G cn_STAC2 cn_PPP1R1B
## 1          0        0        0          0          0        0          0
## 2          0        1        1          1          1        1          1
## 3          1        1        1          1          1        1          1
## 4          0        0        0          0          0        0          0
## 5          0        0        0          0          0        0          0
## 6         -1       -1       -1         -1         -1       -1         -1
## 7          0        0        0          0          0        0          0
## 8         -1       -1       -1         -1         -1       -1         -1
## 9         -1       -1       -1         -1         -1       -1         -1
## 10         0        0        0          0          0        0          0
##    cn_PNMT cn_IKZF3 cn_TOP2A cn_TNS4 cn_CCR7 cn_KRT23 cn_KRT31 cn_KRT13
## 1        0        0        0       0       0        0        0        0
## 2        1        1        1       1       1        1        1        1
## 3        1        1        1       1       1        1        1        1
## 4        0        0        0       0       0        0        0        0
## 5        0        0        0       0       0        0        0        0
## 6       -1       -1       -1      -1      -1       -1       -1       -1
## 7        0        0        0       0       0        0        0        0
## 8       -1       -1       -1      -1      -1       -1       -1       -1
## 9       -1       -1       -1      -1      -1       -1       -1       -1
## 10       0        0        0       0       0        0        0        0
##    cn_KRT15 cn_KRT14 cn_KRT16 cn_KRT17 cn_HAP1 cn_WNK4 cn_RND2 cn_ETV4 cn_MEOX1
## 1         0        0        0        0       0       0       0       0        0
## 2         1        1        1        1       1       1       1       1        1
## 3         1        1        1        1       1      -1      -1      -1       -1
## 4         0        0        0        0       0       0       0       0        0
## 5         0        0        0        0       0       0       0       0        0
## 6        -1       -1       -1       -1      -1      -1      -1      -1       -1
## 7         0        0        0        0       0       0       0       0        0
## 8        -1       -1       -1       -1      -1      -1      -1      -1       -1
## 9        -1       -1       -1       -1      -1       2       2       1        1
```

```
## 10        0        0        0        0       0       0       0       0        0
##    cn_CD300LG cn_PYY cn_RUNDC3A cn_GFAP cn_KIF18B cn_CRHR1 cn_MAPT cn_HOXB2
## 1           0      0          0       0         0        0       0        0
## 2           1      1          1       1         1        1       1        1
## 3           0      1          1       1         1        1       1        1
## 4           0      0          0       0         0        0       0        0
## 5           0      0          0       0         0        0       0        0
## 6          -1     -1         -1      -1        -1       -1      -1       -1
## 7           0      0          0       0         0        0       0        0
## 8          -1     -1         -1      -1        -1       -1      -1       -1
## 9           1      1          1       2         2        2       2        1
## 10          0      0          0       0         0        0       0        0
##    cn_HOXB5 cn_HOXB6 cn_HOXB13 cn_B4GALNT2 cn_NGFR cn_DLX3 cn_CHAD cn_HLF
## 1         0        0         0           0       0       0       0      0
## 2         1        1         1           1       1       1       1      1
## 3         1        1         1           1       1       1       1      1
## 4         0        0         0           0       0       0       0      0
## 5         0        0         0           0       0       0       0      0
## 6        -1       -1        -1          -1      -1      -1      -1     -1
## 7         0        0         0           0       0       0       0      0
## 8        -1       -1        -1          -1      -1      -1      -1     -1
## 9         1        1         1           1       1       1       1      1
## 10        0        0         0           0       0       0       0      0
##    cn_TMEM100 cn_TEX14 cn_PPM1E cn_PRR11 cn_CA4 cn_TCAM1P cn_SCN4A cn_RGS9
## 1           0        0        0        0      0         0        0       0
## 2           1        1        1        1      1         1        1       1
## 3           1        0        0        0      1         2        2       0
## 4           0        0        0        0      0         0        0       0
## 5           0        0        0        0      0         0        0       0
## 6          -1       -1       -1       -1     -1         2        2       2
## 7           0        0        0        0      0         0        0       0
## 8          -1       -1       -1       -1     -1        -1       -1      -1
```

```
## 9           1        1        1        1     -1        -1       -1      -1
## 10          0        0        0        0      0         0        0       0
##    cn_CACNG4 cn_CACNG1 cn_SLC16A6 cn_ABCA8 cn_ABCA9 cn_ABCA6 cn_ABCA10
## 1          0         0          0        0        0        0         0
## 2          1         1          1        1        1        1         1
## 3          0         0          2        1        1        1         1
## 4          0         0          0        0        0        0         0
## 5          0         0          0        0        0        0         0
## 6          2         2          2        2        2        2         2
## 7          0         0          0        0        0        0         0
## 8         -1        -1         -1       -1       -1       -1        -1
## 9         -1        -1          1       -1       -1       -1        -1
## 10         0         0          0        0        0        0         0
##    cn_KCNJ16 cn_SSTR2 cn_SDK2 cn_KIF19 cn_FOXJ1 cn_ST6GALNAC1 cn_MGAT5B
## 1          0        0       0        0        0             0         0
## 2          1        1       1        1        1             1         1
## 3          1        1       1        1        0             0         0
## 4          0        0       0        0        0             0         0
## 5          0        0       0        0        0             0         0
## 6          2        2       2        2        2             2         2
## 7          0        0       0        0        0             0         0
## 8         -1       -1      -1       -1       -1            -1        -1
## 9          2        2       2       -1       -1            -1        -1
## 10         0        0       0        0        0             0         0
##    cn_BIRC5 cn_CBX2 cn_NPTX1 cn_NOTUM cn_CLUL1 cn_ADCYAP1 cn_MYOM1 cn_DLGAP1
## 1         0       0        0        0        0          0        0         0
## 2         1       1        1        1        0          0        0         0
## 3         1       1        1        1       -1         -1       -1        -1
## 4         0       0        0        0        0          0        0         0
## 5         0       0        0        0        0          0        0         0
## 6         2       2        2        2       -1         -1       -1        -1
## 7         0       0        0        0        0          0        0         0
```

```
## 8        -1      -1       -1       -1        1          1        1         1
## 9         1       1       -1       -1       -1         -1        1         1
## 10        0       0        0        0        0          0        0         0
##    cn_LAMA1 cn_CIDEA cn_CXADRP3 cn_ANKRD30B cn_GREB1L cn_LAMA3 cn_AQP4 cn_CHST9
## 1         0        0          0           0         0        0       0        0
## 2         0        0          0           0         0        0       0        0
## 3        -1       -1         -1           0         0        1       1        1
## 4         0        0          0           0         0        0       0        0
## 5         0        0          0           0         0        0       0        0
## 6        -1       -1         -1          -1        -1       -1       2        2
## 7         0        0          0           0         0        0       0        0
## 8         1        1          1           1         2        2       2        2
## 9         1        2          0           0         0        2       2        2
## 10        0        0          0           0         0        0       0        0
##    cn_CDH2 cn_DSC3 cn_DSC1 cn_DSG1 cn_DSG3 cn_NOL4 cn_SLC39A6 cn_SLC14A2
## 1        0       0       0       0       0       0          0          0
## 2        0       0       0       0       0       0          0          0
## 3        1       0       0       0       0       1          1          0
## 4        0       0       0       0       0       0          0          0
## 5        0       0       0       0       0       0          0          0
## 6        2      -1      -1      -1      -1      -1         -1         -1
## 7        0       0       0       0       0       0          0         -1
## 8        2       2       2       2       2       2          2          2
## 9        1       2       2       2       2       1          1          2
## 10       0       0       0       0       0       0          0          0
##    cn_SIGLEC15 cn_MAPK4 cn_CCDC68 cn_ONECUT2 cn_GRP cn_SERPINB5 cn_SERPINB3
## 1            0        0         0          0      0           0          0
## 2            0        0         0          0      0           0          0
## 3            0        0         0          0      0           0          0
## 4            0        0         0          0      0           0          0
## 5            0        0         0          0      0           0          0
## 6           -1       -1        -1         -1     -1          -1         -1
```

```
## 7           -1       -1        -1         -1     -1          -1          -1
## 8            2        1         1          0      0           0           0
## 9            1       -1        -1         -1     -1           2           2
## 10           0        0         0          0      0           0           0
##    cn_SERPINB7 cn_SERPINB2 cn_CDH7 cn_CDH19 cn_CBLN2 cn_NETO1 cn_GZMM cn_HCN2
## 1            0           0       0        0        0        0       1       1
## 2            0           0       0        0        0        0       0       0
## 3            0           0       0        0        1        1      -1      -1
## 4            0           0       0        0        0        0      -1      -1
## 5            0           0       0        0        0        0       0       0
## 6           -1          -1      -1       -1       -1       -1      -1      -1
## 7           -1          -1      -1       -1       -1       -1       0       0
## 8            0           0       0        0        1        1      -1      -1
## 9            2           2       2        2        2        2      -1      -1
## 10           0           0       0        0        0        0       0       0
##    cn_AZU1 cn_LPPR3 cn_CFD cn_KISS1R cn_CELF5 cn_ZFR2 cn_LRG1 cn_PLIN4 cn_PLIN5
## 1        1        1      1         1        1       1       1        1        1
## 2        0        0      0         0        0       0       0        0        0
## 3       -1       -1     -1        -1       -1      -1      -1       -1       -1
## 4       -1       -1     -1        -1       -1      -1      -1       -1       -1
## 5        0        0      0         0        0       0       0        0        0
## 6       -1       -1     -1        -1       -1      -1      -1       -1       -1
## 7        0        0      0         0        0       0       0        0        0
## 8       -1       -1     -1        -1       -1      -1      -1       -1       -1
## 9       -1       -1     -1        -1        1      -1      -1       -1       -1
## 10       0        0      0         0        0       0       0        0        0
##    cn_FUT3 cn_FUT6 cn_CAPS cn_PCP2 cn_FCER2 cn_FBN3 cn_MUC16 cn_P2RY11 cn_ICAM5
## 1        1       1       1       1        1       1        1         1        1
## 2        0       0       0       0        0       0        0         0        0
## 3       -1      -1      -1      -1       -1      -1       -1        -1       -1
## 4       -1      -1      -1      -1       -1      -1       -1        -1       -1
## 5        0       0       0       0        0       0        0         0        0
```

```
## 6       -1      -1      -1      -1       -1      -1       -1        -1       -1
## 7        0       0       0       0        0       0        0         0        0
## 8        0       0       0      -1       -1      -1       -1        -1       -1
## 9       -1      -1      -1       2        2       2        2         2        2
## 10       0       0       0       0        0       0        0         0        0
##    cn_MAST1 cn_PALM3 cn_SLC1A6 cn_CASP14 cn_PGLYRP2 cn_CYP4F22 cn_CYP4F8
## 1         1        1         1         1          1          1         1
## 2         0        0         0         0          0          0         0
## 3        -1       -1        -1        -1         -1         -1        -1
## 4        -1       -1        -1        -1         -1         -1        -1
## 5         0        0         0         0          0          0         0
## 6        -1        2         2         2          2          2         2
## 7         0        0         0         0          0          0         0
## 8        -1       -1        -1        -1         -1         -1        -1
## 9        -1        1         2         2          2          2         2
## 10        0        0         0         0          0          0         0
##    cn_CYP4F3 cn_CYP4F12 cn_UCA1 cn_CYP4F11 cn_NWD1 cn_CPAMD8 cn_B3GNT3
## 1          1          1       1          1       1         1         1
## 2          0          0       0          0       0         0         0
## 3         -1         -1      -1         -1      -1        -1        -1
## 4         -1         -1      -1         -1      -1        -1        -1
## 5          0          0       0          0       0         0         0
## 6          2          2       2          2       2         2         2
## 7          0          0       0          0       0         0         0
## 8         -1         -1      -1         -1      -1        -1        -1
## 9          2          2       2          2       2         2         2
## 10         0          0       0          0       0         0         0
##    cn_TDRD12 cn_SLC7A10 cn_CHST8 cn_HPN cn_FXYD1 cn_MAG cn_FFAR2 cn_DMKN
## 1          1          1        1      1        1      1        1       1
## 2          0          0        0      0        0      0        0       0
## 3          1          1        1      1        1      1        1       1
## 4          0          0        0      2       -1     -1       -1      -1
```

```
## 5          0          0        0      0        0      0        0       0
## 6          2          2        2      2        2      2        2       2
## 7          0          0        0      0        0      0        0       0
## 8          1          1        1      0        0      0        0       0
## 9          1          1        1      2        2      2        2       2
## 10         0          0        0      0        0      0        0       0
##    cn_SBSN cn_UPK1A cn_HSPB6 cn_APLP1 cn_PPP1R14A cn_C19orf33 cn_RYR1 cn_LGALS7
## 1        1        1        1        1           1           1       1         1
## 2        0        0        0        0           0           0       0         0
## 3        1        1        1        1           1           1       1         1
## 4       -1       -1       -1       -1           2           2       2         2
## 5        0        0        0        0           0           0       0         0
## 6        2        2        2        2           2           2       2         2
## 7        0        0        0        0           0           0       0         0
## 8        0        0        0        0           0           0       0         0
## 9        2        2        2        2          -1          -1      -1        -1
## 10       0        0        0        0           0           0       0         0
##    cn_LGALS7B cn_NCCRP1 cn_DLL3 cn_FCGBP cn_CNTD2 cn_MIA cn_CYP2A6 cn_CYP2A7
## 1           1         1       1        1        1      1         1         1
## 2           0         0       0        0        0      0         0         0
## 3           1         1       1        1        1      1         1         1
## 4           2         2       2        2        1      2         2         2
## 5           0         0       0        0        0      0         0         0
## 6           2         2       2        2        2      2         2         2
## 7           0         0       0        0        0      0         0         0
## 8           0         0       0        0        0     -1        -1        -1
## 9          -1         1       2        2        1      2         1         1
## 10          0         0       0        0        0      0         0         0
##    cn_CYP2B7P1 cn_CEACAM7 cn_CEACAM5 cn_CEACAM6 cn_CD79A cn_ATP1A3 cn_KCNN4
## 1            1          1          1          1        1         1        1
## 2            0          0          0          0        0         0        0
## 3            1          1          1          1        1         1        1
```

```
## 4            2          2          2          2        2        2        2
## 5            0          0          0          0        0        0        0
## 6            2          2          2          2        2        2        2
## 7            0          0          0          0        0        0        0
## 8           -1         -1         -1         -1       -1       -1       -1
## 9            1          1          1          1        1        1        2
## 10           0          0          0          0        0        0        0
##    cn_CBLC cn_FOSB cn_FOXA3 cn_KCNC3 cn_SPIB cn_KLK6 cn_KLK7 cn_KLK8 cn_KLK10
## 1        1       1        1        1       1       1       1       1        1
## 2        0       0        0        0       0       0       0       0        0
## 3        1       1        1        1       1       1       1       1        1
## 4        2       2        2        0       0       1       1       1        1
## 5        0       0        0        0       0       0       0       0        0
## 6        2       2        2        2       2       2       2       2        2
## 7        0       0        0        0       0       0       0       0        0
## 8        1       1        1        1       1       1       1       1        1
## 9        2       2       -1       -1      -1       1       1       1        1
## 10       0       0        0        0       0       0       0       0        0
##    cn_KLK11 cn_KLK12 cn_KLK13 cn_KLK14 cn_HAS1 cn_NLRP7 cn_NLRP2 cn_TNNT1
## 1         1        1        1        1       1        1        1        1
## 2         0        0        0        0       0        0        0        0
## 3         1        1        1        1       1        1        1        1
## 4         1        1        1        1       1       -1       -1       -1
## 5         0        0        0        0       0        0        0        0
## 6         2        2        2        2       2        2        2        2
## 7         0        0        0        0       0        0        0        0
## 8         1        1        1        1       1        1        1        1
## 9         1        1        1        1       1        1        1        1
## 10        0        0        0        0       0        0        0        0
##    cn_TNNI3 cn_SYT5 cn_COX6B2 cn_NLRP5 cn_PEG3 cn_ZSCAN1 cn_DEFB132 cn_RSPO4
## 1         1       1         1        1       1         1          1        1
## 2         0       0         0        0       0         0          0        0
```

```
## 3         1       1         1        1       1         1          1        1
## 4        -1      -1         2        2       2         2          0        0
## 5         0       0         0        0       0         0          0        0
## 6         2       2         2        2      -1        -1          1        1
## 7         0       0         0        0       0         0          0        0
## 8         1       1         1        1       1         1         -1       -1
## 9         1       1         1       -1      -1        -1          1        1
## 10        0       0         0        0       0         0          0        0
##    cn_SIRPG cn_TGM3 cn_ADAM33 cn_SPEF1 cn_PRND cn_CHGB cn_FERMT1 cn_PAK7
## 1         1       1         1        1       1       1         1       1
## 2         0       0         0        0       0       0         0       0
## 3         1       1         1        1       1       1         1       1
## 4         0       0         0        0       0       0         0       0
## 5         0       0         0        0       0       0         0       0
## 6         1       1         1        1       1       1         1       1
## 7         0       0         0        0       0       0         0       0
## 8        -1      -1        -1       -1      -1      -1        -1      -1
## 9         0       0         0        0       0       0         0       0
## 10        0       0         0        0       0       0         0       0
##    cn_SNAP25 cn_FLRT3 cn_PCSK2 cn_PTPRT cn_BCAS1 cn_CYP24A1 cn_BMP7 cn_PCK1
## 1          1        1        1        1        1          1       1       1
## 2          0        0        0        0        0          0       0       0
## 3          1        1        1        2        2          2       2       2
## 4          0        0        0        0        2          2       2       2
## 5          0        0        0        0        0          0       0       0
## 6          1        1        1       -2       -1         -1       1       1
## 7          0        0        0        0        0          0       0       0
## 8         -1       -1       -1        0        1          1       1       1
## 9          0        1        1       -1        0          0       0       0
## 10         0        0        0        0        0          0       0       0
##    cn_ZBP1 cn_C20orf85 cn_APCDD1L cn_ZNF831 cn_EDN3 cn_GATA5 cn_COL9A3
## 1        1           1          1         1       1        1         1
```

```
## 2        0           0          0         0       0        0         0
## 3        2           2          2         2       2        2         2
## 4        2           2          2         2       2        2         2
## 5        0           0          0         0       0        0         0
## 6        1           1          1         1       1        1         1
## 7        0           0          0         0       0        0         0
## 8        1           1          1         1       1        1         1
## 9        0           0          0         1       1       -1        -1
## 10       0           0          0         0       0        0         0
##    cn_EEF1A2 cn_SRMS cn_MYT1 cn_ABCC13 cn_CXADR cn_CHODL cn_NCAM2 cn_B3GALT5
## 1          1       1       1         0        0        0        0          0
## 2          0       0       0         0        0        0        0          0
## 3          2       2       2         1        1        1        1          1
## 4          2       2       2         0        0        0        0          0
## 5          0       0       0         0        0        0        0          0
## 6          1       1       1         2        2        2        2          2
## 7          0       0       0         0        0        0        0          0
## 8          1       1       1        -1       -1       -1       -1         -1
## 9         -1      -1      -1         1        1        1        1          2
## 10         0       0       0         0        0        0        0          0
##    cn_C21orf88 cn_FAM3B cn_TMPRSS2 cn_UMODL1 cn_S100B cn_CECR7 cn_CECR2
## 1            0        0          0         0        0        0        0
## 2            0        0          0         0        0        0        0
## 3            1        1          1         1        1       -1       -1
## 4            0        0          0         0        0        0        0
## 5            0        0          0         0        0       -1       -1
## 6            2        2          2         2        1       -1       -1
## 7            0        0          0         0        0       -1       -1
## 8           -1       -1         -1        -1        0        0        0
## 9            2        2          2         2        2       -1       -1
## 10           0        0          0         0        0       -1       -1
##    cn_CDC45 cn_PRODH cn_SLC7A4 cn_TBX1 cn_PRAME cn_VPREB3 cn_MMP11 cn_GSTT1
```

```
## 1         0        0         0       0        0         0        0
## 2         0        0         0       0        0         0        0
## 3         2        2         2       2        2         2        2
## 4         0        0         0       0        0         0        0
## 5        -1       -1        -1      -1       -1        -1       -1
## 6        -1       -1        -1      -1       -1        -1       -1
## 7        -1       -1        -1      -1       -1        -1       -1
## 8         0        0         0       0        0         0        0
## 9         1        1         1       1        2         2        2
## 10       -1       -1        -1      -1       -1        -1       -1
##    cn_MYO18B cn_SEZ6L cn_NEFH cn_SEC14L2 cn_INPP5J cn_PLA2G3 cn_SLC5A1
## 1          0        0       0          0         0         0         0
## 2          0        0       0          0         0         0         0
## 3          2       -1      -1         -1        -1        -1        -1
## 4          0        0       0          0         0         0         0
## 5         -1       -1      -1         -1        -1        -1        -1
## 6         -1       -1      -1         -1        -1        -1        -1
## 7         -1       -1      -1         -1        -1        -1        -1
## 8          1        1      -1         -1        -1        -1        -1
## 9          2        0       2          2         1         1         1
## 10        -1       -1      -1         -1        -1        -1        -1
##    cn_TMPRSS6 cn_ELFN2 cn_LGALS2 cn_SOX10 cn_APOBEC3B cn_CACNA1I cn_SEPT3
## 1           0        0         0        0           0          0        0
## 2           0        0         0        0           0          0        0
## 3           1        1         1       -1           2         -1       -1
## 4           0        0         0        0           0          0        0
## 5          -1       -1        -1       -1          -1         -1       -1
## 6          -1       -1        -1       -1          -1         -1       -1
## 7          -1       -1        -1       -1          -1         -1       -1
## 8           0        0         0        0           0          0        0
## 9           1        1         1        1           1          1        1
## 10         -1       -1        -1       -1          -1         -1       -1
```

```
##    cn_SERHL2 cn_SCUBE1 cn_MPPED1 cn_SULT4A1 cn_PNPLA3 cn_PHF21B cn_UPK3A
## 1          0         0         0          0         0         0        0
## 2          0         0         0          0         0         0        0
## 3         -1        -1        -1         -1        -1        -1       -1
## 4          0         0         0          0         0         0        0
## 5         -1        -1        -1         -1        -1        -1       -1
## 6         -1        -1        -1         -1        -1        -1       -1
## 7         -1        -1        -1         -1        -1        -1       -1
## 8          0         0         0          0         0         0        0
## 9          1         1         1          1         1         1        0
## 10        -1        -1        -1         -1        -1        -1       -1
##    cn_SMC1B cn_WNT7B cn_KLHDC7B cn_MAPK8IP2 cn_MLC1 mu_ANK3 mu_GATA3 mu_HECTD4
## 1         0        0          0           0       0       0        0         0
## 2         0        0          0           0       0       1        0         0
## 3        -1       -1         -1          -1      -1       0        0         0
## 4         0        0          0           0       0       0        1         0
## 5        -1       -1         -1          -1      -1       0        0         0
## 6        -1       -1         -1          -1      -1       0        0         0
## 7        -1       -1         -1          -1      -1       0        0         0
## 8         0        0          0           0       0       0        0         0
## 9         0        0          0           0       0       0        0         0
## 10       -1       -1         -1          -1      -1       0        0         0
##    mu_LRBA mu_LRP2 mu_SYNE1 mu_CDH1 mu_MGA mu_MUC16 mu_ZFHX4 mu_LAMA2 mu_MLL3
## 1        0       0        0       0      0        1        0        1       1
## 2        0       0        0       0      0        0        1        0       0
## 3        0       0        0       0      0        0        0        0       0
## 4        0       0        0       0      0        0        0        0       0
## 5        0       0        0       0      0        1        0        0       0
## 6        0       0        0       0      0        0        0        0       0
## 7        0       0        0       0      0        0        0        0       0
## 8        0       0        0       0      0        0        0        0       0
## 9        0       0        0       0      0        0        0        0       0
```

```
## 10       0       0        0       0      0        0        0        0       0
##    mu_MUC5B mu_PLXNA4 mu_PTPRD mu_CSMD2 mu_DSCAM mu_FAT2 mu_MAP3K1 mu_MED12
## 1         1         1        1        0        0       0         0        0
## 2         0         0        0        0        0       0         0        0
## 3         0         0        0        0        0       0         0        0
## 4         0         0        0        0        0       0         0        0
## 5         0         0        0        0        0       0         1        0
## 6         0         0        0        0        0       0         0        0
## 7         0         0        0        0        0       0         0        0
## 8         0         0        0        0        0       0         0        0
## 9         0         0        0        0        0       0         0        0
## 10        0         0        0        0        0       0         0        0
##    mu_RNA5.8SP6 mu_AHCTF1 mu_APOBR mu_COL14A1 mu_COL7A1 mu_CSMD1 mu_CUBN mu_DMD
## 1             0         0        0          0         0        0       0      0
## 2             0         1        1          1         1        1       1      1
## 3             0         0        0          0         0        0       0      0
## 4             0         0        0          0         0        0       0      0
## 5             0         0        0          0         0        0       0      0
## 6             0         0        0          0         0        0       0      0
## 7             0         0        0          0         0        0       0      0
## 8             0         0        0          0         0        0       0      0
## 9             0         0        0          0         0        0       0      0
## 10            0         0        0          0         0        0       0      0
##    mu_DNAH8 mu_GOLGA6L2 mu_HYDIN mu_MUC12 mu_PLCE1 mu_RYR2 mu_USH2A mu_AHNAK
## 1         0           0        0        0        0       0        0        0
## 2         1           1        1        1        1       1        1        0
## 3         0           0        0        0        0       0        0        0
## 4         0           0        0        0        1       0        0        0
## 5         0           0        0        0        0       0        0        0
## 6         0           1        0        1        0       1        0        0
## 7         0           0        0        0        0       0        0        0
## 8         0           1        0        0        1       0        0        0
```

```
## 9         0           0        0        0        0       0        0        0
## 10        0           0        0        0        0       0        0        0
##    mu_CDH23 mu_CEP350 mu_DNAH1 mu_DNAH7 mu_HERC2 mu_IGSF10 mu_KAT6B mu_PIK3CA
## 1         0         0        0        0        0         0        0         0
## 2         0         0        0        0        0         0        0         0
## 3         0         0        0        0        0         0        0         0
## 4         0         0        0        0        0         0        0         0
## 5         0         0        0        0        0         0        0         1
## 6         0         0        0        0        0         0        0         1
## 7         0         0        0        0        0         0        0         0
## 8         0         0        0        0        0         0        0         1
## 9         0         0        0        0        0         0        0         0
## 10        0         0        0        0        0         0        0         1
##    mu_QSER1 mu_RB1 mu_TAF1L mu_TCHH mu_TEX15 mu_TP53 mu_ZFHX3 mu_SPEN mu_FAT3
## 1         0      0        0       0        0       0        0       0       0
## 2         0      0        0       0        0       0        0       0       0
## 3         0      0        0       0        0       0        0       1       0
## 4         0      0        0       0        0       0        0       0       0
## 5         0      0        0       0        0       0        0       0       0
## 6         0      0        0       0        1       1        0       0       0
## 7         0      0        0       0        0       0        0       0       0
## 8         0      0        0       0        0       1        0       0       0
## 9         0      0        0       0        0       1        0       0       0
## 10        0      0        0       0        0       0        0       0       0
##    mu_MUC4 mu_OBSCN mu_MUC20 mu_ODZ4 mu_ZAN mu_AKAP9 mu_DNAH12 mu_DNAH5
## 1        0        0        0       0      0        0         0        0
## 2        0        0        0       0      0        0         0        0
## 3        0        0        0       0      0        0         0        0
## 4        0        0        0       0      0        0         0        0
## 5        0        0        0       0      0        0         0        0
## 6        0        0        0       0      0        1         0        0
## 7        0        0        0       0      0        0         0        0
```

```
## 8        0        0        0       0      0        0         0        0
## 9        1        0        0       0      0        0         0        0
## 10       0        0        0       1      0        0         0        0
##    mu_KIF26B mu_NCOR1 mu_ARID1A mu_ASPM mu_CROCC mu_DNAH17 mu_DSPP mu_HRNR
## 1          0        0         0       0        0         0       0       0
## 2          0        0         0       0        0         0       0       0
## 3          0        0         0       0        0         0       0       0
## 4          0        0         0       0        0         0       0       0
## 5          0        0         0       0        0         0       0       0
## 6          0        0         0       0        0         0       0       0
## 7          0        0         0       0        0         0       0       0
## 8          0        0         0       0        0         0       0       0
## 9          0        0         0       0        0         0       0       0
## 10         0        0         0       0        0         0       0       0
##    mu_SVEP1 mu_ANK1 mu_CROCCP2 mu_MTOR mu_LAMA1 mu_MST1P9 mu_PCNT mu_SCN2A
## 1         0       0          0       0        0         0       0       0
## 2         0       0          0       0        0         0       0       0
## 3         0       0          0       0        0         0       0       0
## 4         0       1          1       1        0         0       0       0
## 5         0       0          0       0        1         1       1       1
## 6         0       0          0       0        0         0       0       0
## 7         1       0          0       0        0         0       0       0
## 8         0       0          0       0        0         0       0       0
## 9         0       0          0       1        0         0       0       0
## 10        0       0          0       0        0         0       0       0
##    mu_TTN mu_DNAH6 mu_DYNC2H1 mu_OTOGL mu_TNRC6B mu_NF1 mu_PCLO mu_ADAMTSL1
## 1       0        0          0        0         0      0       0           0
## 2       0        0          0        0         0      0       0           0
## 3       0        0          0        0         0      0       0           0
## 4       0        0          0        0         0      0       0           0
## 5       1        0          0        0         0      0       0           0
## 6       0        1          1        1         1      0       0           0
```

```
## 7       0        0          0        0         0      1       1           0
## 8       0        0          0        0         0      0       0           0
## 9       0        0          0        0         1      0       0           0
## 10      0        0          0        0         0      0       0           0
##    mu_CACNA1D mu_FBN3 mu_MEGF8 mu_DST mu_LYST mu_MDN1 mu_TP53BP1 mu_ABCB1
## 1           0       0        0      0       0       0          0        0
## 2           0       0        0      0       0       0          0        0
## 3           0       0        0      0       0       0          0        0
## 4           0       0        0      0       0       0          0        0
## 5           0       0        0      0       0       0          0        0
## 6           0       0        0      0       0       0          0        0
## 7           0       0        0      0       0       0          0        0
## 8           0       0        0      1       1       1          1        0
## 9           0       0        0      0       0       0          0        1
## 10          0       0        0      0       0       0          0        0
##    mu_MXRA5 mu_HEATR7B2 mu_ATP10B mu_CHD4 mu_FAT4 mu_FREM1 mu_MUC17 mu_TG
## 1         0           0         0       0       0        0        0     0
## 2         0           0         0       0       0        0        0     0
## 3         0           0         0       0       0        0        0     0
## 4         0           0         0       0       0        0        0     0
## 5         0           0         0       0       0        0        0     0
## 6         0           0         0       0       0        0        0     0
## 7         0           0         0       0       0        0        0     0
## 8         0           0         0       0       0        0        0     0
## 9         1           0         0       0       0        0        0     0
## 10        0           1         0       0       0        0        0     0
##    mu_TLN1 mu_DNAH3 mu_MGAM mu_NEB mu_RNF213 mu_SPTA1 mu_FLNC mu_MLL2
## 1        0        0       0      0         0        0       0       0
## 2        0        0       0      0         0        0       0       0
## 3        0        0       0      0         0        0       0       0
## 4        0        0       0      0         0        0       0       0
## 5        0        0       0      0         0        0       0       0
```

```
## 6        0        0       0      0        0        0       0       0
## 7        0        0       0      0        0        0       0       0
## 8        0        0       0      0        0        0       0       0
## 9        0        0       0      0        0        0       0       0
## 10       0        0       0      0        0        0       0       0
##    mu_PDE4DIP mu_MYH9 mu_AFF2 mu_COL6A5 mu_CTCF mu_MACF1 mu_APOB mu_CNTRL
## 1           0       0       0         0       0        0       0        0
## 2           0       0       0         0       0        0       0        0
## 3           0       0       0         0       0        0       0        0
## 4           0       0       0         0       0        0       0        0
## 5           0       0       0         0       0        0       0        0
## 6           0       0       0         0       0        0       0        0
## 7           0       0       0         0       0        0       0        0
## 8           0       0       0         0       0        0       0        0
## 9           0       0       0         0       0        0       0        0
## 10          0       0       0         0       0        0       0        0
##    mu_FLG mu_FMN2 mu_UBR4 mu_GPR98 mu_PKHD1 mu_PTEN mu_VPS13D mu_ANK2 mu_MYH11
## 1       0       0       0        0        0       0         0       0        0
## 2       0       0       0        0        0       0         0       0        0
## 3       0       0       0        0        0       0         0       0        0
## 4       0       0       0        0        0       0         0       0        0
## 5       0       0       0        0        0       0         0       0        0
## 6       0       0       0        0        0       0         0       0        0
## 7       0       0       0        0        0       0         0       0        0
## 8       0       0       0        0        0       0         0       0        0
## 9       0       0       0        0        0       0         0       0        0
## 10      0       0       0        0        0       0         0       0        0
##    mu_FAM157B mu_SRCAP mu_CMYA5 mu_BRWD1 mu_HSPG2 mu_RP1 mu_RUNX1 mu_TBP
## 1           0        0        0        0        0      0        0      0
## 2           0        0        0        0        0      0        0      0
## 3           0        0        0        0        0      0        0      0
## 4           0        0        0        0        0      0        0      0
```

```
## 5           0        0        0        0        0      0        0      0
## 6           0        0        0        0        0      0        0      0
## 7           0        0        0        0        0      0        0      0
## 8           0        0        0        0        0      0        0      0
## 9           0        0        0        0        0      0        0      0
## 10          0        0        0        0        0      0        0      0
##    mu_WDR52 mu_BIRC6 mu_FAT1 mu_TPR mu_FRAS1 mu_RELN mu_RPGR mu_NOTCH2 mu_DNHD1
## 1         0        0       0      0        0       0       0         0        0
## 2         0        0       0      0        0       0       0         0        0
## 3         0        0       0      0        0       0       0         0        0
## 4         0        0       0      0        0       0       0         0        0
## 5         0        0       0      0        0       0       0         0        0
## 6         0        0       0      0        0       0       0         0        0
## 7         0        0       0      0        0       0       0         0        0
## 8         0        0       0      0        0       0       0         0        0
## 9         0        0       0      0        0       0       0         0        0
## 10        0        0       0      0        0       0       0         0        0
##    mu_XIRP2 mu_ANKRD30BL mu_CBFB mu_PDE3A mu_CACNA1A mu_THSD7B mu_ABCA13 mu_EYS
## 1         0            0       0        0          0         0         0      0
## 2         0            0       0        0          0         0         0      0
## 3         0            0       0        0          0         0         0      0
## 4         0            0       0        0          0         0         0      0
## 5         0            0       0        0          0         0         0      0
## 6         0            0       0        0          0         0         0      0
## 7         0            0       0        0          0         0         0      0
## 8         0            0       0        0          0         0         0      0
## 9         0            0       0        0          0         0         0      0
## 10        0            0       0        0          0         0         0      0
##    mu_PKD1L1 mu_RYR3 mu_FRG1B mu_HUWE1 mu_FOXA1 mu_FCGBP mu_CACNA1E mu_ANKRD12
## 1          0       0        0        0        0        0          0          0
## 2          0       0        0        0        0        0          0          0
## 3          0       0        0        0        0        0          0          0
```

```
## 4          0       0       0       0       0       0          0          0
## 5          0       0       0       0       0       0          0          0
## 6          0       0       0       0       0       0          0          0
## 7          0       0       0       0       0       0          0          0
## 8          0       0       0       0       0       0          0          0
## 9          0       0       0       0       0       0          0          0
## 10         0       0       0       0       0       0          0          0
##    mu_CHD5 mu_GRID1 mu_KIF4A mu_MLL mu_PCNXL2 mu_PRKDC mu_SI mu_PTPRB
## 1        0        0       0      0         0        0     0        0
## 2        0        0       0      0         0        0     0        0
## 3        0        0       0      0         0        0     0        0
## 4        0        0       0      0         0        0     0        0
## 5        0        0       0      0         0        0     0        0
## 6        0        0       0      0         0        0     0        0
## 7        0        0       0      0         0        0     0        0
## 8        0        0       0      0         0        0     0        0
## 9        0        0       0      0         0        0     0        0
## 10       0        0       0      0         0        0     0        0
##    mu_CACNA1C mu_CSPP1 mu_PREX2 mu_SMG1 mu_UBR5 mu_KIAA1210 mu_COL6A3 mu_ODZ1
## 1           0        0        0       0       0           0         0       0
## 2           0        0        0       0       0           0         0       0
## 3           0        0        0       0       0           0         0       0
## 4           0        0        0       0       0           0         0       0
## 5           0        0        0       0       0           0         0       0
## 6           0        0        0       0       0           0         0       0
## 7           0        0        0       0       0           0         0       0
## 8           0        0        0       0       0           0         0       0
## 9           0        0        0       0       0           0         0       0
## 10          0        0        0       0       0           0         0       0
##    mu_AHNAK2 mu_AKAP13 mu_ASTN1 mu_CACNA1F mu_CHD6 mu_CHD8 mu_CNTNAP2 mu_DNAH2
## 1          0         0        0          0       0       0          0        0
## 2          0         0        0          0       0       0          0        0
```

```
## 3          0         0        0          0       0       0          0        0
## 4          0         0        0          0       0       0          0        0
## 5          0         0        0          0       0       0          0        0
## 6          0         0        0          0       0       0          0        0
## 7          0         0        0          0       0       0          0        0
## 8          0         0        0          0       0       0          0        0
## 9          0         0        0          0       0       0          0        0
## 10         0         0        0          0       0       0          0        0
##    mu_DYNC1H1 mu_FLNA mu_GRIN2A mu_KIAA0947 mu_KIAA1109 mu_LRP1 mu_MYH1
## 1           0       0         0           0           0       0       0
## 2           0       0         0           0           0       0       0
## 3           0       0         0           0           0       0       0
## 4           0       0         0           0           0       0       0
## 5           0       0         0           0           0       0       0
## 6           0       0         0           0           0       0       0
## 7           0       0         0           0           0       0       0
## 8           0       0         0           0           0       0       0
## 9           0       0         0           0           0       0       0
## 10          0       0         0           0           0       0       0
##    mu_MYO18B mu_RYR1 mu_SDK1 mu_STARD9 mu_ERBB2 mu_SETD2 mu_VCAN mu_WDFY3
## 1          0       0       0         0        0        0       0        0
## 2          0       0       0         0        0        0       0        0
## 3          0       0       0         0        0        0       0        0
## 4          0       0       0         0        0        0       0        0
## 5          0       0       0         0        0        0       0        0
## 6          0       0       0         0        0        0       0        0
## 7          0       0       0         0        0        0       0        0
## 8          0       0       0         0        0        0       0        0
## 9          0       0       0         0        0        0       0        0
## 10         0       0       0         0        0        0       0        0
##    mu_ATM mu_UTRN mu_VPS13B mu_MAP2 mu_DNAH10 mu_SYNE2 mu_MAP2K4 mu_TNXB
## 1       0       0         0       0         0        0         0       0
```

```
## 2       0       0         0       0         0        0         0       0
## 3       0       0         0       0         0        0         0       0
## 4       0       0         0       0         0        0         0       0
## 5       0       0         0       0         0        0         0       0
## 6       0       0         0       0         0        0         0       0
## 7       0       0         0       0         0        0         0       0
## 8       0       0         0       0         0        0         0       0
## 9       0       0         0       0         0        0         0       0
## 10      0       0         0       0         0        0         0       0
##    mu_ASH1L mu_ASXL2 mu_HMCN1 mu_ALMS1 mu_ITPR2 mu_TBX3 mu_F8 mu_AKD1 mu_ERBB3
## 1         0        0        0        0        0       0     0       0        0
## 2         0        0        0        0        0       0     0       0        0
## 3         0        0        0        0        0       0     0       0        0
## 4         0        0        0        0        0       0     0       0        0
## 5         0        0        0        0        0       0     0       0        0
## 6         0        0        0        0        0       0     0       0        0
## 7         0        0        0        0        0       0     0       0        0
## 8         0        0        0        0        0       0     0       0        0
## 9         0        0        0        0        0       0     0       0        0
## 10        0        0        0        0        0       0     0       0        0
##    mu_CENPE mu_ABCA12 mu_C9orf174 mu_F5 mu_FRMPD4 mu_LRP1B mu_DCHS2 mu_HERC1
## 1         0         0           0     0         0        0        0        0
## 2         0         0           0     0         0        0        0        0
## 3         0         0           0     0         0        0        0        0
## 4         0         0           0     0         0        0        0        0
## 5         0         0           0     0         0        0        0        0
## 6         0         0           0     0         0        0        0        0
## 7         0         0           0     0         0        0        0        0
## 8         0         0           0     0         0        0        0        0
## 9         0         0           0     0         0        0        0        0
## 10        0         0           0     0         0        0        0        0
##    mu_CSMD3 mu_USP34 mu_BAZ2B mu_FLG2 mu_PCDH19 mu_VPS13A mu_PAPPA2 mu_PDZD2
```

```
## 1          0        0        0        0        0        0        0        0
## 2          0        0        0        0        0        0        0        0
## 3          0        0        0        0        0        0        0        0
## 4          0        0        0        0        0        0        0        0
## 5          0        0        0        0        0        0        0        0
## 6          0        0        0        0        0        0        0        0
## 7          0        0        0        0        0        0        0        0
## 8          0        0        0        0        0        0        0        0
## 9          0        0        0        0        0        0        0        0
## 10         0        0        0        0        0        0        0        0
##    mu_BCORL1 mu_APC mu_PRUNE2 mu_GON4L mu_SPHKAP mu_SACS mu_MYCBP2 mu_DOCK11
## 1          0      0         0        0         0       0         0         0
## 2          0      0         0        0         0       0         0         0
## 3          0      0         0        0         0       0         0         0
## 4          0      0         0        0         0       0         0         0
## 5          0      0         0        0         0       0         0         0
## 6          0      0         0        0         0       0         0         0
## 7          0      0         0        0         0       0         0         0
## 8          0      0         0        0         0       0         0         0
## 9          0      0         0        0         0       0         0         0
## 10         0      0         0        0         0       0         0         0
##    mu_FBN1 mu_DNAH11 mu_PIWIL1 mu_SCN10A mu_ATRX mu_PKHD1L1 mu_MAP1A mu_DNAH9
## 1        0         0         0         0       0          0        0        0
## 2        0         0         0         0       0          0        0        0
## 3        0         0         0         0       0          0        0        0
## 4        0         0         0         0       0          0        0        0
## 5        0         0         0         0       0          0        0        0
## 6        0         0         0         0       0          0        0        0
## 7        0         0         0         0       0          0        0        0
## 8        0         0         0         0       0          0        0        0
## 9        0         0         0         0       0          0        0        0
## 10       0         0         0         0       0          0        0        0
```

```
##    mu_MYH7 mu_PEG3 pp_X14.3.3.beta pp_X14.3.3.epsilon pp_X14.3.3.zeta
## 1        0       0    -0.065364828        -0.17369848    -0.190751879
## 2        0       0    -0.029615457        -0.15752349    -0.283581270
## 3        0       0     0.140562960         0.19270146     0.211418232
## 4        0       0    -0.008031433        -0.13864215    -0.122891406
## 5        0       0     0.029801771         0.05325478     0.312538834
## 6        0       0    -0.083869417         0.02130718    -0.239253452
## 7        0       0     0.366998485         0.28594084    -0.471547732
## 8        0       0    -0.085165132         0.09716346     0.076269356
## 9        0       0     0.058627119         0.15964071     0.007516144
## 10       0       0    -0.023017674        -0.05987113     0.382441218
##     pp_X4E.BP1 pp_X4E.BP1.pS65 pp_X4E.BP1.pT37.T46 pp_X4E.BP1.pT70   pp_X53BP1
## 1   0.39080680      0.03564318          0.19345365     -0.17057899  0.28325322
## 2   0.02224304     -0.09212511         -0.05699042      0.24544237 -0.17292400
## 3   0.13401292     -0.23348272         -1.09260683     -0.28775836 -0.29058863
## 4  -0.03201140     -0.02576116         -0.45521647     -0.14467237  0.50091684
## 5   0.70295290     -0.02672917          0.63811118      0.06488215 -0.48897191
## 6  -0.19308752      0.19592457          0.62670045      0.08157867 -0.03445841
## 7  -0.55751355     -0.04136079         -0.52789428     -0.06324707 -0.68919758
## 8   0.65210682     -0.13010318         -0.24684004      0.15046063 -0.20175370
## 9   0.58061649      0.07903776         -0.18644151      0.17971889  0.64091927
## 10 -0.06389331     -0.34825317         -1.02434015     -0.08844626  0.37365024
##       pp_A.Raf pp_A.Raf.pS299    pp_ACC1 pp_ACC.pS79    pp_ACVRL1    pp_ADAR1
## 1   0.02394264    -0.22095946  0.2002684  0.64356026 -0.195641959 -0.06495332
## 2  -0.15813260     0.27348271  1.4183413  1.56964667  0.023644325 -0.54058572
## 3  -0.11487862    -0.21630248  0.3483247  0.24697212 -0.006019124 -0.43130892
## 4  -0.30553733    -0.16450385  1.1263566  1.49939055 -0.124894341  0.08008348
## 5  -0.07959337     0.32048653 -0.8139026 -1.17342335  0.246159139 -0.33431135
## 6  -0.37273542     0.22712512 -0.2077252  0.02123607  0.413238451 -0.02050406
## 7  -0.19960129    -0.03049959 -1.3061969 -0.94213727  0.569494409 -0.56495866
## 8  -0.06574055     0.17244976 -0.5964836 -0.35998145  0.025485821  0.20350491
## 9   0.15963930     0.08411845 -0.2506286 -0.31762833  0.060604905  0.14634571
```

```
## 10  0.10841015     0.09599420 -0.1413607 -0.33002883 -0.129556683 -0.12865614
##    pp_AMPK.alpha pp_AMPK.pT172       pp_AR    pp_ARID1A      pp_ASNS
## 1     0.20898164   -0.16880116  1.49818596 -0.182144786 -0.422909192
## 2     0.37189418    0.17547671  0.18558628 -0.383595091 -0.033450831
## 3    -0.14762329   -0.30299801  0.01597337  0.064012941  0.342652124
## 4     0.73456681    0.95740979  0.01493394 -0.095048166 -0.004865362
## 5     0.07282012   -0.53410994 -0.05198875 -0.017210186 -0.258941206
## 6    -0.13516549    0.73216799 -1.44430485 -0.200231345  0.400733899
## 7    -0.30988347   -0.45127993 -0.37851463  0.069454404  0.279215129
## 8    -0.34089418   -0.21621336 -1.43203563  0.002789937  1.329061089
## 9    -0.11160829    0.07248859 -1.29456455  0.129339634  0.753665589
## 10    0.32580910    0.51185076  0.71907208  0.327437257 -0.721126423
##         pp_ATM pp_Acetyl.a.Tubulin.Lys40      pp_Akt pp_Akt.pS473 pp_Akt.pT308
## 1   0.72481274                 0.4559400  0.12486607    0.2599979   0.20566702
## 2   0.05717866                -0.4435080  0.33335477    0.5647363   0.54081705
## 3   0.17395074                 0.6205105 -0.02309007   -0.3911676   0.07028882
## 4  -0.12613384                 1.2084262  0.20706285   -0.4860200  -0.39668867
## 5  -0.47947592                 0.2798857 -0.01190758    0.5468580   0.50799383
## 6   0.15239679                 1.0525564  1.06646142    1.2206938   0.71400267
## 7   0.21166899                -0.1189083 -0.61385144   -0.1368371   0.35017495
## 8   0.23025936                 1.0052834 -0.01140321    0.3124897   0.29709814
## 9  -0.52124519                 0.9063471 -0.31509398   -0.4804968  -0.43148623
## 10 -0.11618581                 0.2317497  0.34486038   -0.7364368  -0.44004178
##    pp_Annexin.1 pp_Annexin.VII      pp_Axl    pp_B.Raf pp_B.Raf.pS445
## 1    0.22295913   -0.108861304  0.07075709  0.04125963    0.050811331
## 2    0.57880099   -0.107025748  0.43038929 -0.17792631   -0.141694395
## 3   -0.00344909   -0.018672911 -0.07565482  0.39171178    0.004091609
## 4   -0.73158182    0.044482711 -0.37215173  0.50015264    0.022313940
## 5    0.98580647    0.176022393  0.20966244  0.12835747    0.203457013
## 6    0.57537532   -0.297583664  0.03452057 -0.07228122   -0.301628684
## 7    0.69527148   -0.003933779  0.28696625 -0.67896247   -0.367780169
## 8    0.13309384   -0.227316381 -0.16214446 -0.06197721   -0.054035935
```

```
## 9   -0.07220973    0.100943503 -0.01358423 -0.56064315   -0.138008001
## 10   0.34531487    0.072602472  0.17329795  0.78652532    0.442780167
##         pp_BRCA2     pp_BRD4 pp_Bad.pS112      pp_Bak pp_Bap1.c.4      pp_Bax
## 1   0.0858726615  0.02092266   0.17567338 -0.09245424 -0.03686402 -0.04807660
## 2  -0.3926060960 -0.72990137   0.44160130  0.04515320 -0.39747125 -0.09233984
## 3   0.0681328220 -0.22358998   0.18743310 -0.37545082  0.13341209 -0.03987291
## 4  -0.0003669697 -0.43536662   0.29365013  0.14104469  0.02820318 -0.59435972
## 5  -0.0604999775 -0.19552622   0.22727945 -0.13793637 -0.31633607  0.13891871
## 6  -0.0368781645  0.30081193   0.25565421 -0.05247232  0.33822573 -0.17479737
## 7   0.0565784670 -0.24444520  -0.04877635  0.05127210 -0.21390158  0.10960736
## 8   0.1854597395  0.22005821   0.26784719  0.59165284  0.39356351 -0.26406226
## 9   0.3748124745  0.92995571   0.07259846  0.73776753  0.54132153 -0.11567128
## 10  0.1307028188  0.57005840   0.14406690  0.36428286  0.25293439 -0.03505655
##      pp_Bcl.2    pp_Bcl.xL   pp_Bcl2A1    pp_Beclin       pp_Bid       pp_Bim
## 1   0.6067643 -0.010951454 -0.13126527 -0.080541592 -0.093600797  0.400727499
## 2   0.3938599 -0.267080712  0.32044265 -0.145822801 -0.110421247 -0.516197117
## 3   1.3312956  0.036586739 -0.05474367  0.066244538 -0.089545460  0.749386916
## 4   1.3155230  0.175159524 -0.09773933  0.605909400  0.253021914  1.443654399
## 5   0.1909340 -0.226223210  0.26921952  0.005157979 -0.081418288 -0.195101586
## 6  -0.8911345 -0.332052537 -0.33115201  0.013469582 -0.308193627 -0.499151864
## 7   0.1950642  0.009396503  0.64503254  0.146858206  0.667522429  0.000828026
## 8  -0.4406522 -0.180598591 -0.14380853  0.083838143 -0.310150955  0.069284391
## 9  -0.1930884 -0.053755367 -0.06555674  0.146217247 -0.003529167 -0.349317649
## 10  1.2949097 -0.280216815 -0.22685875  0.012568627 -0.263752953  1.080512363
##       pp_C.Raf pp_C.Raf.pS338      pp_CD20      pp_CD26     pp_CD31
## 1  -0.11048082    0.084132130 -0.246713332 -0.102900107 -0.07468662
## 2   0.01005790    0.002412613 -0.200031424 -0.088393388 -0.23157831
## 3   0.01681769   -0.055886303 -0.009937538 -0.084586588  0.17137753
## 4   0.06412969    0.111585501  0.073813171 -0.001563837 -0.04173930
## 5   0.04468392    0.241797941 -0.218430612  0.044818709 -0.03054470
## 6  -0.21798191   -0.303761688 -0.038143034 -0.122703791 -0.01667075
## 7   0.18331426    0.363328523  0.171744365 -0.374180464  0.21064478
```

```
## 8   0.35021699    0.008595455  0.077874259 -0.259702475 -0.01119753
## 9  -0.11286671    0.046247701  0.289458702 -0.174160877  0.09638175
## 10  0.08971673    0.014397070 -0.037039992 -0.117686313  0.09780045
##         pp_CD49b     pp_CDK1 pp_CDK1.pY15      pp_COG3 pp_Caspase.3
## 1  -0.0002175045 -0.07035675  0.178316318  0.104321491 -0.099492953
## 2   0.1384957545  0.20267968 -0.176800397  0.031154087 -0.227858992
## 3   0.4777961260 -0.28390797 -0.477835487 -0.097603485 -0.426690472
## 4  -0.3696545087 -0.39243762 -0.115604073  0.163207507 -0.196326751
## 5  -0.2010816635 -0.26610778 -0.020884992 -0.099378715  0.055861342
## 6   0.3636887130 -0.30927844  0.323904893 -0.271787950 -0.002534612
## 7   0.2213695330  0.34692991 -0.129219962 -0.763838395  0.161264012
## 8  -0.0892078885  0.35403400  0.794832835 -0.225949605  0.236464583
## 9  -0.2022098575  0.39933854  0.000773182  0.196886970  0.373558572
## 10 -0.3016762383 -0.34669444 -0.521373975  0.006425423  0.093332270
##    pp_Caspase.7.cleavedD198 pp_Caspase.8 pp_Caveolin.1     pp_Chk1
## 1               -0.19839129  -0.04688084    -0.1490297 -0.13326228
## 2               -0.42918682  -0.03527528     0.1376876  0.05704981
## 3               -0.15718172  -0.21744118     0.5072077 -0.18428675
## 4               -0.34656234   0.27375489    -0.3956700  0.13130504
## 5               -0.08950156   0.04211046    -0.1004651  0.07131909
## 6               -0.01274369  -0.28827006    -1.2126350 -0.13898052
## 7                0.78823415   0.23549030     0.7255275  0.57853329
## 8                1.41522820  -0.25618612    -0.5644436 -0.10241613
## 9               -0.15261114   0.14259702    -1.0073203  0.02834769
## 10              -0.12426544  -0.12872254     0.3657138 -0.23031042
##    pp_Chk1.pS296 pp_Chk1.pS345     pp_Chk2 pp_Chk2.pT68 pp_Claudin.7
## 1   -0.151880202   -0.09145725  0.20927364  -0.13724175   0.05199285
## 2   -0.238308639   -0.08846210  0.00224269   0.01681267  -0.38851257
## 3   -0.352920969   -0.07861823 -0.22614202  -0.35906199  -0.01905699
## 4   -0.005763171   -0.01220812  0.48534488  -0.10059388   0.41709893
## 5   -0.024216761   -0.21855118 -0.20567059  -0.02703191  -0.25355413
## 6    0.291673806   -0.21279724  0.63985749   0.09564483   1.53171891
```

```
## 7    0.366988872    0.06758853 -0.35220598   0.63898136  -0.40741605
## 8   -0.073147307    0.35135794  0.66882296   0.31043876  -0.67221662
## 9    0.156145676    0.05132005  0.51568512   0.29728400  -0.59237349
## 10   0.007136731   -0.19360971 -0.30276540  -0.21778904  -0.15478122
##    pp_Collagen.VI pp_Cyclin.B1 pp_Cyclin.D1 pp_Cyclin.E1 pp_Cyclin.E2
## 1       0.3963137   -0.7744902  -0.32520097  -0.09997244  -0.31375211
## 2      -0.9190238   -1.5930881  -0.33613269  -0.09777761  -0.22556170
## 3       0.7492401    0.5755877   0.15051218   0.34073801  -0.18889169
## 4      -0.3019552   -0.4126847   0.25877741  -0.35434474  -0.11917279
## 5       0.7819548   -1.2298663   0.01193955  -0.20775655  -0.37343650
## 6      -1.1544152    0.1919503  -1.12035869   1.15224008  -0.06881072
## 7       1.6846418   -0.7802457   0.18073467  -0.07229226  -0.20397497
## 8      -0.2211391    1.3387286  -0.23192391   1.12792394   0.34316186
## 9      -0.1280647    1.5379546  -0.03698950   1.09947256   0.45290185
## 10     -0.2418167   -0.2768945  -0.07401878  -0.14591502   0.26714066
##      pp_DIRAS3     pp_DJ.1    pp_DUSP4     pp_Dvl3 pp_E.Cadherin     pp_EGFR
## 1   0.05655131  0.07483597 -0.27459424 -0.20829183    0.87664084 -0.08578614
## 2  -0.09685394  0.11262261  0.53108173  0.55393184    0.01604268  0.18089842
## 3  -0.05340013  0.45598393 -0.09909729 -0.22853950    0.26787128  0.03207035
## 4   0.22228219  0.61317477  0.73780223 -0.05368339    0.61557666 -0.16716324
## 5   0.08762926  0.29967993  0.04455419  0.00290026   -0.12790428 -0.03347705
## 6   0.16988048 -0.52775008  0.27655770  0.10634080    0.15321315  0.81024243
## 7   0.57162695 -0.12344006 -0.21631214 -0.28748601   -0.02940695  0.64296324
## 8  -0.02552791 -0.19660743 -0.11672006  0.19807904    0.24463022 -0.05184073
## 9   0.33668108 -0.27312678  0.04744369  0.36627514   -0.56052563  0.02908340
## 10 -0.04896224 -0.02081350 -0.04331126  0.39681992    0.23285751 -0.24301542
##    pp_EGFR.pY1068 pp_EGFR.pY1173     pp_ENY2    pp_EPPK1 pp_ER.alpha
## 1     0.329729918    -0.13518901  0.07383923  0.62786626   1.1814636
## 2     0.482519474    -0.08071346  0.07440472  1.08825423  -1.5565488
## 3    -0.367908750    -0.05783599  0.10553534  1.31267463   0.5253273
## 4    -0.350691099     0.17429998 -0.15492990  0.07611068   1.6201196
## 5    -0.022660595    -0.05168591 -0.07156515  2.29711562  -0.4861578
```

```
## 6     0.456201780    -0.38608749  0.26254716  1.04617926  -1.3880522
## 7     0.397769908     0.40745099 -0.67276551 -1.20826345  -1.1188325
## 8     0.019377104    -0.06085897  0.15306535  0.44315231  -2.5701070
## 9    -0.007226871     0.06134706  0.06382379 -2.97096996  -2.3900848
## 10   -0.334130173    -0.03799814 -0.03752423  1.40929269   1.1340473
##    pp_ER.alpha.pS118    pp_ERCC1     pp_ERCC5      pp_ERK2     pp_ETS.1
## 1       -0.069964306 -0.22346060 -0.008217473 -0.053461296 -0.101834307
## 2       -0.415933842 -0.03918445 -0.096913166  0.177452482  0.000000000
## 3        0.591029315 -0.12568498 -0.298836747  0.344380598 -0.129424457
## 4        1.198189975  0.31562145 -0.224407203  0.459020659  0.343423926
## 5       -0.511966240 -0.06838173  0.103777539  0.003335467 -0.217122164
## 6       -0.253405286  0.03219844 -0.290146625  0.168519600 -0.061140536
## 7       -0.384777591  0.08247908 -0.791139171 -0.313369551  0.070725646
## 8       -0.165616279 -0.05318772  0.250749430 -0.032335328 -0.005183091
## 9       -0.009769749  0.13733935 -0.213346681 -0.082900319 -0.144087247
## 10      -0.061656454 -0.13676201  0.148456910 -0.064253875 -0.442374316
##        pp_FASN   pp_FOXO3a pp_FOXO3a.pS318.S321 pp_Fibronectin   pp_FoxM1
## 1  -0.17954041  0.08904207           0.03505214    -0.47883017 -0.3166855
## 2   3.15488081  0.13873152           0.19060873    -0.04920369 -0.7127218
## 3   0.56310854  0.13196747           0.01198384     0.03441632  0.1232605
## 4   0.66540286 -0.05065397           0.14199406    -0.26614115 -0.2695481
## 5  -0.84005014  0.11487754           0.12448302     1.50534095 -0.3359246
## 6  -0.04126093 -0.15293150           0.20013290     0.12855983  0.7729597
## 7  -1.07466471  0.22725042           0.23111485    -0.22136485  0.1503556
## 8  -1.15017858  0.13812187           0.23353232    -0.32151384  1.7647437
## 9  -1.04300140 -0.17211679           0.02530709     0.66371843  0.6372415
## 10 -0.17564167  0.47724869           0.01681754     0.75477644 -0.1208934
##        pp_G6PD    pp_GAB2    pp_GAPDH   pp_GATA3     pp_GATA6   pp_GCN5L2
## 1  -0.25848385  0.1995964 -0.26267390  0.5916704  0.006048605  0.32171053
## 2   0.47187269 -0.2601021 -0.34515082 -0.3651798 -0.114966779 -0.27654924
## 3   0.64079184  2.2759344  0.24299811  0.3229709 -0.080606272 -0.33181413
## 4  -0.25904280  2.2489167 -0.35876799  1.4806773 -0.217306142  0.02540851
```

```
## 5  -0.11832132 -0.2597954  0.06920744 -0.2454039  0.098802411 -0.33773087
## 6   0.51855246 -0.1596498  2.43379044 -1.2098441  0.188483821  0.64517318
## 7  -0.04811590 -0.3695288 -1.45091542 -1.4722104  0.289768572 -0.48224531
## 8  -0.09649206  0.1249398  1.47095775 -1.9789447  0.292118148  0.10285831
## 9  -0.10823727  0.2576897  0.64746192 -2.0326617  0.123122473  0.75731245
## 10 -0.21902151  0.7612232  0.13491180  1.8260976 -0.116228128  0.30628667
##    pp_GSK3.alpha.beta pp_GSK3.alpha.beta.pS21.S9 pp_GSK3.pS9      pp_HER2
## 1         0.006442482                  0.7024339  0.42413634  0.001086795
## 2         0.061233152                  0.8242595  0.82764375  0.532980082
## 3         0.023683938                  0.7554720  0.06350052  0.092221197
## 4        -0.053730361                  0.3771813  0.58735608  0.076133236
## 5         0.069661444                  0.1972166  0.31133500 -0.699090459
## 6         0.936712458                  0.3079980 -0.10284368 -0.269395396
## 7        -0.461734700                 -0.7834693 -0.52403979 -0.994262119
## 8        -0.060355949                  0.1618249  0.18549071 -0.475830667
## 9        -0.039868048                 -0.5335123 -0.50039565 -0.946664497
## 10        0.208497453                 -0.1407685 -0.27471243  0.168442918
##    pp_HER2.pY1248     pp_HER3 pp_HER3.pY1289   pp_HSP70 pp_Heregulin
## 1     0.092700716  0.31701842    0.145925916  0.8061924 -0.149171381
## 2     0.464954088 -0.15239774    0.301291824 -0.3322930  0.006104715
## 3    -0.002081353  0.26882827   -0.230391946  0.6314941 -0.071118046
## 4    -0.097325397  0.52399581   -0.151235632 -0.1290518 -0.158664287
## 5    -0.184336187 -0.35773900   -0.039213616 -0.1475781 -0.146547897
## 6    -0.287434361  0.03754366   -0.073100825 -1.5091114  0.261899516
## 7     0.143154512 -0.38023475    0.563742158  2.1600936  0.179103944
## 8    -0.218922510  0.03605956    0.005707929 -0.5312281  0.155514155
## 9    -0.429778720 -0.62800032    0.323940005 -0.6435061  0.220545231
## 10   -0.075242026  0.82262535    0.009921002 -0.6544184 -0.022890021
##    pp_IGF1R.pY1135.Y1136   pp_IGFBP2  pp_INPP4B    pp_IRF.1     pp_IRS1
## 1            -0.07389869 -0.16428758  0.7040547 -0.26192974  0.31102695
## 2            -0.18468398  0.26135499  0.8241566 -0.02283736  0.24707700
## 3             0.03352646 -0.32719754  1.2892818 -0.22080521  0.63049880
```

```
## 4            -0.13425862  1.82794441  0.5606222 -0.06811162  0.08262886
## 5             0.23810706 -0.70132892  0.7549021 -0.13564827 -0.22772700
## 6            -0.13768058 -0.80095293 -0.7430863 -0.41038129 -0.36271261
## 7             0.49071191 -0.53754058 -0.8575171  0.06829855  0.25788115
## 8            -0.11680487 -0.61051023 -1.6199629 -0.03188128 -0.26665384
## 9             0.09619356 -0.09055814 -1.4831958 -0.11833429 -0.08195011
## 10           -0.06703920  1.12768545  0.7834664 -0.25240362  0.33662227
##        pp_JAB1     pp_JNK2 pp_JNK.pT183.pY185     pp_Jak2     pp_Ku80
## 1  -0.12794430  0.08539105         0.54800975 -0.19492790  0.05169053
## 2   0.01936778  0.21199496         1.13981445 -0.20324679  0.16693397
## 3  -0.11173334  0.11849615        -0.22615440 -0.49161500 -0.41085955
## 4  -0.17191558  0.22131479         0.27922479 -0.24045119 -0.09596730
## 5   0.10201878 -0.10887411         0.64801289 -0.47243051 -0.54486938
## 6   0.26310413  0.02715311        -0.42124548  0.17179076  0.42327256
## 7   0.20171474 -0.36282459         0.16534466 -0.26275052 -0.75884165
## 8   0.05617358 -0.01957285        -0.08301512  0.13053445 -0.14654686
## 9  -0.08093079 -0.50428402        -0.32306686  0.14498378 -0.07720852
## 10 -0.10540312  0.05095566        -0.05712723  0.06979084 -0.40261949
##         pp_LKB1     pp_Lck pp_MAPK.pT202.Y204      pp_MEK1 pp_MEK1.pS217.S221
## 1   0.046822101  0.3743666          0.2533284 -0.167328738      -0.0620358540
## 2   0.096056980  0.1225634          1.0962637  0.335460806       0.2237888330
## 3   0.007246645  0.4896252         -0.4659902  0.408592356      -0.0439939385
## 4   0.059274377 -0.2590017          0.5035503  0.372550141       0.0003669698
## 5   0.065317632  0.3011218          1.6634350  0.301977359       1.0556545880
## 6   0.038885940  0.2426300         -1.4943153  0.049634658      -0.1316010245
## 7   0.346640181  0.8944774         -0.2119542 -0.008557181       0.1075475865
## 8  -0.126555123  0.1726393         -0.1486354 -0.320948604      -0.0303082700
## 9  -0.046632246 -0.2912807         -0.3830373  0.003223693      -0.1565389580
## 10 -0.139728794 -0.2041965          0.2349482 -0.187395605       0.1765036262
##       pp_MIG.6    pp_MSH2       pp_MSH6    pp_MYH11     pp_Mre11 pp_Myosin.IIa
## 1  -0.09248463  0.1481420  0.0002175045  0.90676409 -0.067025458   -0.25940914
## 2  -0.06127330 -0.3802139 -0.2517743420  0.19732799 -0.064646414   -0.12606463
```

```
## 3   0.10717896  0.1033122  0.0746300970  2.39676028  0.024091306   -0.24012453
## 4  -0.10224453  0.1624802  0.1243553502  0.51812130 -0.050688032   -0.31284061
## 5   0.04640755 -0.3568487 -0.5794144665 -0.12112145  0.140240342    0.13900038
## 6  -0.25447781  1.2132650  1.6295601255  0.52191042 -0.280857435   -0.09219563
## 7  -0.06135716 -0.1525921 -0.4321867540  2.00432043  0.553647401   -0.27120263
## 8  -0.05858763  1.2074159  1.5032784235 -0.67090123 -0.144699903    0.08138467
## 9   0.48796723  1.2310354  1.5441579035 -0.08588978 -0.000773182    0.19089850
## 10 -0.21345486  0.1332348  0.1268722147 -1.21922987 -0.108395093    0.38213364
##    pp_Myosin.IIa.pS1943 pp_N.Cadherin    pp_N.Ras pp_NDRG1.pT346
## 1            0.06669925   -0.15045956 -0.10471506     0.06549212
## 2           -0.33347893    0.09727121 -0.01581246     0.09308623
## 3           -0.10155079   -0.17118343  0.06392735    -0.13489562
## 4            0.11262736    0.38354365 -0.01533401    -0.18232460
## 5            0.21355996   -0.05078172  0.03008900     1.04089647
## 6           -0.69149202   -0.25082118  0.25936305     1.84375465
## 7           -0.19407645    0.91130868  0.45504541     0.43733736
## 8            0.24628600   -0.23770277  0.18446064     0.86265178
## 9            0.19453857    0.03460078  0.26805911    -0.01004847
## 10           0.37632807   -0.38771444  0.19579260    -0.50892876
##    pp_NF.kB.p65.pS536      pp_NF2    pp_Notch1 pp_P.Cadherin   pp_PAI.1
## 1           0.3440833 -0.15170140 -0.201937658  -0.156142042 -0.3784503
## 2           0.3713190  0.11828607 -0.054253169  -0.021193046 -0.4280575
## 3           0.4124852 -0.51478182  0.111640771   0.068744239  1.0890951
## 4           0.1283218  0.13872542 -0.300676022  -0.167802915  0.4379381
## 5           0.7428530 -0.26684160 -0.008047096  -0.053983832  1.0825358
## 6           0.4489806  0.74730101  0.170615840   0.170209379  0.4092204
## 7          -0.5946265 -0.41319300  0.457727767   0.318825258 -0.1064052
## 8           0.9455794 -0.38637906  0.402983224   0.003278686 -0.1836812
## 9          -0.3101881  0.07742064  0.143737187  -0.007610825  0.4267297
## 10          0.6147198 -0.26709542 -0.167924294  -0.086113798 -0.1596048
##       pp_PARP1 pp_PARP.cleaved     pp_PCNA    pp_PDCD4      pp_PDK1
## 1   0.05193760     -0.07355652 -0.17631602  0.54542703 -0.073717985
```

```
## 2  -1.17510577     -0.25285009 -0.10014155  0.08129156 -0.026898502
## 3  -0.07870963     -0.45254613  0.18343984 -0.35141227  0.334506826
## 4  -0.01174822     -0.04673304 -0.20830686 -0.62190575  0.171502080
## 5  -0.34477200      0.09421257 -0.17422362  0.70270772  0.197561096
## 6   1.13234942      0.25364944 -0.10225553  1.01108125 -0.295321923
## 7  -0.78669137      0.20937670 -0.05510044  0.10742285  0.012165616
## 8   0.67357964      0.38351461  0.17608519 -0.08695695  0.004830304
## 9   0.66055500      0.78268216  0.34048635 -0.24043438 -0.285044067
## 10  0.15719222      0.07840156 -0.03651338  0.23533337  0.261849790
##    pp_PDK1.pS241     pp_PEA15 pp_PEA15.pS116 pp_PI3K.p110.alpha pp_PI3K.p85
## 1     0.04397462 -0.106972959    -0.13816746         0.14743279  0.17718467
## 2    -0.11138710  0.284931659     0.01388658         0.18698052 -0.10188487
## 3     0.39503062  0.357500510    -0.02577309         0.25290368 -0.06043554
## 4     0.16445400  0.933673120     0.08281558        -0.15978341  0.08642008
## 5     0.25928797  0.375866822    -0.09326634        -0.03504323  0.16258521
## 6    -0.52194411 -0.462555763     0.08916634         3.12748012  1.40430358
## 7    -0.42103779 -0.297897270     0.51548625        -0.02431852  0.05232664
## 8    -0.02197811 -0.236123811    -0.20202739         0.11790722 -0.12371245
## 9    -0.55766247 -0.269286416     0.01454010         0.01835055 -0.38753353
## 10    0.50326218 -0.002083921    -0.38142049         0.24981808  0.05094167
##    pp_PKC.alpha pp_PKC.alpha.pS657 pp_PKC.delta.pS664 pp_PKC.pan.BetaII.pS660
## 1    0.17893554          0.3188121         0.20636380              0.22640719
## 2    0.11764555          0.6858480         0.10619297              0.28535544
## 3   -0.04602241          0.1008621        -0.15454358             -0.22794268
## 4   -0.36155981         -0.2926910         0.12854478              0.11669040
## 5    0.49221228          0.5070151         0.03117670              0.11723726
## 6   -0.08271871         -0.1698073        -0.17686733             -0.28303039
## 7    0.40358848          0.6132889         0.15974476             -0.37741094
## 8    0.40559798          0.4530719         0.03429986              0.35247706
## 9   -0.10599303         -0.1308951        -0.10305097             -0.62701626
## 10   0.16200431          0.1266633        -0.19253025              0.02766363
##          pp_PR pp_PRAS40.pT246    pp_PRDX1   pp_PREX1     pp_PTEN pp_Paxillin
```

```
## 1   0.10491618     0.024662789 -0.18769880  0.8093582  0.11242978 -0.08538919
## 2   3.84908392     0.102569143 -0.15313636 -0.3847203  0.63604450  0.38789253
## 3   0.08695753     0.014400609  0.54521373  1.7811302 -0.21325369 -0.08110152
## 4   0.44718727     0.068360038  0.21999125  2.3270267  0.59126356 -0.22798026
## 5   0.15423204     0.020323164  0.01983419  0.1404135 -0.06104554 -0.36251387
## 6   0.02538641     0.313502157  0.10511116 -0.6753603  1.13531237 -0.33467781
## 7   0.19973259     0.006402324  0.06154439 -0.4561459 -0.15420502 -0.14063495
## 8  -0.04547767     0.119583544  0.17220948 -0.3058369 -0.25494879 -0.28221615
## 9   0.05753048     0.152725271 -0.17373349 -1.0234915  0.56382611  0.16509525
## 10 -0.09514506    -0.145454204 -0.07824969  0.8621954  0.15040836  0.02938369
##       pp_RBM15    pp_Rab11    pp_Rab25    pp_Rad50    pp_Rad51   pp_Raptor
## 1  -0.41676467 -0.10293244  0.11860664  0.13207103 -0.29770038  0.28331623
## 2  -0.30922656 -0.32033864 -0.11497878 -0.08193525 -0.06493066  0.06104129
## 3  -0.42236282  0.07931263 -0.49853512  0.04709717  0.04769199  0.26839025
## 4   0.09261598 -0.02106263  0.49432824 -0.30520893 -0.26437959  0.63419955
## 5  -0.75224728  0.12239307 -0.53380995  0.05168783 -0.26724114  0.05619377
## 6   2.23718744  0.00000000  1.11126665 -0.44965367  0.01482293  0.51016332
## 7  -0.97096934  0.78411416 -0.37967843 -0.03560919  0.22539878 -0.22441466
## 8   0.51266101 -0.39532156  0.32695684 -0.15323030  0.33610668 -0.06447519
## 9   1.03688919 -0.23245706 -0.02670863 -0.36928487  0.23327524  0.28783810
## 10  0.20140120 -0.28718002  0.19243834 -0.01776330 -0.15969153  0.22197455
##           pp_Rb pp_Rb.pS807.S811   pp_Rictor pp_Rictor.pT1135       pp_S6
## 1   0.002349577        0.3351466  0.19532527       0.18563373 -0.34124918
## 2  -0.039601309        0.3860212 -0.21330703      -0.07338775 -0.48381669
## 3  -0.138331152       -0.3133892  0.60924756       0.05047383 -0.39418023
## 4   0.380789209        0.2454520  0.43406509       0.49354651 -0.02511998
## 5  -0.081355976       -0.1034113 -0.31607711      -0.03140272 -0.59038850
## 6  -0.586638980       -0.7061967  0.01877240      -0.42171512  0.75129206
## 7   0.514548175       -0.5219330  0.43228015       0.41842953 -0.34605193
## 8  -0.263274986       -0.4602458 -0.04930488      -0.14982816  0.36282002
## 9   0.041466560       -0.6481359  0.06093276      -0.11643909  0.54348126
## 10 -0.178146827       -0.4516839  0.02633814      -0.17104590  0.40037149
```

```
##    pp_S6.pS235.S236 pp_S6.pS240.S244      pp_SCD     pp_SETD2       pp_SF2
## 1      -0.586693144       -0.7265941 -0.26462337 -0.118261872 -0.060414833
## 2      -0.165293395       -0.1960326 -0.24767110 -0.059263025 -0.093825209
## 3      -0.389490320       -0.6777059 -0.19128057  0.236741385  0.002676048
## 4      -0.498278440       -0.4173393 -0.07543720  0.040710498 -0.090468838
## 5       0.560116778        0.1656743 -0.16802559 -0.017880625 -0.117905861
## 6       0.352346164        0.3950913  0.03931597  0.003250929 -0.184008005
## 7      -0.349410463       -0.4406040  0.03177880  0.306544092 -0.064444961
## 8      -0.141251112       -0.1321984  0.02649759  0.038436241  0.109711766
## 9      -0.005652516       -0.5222101  0.18302685  0.159734557  0.369172729
## 10      0.249197425       -0.4918346  0.08955661  0.038578067  0.110218676
##    pp_SHP.2.pY542   pp_SLC1A5 pp_STAT3.pY705 pp_STAT5.alpha pp_Shc.pY317
## 1      0.34444656 -0.21846332    0.493888088     0.44216762   0.10369018
## 2      0.21022093 -0.45422989    0.102849677     1.42687361   0.38993252
## 3     -0.39969773  0.01572185   -0.330343904    -0.42365406  -0.10813641
## 4     -0.38973923 -0.58472583   -0.205186850     0.05301033  -0.26149656
## 5      0.28126324 -0.48465725    0.219283879    -0.19765742   0.05199717
## 6     -0.06708876  1.03626026    0.058915168     0.11339499   0.14663065
## 7     -0.01171302 -1.08162567    0.181667781     0.04995590   0.24523869
## 8      0.07154364 -0.04785476   -0.264210893    -0.05235168   0.08400771
## 9     -0.19183392 -0.03894300   -0.009781143     0.11029365  -0.15002616
## 10    -0.15748954 -0.22737152   -0.105475144     0.07423568  -0.20770281
##        pp_Smac     pp_Smad1    pp_Smad3      pp_Smad4    pp_Snail      pp_Src
## 1  -0.11260118 -0.098221624 -0.11847054 -0.0835856035 -0.24282136  0.18960575
## 2  -0.07388310  0.212020685 -0.04388837 -0.0980532365 -0.12088010 -0.07262744
## 3  -0.23743383  0.004713827 -0.01465256  0.0690710380 -0.29007257  0.70702137
## 4  -0.34901680  0.035151226  0.23736906 -0.0009829108  0.22137347 -0.38528031
## 5   0.31719309 -0.138064902 -0.32923070 -0.0029002595 -0.04049804  0.13601714
## 6  -0.07725787  0.368180481 -0.39833880 -0.1957355730 -0.03827672 -0.55702093
## 7  -0.34124895 -0.198559073 -0.17701898  0.2183534130  0.04892668  0.06965121
## 8   0.17393950 -0.092543985  0.08909865  0.2322618645 -0.09268955  0.35559259
## 9   0.22838673 -0.014121193  0.47967303  0.1547309115  0.24184705  0.27083346
```

```
## 10  0.59737894  0.212194392  0.25154733  0.1303850008 -0.06058442 -0.06390636
##    pp_Src.pY416 pp_Src.pY527  pp_Stathmin     pp_Syk       pp_TAZ     pp_TFRC
## 1    0.45751399    0.5263538  0.007085407 -0.3087868  0.006072318 -0.43074262
## 2    0.10652146    0.6935479  0.023710963 -0.1517815 -0.048764033  0.04488245
## 3    0.12819699   -0.4574862 -0.067220978 -0.4104925 -0.055343295 -0.72189846
## 4   -0.27737672   -0.1209211  0.242289068 -0.4746528 -0.110868131 -0.62348925
## 5    0.08065765    0.6335510  0.018398148 -0.2146525  0.213260302 -0.26931767
## 6   -0.24941489   -0.4017056 -0.292363411  1.9452838 -0.132595098  0.03694840
## 7    0.07456008    0.4490348  0.775057850 -0.1743396  0.328945673 -1.14127911
## 8    0.04559057    0.4877985  0.100720487  1.3098840 -0.059252449  2.44530566
## 9   -0.15186483   -0.3588105  0.368996392 -0.2118180  0.694460267 -0.17701046
## 10  -0.29391249   -0.5382789 -0.115455678  0.1423026  0.190509511 -0.75775861
##       pp_TIGAR      pp_TSC1 pp_Transglutaminase   pp_Tuberin pp_Tuberin.pT1462
## 1   0.30951045  0.131346041         -0.16806595  0.100690071        0.30485719
## 2  -0.05372203  0.117277324         -0.23262784  0.004978734        0.21213734
## 3  -0.20866145  0.178693930          0.31778869 -0.397809893        0.27597925
## 4   0.01619597  0.235663221         -0.30014307  0.389756258        0.15841322
## 5   0.10609700  0.166391774         -0.05843642 -0.374503670        0.08685452
## 6  -0.17034378  0.554249448          0.62469208  0.175252021        0.09375666
## 7   0.09403831 -0.000828026         -0.17590534 -0.549800089        0.16192960
## 8   0.11506156 -0.002789937          0.12414576 -0.055955660        0.19413482
## 9  -0.10135703  0.224979134         -0.04357619  0.007099135       -0.10413695
## 10  0.02834319  0.322128073         -0.14757459  0.199166294       -0.16774409
##      pp_VEGFR2     pp_XBP1     pp_XRCC1      pp_YAP pp_YAP.pS127     pp_YB.1
## 1  -0.11658356 -0.16525252  0.186194169  0.03403409  0.429606757 -0.31186760
## 2  -0.69937254 -0.07550642 -0.003801221  0.02842427  0.699927648 -0.06248771
## 3   0.86565796 -0.13861868 -0.304095257  0.37128376  1.255105834 -0.01648718
## 4   0.48690898 -0.07655232  0.633322345 -0.24704544 -0.346866892  0.06131228
## 5   0.56891744 -0.10526209 -0.222083154  0.31248053  0.778481107 -0.20266572
## 6  -0.74956809 -0.02958025 -0.138236792 -0.31888842  0.461961970 -0.08530998
## 7  -0.87093555  0.07840106 -0.173029892  0.27467605  0.105087684 -0.33419549
## 8  -0.55677714 -0.14209236 -0.219883650 -0.01196877 -0.301077677 -0.16713071
```

```
## 9   0.06704853 -0.02804208  0.247824852  0.14662457  0.001922457  0.39231353
## 10  0.63554768 -0.04379087  0.119580586  0.08841584 -0.025249284  0.05241940
##    pp_YB.1.pS102 pp_beta.Catenin     pp_c.Abl pp_c.Jun.pS73    pp_c.Kit
## 1    -0.02689280       0.6262808 -0.157971429    0.08928124  0.79710026
## 2     0.12323738       0.4021819  0.018522040    0.40364273  0.70640270
## 3    -0.21715686      -0.3176251 -0.337285027   -0.25897343  0.22354800
## 4    -0.02425172       0.9693034 -0.249833227   -0.03799842 -0.20925760
## 5     0.32659578      -0.3126808  0.079468180    0.29100677  1.06307612
## 6     0.09432485       0.4667863 -0.209441600    0.10489299  1.24645372
## 7     0.26653859      -0.3442146  0.084942729    0.13935623  2.11722049
## 8    -0.01555901       0.1734768 -0.101529900    0.13294985  1.23488287
## 9    -0.09938321      -0.5153367 -0.088220513   -0.02118508  0.04092878
## 10    0.01097895       0.2167042  0.002083921   -0.10416382 -0.14051631
##        pp_c.Met pp_c.Met.pY1235     pp_c.Myc      pp_cIAP     pp_eEF2
## 1  -0.159530834     -0.09351512  0.383546188  0.236109634 -0.14498943
## 2  -0.076541298     -0.07180126 -0.213369950  0.006367988  0.08947726
## 3  -0.001280385      0.01805726 -0.052187236  0.312086154 -0.24331546
## 4   0.232405600     -0.04214728  0.159074400  0.228234371 -0.54776199
## 5  -0.092542402     -0.02136216  0.241797774  0.128055461 -0.34321272
## 6  -0.199392302     -0.06558126  0.430487286  0.222699492 -0.18783047
## 7   0.297226351      0.42762745  1.174591427 -0.239057207 -0.48251771
## 8  -0.072218793      0.06117913 -0.092861363  0.167918869 -0.07159947
## 9   0.138641301      0.32553013 -0.005866656 -0.141608416  0.18558948
## 10 -0.136205527      0.22194796 -0.583131968  0.154074697 -0.02106024
##       pp_eEF2K    pp_eIF4E    pp_eIF4G     pp_mTOR pp_mTOR.pS2448 pp_p16.INK4a
## 1   0.64460107  0.05762170 -0.20180137  0.28005110     0.00370666   0.19042821
## 2   0.07517035  0.40333721  0.34430846 -0.43491156     0.25832975   0.89019386
## 3   0.05580048  0.22683585  0.05126257  0.03232197    -0.12881523  -0.01236628
## 4   0.61713043  0.01805400 -0.02508498  0.53345134     0.06939529  -0.31174931
## 5  -0.21119907  0.19801774 -0.40271160 -0.26101315    -0.01979739   0.45060184
## 6  -0.77752737 -0.07551101  0.93002531  0.65211274     0.31026574   1.47420144
## 7   0.04023345 -0.08775479 -0.42833689 -0.35462960    -0.10094183  -0.42577514
```

```
## 8  -0.13959217  0.28386580  0.47513033 -0.32719273    -0.18879444   1.43353410
## 9  -0.37771338  0.23248196  0.36939908 -0.10717831    -0.23919788   2.32635959
## 10  0.33923407  0.04799318  0.16190090  0.19920415    -0.08768294   0.15188886
##         pp_p21      pp_p27 pp_p27.pT157 pp_p27.pT198  pp_p38.MAPK
## 1  -0.20358689 -0.02227344 -0.027042234  -0.04332997 -0.002598394
## 2   0.30093611 -0.10174632 -0.071406261  -0.22076369  0.220809271
## 3  -0.05012127  0.11974950  0.001280385   0.01061515 -0.133214000
## 4  -0.08299546  0.78077572 -0.024495538   0.06407043 -0.384007691
## 5   0.45285984  0.10046993 -0.081189464  -0.06548803  0.209858160
## 6  -0.50304189 -0.30585357 -0.111133556   0.13402988 -0.338480293
## 7  -0.02032589  0.23033413  0.396876128   0.27692401 -0.190843879
## 8  -0.29300152  0.27534406  0.023802086   0.04656611  0.021015780
## 9   0.13985042  0.37866478  0.069808962   0.22391546 -0.207887101
## 10  0.25348863  0.46579386 -0.126733159  -0.02762814  0.092449761
##    pp_p38.pT180.Y182      pp_p53 pp_p62.LCK.ligand   pp_p70S6K pp_p70S6K.pT389
## 1          0.4492276 -0.37522957       -0.69176636 -0.33786329     -0.17850293
## 2          1.0351149 -0.07413642        0.27906699  0.29292532     -0.15524196
## 3          0.3449689 -0.35193557        0.21990960  0.30810973     -0.19079432
## 4          0.6780417  0.09632888       -0.26655361 -0.07987070     -0.46323724
## 5          0.9204080  0.04221035       -0.44154164 -0.15231735      0.51138649
## 6         -0.6699337 -0.21785065        0.27499477 -0.07727569     -0.11731032
## 7         -0.2187756  0.63557500       -0.71163102 -0.51696006      0.25103128
## 8          0.3537638  1.14524071        0.57333979 -0.09337942     -0.04855351
## 9         -0.5447903  0.14133869       -0.48058958 -0.21781018     -0.15672338
## 10         0.1087499 -0.27122071        0.02128078  0.15259129     -0.32782459
##      pp_p90RSK pp_p90RSK.pT359.S363 PR.Status ER.Status HER2.Final.Status
## 1   0.01163797          -0.20725681  Positive  Positive          Negative
## 2  -0.08936528           0.26752956  Positive  Negative          Negative
## 3  -0.22214957          -0.19851836  Positive  Positive          Negative
## 4   0.52299814          -0.04690228  Positive  Positive          Negative
## 5  -0.09648247           0.03747280  Positive  Positive          Negative
## 6   0.28419472          -0.04847390  Negative  Negative          Negative
```

```
## 7   0.01578516           0.67703987  Negative  Negative          Negative
## 8   0.23604626          -0.10163975  Negative  Negative          Negative
## 9  -0.23225855          -0.10291928  Negative  Negative          Negative
## 10 -0.13833020          -0.40891905  Positive  Positive          Negative
##                histological.type
## 1  infiltrating ductal carcinoma
## 2  infiltrating ductal carcinoma
## 3  infiltrating ductal carcinoma
## 4  infiltrating ductal carcinoma
## 5  infiltrating ductal carcinoma
## 6  infiltrating ductal carcinoma
## 7  infiltrating ductal carcinoma
## 8  infiltrating ductal carcinoma
## 9  infiltrating ductal carcinoma
## 10 infiltrating ductal carcinoma
```

Structure of data:

```
#str(brca_data)
```

PR.Status, ER.Status, and HER2.Final.Status are determined using immunohistochemistry scoring. For these variables, we will only consider two levels: "Positive" and "Negative". For histological.type, we will only consider "infiltrating lobular carcinoma" and "infiltrating ductal carcinoma". You can treat all other categories as missing values. Hence, all four outcomes should be binary.

```
which(colnames(brca_data)=="PR.Status")
```

```
## [1] 1937
```

```
which(colnames(brca_data)=="ER.Status")
```

```
## [1] 1938
```

```r
which(colnames(brca_data)=="HER2.Final.Status")
```

```
## [1] 1939
```

```r
which(colnames(brca_data)=="histological.type")
```

```
## [1] 1940
```

Check for null values:

```r
colSums(is.na(brca_data[, 1937:1940]))
```

```
##          PR.Status          ER.Status HER2.Final.Status histological.type
##                  0                  0                  0                  0
```

– check for closely correlated variables and leave only one

```r
suppressMessages(library(caret))
suppressMessages(library(dplyr))
# store the predictors
predictors = brca_data %>% select(c("PR.Status", "ER.Status", "HER2.Final.Status", "histologica
# remove the categorical var temporarily
brca_data = brca_data %>% select(-c("PR.Status", "ER.Status", "HER2.Final.Status", "histologica



# use correlation matrix
#cor_mat = cor(brca_data)
```

```r
# returns vector of indices to remove
#cor_list = findCorrelation(cor_mat, cutoff = .8)
```

Drop the highly correlated columns

```
#brca_data =  brca_data[, -c(cor_list)]
#brca_data
```

We still have 1087 col left...

```
# categorical variables
brca_data[605:1464]
```

```
##     cn_ISG15 cn_PLCH2 cn_SAMD11 cn_TNFRSF18 cn_BAI2 cn_TEKT2 cn_DNALI1 cn_RSPO1
## 1          0        0         0           0       1        1         1        1
## 2         -1       -1        -1          -1       0        0         0        0
## 3          0        0         0           0       0        0         0        0
## 4          0        0         0           0       0        0         0        0
## 5          0        0         0           0       0        0         0        0
## 6          1        1         1           1       0        0         0        0
## 7          0        0         0           0       0        0         0        0
## 8          0        0         0           0       1        2         2        2
## 9          2        2         2           2      -1        2         2        2
## 10         0        0         0           0       0        0         0        0
## 11         1        1         1           1       0        0         0        0
## 12         0        0         0           0       0        0         0        0
## 13         1        1         1           1       1        1         2        2
## 14         0        0         0           0       0        0         0        0
## 15         0        0         0           0       0        0         0        0
## 16        -1       -1        -1          -1      -1       -1        -1       -1
## 17        -1       -1        -1          -1      -1       -1        -1       -1
## 18         0        0         0           0       1        1         1        1
## 19         0        0         0           0       0        0         0        0
## 20        -1       -1        -1          -1      -1       -1        -1       -1
## 21        -1       -1        -1          -1      -1       -1        -1       -1
## 22         1        1         1           1       1        2         1        1
## 23         0        0         0           0       0        0         0        0
```

## 24	0	0	0	0	0	0	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	0	0	0	0	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	1	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1	1
## 41	1	1	1	1	1	1	1	1
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	0	0	0	0	0	-1	-1	-1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	-1	-1	-1	-1	-1	-1	-1	0

## 56	-1	-1	-1	-1	-1	-1	1	1
## 57	1	1	1	1	1	1	1	1
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	0	0	0	0	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1
## 75	0	0	0	0	0	0	0	0
## 76	0	0	0	0	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	0	0	0	0	1	1	1	1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0	0
## 86	0	0	0	0	1	1	1	1
## 87	0	0	0	0	0	0	0	0

```
## 88          0         0         0          0        0        0         0         0
## 89         -1        -1        -1         -1       -1       -1        -1        -1
## 90          1         1         1          1        1        1         1         1
## 91         -1        -1        -1         -1       -1       -1        -1        -1
## 92         -1        -1        -1         -1        0        0         0         0
## 93         -1        -1        -1         -1        0        0         0         0
## 94          0         0         0          0        0        0         0         0
## 95         -1        -1        -1         -1       -1       -1        -1        -1
## 96          0         0         0          0        0        0         0         0
## 97          0         0         0          0        0        2         1         1
## 98          0         0         0          0        0        0         0         0
## 99          0         0         0          0        0        0         0         0
## 100         0         0         0          0        0        0         0         0
## 101        -1        -1        -1         -1       -1       -1        -1        -1
## 102         0         0         0          0        0        0         0         0
## 103         0         0         0          0        0        0         0         0
## 104        -1        -1        -1         -1       -1       -1        -1        -1
## 105         0         0         0          0        0        0         0         0
## 106         0         0         0          0        0        0         0         0
## 107         0         0         0          0        0        0         0         0
## 108         0         0         0          0        0        0         0         0
## 109        -2        -2        -2         -2        0        0         0         0
## 110        -1        -1        -1         -1       -1       -1        -1        -1
## 111         1         1         1          1        0        0         0         0
## 112        -1        -1        -1         -1        0        0         0         0
## 113        -1        -1        -1         -1       -1       -1        -1        -1
## 114         0         0         0          0        0        0         0         0
## 115        -1        -1        -1         -1       -1       -1        -1        -1
## 116         0         0         0          0        0        0         0         0
##     cn_KIAA0754 cn_KCNQ4 cn_CITED4 cn_EDN2 cn_CLDN19 cn_CDC20 cn_ARTN cn_HPDL
## 1             1        1         1       1         1        1       1       1
## 2             0        0         0       0         0        0       0       0
```

## 3	0	0	0	0	0	0	0	0
## 4	0	0	0	0	0	0	0	0
## 5	0	0	0	0	0	0	0	0
## 6	0	0	0	0	0	0	0	0
## 7	0	0	0	0	0	0	0	0
## 8	0	0	0	0	0	0	0	1
## 9	1	1	1	1	-1	-1	-1	-1
## 10	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	1	1	1	1	1	1	1	1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	-1	-1	-1	-1	-1	-1	-1	-1
## 17	-1	-1	-1	-1	-1	-1	-1	-1
## 18	1	1	1	1	1	1	1	1
## 19	0	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1	-1
## 21	1	1	1	1	1	-1	-1	-1
## 22	1	1	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	2	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0

## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	1	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1	1
## 41	1	1	1	1	1	1	1	1
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	0	0	0	0
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	-1	-1	-1	-1	1	1	1
## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	1	1	1	1	1	1	1	0
## 56	1	1	1	1	1	1	1	1
## 57	1	1	1	1	1	1	1	1
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	1	2	2	2	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	0	0
## 66	0	0	0	0	0	0	0	0

## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	1
## 71	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	0
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1	1
## 81	0	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	-1	-1	-1	-1	-1	-1	-1	-1
## 90	1	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	0	0	0	0	0	0	0	0
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	-1	-1	-1	-1	-1	-1	-1	-1
## 96	0	0	0	0	0	0	0	0
## 97	1	1	1	1	1	1	1	1
## 98	0	0	0	0	0	0	0	0

```
## 99            0         0         0         0         0         0         0         0
## 100           0         0         0         0         0         0         0         0
## 101          -1        -1        -1        -1        -1        -1        -1        -1
## 102           0         0         0         0         0         0         0         0
## 103           0         0         0         0         0         0         0         0
## 104          -1        -1        -1        -1        -1        -1        -1        -1
## 105           0         0         0         0         0         0         0         0
## 106           0         0         0         0         0         0         0         0
## 107           0         0         0         0         0         0         0         0
## 108           0         0         0         0         0         0         0         0
## 109           0         0         0         0         0         0         0         0
## 110          -1        -1        -1        -1        -1        -1        -1        -1
## 111           0         0         0         0         0         0         0         0
## 112           0         0         0         0         0         0         0         0
## 113          -1        -1        -1        -1        -1        -1        -1        -1
## 114           0         0         0         0         0         0         0         0
## 115          -1        -1        -1        -1        -1        -1        -1        -1
## 116           0         0         0         0         0         0         0         0
##     cn_TSPAN1 cn_CYP4B1 cn_CYP4Z2P cn_CYP4X1 cn_CYP4Z1 cn_PDZK1IP1 cn_RAB3B
## 1           1         1          1         1         1           1        1
## 2           0         0          0         0         0           0        0
## 3           0         0          0         0         0           0        0
## 4           0         0          0         0         0           0        0
## 5           1         0          0         0         0           0        0
## 6           0         0          0         0         0           0        0
## 7           0         0          0         0         0           0        0
## 8           1         1          1         1         1           1        1
## 9          -1        -1         -1        -1        -1          -1       -1
## 10          0         0          0         0         0           0        0
## 11          0         0          0         0         0           0       -1
## 12          0         0          0         0         0           0        0
## 13          1         1          1         1         1           1        1
```

## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	-1	-1	-1	-1	-1	-1	-1
## 17	-1	-1	-1	-1	-1	-1	-1
## 18	1	1	1	1	1	1	1
## 19	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1
## 21	-1	-1	-1	-1	-1	-1	1
## 22	1	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1
## 41	1	1	1	1	1	1	0
## 42	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1

## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1
## 53	-1	-1	-1	-1	-1	-1	-1
## 54	-1	-1	-1	-1	-1	-1	1
## 55	0	1	1	1	1	1	1
## 56	1	1	1	1	1	1	1
## 57	1	1	1	1	1	1	1
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1
## 71	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0

## 78	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0
## 80	2	1	1	1	1	1	1
## 81	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0
## 89	-1	-1	-1	-1	-1	-1	-1
## 90	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	-1	-1	-1
## 92	0	0	0	0	0	0	0
## 93	-1	-1	-1	-1	-1	-1	-1
## 94	0	0	0	0	0	0	0
## 95	-1	-1	-1	-1	-1	-1	-1
## 96	0	0	0	0	0	0	0
## 97	1	1	1	1	1	1	1
## 98	0	0	0	0	0	0	0
## 99	0	0	0	0	0	0	0
## 100	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0
## 108	0	0	0	0	0	0	0
## 109	0	0	0	0	0	0	0

```
## 110        -1        -1        -1        -1        -1         -1       -1
## 111         0         0         0         0         0          0        0
## 112         0         0         0         0         0          0        0
## 113        -1        -1        -1        -1        -1         -1       -1
## 114         0         0         0         0         0          0        0
## 115        -1        -1        -1        -1        -1         -1       -1
## 116         0         0         0         0         0          0        0
##     cn_DIO1 cn_TTC22 cn_PCSK9 cn_PRKAA2 cn_C1orf168 cn_KANK4 cn_FOXD3
## 1         1        1        1         1           1        1        1
## 2         0        0        0         0           0        0        0
## 3         0        0        0         0           0        0        0
## 4         0        0        0         0           0        0        0
## 5         0        0        0         0           0        0        0
## 6         0        0        0         0           0        0        0
## 7         0        0        0         0           0        0        0
## 8         1       -1       -1        -1          -1       -1       -1
## 9        -1       -1       -1        -1          -1        2        2
## 10        0        0        0         0           0        0        0
## 11       -1       -1       -1        -1          -1       -1       -1
## 12        0        0        0         0           0        0        0
## 13        1        1        1         1           1        1        1
## 14        0        0        0         0           0        0        0
## 15        0        0        0         0           0        0        0
## 16       -1       -1       -1        -1          -1       -1       -1
## 17       -1       -1       -1        -1          -1       -1       -1
## 18        1        1        1         1           1        1        1
## 19        0        0        0         0           0        0        0
## 20       -1       -1       -1        -1          -1       -1       -1
## 21        1        1        1         1           1        1        1
## 22        1        2        2         2           2        1        1
## 23        0        0        0         0           0        0        0
## 24        1        1        1         1           1        1        1
```

```
## 25   0   0   0   0   0   0   0
## 26  -1  -1  -1  -1  -1  -1  -1
## 27  -1  -1  -1  -1  -1  -1  -1
## 28  -1  -1  -1  -1  -1  -1  -1
## 29   0   0   0   0   0   0   0
## 30   0   0   0   0   0   0   0
## 31   0   0   0   0   0   0   0
## 32   0   0   0   0   0   0   0
## 33   0   0   0   0   0   0   0
## 34   0   0   0   0   0   0   0
## 35  -1  -1  -1  -1  -1  -1  -1
## 36   0   0   0   0   0   0   0
## 37   0   0   0   0   0   0   0
## 38  -1  -1  -1  -1  -1  -1  -1
## 39   1   1   1   1   1   1   1
## 40   0   0   0   0   0   0   0
## 41   0   0   0   0   0   0   0
## 42   0   0   0   0   0   0   0
## 43   1   1   1   1   1   1   1
## 44   0   0   0   0   0   0   0
## 45  -1  -1  -1  -1  -1  -1  -1
## 46   0   0   0   0   0   0   0
## 47   0   0   0   0   0   0   0
## 48   0   0   0   0   0   0   0
## 49   0   0   0   0   0   0   0
## 50   0   0   0   0   0   0   0
## 51   1   1  -1  -1  -1   1   1
## 52  -1  -1  -1  -1  -1   1   1
## 53  -1  -1  -1  -1  -1  -1  -1
## 54  -1  -1  -1  -1  -1  -1  -1
## 55   2   2   2   2   2   1   1
## 56   1   1   1   1   1   1   1
```

```
## 57      1      1      1      1      1      1      1
## 58      0      0      0      0      0      0      0
## 59      0      0      0      0      0      0      0
## 60     -1     -1     -1     -1     -1     -1     -1
## 61      0      0      0      0      0      0      0
## 62     -1     -1     -1     -1     -1     -1     -1
## 63     -1     -1     -1     -1     -1     -1     -1
## 64      0      0      0      0      0      0      0
## 65      0      0      0      0      0      0      0
## 66      0      0      0      0      0      0      0
## 67      0      0      0      0      0      0      0
## 68      0      0      0      0      0      0      0
## 69      0      0      0      0      0      0      0
## 70      1      1      1      1      1      1      1
## 71     -1     -1     -1     -1     -1     -1     -1
## 72      0      0      0      0      0      0      0
## 73      0      0      0      0      0      0      0
## 74      0      0      0      0      0      0      0
## 75      0      0      0      0      0      0      0
## 76     -1     -1     -1     -1     -1     -1     -1
## 77      0      0      0      0      0      0      0
## 78      1      1      1      1      1      1      1
## 79      0      0      0      0      0      0      0
## 80      1      1      1      1      1      1      1
## 81      0      0      0      0      0      0      0
## 82      1      1      1      1      1      1      1
## 83     -1     -1     -1     -1     -1     -1     -1
## 84      0      0      0      0      0      0      0
## 85      0      0      0      0      0      0      0
## 86      1      1      1      1      1      1      1
## 87      0      0      0      0      0      0      0
## 88      0      0      0      0      0      0      0
```

```
## 89       -1       -1       -1       -1          -1       -1       -1
## 90        1        1        1        1           1        1        1
## 91       -1       -1       -1       -1          -1       -1       -1
## 92        0        0        0        0           0       -1       -1
## 93        0       -1       -1        1           1       -1       -1
## 94        0        0        0        0           0        0        0
## 95       -1       -1       -1       -1          -1       -1       -1
## 96        0        0        0        0           0        0       -1
## 97        2        2        2        1           1        1        1
## 98        0        0        0        0           0        0        0
## 99        0        0        0        0           0        0        0
## 100       0        0        0        0           0        0        0
## 101      -1       -1       -1       -1          -1       -1       -1
## 102       0        0        0        0           0        0        0
## 103       0        0        0        0           0        0        0
## 104      -1       -1       -1       -1          -1       -1       -1
## 105       0        0        0        0           0        0        0
## 106       0        0        0        0           0        0        0
## 107       0        0        0        0           0        0        0
## 108       0        0        0        0           0        0        0
## 109       0        0        0        0           0        0        0
## 110      -1       -1       -1       -1          -1       -1       -1
## 111       0        0        0        0           0        0        0
## 112       0        0        0        0           0        0        0
## 113      -1       -1       -1       -1          -1       -1       -1
## 114       0        0        0        0           0        0        0
## 115      -1       -1       -1       -1          -1       -1       -1
## 116       0        0        0        0           0        0        0
##     cn_IL12RB2 cn_DIRAS3 cn_C1orf173 cn_SLC44A5 cn_ST6GALNAC5 cn_AK5 cn_PTGFR
## 1            1         1          -1         -1            -1     -1       -1
## 2            0         0           0          0             0      0        0
## 3            0         0           0          0             0      0        0
```

## 4	0	0	0	0	0	0	0
## 5	0	0	0	0	0	0	0
## 6	0	0	0	0	0	0	0
## 7	0	0	0	0	0	0	0
## 8	-1	-1	-1	-1	-1	-1	-1
## 9	2	2	1	2	2	2	2
## 10	0	0	0	0	0	0	0
## 11	-1	-1	-1	-1	-1	-1	-1
## 12	0	0	0	0	0	0	0
## 13	1	1	1	1	1	1	1
## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	-1	-1	-1	-1	-1	-1	-1
## 17	-1	-1	-1	-1	-1	-1	-1
## 18	1	1	1	1	1	1	1
## 19	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1
## 21	1	1	1	1	-1	-1	-1
## 22	1	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1

## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	1	1	1	1	1	1	1
## 40	0	0	0	0	0	0	0
## 41	0	0	-1	-1	-1	-1	-1
## 42	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	1
## 53	-1	-1	-1	-1	-1	-1	-1
## 54	-1	-1	-1	-1	-1	-1	-1
## 55	1	1	1	1	1	1	1
## 56	1	1	-1	-1	-1	-1	-1
## 57	1	1	1	1	1	1	1
## 58	0	0	0	0	0	0	0
## 59	0	0	2	2	2	2	2
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0

## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1
## 71	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	2
## 79	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0
## 89	-1	-1	-1	-1	-1	-1	-1
## 90	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	0	0	0	0	0
## 93	-1	-1	-1	-1	-1	-1	-1
## 94	0	0	0	0	0	0	0
## 95	-1	-1	-1	-1	-1	-1	-1
## 96	-1	-1	-1	-1	-1	-1	-1
## 97	1	1	1	1	1	1	1
## 98	0	0	0	0	0	0	0
## 99	0	0	0	0	0	0	0

```
## 100          0         0          0         0             0      0        0
## 101         -1        -1         -1        -1            -1     -1       -1
## 102          0         0          0         0             0      0        0
## 103          0         0          0         0             0      0        0
## 104         -1        -1         -1        -1            -1     -1       -1
## 105          0         0          0         0             0      0        0
## 106          0         0          0         0             0      0        0
## 107          0         0          0         0             0      0        0
## 108          0         0          0         0             0      0        0
## 109          0         0          0         0             0      0        0
## 110         -1        -1         -1        -1            -1     -1       -1
## 111          0         0         -1        -1            -1     -1       -1
## 112          0         0          0         0             0      0        0
## 113         -1        -1         -1        -1            -1     -1       -1
## 114          0         0          0         0             0      0        0
## 115         -1        -1         -1        -1            -1     -1       -1
## 116          0         0          0         0             0      0        0
##     cn_DNASE2B cn_LPAR3 cn_CLCA2 cn_CLCA4 cn_GBP5 cn_TGFBR3 cn_BRDT cn_EPHX4
## 1           -1       -1       -1       -1      -1        -1      -1       -1
## 2            0        0        0        0       0         0       0        0
## 3            0        0        0        0       0         0       0        0
## 4            0        0        0        0       0         0       0        0
## 5            0        0        0        0       0         0       0        0
## 6            0        0        0        0       0         0       0        0
## 7            0        0        0        0       0         0       0        0
## 8           -1        1        1        1       1         1       1        1
## 9            2        2        1        1       1         1       1        1
## 10           0        0        0        0       0         0       0        0
## 11          -1       -1       -1       -1      -1        -1      -1       -1
## 12           0        0        0        0       0         0       0        0
## 13           1        1        1        1       1         1       1        1
## 14           0        0        0        0       0         0       0        0
```

## 15	0	0	0	0	0	0	0	0
## 16	-1	-1	-1	-1	-1	-1	-1	-1
## 17	-1	-1	-1	-1	-1	-1	-1	-1
## 18	1	1	1	1	1	1	1	1
## 19	0	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1	-1
## 21	-1	-1	-1	-1	-1	-1	-1	-1
## 22	1	1	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	1	1	1	1	1	1	1	1
## 40	0	0	0	0	0	0	0	0
## 41	-1	-1	-1	-1	-1	-1	-1	-1
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0

## 47	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	1	1	-1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	1	1	1	1	1	1	1	1
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	1	1	1	1	1	1	1	1
## 58	0	0	0	0	0	0	0	0
## 59	2	2	2	2	2	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	-1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	1	1	1	1	0	0	0	0
## 71	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	2	2	2	2	2	2	2	2

## 79	0	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1	1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	-1	-1	-1	-1	-1	-1	-1	-1
## 90	1	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	0	0	0	0
## 92	0	0	0	0	0	0	0	0
## 93	-1	-1	-1	-1	0	1	1	1
## 94	0	0	0	0	0	0	0	0
## 95	-1	-1	-1	-1	-1	-1	-1	-1
## 96	-1	-1	-1	-1	-1	-1	-1	-1
## 97	1	1	1	1	1	1	1	1
## 98	0	0	0	0	0	0	0	0
## 99	0	0	0	0	0	0	0	0
## 100	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0	0
## 108	-1	-1	-1	-1	-1	-1	-1	-1
## 109	0	0	0	0	0	0	0	0
## 110	-1	-1	-1	-1	-1	-1	-1	-1

```
## 111         -1       -1       -1       -1       -1       -1       -1       -1
## 112          0        0        0        0        0        0        0        0
## 113         -1       -1       -1       -1       -1       -1       -1       -1
## 114          0        0        0        0        0        0        0        0
## 115         -1       -1       -1       -1       -1       -1       -1       -1
## 116          0        0        0        0        0        0        0        0
##      cn_ABCA4 cn_COL11A1 cn_AMY1A cn_NTNG1 cn_NBPF4 cn_NBPF6 cn_GSTM1 cn_GSTM2
## 1          -1         -1       -1       -1       -1       -1       -1       -1
## 2           0          0        0        0        0        0        0        0
## 3           0          0        0        0        0        0        0        0
## 4           0          0        0        0        0        0        0        0
## 5           0          0        0        0        0        0        0        0
## 6           0          0        0        1        1        1        1        1
## 7           0          0        0        0        0        0        0        0
## 8           1          1        1       -1       -1       -1       -1       -1
## 9           2          1        0        2        2        2        2        2
## 10          0          0        0        0        0        0        0        0
## 11         -1         -1       -1       -1        1        1        1        1
## 12          0          0        0        0        0        0        0        0
## 13          1          1        1        1        1        1        1        1
## 14          0          0        0        0        0        0        0        0
## 15          0          0        0        0        0        0        0        0
## 16         -1         -1       -1       -1       -1       -1       -1       -1
## 17         -1         -1       -1       -1       -1       -1       -1       -1
## 18          1          1        1        1        1        1        1        1
## 19          0          0        0        0        0        0        0        0
## 20         -1         -1       -1        0        0        0        0        0
## 21         -1         -1       -1       -1       -1       -1       -1       -1
## 22          1          1        1        1        1        1        1        1
## 23          0          0        0       -1        0        0        0        0
## 24          2          1        1        1        1        1        1        1
## 25          0          0        0        0        0        0        0        0
```

## 26	-1	-1	-1	-1	1	1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	1	1	1	1	1	1	1	1
## 40	0	0	0	-2	0	0	0	0
## 41	-1	-1	-1	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	0	-1	-1	-1	1	1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	-1	-1	-1	-1	-1	-1	1	1
## 55	1	1	1	1	1	1	1	1
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	1	1	1	1	1	1	1	1

## 58	-2	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	-1	0	0	-1	0	0	0	0
## 61	1	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	2	2	2	2	2	2	2	2
## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	1	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	2	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1	1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	1	1
## 85	0	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	-1	-1	-1	-1	-1	-1	-1	-1

```
## 90         1          1         1         1         1         1         1         1
## 91         0         -1        -1        -1        -1        -1        -1        -1
## 92         0          0         0         0         0         0         0         0
## 93         1          1         1         1         1         1         1         1
## 94         0          0         0         0         0         0         0         0
## 95        -1         -1        -1        -1        -1        -1        -1        -1
## 96        -1         -1        -1        -1        -1        -1        -1        -1
## 97         1          1         1         1         1         1         1         1
## 98         0          0         0         0         0         0         0         0
## 99         0          0         0         0         0         0         0         0
## 100        0          0         0         0         0         0         0         0
## 101       -1         -1        -1        -1        -1        -1        -1        -1
## 102        0          0         0         0         0         0         0         0
## 103        0         -1        -1        -1        -1        -1        -1        -1
## 104       -1         -1        -1        -1        -1        -1        -1        -1
## 105        0          0         0         0         0         0         0         0
## 106        0          0         0         0         0         0         0         0
## 107        0          0         0         0         0         0         0         0
## 108       -1         -1        -1        -1        -1        -1         1         1
## 109        0          0         0         0         0         0         0         0
## 110       -1         -1        -1        -1        -1        -1        -1        -1
## 111       -1         -1        -1        -1        -1        -1        -1        -1
## 112        0          0         0         0         0         0         0         0
## 113       -1         -1        -1        -1        -1        -1        -1        -1
## 114        0          0         0         0         0         0         0         0
## 115       -1         -1        -1        -1        -1        -1        -1        -1
## 116        0          0         0         0         0         0         0         0
##     cn_GSTM5 cn_GSTM3 cn_SLC6A17 cn_CHI3L2 cn_KCND3 cn_FAM19A3 cn_AMPD1
## 1         -1       -1         -1        -1       -1         -1       -1
## 2          0        0          0         0        0          0        0
## 3          0        0          0         0        0          0        0
## 4          0        0          0         0        0          0        0
```

## 5	0	0	0	0	0	0	0
## 6	1	1	1	1	1	1	1
## 7	0	0	0	0	0	0	0
## 8	-1	-1	-1	-1	-1	-1	1
## 9	2	2	2	0	0	1	0
## 10	0	0	0	0	0	0	0
## 11	1	1	1	1	1	1	1
## 12	0	0	0	0	0	0	0
## 13	1	1	1	1	1	1	1
## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	-1	-1	-1	-1	-1	-1	-1
## 17	-1	-1	-1	-1	-1	1	1
## 18	1	1	1	1	1	1	1
## 19	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	-1
## 21	-1	-1	-1	-1	-1	-1	-1
## 22	1	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0
## 24	1	1	1	0	0	1	0
## 25	0	0	0	0	0	0	0
## 26	1	1	1	1	-1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0

## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	1	1	1	1	1	1	1
## 40	0	0	0	0	0	0	0
## 41	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	1	1	1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	1	1	1	-1
## 52	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1
## 54	1	1	1	-1	-1	-1	-1
## 55	1	1	1	1	1	1	1
## 56	-1	-1	-1	-1	-1	-1	-1
## 57	1	1	1	1	1	1	1
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	1
## 60	0	0	0	0	0	0	0
## 61	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	2	2	2	2	2	2	2
## 64	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0

## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	2
## 74	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	1	1	1	1	1	1	1
## 85	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	0
## 87	0	0	0	0	0	0	0
## 88	0	0	0	0	1	1	1
## 89	-1	-1	-1	-1	-1	-1	-1
## 90	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	-1	-1	-1
## 92	0	0	0	0	0	0	0
## 93	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0
## 95	-1	-1	-1	-1	-1	-1	-1
## 96	-1	-1	-1	-1	-1	-1	-1
## 97	1	1	1	1	1	1	1
## 98	0	0	0	0	0	0	0
## 99	0	0	0	0	0	0	0
## 100	0	0	0	0	0	0	0

```
## 101       -1       -1       -1       -1       -1       -1       -1
## 102        0        0        0        0        0        0        0
## 103       -1       -1       -1       -1       -1       -1       -1
## 104       -1       -1       -1       -1       -1       -1       -1
## 105        0        0        0        0        0        0        0
## 106        0        0        0        0        0        0        0
## 107        0        0        0        0        0        0        0
## 108        1        1        1        1        1        1        1
## 109        0        0        0        0        0        0        0
## 110       -1       -1       -1       -1       -1       -1       -1
## 111       -1       -1       -1       -1       -1       -1       -1
## 112        0        0        0        0        0        0        0
## 113       -1       -1       -1       -1       -1       -1       -1
## 114        0        0        0        0        0        0        0
## 115       -1       -1       -1       -1       -1       -1       -1
## 116        0        0        0        0        0        0        0
##     cn_CASQ2 cn_VTCN1 cn_SPAG17 cn_HSD3B2 cn_HMGCS2 cn_FMO5 cn_PDZK1P1 cn_PDZK1
## 1         -1        1        -1        -1         1       1          1        1
## 2          0        0         0         0         0       0          0        0
## 3          0        0         0         0         0       1          1        1
## 4          0        0         0         0         0       0          0        0
## 5          0        0         0         0         0       0          0        0
## 6          1        1         1         1         1       1          1        1
## 7          0        0         0         0         0       0          0        0
## 8          1        1         1         1         1       2          2        2
## 9          1        2         2         2         2       2          2        2
## 10         0        0         0         0         0       0          0        0
## 11         1        1         1         1         1       1          1        1
## 12         0        0         0         0         0       0          0        0
## 13         1        1         1         1         1       2          2        2
## 14         0        0         0         0         0       0          0        0
## 15         0        0         0         0         0       1          1        1
```

16	-1	-1	-1	-1	-1	1	1	1
17	1	1	1	1	1	1	1	1
18	1	1	1	1	1	1	1	1
19	0	0	0	0	0	1	1	1
20	-1	-1	-1	-1	-1	0	0	0
21	-1	-1	-1	1	1	1	1	1
22	1	1	1	1	1	1	1	1
23	0	0	0	0	0	0	0	0
24	0	0	1	1	0	1	1	1
25	0	0	0	0	0	1	1	1
26	1	1	1	1	1	1	1	1
27	-1	-1	-1	-1	-1	1	1	1
28	-1	-1	-1	-1	-1	-1	-1	-1
29	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0
32	0	0	0	0	0	1	1	1
33	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0
35	-1	-1	-1	-1	-1	1	1	1
36	0	2	2	2	2	1	1	1
37	0	0	0	0	0	0	0	0
38	-1	-1	-1	-1	-1	1	1	1
39	1	1	1	1	1	1	1	1
40	0	0	0	0	0	1	1	1
41	0	0	0	0	0	1	1	1
42	0	0	0	0	0	0	0	0
43	1	1	1	1	1	2	2	2
44	0	0	0	0	0	1	1	1
45	-1	-1	-1	-1	-1	1	1	1
46	0	0	0	0	0	1	1	1
47	0	0	0	0	0	1	1	1

## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	1	1	1
## 50	0	0	0	0	0	1	1	1
## 51	-1	-1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	1	1	1	1	1
## 54	1	1	1	1	1	1	1	1
## 55	1	1	1	1	1	1	1	1
## 56	-1	-1	-1	1	1	1	1	1
## 57	1	1	1	1	1	1	1	1
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	2	2	1	1	1
## 60	-1	-1	-1	-1	-1	1	1	1
## 61	1	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	2	2	2
## 63	2	1	1	1	1	1	1	1
## 64	0	0	0	0	0	1	1	1
## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	-1	-1	-1	0	0	1	1	1
## 72	0	0	0	0	0	0	0	0
## 73	2	2	2	2	2	2	2	2
## 74	0	0	0	0	0	1	1	1
## 75	0	0	0	0	0	2	2	2
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	2	2	2
## 79	0	0	0	0	0	1	1	1

## 80	1	1	1	1	1	2	2	2
## 81	-1	-1	-1	-1	-1	1	1	1
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	1	1	1
## 84	1	1	1	1	1	1	1	1
## 85	0	0	0	0	0	2	2	2
## 86	0	0	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	1	1	1	1	1	1	1	1
## 89	-1	-1	-1	-1	-1	1	1	1
## 90	1	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	0	0	0	0
## 92	0	0	0	0	0	1	1	1
## 93	1	1	1	1	1	1	1	1
## 94	0	0	0	0	0	1	1	1
## 95	-1	-1	-1	-1	-1	2	2	2
## 96	-1	-1	-1	-1	-1	2	2	2
## 97	1	1	1	1	1	2	2	2
## 98	0	0	0	0	0	0	0	0
## 99	0	0	0	0	0	1	1	1
## 100	0	0	0	0	0	1	1	1
## 101	-1	-1	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0	0
## 103	-1	-1	-1	-1	-1	-1	-1	-1
## 104	-1	-1	-1	-1	-1	1	1	1
## 105	0	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	1	1	1
## 108	1	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0	0
## 110	-1	-1	-1	-1	-1	-1	-1	-1
## 111	-1	-1	-1	0	0	0	0	0

```
## 112        0        0         0         0         0       0          0        0
## 113       -1       -1        -1        -1        -1       1          1        1
## 114        0        0         0         0         0       1          1        1
## 115       -1       -1        -1        -1        -1      -1         -1       -1
## 116        0        0         0         0         0       1          1        1
##     cn_ZNF695 cn_TRIM58 cn_CHL1 cn_CNTN4 cn_LRRN1 cn_EGOT cn_ROBO2 cn_CADM2
## 1           2         2       0        0        0       0        0        0
## 2           1         1       0        0        0       0        0        0
## 3           1         1       0        0        0       0        0        0
## 4           1         1       0        0        0       0        0        0
## 5           0         0       0        0        0       0        0        0
## 6           1         1       1        1        1       1       -1        1
## 7           1         1       0        0        0       0        0        0
## 8           2         2       2        2        2       2       -1       -1
## 9           1         2      -1       -1        1       1       -1       -1
## 10          0         0       0        0        0       0        0        0
## 11          2         2       0        0        0       0        0        0
## 12          0         0      -1       -1       -1      -1       -1       -1
## 13          0         0       1        1        1       1       -1       -1
## 14          0         0       0        0        0       0        0        0
## 15          1         1       0        0        0       0        0        0
## 16          1         1       1        1        1       1        1        1
## 17          1         1       1        1        1       1       -1       -1
## 18          1         1       0        0        0       0        0        0
## 19          1         1       1        1        1       1        1        1
## 20          1         1      -1       -1       -1      -2       -1        2
## 21          1         1      -1       -1        1       1       -1        1
## 22          2         2      -1       -1       -1      -1       -1       -1
## 23          0         0       0        0        0       0       -1       -1
## 24          1         1       0        0        0       0        0        0
## 25          1         1       0        0        0       0        0        0
## 26          1         1      -1       -1       -1      -1       -1       -1
```

## 27	1	1	-1	-1	-1	-1	-1	-1
## 28	1	1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	1	1	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	0	0	0	0	0	0
## 36	1	1	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	1	1	1	1	1	1	1	1
## 39	1	1	0	0	0	0	0	0
## 40	1	1	-1	-1	-1	-1	1	-1
## 41	1	1	0	0	0	0	0	0
## 42	1	1	0	0	0	0	1	1
## 43	0	0	0	0	0	0	0	0
## 44	1	1	-1	-1	-1	-1	-1	-1
## 45	1	1	0	0	0	0	0	0
## 46	1	1	0	0	0	0	0	0
## 47	1	1	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	1	1	0	0	0	0	0	0
## 50	1	1	0	0	0	0	0	0
## 51	1	1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	0	0	0	0	0	0
## 53	0	0	0	0	0	1	0	0
## 54	1	1	0	0	0	0	0	0
## 55	1	1	0	0	0	0	0	0
## 56	1	1	0	0	0	0	0	0
## 57	1	1	0	0	0	0	0	0
## 58	1	1	0	0	0	0	0	0

## 59	1	1	0	0	0	0	0	0
## 60	1	1	1	1	1	1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	1	1	1	1	0	0
## 63	-1	-1	0	0	0	0	0	0
## 64	1	1	1	1	1	1	-2	1
## 65	1	1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	1	1	0	0	0	0	0	0
## 70	2	2	1	1	1	1	0	0
## 71	1	1	0	0	0	0	0	0
## 72	1	1	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	2	2	-2	-2	-1	-1	-1	-1
## 76	1	1	-1	-1	1	1	-1	1
## 77	0	0	0	0	0	0	0	0
## 78	2	2	1	1	1	1	-1	1
## 79	1	1	1	1	1	1	1	1
## 80	2	2	-1	-1	-1	1	-1	-1
## 81	1	1	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1	1
## 83	1	1	0	0	0	0	0	0
## 84	1	1	0	0	0	0	-2	-2
## 85	1	1	-1	-1	-1	-1	1	1
## 86	1	1	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	0	0	1	1	1	1	1	1
## 89	1	1	0	0	0	0	0	0
## 90	1	1	-1	-1	-1	-1	1	1

```
## 91          1         1       1       1       1       1       1       1
## 92          0         0       0       0       0       0       0       0
## 93          1         1       1       1       1       1       1       1
## 94          1         1       0       0       0       0      -1      -1
## 95          2         2      -1      -1      -1      -1      -1      -1
## 96          1         1       0       0       0       0       0       0
## 97          1         1       0       0       0       0       0       0
## 98          0         0       0       0       0       0       0       0
## 99          1         1       0       0       0       0       0       0
## 100         1         1       0       0       0       0       0       0
## 101         1         1       0       0       0       0       0       0
## 102         0         0       0       0       0       0       0       0
## 103         1         1       0       0       0       0       0       0
## 104         1         1       0       0       0       0       0       0
## 105         1         1       0       0       0       0       0       0
## 106         0         0       0       0       0       0       0       0
## 107         1         1       0       0       0       0       0       0
## 108         2         2       0       0       0       0       0       0
## 109         0         0       0       0       0       0       0       0
## 110         1         1       1       1       1       1       1       1
## 111         1         1       1       1       1       1       1       1
## 112         0         0      -1      -1      -1      -1      -1      -1
## 113         1         1       1       1       1       1      -1      -1
## 114         1         1       0       0       0       0       0       0
## 115         1         1       1       1       1       1       0       0
## 116         1         1       0       0       0       0       0       0
##     cn_NPFFR2 cn_ALB cn_AFP cn_RASSF6 cn_IL8 cn_CXCL1 cn_CXCL5 cn_CXCL2 cn_EREG
## 1           0      0      0         0      0        0        0        0       0
## 2           0      0      0         0      0        0        0        0       0
## 3           1      1      1         1      1        1        1        1       1
## 4           0      0      0         0      0        0        0        0       0
## 5           0      0      0         0      0        0        0        0       0
```

## 6	2	2	2	2	2	2	2	2	2
## 7	0	0	0	0	0	0	0	0	0
## 8	2	2	2	2	2	2	2	2	2
## 9	0	0	0	0	0	0	0	0	0
## 10	0	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0	0
## 12	2	1	1	1	1	1	1	1	1
## 13	0	0	0	0	0	0	0	0	0
## 14	0	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0	0
## 16	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 17	1	1	1	1	1	1	1	1	1
## 18	1	1	1	1	1	1	1	1	1
## 19	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 20	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0	0	0
## 22	0	0	0	0	0	0	0	0	0
## 23	0	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0	0	0
## 28	2	2	2	2	2	2	2	2	2
## 29	0	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0	0

## 38	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0	0
## 42	2	1	2	2	2	2	2	2	1
## 43	0	0	0	0	0	0	0	0	0
## 44	1	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0	0
## 60	1	1	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1	1
## 63	0	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0	0

## 70	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 83	0	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0	0
## 88	2	2	2	2	2	2	2	2	2
## 89	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 90	1	2	2	2	2	2	2	2	1
## 91	1	1	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0	0	0
## 93	1	1	1	1	1	1	1	1	1
## 94	2	2	2	2	2	2	2	2	2
## 95	0	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0	0
## 98	0	0	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1	-1

```
## 102         0      0      0         0      0        0        0        0       0
## 103         0      0      0         0      0        0        0        0       0
## 104        -1     -1     -1        -1     -1       -1       -1       -1      -1
## 105         0      0      0         0      0        0        0        0       0
## 106         0      0      0         0      0        0        0        0       0
## 107         0      0      0         0      0        0        0        0       0
## 108         1      1      1         1      1        1        1        1       1
## 109         0      0      0         0      0        0        0        0       0
## 110         0      0      0         0      0        0        0        0       0
## 111         0      0      0         0      0        0        0        0       0
## 112         0      0      0         0      0        0        0        0       0
## 113         0      0      0         0      0        0        0        0       0
## 114         1      1      1         1      1        1        1        1       1
## 115         0      0      0         0      0        0        0        0       0
## 116         0      0      0         0      0        0        0        0       0
##      cn_AREG cn_CDKL2 cn_CXCL9 cn_ART3 cn_CXCL10 cn_CXCL11 cn_CCDC158 cn_CXCL13
## 1          0        0        0       0         0         0          0         0
## 2          0        0        0       0         0         0          0         0
## 3          1        1        1       1         1         1          1         1
## 4          0        0        0       0         0         0          0         0
## 5          0        0        0       0         0         0          0         0
## 6          2        2        2       2         2         2         -1        -1
## 7          0        0        0       0         0         0          0         0
## 8          2        2        2       2         2         2          2         2
## 9          0        2        1       1         1         1          1         2
## 10         0        0        0       0         0         0          0         0
## 11         0        0        0       0         0         0          0         0
## 12         1        1        1       1         1         1          1         1
## 13         0        0        0       0         0         0          0         0
## 14         0        0        0       0         0         0          0         0
## 15         0        0        0       0         0         0          0         0
## 16        -1       -1       -1      -1        -1        -1         -1        -1
```

## 17	1	1	1	1	1	1	1	1
## 18	1	1	1	1	1	1	1	1
## 19	-1	-1	-1	-1	-1	-1	-1	-1
## 20	-1	-1	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0	0
## 22	0	0	0	0	0	0	1	0
## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0	0
## 28	2	2	2	2	2	2	2	2
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	1	2	2	2	2	2	2	2
## 43	0	0	0	0	0	0	0	0
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1

```
## 49   0   0   0   0   0   0   0   0
## 50   0   0   0   0   0   0   0   0
## 51  -1  -1  -1  -1  -1  -1  -1  -1
## 52   0   0   0   0   0   0   0   0
## 53   0   0   0   0   0   0   0   0
## 54   0   1   1   1   1   1   1   0
## 55   0   0   0   0   0   0   0   0
## 56  -1  -1  -1  -1  -1  -1  -1  -1
## 57   0   0   0   0   0   0   0   0
## 58   0   0   0   0   0   0   0   0
## 59   0   0   0   0   0   0   0   0
## 60   1   1   1   1   1   1   1   1
## 61   0   0   0   0   0   0   0   0
## 62   1   1   1   1   1   1   1   1
## 63   0   0   0   0   0   0   0   0
## 64   0   0   0   0   0   0   0   0
## 65  -1  -1  -1  -1  -1  -1  -1  -1
## 66   0   0   0   0   0   0   0   0
## 67   0   0   0   0   0   0   0   0
## 68   0   0   0   0   0   0   0   0
## 69   0   0   0   0   0   0   0   0
## 70  -1  -1  -1  -1  -1  -1  -1  -1
## 71  -1  -1  -1  -1  -1  -1  -1  -1
## 72   0   0   0   0   0   0   0   0
## 73   0   0   0   0   0   0   0   0
## 74   0   0   0   0   0   0   0   0
## 75   0   0   0   0   0   0   0   0
## 76  -1  -1  -1  -1  -1  -1  -1  -1
## 77   0   0   0   0   0   0   0   0
## 78  -1  -1  -1  -1  -1  -1  -1  -1
## 79   0   0   0   0   0   0   0   0
## 80  -1  -1  -1  -1  -1  -1  -1  -1
```

## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	2	2	2	2	2	2	2	1
## 89	-1	-1	-1	-1	-1	-1	-1	-1
## 90	1	2	2	2	2	2	2	-1
## 91	1	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0	0
## 93	1	1	1	1	1	1	1	1
## 94	2	2	2	2	2	2	2	2
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	0	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0	0
## 108	1	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0	0
## 110	0	0	0	0	0	0	0	0
## 111	0	0	0	0	0	0	0	-1
## 112	0	0	0	0	0	0	0	0

```
## 113       0        2        2       2         2         2          2        -1
## 114       1        1        1       1         1         1          1         1
## 115       0        0        0       0         0         0          0         0
## 116       0        0        0       0         0         0          0         0
##     cn_LRRC14B cn_PLEKHG4B cn_IRX4 cn_C5orf38 cn_IRX2 cn_IRX1 cn_ADAMTS16
## 1            0           0       0          0       0       0           0
## 2            0           0       0          0       0       0           0
## 3            1           1       1          1       1       1           1
## 4            0           0       0          0       0       0           0
## 5            0           0       0          0       0       0           0
## 6            2           2       2          2       2       2           2
## 7            0           0       0          0       0       0           0
## 8            2           2       1          1       1       1           1
## 9            0           0       0         -1      -1      -1          -1
## 10           0           0       0          0       0       0           0
## 11           0           0       0          0       0       0           0
## 12          -1          -1      -1         -1      -1      -1          -1
## 13          -1          -1      -1         -1      -1      -1          -1
## 14           0           0       0          0       0       0           0
## 15           0           0       0          0       0       0           0
## 16           0           0       0          0       0       0           0
## 17           0           0       0          0       0       0           0
## 18           0           0       0          0       0       0           0
## 19           0           0       0          0       0       0           0
## 20           0           0       0          0       0       0           0
## 21           1           1       1          1       1       1           1
## 22           2           2       2          2       2       2           2
## 23           0           0       0          0       0       0           0
## 24           1           1       1          1       1       1           1
## 25           0           0       0          0       0       0           0
## 26           0           0       0          0       0       0           0
## 27           1           1       1          1       1       1           1
```

## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	2	2	2	2	2	2	2
## 35	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	1	1	1	1	1	1	-1
## 39	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0
## 42	1	1	-1	-1	-1	-1	-1
## 43	-2	-2	-2	-2	-2	-2	-2
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	2	2	2	2	2	2	2
## 52	0	0	0	0	0	0	0
## 53	2	2	2	2	2	2	2
## 54	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1

## 60	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0
## 72	-1	-1	-1	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	0	0	-2	0	0	0	0
## 76	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1
## 80	2	2	2	2	2	2	2
## 81	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	1	1	1	1	1	1	1
## 86	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0
## 88	1	1	1	1	1	1	1
## 89	1	1	1	1	1	1	1
## 90	1	1	1	1	1	1	1
## 91	1	1	1	1	1	1	1

```
## 92           0           0       0           0       0       0           0
## 93           1           1       1           1       1       1           1
## 94           0           0       0           0       0       0           0
## 95           0           0       0           0       0       0           0
## 96           0           0       0           0       0       0           0
## 97           1           1       1           1       1       1           1
## 98           0           0       0           0       0       0           0
## 99           1           1       1           1       1       1           1
## 100          1           1       1           1       1       1           1
## 101         -1          -1      -1          -1      -1      -1          -1
## 102          0           0       0           0       0       0           0
## 103          1           1       1           1       1       1           1
## 104         -1          -1      -1          -1      -1      -1          -1
## 105          0           0       0           0       0       0           0
## 106          1           1       1           1       1       1           1
## 107          0           0       0           0       0       0           0
## 108          1           1       1           1       1       1           1
## 109          0           0       0           0       0       0           0
## 110          0           0       0           0       0       0           0
## 111          0           0       0           0       0       0           0
## 112          0           0       0           0       0       0           0
## 113          1           1       1           1       1       1           1
## 114          0           0       0           0       0       0           0
## 115          1           1       1           1       1       1           1
## 116          0           0       0           0       0       0           0
##     cn_ADCY2 cn_ROPN1L cn_CTNND2 cn_DNAH5 cn_MARCH11 cn_NPR3 cn_IL7R cn_CAPSL
## 1          0         0         0        0          0       0       0        0
## 2          0         0         0        0          0       0       0        0
## 3          1         1         1        1          1       1       1        1
## 4          0         0         0        0          0       0       0        0
## 5          0         0         0        0          0       0       0        0
## 6          2         2         2        2          2      -1      -1       -1
```

## 7	0	0	0	0	0	0	0	0
## 8	1	1	2	2	2	1	1	1
## 9	-1	-1	-1	0	-1	-1	0	0
## 10	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0
## 12	-1	-1	-1	-1	-1	0	0	0
## 13	-1	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0	0
## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	0	0
## 21	1	1	1	1	1	1	1	1
## 22	2	2	2	2	2	2	2	2
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0
## 27	1	1	1	1	1	1	1	1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	2	2	2	2	2	1	1	1
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	2	2

## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	-1	-1	-1
## 42	-1	-1	-1	-1	-1	-1	1	1
## 43	0	0	0	0	0	0	0	0
## 44	1	1	1	1	0	0	0	0
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	2	2	2	2	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	2	2	2	2	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0
## 56	0	0	0	0	0	-1	-1	-1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	-1	-1	-1	-1
## 60	1	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	1	1	1	1	1	2	2	2

## 71	0	0	0	0	0	0	0	0
## 72	-1	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	2	2	2	2	2	2	2	2
## 81	1	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	1	1	1	1	1	1	1	1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	1	1	1	1	1	0	0	0
## 89	1	1	1	1	1	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	-2	-2	-2	-2	-2	-1	-2	-2
## 92	0	0	0	0	0	-1	-1	-1
## 93	1	1	1	1	1	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	1	1	1	1	1	1	1	1
## 98	0	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1	1
## 101	-1	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0	0

```
## 103        1         1         1         1         1       1       1        1
## 104       -1        -1        -1        -1        -1      -1      -1       -1
## 105        0         0         0         0         0       0       0        0
## 106        1         1         1         1         1       1       1        1
## 107        0         0         0         0         0       0       0        0
## 108        1         1         1         1         1       1       1        1
## 109        0         0         0         0         0       0       0        0
## 110        0         0         0         0         0       0       0        0
## 111        0         0         0         0         0       0       0        0
## 112        0         0         0         0         0       0       0        0
## 113        1         1         1         1         1       1       1        1
## 114        0         0         0         0         0       0       0        0
## 115        1         1         1         1         1       1       1        1
## 116        0         0         0         0         0       0       0        0
##     cn_UGT3A2 cn_RANBP3L cn_FGF10 cn_GZMK cn_CDC20B cn_CCNO cn_IL6ST cn_PART1
## 1           0          0        0       0         0       0        0        0
## 2           0          0        0       0         0       0        0        0
## 3           1          1        1       1         1       1        1        1
## 4           0          0        0       0         0       0        0        0
## 5           0          0        0       0         0       0        0        0
## 6          -1         -1       -1      -1        -1      -1       -1       -1
## 7           0          0        0       0         0       0        0       -1
## 8           1          1        1      -1        -1      -1       -1       -1
## 9           0          0        0      -1        -1      -1        0        2
## 10          0          0        0       0         0       0        0        0
## 11          0          0        0       0         0       0        0        0
## 12          0          0        0       0         0       0        0        0
## 13         -1         -1       -1      -1        -1      -1       -1       -1
## 14          0          0        0       0         0       0        0        0
## 15          0          0        0       0         0       0        0        0
## 16          0          0        0       0         0       0        0        0
## 17          0          0        0       0         0       0        0        0
```

## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	0	0
## 21	1	1	1	-1	-1	-1	-1	-1
## 22	2	2	2	-2	-2	-2	-2	-2
## 23	0	0	0	-1	-1	-1	-1	-1
## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0
## 27	1	1	1	0	0	0	0	0
## 28	1	1	1	-1	-1	-1	-1	-1
## 29	0	0	1	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	1	1	1	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	2	2	0	0	0	0	0	0
## 39	1	1	1	1	1	1	0	0
## 40	-1	-1	-1	-2	-2	-2	-2	-2
## 41	-1	-1	0	0	0	0	0	-1
## 42	1	2	1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0

## 50	0	0	0	0	0	0	0	0
## 51	1	1	2	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	1	1	1	0	0	0	0	0
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	2	2	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1
## 80	2	2	2	-1	-1	-1	-1	-1
## 81	1	1	1	-1	-1	-1	-1	-1

## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	1	1	1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	-2	-2	-1	1	1	1	-2	0
## 92	-1	-1	-1	-1	-1	-1	-1	0
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	1	1	1	-1	-1	-1	-1	-1
## 98	0	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1	1
## 101	-1	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0	0
## 103	1	1	1	1	1	1	1	1
## 104	-1	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	0	0	0	0	0
## 106	1	1	1	1	1	1	1	0
## 107	0	0	0	0	0	0	0	0
## 108	1	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0	0
## 110	0	0	0	0	0	0	0	0
## 111	0	0	0	0	0	0	0	0
## 112	0	0	0	0	0	0	0	0
## 113	1	1	1	0	0	0	0	0

```
## 114          0          0        0      -2        -2      -2       -2       -2
## 115          1          1        1      -1        -1      -1       -1       -1
## 116          0          0        0       0         0       0        0        0
##      cn_GTF2H2B cn_CARTPT cn_FOXD1 cn_F2RL2 cn_PDE8B cn_THBS4 cn_CKMT2 cn_HAPLN1
## 1             0         0        0        0        0        0        0         0
## 2             0         0        0        0        0        0        0         0
## 3             1         1        1        1        1        1        1         1
## 4             0         0        0        0        0        0        0         0
## 5             0         0        0        0        0        0        0         0
## 6            -1        -1       -1       -1       -1       -1       -1        -1
## 7            -1        -1       -1       -1       -1       -1       -1        -1
## 8            -1        -1       -1       -1       -1       -1       -1        -1
## 9            -1         0       -1       -1        0       -1        0        -1
## 10            0         0        0        0        0        0        0         0
## 11            0         0        0        0        0        0        0         0
## 12            0         0        0        0        0        0        0         0
## 13           -1        -1       -1       -1       -1       -1       -1        -1
## 14            0         0        0        0        0        0        0         0
## 15            0         0        0        0        0        0        0         0
## 16            0         0        0        0        0        0        0         0
## 17            0         0        0        0        0        0        0         0
## 18            0         0        0        0        0        0        0         0
## 19            0         0        0        0        0        0        0         0
## 20            0         0        0        0        0        0        0         0
## 21           -1        -1       -1       -1       -1       -1       -1        -1
## 22           -2        -2       -2       -2       -2       -2       -2        -2
## 23           -1        -1       -1       -1       -1       -1       -1        -1
## 24            1         1        0        0        0        0        0         0
## 25            0         0        0        0        0        0        0         0
## 26            0         0        0        0        0        0        0         0
## 27            0         0        0        0        0        0        0         0
## 28           -1        -1       -1       -1       -1       -1       -1        -1
```

## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	1	1	0	0	1
## 39	1	0	1	0	0	0	0	0
## 40	-2	-2	-2	-2	-2	-2	-2	-2
## 41	-1	-1	-1	-1	-1	-1	-1	-1
## 42	-1	-1	-1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	0	0	0	0	0	0	0	0

## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	-1	1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	0	0	0	0	0	0	0	0
## 92	-1	-1	-1	-1	-1	-1	-1	-1

```
## 93           0         0         0         0         0         0         0         0
## 94           0         0         0         0         0         0         0         0
## 95           0         0         0         0         0         0         0         0
## 96           0         0         0         0         0         0         0         0
## 97          -1        -1        -1        -1        -1        -1        -1        -1
## 98           0         0         0         0         0         0         0         0
## 99           1         1         1         1         1         1         1         1
## 100          1         1         1         1         1         1         1         1
## 101         -1        -1        -1        -1        -1        -1        -1        -1
## 102          0         0         0         0         0         0         0         0
## 103          1         1         1         1         1         1         1         1
## 104         -1        -1        -1        -1        -1        -1        -1        -1
## 105          0         0         0         0         0         0         0         0
## 106          0         1         1         1         1         1         1         1
## 107          0         0         0         0         0         0         0         0
## 108          1         1         1         1         1         1         1         1
## 109          0         0         0         0         0         0         0         0
## 110          0         0         0         0         0         0         0         0
## 111         -1        -1        -1        -1        -1        -1        -1        -1
## 112          0         0         0         0         0         0         0         0
## 113          0         0         0         0         0         0         0         0
## 114         -2        -2        -2        -2        -2        -2         0         0
## 115         -1        -1        -1        -1        -1        -1        -1        -1
## 116          0         0         0         0         0         0         0         0
##     cn_EDIL3 cn_GPR98 cn_FAM81B cn_C5orf27 cn_PCSK1 cn_ERAP2 cn_EFNA5 cn_TSLP
## 1          0        0         0          0        0        0        0       0
## 2          0        0         0          0        0        0        0       0
## 3          1        1         1          1        1        1        1       1
## 4          0        0         0          0        0        0        0       0
## 5          0        0         0          0        0        0        0       0
## 6         -1       -1        -1         -1       -2       -1       -1      -1
## 7         -1       -1        -1         -1       -1       -1       -1      -1
```

## 8	-1	-1	-1	-1	-1	-1	-1	-1
## 9	-1	-1	0	0	-1	-1	-1	-1
## 10	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	-1	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0	0
## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	0	0
## 21	-1	-1	-1	-1	-1	-1	-1	-1
## 22	-2	-2	-2	-2	-2	-2	-2	-2
## 23	-1	-1	-1	-1	-1	-1	-1	-1
## 24	0	0	0	0	0	1	0	0
## 25	0	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0	0
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-2	-2
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	1	1	1	1	1	0	0	0
## 39	0	0	0	0	0	0	0	0

## 40	-2	-2	-2	-2	-2	-2	-1	-1
## 41	-1	-1	-1	-1	-1	-1	-1	-1
## 42	-1	-1	0	0	0	0	0	0
## 43	0	0	0	0	0	0	-2	0
## 44	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	0	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	0	0
## 71	0	0	0	0	0	0	0	0

## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-2	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	0	0	0	0	0	0	0	0
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	-1	-2	-1
## 98	0	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1	1
## 101	-1	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0	0
## 103	1	1	1	1	1	1	1	1

```
## 104       -1       -1       -1       -1       -1       -1       -1       -1
## 105        0        0        0        0        0        0        0        0
## 106        1        1        1        1        1        1        1        1
## 107        0        0        0        0        0        0        0        0
## 108        1        1        1        1        1        1        1        1
## 109        0        0        0        0        0        0        0        0
## 110        0        0        0        0        0        0        0        0
## 111       -1       -1       -1       -1       -1       -1       -1       -1
## 112        0        0        0        0        0        0        0        0
## 113        0        0        0        0        0        0        0        0
## 114        0        0        0        0        0        0        0        0
## 115       -1       -1       -1       -1       -1       -1       -1       -1
## 116        0        0        0        0        0        0        0        0
##     cn_TRIM36 cn_CDO1 cn_AQPEP cn_MEGF10 cn_FBN2 cn_SLC27A6 cn_ADAMTS19
## 1           0       0        0         0       0          0           0
## 2           0       0        0         0       0          0           0
## 3           1       1        1         1       1          1           1
## 4           0       0        0         0       0          0           0
## 5           0       0        0         0       0          0           0
## 6          -1      -1       -1        -1      -1         -1          -1
## 7          -1      -1       -1        -1      -1         -1          -1
## 8          -1      -1       -1        -1      -1         -1          -1
## 9          -1      -1       -1        -1      -1         -1          -1
## 10          0       0        0         0       0          0           0
## 11          0       0        0         0       0          0           0
## 12          0       0        0         0       0          0           0
## 13         -1      -1       -1        -1      -1         -1          -1
## 14          0       0        0         0       0          0           0
## 15          0       0        0         0       0          0           0
## 16          0       0        0         0       0          0           0
## 17          0       0        0         0       0          0           0
## 18          0       0        0         0       0          0           0
```

## 19	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	0
## 21	-1	-1	-1	-1	-1	-1	-1
## 22	-2	-2	-2	-2	-1	-1	-1
## 23	-1	-1	-1	-1	-1	-1	-1
## 24	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1
## 32	1	1	1	2	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-2	-2	-2	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0
## 39	0	0	0	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	-1	-1	-1	-1	-1	-1	-1
## 42	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0

## 51	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	-1	-2	-2	-1	-1	-1	-1
## 60	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	1	1	1	-1	1	1	1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1

## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1
## 87	0	0	0	-1	-1	-1	-1
## 88	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1
## 91	0	0	0	0	0	0	0
## 92	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	-1	-1
## 98	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1
## 101	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0
## 103	1	1	1	1	1	1	1
## 104	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	0	0	0	0
## 106	1	1	1	1	1	1	1
## 107	0	0	0	0	0	0	0
## 108	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0
## 110	0	0	0	0	0	0	0
## 111	-1	-1	-1	0	0	0	0
## 112	0	0	0	0	0	0	0
## 113	0	0	0	0	0	0	0
## 114	0	0	0	0	0	0	0

```
## 115        -1      -1       -1        -1      -1         -1          -1
## 116         0       0        0         0       0          0           0
##     cn_SHROOM1 cn_FSTL4 cn_PITX1 cn_C5orf20 cn_CXCL14 cn_PCDHA1 cn_PCDHA3
## 1            0        0        0          0         0         0         0
## 2            0        0        0         -1        -1        -1        -1
## 3            1        1        1          1         1         1         1
## 4            0        0        0          0         0         0         0
## 5            0        0        0          0         0         0         0
## 6           -1       -1       -1         -1        -1         0         0
## 7           -1       -1       -1         -1        -1        -1        -1
## 8           -1       -1       -1         -1        -1        -1        -1
## 9           -1       -1        0          0         0        -1        -1
## 10           0        0        0          0         0         0         0
## 11           0        0        0          0         0         0         0
## 12           0        0        0          0         0         0         0
## 13          -1       -1       -1         -1        -1        -1        -1
## 14           0        0        0          0         0         0         0
## 15           0        0        0          0         0         0         0
## 16           0        0        0          0         0         0         0
## 17           0        0        0          0         0         0         0
## 18           0        0        0          0         0         0         0
## 19           0        0        0          0         0         0         0
## 20           0        0        0          0         0         0         0
## 21          -1       -1       -1         -1        -1        -1        -1
## 22          -1       -1       -1         -1        -1        -1        -1
## 23          -1       -1       -1         -1        -1        -1        -1
## 24           0        0        1          1         1         0         0
## 25           0        0        0          0         0         0         0
## 26           0        0        0          0         0         0         0
## 27           0        0        0          0         0         0         0
## 28          -1       -1       -1         -1        -1        -1        -1
## 29           0        0        0          0         0         0         0
```

## 30	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	-1	-1	0	0	0	0	0
## 42	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1
## 60	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0

## 62	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	1	1	1	1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-2	-1	-1
## 79	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1
## 87	-1	-1	-1	-1	-1	1	1
## 88	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1
## 91	0	0	0	0	0	0	0
## 92	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0

```
## 94           0        0        0          0        0        0        0
## 95           0        0        0          0        0        0        0
## 96           0        0        0          0        0        0        0
## 97          -1       -1       -1         -1       -1       -1       -1
## 98           0        0        0          0        0        0        0
## 99           1        1        1          1        1        1        1
## 100          1        1        1          1        1        1        1
## 101         -1       -1       -1         -1       -1       -1       -1
## 102          0        0        0          0        0        0        0
## 103          1        1        1          1        1        1        1
## 104         -1       -1       -1         -1       -1       -1       -1
## 105          0        0        0          0        0        0        0
## 106          1        1        1          1        1        1        1
## 107          0        0        0          0        0        0        0
## 108          1        1        1          1        1        1        1
## 109          0        0        0          0        0        0        0
## 110          0        0        0          0        0        0        0
## 111          0        0        0          0        0        0        0
## 112          0        0        0          0        0        0        0
## 113          0        0        0          0        0        0        0
## 114          0        0        0          0        0        0        0
## 115         -1       -1       -1         -1       -1       -1       -1
## 116          0        0        0          0        0        0        0
##     cn_PCDHA4 cn_PCDHA10 cn_PCDHA11 cn_PCDHA5 cn_PCDHA6 cn_PCDHA12 cn_PCDHA13
## 1           0          0          0         0         0          0          0
## 2          -1         -1         -1        -1        -1         -1         -1
## 3           1          1          1         1         1          1          1
## 4           0          0          0         0         0          0          0
## 5           0          0          0         0         0          0          0
## 6           0          0          0         0         0          0          0
## 7          -1         -1         -1        -1        -1         -1         -1
## 8          -1         -1         -1        -1        -1         -1         -1
```

## 9	-1	-1	-1	-1	-1	-1	-1
## 10	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0
## 13	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0
## 18	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	0
## 21	-1	-1	-1	-1	-1	-1	-1
## 22	-1	-1	-1	-1	-1	-1	-1
## 23	-1	-1	-1	-1	-1	-1	-1
## 24	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1

## 41	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1
## 60	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0

## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1
## 87	1	1	1	1	1	1	1
## 88	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1
## 91	0	0	0	0	0	0	0
## 92	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	-1	-1
## 98	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1
## 101	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0
## 103	1	1	1	1	1	1	1
## 104	-1	-1	-1	-1	-1	-1	-1

```
## 105         0          0          0         0         0          0          0
## 106         1          1          1         1         1          1          1
## 107         0          0          0         0         0          0          0
## 108         1          1          1         1         1          1          1
## 109         0          0          0         0         0          0          0
## 110         0          0          0         0         0          0          0
## 111         0          0          0         0         0          0          0
## 112         0          0          0         0         0          0          0
## 113         0          0          0         0         0          0          0
## 114         0          0          0         0         0          0          0
## 115        -1         -1         -1        -1        -1         -1         -1
## 116         0          0          0         0         0          0          0
##     cn_IL17B cn_GPX3 cn_FAT2 cn_GRIA1 cn_ITK cn_FABP6 cn_ATP10B cn_FBLL1
## 1          0       0       0        0      0        0         0        0
## 2         -1      -1      -1       -1     -1       -1        -1       -1
## 3          1       1       1        1      1        1         1        1
## 4          0       0       0        0      0        0         0        0
## 5          0       0       0        0      0        0         0        0
## 6          0       0       0        0      0        0         0        0
## 7         -1      -1      -1       -1     -1       -1        -1       -1
## 8         -1      -1      -1       -1     -1       -1        -1       -1
## 9         -1      -1      -1       -1     -1        2         2        0
## 10         0       0       0        0      0        0         0        0
## 11         0       0      -2        0      0        0         0        0
## 12         0       0       0        0      0        0         0        0
## 13        -1      -1      -1       -1     -1       -1        -1       -1
## 14         0       0       0        0      0        0         0        0
## 15         0       0       0        0      0        0         0        0
## 16         0       0       0        0      0        0         0        0
## 17         0       0       0        0      0        0         0        0
## 18         0       0       0        0      0        0         0        0
## 19         0       0       0        0      0        0         0        0
```

## 20	0	0	0	0	0	0	0	0
## 21	-1	-1	-1	-1	-1	-1	-1	-1
## 22	-1	-1	-1	-1	-1	-1	-1	-1
## 23	-1	-1	-1	-1	-1	-1	-1	-1
## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0	0
## 28	-1	-1	-1	-1	-1	-1	-1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1

## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	0	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	-2	-2	-2	-2	-2	-2	-2
## 76	-1	-1	-1	-1	-1	-1	-1	1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	1	1	-1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0

```
## 84      0      0      0      0      0      0      0      0
## 85     -1     -1     -1     -1     -1     -1     -1     -1
## 86      1      1      1      1      1      1      1      1
## 87      1      1      1      1      1      1      1      1
## 88     -1     -1     -1     -1     -1     -1     -1      1
## 89      0      0      0      0      0      0      0      0
## 90      1      1      1      1      1      1      1      1
## 91      0      0      0      0      0      0      0      0
## 92     -1     -1     -1     -1     -1     -1     -1     -1
## 93      0      0      0      0      0      0      0      0
## 94      0      0      0      0      0      0      0      0
## 95      0      0      0      0      0      0      0      0
## 96      0      0      0      0      0      0      0      0
## 97      1     -1     -1     -1     -1     -1     -1     -1
## 98      0      0      0      0      0      0      0      0
## 99      1      1      1      1      1      1      1      1
## 100     1      1      1      1      1      1      1      1
## 101    -1     -1     -1     -1     -1     -1     -1     -1
## 102     0      0      0      0      0      0      0      0
## 103     1      1      1      1      1      1      1      1
## 104    -1     -1     -1     -1     -1     -1     -1     -1
## 105     0      0      0      0      0      0      0      0
## 106     1      1      1      1      1      1      1      1
## 107     0      0      0      0      0      0      0      0
## 108     1      1      1      1      1      1      1      1
## 109     0      0      0      0      0      0      0      0
## 110     0      0      0      0      0      0      0      1
## 111     0      0      0      0     -1     -1     -1     -1
## 112     0      0      0      0      0      0      0      0
## 113     0      0      0      0      0      0      0      0
## 114     0      0      0      0      0      0      0      0
## 115    -1     -1     -1     -1     -1     -1     -1     -1
```

```
## 116        0       0       0        0      0        0         0        0
##     cn_FAM196B cn_FOXI1 cn_GABRP cn_STC2 cn_MSX2 cn_CPLX2 cn_UNC5A cn_FGFR4
## 1            0        0        0       0       0        0        0        0
## 2           -1       -1       -1      -1      -1       -1        0        0
## 3            1        1        1       1       1        1        1        1
## 4            0        0        0       0       0        0        0        0
## 5            0        0        0       0       0        0        0        0
## 6            0        0        0       0       0        0        0        0
## 7           -1       -1       -1      -1      -1       -1       -1       -1
## 8           -1       -1       -1      -1      -1        1        2        2
## 9           -1       -1        0       0      -1       -1       -1       -1
## 10           0        0        0       0       0        0        0        0
## 11           0        0        0       0       0        0        0        0
## 12           0        0        0       0       0        0        0        0
## 13          -1       -1       -1      -1      -1       -1       -1       -1
## 14           0        0        0       0       0        0        0        0
## 15           0        0        0       0       0        0        0        0
## 16           0        0        0       0       0        0        0        0
## 17           0        0        0       0       0        0        0        0
## 18           0        0        0       0       0        0        0        0
## 19           0        0        0       0       0        0        0        0
## 20           0        0        0       0       0        0        0        0
## 21          -1       -1       -1      -1      -1       -1       -1       -1
## 22          -1       -1        1      -1      -1       -1       -1       -1
## 23          -1       -1       -1      -1      -1       -1       -1       -1
## 24           0        0        0       0       0        0        0        0
## 25           0        0        0       0       0        0        0        0
## 26           0        0        0       0       0        0        0        0
## 27           0        0        0       0       0        0        0        0
## 28           1        1        1       1       1        1        1        1
## 29           0        0        0       0       0        0        0        0
## 30           0        0        0       0       0        0        0        0
```

## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	0	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1

## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-2	-2	-2	-2	-2	-2	-2	-2
## 76	1	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1	1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	1	1	1	1	1	1	1	1
## 88	1	1	1	1	1	1	1	1
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	0	0	0	0	0	0	0	0
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0

```
## 95           0        0        0       0       0       0       0       0
## 96           0        0        0       0       0       0       0       0
## 97          -1       -1       -1      -1      -1      -1      -1      -1
## 98           0        0        0       0       0       0       0       0
## 99           1        1        1       1       1       1       1       1
## 100          1        1        1       1       1       1       1       1
## 101         -1       -1       -1      -1      -1      -1      -1      -1
## 102          0        0        0       0       0       0       0       0
## 103          1        1        1       1       1       1       1       1
## 104         -1       -1       -1      -1      -1      -1      -1      -1
## 105          0        0        0       0       0       0       0       0
## 106          1        1        1       1       1       1       1       1
## 107          0        0        0       0       0       0       0       0
## 108          1        1        1       1       1       1       1       1
## 109          0        0        0       0       0       0       0       0
## 110          1        1        1       1       1       1       1       1
## 111         -1       -1       -1      -1      -1      -1      -1      -1
## 112          0        0        0       0       0       0       0       0
## 113          0        0        0       0       0       0       0       0
## 114          0        0        0       0       0       0       0       0
## 115         -1       -1       -1      -1      -1       0       0       0
## 116          0        0        0       0       0       0       0       0
##     cn_RASGEF1C cn_SCGB3A1 cn_BTNL9 cn_IRF4 cn_FOXC1 cn_TUBB2B cn_ELOVL2
## 1             0          0       0       0        0        0         0
## 2             0          0       0       0        0        0         0
## 3             1          1       1      -1       -1       -1         0
## 4             0          0       0       0        0        0         0
## 5             0          0       0       0        0        0         0
## 6             0          0       0       2        2        2         2
## 7            -1         -1      -1       0        0        0         0
## 8             2          2      -1       1        1        1         1
## 9            -1         -1      -1       0        0        0         0
```

## 10	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0
## 13	-1	-1	-1	1	1	1	1
## 14	0	0	0	0	0	0	0
## 15	0	0	0	-1	-1	-1	-1
## 16	0	0	0	-1	-1	-1	-1
## 17	0	0	0	-1	-1	-1	1
## 18	0	0	0	-1	-1	-1	-1
## 19	0	0	0	-1	-1	-1	-1
## 20	0	0	0	0	0	0	0
## 21	-1	-1	-1	0	0	0	2
## 22	-1	-1	-1	-2	-2	-2	1
## 23	-1	-1	-1	0	0	0	0
## 24	0	0	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	0	0	0	-1	-1	-1	-1
## 27	0	0	0	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	1	1	1	0	0	0	0
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	1	0	0	0	0
## 35	-1	-1	-1	1	1	1	1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	1	1	0	-1	-1	-1	-1
## 39	1	1	1	0	0	0	0
## 40	-1	-1	-1	0	0	0	0
## 41	0	0	0	-1	-1	-1	1

## 42	0	0	0	0	0	0	0
## 43	0	0	0	1	1	1	1
## 44	1	1	1	-1	-1	-1	-1
## 45	0	0	0	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0
## 47	1	1	1	0	0	0	0
## 48	1	1	1	0	0	0	0
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	1	1	1	1
## 52	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1
## 54	-1	-1	-1	0	0	0	0
## 55	0	0	0	0	0	0	0
## 56	-1	-1	-1	1	1	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	-1	-1	-1	1	1	1	1
## 60	0	0	0	1	1	1	1
## 61	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	0	0	0	0
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	1	1
## 71	0	0	0	1	1	1	1
## 72	0	0	0	1	1	1	1
## 73	0	0	0	0	0	0	0

## 74	1	1	1	1	1	1	1
## 75	-2	-2	-2	1	1	1	1
## 76	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	1	2
## 79	1	1	1	0	0	0	0
## 80	-1	-1	-1	1	1	1	1
## 81	-1	-1	-1	0	0	0	0
## 82	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	1	1	1	1
## 86	1	1	1	0	0	0	0
## 87	1	1	1	0	0	0	0
## 88	1	1	1	1	1	1	1
## 89	0	0	0	-1	-1	-1	-1
## 90	1	1	1	-1	-1	-1	-1
## 91	0	0	0	1	1	1	1
## 92	-1	-1	-1	1	1	1	1
## 93	0	0	0	-2	-2	-2	-2
## 94	0	0	0	0	0	0	0
## 95	0	0	0	1	1	1	1
## 96	-1	0	0	1	1	1	1
## 97	-1	-1	-1	0	0	0	0
## 98	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1
## 100	1	1	1	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	-1	-1	-1	-1
## 103	1	1	1	0	0	0	0
## 104	-1	-1	-1	1	0	0	0
## 105	0	0	0	0	0	0	0

```
## 106          1          1        1       0        0        0        0
## 107          0          0        0       0        0        0        0
## 108          1          1        1      -1       -1       -1       -1
## 109          0          0        0       0        0        0        0
## 110          1          1        1       0        0        0        0
## 111         -1         -1       -1       0        0        0        0
## 112          0          0        0       0        0        0        0
## 113          0          0        0       0        0        0        0
## 114          0          0        0       0        0        0        0
## 115          0          0       -1      -1       -1        2        2
## 116          0          0        0       0        0        0        0
##     cn_RNF182 cn_RBM24 cn_ID4 cn_DCDC2 cn_KIAA0319 cn_LRFN2 cn_PGC cn_GNMT
## 1           0        0      0        0           0        0      0       0
## 2           0        0      0        0           0        0      0       0
## 3           0        0      0        0           0        0      0       0
## 4           0        0      0        0           0        0      0       0
## 5           0        0      0        0           0        0      0       0
## 6           2        2      2        2           2       -1     -1      -1
## 7           0        0      0        0           0        0      0       0
## 8           1        1      1        1           1        1      1       1
## 9           0        0      0        1           1        0      2       2
## 10          0        0      0        0           0        0      0       0
## 11          0        0      0        0           0        0      0       0
## 12          0        0      0        0           0        0      0       0
## 13          1        1      1        1           1        1      2       1
## 14          0        0      0        0           0        0      0       0
## 15         -1       -1     -1       -1          -1       -1     -1      -1
## 16         -1       -1     -1       -1          -1       -1     -1      -1
## 17          1        1      1        1           1        1      1       1
## 18         -1       -1     -1       -1          -1       -1     -1      -1
## 19         -1       -1     -1       -1          -1       -1     -1      -1
## 20          0        0      0        0           0        0      0       0
```

## 21	1	0	0	0	0	0	0	0
## 22	1	1	1	1	1	0	0	0
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	0	0	0	0	0	0	0	0
## 41	1	1	1	1	1	-1	-1	-1
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0

## 53	1	1	1	1	1	1	1	1
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	2	2	2
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	1	1	1	1	1	2	1	1
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	1	1	1	0	0	-1	-1	-1
## 71	1	1	1	1	1	1	1	1
## 72	1	1	0	0	0	0	1	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	2	1	1	1	1
## 75	1	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	-1	2	2	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	1	1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0

## 85	1	1	1	1	1	1	2	2
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	1	1	1	0	0	0	0	0
## 89	-1	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	1	1	1
## 92	1	1	1	1	1	1	1	1
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1	1
## 96	1	1	1	1	1	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	0	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1
## 102	-1	-1	-1	-1	-1	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	0	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0	0
## 108	-1	-1	-1	-1	-1	-1	-1	-1
## 109	0	0	0	0	0	0	0	0
## 110	0	0	0	0	0	-1	-1	-1
## 111	0	0	0	0	0	0	0	0
## 112	0	0	0	0	0	0	0	0
## 113	1	1	1	1	1	1	1	1
## 114	0	0	0	0	0	0	0	0
## 115	1	-1	-1	-1	-1	2	2	2
## 116	0	0	0	0	0	0	0	0

```
##     cn_DLK2 cn_C6orf223 cn_GSTA1 cn_HMGCLL1 cn_BMP5 cn_COL9A1 cn_RIMS1 cn_KCNQ5
## 1         0           0        0          0       0         0        0        0
## 2         0           0        0          0       0         0        0        0
## 3         0           0        0          0       0         0        0        0
## 4         0           0        0          0       0         0        0        0
## 5         0           0        0          0       0         0        0        0
## 6        -1          -1       -1         -1      -1         0        0        2
## 7         0           0        0          0       0         0        0        0
## 8         1           1        1          1       1         1        1        1
## 9         2           2        0          1       0        -1       -1       -1
## 10        0           0        0          0       0         0        0        0
## 11        0           0        0          0       0         0        0        0
## 12        0           0        0          0       0         0        0        0
## 13        1           1        1          1       1        -1       -1       -1
## 14        0           0        0          0       0         0        0        0
## 15       -1          -1       -1         -1      -1        -1       -1       -1
## 16       -1          -1       -1         -1      -1        -1       -1       -1
## 17        1           1       -1         -1      -1         1        1        1
## 18       -1          -1       -1         -1      -1        -1       -1       -1
## 19       -1          -1       -1         -1      -1        -1       -1       -1
## 20        0           0        0          0       0         0        0        0
## 21        0           0        0          0       0         0        0        0
## 22        0           0        0          0       0         0        0        0
## 23        0           0        0          0       0         0        0        0
## 24        1           1        0          0       0         1        1        1
## 25        0           0        0          0       0         0        0        0
## 26       -1          -1       -1         -1      -1        -1       -1       -1
## 27       -1          -1       -1         -1      -1        -1       -1       -1
## 28        1           1        1          1       1         1        1        1
## 29        0           0        0          0       0         0        0        0
## 30        0           0        0          0       0         0        0        0
## 31        0           0        0          0       0         0        0        0
```

## 32	1	1	0	0	0	0	0	0
## 33	0	0	2	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	0	0	0	0	0	0	0	0
## 41	-1	-1	-1	-1	-1	-1	-1	-1
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	2	2	2	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	0	0	0
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	2	2	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	2	2	2	1	1	1
## 60	1	1	2	2	2	-1	-1	-1
## 61	0	0	0	0	0	-1	-1	-1
## 62	1	1	1	1	1	-1	-1	-1
## 63	1	1	1	1	1	-1	-1	-1

## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	-1	-1	-1
## 70	-1	-1	1	1	1	1	1	1
## 71	1	1	1	1	1	1	1	1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	-1	-1
## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	2
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	1	1	-1
## 81	0	0	0	0	0	0	0	0
## 82	1	1	1	1	1	-1	-1	-1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	2	2	2	2	2	-1	-1	-1
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	1	1	1
## 89	-1	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	1	1	1
## 92	1	1	1	1	1	-1	-1	-1
## 93	-1	-1	-1	-1	-1	-2	-2	-2
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1	1

```
## 96        0           0        0          0       0         0        0        0
## 97        0           0        0          0       0         0        0        0
## 98        0           0        0          0       0         0        0        0
## 99        1           1        1          1       1        -1       -1       -1
## 100       0           0        0          0       0         0        0        0
## 101      -1          -1       -1         -1      -1         1        1        1
## 102       0           0        0         -1      -1         0        0        0
## 103       0           0        0          0       0         0        0        0
## 104       0           0        0          0       0         0        0        0
## 105       0           0        0          0       0         0        0        0
## 106       0           0        0          0       0         0        0        0
## 107       0           0        0          0       0         0        0        0
## 108      -1          -1       -1         -1      -1        -1       -1       -1
## 109       0           0        0          0       0         0        0        0
## 110      -1          -1       -1         -1      -1        -1       -1       -1
## 111       1           1        1          2       2         1        1        1
## 112       0           0       -1         -1      -1        -1       -1       -1
## 113       1           1        1          0       0         0        0        0
## 114       0           0        0          0       0         0        0        0
## 115       2           2        0          0       0         0        0        0
## 116       0           0        0          0       0         0        0        0
##     cn_DDX43 cn_MRAP2 cn_CGA cn_CNR1 cn_EPHA7 cn_FUT9 cn_SIM1 cn_POPDC3
## 1          0        0      0       0        0       0       0         0
## 2          0        0      0       0        0       0       0         0
## 3          0        1      1       1        1       1       1         1
## 4          0        0      0       0        0       0       0         0
## 5          0        0      0       0        0       0       0         0
## 6          0       -1     -1       0        0       0      -1         1
## 7          0        0      0       0        0       0       0         0
## 8          1       -1     -1       1       -1      -1      -1        -1
## 9         -1        2      0      -1       -1      -1       1        -1
## 10         0        0      0       0        0       0       2         2
```

## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	-1	-1	-1	-1	-1	-1	-1	1
## 14	0	0	0	0	0	0	0	0
## 15	-1	-1	-1	-1	-1	-1	-1	-1
## 16	-1	-1	-1	-1	-1	-1	-1	-1
## 17	1	-1	-1	-1	-1	-1	-1	-1
## 18	-1	-1	-1	-1	-1	-1	-1	-1
## 19	-1	-1	-1	-1	-1	-1	-1	-1
## 20	0	0	0	0	0	0	0	0
## 21	0	0	0	0	0	0	0	0
## 22	0	0	0	0	0	0	0	0
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	2
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	0	0	0	0	0	0	0	0
## 41	-1	1	1	1	0	0	0	1
## 42	0	0	0	0	0	0	0	0

## 43	1	1	1	1	1	1	1	1
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	0	0	0	0	0	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	-1	-1	-1	-1	-1	-1	-1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	-1	0	-1	-1	-1	-1	-1	-1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	1	-1	-1	-1	-1	-1	-1	-1
## 71	1	-1	-1	-1	-1	-1	-1	-1
## 72	0	-1	-1	-1	-1	-1	-1	0
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1

## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	2	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	-1	0	0	0	0	0	0	0
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	1	1	1	1	1	1	1	1
## 89	-1	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	1	1	1
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	-2	-1	-1	-1	-2	-1	-1	-2
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1	1
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	0	-1	-1	-1	-1	-1	-1	-1
## 99	-1	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0	0
## 101	1	1	-1	1	1	-1	-1	-1
## 102	0	0	-1	-1	-1	-1	-1	-1
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	1
## 105	0	0	0	0	0	0	-1	-1
## 106	0	0	0	0	0	0	0	0

```
## 107        0        0      0       0        0       0       0         0
## 108       -1       -1     -1      -1       -1      -1      -1        -1
## 109        0        0      0       0        0       0       0         0
## 110       -1       -1     -1      -1       -1      -1      -1        -1
## 111        1        1      1       1        1       1       2         2
## 112       -1       -1     -1      -1       -1      -1      -1        -1
## 113        0        0      0       0        0       0       1         1
## 114        0        0      0       0        0       0       0         0
## 115        0        0      0       0        0       0       0         0
## 116        0        0      0       0        0       0       0         0
##     cn_WISP3 cn_COL10A1 cn_RFX6 cn_PKIB cn_FABP7 cn_TRDN cn_KIAA0408 cn_ENPP3
## 1          0          0       0       0        0       0           0        0
## 2          0          0       0       0        0       0           0        0
## 3          1          1       1       1        1       1           1        1
## 4          0          0       0       0        0       0           0        0
## 5          0          0       0       0        0       0           0        0
## 6         -1         -1      -1      -1       -1      -1          -1        2
## 7          0          0       0       0        0       0           0        0
## 8         -1         -1      -1      -1       -1      -1           1        1
## 9         -1         -1      -1       0        0      -1          -1       -1
## 10         2          2       2       2        2       2          -1       -1
## 11         0          0       0       0        0       0           0        0
## 12         0          0       0       0        0       0           0        0
## 13         1          1       1       1        1       1           1        1
## 14         0          0       0       0        0       0           0        0
## 15        -1         -1      -1      -1       -1      -1          -1       -1
## 16        -1         -1      -1      -1       -1      -1          -1       -1
## 17        -1         -1      -1      -1       -1      -1          -1       -1
## 18        -1         -1      -1      -1       -1      -1          -1       -1
## 19        -1         -1      -1      -1       -1      -1          -1       -1
## 20         0          0       0       0        0       0           0        0
## 21         0          0       0       0        0       0           0        0
```

## 22	0	0	0	0	0	0	0	0
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	2	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	1	1	1	1	1	1	1	1
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	0	0	0	0	0	0	0	0
## 41	1	1	1	1	1	1	1	1
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	-1	-1	-1	-1	-1	-1	-1	-1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	1

## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	2
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	-1	-1	-1	-1	-1	-1	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	1	-1	-1	-1	-1	1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1
## 75	1	1	1	1	1	1	1	1
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0	0

```
## 86          0          0       0       0        0       0          0       -1
## 87          0          0       0       0        0       0          0        0
## 88          1          1       1       1        1       1          1        1
## 89         -1         -1      -1      -1       -1      -1         -1       -1
## 90         -1         -1      -1      -1       -1      -1         -1       -1
## 91          1          1       1       1        1       1          1        1
## 92         -1         -1      -1      -1       -1      -1         -1       -1
## 93         -2         -1      -1      -1       -1      -1         -1       -1
## 94          0          0       0       0        0       0          0        0
## 95          1          1       1       1        1       1          1        1
## 96          0          0       0       0        0       0          0        0
## 97          0          0       0       0        0       0          0        0
## 98         -1         -1      -1       0        0       0          0        0
## 99         -1         -1      -1      -1       -1      -1         -1        0
## 100         0          0       0       0        0       0          0        0
## 101        -1         -1      -1       1        1       1          1       -1
## 102        -1         -1      -1       0        0       0          0        0
## 103         0          0       0       0        0       0          0        0
## 104         0          0       0       0        0       0          0        0
## 105        -1         -1      -1      -1       -1      -1          0        0
## 106         0          0       0       0        0       0          0        0
## 107         0          0       0       0        0       0          0        0
## 108        -1         -1      -1      -1       -1      -1         -1       -1
## 109         0          0       0       0        0       0          0        0
## 110        -1         -1      -1      -1       -1      -1         -1       -1
## 111         2          0       0       0        0       0          1        1
## 112        -1         -1      -1      -1       -1      -1         -1       -1
## 113         0          0       0       0        0       0          0        0
## 114         0          0       0       0        0       0          0        0
## 115         0          0       0       0        0       0          0        0
## 116         0          0       0       0        0       0          0        0
##     cn_EYA4 cn_MYB cn_IL20RA cn_IL22RA2 cn_GPR126 cn_SAMD5 cn_ULBP1 cn_PPP1R14C
```

## 1	0	0	0	0	0	0	0	0
## 2	0	0	0	0	0	0	0	0
## 3	1	1	1	1	1	1	1	1
## 4	0	0	0	0	0	0	0	0
## 5	0	0	0	0	0	0	0	0
## 6	2	2	2	2	2	2	2	2
## 7	0	0	0	0	0	0	0	0
## 8	1	-1	-1	-1	-1	-1	-1	-1
## 9	-1	2	0	0	-1	-1	-1	-1
## 10	-1	-1	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	1	1	1	1	1	1	1	1
## 14	0	-1	0	0	0	0	0	0
## 15	-1	-1	-1	-1	-1	-1	-1	-1
## 16	-1	-1	-1	-1	-1	-1	-1	-1
## 17	-1	-1	-1	-1	-1	-1	-1	-1
## 18	-1	-1	-1	-1	-1	-1	-1	-1
## 19	-1	-1	-1	-1	-1	-1	-1	-1
## 20	0	0	0	0	0	0	0	0
## 21	0	0	0	0	0	1	-2	-2
## 22	0	0	2	2	2	2	2	2
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0

## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	1	1	1	1	1	1	1	1
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	0	0	0	0	0	0	0	0
## 41	1	1	1	1	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	-1	-1	-1	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	-1	-1	-1	-1	-1	-1	-1	-1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	0	0	1	1
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	2	2	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	-1	-1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0

## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	2	-1	1	1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1
## 75	1	1	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	-1	1	1	1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	2	2
## 86	-1	-1	-1	-1	-1	-1	-1	-1
## 87	0	0	0	0	0	0	0	0
## 88	1	2	1	1	1	1	1	1
## 89	-1	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	1	1	1
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	0	0
## 96	0	0	0	0	0	0	0	0

```
## 97        0      0         0          0         0        0        0          0
## 98        0      0         0          0         0        0        0          0
## 99        0      0         0          0         0        1        1          1
## 100       0      0         0          0         0        0        0         -2
## 101       1      1         1          1         1        1        1          1
## 102       0      0         0          0         0        0        0          0
## 103       0      0         0          0         0        0        0          0
## 104       0      0         0          0         0        0        0          0
## 105       0      0         0          0         0        0        0          0
## 106       0      0         0          0         0        0        0          0
## 107       0      0         0          0         0        0        0          0
## 108      -1     -1        -1         -1        -1       -1       -1         -1
## 109       0      0         0          0         0        0        0          0
## 110      -1     -1        -1         -1        -1       -1       -1         -1
## 111       1      1         1          1         1        1        1          1
## 112      -1     -1        -1         -1        -1       -1       -1         -1
## 113       0      1         0          0         0        0        0          0
## 114       0      0         0          0         0        0        0          0
## 115       0      0         0          0         0        0        0          0
## 116       0      0         0          0         0        0        0          0
##     cn_IYD cn_ESR1 cn_PNLDC1 cn_SLC22A3 cn_DACT2 cn_FRMD1 cn_AMZ1 cn_ITGB8
## 1        0       0         0          0        0        0       1        1
## 2        0       0        -1         -1       -1       -1       0        0
## 3        1       1         1          1        1        1       1        1
## 4        0       0         0          0        0        0       0        0
## 5        0       0         0          0        0        0       0        0
## 6        2       2         2          2        1        1       1        1
## 7        0       0         0          0        0        0       0        0
## 8       -1      -1        -1         -1       -1       -1      -1       -1
## 9        2       1        -1         -1       -1       -1      -1       -1
## 10       0       0         0          0        0        0       0        0
## 11       0       0         0          0        0        0       0        0
```

```
## 12      0       0       0       0       0       0       0       2
## 13      1       1       1       1       1       1      -1      -1
## 14      0       0       0       0       0       0       0       0
## 15     -1      -1      -1      -1      -1      -1       0       0
## 16     -1      -1      -1      -1      -1      -1       0       0
## 17     -1      -1      -1      -1      -1      -1       1       1
## 18     -1      -1      -1      -1      -1      -1       0       0
## 19     -1      -1      -1      -1      -1      -1       1       1
## 20      0       0       0       0       0       0      -1       2
## 21     -2      -2      -2      -2      -2      -2       0       0
## 22      2       2       2       2       2       2      -1      -1
## 23      0       0       0       0       0       0      -1       2
## 24      1       1       0       0       0       0       0       1
## 25      0       0       0       0       0       0       0       0
## 26     -1      -1      -1      -1      -1      -1      -1      -1
## 27     -1      -1      -1      -1      -1      -1       0       0
## 28      1       1       1       1       1       1      -1       1
## 29      0       0       0       0       0       0       0       0
## 30      0       0       0       0       0       0       0       0
## 31      0       0       0       0       0       0       0       0
## 32      0       0       0       0       0       0       1       1
## 33      0       0       0       0       0       0       0       0
## 34      0       0       0       0       0       0       0       0
## 35      1       1       1       1       1       1       1       1
## 36      1       1       1       1       1       1       0       0
## 37      0       0       0       0       0       0       0       0
## 38     -1      -1      -1      -1      -1      -1       0       0
## 39      0       0       0       0       0       0       1       1
## 40      0       0       0       0       0       0      -1      -1
## 41      0       0      -1      -1      -1      -1       0       0
## 42      0       0       0       0       0       0       1       1
## 43      0       0       0       0       1       1       1       1
```

## 44	-1	-1	-1	-1	-1	-1	-1	2
## 45	0	0	-1	-1	-1	-1	0	0
## 46	0	0	0	0	0	0	0	0
## 47	-1	-1	-1	-1	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	0	0
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	2	2
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	0	0	1	1
## 54	0	0	0	0	0	0	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	-1	-1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	-1	-1	-1	-1	0	0	1	1
## 62	-1	-1	-1	-1	-1	-1	1	1
## 63	-1	-1	-1	-1	-1	-1	0	0
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	-1	-1
## 66	0	0	0	0	0	0	1	1
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	-1	-1	-1	-1	-1	-1	0	0
## 70	-1	-1	-1	-1	-1	-1	1	1
## 71	-1	-1	0	0	-1	-1	0	0
## 72	0	0	-1	-1	-1	-1	0	0
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1
## 75	0	0	0	0	0	0	1	1

## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	1	1
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	1	1
## 80	-1	-1	1	-1	-1	-1	1	1
## 81	0	0	0	0	0	0	1	1
## 82	-1	-1	-1	-1	-1	-1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	1	1
## 85	2	0	0	0	1	1	-1	-1
## 86	-1	-1	-1	-1	-1	-1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	1	2	1	1	1	1	1	1
## 89	-1	-1	-1	-1	-1	-1	1	1
## 90	-1	-1	-1	-1	-1	-1	1	1
## 91	1	1	-1	-1	-1	-1	1	1
## 92	-1	-1	-1	-1	-1	-1	1	1
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	1	1
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	0	0	0	0	0	0	0	0
## 99	1	1	1	1	-1	-1	0	0
## 100	0	0	0	0	0	0	0	0
## 101	1	-1	-1	-1	-1	-1	0	0
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	0	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0	0

```
## 108     -1      -1       -1        -1       -1       -1       1        1
## 109      0       0        0         0        0        0       0        0
## 110     -1      -1       -1        -1       -1       -1       0        0
## 111      1       1        1         1        1        1      -1       -1
## 112     -1      -1       -1        -1       -1       -1       0        0
## 113      0       0        0         0        0        0       1        1
## 114      0       0        0         0        0        0       0        0
## 115      0       0        0         0        0        0       1        1
## 116      0       0        0         0        0        0       0        0
##     cn_ABCB5 cn_DNAH11 cn_MGAM cn_PRSS1 cn_PIP cn_CNTNAP2 cn_KCNH2 cn_WDR86
## 1          1         1       1        1      1          1        1        1
## 2          0         0       0        0      0          0        0        0
## 3          1         1       0        0      0          0        0        0
## 4          0         0       0        0      0          0        0        0
## 5          0         0       0        0      0          0        0        0
## 6          1         1       2        2      0          0        0        0
## 7          0         0       0        0      0          0        0        0
## 8         -1        -1       0        0      0          1        1        1
## 9         -1        -1       1        1      1          2       -1       -1
## 10         0         0       0        0      0          0        0        0
## 11         0         0       0        0      0          0        0        0
## 12         2         2       0        0      0          0        0        0
## 13        -1        -1       0        0      0         -1       -1       -1
## 14         0         0       0        0      0          0        0        0
## 15         0         0       0        0      0          0        0        0
## 16         0         0       0        0      0          0        0        0
## 17         1         1      -1       -1     -1         -1       -1       -1
## 18         0         0       0        0      0          0        0        0
## 19         1         1       1        1      1          1        1        1
## 20         2         2       1        1      1          1        1        1
## 21         0         0       0        0      0          0        0        0
## 22        -1        -1       1        1      1          1        1        1
```

```
## 23   1   2   0   0   0   0   0   0
## 24   1   1   2   2   1   1   1   1
## 25   0   0   0   0   0   0   0   0
## 26  -1  -1  -1  -1  -1  -1  -1  -1
## 27   0   0   0   0   0   0   0   0
## 28   1   1   1   1   1   1   1   1
## 29   0   0   0   0   0   0   0   0
## 30   0   0   0   0   0   0   0   0
## 31   0   0   0   0   0   0   0   0
## 32   1   1   1   1   1   1   1   1
## 33   0   0   0   0   0   0   0   0
## 34   0   0   0   0   0   0   0   0
## 35   1   1   0   0   0   0   0   0
## 36   0   0   1   1   1   1   1   1
## 37   0   0   0   0   0   0   0   0
## 38   0   0   0   0   0   0   0   0
## 39   1   1   1   1   1   1   1   1
## 40  -1  -1  -1  -1  -1  -1  -1   1
## 41   0   0   0   0   0   0   0   0
## 42   1   1   0   0   1   1   1   1
## 43   1   1   1   1   1   1   1   1
## 44   2   2   1   1   1   1   1   1
## 45   0   0   0   0   0   0   0   0
## 46   0   0   0   0   0   0   0   0
## 47   0   0   0   0   0   0   0   0
## 48   0   0  -1  -1  -1  -1  -1  -1
## 49   0   0   0   0   0   0   0   0
## 50   0   0   0   0   0   0   0   0
## 51   2   2   1   1   1   1   1   1
## 52   0   0   0   0   0   0   0   0
## 53   1   1   1   1   1   1   1   1
## 54   1   1   2   2   2   0   0   0
```

## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	-1	-1	-1	-1	-1	-1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1	1
## 62	1	1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	1	1	1	1	1	1	1	1
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1
## 75	1	1	1	1	1	1	1	1
## 76	-1	-1	1	1	1	1	1	1
## 77	1	1	1	1	1	1	1	1
## 78	-1	-1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	1	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	1	1	0	0	0	0	0	0
## 85	-1	-1	1	1	1	1	1	1
## 86	1	1	0	0	0	0	0	0

```
## 87          0          0       0        0       0          0        0        0
## 88          1          1       0        0       0          0        0        0
## 89          1          1       1        1       1          1        1        1
## 90          1          1       0        0       0          0        0        0
## 91          1          1      -1       -1      -1         -1       -1       -1
## 92          1          1      -1       -1      -1         -1       -1       -1
## 93         -1         -1      -1       -1      -1         -1       -1       -1
## 94          0          0       0        0       0          0        0        0
## 95          1          1       1        1       1          1        1        1
## 96          0          0      -1       -1      -1         -1       -1       -1
## 97          0          0       0        0       0          0        0        0
## 98          0          0       0        0       0          0        0        0
## 99          0          0       1        1       1          1        1        1
## 100         0          0       1        1       1          1        1        1
## 101         0          0       0        0       0          0        0        0
## 102         0          0       0        0       0          0        0        0
## 103         0          0      -1       -1      -1         -1       -1       -1
## 104         0          0       0        0       0          0        0        0
## 105         0          0       0        0       0          0        0        0
## 106         0          0       0        0       0          0        0        0
## 107         0          0       0        0       0          0        0        0
## 108         1          1       1        1       1          1        1        1
## 109         0          0       0        0       0          0        0        0
## 110         0          0       1        1       1          1        1        1
## 111        -1         -1       0        0       0          0        0        0
## 112         0          0       0        0       0          0        0        0
## 113         1          1      -1       -1      -1         -1       -1       -1
## 114         0          0       0        0       0          0        0        0
## 115         1          1      -1       -1      -1         -1       -1       -1
## 116         0          0       0        0       0          0        0        0
##     cn_DPP6 cn_EN2 cn_MNX1 cn_PTPRN2 cn_VIPR2 cn_CSMD1 cn_DEFB1 cn_BLK cn_GATA4
## 1         1      1       1          1        1        0        0      0        0
```

## 2	0	0	0	0	0	0	0	0	0
## 3	0	0	0	0	0	1	1	1	1
## 4	0	0	0	0	0	0	0	0	0
## 5	0	0	0	0	0	-2	-2	-2	-2
## 6	0	0	-1	-1	-1	-1	-1	-1	-1
## 7	0	0	0	0	0	-1	-1	-1	-1
## 8	1	1	1	1	1	-1	-1	-1	-1
## 9	1	0	0	0	0	-1	-1	-1	-1
## 10	0	0	0	0	0	2	-1	-1	-1
## 11	0	0	0	0	0	2	1	-1	-1
## 12	0	0	0	0	0	-1	-1	-1	-1
## 13	-1	-1	-1	-1	-1	1	1	1	1
## 14	0	0	0	0	0	-1	-1	-1	-1
## 15	0	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0	0
## 17	-1	-1	-1	-1	-1	1	1	1	1
## 18	0	0	0	0	0	-1	-1	2	2
## 19	1	1	1	1	1	1	1	1	1
## 20	1	1	1	1	1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0	0	0
## 22	1	1	1	2	2	-2	-1	-1	-1
## 23	0	0	0	0	0	-1	-1	-1	-1
## 24	2	1	2	2	1	0	0	0	0
## 25	0	0	0	0	0	1	1	1	1
## 26	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 27	0	0	0	0	0	1	1	1	1
## 28	1	1	1	1	1	-1	-1	-1	-1
## 29	0	0	0	0	0	-1	-1	-1	-1
## 30	0	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	1	-1	-1	-1
## 32	1	1	1	1	1	-2	-2	-2	-2
## 33	0	0	0	0	0	-1	-1	-1	-1

## 34	0	0	0	0	0	-1	-1	-1	-1
## 35	0	0	0	0	0	0	0	0	0
## 36	1	1	1	1	1	0	0	0	0
## 37	0	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	-1	-1	-1	-1
## 39	1	1	1	1	1	1	1	1	1
## 40	1	1	1	1	1	-1	-1	-1	-1
## 41	0	0	0	0	0	-1	-1	-1	-1
## 42	1	1	1	1	1	-1	-1	-1	-1
## 43	1	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	-1	-1	-1	-1
## 45	0	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	1	1	1	1
## 47	0	0	0	0	0	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	0	0	0	0
## 54	0	0	0	0	0	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	-1	-1	-1	-1
## 57	0	0	0	0	0	-1	-1	-1	-1
## 58	0	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-2	-1	-1	-1	-1	-1
## 60	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	1	1	1	1

## 66	1	1	1	1	1	-1	-1	-1	-1
## 67	0	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	-1	-1	-1	-1
## 69	0	0	0	0	0	0	0	0	0
## 70	1	1	1	1	1	0	0	0	0
## 71	-1	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	1	1	0	1
## 75	1	1	1	1	1	-2	-2	-2	-2
## 76	2	2	2	2	2	-1	-1	-1	-1
## 77	1	1	1	1	1	-1	-1	-1	-1
## 78	1	1	1	1	1	-1	-1	-1	-1
## 79	1	1	1	1	1	0	0	0	0
## 80	2	2	2	2	2	-1	-1	-1	-1
## 81	1	1	1	1	1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	-1	-1	1	1
## 85	1	1	1	1	1	1	1	1	1
## 86	0	0	0	0	0	-1	-1	-1	-1
## 87	0	0	0	0	0	-1	-1	-1	-1
## 88	0	0	0	0	0	-2	-2	-2	-2
## 89	1	1	1	1	1	1	1	1	1
## 90	0	0	0	0	0	-1	-1	-1	-1
## 91	-1	1	1	1	1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 93	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 94	0	0	0	0	0	-1	-1	-1	-1
## 95	1	1	1	1	1	1	1	1	1
## 96	-1	0	-1	-1	-1	-1	-1	-1	-1
## 97	0	0	0	0	0	-1	-1	-1	-1

```
## 98        0      0       0         0        0       -1       -1     -1       -1
## 99        1      1       1         1        1       -2       -2     -2       -2
## 100       1      1       1         1        1        0        0      0        0
## 101       0      0       0         0        0       -1       -1     -1       -1
## 102       0      0       0         0        0       -1       -1     -1       -1
## 103      -1     -1      -1        -1       -1        0        0      0        0
## 104       0      0       0         0        0       -1       -1     -1       -1
## 105       0      0       0         0        0       -1       -1     -1       -1
## 106       0      0       0         0        0       -1       -1     -1       -1
## 107       0      0       0         0        0        0        0      0        0
## 108       1      1       1         1        1       -2       -2     -2       -2
## 109       0      0       0         0        0        0        0      0        0
## 110       1      1       1         1        1       -2       -2     -1       -2
## 111       0      0       0         0        0        0        0     -1       -1
## 112       0      0       0         0        0       -1       -1      0        0
## 113      -1     -1      -1        -1       -1       -1       -1      1        1
## 114       0      0       0         0        0       -2       -2     -2       -2
## 115      -1     -1      -1        -1       -1       -1       -1     -1       -1
## 116       0      0       0         0        0       -1       -1     -1       -1
##     cn_SLC7A2 cn_FGL1 cn_NAT1 cn_LPL cn_NPM2 cn_HR cn_EGR3 cn_PEBP4 cn_ADAMDEC1
## 1           0       0       0      0       0     0       0        0           0
## 2           0       0       0      0       0     0       0        0           0
## 3           1       1       1      1       1     1       1        1           1
## 4           0       0       0      0       0     0       0        0           0
## 5          -2      -2      -2     -2      -2    -2      -2       -2          -2
## 6          -1      -1      -1     -1      -1    -1      -1       -1          -1
## 7          -1      -1      -1     -1      -1    -1      -1       -1          -1
## 8          -1      -1      -1     -1      -1    -1      -1       -1          -1
## 9           2       2       2      2      -1    -1      -1       -1           1
## 10         -1      -1      -1     -1      -1    -1      -1       -1          -1
## 11         -1      -1      -1     -1      -1    -1      -1       -1          -1
## 12         -1      -1      -1     -1      -1    -1      -1       -1          -1
```

## 13	1	1	1	1	1	1	1	1	1
## 14	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 15	0	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1	1
## 18	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 19	1	1	1	1	1	1	1	1	1
## 20	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0	0	0
## 22	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 23	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 24	0	0	0	0	0	0	0	0	0
## 25	1	1	1	1	1	1	1	1	1
## 26	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 27	1	1	1	1	1	1	1	1	1
## 28	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 29	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 30	0	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 32	-2	-2	-2	-2	-2	-2	-2	-2	-1
## 33	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 34	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 35	0	0	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 39	1	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 41	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 42	0	0	0	0	-1	-1	-1	-1	-1
## 43	1	1	1	1	1	1	1	1	1
## 44	-1	-1	-1	-1	-1	-1	-1	-1	-1

## 45	0	0	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1	1	1
## 47	1	1	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	0	0
## 54	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 57	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 60	-1	0	0	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	1	2	-1
## 62	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1	1
## 66	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 67	0	0	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 69	0	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0	0
## 72	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1	-1	-1

## 77	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 78	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0	0
## 80	-1	0	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1	-1	1
## 82	1	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0	0
## 84	1	1	1	1	1	1	1	1	1
## 85	1	1	1	1	1	1	1	1	1
## 86	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 87	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 88	-2	-2	-2	-2	-2	-2	-2	-2	-2
## 89	1	1	1	1	1	1	1	1	1
## 90	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 93	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 94	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 95	1	1	1	1	1	1	1	1	1
## 96	-1	-1	-1	-1	-1	-1	-1	-1	0
## 97	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 98	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 99	-2	-2	-2	-2	-2	-2	-2	-2	-2
## 100	0	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 102	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 103	0	0	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 105	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 106	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 107	0	0	0	0	0	0	0	0	0
## 108	-2	-2	-2	-2	-2	-2	-2	-2	-2

```
## 109         0       0       0       0       0     0       0        0           0
## 110        -1      -1      -1      -2      -1    -1      -2       -2          -2
## 111        -1      -1      -1      -1      -1    -1      -1       -1          -1
## 112        -1      -1      -1      -1      -1    -1      -1       -1          -1
## 113         0       0       0      -1      -1    -1      -1       -1          -1
## 114        -2      -2      -2      -1      -1    -1      -1       -1          -1
## 115        -1      -1      -1      -1      -1    -1      -1       -1          -1
## 116        -1      -1      -1      -1      -1     1       1        1          -1
##      cn_NEFL cn_SCARA5 cn_NRG1 cn_ADAM32 cn_IDO1 cn_C8orf4 cn_ZMAT4 cn_SFRP1
## 1         -2        -2      -2         1      -2        -2       -2       -2
## 2          0         0       0         0       0         0        0        0
## 3          1         1       1         1       1         1        1        1
## 4          0         0       0         0       0         0        0        0
## 5         -2        -2      -2         1       1         1        1        1
## 6         -1        -1      -1        -1      -1        -1       -1       -1
## 7         -1        -1      -1        -1      -1        -1       -1       -1
## 8         -1        -1      -1         1       1         1        1        1
## 9          0        -1      -1        -1      -1        -1       -1       -1
## 10        -1        -1      -1         2       2         2        2        0
## 11        -1        -1      -1        -1      -1        -1       -1       -1
## 12        -1        -1      -1        -1      -1        -1       -1       -1
## 13         1         1       1         1       1         1        1        1
## 14        -1        -1      -1         2       2         2        2        2
## 15         0         0       0         0       0         0        0        0
## 16         0         0       0         0       0         0        0        0
## 17         1         1       1         1       1         1        1        1
## 18        -1        -1      -1         2       2         2        2        2
## 19         1         1       1         1       1         1        1        1
## 20        -1        -1       2         0       0         0        0        0
## 21         0         0       0         1       1         1        1        1
## 22        -1         1       1         1       1         1        1        1
## 23        -1        -1      -1         2       2         2        2       -1
```

## 24	0	0	0	1	1	1	1	1
## 25	1	1	1	1	1	1	1	1
## 26	-1	-1	-1	1	1	1	1	1
## 27	1	1	1	1	1	1	1	1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	-1	-1	-1	1	1	1	1	1
## 30	0	0	2	2	2	2	2	2
## 31	-1	-1	-1	1	1	1	2	2
## 32	-1	-1	-1	1	1	1	1	1
## 33	-1	-1	-1	2	2	2	-1	0
## 34	-1	2	-1	2	1	1	2	2
## 35	0	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	2	2	2	2	2
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	-1	-1	-1	0	0	0	0	0
## 42	-1	-1	-1	-1	-1	-1	-1	-1
## 43	1	1	1	1	1	1	1	1
## 44	-1	-1	-1	2	2	2	2	1
## 45	0	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1	1
## 47	1	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	0
## 54	-1	-1	-1	2	2	2	2	2
## 55	0	0	0	0	0	0	0	0

## 56	-1	-1	-1	2	2	2	2	2
## 57	-1	-1	-1	2	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	2	0	0	0	0	0
## 60	-1	-1	2	2	2	2	2	2
## 61	-1	-1	1	2	2	2	2	2
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	-1	-1	1	1	1	1	1	1
## 67	0	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	-1	-1
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0
## 72	-1	-1	-1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-1	0	0	0	0	0	0	0
## 76	-1	-1	-1	1	1	1	1	1
## 77	-1	-1	-1	1	-1	-1	1	1
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	-1	1	-1	1	1	1	1	1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	1	1	1	1	1	1	1	1
## 85	1	1	1	1	1	1	1	1
## 86	-1	-1	-1	1	1	1	1	1
## 87	-1	-1	-1	1	1	1	1	1

```
## 88       -2       -2      -1       -1      -1       -1       -1        0
## 89        1        1       1        1       1        1        1        1
## 90       -1       -1      -1       -1      -1       -1       -1       -1
## 91       -1       -1      -1       -1      -1       -1       -1       -1
## 92       -1       -1      -1        1       1        1        1        1
## 93       -1       -1      -1       -1      -1       -1       -1       -1
## 94       -1       -1      -1       -1       0        0        0        0
## 95        1        1       1        1       1        1        1        1
## 96       -1       -1      -1        2       2        2        2        2
## 97       -1       -1      -1        2       2        2        1        1
## 98       -1       -1       1        1       1        1        1        1
## 99       -2       -2      -2        1       1        1        1        1
## 100       0        0       0        0       0        0        0        0
## 101      -1       -1      -1        2       2        2        0        1
## 102      -1       -1      -1        1      -1        1        1        1
## 103       0        0       0        0       0        0        0        0
## 104      -1       -1      -1        0       0        0        0        0
## 105      -1       -1      -1        0       0        0        0        0
## 106      -1       -1      -1        1       1        1        1        1
## 107       0        0       0        0       0        0        0        0
## 108      -2       -2      -2        2       2        2        2        1
## 109       0        0       0        1       1        1        1        1
## 110      -2       -2       1       -1      -1       -1       -1       -1
## 111       0        0       0        0       0        0        0        0
## 112      -1        0       0        2       0        0        0        0
## 113      -1       -1      -1       -1      -1       -1       -1       -1
## 114      -1       -2      -2        0       0        0        0        0
## 115      -1       -1      -1       -1      -1       -1       -1       -1
## 116      -1       -1      -1        1       1        1        1        1
##     cn_ANK1 cn_EFCAB1 cn_PXDNL cn_OPRK1 cn_RP1 cn_SDR16C5 cn_PENK cn_CA8
## 1        -2         1        1        1      1          1       1      1
## 2         0         0        0        0      0          0       0      0
```

```
## 3      1      1      1      1      1      1      1      1
## 4      0      0      0      0      0      0      0      0
## 5      1      1      1      1      1      1      1      1
## 6     -1      1      1      1      1      1      1      1
## 7     -1      2      2      2      2      2      2      2
## 8      1      1      0      0      0      0      0      0
## 9     -1     -1     -1      0      0      2      2      1
## 10     2      0      0      0      0      0      0      0
## 11    -1      1      2      1      1      1      1      1
## 12    -1      1      1      1      1      1      1      1
## 13     1      1      1      1      1      1      1      1
## 14     2      2      2      2      2      2      2      2
## 15     0      0      0      0      0      0      0      0
## 16     0      0      0      0      0      0      0      0
## 17     1      1      1      1      1      1      1      1
## 18     2      2      2      2      2      2      2      2
## 19     1      1      1      1      1      1      1      1
## 20     0      0      0      0      0      0      0      0
## 21     1      1      1      1      1      1      1      1
## 22     1      1      1      1      1      1      1      1
## 23     2      2      2      2      2      2      2      2
## 24     1      1      1      1      1      1      1      1
## 25     1      1      1      1      1      1      1      1
## 26     1      1      1      1      1      1      1      1
## 27     1      1      1      1      1      1      1      1
## 28    -1      1      1      1      2      2      2      2
## 29     1      0      0      0      0      0      0      0
## 30     2      0      0      0      0      0      0      0
## 31     2      2      2      2      2      2      2      2
## 32     1      0      0      0      0      0      0      0
## 33     0      0      0      0      0      0      0      0
## 34     2      1      1      1      1      1      1      1
```

## 35	0	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	-1	1	1	1	1	1	1	1
## 41	0	0	0	0	0	0	0	0
## 42	-1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1	1
## 47	1	1	1	1	1	1	1	1
## 48	-1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	-1	-1	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	0	1	1	1	1	1	1	1
## 54	2	2	2	2	2	2	2	2
## 55	0	0	0	0	0	0	0	0
## 56	2	2	2	2	2	2	2	2
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	2	1	1	1	1	1	1	1
## 61	2	1	1	1	1	1	1	1
## 62	-1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	1	1	1	1	1	1	1	1

## 67	0	0	0	0	0	0	0	0
## 68	-1	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0	0
## 70	-1	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	2	2	2	2	2
## 76	1	1	1	1	1	1	1	1
## 77	1	1	1	1	1	1	1	1
## 78	-1	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	-1	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	1	1	1	1	1	1	1	1
## 85	1	1	1	1	1	1	1	1
## 86	1	2	2	2	2	2	2	2
## 87	1	1	1	1	1	1	1	1
## 88	0	0	1	1	2	0	0	0
## 89	1	1	1	1	1	1	1	1
## 90	-1	1	1	1	1	1	1	1
## 91	-1	-1	1	1	2	2	2	2
## 92	1	1	1	1	1	1	1	1
## 93	-1	1	2	2	1	1	1	2
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1	1
## 96	2	1	1	1	1	1	1	1
## 97	1	2	2	2	2	2	2	2
## 98	1	2	2	1	1	1	1	1

```
## 99        1         1        1        1      1          1       1      1
## 100       0         0        0        0      0          0       0      0
## 101       2        -1       -1       -1     -1          1      -1      1
## 102       1         1        1        1      1          1       1      1
## 103       0         0        0        0      0          0       0      0
## 104       0         0        0        0      0          0       0      0
## 105       0         0        0        0      0          0       0      0
## 106       1         1        1        1      1          1       1      1
## 107       0         0        0        0      0          0       0      0
## 108       1         1        1        1      1          1       1      1
## 109       1         1        1        1      1          1       1      1
## 110      -1         1        1        1      1          1       1      1
## 111       0         0        0        0      0          0       0      0
## 112       0        -1       -1       -1     -1         -1      -1     -1
## 113      -1         1        1        1      1          1       1      1
## 114       0         0        0        0      0          0       0      0
## 115      -1         1        1        1      1          1       1      2
## 116       1         0        0        0      0          0       0      0
##     cn_TRIM55 cn_C8orf46 cn_CPA6 cn_PREX2 cn_C8orf34 cn_XKR9 cn_EYA1 cn_TRPA1
## 1           1          1       1        1          1       1       1        1
## 2           0          0       0        0          0       0       0        0
## 3           1          1       1        1          1       1       1        1
## 4           0          0       0        0          0       0       0        0
## 5           1          1       1        1          1       1       1        1
## 6           2          1       1        1          1       1       1        1
## 7           2          2       2        2          2       2       2        2
## 8          -1         -1      -1       -1         -1      -1      -1        1
## 9           0          0       0        0          0       0       0        0
## 10          0          0       0        0          0       0       0        0
## 11          1          1       1        1          1       1       1        1
## 12          1          1       1        1          1       1       1        1
## 13          1          1       1        1          1       1       1        1
```

## 14	2	2	2	2	2	2	2	2
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1
## 18	2	2	2	2	2	2	2	2
## 19	1	1	1	1	1	1	1	1
## 20	0	0	0	0	0	0	0	0
## 21	1	1	1	1	1	1	1	1
## 22	2	2	2	2	2	2	2	2
## 23	2	2	2	2	2	2	2	2
## 24	1	1	1	1	1	1	1	1
## 25	1	1	1	1	1	1	1	1
## 26	1	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1	1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2	2
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	2	2	2	2	2	2	2	2
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1	1
## 41	0	0	0	0	0	1	1	1
## 42	2	2	2	2	2	2	2	2
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0

## 46	1	1	1	1	1	1	1	1
## 47	1	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	2	2	2	2	2	2	2	2
## 55	0	0	0	0	0	0	0	0
## 56	2	2	2	1	1	2	2	2
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	2	1	1	1	1	1	1	1
## 61	1	1	1	1	1	1	1	1
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	-2	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	1	1	1	1	1	1	1	1
## 67	0	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1	1
## 76	1	1	1	1	1	1	1	1
## 77	1	1	1	1	1	1	1	1

## 78	2	2	2	2	2	2	2	2
## 79	0	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	1	1	1	1	1	1	1	1
## 85	1	1	1	1	1	1	1	1
## 86	2	2	2	2	2	2	2	2
## 87	1	1	1	1	1	1	1	1
## 88	0	0	0	0	0	0	0	0
## 89	1	1	1	1	1	1	1	1
## 90	1	1	1	1	1	2	2	2
## 91	2	2	2	2	2	2	2	2
## 92	1	1	1	1	1	1	1	1
## 93	1	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1	1
## 96	1	1	1	1	1	1	1	1
## 97	2	2	2	2	2	2	2	2
## 98	1	1	1	1	1	1	1	1
## 99	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0
## 101	1	1	1	1	1	1	1	1
## 102	1	1	1	1	1	1	1	1
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	0	0	0	0	0	0	0	0
## 106	1	1	1	1	1	1	1	1
## 107	0	0	0	0	0	0	0	0
## 108	1	1	1	1	1	1	1	1
## 109	1	1	1	1	1	1	1	1

```
## 110         1          1       1        1          1       1       1        1
## 111         0          0       0        0          0       0       0        0
## 112         0          0       0        0          0       0       0        0
## 113         1          1       1        1          2       1       1        1
## 114         1          1       1        1          1       1       1        1
## 115         1          1       1        1          1       2       2        2
## 116         0          0       0        0          0       0       0        0
##      cn_PI15 cn_CRISPLD1 cn_HNF4G cn_PKIA cn_FABP4 cn_CA3 cn_CA2 cn_ATP6V0D2
## 1         1           1        1       1        1      1      1           1
## 2         0           0        0       1        1      1      1           1
## 3         1           1        1       1        1      1      1           1
## 4         0           0        0       0        0      0      0           0
## 5         1           1        1       1        1      1      1           1
## 6         0           0        0       0        0      0      0           0
## 7         2           2        2       2        2      2      2           2
## 8         1           1        1       1        1      1      1           1
## 9         2           2        2       2        0      1      1           1
## 10        0           0        0       0        2      0      0           0
## 11        1           1        1       1        1      1      1           1
## 12        1           1        1       1        1      1      1           1
## 13        1           1        1       1        1      1      1           1
## 14        2           2        2       2        2      2      2           2
## 15        0           0        0       0        0      0      0           0
## 16        0           0        0       0        0      0      0           0
## 17        1           1        1       1        1      1      1           1
## 18        2           2        2       2        2      2      2           2
## 19        1           1        1       1        1      1      1           1
## 20        0           0        0       0        0      0      0           1
## 21        1           1        1       1        1      1      1           1
## 22        1           1        1       1        1      1      1           1
## 23        2           2        2       2        2      2      2           2
## 24        1           1        1       1        1      1      1           1
```

## 25	1	1	1	1	1	1	1	1
## 26	1	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1	1
## 28	1	1	1	1	1	1	1	1
## 29	1	1	1	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2	2
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	2	2	2	2	2	2	2	2
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1	1
## 41	2	2	2	2	2	2	2	2
## 42	1	1	1	2	2	2	2	2
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1	1
## 47	1	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	2	2	2	2	2	2	2	2
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1

## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	1	1	1	1	1	1	1	1
## 61	1	1	1	1	1	1	1	1
## 62	1	1	1	1	2	2	2	2
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	1	1	1	1	1	1	1	1
## 67	0	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1	1
## 76	1	1	1	1	1	1	1	1
## 77	1	1	1	1	1	1	1	1
## 78	2	2	2	2	2	2	2	2
## 79	0	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	1	1	1	1	1	1	1	1
## 85	1	1	1	1	1	0	1	1
## 86	2	2	2	2	2	2	2	2
## 87	1	1	1	1	1	1	1	1
## 88	0	0	0	0	0	0	0	0

```
## 89        1           1        1        1        1        1        1           1
## 90        2           2        2        1        1        2        2           2
## 91        2           2        2        2        2        2        2           2
## 92        1           1        1        1        1        1        1           1
## 93        1           1        1        1        2        2        2           2
## 94        0           0        0        0        0        0        0           0
## 95        1           1        1        1        1        1        1           1
## 96        1           1        1        1        1        1        1           1
## 97        2           2        2        2        2        2        2           2
## 98        1           1        1        1        1        1        1           1
## 99        1           1        1        1        1        1        1           1
## 100       0           0        0        0        0        0        0           0
## 101       1           1        1        1        1        1        1           1
## 102       1           1        1        1        1        1        1           1
## 103       0           0        0        0        0        0        0           0
## 104       0           0        0        0        0        0        0           0
## 105       0           0        0        0        0        0        0           0
## 106       1           1        1        1        1        1        1           1
## 107       0           0        0        0        0        0        0           0
## 108       1           1        1        1        1        1        1           1
## 109       1           1        1        1        1        1        1           1
## 110       1           1        1        1        1        2        2           2
## 111       0           0        0        0        0        0        0           0
## 112       0           0        0        0        0        0        0           0
## 113       2           2        2        1        1        1        1           1
## 114       1           1        1        1        1        1        1           1
## 115       2           2        2        2        0        2        2           2
## 116       0           0        0        0        0        0        0           0
##     cn_MATN2 cn_C8orf47 cn_RGS22 cn_RIMS2 cn_PKHD1L1 cn_CSMD3 cn_SLC30A8
## 1          1           1        1         1          1        1          1
## 2          1           1        1         1          1        1          1
## 3          1           1        1         1          1        1          1
```

## 4	0	0	0	0	0	0	0
## 5	1	1	1	1	1	1	1
## 6	0	0	0	0	0	0	2
## 7	2	2	2	2	2	2	2
## 8	1	1	2	2	2	2	2
## 9	2	2	2	2	0	0	0
## 10	2	2	2	2	2	2	2
## 11	2	2	2	2	2	1	2
## 12	1	1	1	1	1	1	1
## 13	1	1	1	1	2	2	1
## 14	2	2	2	2	2	2	2
## 15	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1
## 18	2	2	2	2	2	2	2
## 19	1	1	1	1	1	1	1
## 20	2	2	2	2	2	2	2
## 21	1	1	1	1	1	2	2
## 22	1	1	1	2	1	1	1
## 23	2	2	2	2	2	2	2
## 24	1	1	1	1	1	1	1
## 25	1	1	1	1	1	1	1
## 26	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1
## 28	2	2	2	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	2	2	2	2	2	2	2
## 35	1	1	1	1	1	1	1

## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1
## 41	1	1	1	2	2	2	2
## 42	2	2	2	2	2	2	2
## 43	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1
## 47	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1
## 54	2	2	2	2	2	2	2
## 55	0	0	0	0	0	0	0
## 56	1	1	2	2	1	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1
## 60	2	2	2	2	2	2	2
## 61	1	1	1	1	1	1	1
## 62	2	2	2	2	2	2	2
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	1	1	1	1	1	1	1
## 67	0	0	0	0	0	0	0

## 68	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1
## 76	1	1	1	1	1	1	1
## 77	1	1	1	1	1	1	1
## 78	2	2	2	2	2	2	2
## 79	0	0	0	0	0	0	0
## 80	1	1	2	2	2	2	2
## 81	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0
## 84	1	1	1	1	1	1	1
## 85	1	1	1	1	1	1	1
## 86	2	2	2	2	2	2	2
## 87	1	1	1	1	1	1	1
## 88	0	0	1	0	0	0	0
## 89	1	1	1	1	1	1	1
## 90	1	1	1	1	1	1	1
## 91	2	2	2	2	2	2	2
## 92	1	1	1	1	1	1	1
## 93	2	2	2	2	2	2	2
## 94	0	2	0	0	0	0	1
## 95	1	1	1	1	1	1	1
## 96	1	1	1	1	1	1	1
## 97	2	2	2	2	2	2	2
## 98	1	1	1	1	1	1	2
## 99	1	1	1	1	1	1	1

```
## 100         0          0         0         0          0         0          0
## 101         1          1         1         1          1         1          1
## 102         1          1         1         1          1         1          1
## 103         0          0         0         0          0         0          0
## 104         0          0         0         0          0         0          0
## 105         0          0         0         1          1         1          1
## 106         1          1         1         1          1         1          1
## 107         0          0         0        -2          0         0          0
## 108         1          1         1         1          1         1          1
## 109         1          1         1         1          1         1          1
## 110         2          2         2         2          2         2          2
## 111         2          2         2         2          2         2          2
## 112         0          0         0         0          0         0          0
## 113         2          2         2         1          1         1          1
## 114         1          1         1         1          1         1          1
## 115         2          2         2         2          2         2          2
## 116         0          0         0         0          0         0          0
##     cn_TNFRSF11B cn_COL14A1 cn_FAM83A cn_GSDMC cn_FAM135B cn_COL22A1 cn_BAI1
## 1              1          1         1        1          1          1       1
## 2              1          1         1        1          1          1       1
## 3              1          1         1        1          1          1       1
## 4              0          0         0        0          0          0       0
## 5              1          1         1        1          1          1       1
## 6              2          2         2        2          2          2       2
## 7              2          2         2        2          2          2       2
## 8              2          2         2        2          2          2       2
## 9              2          2         2       -1          0          0       1
## 10             2          2         2        2          2          2       2
## 11             2          1         2        2          0          0       0
## 12             1          1         1        1          1          1       1
## 13             1          1         1        2          1          1       1
## 14             2          2         2        2          2          2       2
```

## 15	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1
## 18	2	2	2	2	2	2	2
## 19	1	1	1	1	1	1	1
## 20	2	2	2	2	2	2	2
## 21	2	2	2	1	1	1	1
## 22	1	1	1	1	1	1	1
## 23	2	2	2	2	2	2	2
## 24	1	1	1	1	1	1	1
## 25	1	1	1	1	1	1	1
## 26	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1
## 28	1	1	1	1	1	1	2
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	2	2	2	2	0	0	0
## 35	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1
## 41	2	2	2	2	2	2	2
## 42	2	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1

## 47	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	1	1	1	0	0	0	0
## 52	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1
## 54	2	2	2	2	2	2	2
## 55	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1
## 60	2	2	2	2	2	2	2
## 61	1	1	1	1	1	1	0
## 62	2	2	2	2	2	2	2
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	1	1	1	1	1	1	1
## 67	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1
## 76	1	1	1	1	1	1	1
## 77	1	1	1	1	1	1	1
## 78	2	2	2	2	2	2	2

## 79	0	0	0	0	0	0	0
## 80	2	2	2	2	1	1	1
## 81	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0
## 84	1	1	1	1	1	1	1
## 85	1	1	1	1	1	1	1
## 86	2	2	2	2	2	2	2
## 87	1	1	1	1	1	1	1
## 88	0	0	0	0	0	0	1
## 89	1	1	1	1	1	1	1
## 90	1	1	1	1	1	1	1
## 91	2	2	2	2	2	2	2
## 92	1	1	1	1	1	1	1
## 93	2	2	2	2	2	2	2
## 94	1	1	1	1	1	1	1
## 95	1	1	1	1	1	1	1
## 96	1	1	1	1	1	1	1
## 97	2	2	2	2	2	2	2
## 98	1	1	1	1	1	1	1
## 99	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0
## 101	1	1	1	1	1	1	1
## 102	1	1	1	1	1	1	1
## 103	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0
## 105	1	1	1	0	0	-1	0
## 106	1	1	1	1	1	1	1
## 107	0	0	0	0	0	0	0
## 108	1	1	1	1	1	1	1
## 109	1	1	1	1	1	1	1
## 110	2	2	2	2	2	2	2

```
## 111           2          2          2          2          2          2       2
## 112           0          0          0          0          0          0       0
## 113           1          1          2          2          1          1       1
## 114           1          1          1          0         -2         -2      -2
## 115           2          2          2          2          2          2       1
## 116           0          0          0          0          0          0       0
##     cn_ARC cn_PSCA cn_LY6K cn_SLURP1 cn_LY6D cn_GPIHBP1 cn_MAPK15 cn_GPT
## 1        1       1       1         1       1          1         1      1
## 2        1       1       1         1       1          1         1      1
## 3        1       1       1         1       1          1         1      1
## 4        0       0       0         0       0          0         0      0
## 5        1       1       1         1       1          1         1      1
## 6        2       2       2         2       2          2         2      2
## 7        2       2       2         2       2          2         2      2
## 8        2       2       2         2       2          2         2      2
## 9        1       1       1         1       1          1        -1     -1
## 10       2       2       2         2       2          2         2      2
## 11       0       0       0         0       0          0         0      0
## 12       1       1       1         1       1          1         1      1
## 13       1       1       1         1       1          1         1      1
## 14       2       2       2         2       2          2         2      2
## 15       0       0       0         0       0          0         0      0
## 16       0       0       0         0       0          0         0      0
## 17       1       1       1         1       1          1         1      1
## 18       2       2       2         2       2          2         2      2
## 19       1       1       1         1       1          1         1      1
## 20       2       2       2         2       2          2         2      2
## 21       1       1       1         1       1          1         1      1
## 22       1       1       1         1       1          1         1      1
## 23       2       2       2         2       2          2         2      2
## 24       1       1       1         1       1          1         1      1
## 25       1       1       1         1       1          1         1      1
```

## 26	1	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1	1
## 28	2	2	2	2	2	2	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2	2
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1	1
## 41	2	2	2	2	2	2	2	2
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1	1
## 47	1	1	1	1	1	1	1	1
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	2	2	2	2	2	2	2	2
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0

## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	2	2	2	2	2	2	2	2
## 61	0	0	0	0	0	1	1	1
## 62	2	2	2	2	2	2	2	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	1	1	1	1	1	1	1	1
## 67	0	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1	1
## 76	1	1	1	1	1	1	1	1
## 77	1	1	1	1	1	1	1	1
## 78	2	2	2	2	2	2	2	2
## 79	0	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	1	1	1	1	1	1	1	1
## 85	1	1	1	1	1	1	1	1
## 86	2	2	2	2	2	2	2	2
## 87	1	1	1	1	1	1	1	1
## 88	1	1	1	1	1	1	1	1
## 89	1	1	1	1	1	1	1	1

```
## 90       1       1       1         1       1         1         1      1
## 91       2       2       2         2       2         2         2      2
## 92       1       1       1         1       1         1         1      1
## 93       2       2       2         2       2         2         2      2
## 94       1       1       1         1       1         1         1      1
## 95       1       1       1         1       1         1         1      1
## 96       1       1       1         1       1         1         1      1
## 97       2       2       2         2       2         2         2      2
## 98       1       1       1         1       1         1         1      1
## 99       1       1       1         1       1         1         1      1
## 100      0       0       0         0       0         0         0      0
## 101      1       1       1         1       1         1         1      1
## 102      1       1       1         1       1         1         1      1
## 103      0       0       0         0       0         0         0      0
## 104      0       0       0         0       0         0         0      0
## 105      0       0       0         0       0         0         0      0
## 106      1       1       1         1       1         1         1      1
## 107      0       0       0         0       0         0         0      0
## 108      1       1       1         1       1         1         1      1
## 109      1       1       1         1       1         1         1      1
## 110      2       2       2         2       2         2         2      2
## 111      2       2       2         2       2         2         2      2
## 112      0       0       0         0       0         0         0      0
## 113      1       1       1         1       1         2         2      2
## 114     -2      -2      -2        -2      -2        -2        -2     -2
## 115      1       1       1         1       1         1         1      1
## 116      0       0       0         0       0         0         0      0
##     cn_SLC1A1 cn_RLN2 cn_IL33 cn_GLDC cn_TYRP1 cn_FREM1 cn_SH3GL2 cn_SLC24A2
## 1           0       0       0       0        0        0        -1         -1
## 2           0       0       0       0        0        0         0          0
## 3          -1      -1      -1      -1       -1       -2        -1         -1
## 4           0       0       0       0        0        0         0          0
```

## 5	0	0	0	0	0	0	0	0
## 6	2	2	2	2	2	2	-1	-1
## 7	2	2	2	2	2	2	2	2
## 8	1	2	2	2	2	2	1	-1
## 9	1	1	1	1	2	2	2	2
## 10	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0
## 12	-1	-1	-1	-1	-1	-1	-1	-1
## 13	1	1	1	1	1	1	1	1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	1	1	1	1	1	1	1	1
## 17	-1	-1	-1	-1	-1	-1	-1	-1
## 18	-1	-1	-1	-1	-1	-1	-1	0
## 19	1	1	1	1	1	1	1	1
## 20	0	0	0	0	0	0	0	0
## 21	0	0	0	0	0	0	0	0
## 22	1	1	1	1	2	2	2	2
## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	-1	-1	-1	-1	-1	0	-1	0
## 30	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0

## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	-1	-1	-1	-1	-1	-1	-1	-1
## 40	1	1	1	1	1	1	1	1
## 41	-1	-1	-1	-1	-1	-1	-1	-1
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0	0
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0

## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0	0
## 75	2	2	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	-1	-1	-1	-1	-1	-1	-1	-1
## 78	2	2	2	2	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	1	1	1	1	1	1	1	1
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	1	1	1	1	1	1	1	1
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	0	0	0	0	0	0	0	0
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	0	0	0	0	-1	-1	-1	-1
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1	1
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	0	0	0	0	0	0	0	0
## 99	-1	-1	-1	-1	-1	-1	-1	-1
## 100	1	1	1	1	1	1	1	1

```
## 101        -2      -1      -1      -1       -1       -1        -1        -1
## 102         0       0       0       0        0        0         0         0
## 103         0       0       0       0        0        0         0         0
## 104         0       0       0       0        0        0         0         0
## 105         0       0       0       0        0        0         0         0
## 106         0       0       0       0        0        0         0         0
## 107         0       0       0       0        0        0         0         0
## 108        -1      -1      -1      -1       -1       -1        -1        -1
## 109         0       0       0       0        0        0         0         0
## 110        -1      -1      -1      -1       -1       -1        -1        -1
## 111        -1      -1      -1      -1       -1       -1         0         0
## 112        -1      -1      -1      -1       -1       -1        -1        -1
## 113        -1      -1      -1      -1       -1       -1        -1        -1
## 114         0       0       0       0        0        0         0         0
## 115         1       1       1       1        1        1         1         1
## 116         0       0       0       0        0        0         0         0
##     cn_CDKN2A cn_DMRTA1 cn_ELAVL2 cn_TMEM215 cn_AQP7 cn_AQP3 cn_PRSS3 cn_DNAI1
## 1          -1        -1        -1          0       0       0        0        0
## 2           0         0         0          0       0       0        0        0
## 3          -1        -1        -1         -1      -1      -1       -1       -1
## 4           0         0         0          0       0       0        0        0
## 5           0         0         0          0       0       0        0        0
## 6          -1        -1        -1          1       1       1        1        1
## 7           2        -1        -1          2       2       2        2        2
## 8          -1        -1        -1         -1      -1      -1       -1       -1
## 9           2         2         1          1       1       0        0       -1
## 10          0         0         0          0       0       0        0        0
## 11          0         0         0          0       0       0        0        0
## 12          0         0         0          0      -1      -1       -1       -1
## 13          1         1         1          1       1       1        1        1
## 14          0         0         0          0       0       0        0        0
## 15          0         0         0          0       0       0        0        0
```

## 16	1	1	1	1	1	1	1	1
## 17	-1	-1	-1	-1	-1	-1	-1	-1
## 18	0	0	0	0	0	0	1	1
## 19	1	1	1	1	1	1	1	1
## 20	0	0	0	0	0	0	0	0
## 21	0	0	0	0	0	0	0	0
## 22	-1	-1	-1	-1	-1	-1	-1	1
## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	1	1	1	1	1
## 29	-1	-1	-1	1	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	2	2	2	2	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	-1	-1	-1	0	0	0	0	0
## 40	1	1	1	1	1	1	1	1
## 41	-1	-1	-1	-1	-1	-1	-1	0
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	0	0	0	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0

## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	-1	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0	0
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	-1	-1	-1	0	0	0	0	0
## 78	-1	-1	-1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1

```
## 80   -1   -1   -1   -1   -1   -1    1    1
## 81    1    1    1    1    1    1    1    1
## 82   -1   -1   -1   -1   -1   -1   -1   -1
## 83    0    0    0    0    0    0    0    0
## 84    0    0    0    0    0    0    0    0
## 85    1    1    1    1    1    1    1    1
## 86    0    0    0    0    0    0    0    0
## 87    0    0    0    0    0    0    0    0
## 88   -2    0    0   -2    0    0    0    0
## 89   -2   -1   -1    0    0    0    0    0
## 90   -1   -1   -1   -1   -1   -1   -1   -1
## 91   -1   -1   -1   -1   -1   -1   -1   -1
## 92   -1   -1   -1    0    0    0    0    0
## 93   -1   -1   -1   -1   -1   -1   -1   -1
## 94    0    0    0    0    0    0    0    0
## 95    1    1    1    1    1    1    1    1
## 96    0    0    0    0    0    0    0    0
## 97    0    0    0    0    0    0    0    0
## 98    0    0    0    0    0    0    0    0
## 99   -1   -1   -1   -1   -1   -1   -1   -1
## 100   1    1    1    1    1    1    1    1
## 101  -1   -1   -1    0    0    0    0    0
## 102   0    0    0    0    0    0    0    0
## 103   0    0    0    0    0    0    0    0
## 104   0    0    0    0    0    0    0    0
## 105   0    0    0    0    0    0    0    0
## 106   0    0    0    0    0    0    0    0
## 107   0    0    0    0    0    0    0    0
## 108  -1   -1   -1   -1   -1   -1   -1   -1
## 109   0    0    0    0    0    0    0    0
## 110  -1   -1   -1   -1   -1   -1   -1   -1
## 111   0    0    0    0    0    0    0    0
```

```
## 112       -1       -1       -1       -1      -1      -1       -1       -1
## 113       -1       -1       -1       -1      -1      -1       -1       -1
## 114        0        0        0        0       0       0        0        0
## 115        1        1        1        1       1       1        1        1
## 116       -2        0        0        0       0       0        0        0
##     cn_ENHO cn_CNTFR cn_CCL19 cn_CCL21 cn_KIAA1045 cn_CA9 cn_HRCT1 cn_MELK
## 1         0        0        0        0           0      0        0       0
## 2         0        0        0        0           0      0        0       0
## 3        -1       -1       -1       -1          -1     -1       -1      -1
## 4         0        0        0        0           0      0        0       0
## 5         0        0        0        0           0      0        0       0
## 6         1        1        1        1           1      1        1       1
## 7         2        2        2        2           2      2        2       2
## 8        -1       -1       -1       -1          -1     -1       -1      -1
## 9        -1       -1       -1       -1          -1      1        1       1
## 10        0        0        0        0           0      0        0       0
## 11        0        0        0        0           0      0        0       0
## 12       -1       -1       -1       -1          -1     -1       -1      -1
## 13        1        1        1        1           1      1        1       1
## 14        0        0        0        0           0      0        0       0
## 15        0        0        0        0           0      0        0       0
## 16        1        1        1        1           1      1        1       1
## 17       -1       -1       -1       -1          -1     -1       -1      -1
## 18        1        1        1        1           1      0        0       0
## 19        1        1        1        1           1      1        1       1
## 20        0        0        0        0           0      0        0       0
## 21        0        0        0        0           0      0        0       0
## 22        1        1        1        1           1     -1       -1      -1
## 23        0        0        0        0           0      0        0       0
## 24        0        0        0        0           0      0        0       0
## 25        0        0        0        0           0      0        0       0
## 26        0        0        0        0           0      0        0       0
```

## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	1	1	1	1	1	1	1	1
## 41	0	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	1	-1	1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	1	0
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0

## 59	1	1	1	1	1	1	1	1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	1	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	1	1	1	1	1	1	1	1
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	0	0	0	0	0	0	0	0
## 90	-1	-1	-1	-1	-1	-1	-1	-1

```
## 91       -1       -1       -1       -1          -1     -1       -1      -1
## 92        0        0        0        0           0      0        0       0
## 93       -1       -1       -1       -1          -1     -1       -1      -1
## 94        0        0        0        0           0      0        0       0
## 95        1        1        1        1           1      1        1       1
## 96        0        0        0        0           0      0        0       0
## 97        0        0        0        0           0      0        1       0
## 98        0        0        0        0           0      0        0       0
## 99       -1       -1       -1       -1          -1     -1       -1      -1
## 100       1        1        1        1           1      1        1       1
## 101       0        0        0        0           0      0        0       0
## 102       0        0        0        0           0      0        0       0
## 103       0        0        0        0           0      0        0       0
## 104       0        0        0        0           0      0        0       0
## 105       0        0        0        0           0      0        0       0
## 106       0        0        0        0           0      0        0       0
## 107       0        0        0        0           0      0        0       0
## 108      -1       -1       -1       -1           1      1        1       1
## 109       0        0        0        0           0      0        0       0
## 110      -1       -1       -1       -1          -1     -1       -1      -1
## 111       0        0        0        0           0      0        0       0
## 112      -1       -1       -1       -1          -1     -1       -1      -1
## 113      -1       -1       -1       -1          -1     -1       -1      -1
## 114       0        0        0        0           0      0        0       0
## 115       1        1        1        1           1      1        1       1
## 116       0        0        0        0           0      0        0       0
##     cn_PAX5 cn_CNTNAP3 cn_PGM5 cn_GPR144 cn_LCN2 cn_ENTPD8 cn_CACNA1B cn_TUBBP5
## 1         0          0       0         0       0         0          0         0
## 2         0          0       0         0       0         0          0         0
## 3        -1         -1      -1        -1      -1        -1         -1        -1
## 4         0          0       0         0       0         0          0         0
## 5         0          0       0         0       0         0          0         0
```

```
## 6     1     2     2     2    -1    -1    -1    -1
## 7     2     2     2     0     0     0     0     0
## 8    -1    -1    -1     1     1     1     1     1
## 9     1     1     1     2     1    -1    -1    -1
## 10    0     0     0     0     0     0     0     0
## 11    0     0    -1     0     0     1     0     0
## 12   -1    -1    -1    -1    -1    -1    -1    -1
## 13    1     1     1     0     0     0     0     0
## 14    0     0     0     0     0     0     0     0
## 15    0     0     0     0     0     0     0     0
## 16    1     1     1     1     1     0     0     0
## 17   -1    -1    -1    -1    -1    -1    -1    -1
## 18    0    -1    -1     1     0     0     0     0
## 19    1     1     1     1     1     1     1     1
## 20    0     0     0     0     0     0     0     0
## 21    0     0     0     0     0     0     0     0
## 22   -1    -1    -1     1     1     1     1     1
## 23    0     0     0     0     0    -1    -1    -1
## 24    0     0     0     0     0     0     0     0
## 25    0     0     0     0     0     0     0     0
## 26    0     0     0     1     1     1     1     1
## 27   -1    -1    -1    -1    -1    -1    -1    -1
## 28    1     1     1     1     1     1     1     1
## 29    0     0     0     0     0     0     0     0
## 30    0     0     0     0     0     0     0     0
## 31   -1    -1    -1    -1    -1    -1    -1    -1
## 32    0     0     0     0     0     0     0     0
## 33    0     0     0     0     0     0     0     0
## 34    0     0     0     0     0     0     0     0
## 35    1    -1    -1    -1     1     1     1     1
## 36    0     0     0     0     0     0     0     0
## 37    0     0     0     0     0     0     0     0
```

## 38	-1	-1	-1	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0
## 40	1	1	1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	-1	-1	-1
## 42	1	-1	-1	1	1	0	0	0
## 43	1	1	1	0	0	0	0	0
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	0	0	0	0
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	1	-1	-1	1	1	1	1	1
## 54	1	1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	1	1	1	1	1
## 56	0	0	1	0	0	0	0	0
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1	1
## 62	-1	-1	-1	1	1	1	1	1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0

## 70	-1	-1	-1	1	1	1	1	1
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0	0
## 75	0	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	0	0	-1	-1	-1
## 77	0	0	-1	-1	-1	-1	-1	-1
## 78	1	1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1
## 80	1	-1	-1	-1	-1	-1	-1	-1
## 81	1	1	1	-1	-1	2	2	2
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	1	2	2	0	-2	-1	-1	-1
## 86	0	0	0	-1	-1	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	0	-1	-1	-1	-1	-1	-1	-1
## 89	0	-1	-1	0	0	0	0	0
## 90	-1	1	-1	1	1	-1	-1	-1
## 91	-1	-1	-1	0	0	0	0	0
## 92	0	0	0	0	0	0	0	0
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1	1
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	0	-1	-1	0	0	0	0	0
## 99	-1	-1	-1	0	0	0	0	0
## 100	1	1	1	1	1	1	1	1
## 101	0	0	0	0	0	0	0	0

```
## 102       0          0       0         0       0         0          0         0
## 103       0          0       0         0       0         0          0         0
## 104       0          0       0         0       0         0          0         0
## 105       0          0       0         0       0         0          0         0
## 106       0          0       0         0       0         0          0         0
## 107       0          0       0         0       0         0          0         0
## 108       1          1       1         0       0         0          0         0
## 109       0          0       0         0       0         0          0         0
## 110      -1         -1      -1         0       0         0          0         0
## 111       0          0       0         0       0         0          0         0
## 112      -1         -1      -1        -1      -1        -1         -1        -1
## 113      -1         -1      -1        -1      -1        -1         -1        -1
## 114       0          0       0         0       0         0          0         0
## 115       1          1       1         0       0         1          1        -1
## 116       0          0       0         0       0         0          0         0
##      cn_AKR1E2 cn_AKR1C1 cn_AKR1C2 cn_CALML5 cn_CALML3 cn_ITIH5 cn_ITIH2
## 1            1         1         1         1         1        1         1
## 2            0         0         0         0         0        0         0
## 3            1         1         1         1         1        1         1
## 4            0         0         0         0         0        0         0
## 5            0         0         0         0         0        0         0
## 6            1         1         1         1         1        1         1
## 7            1         1         1         1         1        1         1
## 8            1         1         1         1         1        1         1
## 9            2         2         2         2         2        2         2
## 10           0         0         0         0         0        0         0
## 11           0         0         0         0         0        0         0
## 12           0         0         0         0         0        0         0
## 13           2         2         2         2         2        2         2
## 14           0         0         0         0         0        0         0
## 15           0         0         0         0         0        0         0
## 16          -1        -1        -1        -1        -1       -1        -1
```

## 17	-1	-1	-1	-1	-1	-1	-1
## 18	-1	-1	-1	-1	-1	-1	-1
## 19	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0
## 22	1	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0
## 36	1	1	1	1	1	1	1
## 37	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1
## 41	2	2	2	2	2	2	2
## 42	1	1	1	1	1	1	1
## 43	2	2	2	2	2	2	2
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0

## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1
## 54	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1
## 60	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0
## 76	-1	-1	-1	0	0	0	0
## 77	0	0	0	0	0	0	0
## 78	2	2	2	2	2	2	2
## 79	0	0	0	0	0	0	0
## 80	2	2	2	2	2	2	2

```
## 81    2    2    2    2    2    2    2
## 82   -1   -1   -1   -1   -1   -1   -1
## 83   -1   -1   -1   -1   -1   -1   -1
## 84    0    0    0    0    0    0    0
## 85    2    2    2    2    2    1    1
## 86   -1   -1   -1   -1   -1   -1   -1
## 87    0    0    0    0    0    0    0
## 88    2    2    2    2    2    2    2
## 89    0    0    0    0    0    0    0
## 90    0    0    0    0    0    0    0
## 91   -1   -1   -1   -1   -1   -1   -1
## 92   -1   -1   -1   -1   -1   -1   -1
## 93    0    0    0    0    0    0    0
## 94    2    2    2    2    2    2    2
## 95    0    0    0    0    0    0    0
## 96   -1   -1   -1   -1   -1   -1   -1
## 97    0    0    0    0    0    0    0
## 98    0    0    0    0    0    0    0
## 99    0    0    0    0    0    0    0
## 100   1    1    1    1    1    1    1
## 101  -1   -1   -1   -1   -1   -1   -1
## 102   0    0    0    0    0    0    0
## 103   0    0    0    0    0    0    0
## 104  -1   -1   -1   -1   -1   -1   -1
## 105   0    0    0    0    0    0    0
## 106   0    0    0    0    0    0    0
## 107   0    0    0    0    0    0    0
## 108   1    1    1    1    1    1    1
## 109   0    0    0    0    0    0    0
## 110   1    1    1    1    1    1    1
## 111   1    1    1    1    1    1    1
## 112   0    0    0    0    0    0    0
```

```
## 113         1         1         1         1         1         1         1
## 114         0         0         0         0         0         0         0
## 115         1         1         1         1         1         1         1
## 116         0         0         0         0         0         0         0
##     cn_GATA3 cn_MCM10 cn_BEND7 cn_ITGA8 cn_ST8SIA6 cn_MRC1 cn_ARMC3
## 1          1        1        1        1          1       1        1
## 2          0        0        0        0          0       0        0
## 3          1        1        1        1          1       1        1
## 4          0        0        0        0          0       0        0
## 5          0        0        0        0          0       0        0
## 6          1        1        1        1          1       1        1
## 7          1        1        1        1          1       1        1
## 8          1        1        1        1          1       1        0
## 9          2        2        2        1          1       1        0
## 10         0        0        0        0          0       0        0
## 11         0        0        0        0          0       0        0
## 12         0        0        0        0          0       0        0
## 13         2        2        2        1          1       1        1
## 14         0        0        0        0          0       0        0
## 15         0        0        0        0          0       0        0
## 16        -1       -1       -1       -1         -1      -1       -1
## 17        -1       -1       -1       -1         -1      -1       -1
## 18        -1       -1       -1       -1         -1      -1       -1
## 19         0        0        0        0          0       0        0
## 20        -1       -1       -1       -1         -1      -1       -1
## 21         0        0        0        0          0       0        0
## 22         1        1        1        1          1       1        1
## 23         0        0        0        0          0       0        0
## 24         1        1        1        1          1       1        1
## 25         0        0        0        0          0       0        0
## 26        -1       -1       -1       -1         -1      -1       -1
## 27         0        0        0        0          0       0        0
```

## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0
## 36	1	1	1	1	1	1	1
## 37	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1
## 41	2	2	2	1	1	0	0
## 42	1	1	1	1	1	1	1
## 43	2	2	2	2	2	2	2
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1
## 54	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1

## 60	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0
## 76	0	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	2	2	2	2	2	2	2
## 79	0	0	0	0	0	0	0
## 80	2	2	2	2	2	2	2
## 81	2	2	2	2	1	1	1
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	1	1	1	1	1	1	1
## 86	-1	-1	-1	-1	-1	-1	-1
## 87	0	0	0	0	0	0	0
## 88	2	1	1	1	1	1	1
## 89	0	0	0	0	0	0	0
## 90	0	0	0	0	0	0	0
## 91	-1	1	1	1	1	1	1

```
## 92        -1       -1       -1       -1         -1      -1       -1
## 93         0        0        0        0          0       0        0
## 94         2        2        2        2          1       1       -1
## 95         0        0        0        0          0       0        0
## 96        -1       -1       -1       -1         -1      -1       -1
## 97         0        0        0        0          0       0        0
## 98         0        0        0        0          0       0        0
## 99         0        0        0        0          0       0        0
## 100        1        1        1        1          1       1        1
## 101       -1        0        1        0          2       2        2
## 102        0        0        0        0          0       0        0
## 103        0        0        0        0          0       0        0
## 104       -1       -1       -1       -1         -1      -1       -1
## 105        0        0        0        0          0       0        0
## 106        0        0        0        0          0       0        0
## 107        0       -2       -2       -2         -2      -2       -2
## 108        1        1        1        1          1       1        1
## 109        0        0        0        0          0       0        0
## 110        1        1        1        1          1       1        1
## 111        1        1        1       -1         -1      -1       -1
## 112        0        0        0        0          0       0        0
## 113        1        1        1        1          1       1        1
## 114        0        0        0        0          0       0        0
## 115        1        1        1        1          1       1        1
## 116        0        0        0        0          0       0        0
##     cn_C10orf107 cn_SYNPO2L cn_DUSP13 cn_PLAC9 cn_SFTPA2 cn_MAT1A cn_DYDC2
## 1              1          1         1        1         1        1        1
## 2              0          0         0        0         0        0        0
## 3             -1         -1         1       -1        -1       -1       -1
## 4              0          0         0        0         0        0        0
## 5              0          0         0        0         0        0        0
## 6              0          0         0        0         0        0        0
```

7	1	1	1	1	1	1	1
8	-1	-1	-1	-1	-1	-1	-1
9	2	1	1	-1	-1	1	1
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	2	1	1	1	1	2	2
13	1	1	1	1	1	1	1
14	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
16	-1	-1	-1	-1	-1	-1	-1
17	-1	-1	-1	-1	-1	-1	-1
18	-1	-1	-1	-1	-1	-1	-1
19	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0
22	-1	-1	-1	-1	-1	-1	-1
23	0	0	0	0	0	0	0
24	1	0	-2	0	0	0	0
25	0	0	0	0	0	0	0
26	-1	-1	-1	-1	-1	-1	-1
27	0	0	0	0	0	0	0
28	1	1	1	1	1	1	1
29	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0
32	-1	-1	-1	-1	-1	-1	-1
33	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0
36	1	1	1	0	0	0	0
37	0	0	0	0	0	0	0
38	-1	-1	-1	-1	-1	-1	-1

## 39	0	0	0	0	0	0	0
## 40	1	1	1	1	1	1	1
## 41	-1	-1	-1	-1	-1	-1	-1
## 42	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1
## 44	-1	-1	-1	-1	-1	-1	-1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0
## 53	-2	-2	-2	-2	-2	-2	-2
## 54	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0
## 56	-1	-1	0	2	2	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0
## 62	-1	2	2	1	1	1	1
## 63	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1

## 71	0	0	0	0	0	0	0
## 72	-1	-1	-1	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0
## 76	-2	1	0	1	1	1	1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0
## 80	1	-1	-1	-1	-1	-1	-1
## 81	1	-1	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	1	1	1	1	1	1	1
## 86	-1	-1	-1	-1	-1	-1	-1
## 87	0	0	0	0	0	0	0
## 88	1	1	2	1	1	1	1
## 89	0	0	0	0	0	0	0
## 90	0	0	0	0	0	0	0
## 91	1	1	1	1	1	1	1
## 92	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0
## 94	1	1	1	1	1	1	1
## 95	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0
## 98	0	0	0	0	0	0	0
## 99	0	0	0	0	0	0	0
## 100	1	1	1	1	1	1	1
## 101	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0

```
## 103            0          0          0          0          0          0          0
## 104           -1         -1         -1         -1         -1         -1         -1
## 105            0          0          0          0          0          0          0
## 106            0          0          0          0          0          0          0
## 107            0          0          0          0          0          0          0
## 108            0          0          0          0          0          0          0
## 109            0          0          0          0          0          0          0
## 110           -1          0          0          0          0          0          0
## 111           -1         -1         -1         -1         -1         -1         -1
## 112            0          0          0          0          0          0          0
## 113            1          1          1          1          1          1          1
## 114            0          0          0          0          0          0          0
## 115           -1         -1         -1         -1         -1         -1         -1
## 116            0          0          0          0          0          0          0
##     cn_C10orf90 cn_FAM196A cn_KNDC1 cn_SYCE1 cn_WT1 cn_ELF5 cn_EHF cn_SLC1A2
## 1             1          1        1        1      0       0      0         0
## 2             0          0        0        0      0       0      0         0
## 3            -1          1        1        1      0       0      0         0
## 4             0          0        0        0      0       0      0         0
## 5             0          0        0        0      0       0      0         0
## 6            -1         -1       -1       -1      1       1      1         1
## 7             1          1        1        1      0       0      0         0
## 8            -1         -1       -2       -2     -1      -1     -1        -1
## 9             2          2        1        1      1       2      2         2
## 10            0          0        0        0      0       0      0         0
## 11            0          0        0        0      0       0      0         0
## 12            1          1        1        1      0       0      0         0
## 13            1          1        1        1      1       1      1         1
## 14            0          0        0        0      0       0      0         0
## 15            0          0        0        0      0       0      0         0
## 16           -1         -1       -1       -1      0       0      0         0
## 17           -1         -1       -1       -1      1       1      1         1
```

## 18	-1	-1	-1	-1	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	0	0	0	0
## 21	0	0	0	0	-1	-1	-1	-1
## 22	-1	-1	-1	-1	-1	-1	2	-1
## 23	0	0	0	0	-1	-1	-1	-1
## 24	-2	-2	-2	-2	2	2	2	2
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	0	0	0	0
## 27	0	0	0	0	1	1	1	1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	1	1	1	1
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	0	0	0	0	1	1	1	-1
## 36	0	0	0	0	2	2	2	2
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	0	0	0	0
## 39	0	0	0	0	0	0	0	0
## 40	1	1	1	1	-1	-1	-1	-1
## 41	-1	-1	-1	-1	1	1	1	1
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	-1	-1	-1	-1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0	0

## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	2	0	0	1
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	0	0	0	0	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	1	1	-1	-1	1	1	1	1
## 63	-1	-1	-1	-1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	0	0	0	0	1	1	1	1
## 75	0	0	0	0	-1	-1	-1	-1
## 76	-2	-2	-2	-2	1	1	1	1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	1	1	1	1	1	-1	1	-1
## 81	-1	-1	-1	-1	-1	-1	-1	-1

## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	1	1	1	1	0	0	0	0
## 86	-1	-1	-1	-1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	-1	-1	0	0	0	0
## 89	0	0	0	0	0	0	0	0
## 90	0	0	0	0	-1	-1	-1	-1
## 91	0	1	1	1	1	1	1	1
## 92	-1	-1	-1	-1	0	0	0	0
## 93	0	0	0	0	1	1	1	1
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	1	1	1	1
## 96	-1	-1	-1	-1	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	0	0	0	0	0	0	0	0
## 99	0	0	0	0	-1	-1	-1	-1
## 100	1	1	1	1	0	0	0	0
## 101	0	0	0	0	0	0	0	0
## 102	0	0	0	0	1	1	1	1
## 103	0	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	0	0	0	0
## 105	0	0	0	0	0	0	0	0
## 106	0	0	0	0	1	0	0	0
## 107	0	0	0	0	0	0	0	0
## 108	0	0	0	0	1	-1	-1	-1
## 109	0	0	0	0	0	0	0	0
## 110	-1	-1	-1	-1	-1	-1	-1	-1
## 111	-1	-1	-1	-1	-1	-1	-1	-1
## 112	2	2	2	2	0	0	0	0
## 113	-1	-1	-1	-1	-1	1	1	1

```
## 114           0          0        0        0      0       0      0         0
## 115          -1         -1       -1       -1     -1      -1     -1        -1
## 116           0          0        0        0      0       0      0         0
##     cn_LRRC4C cn_CTSW cn_SPDYC cn_ZNHIT2 cn_SYT12 cn_ACY3 cn_ALDH3B2 cn_GAL
## 1           0       0        0         0        0       0          0      0
## 2           0       0        0         0        0       0          0      0
## 3           0       1        1         1       -1      -1         -1     -1
## 4           0       0        0         0        0       2          2     -1
## 5           0       0        0         0        0       0          0      0
## 6           1       0        0         0        0       0          0      0
## 7           0       0        0         0        0       0          0      0
## 8          -1       1        1         1        1       1          1      1
## 9           2       1        1         1        0       1          1      1
## 10          0       2        2         2        2       2          2      2
## 11          0       0        0         0        0       0          0      0
## 12          1      -1       -1        -1        1       1          1     -1
## 13          1      -1       -1        -1       -1      -1         -1     -1
## 14          0       0        0         0        0       0          0      0
## 15          0       0        0         0        0       0          0      0
## 16          0       0        0         0        0       0          0      0
## 17          1       1        1         1        1       1          1      1
## 18          0       0        0         0        0       0          0      0
## 19          0       0        0         0        0       0          0      0
## 20          0       1        1         1        1       1          1      1
## 21         -1      -1       -1        -1       -1      -1         -1     -1
## 22         -1       1        1         1       -1      -1         -1     -1
## 23         -1       0        0         0        0       0          0      0
## 24          1       1        1         1        1       2          2      1
## 25          0       0        0         0        0       0          0      0
## 26          0      -1       -1        -1        1       1          1     -1
## 27          1       1        1         1        1       1          1      1
## 28          1       0        0         0       -1      -1         -1     -1
```

## 29	1	1	1	1	1	1	1	1
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	0	1	1	1	1	1	1	1
## 36	2	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	0	0	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	1	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1	1
## 43	1	0	0	0	0	0	0	0
## 44	1	-1	-1	-1	-1	-1	-1	-1
## 45	1	2	2	2	2	1	1	2
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	0
## 49	0	0	0	0	1	1	1	1
## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	0	2	1	1	0
## 53	-1	0	0	0	1	1	1	0
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	1	1	1	1
## 56	-1	1	1	1	1	1	1	1
## 57	0	0	0	0	2	2	2	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	1	1	2

```
## 61   0   0   0   0   0   0   0   0
## 62   1   1   1   1   1   1   1   1
## 63  -1  -2  -2  -2   1   1   1   1
## 64   0   0   0   0   0   0   0   0
## 65   1   1   1   1   1   1   1   1
## 66   0  -1  -1  -1   1   1   1   1
## 67   0   0   0   0   0   0   0   0
## 68   0   0   0   0   0   0   0   0
## 69   0   0   0   0   0   0   0   0
## 70   0  -1  -1  -1  -1  -1  -1  -1
## 71   0   0   0   0   0   0   0   0
## 72   0   0   0   0   0   0   0   0
## 73   0   0   0   0   2   0   0   0
## 74   1   1   1   1   1   1   1   1
## 75  -1  -1  -1  -1  -1  -1  -1  -1
## 76   1   1   1   1   1   1   1   1
## 77   0   0   0   0   0   0   0   0
## 78  -1   1   1   1   1   1   1   1
## 79   0   0   0   0   0   0   0   0
## 80  -1  -1  -1  -1  -1  -1  -1  -1
## 81  -1  -1  -1  -1  -1  -1  -1  -1
## 82  -1  -1  -1  -1  -1  -1  -1  -1
## 83  -1  -1  -1  -1  -1  -1  -1  -1
## 84   0   0   0   0   0   0   0   0
## 85   0   0   0   0   0   0   0   0
## 86   1  -1  -1  -1   1   1   1   1
## 87   0   0   0   0   0   0   0   0
## 88   0   0   0   0   0   0   0   0
## 89   0   0   0   0   0   0   0   0
## 90  -1  -1  -1  -1  -1  -1  -1  -1
## 91   1   1   1   1   1   1   1   1
## 92   0   0   0   0   0   0   0   0
```

```
## 93          1      -1       -1       -1       -1       -1       -1      -1
## 94          0       0        0        0        0        0        0       0
## 95          1       1        1        1        1        1        1       1
## 96          0       0        0        0        0        0        0       0
## 97          0       0        0        0        0        0        0       0
## 98          0       0        0        0        0        0        0       0
## 99          1      -1       -1       -1       -1       -1       -1       1
## 100         0       0        0        0        0        0        0       0
## 101         0       1        1        1        2        2        2       2
## 102         1      -1       -1       -1       -1       -1       -1      -1
## 103         0       0        0        0        0        0        0       0
## 104         0       0        0        0        0        0        0       0
## 105         0       1        1        1        1        1        1       1
## 106         1      -1       -1       -1        1        1        1       1
## 107         0       0        0        0        0        0        0       0
## 108        -1       2        2        2        2        2        2      -1
## 109         0       0        0        0        0        0        0       0
## 110        -1      -1       -1       -1        1        1        1       1
## 111        -1       0        0        0        0        0        0       0
## 112         0       0        0        0        0        0        0       0
## 113         1       1        1        1        1        1        1       2
## 114         0       0        0        0        0        0        0       0
## 115        -1      -1       -1       -1       -1       -1       -1      -1
## 116         0       0        0        0        0        0        0       0
##     cn_MYEOV cn_FOLR1 cn_PLEKHB1 cn_CHRDL2 cn_MOGAT2 cn_DGAT2 cn_WNT11
## 1          0        0          0         0         0        0        0
## 2          0        0          0         0         0        0        0
## 3         -1       -1          1         1         2        2        2
## 4          2        2          2         2         2        2        2
## 5          0        0          0         0         0        0        0
## 6          2        2          2        -1        -1       -1       -1
## 7          0        0          0         0         0        0        0
```

8	1	1	1	1	1	1	1
9	1	-1	-1	-1	0	0	2
10	2	-1	-1	-1	-1	-1	2
11	0	0	0	0	0	0	0
12	2	0	0	0	0	0	0
13	-1	-1	-1	-1	-1	-1	-1
14	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0
17	2	-1	-1	-1	-1	-1	-1
18	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0
20	1	1	1	1	1	1	1
21	-1	-1	-1	-1	-1	-1	-1
22	-1	1	1	1	1	1	1
23	0	0	0	0	0	0	0
24	1	1	1	1	1	1	1
25	0	0	0	0	0	0	0
26	1	-1	-1	-1	-1	-1	-1
27	1	1	1	1	1	1	1
28	2	2	2	2	2	2	2
29	1	-1	-1	-1	1	1	1
30	0	0	0	0	2	2	2
31	1	1	1	1	1	1	1
32	0	0	0	0	0	0	0
33	0	2	2	2	2	2	2
34	0	0	0	0	0	0	0
35	1	1	1	1	1	1	1
36	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0
39	1	1	1	1	1	1	1

## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1
## 43	0	0	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1
## 45	2	2	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	-1	-1	-1	-1	-1
## 49	1	0	-1	-1	-1	-1	-1
## 50	0	0	0	0	0	0	0
## 51	1	1	2	2	2	2	2
## 52	2	1	1	1	2	2	1
## 53	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0
## 55	1	1	0	0	0	0	0
## 56	1	1	1	1	1	1	1
## 57	2	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	2	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0
## 62	1	-1	1	-1	-1	-1	-1
## 63	2	1	1	1	-1	-1	-1
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	1	1	-1	-1	-1	-1	-1
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	-1	-1	-1	-1	-1

## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	-1	-2	-2	-2	-2	-2	0
## 76	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	1	1	1
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0
## 89	0	0	0	0	0	0	0
## 90	-1	1	0	0	0	0	0
## 91	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0
## 93	2	-1	2	2	2	2	2
## 94	2	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1
## 96	0	1	2	2	2	2	2
## 97	0	0	1	1	1	1	1
## 98	0	0	0	0	0	0	0
## 99	1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0
## 101	2	-1	-1	-1	-1	-1	-1
## 102	1	-1	-1	-1	-1	-1	-1
## 103	0	0	0	0	0	0	0

```
## 104        0        0          0         0        0        0        0
## 105        1        0          0         0        0        0        0
## 106        1        1          1         1        1        1        1
## 107        0        0          0         0        0        0        0
## 108        2        1          0        -1       -1       -1       -1
## 109        0        0          0         0        0        0        0
## 110        2        0         -1        -1       -1       -1       -1
## 111        0       -1         -1        -1       -1       -1       -1
## 112        0        0          0         0       -1       -1       -1
## 113        1       -1         -1        -1       -1       -1       -1
## 114        0        0          0         0        0        0        0
## 115       -1       -1         -1        -1       -1       -1       -1
## 116        0        0          0         0        0        0        0
##     cn_KCTD14 cn_THRSP cn_FAM181B cn_PGR cn_MMP7 cn_MMP10 cn_MMP1 cn_MMP3
## 1           0        0          0      0       0        0       0       0
## 2           0        0          0      0       0        0       0       0
## 3           2        2         -1      2       2        2       2       2
## 4           2        2         -1     -1      -1       -1      -1      -1
## 5           0        0          0      0       0        0       0       0
## 6          -1       -1         -1      1       1        1       1      -1
## 7           0        0          0      0       0        0       0       0
## 8           1        1          1      1      -1       -1      -1      -1
## 9           2        2         -1     -1      -1       -1      -1      -1
## 10          2        2         -1     -1      -1       -1      -1      -1
## 11          0        0          0      0       0        0       0       0
## 12          2        2          1     -1      -1       -1      -1      -1
## 13         -1       -1         -1     -1      -1       -1      -1      -1
## 14          0        0          0      0       0        0       0       0
## 15          0        0          0      0       0        0       0       0
## 16          0        0          0      0       0        0       0       0
## 17         -1       -1         -1     -1      -1       -1      -1      -1
## 18          0        0         -2     -2      -2       -2      -2      -2
```

## 19	0	0	0	0	0	0	0	0
## 20	1	1	1	-1	-1	-1	-1	-1
## 21	-1	-1	-1	-1	-1	-1	-1	-1
## 22	1	1	-1	2	2	1	1	1
## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	1	1	1	1	1	1	1	1
## 28	2	2	2	-1	-1	-1	-1	-1
## 29	-1	-1	-1	-1	-1	-1	-1	-1
## 30	2	2	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	2	2	-1	-1	-1	-1	-1	-1
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	2	2	0	0	0	0	0	0
## 37	0	0	-1	-1	-1	-1	-1	-1
## 38	0	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	1	1	1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	2	2	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	-1	-1	-1	-1	-1	-1	-1	-1
## 50	0	0	0	0	0	0	0	0

## 51	2	2	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0	0
## 55	-1	-1	-1	-1	-1	-1	-1	-1
## 56	1	1	1	1	1	1	1	1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	-1	-1	-1	-1	-1
## 60	-1	-1	-1	-1	1	1	1	1
## 61	0	0	0	-1	-1	-1	-1	-1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	2	2	2	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	-1	-1	-1	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	1	-1	-1	-1	-1	-1
## 71	0	0	0	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	1	-1	-1	-1
## 81	2	2	2	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1	-1

## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0	0
## 86	-1	-1	-1	-1	-1	-1	-1	-1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0	0
## 93	2	2	-1	-1	-1	-1	-1	-1
## 94	0	0	0	-1	-1	-1	-1	-1
## 95	1	1	1	1	1	1	1	1
## 96	2	2	-1	-1	1	1	1	1
## 97	1	1	0	0	0	0	0	0
## 98	0	0	0	-1	-1	-1	-1	-1
## 99	-1	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1
## 102	-1	-1	-1	-1	-1	-1	-1	-1
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	0	0	0	-1	-1	-1	-1	-1
## 106	1	1	1	1	-1	-1	-1	-1
## 107	0	0	0	-2	-2	-2	-2	-2
## 108	-1	-1	-1	-1	-1	-1	-1	-1
## 109	0	0	0	0	0	0	0	0
## 110	-1	-1	-1	-1	-1	-1	-1	-1
## 111	-1	-1	-1	-1	-1	-1	-1	-1
## 112	0	0	0	-1	-1	-1	-1	-1
## 113	-1	-1	-1	-1	-1	-1	-1	-1
## 114	0	0	0	0	0	0	0	0

```
## 115        -1       -1         -1     -1      -1       -1      -1      -1
## 116         0        0          0      0       0        0       0       0
##     cn_MMP12 cn_MMP13 cn_GRIA4 cn_C11orf92 cn_POU2AF1 cn_CRYAB cn_NCAM1 cn_DRD2
## 1           0        0        0           0          0        0        0       0
## 2           0        0       -1          -1         -1       -1       -1      -1
## 3           2        2        2          -1         -1       -1       -1      -1
## 4          -1       -1       -1          -1         -1       -1       -1      -1
## 5           0        0        0           0          0        0        0       0
## 6          -1       -1       -1          -1         -1       -1       -1      -1
## 7           0        0        0           0          0        0        0       0
## 8          -1       -1       -1          -1         -1       -1       -1      -1
## 9          -1       -1       -1          -1         -1       -1       -1      -1
## 10         -1       -1       -1          -1         -1       -1       -1      -1
## 11          0        0        0           0          0        0        0       0
## 12         -1       -1       -1          -1         -1       -1       -1      -1
## 13         -1       -1       -1          -1         -1       -1       -1      -1
## 14          0        0        0           0          0        0        0       0
## 15          0        0        0           0          0        0        0       0
## 16          0        0        0           0          0        0        0       0
## 17         -1       -1       -1          -1         -1       -1       -1      -1
## 18         -2       -2       -2          -2         -2       -2        0       0
## 19          0        0        0           0          0        0        0       0
## 20         -1       -1       -1          -1         -1       -1       -1      -1
## 21         -1       -1       -1          -1         -1       -1       -1      -1
## 22          1        1        1           1          1        1        1       1
## 23          0        0        0           0          0        0        0       0
## 24          0        0        0           0          0        0        0       0
## 25          0        0        0           0          0        0        0       0
## 26         -1       -1       -1          -1         -1       -1       -1      -1
## 27          1        1        1           1          1        1        1       1
## 28         -1       -1       -1          -1         -1       -1       -1      -1
## 29         -1       -1       -1          -1         -1       -1       -1      -1
```

## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	-1	-1	-1	-1	-1	-1	-1	-1
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	-1	-1
## 38	0	0	0	0	0	0	0	0
## 39	1	1	1	1	1	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	-1	-1	-1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	-1	-1	-1	-1	-1	-1	-1	-1
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0	0
## 55	-1	-1	-1	-1	-1	-1	-1	-1
## 56	1	1	1	1	1	1	1	1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	1	1	-1	-1	-1	-1	-1	-1
## 61	-1	-1	-1	-1	-1	-1	-1	-1

## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	-1	-1	-1	-1	-1	-1
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0	0
## 86	-1	-1	-1	-1	-1	-1	-1	-1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0	0
## 93	-1	-1	-1	-1	-1	-1	-1	-1

```
## 94        -1       -1       -1          -1         -1       -1       -1       -1
## 95         1        1        1           1          1        1        1        1
## 96         1        1       -1          -1         -1       -1       -1       -1
## 97         0        0        0           0          0        0        0        0
## 98        -1       -1       -1          -1         -1       -1       -1       -1
## 99        -1       -1       -1          -1         -1       -1       -1       -1
## 100        0        0        0           0          0        0        0        0
## 101       -1       -1       -1          -1         -1       -1       -1       -1
## 102       -1       -1       -1          -1         -1       -1       -1       -1
## 103        0        0        0           0          0        0        0        0
## 104        0        0        0           0          0        0        0        0
## 105       -1       -1       -1          -1         -1       -1       -1       -1
## 106       -1       -1       -1          -1         -1       -1       -1       -1
## 107       -2       -2       -2          -2         -2       -2       -2       -2
## 108       -1       -1       -1          -1         -1       -1       -1       -1
## 109        0        0        0           0          0        0        0        0
## 110       -1       -1       -1          -1         -1       -1       -1       -1
## 111       -1       -1       -1          -1         -1       -1       -1       -1
## 112       -1       -1       -1          -1         -1       -1       -1       -1
## 113       -1       -1       -1          -1         -1       -1       -1       -1
## 114        0        0        0           0          0        0        0        0
## 115       -1       -1       -1          -1         -1       -1       -1       -1
## 116        0        0        0           0          0        0        0        0
##     cn_ZBTB16 cn_DSCAML1 cn_TMPRSS4 cn_SCN2B cn_CD3E cn_CD3D cn_CD3G cn_TTC36
## 1           0          0          0        0       0       0       0        0
## 2          -1         -1         -1       -1      -1      -1      -1       -1
## 3          -1         -1         -1       -1      -1      -1      -1       -1
## 4          -1         -1         -1       -1      -1      -1      -1       -1
## 5           0          0          0        0       0       0       0        0
## 6          -1         -1         -1       -1      -1      -1      -1       -1
## 7           0          0          0        0       0       0       0        0
## 8          -1         -1          1        1       1       1       1        1
```

## 9	-1	-1	-1	-1	-1	-1	-1	-1
## 10	-1	-1	-1	-1	-1	-1	-1	-1
## 11	0	0	0	0	0	0	0	0
## 12	-1	-1	-1	-1	-1	-1	-1	-1
## 13	-1	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	-1	-1	-1	-1	-1	-1	-1	-1
## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1	-1
## 21	-1	-1	-1	-1	-1	-1	-1	-1
## 22	1	1	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0	0
## 24	0	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	1	1	1	1	1	1	1	1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	-1	-1	-1	-1	-1	-1	-1	-1
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	-1	-1	-1	-1	-1	-1	-1	-1
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	-1	-1
## 38	0	0	0	0	0	0	0	0
## 39	0	-2	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1	-1

## 41	0	0	0	0	0	0	0	0
## 42	-1	-1	-1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	-1	-1	-1	-1	-1	-1	-1	-1
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0	0
## 55	-1	-1	-1	-1	-1	-1	-1	-1
## 56	1	1	1	1	1	1	1	1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	-1	1	2	2	2	-1	-1	-1
## 61	-1	-1	-1	-1	-1	-1	-1	-1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	-1	2	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	-1	-1	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0

## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0	0
## 86	-1	-1	-1	-1	-1	-1	-1	-1
## 87	0	0	0	0	0	0	0	0
## 88	-1	0	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0	0
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	-1	-1	-1	-1	-1	-1	-1	-1
## 95	1	1	1	1	1	1	1	1
## 96	-1	-1	-1	-1	-1	-1	-1	-1
## 97	0	0	0	0	0	0	0	0
## 98	-1	-1	-1	-1	-1	-1	-1	-1
## 99	-1	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1
## 102	-1	-1	-1	-1	-1	-1	-1	-1
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0

```
## 105        -1         -1         -1       -1      -1      -1      -1       -1
## 106        -1         -1         -1       -1      -1      -1      -1       -1
## 107        -2         -2         -2       -2      -2      -2      -2       -2
## 108        -1         -1         -1       -1      -1      -1      -1       -1
## 109         0          0          0        0       0       0       0        0
## 110        -1         -1         -1       -1      -1      -1      -1       -1
## 111        -1         -1         -1       -1      -1      -1      -1       -1
## 112        -1         -1         -1       -1      -1      -1      -1       -1
## 113        -1         -1         -1       -1      -1      -1      -1       -1
## 114         0          0          0        0       0       0       0        0
## 115        -1         -1         -1       -1      -1      -1      -1       -1
## 116         0          0          0        0       0       0       0        0
##     cn_CXCR5 cn_TRIM29 cn_GRIK4 cn_VSIG2 cn_HEPACAM cn_HEPN1 cn_PKNOX2 cn_BARX2
## 1          0         0        0        0          0        0         0        0
## 2         -1        -1       -1       -1         -1       -1        -1       -1
## 3         -1        -1       -1       -1         -1       -1        -1        0
## 4         -1        -1       -1       -1         -1       -1        -1       -1
## 5          0         0        0        0          0        0         0        0
## 6         -1        -1       -1       -1         -1       -1        -1       -1
## 7          0         0        0        0          0        0         0        0
## 8          1        -1       -1       -1         -1       -1        -1       -1
## 9         -1         0        0       -1         -1       -1        -1        1
## 10        -1        -1       -1       -1         -1       -1        -1       -1
## 11         0         0        0        0          0        0         0        0
## 12        -1        -1       -1       -1         -1       -1        -1       -1
## 13        -1        -1       -1       -1         -1       -1        -1       -1
## 14         0         0        0        0          0        0         0        0
## 15         0         0        0        0          0        0         0        0
## 16         0         0        0        0          0        0         0        0
## 17        -1        -1       -1       -1         -1       -1        -1       -1
## 18         0         0        0        0          0        0         0        0
## 19         0         0        0        0          0        0         0        0
```

## 20	-1	-1	-1	-1	-1	-1	-1	-1
## 21	-1	-1	-1	-1	-1	-1	-1	-1
## 22	1	1	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	1	1	1	1	1	1	1	1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	-1	-1	-1	-1	-1	-1	-1	-1
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	-1	-1	-1	-1	-1	-1	-1	-1
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	-1	-1
## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	-1	-1	-1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	-1	-1	-1	-1	-1	-1	-1	-1
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1

## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0	0
## 55	-1	-1	-1	-1	-1	-1	-1	-1
## 56	1	1	1	1	1	1	1	1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	-1	-1	-1	-1	-1	-1	-1	1
## 61	-1	-1	-1	-1	-1	-1	-1	-1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	2	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	-1	-1	-1	-1	-1	-1	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1

## 84	0	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0	0
## 86	-1	-1	-1	-1	-1	-1	-1	-1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	-1	-1	-1	-1	-1	-1	-1	1
## 91	1	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0	0
## 93	-1	-1	-1	-1	-1	-1	-1	0
## 94	-1	-1	-1	-1	-1	-1	-1	-1
## 95	1	1	1	1	1	1	1	1
## 96	-1	-1	-1	-1	-1	-1	-1	-1
## 97	0	0	0	0	0	0	0	0
## 98	-1	-1	-1	-1	-1	-1	-1	-1
## 99	-1	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1
## 102	-1	-1	-1	-1	-1	-1	-1	-1
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	-1	-1	-1	-1	-1	-1	-1	0
## 106	-1	-1	-1	-1	-1	-1	-1	-1
## 107	-2	-2	-2	-2	-2	-2	-2	-2
## 108	-1	-1	-1	-1	-1	-1	-1	-1
## 109	0	0	0	0	0	0	0	0
## 110	-1	-1	-1	-1	-1	-1	-1	-1
## 111	-1	-1	-1	-1	-1	-1	-1	-1
## 112	-1	-1	-1	-1	-1	-1	-1	-1
## 113	-1	-1	-1	-1	-1	-1	-1	-1
## 114	0	0	0	0	0	0	0	0
## 115	-1	-1	-1	-1	-1	-1	-1	-1

```
## 116         0          0         0         0          0         0          0         0
##      cn_TMEM45B cn_ADAMTS8 cn_ADAMTS15 cn_IGSF9B cn_B3GAT1 cn_GLB1L2 cn_B4GALNT3
## 1             0          0          0         0         0         0           1
## 2            -1         -1         -1        -1        -1        -1           1
## 3             0         -1         -1        -1        -1        -1           2
## 4            -1         -1         -1        -1        -1        -1           0
## 5             0          0          0         0         0         0           0
## 6            -1         -1         -1        -1        -1        -1          -1
## 7             0          0          0         0         0         0           0
## 8            -1         -1         -1        -1        -1        -1           2
## 9            -1         -1         -1        -1        -1        -1           0
## 10           -1         -1         -1        -1        -1        -1           0
## 11            0          0          0         0         0         0           0
## 12           -1         -1         -1        -1        -1        -1           0
## 13           -1         -1         -1        -1        -1        -1           0
## 14            0          0          0         0         0         0           0
## 15            0          0          0         0         0         0           0
## 16            0          0          0         0         0         0           1
## 17           -1         -1         -1        -1        -1        -1           0
## 18            0          0          0         0         0         0           1
## 19            0          0          0         0         0         0           0
## 20           -1         -1         -1        -1        -1        -1           0
## 21           -1         -1         -1        -1        -1        -1           1
## 22            1          1          1         1         1         1           2
## 23            0          0          0         0         0         0           0
## 24            1          1          1         0         0         0           1
## 25            0          0          0         0         0         0           0
## 26           -1         -1         -1        -1        -1        -1          -1
## 27            1          1          1         1         1         1           0
## 28           -1         -1         -1        -1        -1        -1           0
## 29           -1         -1         -1        -1        -1        -1           0
## 30            0          0          0         0         0         0           0
```

## 31	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	-1
## 33	-1	-1	-1	-1	-1	-1	0
## 34	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	0
## 38	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	0
## 41	0	0	0	0	0	0	-1
## 42	-1	-1	-1	-1	-1	-1	0
## 43	0	0	0	0	0	0	-2
## 44	-1	-1	-1	-1	-1	-1	0
## 45	-1	-1	-1	-1	-1	-1	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	-1	-1	-1	-1	-1	-1	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	2
## 52	-1	-1	-1	-1	-1	-1	-1
## 53	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	1
## 55	-1	-1	-1	-1	-1	-1	0
## 56	1	1	1	1	1	1	1
## 57	-1	-1	-1	-1	-1	-1	0
## 58	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	1
## 60	2	2	2	2	2	2	0
## 61	-1	-1	-1	-1	-1	-1	0
## 62	-1	-1	-1	-1	-1	-1	1

## 63	-1	-1	-1	-1	-1	-1	0
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	-1
## 69	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	1
## 76	-1	-1	-1	-1	1	1	-1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0
## 80	-1	1	1	-1	-1	-1	1
## 81	-1	-1	-1	-1	-1	-1	1
## 82	-1	-1	-1	-1	-1	-1	1
## 83	-1	-1	-1	-1	-1	-1	0
## 84	0	0	0	0	0	0	0
## 85	0	0	0	-2	-2	-2	-1
## 86	-1	-1	-1	-1	-1	-1	1
## 87	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	0
## 89	0	0	0	0	0	0	1
## 90	1	1	1	1	1	1	0
## 91	1	1	1	-1	-1	-1	-1
## 92	0	0	0	0	0	0	1
## 93	0	0	0	0	0	0	1
## 94	-1	-1	-1	-1	-1	-1	0

```
## 95           1          1           1          1          1          1           0
## 96          -1         -1          -1         -1         -1         -1           0
## 97           0          0           0          0          0          0           0
## 98          -1         -1          -1         -1         -1         -1           0
## 99          -1         -1          -1         -1         -1         -1           0
## 100          0          0           0          0          0          0           1
## 101         -1         -1          -1         -1         -1         -1           1
## 102         -1         -1          -1         -1         -1         -1           0
## 103          0          0           0          0          0          0           0
## 104          0          0           0          0          0          0           0
## 105          0          0           0          0          0          0          -1
## 106         -1         -1          -1         -1         -1         -1           0
## 107         -2         -2          -2         -2         -2         -2           0
## 108         -1         -1          -1         -1         -1         -1           1
## 109          0          0           0          0          0          0           0
## 110         -1         -1          -1         -1         -1         -1           1
## 111         -1         -1          -1         -1         -1         -1          -1
## 112         -1         -1          -1         -1         -1         -1           0
## 113         -1         -1          -1         -1         -1         -1           1
## 114          0          0           0          0          0          0           0
## 115         -1         -1          -1         -1         -1         -1          -1
## 116          0          0           0          0          0          0          -1
##     cn_LRTM2 cn_KCNA1 cn_NTF3 cn_SCNN1A cn_CLEC4E cn_A2ML1 cn_KLRB1 cn_BCL2L14
## 1          1        1       1         1         1        1        1          1
## 2          0        0       0         0         0        0        0          0
## 3          2       -1      -1         1         1        1        1          2
## 4          0        0       0         0         0        0        0          0
## 5          0        0       0         0         0        0        0          0
## 6         -1       -1      -1         2         2        2        2         -1
## 7          0        0       0         0         0        0        0          0
## 8          2        2       2         2         2        2        2          2
## 9          0        2       2         2         2        2        2          2
```

## 10	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	0	0	0	0	0	0	0	0
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	1	1	1	1	1	1	1	1
## 17	0	0	0	0	0	0	0	0
## 18	1	1	1	1	1	1	1	1
## 19	0	0	0	0	0	0	0	0
## 20	0	0	0	0	-1	-1	-1	-1
## 21	1	1	1	1	1	1	1	1
## 22	1	1	1	1	1	1	1	-2
## 23	0	0	0	0	0	0	0	0
## 24	1	0	0	1	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	0	0	0	0	0	0	0	0
## 28	0	0	0	0	0	0	0	0
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	-1	-1	-1	-1	-1	-1	-1	-1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0
## 40	0	0	0	0	0	0	0	0
## 41	-1	-1	-1	-1	-1	-1	-1	-1

## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	2	2	2	2	1	1	1	1
## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	0	0	0	0	0	0	0	0
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	0	0	0	0	0
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	0	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	-1	-1
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0

## 74	1	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1	1
## 76	1	1	1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1	1
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	1	1	1	1	1	1	1	1
## 90	0	0	0	0	0	0	0	0
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	1	1	1	1	1	1	1	1
## 93	1	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	2
## 98	0	0	0	0	0	0	0	0
## 99	0	0	0	0	0	0	0	0
## 100	1	1	1	1	1	1	1	1
## 101	1	1	1	1	1	1	1	1
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	-1	-1	-1	-1	-1	-1	-1	-1

```
## 106        0        0       0         0         0        0        0         0
## 107        0        0       0         0         0        0        0         0
## 108        1        1       1         1         1        1        1         1
## 109        0        0       0         0         0        0        0         0
## 110        1        1       1         1         1        1        1         1
## 111       -1       -1      -1        -1         0        0        0         0
## 112        0        0       0         0         0        0        0         0
## 113        1        1       1         1         1        1        1         1
## 114        0        0       0         0         0        0        0         0
## 115       -1       -1      -1        -1        -1       -1       -1        -1
## 116       -1       -1      -1        -1        -1       -1       -1        -1
##     cn_MGP cn_ERP27 cn_LMO3 cn_RERGL cn_SLCO1A2 cn_C12orf39 cn_TUBA3C cn_GJB2
## 1        1        1       1        1          1           1         0       0
## 2        0        0       0        0          0           0         0       0
## 3       -1       -1      -1       -1         -1          -1         0       0
## 4        0        0       0        0          0           0        -1      -1
## 5        0        0       0        0          0           0         0       0
## 6        1        1       2        2          2           2         1       1
## 7        0        0       0        0          0           0        -1      -1
## 8        1        1       1        1          1           1         1       1
## 9        0        0       0        0          0           0         0       0
## 10       0        0       0        0          0           0         0       0
## 11       0        0       0        0          0           0         0       0
## 12       0        0       0        0          0           0         0       0
## 13       0        0       0        0          0           0         0       0
## 14       0        0       0        0          0           0         0       0
## 15       0        0       0        0          0           0         0       0
## 16       1        1       1        1          1           1        -1      -1
## 17       0        0       0        0          0           0        -1      -1
## 18       1        1       1        1          1           1        -1      -1
## 19       0        0       0        0          0           0        -1      -1
## 20      -1       -1      -1       -1         -1          -1         0       0
```

```
## 21      1      1      1      1      1      1     -1     -1
## 22      2      2      1      1      1      1     -1     -1
## 23      0      0      0      0      0      0     -1     -1
## 24      0      0      0      0      0      0      0      0
## 25      0      0      0      0      0      0      0      0
## 26     -1     -1     -1     -1     -1     -1     -1     -1
## 27      0      0      0      0      0      0     -1     -1
## 28      0      0      0      0      0      0      0      0
## 29      0      0      0      0      0      0     -1     -1
## 30      0      0      0      0      0      0      0      0
## 31      1      1      1      1      1      1     -1     -1
## 32     -1     -1     -1     -1      1      1     -1     -1
## 33      0      0      0      0      0      0      0      0
## 34      0      0      0      0      0      0      0      0
## 35      1      1      1      1      1      1      1      1
## 36      0      0      0      0      0      0      0      0
## 37      0      0      0      0      0      0      1      1
## 38      0      0      0      0      0      0     -1     -1
## 39      0      0      0      0      0      0     -1     -1
## 40      0      0      0      0      0      0     -1     -1
## 41     -1     -1     -1     -1     -1     -1      0      0
## 42      0      0      0      0      0      0     -1     -1
## 43      0      0      0      0      0      0      0      0
## 44      0      0      0      0      0      0      0      0
## 45      0      0      0      0      0      0     -1     -1
## 46      0      0      0      0      0      0      0      0
## 47      0      0      0      0      0      0      0      0
## 48     -1     -1     -1     -1     -1     -1     -1     -1
## 49      0      0      0      0      0      0      0      0
## 50      0      0      0      0      0      0      0      0
## 51      1      1      1      1      1      1     -1     -1
## 52     -1     -1     -1     -1     -1     -1      0      0
```

## 53	0	0	0	1	0	0	-1	-1
## 54	1	1	1	1	1	1	0	0
## 55	0	0	0	0	0	0	-1	-1
## 56	0	0	0	0	0	0	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	-1	2
## 59	1	1	1	1	1	1	0	0
## 60	0	0	0	0	0	0	-1	-1
## 61	0	0	0	0	0	0	0	-1
## 62	1	1	1	1	1	1	1	1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	0	0
## 66	0	0	0	0	0	0	-1	-1
## 67	0	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	0	0
## 69	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	0	0
## 71	-1	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	-1	-1
## 75	1	1	1	1	1	1	-1	-1
## 76	-1	-1	0	0	1	1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	-1	-1
## 81	1	1	1	1	1	1	-1	-1
## 82	1	1	1	1	1	1	-1	-1
## 83	0	0	0	0	0	0	-1	-1
## 84	0	0	0	0	0	0	0	0

## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	-1	-1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	-1	-1
## 89	1	1	1	1	1	1	-1	-1
## 90	0	0	0	0	0	0	-1	-1
## 91	-1	-1	-1	-1	0	0	1	1
## 92	1	1	1	1	1	1	-1	-1
## 93	1	1	1	1	1	1	-1	-1
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	-1	-1
## 96	0	0	0	0	0	0	1	1
## 97	0	0	0	0	0	0	-1	-1
## 98	0	0	0	0	0	0	-1	-1
## 99	0	0	0	1	1	1	-1	-1
## 100	1	1	1	1	1	1	0	0
## 101	1	1	1	1	1	1	-1	-1
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	0	0	0	0	0	0	-1	-1
## 106	0	0	0	0	0	0	-1	-1
## 107	0	0	0	0	0	0	0	0
## 108	1	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0	0
## 110	1	1	1	1	1	1	1	1
## 111	0	0	0	0	0	0	-1	-1
## 112	0	0	0	0	0	0	0	0
## 113	1	1	1	1	1	1	-1	-1
## 114	0	0	0	0	0	0	0	0
## 115	-1	-1	-1	-1	-1	-1	1	1
## 116	-1	-1	-1	-1	-1	-1	0	0

```
##     cn_GJB6 cn_FGF9 cn_SGCG cn_ATP8A2 cn_SHISA2 cn_GPR12 cn_FLT3 cn_DCLK1
## 1         0       0       0         0         0        0       0        0
## 2         0       0       0         0         0        0       0        0
## 3         0       0       0         0         0        0      -2       -1
## 4        -1      -1      -1        -1        -1       -1      -1       -1
## 5         0       0       0         0         0        0       0        0
## 6         1       1       1         1         1        1       1        1
## 7        -1      -1      -1        -1        -1       -1      -1       -1
## 8         1       1       1         1         1        1       1        2
## 9         0       0      -1        -1        -1       -1       0       -1
## 10        0       0       0         0         0        0       0        0
## 11        0       0       0         0         0        0       0        0
## 12        0       0       0         0         0        0       0        0
## 13        0       0       0         0         0        0       0        0
## 14        0       0       0         0         0        0       0        0
## 15        0       0       0         0         0        0       0        0
## 16       -1      -1      -1        -1        -1       -1      -1       -1
## 17       -1      -1      -1        -1        -1       -1      -1       -1
## 18       -1      -1      -1        -1        -1       -1      -1       -1
## 19       -1      -1      -1        -1        -1       -1      -1       -1
## 20        0       0       0         0         0        0       0       -1
## 21       -1      -1      -1        -1        -1       -1      -1       -1
## 22       -1      -1      -1        -1        -1       -1      -1       -1
## 23       -1      -1      -1        -1        -1       -1      -1       -1
## 24        0       0       0         0         0        0       0        0
## 25        0       0       0         0         0        0       0        0
## 26       -1      -1      -1        -1        -1       -1      -1       -1
## 27       -1      -1      -1        -1        -1       -1      -1       -1
## 28        0       0       0         0         0        0       0        0
## 29       -1      -1      -1        -1        -1       -1      -1       -1
## 30        0       0       0         0         0        0       0        0
## 31       -1      -1      -1        -1        -1       -1      -1       -1
```

## 32	-1	-1	-1	-1	-1	-1	-1	-1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	1	1	1	2	2	2	2	-1
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	-1	-1	-1	-1	-1	-1	-1	-1
## 40	-1	-1	-1	0	0	0	0	0
## 41	0	0	0	0	0	0	0	0
## 42	-1	-1	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	1	1	1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	0
## 54	0	0	0	0	0	0	0	0
## 55	-1	-1	-1	-1	-1	-1	-1	-1
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	-1	-1	-1	-1	1	0	1	-1
## 59	0	-1	-1	-1	-1	-1	-1	-1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	-1	-1	-1	0	0	0	0	-1
## 62	1	1	1	2	1	1	1	-1
## 63	0	0	0	0	0	0	0	0

## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	1
## 66	-1	-1	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	-1	-1	-1	1	1	1	1	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1
## 75	-1	-1	0	0	0	0	0	-1
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	-1	-1	-1	-1	-1	-1	-1	-1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	-1	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	1	1	1
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	0	0	0	0	0	0	0	0
## 95	-1	-1	-1	-1	-1	-1	-1	-1

```
## 96        1       2       2        2        2       -1       1       -1
## 97       -1      -1      -1       -1       -1       -1      -1       -1
## 98       -1      -1      -1       -1       -1       -1      -1       -1
## 99       -1      -1      -1       -1       -1       -1      -1       -1
## 100       0       0       0        0        0        0       0        0
## 101      -1      -1       2       -1       -1       -1      -1       -1
## 102       0       0       0        0        0        0       0        0
## 103       0       0       0        0        0        0       0        0
## 104       0       0       0        0        0        0       0        0
## 105      -1      -1      -1       -1       -1       -1      -1       -1
## 106      -1      -1      -1       -1       -1       -1      -1       -1
## 107       0       0       0        0        0        0       0        0
## 108       1       1       1        1        1        1       1        1
## 109       0       0       0        0        0        0       0        0
## 110       1       2       2        2        2        2       2        0
## 111      -1      -1      -1       -1       -1       -1      -1       -1
## 112       0       0       0        0        0        0       0       -1
## 113      -1      -1      -1        1       -1       -1      -1       -1
## 114       0       0       0        0        0        0       0        0
## 115       1       1       1        1        1        1       1        1
## 116       0       0       0        0        0        0       0        0
##     cn_FREM2 cn_PCDH20 cn_PCDH9 cn_KLHL1 cn_DACH1 cn_SCEL cn_SLAIN1 cn_POU4F1
## 1          0         0        0        0        0       0         0         0
## 2          0         0        0        0        0       0         0         0
## 3         -1        -1       -1       -1       -1      -1        -1        -1
## 4         -1        -1       -1       -1       -1      -1        -1        -1
## 5          0         0        0        0        0       0         0         0
## 6          1        -1       -1       -1       -1      -1        -1        -1
## 7         -1        -1       -1       -1       -1      -1        -1        -1
## 8         -1         1        1        1        1       1         1         1
## 9          1        -1       -1       -1       -1       0         0         0
## 10         0         0        0        0        0       0         0         0
```

## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	0	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	-1	-1	-1	-1	-1	-1	-1	-1
## 17	-1	-1	-1	-1	-1	-1	-1	-1
## 18	-1	-1	-1	-1	-1	-1	-1	-1
## 19	-1	-1	-1	-1	-1	-1	-1	-1
## 20	0	-1	-1	-1	-1	-1	-1	-1
## 21	-1	-1	-1	-1	-1	-1	-1	-1
## 22	-1	-2	-2	-2	-2	-2	-2	-2
## 23	-1	-1	-1	-1	-1	-1	-1	-1
## 24	0	0	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	0	0	0	0	0	0	0	0
## 29	-1	-1	-1	-1	-1	-1	-1	-1
## 30	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	-1	-1	-1	-1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	1	0	0	0	0	0
## 37	-1	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	-1	-1	-1	-1	-1	-1	-1	-1
## 40	0	0	0	0	0	0	0	0
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0

## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0	0
## 55	-1	-1	-1	-1	-1	-1	-1	-1
## 56	1	2	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	-1	-1	-1	-1	-1	-1	-1	-1
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	-1	-1	-1	-1	-1	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0
## 72	0	-1	-1	-1	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1

```
## 75   -1   -1   -1   -1   -1    1    1    1
## 76   -1   -1   -1   -1   -1   -1   -1   -1
## 77    0    0    0    0    0    0    0    0
## 78    1    1    1    1    1    1    1    1
## 79    0    0    0    0    0    0    0    0
## 80   -1   -1   -1   -1   -1   -1   -1   -1
## 81   -1    0    0    0    0    0    0    0
## 82   -1   -1   -1   -1   -1   -1   -1   -1
## 83   -1   -1   -1   -1   -1   -1   -1   -1
## 84    0    0    0    0    0    0    0    0
## 85   -1   -1   -1   -1   -1   -1   -1   -1
## 86   -1   -1   -1   -1   -1   -1   -1   -1
## 87    0    0    0    0    0    0    0    0
## 88   -1   -1    0    0    0    0    0    0
## 89   -1   -1   -1   -1   -1   -1   -1   -1
## 90   -1   -1   -1   -1   -1   -1   -1   -1
## 91    1    0   -1   -1   -1   -1   -1   -1
## 92   -1   -1   -1   -1   -1   -1   -1   -1
## 93   -1   -1   -1   -1   -1   -1   -1   -1
## 94    0    0    0    0    0    0    0    0
## 95   -1   -1   -1   -1   -1   -1   -1   -1
## 96   -1   -1    0    0    0    1    1    1
## 97   -1   -1   -1   -1   -1   -1   -1   -1
## 98   -1   -1   -1   -1   -1   -1   -1   -1
## 99   -1   -1   -1   -1   -1   -1   -1   -1
## 100   0    0    0    0    0    0    0    0
## 101  -1   -1   -1   -1   -1   -1   -1   -1
## 102   0    0    0    0    0    0    0    0
## 103   0    0    0    0    0    0    0    0
## 104   0    0    0    0    0    0    0    0
## 105  -1   -1   -1   -1   -1   -1   -1   -1
## 106  -1   -1   -1   -1   -1   -1   -1   -1
```

```
## 107        0         0        0        0        0        0         0         0
## 108        1         1        1        1        1        1         1         1
## 109        0         0        0        0        0        0         0         0
## 110        0         2        1        1        1        1         1         1
## 111       -1        -1       -1       -1       -1       -1        -1        -1
## 112       -1        -1       -1       -1       -1       -1        -1        -1
## 113       -1        -1       -1       -1       -1       -1        -1        -1
## 114        0         0        0        0        0        0         0         0
## 115        1         1        1        1        1        1         1         1
## 116        0         0        0        0        0        0         0         0
##     cn_SLITRK1 cn_SLITRK6 cn_SLITRK5 cn_CLDN10 cn_HS6ST3 cn_OXGR1 cn_SLC15A1
## 1            0          0          0         0         0        0          0
## 2            0          0          0         0         0        0          0
## 3           -1         -1         -1        -1        -1       -1         -1
## 4           -1         -1         -1        -1        -1       -1         -1
## 5            0          0          0         0         0        0          0
## 6           -1         -1         -1        -1        -1       -1         -1
## 7           -1         -1         -1        -1        -1       -1         -1
## 8            1          1          1         2         2        2          2
## 9           -1          0         -1        -1        -1        0          0
## 10           0          0          0         0         0        0          0
## 11           0          0          0         0         0        0          0
## 12          -1         -1         -1        -1        -1       -1         -1
## 13          -1         -1         -1        -1        -1       -1         -1
## 14           0          0          0         0         0        0          0
## 15           0          0          0         0         0        0          0
## 16          -1         -1         -1        -1        -1       -1         -1
## 17          -1         -1         -1        -1        -1       -1         -1
## 18          -1         -1         -1        -1        -1       -1         -1
## 19          -1         -1         -1        -1        -1       -1         -1
## 20          -1         -1         -1        -1        -1       -1         -1
## 21          -1         -1         -1        -1        -1       -1         -1
```

## 22	-1	-1	-1	-1	-1	-1	1
## 23	-1	-1	-1	-1	-1	-1	-1
## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	0	0	0	0	0	0	0
## 29	-1	-1	-1	-1	-1	-1	-1
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	-1	-1	-1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	2	2	2	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	-1	-1	-1	-1	-1	-1	-1
## 40	0	0	0	1	1	1	1
## 41	1	1	1	1	1	1	1
## 42	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0
## 45	0	-1	0	-1	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0

## 54	0	0	0	0	0	0	0
## 55	-1	-1	-1	-1	-1	-1	-1
## 56	2	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0
## 58	-1	-1	-1	-1	-1	-1	-1
## 59	1	1	1	1	1	1	1
## 60	-1	-1	-1	0	-1	0	-1
## 61	0	-1	-1	-1	-1	-1	-1
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0
## 72	-1	-1	-1	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1
## 75	1	1	1	1	1	1	1
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	1	2	2	2	2	2	2
## 79	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	2
## 81	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1

```
## 86          -1         -1         -1         -1         -1         -1         -1
## 87           0          0          0          0          0          0          0
## 88           1          1          1          0          0          0          1
## 89          -1         -1         -1         -1         -1         -1         -1
## 90          -1         -1         -1         -1         -1         -1         -1
## 91          -1         -1         -1          1          0          0          0
## 92          -1         -1         -1         -1         -1         -1         -1
## 93          -1         -1         -1         -1         -1         -1         -1
## 94           0          0          0          0          0          0          0
## 95          -1         -1         -1         -1         -1         -1         -1
## 96           1          1          1          1          1          1          1
## 97          -1         -1         -1         -1         -1         -1         -1
## 98          -1         -1         -1         -1         -1         -1         -1
## 99          -1         -1         -1         -1         -1         -1         -1
## 100          0          0          0          0          0          0          0
## 101         -1         -1         -1         -1         -1         -1         -1
## 102          0          0          0          0          0          0          0
## 103          0          0          0          0          0          0          0
## 104          0          0          0          0          0          0          0
## 105         -1         -1         -1         -1         -1         -1         -1
## 106         -1         -1         -1         -1         -1         -1         -1
## 107          0          0          0          0          0          0          0
## 108          1          1          1          1          1          1          1
## 109          0          0          0          0          0          0          0
## 110          1          1          1          1          1          1          1
## 111          1          1          1          1          1          1          1
## 112         -1         -1         -1         -1         -1         -1         -1
## 113         -1         -1         -1         -1         -1         -1         -1
## 114          0          0          0          0          0          0          0
## 115         -1         -1         -1         -1         -1         -1         -1
## 116          0          0          0          0          0          0          0
##     cn_ZIC5 cn_ZIC2 cn_FAM155A cn_F7 cn_DHRS2 cn_NOVA1 cn_COCH cn_PAX9 cn_FOXA1
```

## 1	0	0	0	0	0	0	0	0	0
## 2	0	0	0	0	0	0	0	0	0
## 3	-1	-1	-1	1	0	0	0	0	0
## 4	-1	-1	-1	-1	0	0	0	0	0
## 5	0	0	0	0	0	0	0	0	0
## 6	-1	-1	-1	-1	1	1	1	-1	-1
## 7	-1	-1	-1	-1	0	0	0	0	0
## 8	2	2	2	2	-1	-1	-1	-1	-1
## 9	0	0	-1	-1	-1	-1	-1	-1	-1
## 10	0	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0	0
## 12	-1	-1	-1	-1	0	0	0	0	0
## 13	-1	-1	-1	-1	0	0	0	0	0
## 14	0	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0	0
## 16	-1	-1	-1	-1	0	0	0	0	0
## 17	-1	-1	-1	-1	0	0	0	0	0
## 18	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 19	-1	-1	-1	-1	0	0	0	0	0
## 20	-1	-1	-1	-1	0	-1	0	2	2
## 21	-1	-1	-1	-1	0	0	0	0	0
## 22	1	1	1	1	-1	1	-1	-1	-1
## 23	-1	-1	-1	-1	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1	0
## 25	0	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	1	1	1	1	1
## 27	-1	-1	-1	-1	0	0	0	0	0
## 28	0	0	0	1	2	-1	-1	-1	-1
## 29	-1	-1	-1	-1	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	0	0	0	0	0

## 33	0	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0	0
## 35	1	1	1	1	0	-1	-1	-1	-1
## 36	0	0	1	1	0	0	0	0	0
## 37	0	0	-1	-1	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 39	-1	-1	-1	-1	1	1	1	1	1
## 40	1	1	1	1	-1	-1	-1	-1	-1
## 41	1	1	1	1	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0	0
## 44	0	0	0	0	1	1	1	2	2
## 45	0	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0	0
## 48	0	0	0	0	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	0	0
## 54	0	0	0	0	1	1	1	1	1
## 55	-1	-1	-1	-1	0	0	0	0	0
## 56	1	1	1	1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0	0
## 58	-1	-1	-1	-1	0	0	0	0	0
## 59	1	1	1	1	-1	-1	-1	-1	-1
## 60	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 61	-1	-1	-1	-1	0	0	0	0	0
## 62	-1	-1	-1	-1	1	1	1	1	1
## 63	0	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0	0

## 65	1	1	1	1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	0	0	1	2	2
## 71	0	0	0	0	1	1	1	1	1
## 72	-1	-1	-1	-1	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	0	0	0	0	0
## 75	1	1	1	1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0	0
## 78	2	2	2	2	2	1	1	1	1
## 79	0	0	0	0	1	1	1	1	1
## 80	1	1	1	1	1	-1	-1	-1	-1
## 81	0	0	0	0	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 86	-1	-1	-1	-1	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0	0
## 88	1	1	2	-2	-1	-1	-1	-1	2
## 89	-1	-1	-1	-1	0	0	0	0	0
## 90	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1	1	1
## 92	-1	-1	-1	-1	1	1	1	1	1
## 93	-1	-1	-1	-1	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0	0
## 95	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 96	1	1	1	1	0	0	0	0	0

```
## 97       -1      -1        -1    -1       -1       -1       -1      -1       -1
## 98       -1      -1        -1    -1        0        0        0       0        0
## 99       -1      -1        -1    -1       -1       -1       -1       1        1
## 100       0       0         0     0        0        0        0       0        0
## 101      -1      -1        -1    -1       -1       -1       -1      -1       -1
## 102       0       0         0     0        0        0        0       0        0
## 103       0       0         0     0        0        0        0       0        0
## 104       0       0         0     0        0        0        0       0        0
## 105      -1      -1        -1    -1        0        0        0       0        0
## 106      -1      -1        -1    -1        0        0        0       0        0
## 107       0       0         0     0        0        0        0       0        0
## 108       1       1         1     1       -1       -1        0       0        0
## 109       0       0         0     0        0        0        0       0        0
## 110       1       1         1     1        0        0        0       0        0
## 111       1       1         1     1        0        0        0       0        0
## 112      -1      -1        -1    -1       -1       -1        0       0        2
## 113      -1      -1        -1    -1        0        0        0       1        1
## 114       0       0         0     0        0        0        0       0        0
## 115      -1      -1        -1    -1        0        2        2       1        1
## 116       0       0         0     0        0        0        0       0        0
##     cn_SSTR1 cn_ABHD12B cn_PRIMA1 cn_IFI27 cn_PPP4R4 cn_SERPINA6 cn_SERPINA1
## 1          0          0         0        0         0           0           0
## 2          0          0         0        0         0           0           0
## 3          0          0         0        0         0           0           0
## 4          0          0         0        0         0           0           0
## 5          0          0         0        0         0           0           0
## 6         -1         -1         1        1         1           1           1
## 7          0          0         0        0         0           0           0
## 8         -1         -1        -1       -1        -1          -1          -1
## 9         -1         -1        -1       -1        -1          -1          -1
## 10         0          0         0        0         0           0           0
## 11         0          0         0        0         0           0           0
```

## 12	0	0	0	0	0	0	0
## 13	0	0	0	0	0	0	0
## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0
## 18	-1	-1	-1	-1	-1	-1	-1
## 19	0	0	0	0	0	0	0
## 20	2	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0
## 22	-1	-1	1	1	1	1	1
## 23	0	0	0	0	0	0	0
## 24	1	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0
## 26	1	-1	-1	-1	-1	-1	-1
## 27	0	0	0	0	0	0	0
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	2	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	1	1	-1	-1	-1	-1	-1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0

## 44	2	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	1	1	1	1	1
## 52	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0
## 54	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	-1	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	-1	-1	-1	-1	-1
## 62	1	1	1	1	1	1	1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	2	-1	-1	-1	-1	-1	-1
## 71	1	1	1	1	1	1	1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	-1	-1	1	1	1	1	1

76	1	1	1	1	1	1	1
77	0	0	0	0	0	0	0
78	1	1	-1	-1	-1	-1	-1
79	1	1	1	1	1	1	1
80	-1	-1	-1	-1	-1	-1	-1
81	-1	-1	-1	-1	-1	-1	-1
82	-1	-1	-1	-1	-1	-1	-1
83	-1	-1	-1	-1	-1	-1	-1
84	0	0	0	0	0	0	0
85	-1	-1	-1	-1	-1	-1	-1
86	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0
88	-1	-1	-1	-1	-1	-1	-1
89	0	0	0	0	0	0	0
90	-1	-1	-1	-1	-1	-1	-1
91	1	1	1	1	1	1	1
92	1	1	1	1	1	1	1
93	0	0	1	1	1	1	1
94	0	0	0	0	0	0	0
95	-1	-1	-1	-1	-1	-1	-1
96	0	0	0	0	0	0	0
97	-1	-1	-1	-1	-1	-1	-1
98	0	0	0	0	0	0	0
99	1	-1	-1	-1	-1	-1	-1
100	0	0	0	0	0	0	0
101	-1	-1	-1	-1	-1	-1	-1
102	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0

```
## 108       -1         -1          1          1          1          1          1
## 109        0          0          0          0          0          0          0
## 110        0          0          0          0          0          0          0
## 111        0          0         -1         -1         -1         -1         -1
## 112        2          0          0          0          0          0          0
## 113        1         -1         -1         -1         -1         -1         -1
## 114        0          0          0          0          0          0          0
## 115        1          0          0          0          0          0          0
## 116        0          0          0          0          0          0          0
##     cn_SERPINA11 cn_SERPINA5 cn_SERPINA3 cn_TCL1B cn_TCL1A cn_DEGS2 cn_DLK1
## 1              0           0           0        0        0        0       0
## 2              0           0           0        0        0        0       0
## 3              0           0           0        0        0        0       0
## 4              0           0           0        0        0        0       0
## 5              0           0           0        0        0        0       0
## 6              1           1           1        1        1        1       1
## 7              0           0           0        0        0        0       0
## 8             -1          -1          -1       -1       -1       -1      -1
## 9             -1          -1          -1       -1       -1       -1       1
## 10             0           0           0        0        0        0       0
## 11             0           0           0        0        0        0       0
## 12             0           0           0        0        0       -1      -1
## 13             0           0           0        0        0        0       0
## 14             0           0           0        0        0        0       0
## 15             0           0           0        0        0        0       0
## 16             0           0           0        0        0        0       0
## 17             0           0           0        0        0        0       0
## 18            -1          -1          -1       -1       -1       -1      -1
## 19             0           0           0        0        0        0       0
## 20            -1          -1          -1       -1       -1       -1      -1
## 21             0           0           0        0        0        0       0
## 22             1           1           1        1        1        1       1
```

## 23	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	0	0	0	0	0	0	0
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	0	0
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	-1	-1	-1	-1	-1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0
## 54	1	1	1	1	1	1	1

## 55	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	-1	-1	-1	-1	-1	-1	-1
## 62	1	1	1	1	1	0	0
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1
## 71	1	1	1	1	1	1	1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	1	1	1	1	1	-1	-1
## 76	1	1	1	1	1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	0	0
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	0	0	0	0	0	0	0

```
## 87             0           0           0        0        0        0        0
## 88            -1          -1          -1        1        1        1        1
## 89             0           0           0        0        0        0        0
## 90            -1          -1          -1       -1       -1       -1       -1
## 91             1           1           1        1        1        1        1
## 92             1           1           1        1        1        1        1
## 93             1           1           1        1        1        1        1
## 94             0           0           0        0        0        0        0
## 95            -1          -1          -1       -1       -1       -1       -1
## 96             0           0           0        0        0        0        0
## 97            -1          -1          -1       -1       -1       -1       -1
## 98             0           0           0        0        0        1        0
## 99            -1          -1          -1       -1       -1       -1       -1
## 100            0           0           0        0        0        0        0
## 101           -1          -1          -1       -1       -1       -1       -1
## 102            0           0           0        0        0        0        0
## 103            0           0           0        0        0        0        0
## 104            0           0           0        0        0        1        1
## 105            0           0           0        0        0        0        0
## 106            0           0           0        0        0        0        0
## 107            0           0           0        0        0        0        0
## 108            1          -1          -1       -1       -1       -1       -1
## 109            0           0           0        0        0       -2       -2
## 110            0           0           0        0        0       -1       -1
## 111           -1          -1          -1        0        0        0        0
## 112            0           0          -1       -1       -1        0       -1
## 113           -1          -1          -1       -1       -1       -1       -1
## 114            0           0           0        0        0        0        0
## 115            0           0           0        0        0        0        0
## 116            0           0           0        0        0        0        0
##     cn_DIO3 cn_TDRD9 cn_C14orf180 cn_PLD4 cn_CRIP1 cn_ADAM6 cn_KIAA0125
## 1         0        0            0       0        0        0           0
```

## 2	0	0	0	0	0	0	0
## 3	0	0	0	0	0	0	0
## 4	0	0	0	0	0	0	0
## 5	0	0	0	0	0	0	0
## 6	1	1	1	1	1	1	1
## 7	0	0	0	0	0	0	0
## 8	-1	-1	-1	-1	-1	-1	-1
## 9	1	-1	-1	-1	-1	-1	-1
## 10	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0
## 12	-1	-1	-1	-1	-1	-1	-1
## 13	0	0	0	0	0	0	0
## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0
## 18	-1	-1	-1	-1	-1	-1	-1
## 19	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0
## 22	1	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	0	0	0	0	0	0	0
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0

```
## 34      0       0       0       0       0       0       0
## 35      0       0       0       0       0       0       0
## 36      0       0       0       0       0       0       0
## 37      0       0       0       0       0       0       0
## 38     -1      -1      -1      -1      -1      -1      -1
## 39      1       1       1       1       1       1       1
## 40     -1      -1      -1      -1      -1      -1      -1
## 41      1       1       1       1       1       1       1
## 42      0       0       0       0       0       0       0
## 43      0       0       0       0       0       0       0
## 44      1       1       1       1       1       1       1
## 45      0       0       0       0       0       0       0
## 46      0       0       0       0       0       0       0
## 47      0       0       0       0       0       0       0
## 48     -1      -1      -1      -1      -1      -1      -1
## 49      0       0       0       0       0       0       0
## 50      0       0       0       0       0       0       0
## 51      1       1       1       1       1       1       1
## 52      0       0       0       0       0       0       0
## 53      1       1       1       1       1       1       1
## 54      1       1       1       1       1       1       1
## 55      0       0       0       0       0       0       0
## 56     -1      -1      -1      -1      -1      -1      -1
## 57      0       0       0       0       0       0       0
## 58      0       0       0       0       0       0       0
## 59      0       0       0       0       0       0       0
## 60     -1      -1      -1      -1      -1      -1      -1
## 61     -1      -1      -1      -1      -1      -1      -1
## 62      0       0       0       0       0       0       0
## 63      0       0       0       0       0       0       0
## 64      0       0       0       0       0       0       0
## 65     -1      -1      -1      -1      -1      -1      -1
```

## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	-1	1	1	1	1	1	1
## 71	1	1	1	1	1	1	1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1
## 80	-1	-1	1	-1	-1	-1	-1
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0
## 88	1	1	1	1	1	1	1
## 89	0	0	0	0	0	0	0
## 90	-1	-1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	1	1
## 92	1	1	1	1	1	1	1
## 93	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0
## 95	-1	-1	-1	-1	-1	-1	-1
## 96	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	-1	-1

```
## 98        0        0           0       0        0        0           0
## 99       -1       -1          -1      -1       -1       -1          -1
## 100       0        0           0       0        0        0           0
## 101      -1       -1          -1      -1       -1       -1          -1
## 102       0        0           0       0        0        0           0
## 103       0        0           0       0        0        0           0
## 104       1        1           1       1        1        1           1
## 105       0        0           0       0        0        0           0
## 106       0        0           0       0        0        0           0
## 107       0        0           0       0        0        0           0
## 108      -1       -1          -1      -1       -1       -1          -1
## 109      -2       -2          -2      -2       -2       -2          -2
## 110      -1       -1          -1      -1       -1       -1          -1
## 111       0        0           0       0        0        0           0
## 112      -1       -1          -1      -1       -1       -1          -1
## 113      -1       -1          -1      -1       -1       -1          -1
## 114       0        0           0       0        0        0           0
## 115       0        0           0       0        0        0           0
## 116       0        0           0       0        0        0           0
##     cn_THSD4 cn_GRAMD2 cn_C15orf59 cn_CRABP1 cn_RASGRF1 cn_KIAA1199 cn_TMC3
## 1         -1        -1          -1         1          1           1       1
## 2          0         0           0         0          0           0       0
## 3          0         0           0         0          0           0       0
## 4          0         0           0         0          0           0       0
## 5          0         0           0         0          0           0       0
## 6         -1        -1          -1        -1         -1          -1      -1
## 7         -1        -1          -1        -1         -1          -1      -1
## 8          1         1           1         1          1           1       1
## 9         -1        -1          -1         0         -1           1       1
## 10         0         0           0         0          0           0       0
## 11         0         0           0         0          0           0       0
## 12        -1        -1          -1        -1         -1          -1      -1
```

## 13	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	-1	-1	-1	-1	-1	-1	-1
## 17	-1	-1	-1	-1	-1	-1	-1
## 18	0	0	0	0	0	0	0
## 19	1	1	1	1	1	1	1
## 20	-1	-1	-1	-1	-1	-1	-1
## 21	-1	-1	-1	-1	-1	-1	-1
## 22	2	1	1	1	1	1	1
## 23	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	1	1	-1	1	1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	1	1	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	-1	-1	-1	-1	-1	-1	-1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	-1	-1	-1	-1	-1	-1	-1
## 42	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0

## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	1
## 52	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1
## 60	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0
## 62	-1	-1	-1	1	1	1	1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	-1	-1
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	0	1	1	1	1
## 71	1	1	1	1	1	1	1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	1	1	1	1	1	1	1
## 76	-1	-1	-1	-1	-1	1	1

77	1	1	1	1	1	1	1
78	1	1	1	1	1	1	1
79	0	0	0	0	0	0	0
80	-1	-1	-1	-1	-1	-1	-1
81	-1	-1	-1	-1	-1	-1	-1
82	1	1	1	1	1	1	1
83	-1	-1	-1	-1	-1	-1	-1
84	0	0	0	0	0	0	0
85	-1	-1	-1	-1	-1	-1	-1
86	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0
88	1	1	2	1	2	2	2
89	-1	-1	-1	-1	-1	-1	-1
90	-1	-1	-1	-1	-1	-1	-1
91	0	0	0	0	0	0	0
92	-1	-1	-1	-1	-1	-1	-1
93	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0
95	-1	-1	-1	-1	-1	-1	-1
96	0	0	0	0	0	0	0
97	0	1	-1	-1	-1	-1	-1
98	1	1	1	1	1	1	1
99	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0
101	-1	-1	-1	-1	-1	-1	-1
102	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0
104	-1	-1	-1	-1	-1	-1	-1
105	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0
108	1	1	0	-1	-1	0	1

```
## 109        0         0          0         0          0          0       0
## 110        0         0          0         0          0          1       0
## 111       -1        -1         -1        -1         -1         -1      -1
## 112       -1        -1         -1        -1         -1         -1      -1
## 113        1         1          1         1          1          1       1
## 114        0         0          0         0          0          0       0
## 115       -1        -1         -1        -1         -1         -1      -1
## 116        0         0          0         0          0          0       0
##     cn_AP3B2 cn_BNC1 cn_NTRK3 cn_ACAN cn_RHCG cn_PLIN1 cn_MESP1 cn_ANPEP
## 1          1       1        2       2       2        2        2        2
## 2          0       0        0       0       0        0        0        0
## 3          0       0        0       0       0        0        0        0
## 4          0       0        0       0       0        0        0        0
## 5          0       0        0       0       0        0        0        0
## 6         -1      -1       -1      -1      -1       -1       -1       -1
## 7         -1      -1       -1      -1      -1       -1       -1       -1
## 8          1       1        2       2       2        2        2        2
## 9         -1      -1       -1      -1      -1       -1       -1       -1
## 10         0       0        0       0       0        0        0        0
## 11         0       0        0       0       0        0        0        0
## 12        -1      -1       -1      -1      -1       -1       -1       -1
## 13        -1      -1       -1      -1      -1       -1       -1       -1
## 14         0       0        0       0       0        0        0        0
## 15         0       0        0       0       0        0        0        0
## 16        -1      -1       -1      -1      -1       -1       -1       -1
## 17        -1      -1       -1      -1      -1       -1       -1       -1
## 18         0       0        0       0       0        0        0        0
## 19         1       1        1       1       1        1        1        1
## 20        -1      -1       -1      -1      -1       -1       -1       -1
## 21        -1      -1       -1      -1      -1       -1       -1       -1
## 22         1       1        1       1       1        1        1        1
## 23         0       0        0       0       0        0        0        0
```

## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	-1	-1	-1	-1	-1	-1	-1	-1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	-1	-1	-1	-1	-1	-1	-1	-1
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0

```
## 56   -1   -1   -1   -1   -1   -1   -1   -1
## 57    0    0    0    0    0    0    0    0
## 58    0    0    0    0    0    0    0    0
## 59   -1   -1   -1   -1   -1   -1   -1   -1
## 60    0    0    0    0    0    0    0    0
## 61    0    0    0    0    0    0    0    0
## 62    1    1    1    1    1    1    1    1
## 63    0    0    0    0    0    0    0    0
## 64    0    0    0    0    0    0    0    0
## 65   -1   -1   -1   -1   -1   -1   -1   -1
## 66   -1   -1    0    0    0    0    0    0
## 67    0    0    0    0    0    0    0    0
## 68    0    0    0    0    0    0    0    0
## 69    0    0    0    0    0    0    0    0
## 70    1    1    1    1    2    2    2    2
## 71    1    1    1    1    1    1    1    1
## 72    0    0    0    0    0    0    0    0
## 73    0    0    0    0    0    0    0    0
## 74    0    0    0    0    0    0    0    0
## 75    1    1    1    1    1    1    1    1
## 76    1    1    1    1    1    1    1    1
## 77    1    1    1    1    1    1    1    1
## 78    1    1    1    1    1    1    1    1
## 79    0    0    0    0    0    0    0    0
## 80   -1   -1   -1   -1   -1    1    1    1
## 81   -1   -1   -1   -1   -1   -1   -1   -1
## 82    1    1    1    1    1    1    1    1
## 83   -1   -1   -1   -1   -1   -1   -1   -1
## 84    0    0    0    0    0    0    0    0
## 85   -1   -1   -1   -1   -1   -1   -1   -1
## 86    0    0    0    0    0    0    0    0
## 87    0    0    0    0    0    0    0    0
```

```
## 88         2       2        2       2       2        2        2        2
## 89        -1      -1       -1      -1      -1       -1       -1       -1
## 90        -1      -1       -1      -1      -1       -1       -1       -1
## 91         0       0        0       0       0        0        0        0
## 92        -1      -1       -1      -1      -1       -1       -1       -1
## 93         0       0        0       0       0        0        0        0
## 94         0       0        0       0       0        0        0        0
## 95        -1      -1       -1      -1      -1       -1       -1       -1
## 96         0       0        0       0       0        0        0        0
## 97        -1      -1       -1      -1       0        0        0        0
## 98         1       1        1       1       1        1        1        1
## 99         0       0        0       0       0        0        0        0
## 100        0       0        0       0       0        0        0        0
## 101       -1      -1       -1      -1      -1       -1       -1       -1
## 102        0       0        0       0       0        0        0        0
## 103        0       0        0       0       0        0        0        0
## 104       -1      -1       -1      -1      -1       -1       -1       -1
## 105        0       0        0       0       0        0        0        0
## 106        0       0        0       0       0        0        0        0
## 107        0       0        0       0       0        0        0        0
## 108        1       1        1       1       1        1        1        1
## 109        0       0        0       0       0        0        0        0
## 110        0       0        0       0       0        0        0        0
## 111       -1      -1       -1      -1      -1       -1       -1       -1
## 112       -1      -1       -1      -1      -1       -1       -1       -1
## 113        1       1        1       1       1        1        1        1
## 114        0       0        0       0       0        0        0        0
## 115       -1      -1       -1      -1      -1       -1       -1       -1
## 116        0       0        0       0       0        0        0        0
##     cn_ST8SIA2 cn_RGMA cn_SYNM cn_ARHGDIG cn_HBA1 cn_HBA2 cn_RGS11 cn_FBXL16
## 1            2       2       1          1       1       1        1         1
## 2            0       0       0          1       1       1        1         1
```

## 3	0	0	0	1	1	1	1	1
## 4	0	0	0	0	0	0	0	0
## 5	0	0	0	1	1	1	1	1
## 6	-1	-1	1	0	0	0	0	0
## 7	-1	-1	-1	0	0	0	0	0
## 8	2	2	1	1	1	1	1	1
## 9	-1	-1	2	0	0	0	0	0
## 10	0	0	0	2	2	2	2	2
## 11	0	0	0	0	0	0	0	0
## 12	-1	-1	-1	0	0	0	0	0
## 13	-1	-1	-1	1	1	1	1	1
## 14	0	0	0	2	2	2	2	2
## 15	0	0	0	1	1	1	1	1
## 16	-1	-1	-1	1	1	1	1	1
## 17	-1	-1	-1	1	1	1	1	1
## 18	0	0	0	1	1	1	1	1
## 19	1	1	1	1	1	1	1	1
## 20	-1	-1	-1	0	0	0	0	0
## 21	-1	-1	-1	1	1	1	1	1
## 22	1	1	1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	0	0	0	0	0
## 25	0	0	0	1	1	1	1	1
## 26	1	1	1	1	1	1	1	1
## 27	-1	-1	-1	1	1	1	1	1
## 28	-1	-1	-1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	2	2	2	2	2
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0

## 35	-1	-1	-1	2	2	2	2	2
## 36	0	0	0	0	0	0	0	0
## 37	0	2	2	1	1	1	1	1
## 38	-1	-1	-1	1	1	1	1	1
## 39	-1	-1	-1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	-1	0	0	0	0	0
## 42	0	0	0	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	0	0	0	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	1	1	1	1	1
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	1	1	1	1	1
## 49	0	0	0	1	1	1	1	1
## 50	0	0	0	1	1	1	1	1
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	1	1	1	1	1
## 53	0	0	0	1	1	1	1	1
## 54	0	0	0	2	2	2	2	2
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	0	0	0	0	0
## 60	0	0	0	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	0	0	0	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0

## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	1	1	1	1	1
## 69	0	0	0	0	0	0	0	0
## 70	2	2	2	0	0	0	0	0
## 71	1	1	1	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	0	0	0	1	1	1	1	1
## 75	2	1	1	-1	-1	-1	-1	-1
## 76	1	1	-1	0	0	0	0	0
## 77	0	0	1	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	0	0	0	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	-1	0	0	0	0	0
## 82	1	1	1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	1	1	1	1	1
## 84	0	0	0	1	1	1	1	1
## 85	-1	-1	-1	0	0	0	0	0
## 86	0	0	0	1	1	1	1	1
## 87	0	0	0	1	1	1	1	1
## 88	2	1	1	1	1	1	1	1
## 89	-1	-1	-1	1	1	1	1	1
## 90	-1	-1	-1	1	1	1	1	1
## 91	0	0	0	1	1	1	1	1
## 92	-1	-1	-1	0	0	0	0	0
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	-1	-1	-1	1	1	1	1	1
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	1	1	1	1	1	1	1	1

```
## 99           0       0       0          1       1       1        1         1
## 100          0       0       0          1       1       1        1         1
## 101         -1      -1      -1          1       1       1        1         1
## 102          0       0       0          0       0       0        0         0
## 103          0       0       0          1       1       1        1         1
## 104         -1      -1      -1          1       1       1        1         1
## 105          0       0       1          1       1       1        1         1
## 106          0       0       0          1       1       1        1         1
## 107          0       0       0          1       1       1        1         1
## 108          1       1       1          1       1       1        1         1
## 109          0       0       0          0       0       0        0         0
## 110          0       0       0          0       0       0        0         0
## 111         -1       0       1          0       0       0        0         0
## 112         -1      -1      -1          0       0       0        0         0
## 113          1       1       1          1       1       1        1         1
## 114          0       0       0          1       1       1        1         1
## 115         -1      -1      -1         -1      -1      -1       -1        -1
## 116          0       0       0          1       1       1        1         1
##     cn_METRN cn_CCDC78 cn_HAGHL cn_GNG13 cn_MSLN cn_SOX8 cn_CACNA1H cn_TPSAB1
## 1          1         1        1        1       1       1          1         1
## 2          1         1        1        1       1       1          1         1
## 3          1         1        1        1       1       1          1         1
## 4          0         0        0        0       0       0          0         0
## 5          1         1        1        1       1       1          1         1
## 6          0         0        0        0       0       0          0         0
## 7          0         0        0        0       0       0          0         0
## 8          1         1        1        1       1       1          1         1
## 9          0         0        0        0       0       0          0         0
## 10         2         2        2        2       2       2          2         2
## 11         0         0        0        0       0       0          0         0
## 12         0         0        0        0       0       0          0         0
## 13         1         1        1        1       1       1          1         1
```

## 14	2	2	2	2	2	2	2	2
## 15	1	1	1	1	1	1	1	1
## 16	1	1	1	1	1	1	1	1
## 17	1	1	1	1	1	1	1	1
## 18	1	1	1	1	1	1	1	1
## 19	1	1	1	1	1	1	1	1
## 20	0	0	0	0	0	0	0	0
## 21	1	1	1	1	1	1	1	1
## 22	-1	-1	-1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0
## 25	1	1	1	1	1	1	1	1
## 26	1	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1	1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2	2
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	2	2	2	2	2	2	2	2
## 36	0	0	0	0	0	0	0	0
## 37	1	1	1	1	1	1	1	1
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0

## 46	1	1	1	1	1	1	1	1
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1	1
## 50	1	1	1	1	1	1	1	1
## 51	1	1	1	1	1	1	1	1
## 52	1	1	1	1	1	1	1	1
## 53	1	1	1	1	1	1	1	1
## 54	2	2	2	2	2	2	2	2
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	1	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1	-1
## 76	0	0	0	0	0	0	0	0
## 77	0	0	0	0	0	0	0	0

## 78	1	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	1	1	1	1	1	1	1	1
## 84	1	1	1	1	1	1	1	1
## 85	0	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1	1
## 87	1	1	1	1	1	1	1	1
## 88	1	1	1	1	1	1	1	1
## 89	1	1	1	1	1	1	1	1
## 90	1	1	1	1	1	1	1	1
## 91	1	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0	0
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1	1
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	1	1
## 98	1	1	1	1	1	1	1	1
## 99	1	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1	1
## 101	1	1	1	1	1	1	1	1
## 102	0	0	0	0	0	0	0	0
## 103	1	1	1	1	1	1	1	1
## 104	1	1	1	1	1	1	1	1
## 105	1	1	1	1	1	1	1	1
## 106	1	1	1	1	1	1	1	1
## 107	1	1	1	1	1	1	1	1
## 108	1	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0	0

```
## 110        0         0        0        0       0       0          0         0
## 111        0         0        0        0       0       0          0         0
## 112        0         0        0        0       0       0          0         0
## 113        1         1        1        1       1       1          1         1
## 114        1         1        1        1       1       1          1         1
## 115       -1        -1       -1       -1      -1      -1         -1        -1
## 116        1         1        1        1       1       1          1         1
##     cn_TPSB2 cn_TPSD1 cn_TPSG1 cn_BAIAP3 cn_IGFALS cn_NPW cn_RAB26 cn_PRSS33
## 1          1        1        1         1         1      1        1         1
## 2          1        1        1         1         1      1        1         1
## 3          1        1        1         1         1      1        1         1
## 4          0        0        0         0         0      0        0         0
## 5          1        1        1         1         1      1        1         1
## 6          0        0        0         0         0      0        0         0
## 7          0        0        0         0         0      0        0         0
## 8          1        1        1         1         1      1        1        -1
## 9          0        0        0         1         1      1        1         1
## 10         2        2        2         2         2      2        2         2
## 11         0        0        0         0         0      0        0         0
## 12         0        0        0         0         0      0        0         0
## 13         1        1        1         1         1      1        1         1
## 14         2        2        2         2         2      2        2         2
## 15         1        1        1         1         1      1        1         1
## 16         1        1        1         1         1      1        1         1
## 17         1        1        1         1         1      1        1         1
## 18         1        1        1         1         1      1        1         1
## 19         1        1        1         1         1      1        1         1
## 20         0        0        0         0         0      0        0         0
## 21         1        1        1         1         1      1        1         1
## 22        -1       -1       -1        -1        -1     -1       -1        -1
## 23         0        0        0         0         0      0        0         0
## 24         0        0        0         0         1      0        0         0
```

## 25	1	1	1	1	1	1	1	1
## 26	1	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1	1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2	2
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	2	2	2	2	2	2	2	2
## 36	0	0	0	0	0	0	0	0
## 37	1	1	1	1	1	1	1	1
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1	1
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1	1
## 50	1	1	1	1	1	1	1	1
## 51	1	1	1	1	1	1	1	1
## 52	1	1	1	1	1	1	1	1
## 53	1	1	1	1	1	1	1	1
## 54	2	2	2	2	2	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1

## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	1	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1	-1
## 76	0	0	0	0	0	0	0	0
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	0	0	0	0
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1	1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	1	1	1	1	1	1	1	1
## 84	1	1	1	1	1	1	1	1
## 85	0	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1	1
## 87	1	1	1	1	1	1	1	1
## 88	1	1	1	1	1	1	1	1

```
## 89         1        1        1        1        1      1        1        1
## 90         1        1        1        1        1      1        1        1
## 91         1        1        1        1        1      1        1        1
## 92         0        0        0        1        1      1        1        1
## 93         0        0        0        0        0      0        0        0
## 94         0        0        0        0        0      0        0        0
## 95         1        1        1        1        1      1        1        1
## 96         0        0        0        0        0      0        0        0
## 97         1        1        1        1        0      2        2        0
## 98         1        1        1        1        1      1        1        1
## 99         1        1        1        1        1      1        1        1
## 100        1        1        1        1        1      1        1        1
## 101        1        1        1        1        1      1        1        1
## 102        0        0        0        0        0      0        0        0
## 103        1        1        1        1        1      1        1        1
## 104        1        1        1        1        1      1        1        1
## 105        1        1        1        1        1      1        1        1
## 106        1        1        1        1        1      1        1        1
## 107        1        1        1        1        1      1        1        1
## 108        1        1        1        1        1      1        1        1
## 109        0        0        0        0        0      0        0        0
## 110        0        0        0        0        0      0        0        0
## 111        0        0        0        0        0      0        0        0
## 112        0        0        0        0        0      0        0        0
## 113        1        1        1        1        1      1        1        1
## 114        1        1        1        1        1      1        1        1
## 115       -1       -1       -1       -1       -1     -1       -1       -1
## 116        1        1        1        1        1      1        1        1
##     cn_PRSS21 cn_ZG16B cn_KREMEN2 cn_PKMYT1 cn_CLDN6 cn_C16orf89 cn_ABAT
## 1           1        1          1         1        1           1       1
## 2           1        1          1         1        1           1       1
## 3           1        1          1         1        1           1       1
```

## 4	0	0	0	0	0	0	0
## 5	1	1	1	1	1	1	1
## 6	0	0	0	0	0	0	0
## 7	0	0	0	0	0	0	0
## 8	-1	-1	-1	-1	-1	-1	1
## 9	1	1	1	1	1	-1	-1
## 10	2	2	2	2	2	2	2
## 11	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0
## 13	1	1	1	1	1	1	1
## 14	2	2	2	2	2	2	2
## 15	1	1	1	1	1	1	1
## 16	1	1	1	1	1	1	1
## 17	1	1	1	1	1	1	1
## 18	1	1	1	1	1	1	0
## 19	1	1	1	1	1	1	1
## 20	0	0	0	0	0	0	0
## 21	1	1	1	1	1	1	1
## 22	-1	-1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0
## 25	1	1	1	1	1	1	1
## 26	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1
## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	2	2	2	2	2	2	2

## 36	0	0	0	0	0	0	0
## 37	1	1	1	1	1	1	1
## 38	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1
## 47	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1
## 50	1	1	1	1	1	1	1
## 51	1	1	1	1	1	1	1
## 52	1	1	1	1	1	1	1
## 53	1	1	1	1	1	1	1
## 54	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0

## 68	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	1
## 76	0	0	0	0	0	0	2
## 77	0	0	0	0	0	0	0
## 78	0	0	0	0	0	0	0
## 79	1	1	1	1	1	1	1
## 80	1	1	1	1	1	-1	-1
## 81	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	1	1	1	1	1	1	1
## 84	1	1	1	1	1	1	1
## 85	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1
## 87	1	1	1	1	1	1	1
## 88	1	1	1	1	1	1	1
## 89	1	1	1	1	1	1	1
## 90	1	1	1	1	1	1	1
## 91	1	1	1	1	1	1	1
## 92	1	1	1	1	0	0	0
## 93	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1
## 96	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0
## 98	1	1	1	1	1	1	1
## 99	1	1	1	1	1	1	1

```
## 100         1        1         1        1        1         1       1
## 101         1        1         1        1        1         1       1
## 102         0        0         0        0        0         0       0
## 103         1        1         1        1        1         1       1
## 104         1        1         1        1        1         1       1
## 105         1        1         1        1        1         1       1
## 106         1        1         1        1        1         1       1
## 107         1        1         1        1        1         1       1
## 108         1        1         1        1        1         1       1
## 109         0        0         0        0        0         0       0
## 110         0        0         0        0        0         0       0
## 111         0        0         0        0        0         0       0
## 112         0        0         0        0        0         0       0
## 113         1        1         1        1        1         1       1
## 114         1        1         1        1        1         1       1
## 115        -1       -1        -1       -1       -1        -1      -1
## 116         1        1         1        1        1         1       1
##     cn_GRIN2A cn_TNFRSF17 cn_SHISA9 cn_ABCC6 cn_MPV17L cn_MYH11 cn_PLA2G10
## 1           1           1         1        1         1        1          1
## 2           1           2         0        0         0        0          0
## 3           1           1         1        1         1        1          1
## 4           0           0         0        0         0        0          0
## 5           1           1         1        1         1        1          1
## 6           0           0         0        1         1        1          1
## 7           0           0         0        0         0        0          0
## 8          -1          -1         1        1         1        1          1
## 9          -1          -1         0       -1        -1       -1         -1
## 10          2           2         2        2         2        2          2
## 11          0           0         0        0         0        0          0
## 12          0           0         0        0         0        0          0
## 13          1           1         1        1         1        1          1
## 14          2           2         2        2         2        2          2
```

## 15	1	1	1	1	1	1	1
## 16	1	1	1	1	1	1	1
## 17	1	1	1	1	1	1	1
## 18	0	-1	-1	0	0	0	0
## 19	1	1	1	1	1	1	1
## 20	0	0	0	0	0	0	0
## 21	1	1	1	1	1	1	1
## 22	-1	1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0
## 25	1	1	1	1	1	1	1
## 26	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1
## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0
## 37	1	1	1	1	1	1	1
## 38	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1

## 47	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1
## 50	1	1	1	1	1	1	1
## 51	1	1	1	1	1	1	1
## 52	1	1	1	1	1	1	1
## 53	1	1	1	1	1	1	1
## 54	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1
## 76	2	0	0	1	1	1	1
## 77	0	0	0	0	0	0	0
## 78	−1	−1	−1	−1	−1	−1	−1

## 79	1	1	1	1	1	1	1
## 80	-1	-1	-1	1	1	1	1
## 81	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	1	1	1	1	1	1	1
## 84	1	1	1	1	1	1	1
## 85	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1
## 87	1	1	1	1	1	1	1
## 88	1	1	1	1	1	1	1
## 89	1	1	1	1	1	1	1
## 90	1	1	1	1	1	1	1
## 91	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0
## 93	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1
## 96	0	0	2	0	0	0	0
## 97	0	0	0	0	0	0	0
## 98	1	1	1	1	1	1	1
## 99	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1
## 101	1	1	1	1	1	1	1
## 102	0	0	0	0	0	0	0
## 103	1	1	1	1	1	1	1
## 104	1	1	1	1	1	1	1
## 105	1	1	1	1	1	1	1
## 106	1	1	1	1	1	1	1
## 107	1	1	1	1	1	1	1
## 108	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0
## 110	0	0	0	0	0	0	0

```
## 111          0           0         0        0         0        0          0
## 112          0           0         0        0         0        0          0
## 113          1           1         1        1         1        1          1
## 114          1           1         1        1         1        1          1
## 115         -1          -1        -1       -1        -1       -1         -1
## 116          1           1         1        1         1        1          1
##      cn_SYT17 cn_TMC5 cn_GP2 cn_ACSM5 cn_ACSM1 cn_DNAH3 cn_CRYM cn_SCNN1G
## 1           1       1      1        1        1        1       1         1
## 2           0       0      0        0        0        0       0         0
## 3           1       1      1        1        1        1       1         1
## 4           0       0      0        0        0        0       0         0
## 5           1       1      1        1        1        1       1         1
## 6           1       1      1        1        1        1       1         1
## 7           0       0      0        0        0        0       0         0
## 8           1       1      1        1        1        1       1        -1
## 9          -1      -1     -1       -1       -1       -1      -1        -1
## 10          2       2      2        2        2        2       2         2
## 11          0       0      0        0        0        0       0         0
## 12          0       0      0        0        0        0       0         0
## 13         -1      -1     -1       -1       -1       -1      -1        -1
## 14          2       2      2        2        2        2       2         2
## 15          1       1      1        1        1        1       1         1
## 16          1       1      1        1        1        1       1         1
## 17          1       1      1        1        1        1       1         1
## 18          0       0      0        0        0        0       0         0
## 19          1       1      1        1        1        1       1         1
## 20          0       0      0        0        0        0       0         0
## 21          1       1      1        1        1        1       1         1
## 22         -1      -1     -1       -1       -1       -1      -1        -1
## 23          0       0      0        0        0        0       0         0
## 24          0       0      0        0        0        0       0         0
## 25          1       1      1        1        1        1       1         1
```

## 26	1	1	1	1	1	1	1	1
## 27	1	1	1	1	1	1	1	1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2	2
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	1	1	1	1	1	1	1	1
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1	1
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1	1
## 50	1	1	1	1	1	1	1	1
## 51	1	1	1	1	1	1	1	1
## 52	1	1	1	1	1	1	1	1
## 53	1	1	1	1	1	1	1	1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0

## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	1	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1	1
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1	1
## 76	0	0	0	0	0	0	0	0
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	1	1	1	1	1	1	1	1
## 84	1	1	1	1	1	1	1	1
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	1	1	1	1	1	1	1	1
## 88	1	1	1	1	1	1	1	1
## 89	1	1	1	1	1	1	1	1

```
## 90         1       1      1        1        1        1       1         1
## 91         1       1      1        1        1        1       1         1
## 92         0       0      0        0        0        0       0         0
## 93         0       0      0        0        0        0       0         0
## 94         0       0      0        0        0        0       0         0
## 95         1       1      1        1        1        1       1         1
## 96         0       0      0        0        0        0       0         0
## 97         0       0      0        0        0        0       0         0
## 98         1       1      1        1        1        1       1         1
## 99         1       1      1        1        1        1       1         1
## 100        1       1      1        1        1        1       1         1
## 101        1       1      1        1        1        1       1         1
## 102        0       0      0        0        0        0       0         0
## 103        1       1      1        1        1        1       1         1
## 104        1       1      1        1        1        1       1         1
## 105        1       1      1        1        1        1       1         1
## 106        1       1      1        1        1        1       1         1
## 107        1       1      1        1        1        1       1         1
## 108        1       1      1        1        1        1       1         1
## 109        0       0      0        0        0        0       0         0
## 110        0       0      0        0        0        0       0         0
## 111        0       0      0        0        0        0       0         0
## 112        0       0      0        0        0        0       0         0
## 113        1       1      1        1        1        1       1         1
## 114        1       1      1        1        1        1       1         1
## 115       -1      -1     -1       -1       -1       -1      -1        -1
## 116        1       1      1        1        1        1       1         1
##     cn_SCNN1B cn_HS3ST4 cn_CD19 cn_ASPHD1 cn_DOC2A cn_FAM57B cn_SEZ6L2 cn_PYDC1
## 1           1         1       1         1        1         1         1        1
## 2           0         0       0         0        0         0         0        0
## 3           1         1       1         1        1         1         1        1
## 4           0         0       0         0        0         0         0        0
```

## 5	1	1	1	1	1	1	1	1
## 6	1	1	1	1	1	1	1	1
## 7	0	0	0	0	0	0	0	0
## 8	-1	-1	1	1	1	1	1	1
## 9	-1	-1	-1	-1	-1	-1	-1	-1
## 10	2	2	2	2	2	2	2	2
## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	-1	-1	-1	-1	-1	-1	-1	-1
## 14	2	2	2	2	2	2	2	2
## 15	1	1	1	1	1	1	1	1
## 16	1	1	1	1	1	1	1	1
## 17	1	1	1	1	1	1	1	1
## 18	0	0	1	1	1	1	1	1
## 19	1	1	1	1	1	1	1	1
## 20	0	0	0	0	0	0	0	0
## 21	1	1	1	1	1	1	1	1
## 22	-1	-1	1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0
## 25	1	1	1	1	1	1	1	1
## 26	1	1	1	-1	-1	-1	-1	-1
## 27	1	1	1	1	1	1	1	1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	2	2	2	2	2	2	2	2
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0

## 37	1	1	1	1	1	1	1	1
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1	1
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1	1
## 50	1	1	1	1	1	1	1	1
## 51	1	1	1	1	1	1	1	1
## 52	1	1	1	1	1	1	1	1
## 53	1	1	1	1	1	1	1	1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	1	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	0	1	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1	1

## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1	1
## 76	0	1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	1	1	1	1	1	1	1	1
## 84	1	1	1	1	1	1	1	1
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	1	1	1	1	1	1	1	1
## 88	1	1	1	1	1	1	1	1
## 89	1	1	1	1	1	1	1	1
## 90	1	1	1	1	1	1	1	1
## 91	1	1	1	1	1	1	1	1
## 92	0	0	0	0	0	0	0	0
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	1	1	1	1	1	1	1	1
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	1	1	1	1	1	1	1	1
## 99	1	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1	1

```
## 101          1          1          1          1          1          1          1         -1
## 102          0          0          0          0          0          0          0          0
## 103          1          1          1          1          1          1          1          1
## 104          1          1          1          1          1          1          1          1
## 105          1          1          1          0          0          0          0          0
## 106          1          1          1          1          1          1          1          1
## 107          1          1          1          1          1          1          1          1
## 108          1          1          1          1          1          1          1          1
## 109          0          0          0          0          0          0          0          0
## 110          0          0          1          1          1          1          1          1
## 111          0          0          0          0          0          0          0          0
## 112          0          0          0          0          0          0          0          0
## 113          1          1          1          1          1          1          1          1
## 114          1          1          1          1          1          1          1          1
## 115         -1         -1         -1         -1         -1         -1         -1         -1
## 116          1          1          1          1          1          1          1          1
##      cn_ABCC12 cn_ABCC11 cn_CBLN1 cn_TOX3 cn_IRX6 cn_SLC6A2 cn_CES1 cn_MT1M
## 1           -1        -1        -1      -1      -1        -1      -1      -1
## 2            0         0         0       0      -1        -1      -1      -1
## 3            1         1         1       1       1         1       1       1
## 4            0         0         0       0       0         0       0       0
## 5            1         1         1       1      -2        -2      -2      -2
## 6            1         1         1       1      -1        -1      -1      -1
## 7            0         0         0       0       0         0       0       0
## 8            1         1         1       1       2         2       2       2
## 9            1        -1         0      -1      -1        -1      -1      -1
## 10          -1        -1        -1      -1      -1        -1      -1      -1
## 11           0         0         0       0       0         0       0       0
## 12           0         0         0       1       2         2       2       2
## 13          -1        -1        -1      -1      -1        -1      -1      -1
## 14          -1        -1        -1      -1      -1        -1      -1      -1
## 15          -1        -1        -1      -1      -1        -1      -1      -1
```

## 16	-1	-1	-1	-1	-1	-1	-1	-1
## 17	1	1	1	1	1	1	1	-1
## 18	-1	-1	-1	-1	-1	-1	-1	-1
## 19	-2	-1	-1	-1	-1	-1	-1	-1
## 20	0	0	0	0	0	0	0	0
## 21	1	1	1	1	1	1	1	1
## 22	-1	-1	-1	-1	-1	-1	-1	-1
## 23	2	2	2	2	2	2	2	-1
## 24	0	0	0	0	0	0	0	0
## 25	-2	-1	-1	-1	-1	-1	-1	-1
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	2	-1	-1	-1	-1	-1	-1	-1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	-1
## 34	-1	-1	-1	-1	-1	-1	-1	-1
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	2	2	2	0	-1	-1	-1	-1
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	0	0	0	0
## 40	1	0	0	0	0	0	0	0
## 41	0	0	0	0	0	0	0	0
## 42	1	1	1	1	-1	-1	-1	1
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	1	1	1	1
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	-1	-1	-1	-1	-1	-1	-1	-1
## 47	-1	-1	-1	-1	-1	-1	-1	-1

## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	-1	-1	-1	-1	-1	-1	-1	-1
## 50	-1	-1	-1	-1	-1	-1	-1	-1
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	0	0	0	0	1	1	1	1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	0	0	0	0
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1	-1
## 59	-1	-1	-1	-1	0	0	0	0
## 60	1	1	1	1	1	1	1	1
## 61	-1	-1	-1	-1	-1	-1	-1	-1
## 62	1	1	1	1	1	1	1	1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	1	1	-1	-1	-1	-1	-1	-1
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1
## 75	-1	-1	-1	-1	-1	-1	-1	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	1	1	1	1
## 79	-1	-1	-1	-1	-1	-1	-1	-1

## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	-1	-1	-1	-1	-1	-1	-1	-1
## 87	-1	-1	-1	-1	-1	-1	-1	-1
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	1	1	1	1	1	1	1	1
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	0	0	0	0	0	0	0	0
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	-1	-1	-1	-1	-1	-1	-1	-1
## 95	-1	-1	-1	-1	-1	-1	-1	-1
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	1
## 98	-1	-1	-1	-1	-1	-1	-1	-1
## 99	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0
## 101	1	1	1	1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0	0
## 103	-1	-1	-1	-1	-1	-1	-1	-1
## 104	1	1	1	1	1	1	1	-1
## 105	0	0	0	0	0	0	0	0
## 106	-1	-1	-1	-1	-1	-1	-1	-1
## 107	-2	-2	-2	-2	-2	-2	-2	-2
## 108	0	-1	-1	-1	-1	-1	-1	-1
## 109	0	0	0	0	0	0	0	0
## 110	2	2	-1	1	1	-1	-1	-1
## 111	0	0	-1	-1	-1	-1	-1	-1

```
## 112        -1        -1       -1      -1      -1        -1      -1      -1
## 113        -1        -1       -1      -1      -1        -1      -1      -1
## 114        -1        -1       -1      -1      -1        -1      -1      -1
## 115        -1        -1       -1      -1      -1        -1      -1      -1
## 116        -1        -1       -1      -1      -1        -1      -1      -1
##      cn_MT1A cn_MT1G cn_CCL17 cn_RRAD cn_CES3 cn_RLTPR cn_CDH3 cn_CDH1 cn_HAS3
## 1        -1      -1       -1      -1      -1       -1      -1      -1      -1
## 2        -1      -1       -1      -1      -1       -1      -1      -1      -1
## 3         1       1        1       1       1        1       1       1       1
## 4         0       0        0       0       0        0       0       0       0
## 5        -2      -2       -2      -2      -2       -2      -2      -2      -2
## 6        -1      -1       -1      -1      -1       -1      -1      -1      -1
## 7         0       0        0       0       0        0       0       0       0
## 8         2       2        1       1       1        1       1       1       1
## 9        -1      -1       -1       1       1       -1      -1      -1      -1
## 10       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 11        0       0        0       0       0        0       0       0       0
## 12        2       2        0       0       0        0       0       0       0
## 13       -1      -1       -1       1       1        1       1       1       1
## 14       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 15       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 16       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 17       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 18       -1      -1       -1      -1      -1       -1       0       0       0
## 19       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 20        0       0        0       0       0        0       0       0       0
## 21        1       1        1      -1      -1       -1      -1      -1      -1
## 22       -1      -1        1       1       1        1       1       1       1
## 23       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 24        0       0        0       1       1        1       1       1       1
## 25       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 26       -1      -1       -1      -1      -1       -1      -1      -1      -1
```

## 27	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 32	1	1	1	-1	-1	-1	-1	-1	-1
## 33	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 34	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 35	-1	-1	-1	-1	-1	-1	1	1	1
## 36	0	0	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 38	1	1	1	1	1	1	1	1	1
## 39	0	0	0	0	0	0	0	0	0
## 40	0	0	0	0	0	0	0	0	0
## 41	0	0	0	0	0	0	0	0	0
## 42	1	1	1	-1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0	0	0
## 44	1	1	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 46	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 47	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 48	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 49	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 50	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 51	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 53	1	1	1	1	1	1	1	1	1
## 54	1	1	1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0	0	0
## 57	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1	-1	-1

## 59	0	0	-1	-1	-1	-1	-1	-1	-1
## 60	1	1	1	1	1	1	1	1	1
## 61	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 62	1	1	1	1	1	1	1	1	1
## 63	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 69	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 70	0	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0	0
## 72	0	0	0	-1	-1	-1	-1	-2	-1
## 73	0	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 75	0	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0	0
## 78	1	1	1	-1	-1	-1	-1	-1	-1
## 79	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 80	-1	-1	-1	-1	-1	-1	-1	1	-1
## 81	0	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 86	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 87	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 88	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 89	1	1	1	1	1	1	1	1	1
## 90	-1	-1	-1	-1	-1	-1	-1	-1	-1

```
## 91       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 92        0       0        0       0       0        0       0       0       0
## 93       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 94       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 95       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 96        0       0        0       0       0        0       0       0       0
## 97        1       1        0       0       0        0       0       0       0
## 98       -1      -1       -1      -1      -1       -1      -1      -1      -1
## 99        1       1        1       1       1        1       1       1       1
## 100       0       0        0       0       0        0       0       0       0
## 101      -1      -1       -1      -1      -1       -1      -1      -1      -1
## 102       0       0        0       0       0        0       0       0       0
## 103      -1      -1       -1      -1      -1       -1      -1      -1      -1
## 104      -1      -1       -1      -1      -1       -1      -1      -1      -1
## 105       0       0        0       0       0        0       0       0       0
## 106      -1      -1       -1      -1      -1       -1      -1      -1      -1
## 107      -2      -2       -2      -2      -2       -2      -2      -2      -2
## 108      -1      -1       -1      -1      -1       -1      -1      -1      -1
## 109       0       0        0       0       0        0       0       0       0
## 110      -1      -1       -1       0       0        0       0       0       0
## 111      -1      -1       -1       1       1        1       1       2       1
## 112      -1      -1       -1      -1      -1       -1      -1      -1      -1
## 113      -1      -1       -1      -1      -1       -1      -1      -1      -1
## 114      -1      -1       -1      -1      -1       -1      -1      -1      -1
## 115      -1      -1       -1      -1      -1       -1      -1      -1      -1
## 116      -1      -1       -1      -1      -1       -1      -1      -1      -1
##     cn_IL34 cn_CALB2 cn_CHST4 cn_TAT cn_HP cn_SYCE1L cn_ADAMTS18 cn_CLEC3A
## 1        -1       -1       -1     -1    -1        -1          -1        -1
## 2        -1       -1       -1     -1    -1        -1          -1        -1
## 3         1        1        1      1     1         1           1         1
## 4         0        0        0      0     0         0           0         0
## 5        -2       -2       -2     -2    -2        -2          -2        -2
```

## 6	1	1	1	1	1	1	2	1
## 7	0	0	0	0	0	0	0	0
## 8	1	1	1	1	1	1	1	1
## 9	-1	2	2	2	2	-1	-1	-1
## 10	-1	-1	-1	-1	-1	-1	-1	-1
## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	1	1	1	1	1	1	1	1
## 14	-1	-1	-1	-1	-1	-1	-1	-1
## 15	-1	-1	-1	-1	-1	-1	-1	-1
## 16	-1	-1	-1	-1	-1	-1	-1	-1
## 17	-1	-1	-1	-1	-1	-1	-1	-1
## 18	-1	-1	0	0	-1	0	0	0
## 19	-1	-1	-1	-1	-1	-1	-1	-1
## 20	0	0	0	0	0	0	0	0
## 21	-1	-1	-1	-1	-1	-1	-1	-1
## 22	-1	-1	-1	-1	-1	-1	-1	-1
## 23	-1	-1	-1	-1	-1	-1	-1	-1
## 24	1	1	1	1	1	1	1	1
## 25	-1	-1	-1	-1	-1	-1	-1	-1
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	-1	-1	-1	-1
## 33	0	0	0	-1	-1	-1	-1	-1
## 34	-1	-1	-1	-1	-1	-1	-1	-1
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	-1	-1

## 38	1	1	1	1	1	1	1	1
## 39	0	0	0	0	0	0	0	0
## 40	0	0	0	0	0	0	0	0
## 41	0	0	0	0	0	0	0	0
## 42	-1	-1	-1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1	-1
## 46	-1	-1	-1	-1	-1	-1	-1	-1
## 47	-1	-1	-1	-1	-1	-1	-1	-1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	-1	-1	-1	-1	-1	-1	-1	-1
## 50	-1	-1	-1	-1	-1	-1	-1	-1
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	1	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0	0
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1	-1
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	1	1	1	1	1	1	1	1
## 61	-1	-1	-1	-1	-1	-1	-1	-1
## 62	1	1	1	1	1	1	1	1
## 63	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	-1	-1	-1
## 67	0	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	-1	-1
## 69	-1	-1	-1	-1	-1	-1	-1	-1

## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	-1	-1	-1	-1	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0	0
## 74	-1	-1	-1	-1	-1	-1	-1	-1
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	-1	-1	-1	-1	-1	-1	-1	-1
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	-1	-1	-1	-1	-1	-1	-1	-1
## 87	-1	-1	-1	-1	-1	-1	-1	-1
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	1	1	1	1	1	1	1	1
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	0	0	0	0	0	1	1	1
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	-1	-1	-1	-1	-1	-1	-1	-1
## 95	-1	-1	-1	-1	-1	-1	-1	-1
## 96	0	0	0	0	0	0	0	0
## 97	0	1	1	1	1	0	0	0
## 98	-1	-1	-1	-1	-1	-1	-1	-1
## 99	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1

```
## 102       0        0        0      0     0         0           0         0
## 103      -1       -1       -1     -1    -1         1           1         1
## 104      -1       -1       -1     -1    -1        -1          -1        -1
## 105       0        0        0      0     0         0           0         0
## 106      -1       -1       -1     -1    -1        -1          -1        -1
## 107      -2       -2       -2     -2    -2        -2          -2        -2
## 108      -1       -1       -1     -1    -1        -1          -1        -1
## 109       0        0        0      0     0         0           0         0
## 110       0        0        0      0     0         0           0         0
## 111       1        1        1      1     1         1           1         1
## 112      -1       -1       -1     -1    -1        -1          -1        -1
## 113      -1       -1       -1     -1    -1        -1          -1        -1
## 114      -1       -1       -1     -1    -1        -1          -1        -1
## 115      -1       -1       -1     -1    -1        -1          -1        -1
## 116      -1       -1       -1     -1    -1        -1          -1        -1
##     cn_PKD1L2 cn_SDR42E1 cn_HSD17B2 cn_CPNE7 cn_DPEP1 cn_TUBB3 cn_CCDC144B
## 1          -1         -1         -1       -1       -1       -1          -1
## 2          -1         -1         -1       -1       -1       -1           0
## 3           1          1          1        1        1        1          -1
## 4           0          0          0        0        0        0          -1
## 5          -2         -2         -2       -2       -2       -2           0
## 6           2          2          2        2        2        2          -1
## 7           0          0          0        0        0        0           0
## 8           1          1          1        1        1        1          -1
## 9          -1         -1         -1       -1       -1       -1          -1
## 10         -1         -1         -1       -1       -1       -1          -1
## 11          0          0          0        0        0        0          -1
## 12          0          0          0        0        0        0           0
## 13          1          1          1        1        1        1          -1
## 14         -1         -1         -1       -1       -1       -1           0
## 15         -1         -1         -1       -1       -1       -1           0
## 16         -1         -1         -1       -1       -1       -1           0
```

## 17	-1	-1	-1	-1	-1	-1	-1
## 18	-1	-1	-1	-1	-1	-1	-2
## 19	-1	-1	-1	-1	-1	-1	-1
## 20	0	0	0	0	0	0	-1
## 21	-1	-1	-1	-1	-1	-1	1
## 22	-1	-1	-1	-1	-1	-1	-1
## 23	-1	-1	-1	-2	-2	-2	-1
## 24	1	1	1	2	2	2	0
## 25	-1	-1	-1	-1	-1	-1	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	-1	-1	-1	-1	-1	-1	-1
## 29	0	0	0	-1	-1	-1	0
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	1
## 32	-1	-1	-1	-1	-1	-1	-1
## 33	-1	-1	-1	-1	-1	-1	0
## 34	-1	-1	-1	-1	-1	-1	0
## 35	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	0
## 38	1	1	1	1	1	1	-1
## 39	0	0	0	0	0	0	-1
## 40	0	0	0	0	0	0	-1
## 41	0	0	0	-1	-1	-1	0
## 42	-1	-1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	-1
## 45	-1	-1	-1	-1	-1	-1	0
## 46	-1	-1	-1	-1	-1	-1	0
## 47	-1	-1	-1	-1	-1	-1	0
## 48	-1	-1	-1	-1	-1	-1	-1

## 49	-1	-1	-1	-1	-1	-1	1
## 50	-1	-1	-1	-1	-1	-1	0
## 51	-1	-1	-1	1	1	1	-1
## 52	-1	-1	-1	-1	-1	-1	0
## 53	0	0	0	0	0	0	-1
## 54	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	1
## 57	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1
## 59	-1	-1	-1	-1	-1	-1	1
## 60	1	1	1	1	1	1	-1
## 61	-1	0	0	-1	-1	-1	1
## 62	1	1	1	1	1	1	-1
## 63	-1	-1	-1	-1	-1	-1	1
## 64	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	-1
## 66	-1	-1	-1	-1	-1	-1	0
## 67	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	1
## 69	-1	-1	-1	-1	-1	-1	-1
## 70	0	0	0	0	0	0	-1
## 71	0	0	0	0	0	0	0
## 72	-1	-1	-1	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0
## 74	-1	-1	-1	-2	-2	-2	-1
## 75	0	0	0	-1	-1	-1	0
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	1
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	-1	-1	-1	-1	-1	-1	0
## 80	-1	-1	-1	-1	-1	-1	-1

## 81	0	0	0	0	0	0	0
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	-2
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	-1	-1	-1	-1	-1	-1	-1
## 87	-1	-1	-1	-1	-1	-1	0
## 88	-1	-1	-1	-1	-1	-1	-1
## 89	1	1	1	1	1	1	0
## 90	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1
## 92	0	0	0	0	0	0	-1
## 93	-1	-1	-1	-1	-1	-1	-1
## 94	-1	-1	-1	-1	-1	-1	-1
## 95	-1	-1	-1	-1	-1	-1	0
## 96	0	0	0	0	0	0	-1
## 97	0	0	0	0	0	0	-1
## 98	-1	-1	-1	-1	-1	-1	1
## 99	1	1	1	1	1	1	-1
## 100	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0
## 103	-1	-1	-1	-1	-1	-1	0
## 104	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	-1	-1	-1	-1
## 106	-1	-1	-1	-1	-1	-1	-1
## 107	-2	-2	-2	1	1	1	0
## 108	-1	-1	-1	-1	-1	-1	-1
## 109	0	0	0	-2	-2	-2	0
## 110	0	0	0	0	0	0	-1
## 111	1	-1	-1	-1	-1	-1	-1
## 112	-1	-1	-1	-1	-1	-1	-1

```
## 113        -1         -1         -1       -1       -1       -1           0
## 114        -1         -1         -1       -1       -1       -1           0
## 115        -1         -1         -1       -1       -1       -1          -1
## 116        -1         -1         -1       -1       -1       -1           0
##     cn_MFAP4 cn_ALDH3A1 cn_SLC13A2 cn_CORO6 cn_SLC6A4 cn_RHBDL3 cn_CCL11
## 1         -1         -1          0        0         0         0        0
## 2          0          0          0        0         0         1        1
## 3         -1         -1          1        1         1         1        1
## 4         -1         -1          0        0         0         0        0
## 5          0          0          0        0         0         0        0
## 6         -1         -1         -1       -1        -1        -1       -1
## 7          0          0          0        0         0         0        0
## 8         -1         -1         -1       -1        -1        -1       -1
## 9         -1         -1         -1       -1        -1        -1       -1
## 10        -1         -1          0        0         0         0        0
## 11        -1         -1          0        0         0         0        0
## 12         0          0          0        0         0         0        0
## 13        -1         -1         -1       -1        -1        -1       -1
## 14         0          0          0        0         0         0        0
## 15         0          0          0        0         0         0        0
## 16         0          0          0        0         0         0        0
## 17        -1         -1          1        1         1         1        1
## 18        -2         -2          2        2         2         2        2
## 19        -1         -1         -1       -1        -1        -1       -1
## 20        -1         -1         -1       -1        -1        -1       -1
## 21         1          1          1        2         2         1        2
## 22        -1         -1         -1       -1        -1        -1       -1
## 23        -1         -1         -1       -1        -1        -1       -1
## 24         0          0          0        0         0         0        0
## 25         0          0          0        0         0         0        0
## 26        -1         -1          1        1         1         1        1
## 27        -1         -1          0        0         0         0        0
```

## 28	-1	-1	1	1	1	1	0
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	2	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	-1	-1	0	0	0	0	0
## 39	-1	-1	-1	-1	-1	-1	-1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0
## 42	-1	-1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0
## 44	-1	-1	0	0	0	0	0
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	-1
## 49	1	1	1	1	1	1	1
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	1	1	-1	-1
## 52	0	0	0	0	0	0	0
## 53	-1	-1	1	1	1	-1	-1
## 54	-1	-1	0	0	0	0	0
## 55	0	0	0	0	0	0	0
## 56	1	1	-1	-1	-1	1	1
## 57	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1
## 59	2	2	0	0	0	0	1

## 60	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0
## 62	-1	-1	2	2	2	-1	2
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	-1	-1	1	1	1	1	1
## 69	-1	-1	-1	-1	-1	-1	-1
## 70	1	1	1	2	2	-1	-1
## 71	0	0	0	0	0	0	0
## 72	-1	-1	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	-1	-1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	-1	-1	1	1	1	-1	-1
## 77	1	1	1	0	0	0	-1
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	0
## 81	0	0	0	0	0	0	0
## 82	-1	-1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	-2	-2	1	1	1	1	1
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	-1	-1	1	1	1	1	1
## 87	0	0	0	0	0	0	0
## 88	-1	-1	0	0	0	-1	-1
## 89	0	0	0	0	0	0	0
## 90	-1	-1	0	0	0	1	0
## 91	-1	-1	-1	-1	-1	-1	-1

```
## 92        -1         -1         -1       -1        -1        -1       -1
## 93        -1         -1          1        1         1        -1       -1
## 94        -1         -1         -1       -1        -1        -1       -1
## 95         0          0          0        0         0         0        0
## 96        -1         -1          0        0        -1        -1       -1
## 97         1          0          0        0         0         0        0
## 98         1          1         -1       -1        -1        -1       -1
## 99        -1         -1          1        1         1         1        1
## 100        0          0          0        0         0         0        0
## 101       -1         -1          1        1         1         1        1
## 102        0          0          0        0         0         0        0
## 103        0          0          0        0         0         0        0
## 104       -1         -1         -1       -1        -1        -1       -1
## 105       -1         -1          0        0         0         0        0
## 106        1          1          1        1         1         1        1
## 107        0          0          0        0         0         0        0
## 108       -1         -1          1        1         1         1        1
## 109        0          0          0        0         0         0        0
## 110       -1         -1         -1       -1        -1         2        2
## 111       -1         -1          0        0         0         0        0
## 112       -1         -1          2       -1         0         0        0
## 113        0          0          1        1         1         1        1
## 114        0          0          0        0         0         0        0
## 115        1          1         -1       -1        -1        -1       -1
## 116        0          0          0        0         0         0        0
##     cn_CCL13 cn_CCL7 cn_CCL8 cn_GAS2L2 cn_CCL14 cn_CCL18 cn_TBC1D3C cn_TBC1D3G
## 1          0       0       0         0        0        0          0          0
## 2          1       1       1         0        1        1          1          1
## 3          1       1       1         1        1        1          1          1
## 4          0       0       0         0        0        0          0          0
## 5          0       0       0         0        0        0          0          0
## 6         -1      -1      -1        -1       -1       -1         -1         -1
```

## 7	0	0	0	0	0	0	0	0
## 8	-1	-1	-1	-1	-1	-1	-1	-1
## 9	-1	-1	-1	-1	-1	-1	-1	-1
## 10	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	-1	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1
## 18	2	2	2	2	2	2	2	2
## 19	-1	-1	-1	-1	-1	-1	-1	-1
## 20	-1	-1	-1	-1	-1	-1	-1	-1
## 21	2	2	2	2	2	2	2	2
## 22	-1	-1	-1	-1	-1	-1	-1	-1
## 23	-1	-1	-1	-1	-1	-1	-1	-1
## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	0	0	0	0	0	0	0	0
## 28	0	0	0	0	0	0	0	0
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0

## 39	-1	-1	-1	-1	-1	-1	-1	-1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	-1	-1	-1	-1	-1	-1	-1	-1
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	-1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	1	1	1	1
## 49	1	1	1	1	1	1	1	1
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1	-1
## 59	1	1	1	1	1	1	1	1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	2	2	2	2	2	2	2	2
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	1	1	1	1	1	1	1	1
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	-1	1	0	0	0	0

## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	-1	-1	-1	-1	-1	-1	-1	-1
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	0	0	0	0	0	0	0	0
## 81	0	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	1	1	1	1	1	1	1	1
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	0	0	0	0	0	0	0	0
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	-1	-1	-1	-1	-1	-1	-1	-1
## 95	0	0	0	0	0	0	0	0
## 96	-1	-1	-1	0	0	1	1	1
## 97	0	0	0	0	0	0	0	0
## 98	-1	-1	-1	-1	-1	-1	-1	-1
## 99	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0
## 101	1	1	1	1	1	1	1	1
## 102	0	0	0	0	0	0	0	0

```
## 103        0       0       0        0       0       0         0         0
## 104       -1      -1      -1       -1      -1      -1        -1        -1
## 105        0       0       0        0       0       0         0         0
## 106        1       1       1        1       1       1         1         1
## 107        0       0       0        0       0       0         0         0
## 108        1       1       1        1       1       1         1         1
## 109        0       0       0        0       0       0         0         0
## 110        2       2       2        1       1       1         1         1
## 111        0       0       0        0       0       0         0         0
## 112        0       0       0        0       0       0         0         0
## 113        1       1       1        1       1       1         1         1
## 114        0       0       0        0       0       0         0         0
## 115       -1      -1      -1       -1      -1      -1        -1        -1
## 116        0       0       0        0       0       0         0         0
##     cn_STAC2 cn_PPP1R1B cn_PNMT cn_IKZF3 cn_TOP2A cn_TNS4 cn_CCR7 cn_KRT23
## 1          0          0       0        0        0       0       0        0
## 2          1          1       1        1        1       1       1        1
## 3          1          1       1        1        1       1       1        1
## 4          0          0       0        0        0       0       0        0
## 5          0          0       0        0        0       0       0        0
## 6         -1         -1      -1       -1       -1      -1      -1       -1
## 7          0          0       0        0        0       0       0        0
## 8         -1         -1      -1       -1       -1      -1      -1       -1
## 9         -1         -1      -1       -1       -1      -1      -1       -1
## 10         0          0       0        0        0       0       0        0
## 11         0          0       0        0        0       0       0        0
## 12         0          0       0        0        0       0       0        0
## 13        -1         -1      -1       -1       -1      -1      -1       -1
## 14         0          0       0        0        0       0       0        0
## 15         0          0       0        0        0       0       0        0
## 16         0          0       0        0        0       0       0        0
## 17         1          1       1        1        1       1       1        1
```

## 18	2	2	2	2	2	2	2	2
## 19	-1	-1	-1	-1	-1	-1	-1	-1
## 20	-1	-1	-1	-1	-1	-1	-1	-1
## 21	1	2	2	2	1	1	1	1
## 22	-1	-1	-1	-1	-1	-1	-1	-1
## 23	-1	2	2	2	0	0	0	1
## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	0	0	0	0	0	0	0	0
## 28	0	0	0	0	0	0	0	0
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	2	2	2	2	0	0	0	0
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	-1	-1	-1	-1	-1	-1	-1	-1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	2	2	2	2	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1	1

## 50	0	0	0	0	0	0	0	0
## 51	1	1	1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	2	2	2	2	-1	-1	-1	-1
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	2	2	2	2	-1	-1	-1	-1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1	-1
## 59	1	1	1	1	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	-1	-1
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	0	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	-1	-1	-1	-1	-1	-1	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	0	2	2	0	1	1	1	0
## 81	0	0	0	0	0	0	0	0

## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	1	1	1	1	1	1	1	1
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	1	2	2	2	2	2	2	2
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	-1	-1	-1	-1	-1	-1	-1	-1
## 95	0	0	0	0	0	0	0	0
## 96	2	2	2	2	-1	-1	-1	-1
## 97	0	1	1	0	0	0	0	0
## 98	2	2	2	2	2	2	2	2
## 99	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0
## 101	1	1	1	1	1	1	1	1
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	0	0	0	1	1
## 106	1	1	1	1	1	1	1	1
## 107	0	0	0	0	0	0	0	0
## 108	1	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0	0
## 110	-1	2	2	2	2	-1	-1	-1
## 111	0	0	0	0	0	0	0	0
## 112	0	0	0	0	0	0	0	0
## 113	1	1	1	1	1	1	1	1

```
## 114         0          0       0        0        0       0       0        0
## 115         2          2       2        2       -1      -1      -1       -1
## 116         0          0       0        0        0       0       0        0
##      cn_KRT31 cn_KRT13 cn_KRT15 cn_KRT14 cn_KRT16 cn_KRT17 cn_HAP1 cn_WNK4
## 1           0        0        0        0        0        0       0       0
## 2           1        1        1        1        1        1       1       1
## 3           1        1        1        1        1        1       1      -1
## 4           0        0        0        0        0        0       0       0
## 5           0        0        0        0        0        0       0       0
## 6          -1       -1       -1       -1       -1       -1      -1      -1
## 7           0        0        0        0        0        0       0       0
## 8          -1       -1       -1       -1       -1       -1      -1      -1
## 9          -1       -1       -1       -1       -1       -1      -1       2
## 10          0        0        0        0        0        0       0       0
## 11          0        0        0        0        0        0       0       0
## 12          0        0        0        0        0        0       0       0
## 13         -1       -1       -1       -1       -1       -1      -1      -1
## 14          0        0        0        0        0        0       0       0
## 15          0        0        0        0        0        0       0       0
## 16          0        0        0        0        0        0       0       0
## 17          1        1        1        1        1        1       1       1
## 18          2        2        2        2        2        2       2       2
## 19         -1       -1       -1       -1       -1       -1      -1      -1
## 20         -1       -1       -1       -1       -1       -1      -1      -1
## 21          1        1        1        1        1        1       1      -1
## 22         -1       -1       -1       -1       -1       -1      -1      -1
## 23         -1       -1       -1       -1       -1       -1      -1      -1
## 24          0        0        0        0        0        0       0       1
## 25          0        0        0        0        0        0       0       0
## 26          1        1        1        1        1        1       1       1
## 27          0        0        0        0        0        0       0       0
## 28          0       -1       -1       -1       -1       -1      -1      -1
```

## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	2	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	-1	-1	-1	-1	-1	-1	-1	-1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	1	1	1	1	1	1	1	-1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1	1
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1	-1
## 59	0	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1

## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	-1	-1
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	2	2	2	2	2	2	2	2
## 81	0	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	1	1	1	1	1	1	1	1
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1	-1

```
## 93        -1       -1       -1       -1       -1       -1       -1       -1
## 94        -1       -1       -1       -1       -1       -1       -1       -1
## 95         0        0        0        0        0        0        0        0
## 96        -1       -1       -1       -1       -1       -1       -1       -1
## 97         0        0        0        0        0        0        0        0
## 98         2        2        2        2        2        2        2        1
## 99         1        1        1        1        1        1        1        1
## 100        0        0        0        0        0        0        0        0
## 101        1        1        1        1        1        1        1        1
## 102        0        0        0        0        0        0        0        0
## 103        0        0        0        0        0        0        0        0
## 104       -1       -1       -1       -1       -1       -1       -1       -1
## 105        1        1        1        1        1        1        1        1
## 106        1        1        1        1        1        1        1        1
## 107        0        0        0        0        0        0        0        0
## 108        1        1        1        1        1        1        1        1
## 109        0        0        0        0        0        0        0        0
## 110       -1       -1       -1       -1       -1       -1       -1       -1
## 111        0        0        0        0        0        0        0       -1
## 112        0        0        0        0        0        0        0        0
## 113        1        1        1        1        1        1        1        1
## 114        0        0        0        0        0        0        0        0
## 115       -1       -1       -1       -1       -1       -1       -1       -1
## 116        0        0        0        0        0        0        0        0
##     cn_RND2 cn_ETV4 cn_MEOX1 cn_CD300LG cn_PYY cn_RUNDC3A cn_GFAP cn_KIF18B
## 1         0       0        0          0      0          0       0         0
## 2         1       1        1          1      1          1       1         1
## 3        -1      -1       -1          0      1          1       1         1
## 4         0       0        0          0      0          0       0         0
## 5         0       0        0          0      0          0       0         0
## 6        -1      -1       -1         -1     -1         -1      -1        -1
## 7         0       0        0          0      0          0       0         0
```

```
## 8      -1     -1     -1     -1     -1     -1     -1     -1
## 9       2      1      1      1      1      1      2      2
## 10      0      0      0      0      0      0      0      0
## 11      0      0      0      0      0      0      0      0
## 12      0      0      0      0      0      0      0      0
## 13     -1     -1     -1     -1     -1     -1     -1     -1
## 14      0      0      0      0      0      0      0      0
## 15      0      0      0      0      0      0      0      0
## 16      0      0      0      0      0      0      0      0
## 17      1      1      1      1      1      1      1      1
## 18      2      2      2      2      2      2      2      2
## 19     -1     -1     -1     -1     -1     -1     -1     -1
## 20     -1     -1     -1     -1     -1     -1     -1     -1
## 21     -1     -1     -1     -1     -1     -1     -1     -1
## 22     -1     -1     -1     -1     -1      1     -1     -1
## 23     -1     -1     -1     -1     -1     -1     -1     -1
## 24      1      1      1      1      1      1      1      1
## 25      0      0      0      0      0      0      0      0
## 26      1      1      1      1      1      1      1      1
## 27      0      0      0      0      0      0      0      0
## 28     -1     -1     -1     -1     -1     -1     -1     -1
## 29      0      0      0      0      0      0      0      0
## 30      0      0      0      0      0      0      0      0
## 31      1      1      1      1      1      1      1      1
## 32      1      1      1      1      1      1      1      1
## 33      0      0      0      0      0      0      0      0
## 34      0      0      0      0      0      0      0      0
## 35      0      0      0      0      0      0      0      0
## 36      0      0      0      0      0      0      0      0
## 37      0      0      0      0      0      0      0      0
## 38      0      0      0      0      0      0      0      0
## 39     -1     -1     -1     -1     -1     -1     -1     -1
```

## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	-1	2	-1	-1	2	2	2	2
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1	1
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1	-1
## 59	0	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	-1	-1
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0	0

## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	2	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	1	-1	-1	-1	-1	-1	-1	-1
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	-1	-1	-1	-1	-1	-1	-1	-1
## 94	-1	-1	-1	-1	-1	-1	-1	-1
## 95	0	0	0	0	0	0	0	0
## 96	-1	-1	-1	-1	-1	-1	-1	-1
## 97	0	0	0	0	0	0	0	0
## 98	1	1	1	1	1	1	1	1
## 99	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0
## 101	1	1	1	1	1	1	1	1
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0

```
## 104      -1      -1       -1         -1     -1         -1      -1        -1
## 105       1       1        1          1      1          1       1         1
## 106       1       1        1          1      1          1       1         1
## 107       0       0        0          0      0          0       0         0
## 108       1       1        1          1      1          1       1         1
## 109       0       0        0          0      0          0       0         0
## 110      -1      -1       -1         -1     -1         -1      -1        -1
## 111      -1      -1       -1         -1     -1         -1       0         0
## 112       0       0        0          0      0          0       0         0
## 113       1       1        1          1      1          1       1         1
## 114       0       0        0          0      0          0       0         0
## 115      -1      -1       -1         -1     -1         -1      -1        -1
## 116       0       0        0          0      0          0       0         0
##     cn_CRHR1 cn_MAPT cn_HOXB2 cn_HOXB5 cn_HOXB6 cn_HOXB13 cn_B4GALNT2 cn_NGFR
## 1          0       0        0        0        0         0           0       0
## 2          1       1        1        1        1         1           1       1
## 3          1       1        1        1        1         1           1       1
## 4          0       0        0        0        0         0           0       0
## 5          0       0        0        0        0         0           0       0
## 6         -1      -1       -1       -1       -1        -1          -1      -1
## 7          0       0        0        0        0         0           0       0
## 8         -1      -1       -1       -1       -1        -1          -1      -1
## 9          2       2        1        1        1         1           1       1
## 10         0       0        0        0        0         0           0       0
## 11         0       0        0        0        0         0           0       0
## 12         0       0        0        0        0         0           0       0
## 13        -1      -1       -1       -1       -1        -1          -1      -1
## 14         0       0        0        0        0         0           0       0
## 15         0       0        0        0        0         0           0       0
## 16         0       0        0        0        0         0           0       0
## 17         1       1        1        1        1         1           1       1
## 18         2       2        2        2        2         2           2       2
```

```
## 19      -1      -1      -1      -1      -1      -1      -1      -1
## 20      -1      -1      -1      -1      -1      -1      -1      -1
## 21       2       2       1       1       1       1       1       1
## 22      -1      -1      -1      -1      -1      -1      -1      -1
## 23      -1      -1       2       2       2       2       2       2
## 24       1       1       1       1       1       1       1       1
## 25       0       0       0       0       0       0       0       0
## 26       1       1       1       1       1       1       1       1
## 27       0       0       0       0       0       0       0       0
## 28      -1      -1      -1      -1      -1      -1      -1      -1
## 29       0       0       0       0       0       0       0       0
## 30       0       0       0       0       0       0       0       0
## 31       1       1       1       1       1       1       1       1
## 32       1       1       1       1       1       1       1       1
## 33       0       0       0       0       0       0       0       0
## 34       0       0       0       0       0       0       0       0
## 35       0       0       0       0       0       0       0       0
## 36       0       0       0       0       0       0       0       0
## 37       0       0       0       0       0       0       0       0
## 38       0       0       0       0       0       0       0       0
## 39       1       1       1       1       1       1       1       1
## 40      -1      -1      -1      -1      -1      -1      -1      -1
## 41       0       0       0       0       0       0       0       0
## 42       0       0       0       0       0       0       0       0
## 43       0       0       0       0       0       0       0       0
## 44       2       2       2       2       2       2       2       2
## 45       0       0       0       0       0       0       0       0
## 46       0       0       0       0       0       0       0       0
## 47       0       0       0       0       0       0       0       0
## 48       1       1       1       1       1       1       1       1
## 49       1       1       1       1       1       1       1       1
## 50       0       0       0       0       0       0       0       0
```

## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	-1	-1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	2	2	2	2	2	2
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	-1	-1	1	1	1	1	1	1
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	2	2	2	2	2	2
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	1	1	1	1	1	1	0	-1
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1	1

## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	-1	-1	-1	-1	-1	-1	2	2
## 85	-1	-1	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	-1	-1	-1	-1	-1	-1
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	-1	-1	-1	-1	-1	-1	0	0
## 92	-1	-1	-1	-1	-1	2	2	2
## 93	-1	-1	2	2	2	2	2	2
## 94	-1	-1	-1	-1	-1	-1	-1	-1
## 95	0	0	0	0	0	0	0	0
## 96	-1	-1	-1	-1	-1	-1	2	2
## 97	0	0	0	0	0	0	0	0
## 98	1	1	1	1	1	1	1	2
## 99	1	1	1	1	1	1	1	1
## 100	0	0	0	0	0	0	0	0
## 101	1	1	1	1	1	1	1	1
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1	-1
## 105	1	1	1	1	1	1	1	1
## 106	1	1	1	1	1	1	1	1
## 107	0	0	0	0	0	0	0	0
## 108	1	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0	0
## 110	2	2	2	2	2	2	2	2
## 111	0	0	0	0	0	1	1	1
## 112	0	0	2	2	2	2	0	0
## 113	1	1	1	1	1	1	1	1
## 114	0	0	0	0	0	0	0	0

```
## 115       -1      -1       -1       -1       -1        -1          -1      -1
## 116        0       0        0        0        0         0           0       0
##     cn_DLX3 cn_CHAD cn_HLF cn_TMEM100 cn_TEX14 cn_PPM1E cn_PRR11 cn_CA4
## 1         0       0      0          0        0        0        0      0
## 2         1       1      1          1        1        1        1      1
## 3         1       1      1          1        0        0        0      1
## 4         0       0      0          0        0        0        0      0
## 5         0       0      0          0        0        0        0      0
## 6        -1      -1     -1         -1       -1       -1       -1     -1
## 7         0       0      0          0        0        0        0      0
## 8        -1      -1     -1         -1       -1       -1       -1     -1
## 9         1       1      1          1        1        1        1     -1
## 10        0       0      0          0        0        0        0      0
## 11        0       0      0          1        1        1        1      1
## 12        0       0      0          0        0        0        0      0
## 13       -1      -1     -1         -1       -1       -1       -1     -1
## 14        0       0      0          0        0        0        0      0
## 15        0       0      0          0        0        0        0      0
## 16        0       0      0          0        0        0        0      0
## 17        1       1      1          1        1        1        1      1
## 18        2       2      2          2        1        1        1      1
## 19       -1      -1     -1         -1       -1       -1       -1     -1
## 20        0       0      0          0        0        0        0      0
## 21        1       1      1          1        2        2        2      2
## 22       -1      -1     -1         -1       -1       -1       -1     -1
## 23        2       2     -1         -1        2        2       -1     -1
## 24        1       1      1          1        1        1        1      1
## 25        0       0      0          0        0        0        0      0
## 26        1       1      1          0        1        1        1      1
## 27        0       0      0          0        0        0        0      0
## 28       -1      -1      1          1        1        1        1      1
## 29        0       0      0          0        0        0        0      0
```

## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0	0
## 37	0	0	1	1	1	1	1	1
## 38	0	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	1	1	1	1	1	1
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	2	2	2	2	2	2	2	2
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	1	1	1	1	1	1	1	1
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	2	2
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	0	2	2	2
## 59	0	0	1	1	1	1	1	1
## 60	1	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0

## 62	2	2	2	1	2	2	1	2
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	-1	1	1	1	1	1	1	1
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	2	2	2	2	2	2	2	2
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	-1	-1	-1	-1	-1	1	1	1
## 78	-1	-1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1
## 81	0	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	1	1	2	2	1	2	2	2
## 85	0	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	-1	-1	2	2	2	2	2	2
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	0	0	0	0	0	0	0	0
## 92	2	2	2	2	0	0	0	2
## 93	2	2	-1	-1	1	1	1	1

```
## 94       -1      -1     -1         -1        0        0        0      0
## 95        0       0      0          0        0        0        0      0
## 96        2       2     -1         -1        2        2       -1      2
## 97        0       0      0          0        0        0        0      0
## 98        2       2      2          2        2        2        2      2
## 99        1       1      1          1        1        1        1      1
## 100       0       0      1          1        1        1        1      1
## 101       1       1      1          1        1        1        1      1
## 102       0       0      0          0        0        0        0      0
## 103       0       0      0          0        0        0        0      0
## 104      -1      -1     -1         -1       -1       -1       -1     -1
## 105       1       1      2          2        2        2        2      2
## 106       1       1      1          1        1        1        1      1
## 107       0       0      0          0        0        0        0      0
## 108       1       1      1          1        1        1        1      1
## 109       0       0      0          0        0        0        0      0
## 110       1       1      2          1        2        2        2      2
## 111       1       1      1          1        1        1        1      1
## 112       2       2     -1         -1        2        2        2      2
## 113       1       1      1          1        1        1        1      1
## 114       0       0      0          0        0        0        0      0
## 115      -1      -1      0          0        0        0        0      0
## 116       0       0      0          0        0        0        0      0
##     cn_TCAM1P cn_SCN4A cn_RGS9 cn_CACNG4 cn_CACNG1 cn_SLC16A6 cn_ABCA8 cn_ABCA9
## 1           0        0       0         0         0          0        0        0
## 2           1        1       1         1         1          1        1        1
## 3           2        2       0         0         0          2        1        1
## 4           0        0       0         0         0          0        0        0
## 5           0        0       0         0         0          0        0        0
## 6           2        2       2         2         2          2        2        2
## 7           0        0       0         0         0          0        0        0
## 8          -1       -1      -1        -1        -1         -1       -1       -1
```

## 9	-1	-1	-1	-1	-1	1	-1	-1
## 10	0	0	0	0	0	0	0	0
## 11	1	1	1	1	1	1	1	1
## 12	0	0	0	0	0	0	0	0
## 13	1	1	1	1	1	1	1	1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1
## 18	1	1	1	1	1	1	1	1
## 19	-1	-1	-1	-1	-1	-1	-1	-1
## 20	0	0	0	2	2	2	2	0
## 21	1	1	1	1	1	1	1	1
## 22	-1	-1	-1	-1	-1	-1	-1	-1
## 23	1	2	-1	-1	-1	-1	-1	-1
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	0	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	1	1	1	1	1
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	0	0	0	2	2	0	0	0
## 36	0	0	0	0	0	0	0	0
## 37	1	1	1	1	1	1	1	1
## 38	0	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1	-1

## 41	1	1	1	1	1	1	1	1
## 42	1	1	1	1	1	1	1	1
## 43	0	0	0	0	0	0	0	0
## 44	2	2	2	2	2	2	2	2
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	0
## 49	1	1	1	1	1	1	1	1
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	2	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	2	1	1	2	2	2
## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	-1	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	0	0	0	0	0
## 59	1	1	1	1	1	1	1	1
## 60	1	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	2	2	2	2	2	2	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	1	1	-1	-1	-1	-1	-1	-1
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	2	2	2	2	2	1	1	1
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1

## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	0	0	0	0	0	1	-1	-1
## 78	1	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0	0
## 80	1	1	2	1	1	1	1	1
## 81	0	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	1	1	1	-1	-1	-1	-1	-1
## 85	0	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	2	2	2	2	2	2	2	2
## 89	0	0	0	0	0	0	0	0
## 90	1	1	1	1	1	1	1	1
## 91	0	0	0	0	0	0	0	0
## 92	2	2	0	0	0	0	0	0
## 93	1	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	1	1	-1	0	0	0	-1	-1
## 97	0	0	0	0	0	0	0	0
## 98	2	2	2	2	2	2	2	2
## 99	1	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1	1
## 101	1	1	1	1	1	1	1	1
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1	-1

```
## 105         2         2         2         2         2         2         2         2
## 106         1         1         1         1         1         1         1         1
## 107         0         0         0         0         0         0         0         0
## 108         2         2         2         2         2         2         2         2
## 109         0         0         0         0         0         0         0         0
## 110         1         1         1         2         2         2         1         1
## 111         1         1         1         1         1         1         1         1
## 112         2         2         2         2         2         0         2         2
## 113         1         1         1         1         1         1         1         1
## 114         0         0         0         0         0         0         0         0
## 115         0         0         0         0         0         0         0         0
## 116         0         0         0         0         0         0         0         0
##     cn_ABCA6 cn_ABCA10 cn_KCNJ16 cn_SSTR2 cn_SDK2 cn_KIF19 cn_FOXJ1
## 1          0         0         0        0       0        0        0
## 2          1         1         1        1       1        1        1
## 3          1         1         1        1       1        1        0
## 4          0         0         0        0       0        0        0
## 5          0         0         0        0       0        0        0
## 6          2         2         2        2       2        2        2
## 7          0         0         0        0       0        0        0
## 8         -1        -1        -1       -1      -1       -1       -1
## 9         -1        -1         2        2       2       -1       -1
## 10         0         0         0        0       0        0        0
## 11         1         1         1        1       1        1        1
## 12         0         0         0        0       0        0        0
## 13         1         1         1        1       1        1        1
## 14         0         0         0        0       0        0        0
## 15         0         0         0        0       0        0        0
## 16         0         0         0        0       0        0        0
## 17         1         1         1        1       1        1        1
## 18         1         1         1        1       1        1        1
## 19        -1        -1        -1       -1      -1       -1       -1
```

## 20	0	0	0	0	0	0	0
## 21	1	1	1	1	1	1	1
## 22	-1	-1	-1	-1	-1	-1	-1
## 23	-1	-1	-1	-1	-1	-1	-1
## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	-1
## 27	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1
## 29	1	1	1	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0
## 37	1	1	1	1	1	1	1
## 38	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	1
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	1	1	1	1	1	1	1
## 42	1	1	1	1	1	1	1
## 43	0	0	0	0	0	0	0
## 44	2	2	2	2	2	2	2
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0
## 49	1	1	1	1	1	1	1
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	1	2	1	1

## 52	0	0	0	0	0	0	0
## 53	2	2	2	1	1	1	0
## 54	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0
## 56	-1	-1	0	0	0	0	0
## 57	-1	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	-1	-1	0
## 59	1	1	1	1	1	1	1
## 60	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0
## 62	1	1	2	1	1	2	1
## 63	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	-1
## 69	-1	-1	-1	-1	-1	-1	-1
## 70	1	1	2	1	1	1	1
## 71	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	-1	-1	1	1	1	1	1
## 77	-1	-1	-1	-1	-1	-1	-1
## 78	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1
## 81	0	0	0	0	0	0	0
## 82	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1

```
## 84      -1      -1      -1      -1      -1      -1      -1
## 85       0       0       0       0       0       0       0
## 86       1       1       1       1       1       1       1
## 87       0       0       0       0       0       0       0
## 88       2       2       2       2       2       2       2
## 89       0       0       0       0       0       0       0
## 90       1       1       1       1       1       1       1
## 91       0       0       0       0       0       0       0
## 92       0       0       0       0       0       0       0
## 93       1       1       1       1       1       1       1
## 94       0       0       0       0      -1      -1      -1
## 95       0       0       0       0       0       0       0
## 96      -1      -1      -1       0       2      -1       2
## 97       0       0       0       0       0       0       0
## 98       2       2       2       2       2       2       1
## 99       1       1       1       1       1       1       1
## 100      1       1       1       1       1       1       1
## 101      1       1       1      -1      -1      -1      -1
## 102      0       0       0       0       0       0       0
## 103      0       0       0       0       0       0       0
## 104     -1      -1      -1      -1      -1      -1      -1
## 105      2       2       2       2       2       2       2
## 106      1       1       1       1       1       1       1
## 107      0       0       0       0       0       0       0
## 108      2       2       2       2       1       1       1
## 109      0       0       0       0       0       0       0
## 110      1       1       1       2       1       1       1
## 111      1       1       1       1       1       1       1
## 112      2       2      -1      -1      -2      -1      -1
## 113      1       1       1       1       1       1       1
## 114      0       0       0       0       0       0       0
## 115      0       0       0       0       0       0       0
```

```
## 116        0         0         0        0       0        0        0
##     cn_ST6GALNAC1 cn_MGAT5B cn_BIRC5 cn_CBX2 cn_NPTX1 cn_NOTUM cn_CLUL1
## 1               0         0        0       0        0        0        0
## 2               1         1        1       1        1        1        0
## 3               0         0        1       1        1        1       -1
## 4               0         0        0       0        0        0        0
## 5               0         0        0       0        0        0        0
## 6               2         2        2       2        2        2       -1
## 7               0         0        0       0        0        0        0
## 8              -1        -1       -1      -1       -1       -1        1
## 9              -1        -1        1       1       -1       -1       -1
## 10              0         0        0       0        0        0        0
## 11              1         1        1       1        1        1        0
## 12              0         0        0       1        1        1       -1
## 13              1         1        1       1        1        1        1
## 14              0         0        0       0        0        0        0
## 15              0         0        0       0        0        0        0
## 16              0         0        0       0        0        0        0
## 17              1         1        1       1        1        1        0
## 18              1         1        1       1        1        1       -1
## 19             -1        -1       -1      -1       -1       -1        0
## 20              0         0        2       0        0        0        0
## 21              1         1        1       1        1        1        0
## 22             -1        -1        1      -1       -1       -1        1
## 23             -1        -1       -1      -1       -1       -1       -1
## 24              1         1        1       1        1        1        1
## 25              0         0        0       0        0        0        0
## 26              1         1        1       1        1        1       -1
## 27              0         0        0       0        0        0        0
## 28              1         1        1       1        1        1        1
## 29              0         0        0       0        0        0        0
## 30              0         0        0       0        0        0        0
```

## 31	1	1	1	1	1	1	-1
## 32	1	1	1	1	1	1	-1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	-1	-1
## 36	0	0	0	0	0	0	0
## 37	1	1	1	1	1	1	0
## 38	0	0	0	0	0	0	0
## 39	1	1	1	1	1	1	0
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	1	1	1	1	1	2	0
## 42	1	1	1	1	1	2	0
## 43	0	0	0	0	0	0	1
## 44	2	2	2	2	2	2	0
## 45	0	0	0	0	0	0	-1
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0
## 49	1	1	1	1	1	1	0
## 50	0	0	0	0	0	0	0
## 51	1	1	1	2	1	1	-1
## 52	0	0	0	0	0	0	0
## 53	0	0	2	0	0	-1	0
## 54	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	-1
## 56	0	0	0	0	0	0	1
## 57	-1	-1	-1	-1	-1	-1	-1
## 58	0	0	0	0	0	0	-1
## 59	1	1	1	1	1	1	2
## 60	1	1	1	1	1	1	-1
## 61	0	0	0	0	0	0	1
## 62	1	1	1	1	1	1	1

## 63	1	1	1	1	1	1	-1
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	-1	-1	-1	-1	-1	-1	0
## 69	-1	-1	-1	-1	-1	-1	0
## 70	2	1	2	2	1	1	0
## 71	0	0	0	0	0	0	-1
## 72	1	1	1	1	1	2	-1
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1
## 77	-1	-1	-1	-1	-1	-1	0
## 78	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1
## 81	0	0	0	0	0	0	1
## 82	1	1	1	1	1	1	-1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	-1	-1	-1	-1	-1	-1	0
## 85	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0
## 88	2	2	2	0	0	0	-2
## 89	0	0	0	0	0	0	-1
## 90	1	1	1	1	1	1	1
## 91	0	0	0	0	0	0	1
## 92	0	0	0	0	0	0	-1
## 93	1	1	1	1	2	2	1
## 94	-1	-1	-1	0	0	0	0

```
## 95              0         0         0         0         0         0         0
## 96              0         0         0         0         0        -1         0
## 97              0         0         0         1         1         1         0
## 98              1         1         1         1         1         1        -1
## 99              1         1         1         1         1         1        -1
## 100             1         1         1         1         1         1         0
## 101            -1        -1        -1        -1        -1        -1        -1
## 102             0         0         0         0         0         0         0
## 103             0         0         0         0         0         0         0
## 104            -1        -1        -1        -1        -1        -1        -1
## 105             2         2         2         2         2         2         0
## 106             1         1         1         1         1         1         1
## 107             0         0         0         0         0         0         0
## 108             1         1         1         1         1        -1         1
## 109             0         0         0         0         0         0         0
## 110             1         1         1         1         1         1        -1
## 111             1         1         1         0         0         0        -1
## 112            -1        -1        -1        -1        -1         0         0
## 113             1         1         1         1         1         1         1
## 114             0         0         0         0         0         0         1
## 115             0         0         0         0         0         0         1
## 116             0         0         0         0         0         0         0
##     cn_ADCYAP1 cn_MYOM1 cn_DLGAP1 cn_LAMA1 cn_CIDEA cn_CXADRP3 cn_ANKRD30B
## 1            0        0         0        0        0          0           0
## 2            0        0         0        0        0          0           0
## 3           -1       -1        -1       -1       -1         -1           0
## 4            0        0         0        0        0          0           0
## 5            0        0         0        0        0          0           0
## 6           -1       -1        -1       -1       -1         -1          -1
## 7            0        0         0        0        0          0           0
## 8            1        1         1        1        1          1           1
## 9           -1        1         1        1        2          0           0
```

## 10	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0
## 12	-1	-1	-1	-1	-1	-1	-1
## 13	1	1	1	1	1	1	-1
## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0
## 18	-1	-1	-1	-1	-1	-1	-1
## 19	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	-1
## 21	0	0	0	0	0	0	0
## 22	1	1	1	-2	-1	-1	-1
## 23	-1	-1	-1	-1	0	0	0
## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	-1	-1	-1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	-1	-1	-1	-1	-1	-1	0
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	-1
## 39	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0

## 42	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	1	1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0
## 53	0	0	-1	-1	-1	-1	-1
## 54	0	0	0	0	0	0	0
## 55	-1	-1	-1	-1	-1	-1	-1
## 56	1	1	1	1	1	1	1
## 57	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1
## 59	2	2	2	2	2	2	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1
## 62	1	1	1	1	-1	-1	1
## 63	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	-1	-1	-1	-1	-1	-1	-1
## 72	-1	-1	-1	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0

## 74	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	1	-2	-2	-1	-1	2	1
## 77	0	0	0	0	0	0	0
## 78	1	-1	-1	1	1	1	-1
## 79	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	0	0	0	0	1	0	0
## 86	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0
## 88	-2	-2	-2	-2	0	1	0
## 89	-1	-1	-1	-1	-1	-1	-1
## 90	1	1	1	1	1	1	-1
## 91	1	1	1	1	1	1	1
## 92	-1	-1	-1	-1	-1	-1	-1
## 93	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0
## 98	-1	-1	-1	-1	-1	-1	-1
## 99	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	0	0	0	0

```
## 106          1        1         1        1        1         1          1
## 107          0        0         0        0        0         0          0
## 108          1        1        -1       -1       -1        -1          0
## 109          0        0         0        0        0         0          0
## 110         -1       -1        -1       -1       -1        -1         -1
## 111         -1       -1        -1       -1       -1        -1         -1
## 112          0        0         0        0        0         0          0
## 113          1        1         1        1        1         1         -1
## 114          1        1         1        1        1         1          1
## 115          1        1         1        1        1         1          1
## 116          0        0         0        0        0         0          0
##      cn_GREB1L cn_LAMA3 cn_AQP4 cn_CHST9 cn_CDH2 cn_DSC3 cn_DSC1 cn_DSG1 cn_DSG3
## 1            0        0       0        0       0       0       0       0       0
## 2            0        0       0        0       0       0       0       0       0
## 3            0        1       1        1       1       0       0       0       0
## 4            0        0       0        0       0       0       0       0       0
## 5            0        0       0        0       0       0       0       0       0
## 6           -1       -1       2        2       2      -1      -1      -1      -1
## 7            0        0       0        0       0       0       0       0       0
## 8            2        2       2        2       2       2       2       2       2
## 9            0        2       2        2       1       2       2       2       2
## 10           0        0       0        0       0       0       0       0       0
## 11           0        0       0        0       0       0       0       0       0
## 12          -1       -1      -1       -1      -1      -1      -1      -1      -1
## 13          -1       -1      -1       -1      -1      -1      -1      -1      -1
## 14           0        0       0        0       0       0       0       0       0
## 15           0        0       0        0       0       0       0       0       0
## 16           0        0       0        0       0       0       0       0       0
## 17           0        0       0        0       0       0       0       0       0
## 18          -1       -1      -1       -1      -1      -1      -1      -1      -1
## 19           0        0       0        0       0       0       0       0       0
## 20          -1       -1      -1       -1      -1      -1      -1      -1      -1
```

## 21	0	0	0	0	0	0	0	0	0
## 22	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0	0
## 26	-1	0	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 33	0	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0	0
## 48	1	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0	0

## 53	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 54	0	0	0	0	0	0	0	0	0
## 55	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 56	1	1	1	1	1	1	1	1	1
## 57	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 59	0	0	1	1	1	1	1	1	1
## 60	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1	1	1
## 62	1	1	1	1	1	1	1	1	1
## 63	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 64	0	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0	0
## 71	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 72	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 73	0	2	2	2	2	2	2	2	2
## 74	1	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0	0
## 76	1	1	2	2	2	2	2	2	2
## 77	0	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 81	1	1	1	1	1	1	1	1	1
## 82	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0	0

## 85	0	0	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0	0
## 89	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 91	1	1	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 93	1	1	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0	0
## 98	-1	1	1	1	1	1	1	1	1
## 99	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	0	0	0	0	0	0
## 106	1	1	1	1	1	1	1	1	1
## 107	0	0	0	0	0	0	0	0	0
## 108	0	0	0	0	0	0	0	0	0
## 109	0	0	0	0	0	0	0	0	0
## 110	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 111	-1	-1	-1	-1	0	0	0	0	0
## 112	0	0	0	0	0	0	0	0	0
## 113	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 114	1	1	1	1	1	1	1	1	1
## 115	1	1	1	1	1	1	1	1	1
## 116	0	0	0	0	0	0	0	0	0

```
##     cn_NOL4 cn_SLC39A6 cn_SLC14A2 cn_SIGLEC15 cn_MAPK4 cn_CCDC68 cn_ONECUT2
## 1         0          0          0           0        0         0          0
## 2         0          0          0           0        0         0          0
## 3         1          1          0           0        0         0          0
## 4         0          0          0           0        0         0          0
## 5         0          0          0           0        0         0          0
## 6        -1         -1         -1          -1       -1        -1         -1
## 7         0          0         -1          -1       -1        -1         -1
## 8         2          2          2           2        1         1          0
## 9         1          1          2           1       -1        -1         -1
## 10        0          0          0           0        0         0          0
## 11        0          0          0           0        0         0          0
## 12       -1         -1          0           0        0         0          0
## 13       -1         -1         -1          -1       -1        -1         -1
## 14        0          0          0           0        0         0          0
## 15        0          0          0           0        0         0          0
## 16        0          0          0           0        0         0          0
## 17        0          1          0           0        0         0          0
## 18       -1         -1         -1          -1       -1        -1         -1
## 19        0          0          0           0        0         0          0
## 20       -1         -1         -1          -1       -2        -1         -1
## 21        0          0          0           0        0         0          0
## 22       -1         -1         -1          -1       -1        -1         -1
## 23        0          0          0           0        0         0          0
## 24        1          2          1           1        1         1          1
## 25        0          0          0           0        0         0          0
## 26        0          0          0           0        0         0          0
## 27        0          0          0           0        0         0          0
## 28        1          1          1           1        1         1          1
## 29        0          0          0           0        0         0          0
## 30        0          0          0           0        0         0          0
## 31       -1         -1         -1          -1       -1        -1         -1
```

## 32	-1	-1	-1	-1	-1	-1	-1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	-1	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1
## 44	0	0	0	0	0	0	0
## 45	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1
## 54	0	0	0	0	0	-1	-1
## 55	-1	-1	-1	-1	-1	-1	-1
## 56	1	1	1	1	1	1	1
## 57	-1	-1	-1	-1	-1	-1	-1
## 58	-1	-1	-1	-1	-1	-1	-1
## 59	-1	-1	-1	-1	-1	-1	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1
## 62	1	1	1	1	-1	-1	-1
## 63	-1	-1	-1	-1	-1	-1	-1

## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1
## 72	-1	-1	-1	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1
## 81	1	1	1	1	1	1	1
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0
## 88	0	-2	0	0	0	0	0
## 89	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	0	0
## 93	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0

```
## 96        0          0          0          0        0         0          0
## 97        0          0          0          0        0         0          0
## 98        1          1          1          1       -1         1          1
## 99       -1         -1         -1         -1       -1        -1         -1
## 100       0          0          0          0        0         0          0
## 101      -1         -1         -1         -1       -1        -1         -1
## 102       0          0          0          0        0         0          0
## 103       0          0          0          0        0         0          0
## 104      -1         -1         -1         -1       -1        -1         -1
## 105       0          0          0          0        0         0          0
## 106       1          1          1          1        1         1          1
## 107       0          0          0          0        0         0          0
## 108       0          0          0          0        0         0          0
## 109       0          0          0          0        0         0          0
## 110      -1         -1          1         -1       -1        -1         -1
## 111       0          0          0          0        0         0          0
## 112       0          0          0          0        0         0          0
## 113      -1         -1         -1         -1       -1        -1         -1
## 114       1          1          1          1        1         1          1
## 115       1          1          1          1        1         1          1
## 116       0          0          0          0        0         0          0
##     cn_GRP cn_SERPINB5 cn_SERPINB3 cn_SERPINB7 cn_SERPINB2 cn_CDH7 cn_CDH19
## 1        0          0          0          0          0       0        0
## 2        0          0          0          0          0       0        0
## 3        0          0          0          0          0       0        0
## 4        0          0          0          0          0       0        0
## 5        0          0          0          0          0       0        0
## 6       -1         -1         -1         -1         -1      -1       -1
## 7       -1         -1         -1         -1         -1      -1       -1
## 8        0          0          0          0          0       0        0
## 9       -1          2          2          2          2       2        2
## 10       0          0          0          0          0       0        0
```

## 11	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0
## 13	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0
## 18	-1	-1	-1	-1	-1	-1	-1
## 19	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0
## 22	-1	-1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	-1	-1	-1
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0

43	1	1	1	1	1	1	1
44	0	0	0	0	0	0	0
45	-1	-1	-1	-1	-1	-1	-1
46	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0
48	-1	-1	-1	-1	-1	-1	-1
49	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0
51	-1	-1	-1	-1	-1	-1	-1
52	0	0	0	0	0	0	0
53	-1	-1	-1	-1	-1	-1	-1
54	-1	-1	-1	-1	-1	-1	-1
55	-1	-1	-1	-1	-1	-1	-1
56	1	1	1	1	1	1	1
57	-1	-1	-1	-1	-1	-1	-1
58	-1	-1	-1	-1	-1	-1	-1
59	0	-1	-1	-1	-1	-1	-1
60	-1	-1	-1	-1	-1	-1	-1
61	1	1	1	1	1	1	1
62	-1	-1	-1	-1	-1	-1	-1
63	-1	-1	-1	-1	-1	-1	-1
64	0	0	0	0	0	0	0
65	-1	-1	-1	-1	-1	-1	-1
66	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0
70	-1	-1	-1	-1	-1	-1	-1
71	-1	-1	-1	-1	-1	-1	-1
72	-1	-1	-1	-1	-1	-1	-1
73	0	0	0	0	0	0	0
74	1	1	1	1	1	1	1

## 75	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	0	0	0	0	0	0	0
## 80	-1	-1	-1	-1	-1	-1	-1
## 81	1	1	1	1	1	1	1
## 82	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0
## 86	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0
## 89	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1
## 92	0	0	0	0	0	0	0
## 93	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0
## 98	1	2	2	2	2	2	2
## 99	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0
## 101	-1	-1	-1	-1	-1	-1	-1
## 102	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1
## 105	0	0	0	0	0	0	0
## 106	1	1	1	1	1	1	1

```
## 107      0           0           0           0           0       0        0
## 108      0           0           0           0           0       0        0
## 109      0           0           0           0           0       0        0
## 110     -1          -1          -1          -1          -1      -1       -1
## 111      0           0           0           0           0       0        0
## 112      0           0           0           0           0       0        0
## 113     -1          -1          -1          -1          -1      -1       -1
## 114      1           1           1           1           1       1        1
## 115      1           1           1           1           1       1        1
## 116      0           0           0           0           0       0        0
##     cn_CBLN2 cn_NETO1 cn_GZMM cn_HCN2 cn_AZU1 cn_LPPR3 cn_CFD cn_KISS1R
## 1          0        0       1       1       1        1      1         1
## 2          0        0       0       0       0        0      0         0
## 3          1        1      -1      -1      -1       -1     -1        -1
## 4          0        0      -1      -1      -1       -1     -1        -1
## 5          0        0       0       0       0        0      0         0
## 6         -1       -1      -1      -1      -1       -1     -1        -1
## 7         -1       -1       0       0       0        0      0         0
## 8          1        1      -1      -1      -1       -1     -1        -1
## 9          2        2      -1      -1      -1       -1     -1        -1
## 10         0        0       0       0       0        0      0         0
## 11         0        0       0       0       0        0      0         0
## 12         0        0       0       0       0        0      0         0
## 13        -1       -1      -1      -1      -1       -1     -1        -1
## 14         0        0       0       0       0        0      0         0
## 15         0        0       0       0       0        0      0         0
## 16         0        0       0       0       0        0      0         0
## 17         0        0       1       1       1        1      1         1
## 18        -1       -1       0       0       0        0      0         0
## 19         0        0       0       0       0        0      0         0
## 20        -1       -1      -1      -1      -1       -1     -1        -1
## 21         0        0       0       0       0        0      0         0
```

## 22	-1	-1	-1	-1	-1	-1	-1	-1
## 23	0	0	1	1	1	1	1	1
## 24	1	1	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	0	0	-1	-1	-1	-1	-1	-1
## 27	0	0	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	-1	-1	1	1	1	1	1	1
## 32	-1	-1	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	0	0	-1	-1	-1	-1	-1	-1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0
## 40	-1	-1	-2	-2	-2	-2	-2	-2
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	1	1	0	0	0	0	0	0
## 44	0	0	-1	-1	-1	-1	-1	-1
## 45	-1	-1	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	-1	-1	-2	-2	-2	-2	-2	-2
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1

```
## 54      -1      -1      -1      -1      -1      -1      -1      -1
## 55      -1      -1       0       0       0       0       0       0
## 56       1       1      -1      -1      -1      -1      -1      -1
## 57      -1      -1       0       0       0       0       0       0
## 58      -1      -1       0       0       0       0       0       0
## 59      -1      -1       0       0       0       0       0       0
## 60      -1      -1      -1      -1      -1      -1      -1      -1
## 61       1       1       0       0       0       0       0       0
## 62      -1      -1      -1      -1      -1      -1      -1      -1
## 63      -1      -1       0       0       0       0       0       0
## 64       0       0       0       0       0       0       0       0
## 65      -1      -1       1       1       1       1       1       1
## 66       0       0       0       0       0       0       0       0
## 67       0       0       0       0       0       0       0       0
## 68       0       0       0       0       0       0       0       0
## 69       0       0       0       0       0       0       0       0
## 70      -1      -1       0       0       0       0       0       0
## 71      -1      -1       0       0       0       0       0       0
## 72      -1      -1      -1      -1      -1      -1      -1      -1
## 73       0       0       0       0       0       0       0       0
## 74       1       1       1       1       1       1       1       1
## 75       0       0      -2      -2      -2      -2      -2      -2
## 76       1       1       1       1       1       1       1       1
## 77       0       0       0       0       0       0       0       0
## 78      -1      -1      -1      -1      -1      -1      -1      -1
## 79       0       0       1       1       1       1       1       1
## 80      -1      -1      -1      -1      -1      -1      -1      -1
## 81       1       1      -1      -1      -1      -1      -1      -1
## 82      -1      -1       0       0       0       0       0       0
## 83      -1      -1       0       0       0       0       0       0
## 84       0       0       0       0       0       0       0       0
## 85       0       0      -1      -1      -1      -1      -1      -1
```

```
## 86         1         1       0       0       0       0       0         0
## 87         0         0       0       0       0       0       0         0
## 88         0         0      -1      -1      -1      -1      -1        -1
## 89        -1        -1       0       0       0       0       0         0
## 90         1         1      -1      -1      -1      -1      -1        -1
## 91        -1        -1      -1      -1      -1      -1      -1        -1
## 92         0         0      -1      -1      -1      -1      -1        -1
## 93         1         1      -1      -1      -1      -1      -1        -1
## 94         0         0       0       0       0       0       0         0
## 95         0         0       0       0       0       0       0         0
## 96         0         0       0       0       0       0       0         0
## 97         0         0      -1      -1       0       0       0         0
## 98         1         1      -1      -1      -1      -1      -1        -1
## 99        -1        -1      -1      -1      -1      -1      -1        -1
## 100        0         0      -2      -2      -2      -2      -2        -2
## 101       -1        -1       0       0       0       0       0         0
## 102        0         0       0       0       0       0       0         0
## 103        0         0       0       0       0       0       0         0
## 104       -1        -1       0       0       0       0       0         0
## 105        0         0       1       1       2       2       2         2
## 106        1         1       0       0       0       0       0         0
## 107        0         0       0       0       0       0       0         0
## 108        0         0      -1      -1      -1      -1      -1        -1
## 109        0         0       0       0       0       0       0         0
## 110       -1        -1      -1      -1      -1      -1      -1        -1
## 111        0         0       0       0       0       0       0         0
## 112        0         0      -1      -1      -1      -1      -1        -1
## 113       -1        -1       0       0       0       0       0         0
## 114        1         1       0       0       0       0       0         0
## 115        1         1       1       1       1       1       1         1
## 116        0         0       0       0       0       0       0         0
##     cn_CELF5 cn_ZFR2 cn_LRG1 cn_PLIN4 cn_PLIN5 cn_FUT3 cn_FUT6 cn_CAPS cn_PCP2
```

## 1	1	1	1	1	1	1	1	1	1
## 2	0	0	0	0	0	0	0	0	0
## 3	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 4	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 5	0	0	0	0	0	0	0	0	0
## 6	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 7	0	0	0	0	0	0	0	0	0
## 8	-1	-1	-1	-1	-1	0	0	0	-1
## 9	1	-1	-1	-1	-1	-1	-1	-1	2
## 10	0	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0	0
## 13	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1	1
## 18	0	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0	0	0
## 22	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 23	1	1	1	1	1	1	1	1	1
## 24	0	0	0	0	0	1	1	1	1
## 25	0	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0	0

## 33	0	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0	0
## 35	2	2	-1	-1	-1	1	1	1	1
## 36	0	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0	0
## 40	-2	-2	-2	-2	-2	1	1	1	1
## 41	1	1	1	1	1	2	2	2	2
## 42	0	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0	0
## 44	-1	2	2	2	2	2	2	-1	2
## 45	0	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0	0
## 51	-2	-2	-2	-2	-2	0	0	0	0
## 52	0	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 54	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	1	1	1	1
## 57	0	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0	0

## 65	0	0	0	0	0	0	0	0	1
## 66	0	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0	0
## 72	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 73	0	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	1	1	1	1
## 76	1	1	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 79	1	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 81	-1	-1	2	2	2	-1	-1	-1	-1
## 82	0	0	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 86	0	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0	0
## 88	1	1	1	1	1	1	1	1	1
## 89	0	0	0	0	0	0	0	0	0
## 90	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0	0

```
## 97        -1      -1      -1       -1       -1      -1      -1      -1      -1
## 98        -1      -1      -1       -1       -1      -1      -1      -1      -1
## 99        -1      -1      -1       -1       -1      -1      -1      -1      -1
## 100        0       0       0        0        0       0       0       0       0
## 101        0       0       0        0        0       0       0       0       0
## 102        0       0       0        0        0       0       0       0       0
## 103        0       0       0        0        0       0       0       0       0
## 104        0       0       0        0        0       0       0       0       0
## 105       -1      -1      -1       -1       -1       2       2       1       2
## 106        0       0       0        0        0       0       0       0       0
## 107        0       0       0        0        0       0       0       0       0
## 108       -1      -1      -1       -1       -1      -1      -1      -1      -1
## 109        0       0       0        0        0       0       0       0       0
## 110       -1      -1      -1       -1       -1      -1      -1      -1      -1
## 111        0       0       0        0        0       0       0       0       0
## 112       -1      -1      -1       -1       -1      -1      -1      -1      -1
## 113        0       0       0        0        0       0       0       0       0
## 114        0       0       0        0        0       0       0       0       0
## 115        1       1       1        1        1       1       1       1       1
## 116        0       0       0        0        0       0       0       0       0
##     cn_FCER2 cn_FBN3 cn_MUC16 cn_P2RY11 cn_ICAM5 cn_MAST1 cn_PALM3 cn_SLC1A6
## 1          1       1        1         1        1        1        1         1
## 2          0       0        0         0        0        0        0         0
## 3         -1      -1       -1        -1       -1       -1       -1        -1
## 4         -1      -1       -1        -1       -1       -1       -1        -1
## 5          0       0        0         0        0        0        0         0
## 6         -1      -1       -1        -1       -1       -1        2         2
## 7          0       0        0         0        0        0        0         0
## 8         -1      -1       -1        -1       -1       -1       -1        -1
## 9          2       2        2         2        2       -1        1         2
## 10         0       0        0         0        0        0        0         0
## 11         0       0        0         0        0        0        0         0
```

## 12	0	0	0	0	0	0	0	0
## 13	-1	-1	-1	-1	-1	-1	-1	-1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1
## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0	0
## 22	-1	-1	1	2	2	0	0	0
## 23	1	1	1	1	1	1	1	1
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0
## 40	1	1	1	1	1	1	1	1
## 41	2	2	2	1	1	1	1	1
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0

## 44	2	2	2	2	2	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	0	0	0	1	1	0
## 54	-1	-1	-1	-1	-1	-1	-1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	-1	-1	-1	-1	-1	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1	1

## 76	1	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	0	1
## 79	1	1	1	1	1	1	1	1
## 80	-1	-1	-1	1	1	-1	-1	-1
## 81	-1	-1	2	2	2	2	2	1
## 82	0	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	1	1	1	1	1	1	1	1
## 89	0	0	0	0	0	0	0	0
## 90	-1	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	-1	1	-1
## 98	-1	-1	-1	-1	-1	0	0	0
## 99	-1	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0	0
## 101	0	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	2	2	2	2	2	-1	-1	2
## 106	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0	0

```
## 108       -1       -1       -1       -1       -1       -1       -1       -1
## 109        0        0        0        0        0        0        0        0
## 110       -1       -1       -1       -1       -1       -1       -1       -1
## 111        0        0        0        0        0        0        0        0
## 112       -1       -1       -1       -1       -1        2        2       -1
## 113        0        0        0        1        1       -2       -1       -1
## 114        0        0        0        0        0        0        0        0
## 115        1        1        1        1        1        1        1        1
## 116        0        0        0        0        0        0        0        0
##      cn_CASP14 cn_PGLYRP2 cn_CYP4F22 cn_CYP4F8 cn_CYP4F3 cn_CYP4F12 cn_UCA1
## 1            1          1          1         1         1          1       1
## 2            0          0          0         0         0          0       0
## 3           -1         -1         -1        -1        -1         -1      -1
## 4           -1         -1         -1        -1        -1         -1      -1
## 5            0          0          0         0         0          0       0
## 6            2          2          2         2         2          2       2
## 7            0          0          0         0         0          0       0
## 8           -1         -1         -1        -1        -1         -1      -1
## 9            2          2          2         2         2          2       2
## 10           0          0          0         0         0          0       0
## 11           0          0          0         0         0          0       0
## 12           0          0          0         0         0          0       0
## 13          -1         -1         -1        -1        -1         -1      -1
## 14           0          0          0         0         0          0       0
## 15           0          0          0         0         0          0       0
## 16           0          0          0         0         0          0       0
## 17           1          1          1         1         1          1       1
## 18           0          0          0         0         0          0       0
## 19           0          0          0         0         0          0       0
## 20          -1         -1         -1        -1        -1         -1      -1
## 21           0          0          0         0         0          0       0
## 22           0          0          0         0         0          0       0
```

## 23	1	1	1	1	1	1	1
## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0
## 40	1	1	1	1	1	1	1
## 41	1	1	1	1	1	1	1
## 42	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0
## 54	1	1	1	1	1	1	1

## 55	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	1	1	1	1	1	1	1
## 76	1	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1
## 80	-1	-1	-1	-1	-1	-1	-1
## 81	1	1	1	1	1	1	1
## 82	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	0	0	0	0	0	0	0

```
## 87          0          0          0          0          0          0       0
## 88          1          1          1          1          1          1       1
## 89          0          0          0          0          0          0       0
## 90         -1         -1         -1         -1         -1         -1      -1
## 91         -1         -1         -1         -1         -1         -1      -1
## 92         -1         -1         -1         -1         -1         -1      -1
## 93          0          0          0          0          0          0       0
## 94          0          0          0          0          0          0       0
## 95          0          0          0          0          0          0       0
## 96          0          0          0          0          0          0       0
## 97         -1         -1         -1         -1         -1         -1      -1
## 98          0          0          0          0          0          0       0
## 99         -1         -1         -1         -1         -1         -1      -1
## 100         0          0          0          0          0          0       0
## 101         0          0          0          0          0          0       0
## 102         0          0          0          0          0          0       0
## 103         0          0          0          0          0          0       0
## 104         0          0          0          0          0          0       0
## 105         2          2          2          2          2          2       2
## 106         0          0          0          0          0          0       0
## 107         0          0          0          0          0          0       0
## 108        -1         -1         -1         -1         -1         -1      -1
## 109         0          0          0          0          0          0       0
## 110        -1         -1         -1         -1         -1         -1      -1
## 111         0          0          0          0          0          0       0
## 112        -1         -1         -1         -1         -1         -1      -1
## 113        -1         -1         -1         -1         -1         -1      -1
## 114         0          0          0          0          0          0       0
## 115         1          1          1          1          1          1       1
## 116         0          0          0          0          0          0       0
##     cn_CYP4F11 cn_NWD1 cn_CPAMD8 cn_B3GNT3 cn_TDRD12 cn_SLC7A10 cn_CHST8 cn_HPN
## 1            1       1          1          1          1           1        1      1
```

## 2	0	0	0	0	0	0	0	0
## 3	-1	-1	-1	-1	1	1	1	1
## 4	-1	-1	-1	-1	0	0	0	2
## 5	0	0	0	0	0	0	0	0
## 6	2	2	2	2	2	2	2	2
## 7	0	0	0	0	0	0	0	0
## 8	-1	-1	-1	-1	1	1	1	0
## 9	2	2	2	2	1	1	1	2
## 10	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	-1	-1	-1	-1	0	0	0	0
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1
## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	2	-1	-1	-1
## 21	0	0	0	0	0	0	0	0
## 22	0	0	0	0	0	0	0	0
## 23	1	1	1	1	-1	-1	-1	-1
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	1	1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0

## 34	0	0	0	0	1	1	1	1
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	1	1	1	1
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	1	1	1	1	2	2	2	2
## 41	1	1	1	1	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	1	1	1	1
## 44	1	1	1	1	2	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	0	1	1	1	-1	-1	-1	-1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	2	2	2	2
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	-1	-1	-1	1

## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	1	1	1	1	0	0	0	0
## 76	1	1	1	1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	-1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	-1	1	-1	-1	2	2	2	2
## 81	1	2	2	1	1	1	1	2
## 82	0	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	1	1	1	1
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	1	1	1	1	1	1	1	0
## 89	0	0	0	0	0	0	0	0
## 90	-1	0	0	0	0	0	0	0
## 91	-1	-1	-1	-1	0	0	0	0
## 92	-1	-1	-1	-1	-1	-1	-1	1
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	-1	-1	-1

```
## 98           0       0         0         0         0         0         0       0
## 99          -1      -1        -1        -1         0         0         0       0
## 100          0       0         0         0         0         0         0       1
## 101          0       0         0         0         0         0         0       0
## 102          0       0         0         0         0         0         0       0
## 103          0       0         0         0         0         0         0       0
## 104          0       0         0         0         0         0         0       0
## 105          2       2         2         2         0         0         0       0
## 106          0       0         0         0         0         0         0       0
## 107          0       0         0         0         0         0         0       0
## 108         -1      -1        -1        -1        -1        -1        -1      -1
## 109          0       0         0         0         0         0         0       0
## 110         -1      -1        -1        -1         0         0         0       1
## 111          0       0         0         0         0         0         0      -1
## 112         -1      -1        -1        -1         2         2         2       2
## 113         -1      -1        -1         2         0         0         0       0
## 114          0       0         0         0         0         0         0       0
## 115          1       1         1         1         1         1         1       1
## 116          0       0         0         0         0         0         0       0
##      cn_FXYD1 cn_MAG cn_FFAR2 cn_DMKN cn_SBSN cn_UPK1A cn_HSPB6 cn_APLP1
## 1           1      1        1       1       1        1        1        1
## 2           0      0        0       0       0        0        0        0
## 3           1      1        1       1       1        1        1        1
## 4          -1     -1       -1      -1      -1       -1       -1       -1
## 5           0      0        0       0       0        0        0        0
## 6           2      2        2       2       2        2        2        2
## 7           0      0        0       0       0        0        0        0
## 8           0      0        0       0       0        0        0        0
## 9           2      2        2       2       2        2        2        2
## 10          0      0        0       0       0        0        0        0
## 11          0      0        0       0       0        0        0        0
## 12          0      0        0       0       0        0        0        0
```

## 13	0	0	0	0	0	0	0	0
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1
## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	-1	-1	-1	-1	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0	0
## 22	0	0	0	0	0	0	0	0
## 23	-1	-1	-1	-1	-1	-1	-1	-1
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	1	1	1	1	1	1	1	1
## 35	1	1	1	1	1	1	1	1
## 36	1	1	1	1	1	1	1	1
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	2	2	2	2	2	2	2	2
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1

## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	2	2	2	2	2	1	1	1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1

## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	2	2	2	2	2	2	2	2
## 81	2	2	2	2	2	2	2	2
## 82	0	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	1	1	1	1	1	1	1	1
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	0	0	0	0	0	0	0	0
## 90	0	0	0	0	0	0	0	0
## 91	0	0	0	0	0	0	0	0
## 92	1	1	1	1	1	1	1	1
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	-1	-1	-1
## 98	0	0	0	0	0	0	0	0
## 99	0	0	0	0	0	0	0	0
## 100	1	1	1	1	1	1	1	1
## 101	0	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	0	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0	0
## 108	-1	-1	-1	-1	-1	-1	-1	-1

```
## 109        0      0        0       0       0        0        0        0
## 110        1      0        0       0       0        0        0        0
## 111       -1     -1       -1      -1      -1       -1       -1       -1
## 112        2      2        2       2       2        2        2        2
## 113        0      0        0       0       0        0        0        0
## 114        0      0        0       0       0        0        0        0
## 115        1      1        1       1       1        1        1        1
## 116        0      0        0       0       0        0        0        0
##     cn_PPP1R14A cn_C19orf33 cn_RYR1 cn_LGALS7 cn_LGALS7B cn_NCCRP1 cn_DLL3
## 1             1           1       1         1          1         1       1
## 2             0           0       0         0          0         0       0
## 3             1           1       1         1          1         1       1
## 4             2           2       2         2          2         2       2
## 5             0           0       0         0          0         0       0
## 6             2           2       2         2          2         2       2
## 7             0           0       0         0          0         0       0
## 8             0           0       0         0          0         0       0
## 9            -1          -1      -1        -1         -1         1       2
## 10            0           0       0         0          0         0       0
## 11            0           0       0         0          0         0       0
## 12            0           0       0         0          0         0       0
## 13            0           0       0         0          0         0       0
## 14            0           0       0         0          0         0       0
## 15            0           0       0         0          0         0       0
## 16            0           0       0         0          0         0       0
## 17            1           1       1         1          1         1       1
## 18            0           0       0         0          0         0       0
## 19            0           0       0         0          0         0       0
## 20            2           2       2         2         -1         2       2
## 21            0           0       0         0          0         0       0
## 22            1           1       1         1          1         1       1
## 23           -1          -1      -1        -1         -1        -1      -1
```

## 24	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	1	1	1	1	1	1	1
## 35	1	1	1	1	1	1	1
## 36	2	2	2	2	2	2	2
## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0
## 40	2	2	2	2	2	2	2
## 41	0	0	0	0	-1	0	0
## 42	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1
## 54	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0

## 56	0	0	0	0	0	0	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	-1	-1	-1	0	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	1	1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1
## 80	1	1	1	1	1	1	1
## 81	2	2	2	1	1	2	2
## 82	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	2	2	2	2	2	2	2
## 86	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0

```
## 88            0           0       0         0          0         0       0
## 89            0           0       0         0          0         0       0
## 90            0           0       0         0          0         0       0
## 91            0           0       0         0          0         0       0
## 92           -1          -1      -1        -1         -1        -1      -1
## 93            0           0       0         0          0         0       0
## 94            0           0       0         0          0         0       0
## 95            0           0       0         0          0         0       0
## 96            0           0       0         0          0         0       0
## 97           -1          -1      -1        -1         -1        -1      -1
## 98            0           0       0         0          0         0       0
## 99            0           0       0         0          0         0       0
## 100           1           1       1         1          1         1       1
## 101           0           0       0         0          0         0       0
## 102           0           0       0         0          0         0       0
## 103           0           0       0         0          0         0       0
## 104           0           0       0         0          0         0       0
## 105           0           0       0         0          0         0       0
## 106           0           0       0         0          0         0       0
## 107           0           0       0         0          0         0       0
## 108          -1          -1      -1        -1         -1        -1      -1
## 109           0           0       0         0          0         0       0
## 110           0           0       0         0          0         0       0
## 111          -1          -1      -1        -1         -1        -1      -1
## 112           2           2       2         2          2         2       2
## 113           0           0       0         0          0         0       0
## 114           0           0       0         0          0         0       0
## 115           1           1       1         1          1         1       1
## 116           0           0       0         0          0         0       0
##     cn_FCGBP cn_CNTD2 cn_MIA cn_CYP2A6 cn_CYP2A7 cn_CYP2B7P1 cn_CEACAM7
## 1          1        1      1         1         1           1          1
## 2          0        0      0         0         0           0          0
```

```
## 3     1     1     1     1     1     1     1
## 4     2     1     2     2     2     2     2
## 5     0     0     0     0     0     0     0
## 6     2     2     2     2     2     2     2
## 7     0     0     0     0     0     0     0
## 8     0     0    -1    -1    -1    -1    -1
## 9     2     1     2     1     1     1     1
## 10    0     0     0     0     0     0     0
## 11    0     0     0     0     0     0     0
## 12    0     0     0     0     0     0     0
## 13    0     0     0     0     0     0     0
## 14    0     0     0     0     0     0     0
## 15    0     0     0     0     0     0     0
## 16    0     0     0     0     0     0     0
## 17    1     1     1     1     1     1     1
## 18    0     0     0     0     0     0     0
## 19    0     0     0     0     0     0     0
## 20    2     2     2     2     2     2     2
## 21    0     0     0     0     0     0     0
## 22    1     1     1     1     1     1     1
## 23   -1    -1    -1    -1    -1    -1    -1
## 24    1     1     1     1     1     1     1
## 25    0     0     0     0     0     0     0
## 26    1     1     1     1     1     1     1
## 27   -1    -1    -1    -1    -1    -1    -1
## 28    1     1     1     1     1     1     1
## 29    0     0     0     0     0     0     0
## 30    0     0     0     0     0     0     0
## 31    1     1     1     1     1     1     1
## 32    0     0     0     0     0     0     0
## 33    0     0     0     0     0     0     0
## 34    1     1     1     1     1     1     1
```

## 35	1	1	1	1	1	1	1
## 36	2	2	2	2	2	2	2
## 37	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0
## 40	2	2	2	2	2	2	2
## 41	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1
## 54	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0
## 56	1	1	1	2	2	2	-1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0

## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1
## 80	1	1	1	1	1	1	1
## 81	2	-1	-1	-1	-1	-1	-1
## 82	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	2	2	2	2	2	1	1
## 86	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0
## 89	0	0	0	0	0	0	0
## 90	0	0	0	0	0	0	0
## 91	0	0	0	0	0	0	0
## 92	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	-1	-1
## 98	0	0	0	0	0	0	0

```
## 99         0        0      0         0         0          0          1
## 100        1        1      1         1         1          1          1
## 101        0        0      0         0         0          0          0
## 102        0        0      0         0         0          0          0
## 103        0        0      0         0         0          0          0
## 104        0        0      0         0         0          0          0
## 105        0        0      0         0         0          0          0
## 106        0        0      0         0         0          0          0
## 107        0        0      0         0         0          0          0
## 108       -1       -1     -1        -1        -1         -1         -1
## 109        0        0      0         0         0          0          0
## 110        0        0      0         0         0          0          0
## 111       -1       -1     -1        -1        -1         -1         -1
## 112        2        2      2         2         2          2          2
## 113        0        0      0         0         0          0          0
## 114        0        0      0         0         0          0          0
## 115        1        1      1         1         1          1          1
## 116        0        0      0         0         0          0          0
##     cn_CEACAM5 cn_CEACAM6 cn_CD79A cn_ATP1A3 cn_KCNN4 cn_CBLC cn_FOSB cn_FOXA3
## 1            1          1        1         1        1       1       1        1
## 2            0          0        0         0        0       0       0        0
## 3            1          1        1         1        1       1       1        1
## 4            2          2        2         2        2       2       2        2
## 5            0          0        0         0        0       0       0        0
## 6            2          2        2         2        2       2       2        2
## 7            0          0        0         0        0       0       0        0
## 8           -1         -1       -1        -1       -1       1       1        1
## 9            1          1        1         1        2       2       2       -1
## 10           0          0        0         0        0       0       0        0
## 11           0          0        0         0        0       0       0        0
## 12           0          0        0         0        0       0       0        0
## 13           0          0        0         0        0       0       0        0
```

## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1
## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	2	2	2	2	-1	-1	-1	-1
## 21	0	0	0	0	0	0	0	0
## 22	1	1	1	1	1	1	1	1
## 23	-1	-1	-1	-1	-1	-1	-1	-1
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	1	1	1	1	1	1	1	1
## 35	1	1	1	1	1	1	1	1
## 36	2	2	2	2	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	2	2	2	2	-1	2	2	2
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0

## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	-1	-1	-1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0

## 78	1	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	1	1	1	1	1	1	2	2
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	0	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	1	1	1	1	1	2	1	1
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	0	0	0	0	0	0	0	0
## 90	0	0	0	0	0	0	0	0
## 91	0	0	0	0	1	1	1	1
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	2	-1	-1
## 98	0	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1	1
## 101	0	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	0	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0	0
## 108	-1	-1	-1	-1	-1	-1	-1	-1
## 109	0	0	0	0	0	0	0	0

```
## 110          0          0        0         0        0       0       0        0
## 111         -1         -1       -1        -1       -1      -1      -1       -1
## 112          2          2        2         2        2       2       2        2
## 113          0          0        0         0        0       0       0        0
## 114          0          0        0         0        0       0       0        0
## 115          1          1        1         1        1       1       1        1
## 116          0          0        0         0        0       0       0        0
##      cn_KCNC3 cn_SPIB cn_KLK6 cn_KLK7 cn_KLK8 cn_KLK10 cn_KLK11 cn_KLK12
## 1           1       1       1       1       1        1        1        1
## 2           0       0       0       0       0        0        0        0
## 3           1       1       1       1       1        1        1        1
## 4           0       0       1       1       1        1        1        1
## 5           0       0       0       0       0        0        0        0
## 6           2       2       2       2       2        2        2        2
## 7           0       0       0       0       0        0        0        0
## 8           1       1       1       1       1        1        1        1
## 9          -1      -1       1       1       1        1        1        1
## 10          0       0       0       0       0        0        0        0
## 11          0       0       0       0       0        0        0        0
## 12          0       0       0       0       0        0        0        0
## 13          0       0       0       0       0        0        0        0
## 14          0       0       0       0       0        0        0        0
## 15          0       0       0       0       0        0        0        0
## 16          0       0       0       0       0        0        0        0
## 17          1       1       1       1       1        1        1        1
## 18          0       0       0       0       0        0        0        0
## 19          0       0       0       0       0        0        0        0
## 20         -1      -1      -1      -1      -1       -1       -1       -1
## 21          0       0       0       0       0        0        0        0
## 22         -1      -1      -1      -1      -1       -1       -1       -1
## 23         -1      -1      -1      -1      -1       -1       -1       -1
## 24          1       1       1       1       1        1        1        1
```

## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	1	1	1	1	1	1	1	1
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1	-1
## 41	1	1	1	1	1	1	1	1
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1

## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	-1	-1	-1	-1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	1	1	1	1	1	1	1	1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	0	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	1	1	1	1	1	1	1	1
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0

```
## 89          0       0       0       0       0       0       0       0
## 90          0       0       0       0       0       0       0       0
## 91          1       1       1       1       1       1       1       1
## 92         -1      -1      -1      -1      -1      -1      -1      -1
## 93          0       0       0       0       0       0       0       0
## 94          0       0       0       0       0       0       0       0
## 95          0       0       0       0       0       0       0       0
## 96          0       0       0       0       0       0       0       0
## 97         -1      -1      -1      -1      -1      -1      -1      -1
## 98          0       0       0       0       0       0       0       0
## 99          1       1       1       1       1       1       1       1
## 100         1       1       1       1       1       1       1       1
## 101         0       0       0       0       0       0       0       0
## 102         0       0       0       0       0       0       0       0
## 103         0       0       0       0       0       0       0       0
## 104         0       0       0       0       0       0       0       0
## 105         0       0       0       0       0       0       0       0
## 106         0       0       0       0       0       0       0       0
## 107         0       0       0       0       0       0       0       0
## 108        -1      -1      -1      -1      -1      -1      -1      -1
## 109         0       0       0       0       0       0       0       0
## 110         0       0       0       0       0       0       0       0
## 111        -1      -1      -1      -1      -1      -1      -1      -1
## 112         2       2       2       2       2       2       2       2
## 113         0       0       0       0       0       0       0       0
## 114         0       0       0       0       0       0       0       0
## 115         1       1       1       1       1       1       1       1
## 116         0       0       0       0       0       0       0       0
##     cn_KLK13 cn_KLK14 cn_HAS1 cn_NLRP7 cn_NLRP2 cn_TNNT1 cn_TNNI3 cn_SYT5
## 1          1        1       1        1        1        1        1       1
## 2          0        0       0        0        0        0        0       0
## 3          1        1       1        1        1        1        1       1
```

## 4	1	1	1	-1	-1	-1	-1	-1
## 5	0	0	0	0	0	0	0	0
## 6	2	2	2	2	2	2	2	2
## 7	0	0	0	0	0	0	0	0
## 8	1	1	1	1	1	1	1	1
## 9	1	1	1	1	1	1	1	1
## 10	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0
## 13	0	0	0	0	0	0	0	0
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0
## 17	1	1	1	1	1	1	1	1
## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	-1	-1	-1	2	2	2	2	2
## 21	0	0	0	0	0	0	0	0
## 22	-1	-1	-1	-1	-1	1	1	1
## 23	-1	-1	-1	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	-1	-1	-1	-1	-1	-1	-1	-1
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	1	1	1	1	1	1	1	1
## 35	1	1	1	1	1	1	1	1

## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	-1	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0	0
## 40	-1	-1	-1	0	0	0	0	0
## 41	1	1	1	1	1	1	1	1
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	1	1	1	1	1	1	1	1
## 48	-1	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	-1	-1	1	1	1	1	1	1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	-1	-1	-1	-1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	0	0	-1	-1	-1
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	-1	-1	-1	-1
## 66	0	0	0	0	0	0	0	0
## 67	-2	0	0	0	0	0	0	0

## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	1	1	1
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	1	1	1	1	1	1	1	1
## 81	-1	-1	-1	-1	-1	-1	-1	-1
## 82	0	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0	0
## 85	1	1	1	1	1	1	1	1
## 86	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	0	0	0	0	0	0	0	0
## 90	0	0	0	0	0	0	0	0
## 91	1	1	1	1	1	1	1	1
## 92	-1	-1	-1	-1	-1	-1	-1	-1
## 93	0	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	-1	-1	-1	-1	-1	-1	-1	-1
## 98	0	0	0	0	0	0	0	0
## 99	1	1	1	1	1	1	1	1

```
## 100        1        1        1        1        1        1        1        1
## 101        0        0        0        0        0        0        0        0
## 102        0        0        0        0        0        0        0        0
## 103        0        0        0        0        0        0        0        0
## 104        0        0        0        0        0        0        0        0
## 105        0        0        0        0        0        0        0        0
## 106        0        0        0        0        0        0        0        0
## 107        0        0        0        0        0        0        0        0
## 108       -1       -1       -1       -1       -1       -1       -1       -1
## 109        0        0        0        0        0        0        0        0
## 110        0        0        0        0        0        0        0        0
## 111       -1       -1        0        0        0        0        0        0
## 112        2        2        2        2        2        2        2        2
## 113        0        0        0        0        0        0        0        0
## 114        0        0        0        0        0        0        0        0
## 115        1        1        1        1        1        1        1        1
## 116        0        0        0        0        0        0        0        0
##     cn_COX6B2 cn_NLRP5 cn_PEG3 cn_ZSCAN1 cn_DEFB132 cn_RSPO4 cn_SIRPG cn_TGM3
## 1           1        1       1         1          1        1        1       1
## 2           0        0       0         0          0        0        0       0
## 3           1        1       1         1          1        1        1       1
## 4           2        2       2         2          0        0        0       0
## 5           0        0       0         0          0        0        0       0
## 6           2        2      -1        -1          1        1        1       1
## 7           0        0       0         0          0        0        0       0
## 8           1        1       1         1         -1       -1       -1      -1
## 9           1       -1      -1        -1          1        1        0       0
## 10          0        0       0         0          0        0        0       0
## 11          0        0       0         0          0        0        0       0
## 12          0        0       0         0          1        1        1       1
## 13          0        0       0         0         -1       -1       -1       1
## 14          0        0       0         0          0        0        0       0
```

## 15	0	0	0	0	0	0	0	0
## 16	0	0	0	0	1	1	1	1
## 17	1	1	1	1	1	1	1	1
## 18	0	0	0	0	1	1	1	1
## 19	0	0	0	0	1	1	1	1
## 20	0	2	2	2	0	0	0	0
## 21	0	0	0	0	1	1	1	1
## 22	1	-1	-1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	-1	-1	-1	-1	0	0	0	0
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	1	1	1	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	1	1	1	1	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	-2	-2	-2	-2
## 37	0	0	0	0	1	1	1	1
## 38	-1	-1	-1	-1	1	1	1	1
## 39	0	0	0	0	1	1	1	1
## 40	0	0	0	0	1	1	1	1
## 41	1	1	1	1	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	1	1	1	1	-1	-1	-1	-1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0

## 47	1	1	1	1	0	0	0	0
## 48	-1	-1	-1	-1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	1	1	1	1
## 51	0	0	0	0	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	1	1	1	1	-1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	-1	-1	-1	-1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	-1	-1	-1	-1	0	1	0	0
## 60	-1	-1	-1	-1	0	0	0	0
## 61	0	0	0	0	0	0	0	0
## 62	-1	-1	-1	-1	2	2	2	2
## 63	0	0	0	0	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	-1	-1	-1	-1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0
## 72	1	1	1	1	1	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	-1	-1	-1	-1
## 76	-1	-1	-1	-1	1	1	2	2
## 77	0	0	0	0	0	0	0	0
## 78	1	0	0	0	1	1	1	1

```
## 79    1    1    1    1    1    1    1    1
## 80    1    1    1    1    1    1    1    1
## 81   -1   -1   -1   -1    1    1    1    1
## 82    0    0    0    0   -1   -1   -1   -1
## 83    0    0    0    0   -1   -1   -1   -1
## 84    0    0    0    0    0    0    0    0
## 85    1    1    1    1   -1   -1   -1   -1
## 86    0    0    0    0    1    1    1    1
## 87    0    0    0    0    0    0    0    0
## 88    0    0    0    0   -1   -1   -1    0
## 89    0    0    0    0    1    1    1    1
## 90    0    0    0    0    0    0    0    0
## 91    1    1    1    1    0    0    0    0
## 92   -1   -1   -1   -1    1    1    1    1
## 93    0    0    0    0   -1   -1   -1   -1
## 94    0    0    0    0    0    0    0    0
## 95    0    0    0    0    0    0    0    0
## 96    0    0    0    0    0    0    0    0
## 97   -1   -1   -1   -1    0    0    0    0
## 98    0    0    0    0   -1   -1   -1   -1
## 99    1    1    1    1    1    1    1    1
## 100   1    1    1    1    1    1    1    1
## 101   0    0    0    0    1    1    1    1
## 102   0    0    0    0   -1   -1   -1   -1
## 103   0    0    0    0    1    1    1    1
## 104   0    0    0    0    0    0    0    0
## 105   0    0    0    0    0    0    0    0
## 106   0    0    0    0    1    1    1    1
## 107   0    0    0    0    0    0    0    0
## 108  -1   -1   -1   -1    0    0    0    0
## 109   0    0    0    0    0    0    0    0
## 110   0    0    0    1   -1   -1   -1   -1
```

```
## 111          0        0       0         0        -1       -1       -1      -1
## 112          2        2       2         2        -1       -1       -1      -1
## 113          0        0       0         0         1        1        1       1
## 114          0        0       0         0         0        0        0       0
## 115          1        1       1         1         0        0        0       0
## 116          0        0       0         0         0        0        0       0
##      cn_ADAM33 cn_SPEF1 cn_PRND cn_CHGB cn_FERMT1 cn_PAK7 cn_SNAP25 cn_FLRT3
## 1            1        1       1       1         1       1         1        1
## 2            0        0       0       0         0       0         0        0
## 3            1        1       1       1         1       1         1        1
## 4            0        0       0       0         0       0         0        0
## 5            0        0       0       0         0       0         0        0
## 6            1        1       1       1         1       1         1        1
## 7            0        0       0       0         0       0         0        0
## 8           -1       -1      -1      -1        -1      -1        -1       -1
## 9            0        0       0       0         0       0         0        1
## 10           0        0       0       0         0       0         0        0
## 11           0        0       0       0         0       0         0        0
## 12           1        1       2       2         2       1         1        1
## 13           1        1       1       0         1       1         1        1
## 14           0        0       0       0         0       0         0        0
## 15           0        0       0       0         0       0         0        0
## 16           1        1       1       1         1       1         1        1
## 17           1        1       1       1         1       1         1        1
## 18           1        1       1       1         1       1         1        1
## 19           1        1       1       1         1       1         1        1
## 20           0        0       0       0        -1      -1        -1       -1
## 21           1        1       1       1         1       1         1        1
## 22          -1       -1      -1      -1        -1       2         2        2
## 23           0        0       0       0         0       0         0        0
## 24           1        1       1       1         1       1         1        1
## 25           0        0       0       0         0       0         0        0
```

## 26	1	1	1	1	1	1	1	1
## 27	0	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	0	0	0	0	0	0	0	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	-2	-2	-2	-2	-2	-2	-2	-2
## 37	1	1	1	1	1	1	1	0
## 38	1	1	1	1	1	1	1	1
## 39	1	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1	1
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	1	1	1	1	1	1	1	1
## 44	-1	-1	-1	-1	-1	-1	-1	-1
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	1	1	1	1	1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	1	1	1	1	1	1	1	1
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	1	1	1	1	-1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0

## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	0	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0	0
## 62	2	2	2	-1	1	-1	-1	-1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	0	0	0	0	0	1	1	1
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1	-1
## 76	2	2	1	1	1	1	1	1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	1	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	-1	-1	-1	-1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	-1	-1	1	-2
## 89	1	1	1	1	1	1	1	1

```
## 90          0         0         0         0         0         0         0         0
## 91          0         0         0         0         0         0         0         1
## 92          1         1         1         1         1         1         1         1
## 93         -1        -1        -1        -1        -1         2         2        -1
## 94          0         0         0         0         0         0         0         0
## 95          0         0         0         0         0         0         0         0
## 96          0         0         0         0         0         0         0         0
## 97          0         0         0         0         0         0         0         0
## 98         -1        -1        -1        -1        -1        -1        -1        -1
## 99          1         1         1         1         1         1         1         1
## 100         1         1         1         1         1         1         1         1
## 101         1         1         1         1         1         1         1         1
## 102        -1        -1        -1        -1        -1        -1        -1        -1
## 103         1         1         1         1         1         1         1         1
## 104         0         0         0         0         0         0         0         0
## 105         0         0         0         0         0         0         0         0
## 106         1         1         1         1         1         1         1         1
## 107         0         0         0         0         0         0         0         0
## 108         0         0         0         0         0         0         0         0
## 109         0         0         0         0         0         0         0         0
## 110        -1        -1        -1        -1        -1         1         1         1
## 111        -1        -1        -1        -1        -1        -1        -1        -1
## 112        -1        -1        -1        -1        -1        -1        -1        -1
## 113         1         1         1         1         1         1         1         1
## 114         0         0         0         0         0         0         0         0
## 115         0         0         0         0         0         0         0         0
## 116         0         0         0         0         0         0         0         0
##     cn_PCSK2 cn_PTPRT cn_BCAS1 cn_CYP24A1 cn_BMP7 cn_PCK1 cn_ZBP1 cn_C20orf85
## 1          1        1        1          1       1       1       1           1
## 2          0        0        0          0       0       0       0           0
## 3          1        2        2          2       2       2       2           2
## 4          0        0        2          2       2       2       2           2
```

## 5	0	0	0	0	0	0	0	0
## 6	1	-2	-1	-1	1	1	1	1
## 7	0	0	0	0	0	0	0	0
## 8	-1	0	1	1	1	1	1	1
## 9	1	-1	0	0	0	0	0	0
## 10	0	0	0	0	0	0	0	0
## 11	0	0	2	2	2	2	2	2
## 12	1	1	1	1	1	1	1	1
## 13	1	1	1	1	1	1	1	1
## 14	0	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0
## 16	1	1	1	1	1	1	1	1
## 17	1	1	2	2	2	2	2	2
## 18	1	1	1	1	1	1	1	1
## 19	1	1	1	1	1	1	1	1
## 20	-1	2	2	2	2	2	2	2
## 21	1	1	1	1	1	1	1	1
## 22	2	2	2	2	2	2	2	2
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	2	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	0	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0

## 37	0	0	0	0	0	0	0	0
## 38	1	0	2	2	0	0	2	2
## 39	1	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1	1
## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	1	0	1	1	1	1	1	1
## 44	-1	0	2	2	2	2	2	2
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0
## 48	1	1	-1	-1	0	0	0	0
## 49	0	0	0	0	0	0	0	0
## 50	1	1	1	1	1	1	1	1
## 51	-1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	0	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	-1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0

## 69	0	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-1	-1	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	0	0	1	1	1	1	1	1
## 78	1	-1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1
## 80	1	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	-1	1	2	2	2	2	2	2
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	-1	0	0	0	0	0	0	0
## 89	1	1	1	1	1	1	1	1
## 90	0	0	1	1	1	1	1	1
## 91	1	1	1	1	1	1	1	1
## 92	1	1	2	2	1	1	1	1
## 93	-1	2	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	-1	-1	1	1	1	1	1	1
## 99	1	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1	1

```
## 101        1        1        1         1       1       1       1         1
## 102        0        0        0         0       0       0       0         0
## 103        1        1        1         1       1       1       1         1
## 104        0        0        0         0       0       0       0         0
## 105        0        0        1         1       1       1       1         1
## 106        1        1        1         1       1       1       1         1
## 107        0        0        0         0       0       0       0         0
## 108        0        1        1         1       1       1       1         1
## 109        0        0        0         0       0       0       0         0
## 110        1        1        1         1       1       1       1         1
## 111       -1        0        1         1       1       1       1         1
## 112       -1        0        0         0       0       0       0         0
## 113        1        1        2         2       1       1       1         1
## 114        0        0        0         0       0       0       0         0
## 115        1        1        1         1       1       1       1         1
## 116        0        0        0         0       0       0       0         0
##     cn_APCDD1L cn_ZNF831 cn_EDN3 cn_GATA5 cn_COL9A3 cn_EEF1A2 cn_SRMS cn_MYT1
## 1            1         1       1        1         1         1       1       1
## 2            0         0       0        0         0         0       0       0
## 3            2         2       2        2         2         2       2       2
## 4            2         2       2        2         2         2       2       2
## 5            0         0       0        0         0         0       0       0
## 6            1         1       1        1         1         1       1       1
## 7            0         0       0        0         0         0       0       0
## 8            1         1       1        1         1         1       1       1
## 9            0         1       1       -1        -1        -1      -1      -1
## 10           0         0       0        0         0         0       0       0
## 11           2         0       0        0         0         0       0       0
## 12           1         1       1        1         1         1       1       1
## 13           1         1       1        1         1         1       1       1
## 14           0         0       0        0         0         0       0       0
## 15           0         0       0        0         0         0       0       0
```

## 16	1	1	1	1	1	1	1	1
## 17	2	-1	-1	-1	-1	1	1	1
## 18	1	1	1	1	1	1	1	1
## 19	1	1	1	1	1	1	1	1
## 20	2	2	2	2	2	2	2	2
## 21	1	1	1	1	1	1	1	1
## 22	2	2	2	2	2	2	2	2
## 23	0	0	0	0	0	0	0	0
## 24	1	1	1	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	1	1	1	1	1	1	1	1
## 27	0	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	1	1	1	1	1	1	1	1
## 32	1	1	1	1	1	1	1	1
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1	1
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	2	2	2	0	0	0	0	0
## 39	1	1	1	1	1	1	1	1
## 40	1	1	1	1	1	1	1	1
## 41	0	0	0	0	0	0	0	0
## 42	0	0	1	1	1	1	1	1
## 43	1	1	1	1	1	1	1	1
## 44	2	2	2	2	2	2	2	2
## 45	0	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0	0

## 48	0	0	0	0	-1	1	1	1
## 49	0	0	0	0	0	0	0	0
## 50	1	1	1	1	1	1	1	1
## 51	1	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1	1
## 54	1	1	1	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	1	1	1	1	1
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	1	1	1	1	1	1	1	1
## 61	0	0	0	0	0	0	0	0
## 62	1	1	1	1	1	1	1	1
## 63	1	1	1	1	1	1	1	1
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0	0
## 70	1	1	1	1	1	1	1	1
## 71	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	0	0	0	0	0	0	0	0
## 76	1	1	1	1	1	1	1	1
## 77	1	1	1	1	1	1	1	1
## 78	1	1	1	1	1	1	1	1
## 79	1	1	1	1	1	1	1	1

## 80	1	2	2	2	1	1	1	1
## 81	1	1	1	1	1	1	1	1
## 82	2	2	2	1	-1	-1	-1	-1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1	-1
## 86	1	1	1	1	1	1	1	1
## 87	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	0	0	0
## 89	1	1	1	1	1	1	1	1
## 90	1	1	1	1	1	1	1	1
## 91	1	1	1	1	1	1	1	1
## 92	2	2	2	2	2	1	2	2
## 93	1	1	1	1	1	1	1	1
## 94	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0	0
## 98	1	1	1	1	1	1	1	1
## 99	1	1	1	1	1	1	1	1
## 100	1	1	1	1	1	1	1	1
## 101	1	1	1	1	1	1	1	1
## 102	0	0	0	0	0	0	0	0
## 103	1	1	1	1	1	1	1	1
## 104	0	0	0	0	0	1	1	0
## 105	1	1	1	1	1	1	1	1
## 106	1	1	1	1	1	1	1	1
## 107	0	0	0	0	0	0	0	0
## 108	1	1	1	1	1	1	1	1
## 109	0	0	0	0	0	0	0	0
## 110	1	1	1	1	1	1	1	1
## 111	1	1	1	1	1	1	1	1

```
## 112          0         0       0        0         0         0       0       0
## 113          1         1       1        1         1         1       1       1
## 114          0         0       0        0         0         0       0       0
## 115          1         1       1        1         1         1       1       1
## 116          0         0       0        0         0         0       0       0
##     cn_ABCC13 cn_CXADR cn_CHODL cn_NCAM2 cn_B3GALT5 cn_C21orf88 cn_FAM3B
## 1           0        0        0        0          0           0        0
## 2           0        0        0        0          0           0        0
## 3           1        1        1        1          1           1        1
## 4           0        0        0        0          0           0        0
## 5           0        0        0        0          0           0        0
## 6           2        2        2        2          2           2        2
## 7           0        0        0        0          0           0        0
## 8          -1       -1       -1       -1         -1          -1       -1
## 9           1        1        1        1          2           2        2
## 10          0        0        0        0          0           0        0
## 11          0        0        0        0          0           0        0
## 12          0        0        0        0          0           0        0
## 13          1        1        1        1          1           1        1
## 14          0        0        0        0          0           0        0
## 15          0        0        0        0          0           0        0
## 16          0        0        0        0          0           0        0
## 17          0        0        0        0          0           0        0
## 18          1        1        1        1          1           1        1
## 19          0        0        0        0          0           0        0
## 20         -1       -2       -2       -2          1           1        2
## 21          0        0        0        0          0           0        0
## 22         -1       -1       -1       -1         -1          -1       -1
## 23          0        0        0        0          0           0        0
## 24          1        1        1        1          0           0        0
## 25          0        0        0        0          0           0        0
## 26          0        0        0        0          0           0        0
```

## 27	0	0	0	0	0	0	0
## 28	1	1	1	1	1	1	1
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	1	1	1	1	1	1	1
## 36	1	1	1	1	1	1	1
## 37	-1	-1	-1	-1	-1	-1	-1
## 38	1	1	1	1	1	1	1
## 39	0	0	0	0	0	0	0
## 40	1	1	1	1	0	0	0
## 41	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1
## 43	1	1	1	1	2	2	1
## 44	1	1	1	1	1	1	1
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	1	1	1	1	1	1	1
## 52	0	0	0	0	0	0	0
## 53	1	1	1	1	1	1	1
## 54	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0
## 56	2	2	2	-1	1	1	1
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0

## 59	2	2	2	2	1	1	1
## 60	-1	-1	-2	-1	-1	-1	-1
## 61	-1	-1	-1	-1	-1	-1	-1
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	1	0	0	0	0	0	0
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1
## 79	0	0	0	0	0	0	0
## 80	1	1	1	1	1	1	1
## 81	1	1	1	1	1	1	1
## 82	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	1	1	1	1	1	1	1
## 85	1	1	1	1	1	1	1
## 86	0	0	0	0	0	0	0
## 87	-1	-1	-1	-1	-1	-1	-1
## 88	1	1	1	2	0	0	0
## 89	1	1	1	1	1	1	1
## 90	1	0	0	0	0	0	0

```
## 91          1        1        1        1          1          1        1
## 92          1        1        1        1          1          1        1
## 93         -2       -2       -2       -1         -1         -1       -1
## 94          0        0        0        0          0          0        0
## 95          0        0        0        0          0          0        0
## 96          0        0        0        0          0          0        0
## 97          0        0        0        0          0          0        0
## 98          0        0        0        0          0          0        0
## 99          1        1        1        1          1          1        1
## 100         1        1        1        1          1          1        1
## 101         1        1        1        1          1          1        1
## 102         0        0        0        0          0          0        0
## 103         0        0        0        0          0          0        0
## 104         0        0        0        0          1          1        1
## 105         0        0        0        0          0          0        0
## 106         0        0        0        0          0          0        0
## 107         0        0        0        0          0          0        0
## 108        -1        1        1        1          1          1        1
## 109         0        0        0        0          0          0        0
## 110        -2       -2       -2       -2         -1         -1       -1
## 111         1        1        1        1          1          1        1
## 112        -1       -1       -1       -1         -1         -1       -1
## 113        -1        1        1        1          1          1       -1
## 114         0        0        0        0          0          0        0
## 115         1        1        1        1          1          1        1
## 116         0        0        0        0          0          0        0
##     cn_TMPRSS2 cn_UMODL1 cn_S100B cn_CECR7 cn_CECR2 cn_CDC45 cn_PRODH cn_SLC7A4
## 1            0         0        0        0        0        0        0         0
## 2            0         0        0        0        0        0        0         0
## 3            1         1        1       -1       -1        2        2         2
## 4            0         0        0        0        0        0        0         0
## 5            0         0        0       -1       -1       -1       -1        -1
```

## 6	2	2	1	-1	-1	-1	-1	-1
## 7	0	0	0	-1	-1	-1	-1	-1
## 8	-1	-1	0	0	0	0	0	0
## 9	2	2	2	-1	-1	1	1	1
## 10	0	0	0	-1	-1	-1	-1	-1
## 11	0	0	0	-1	-1	-1	-1	-1
## 12	0	0	0	1	1	1	1	1
## 13	1	1	1	-1	-1	-1	-1	-1
## 14	0	0	0	-1	-1	-1	-1	-1
## 15	0	0	0	-1	-1	-1	-1	-1
## 16	0	0	0	-1	-1	-1	-1	-1
## 17	0	0	0	0	0	0	0	0
## 18	1	1	1	-1	-1	-1	-1	-1
## 19	0	0	0	-1	-1	-1	-1	-1
## 20	-1	2	2	-1	-1	-1	-1	-1
## 21	0	0	0	1	1	1	1	1
## 22	-1	-1	-1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	1	1	1	1	1
## 25	0	0	0	0	0	0	0	0
## 26	0	0	0	-1	-1	-1	-1	-1
## 27	0	0	0	-1	-1	-1	-1	-1
## 28	1	1	1	-1	-1	-1	-1	-1
## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1	-1
## 32	0	0	0	-1	-1	-1	-1	-1
## 33	0	0	0	-1	-1	-1	-1	-1
## 34	0	0	0	0	0	0	0	0
## 35	1	1	1	2	0	0	0	0
## 36	1	1	1	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	-1	-1

## 38	1	1	1	-1	-1	-1	-1	-1
## 39	0	0	0	-1	-1	-1	-1	-1
## 40	0	0	0	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1	1
## 43	1	1	1	0	0	0	0	0
## 44	1	1	1	1	1	1	1	1
## 45	0	0	0	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0	0
## 47	0	0	0	-1	-1	-1	-1	-1
## 48	0	0	0	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	-1	-1	-1	-1	-1
## 51	1	1	1	-1	-1	-1	-1	-1
## 52	0	0	0	-1	-1	-1	-1	-1
## 53	1	1	1	-1	-1	-1	-1	-1
## 54	0	0	0	1	1	1	1	1
## 55	0	0	0	0	0	0	0	0
## 56	1	1	1	0	0	0	0	0
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	1	1	1	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	-1	-1	-1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0
## 65	1	1	-1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	0	0	0	-1	-1	-1	-1	-1

## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	0	0	0	0	0	-1	-1	-1
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	0	0	0	1	1	1	1	1
## 75	0	0	0	-1	-1	-1	-1	-1
## 76	-1	-1	1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	1	1	1	-1	-1	-1	-1	-1
## 79	0	0	0	-1	-1	-1	-1	-1
## 80	1	1	2	-1	-1	-1	-1	-1
## 81	1	1	1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1	-1
## 84	1	1	1	0	0	0	0	0
## 85	1	1	1	-1	-1	-1	-1	-1
## 86	0	0	0	1	1	1	1	1
## 87	-1	-1	-1	-1	-1	-1	-1	-1
## 88	0	0	0	-2	-2	-1	-1	-1
## 89	1	1	1	-1	-1	-1	-1	-1
## 90	0	0	1	-1	-1	-1	-1	-1
## 91	1	1	1	1	1	-1	-1	-1
## 92	1	1	1	-1	-1	-1	-1	-1
## 93	-1	-1	-1	2	2	2	2	2
## 94	0	0	0	-1	-1	-1	-1	-1
## 95	0	0	0	-1	-1	-1	-1	-1
## 96	0	0	0	-1	-1	1	1	1
## 97	0	0	0	1	1	0	0	0
## 98	0	0	0	0	0	0	0	0
## 99	1	1	1	-1	-1	-1	-1	-1
## 100	1	1	1	0	0	0	0	0
## 101	1	1	1	0	0	0	0	0

```
## 102          0         0         0         0         0         0         0         0
## 103          0         0         0         0         0         0         0         0
## 104          1         1         1        -1        -1        -1        -1        -1
## 105          0         0         0         0         0        -1        -1        -1
## 106          0         0         0         0         0         0         0         0
## 107          0         0         0         0         0         0         0         0
## 108          1         1         1        -1        -1        -1        -1        -1
## 109          0         0         0         0         0         0         0         0
## 110         -1        -1        -1        -1        -1        -1        -1        -1
## 111          1         1         0         0         0         0         0         0
## 112         -1        -1        -1        -1        -1        -1        -1        -1
## 113         -1         1         1         0         0         0         0         0
## 114          0         0         0         0         0         0         0         0
## 115          1         1         1         0         0         0         0         0
## 116          0         0         0        -1        -1        -1        -1        -1
##      cn_TBX1 cn_PRAME cn_VPREB3 cn_MMP11 cn_GSTT1 cn_MYO18B cn_SEZ6L cn_NEFH
## 1          0        0         0        0        0         0        0       0
## 2          0        0         0        0        0         0        0       0
## 3          2        2         2        2        2         2       -1      -1
## 4          0        0         0        0        0         0        0       0
## 5         -1       -1        -1       -1       -1        -1       -1      -1
## 6         -1       -1        -1       -1       -1        -1       -1      -1
## 7         -1       -1        -1       -1       -1        -1       -1      -1
## 8          0        0         0        0        0         1        1      -1
## 9          1        2         2        2        2         2        0       2
## 10        -1       -1        -1       -1       -1        -1       -1      -1
## 11        -1       -1        -1       -1       -1        -1       -1      -1
## 12         1        1         1        1        1         1        1       1
## 13        -1       -1        -1       -1       -1        -1       -1      -1
## 14        -1       -1        -1       -1       -1        -1       -1      -1
## 15        -1       -1        -1       -1       -1        -1       -1      -1
## 16        -1       -1        -1       -1       -1        -1       -1      -1
```

```
## 17      0      0      0      0      0      0      0      0
## 18     -1     -1     -1     -1     -1     -1     -1     -1
## 19     -1     -1     -1     -1     -1     -1     -1     -1
## 20     -1     -1     -1     -1     -1     -1     -1     -1
## 21      1      1      1      1      1      1      1      1
## 22     -1     -1     -1     -1     -1     -1     -1     -1
## 23      0      0      0      0      0      0      0      0
## 24      1      1      1      1      1      1      1      1
## 25      0      0      0      0      0      0      0      0
## 26     -1     -1     -1     -1     -1     -1     -1     -1
## 27     -1     -1     -1     -1     -1     -1     -1     -1
## 28     -1     -1      0      0      0      0      0      0
## 29      0      0      0      0      0      0      0      0
## 30      0      0      0      0      0      0      0      0
## 31     -1     -1     -1     -1     -1     -1     -1     -1
## 32     -1     -1     -1     -1     -1     -1     -1     -1
## 33     -1     -1     -1     -1     -1     -1     -1     -1
## 34      0      0      0      0      0      0      0      0
## 35      0      0      0      0      0      0      0      0
## 36      0      0      0      0      0      0      0      0
## 37     -1     -1     -1     -1     -1     -1     -1     -1
## 38     -1     -1     -1     -1     -1     -1     -1      0
## 39     -1     -1     -1     -1     -1      0      0      0
## 40     -1     -1     -1     -1     -1     -1     -1     -1
## 41      0      0      0      0      0      0      0      0
## 42      1      1      1      1      1      1      1      1
## 43      0      0      0      0      0      0      0      0
## 44      1      1      1      1      1     -1     -1     -1
## 45     -1     -1     -1     -1     -1     -1     -1     -1
## 46      0      0      0      0      0      0      0      0
## 47     -1     -1     -1     -1     -1     -1     -1     -1
## 48     -1     -1     -1     -1     -1     -1     -1     -1
```

## 49	0	0	0	0	0	0	0	0
## 50	-1	-1	-1	-1	-1	-1	-1	-1
## 51	-1	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1	-1
## 53	-1	-1	-1	-1	-1	-1	-1	-1
## 54	1	1	1	1	1	-1	-1	-1
## 55	0	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0	0
## 57	0	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	-1	0	0
## 64	0	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0	0
## 69	-1	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1	-1
## 79	-1	-1	-1	-1	-1	-1	-1	-1
## 80	-1	-1	-1	-1	-1	-1	-1	1

```
## 81      -1      -1      -1      -1      -1      -1      -1      -1
## 82       1       1       1       1       1       1       1       1
## 83      -1      -1      -1      -1      -1      -1      -1      -1
## 84       0       0       0       0       0       0       0       0
## 85      -1      -1      -1      -1      -1      -1      -1      -1
## 86       1       1       1       1       1       1       1      -1
## 87      -1      -1      -1      -1      -1      -1      -1      -1
## 88      -1      -1      -1      -1      -1      -1      -1      -1
## 89      -1      -1      -1      -1      -1      -1      -1      -1
## 90      -1      -1      -1      -1      -1      -1      -1      -1
## 91      -1      -1      -1      -1      -1      -1      -1      -1
## 92      -1      -1      -1      -1      -1      -1      -1      -1
## 93       2       1       1       1       1       1       1       1
## 94      -1      -1      -1      -1      -1      -1      -1      -1
## 95      -1      -1      -1      -1      -1      -1      -1      -1
## 96       1       1      -1      -1      -1      -1      -1      -1
## 97       0       0       0       0       0       0       0       0
## 98       0       0       0       0       0       0       0       0
## 99      -1      -1      -1      -1      -1      -1      -1      -1
## 100      0       0       0       0       0       0       0       0
## 101      0       0       0       0       0       0       0       0
## 102      0       0       0       0       0       0       0       0
## 103      0       0       0       0       0       0       0       0
## 104     -1      -1      -1      -1      -1      -1      -1      -1
## 105     -1      -1      -1      -1      -1      -1      -1      -1
## 106      0       0       0       0       0       0       0       0
## 107      0       0       0       0       0       0       0       0
## 108     -1      -1      -1      -1      -1      -1      -1      -1
## 109      0       0       0       0       0       0       0       0
## 110     -1      -1      -1      -1      -1      -1      -1      -1
## 111      0       0       0       0       0       0       0       0
## 112     -1      -1      -1      -1      -1      -1      -1      -1
```

```
## 113       0        0         0        0        0         0        0       0
## 114       0        0         0        0        0         0        0       0
## 115       0        0         0        0        0         0        0       0
## 116      -1       -1        -1       -1       -1        -1       -1      -1
##     cn_SEC14L2 cn_INPP5J cn_PLA2G3 cn_SLC5A1 cn_TMPRSS6 cn_ELFN2 cn_LGALS2
## 1            0         0         0         0          0        0         0
## 2            0         0         0         0          0        0         0
## 3           -1        -1        -1        -1          1        1         1
## 4            0         0         0         0          0        0         0
## 5           -1        -1        -1        -1         -1       -1        -1
## 6           -1        -1        -1        -1         -1       -1        -1
## 7           -1        -1        -1        -1         -1       -1        -1
## 8           -1        -1        -1        -1          0        0         0
## 9            2         1         1         1          1        1         1
## 10          -1        -1        -1        -1         -1       -1        -1
## 11          -1        -1        -1        -1         -1       -1        -1
## 12           1         1         1         1          1        1         1
## 13          -1        -1        -1        -1         -1       -1        -1
## 14          -1        -1        -1        -1         -1       -1        -1
## 15          -1        -1        -1        -1         -1       -1        -1
## 16          -1        -1        -1        -1         -1       -1        -1
## 17           0         0         0         0          0        0         0
## 18          -1        -1        -1        -1         -1       -1        -1
## 19          -1        -1        -1        -1         -1       -1        -1
## 20          -1        -1        -1        -1         -1       -1        -1
## 21           1         1         1         1          1        1         1
## 22          -1        -1        -1        -1         -1       -1        -1
## 23           0         0         0         0          0        0         0
## 24           1         1         1         1          1        1         1
## 25           0         0         0         0          0        0         0
## 26          -1        -1        -1        -1         -1       -1        -1
## 27          -1        -1        -1        -1         -1       -1        -1
```

## 28	0	0	0	0	0	0	0
## 29	0	0	0	0	1	1	1
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	-1	-1	-1
## 33	-1	0	0	-1	-1	-1	-1
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	-1
## 38	-1	-1	-1	-1	-1	-1	-1
## 39	0	0	0	0	0	0	0
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	0	0	0	0
## 42	1	1	1	1	1	1	1
## 43	0	0	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0
## 47	-1	-1	-1	-1	-1	-1	-1
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0
## 50	-1	-1	-1	-1	-1	-1	-1
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1
## 53	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0

## 60	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	-1	-1	-1	-1	-1	-1	-1
## 79	-1	-1	-1	-1	-1	-1	-1
## 80	-1	1	1	-1	0	0	0
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	-1	-1	-1	-1	0	0	0
## 87	-1	-1	-1	-1	-1	-1	-1
## 88	-1	-1	-1	-1	-1	-1	-1
## 89	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1

```
## 92          -1        -1        -1        -1        -1        -1        -1
## 93           1         1         1         1         1         1         1
## 94          -1        -1        -1        -1        -1        -1        -1
## 95          -1        -1        -1        -1        -1        -1        -1
## 96          -1        -1        -1        -1        -1        -1        -1
## 97           0         1         1         0         0         1         1
## 98           0         0         0         0         0         0         0
## 99          -1        -1        -1        -1        -1        -1        -1
## 100          0         0         0         0         0         0         0
## 101          0         0         0         0         0         0         0
## 102          0         0         0         0         0         0         0
## 103          0         0         0         0         0         0         0
## 104         -1        -1        -1         1        -1        -1        -1
## 105         -1        -1        -1        -1        -1        -1        -1
## 106          0         0         0         0         0         0         0
## 107          0         0         0         0         0         0         0
## 108         -1        -1        -1        -1        -1        -1        -1
## 109          0         0         0         0         0         0         0
## 110         -1        -1        -1        -1        -1        -1        -1
## 111          0         0         0        -1        -1         0         0
## 112         -1        -1        -1        -1        -1        -1        -1
## 113          0         0         0         0         0         0         0
## 114          0         0         0         0         0         0         0
## 115          0         0         0         0         0         0         0
## 116         -1        -1        -1        -1        -1        -1        -1
##     cn_SOX10 cn_APOBEC3B cn_CACNA1I cn_SEPT3 cn_SERHL2 cn_SCUBE1 cn_MPPED1
## 1          0           0          0        0         0         0         0
## 2          0           0          0        0         0         0         0
## 3         -1           2         -1       -1        -1        -1        -1
## 4          0           0          0        0         0         0         0
## 5         -1          -1         -1       -1        -1        -1        -1
## 6         -1          -1         -1       -1        -1        -1        -1
```

## 7	-1	-1	-1	-1	-1	-1	-1
## 8	0	0	0	0	0	0	0
## 9	1	1	1	1	1	1	1
## 10	-1	-1	-1	-1	-1	-1	-1
## 11	-1	-1	-1	-1	-1	-1	-1
## 12	1	1	1	1	1	1	1
## 13	-1	-1	-1	-1	-1	-1	-1
## 14	-1	-1	-1	-1	-1	-1	-1
## 15	-1	-1	-1	-1	-1	-1	-1
## 16	-1	-1	-1	-1	-1	-1	-1
## 17	0	0	0	0	0	0	0
## 18	-1	-1	-1	-1	-1	-1	-1
## 19	-1	-1	-1	-1	-1	-1	-1
## 20	-1	-1	-1	-1	-1	-1	-1
## 21	1	1	1	1	1	1	1
## 22	1	-1	-1	-1	-1	-1	-1
## 23	0	0	0	0	0	0	0
## 24	1	1	1	0	0	0	0
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	0	0	0	0	0	0	0
## 29	1	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	-1	-1	-1
## 33	-1	-1	-1	-1	-1	-1	-1
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	-1
## 38	-1	-1	-1	0	0	0	0

## 39	0	0	0	-1	-1	0	0
## 40	-1	-1	-1	-1	-1	-1	-1
## 41	0	0	0	1	1	1	1
## 42	1	1	1	1	1	1	1
## 43	0	0	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0
## 47	-1	-1	-1	-1	-1	-1	-1
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0
## 50	-1	-1	-1	-1	-1	-1	-1
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1
## 53	1	1	1	1	1	1	1
## 54	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	-1	-1	-1	-1	-1

## 71	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	-1	1	1	1	1	1	1
## 79	-1	-1	-1	-1	-1	-1	-1
## 80	2	0	0	0	0	0	0
## 81	-1	-1	-1	-1	-1	-1	-1
## 82	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	0	0	0	-1	-1	-1	-1
## 87	-1	-1	-1	-1	-1	-1	-1
## 88	-1	-1	-1	-1	-1	-1	-1
## 89	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1
## 93	1	1	1	1	1	1	1
## 94	-1	-1	-1	-1	-1	-1	-1
## 95	-1	-1	-1	-1	-1	-1	-1
## 96	-1	-1	-1	-1	-1	-1	-1
## 97	0	0	0	0	0	0	0
## 98	0	0	0	0	0	0	0
## 99	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0
## 101	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0

```
## 103        0           0           0        0         0         0         0
## 104       -1          -1          -1       -1        -1        -1        -1
## 105       -1          -1          -1       -1        -1        -1        -1
## 106        0           0           0        0         0         0         0
## 107        0           0           0        0         0         0         0
## 108       -1          -1          -1       -1        -1        -1        -1
## 109        0           0           0        0         0         0         0
## 110       -1          -1          -1       -1        -1        -1        -1
## 111        0           0           0        0         0         0         0
## 112       -1          -1          -1       -1        -1        -1        -1
## 113        0           0           0        0         0         0         0
## 114        0           0           0        0         0         0         0
## 115        0           0           0        0         0         0         0
## 116       -1          -1          -1       -1        -1        -1        -1
##     cn_SULT4A1 cn_PNPLA3 cn_PHF21B cn_UPK3A cn_SMC1B cn_WNT7B cn_KLHDC7B
## 1            0         0         0        0        0        0          0
## 2            0         0         0        0        0        0          0
## 3           -1        -1        -1       -1       -1       -1         -1
## 4            0         0         0        0        0        0          0
## 5           -1        -1        -1       -1       -1       -1         -1
## 6           -1        -1        -1       -1       -1       -1         -1
## 7           -1        -1        -1       -1       -1       -1         -1
## 8            0         0         0        0        0        0          0
## 9            1         1         1        0        0        0          0
## 10          -1        -1        -1       -1       -1       -1         -1
## 11          -1        -1        -1       -1       -1       -1         -1
## 12           1         1         1        1        1        1         -1
## 13          -1        -1        -1       -1       -1       -1         -1
## 14          -1        -1        -1       -1       -1       -1         -1
## 15          -1        -1        -1       -1       -1       -1         -1
## 16          -1        -1        -1       -1       -1       -1         -1
## 17           0         0         0        0        0        0          0
```

## 18	-1	-1	-1	-1	-1	-1	-1
## 19	-1	-1	-1	-1	-1	-1	-1
## 20	-1	-1	-1	-1	-1	-1	-1
## 21	1	1	1	1	1	1	1
## 22	-1	-1	-1	-1	-1	2	-1
## 23	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	1
## 25	0	0	0	0	0	0	0
## 26	-1	-1	-1	-1	-1	-1	-1
## 27	-1	-1	-1	-1	-1	-1	-1
## 28	0	0	0	0	0	0	0
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	-1	-1	-1	-1	-1	-1	-1
## 32	-1	-1	-1	-1	-1	-1	0
## 33	-1	-1	-1	-1	-1	-1	-1
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0
## 37	-1	-1	-1	-1	-1	-1	-1
## 38	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0
## 40	-1	-1	-1	1	-1	-1	-1
## 41	1	1	1	1	1	1	1
## 42	1	1	1	1	1	1	1
## 43	0	0	0	0	0	0	0
## 44	-1	-1	-1	-1	-1	-1	-1
## 45	-1	-1	-1	-1	-1	-1	-1
## 46	0	0	0	0	0	0	0
## 47	-1	-1	-1	-1	-1	-1	-1
## 48	-1	-1	-1	-1	-1	-1	-1
## 49	0	0	0	0	0	0	0

## 50	-1	-1	-1	-1	-1	-1	-1
## 51	-1	-1	-1	-1	-1	-1	-1
## 52	-1	-1	-1	-1	-1	-1	-1
## 53	1	1	1	1	1	1	-1
## 54	-1	-1	-1	-1	-1	-1	-1
## 55	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0
## 57	0	0	0	0	0	0	0
## 58	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0
## 60	-1	-1	-1	-1	-1	-1	-1
## 61	1	1	1	1	1	1	1
## 62	-1	-1	-1	-1	-1	-1	-1
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	1	1	1	1	1	1	1
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	-1	-1	-1	-1	-1	-1	-1
## 70	-1	-1	-1	-1	-1	-1	-1
## 71	-1	-1	-1	-1	-1	-1	-1
## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	1	1	1	1	1	1	1
## 75	-1	-1	-1	-1	-1	-1	-1
## 76	-1	-1	-1	-1	-1	-1	-1
## 77	0	0	0	0	0	0	0
## 78	1	1	1	1	1	1	1
## 79	-1	-1	-1	-1	-1	-1	-1
## 80	0	0	0	0	0	0	0
## 81	-1	-1	-1	-1	-1	-1	-1

## 82	1	1	1	1	1	1	1
## 83	-1	-1	-1	-1	-1	-1	-1
## 84	0	0	0	0	0	0	0
## 85	-1	-1	-1	-1	-1	-1	-1
## 86	-1	-1	-1	-1	-1	-1	-1
## 87	-1	-1	-1	-1	-1	-1	-1
## 88	-1	-1	-1	-1	-1	-1	-1
## 89	-1	-1	-1	-1	-1	-1	-1
## 90	-1	-1	-1	-1	-1	-1	-1
## 91	-1	-1	-1	-1	-1	-1	-1
## 92	-1	-1	-1	-1	-1	-1	-1
## 93	1	1	1	1	1	1	1
## 94	-1	-1	-1	-1	-1	-1	-1
## 95	-1	-1	-1	-1	-1	-1	-1
## 96	-1	-1	-1	-1	-1	-1	-1
## 97	0	0	0	0	0	0	0
## 98	0	0	0	0	0	0	0
## 99	-1	-1	-1	-1	-1	-1	-1
## 100	0	0	0	0	0	0	0
## 101	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0
## 104	-1	-1	-1	-1	-1	-1	-1
## 105	-1	-1	-1	-1	-1	-1	-1
## 106	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0
## 108	-1	-1	-1	-1	-1	-1	-1
## 109	0	0	0	0	0	0	0
## 110	-1	-1	-1	-1	-1	-1	-1
## 111	0	0	0	0	0	0	0
## 112	-1	-1	-1	-1	-1	-1	-1
## 113	0	0	0	0	0	0	0

```
## 114          0          0          0         0         0         0          0
## 115          0          0          0         0         0         0          0
## 116         -1         -1         -1        -1        -1        -1         -1
##     cn_MAPK8IP2 cn_MLC1
## 1             0       0
## 2             0       0
## 3            -1      -1
## 4             0       0
## 5            -1      -1
## 6            -1      -1
## 7            -1      -1
## 8             0       0
## 9             0       0
## 10           -1      -1
## 11           -1      -1
## 12           -1      -1
## 13           -1      -1
## 14           -1      -1
## 15           -1      -1
## 16           -1      -1
## 17            0       0
## 18           -1      -1
## 19           -1      -1
## 20           -1      -1
## 21            1       1
## 22           -1      -1
## 23            0       0
## 24            1       1
## 25            0       0
## 26           -1      -1
## 27           -1      -1
## 28            0       0
```

```
## 29            0       0
## 30            0       0
## 31           -1      -1
## 32            0       0
## 33           -1      -1
## 34            0       0
## 35            0       0
## 36            0       0
## 37           -1      -1
## 38            0       0
## 39            0       0
## 40           -1      -1
## 41            1       1
## 42            1       1
## 43            0       0
## 44           -1      -1
## 45           -1      -1
## 46            0       0
## 47           -1      -1
## 48           -1      -1
## 49            0       0
## 50           -1      -1
## 51           -1      -1
## 52           -1      -1
## 53           -1      -1
## 54           -1      -1
## 55            0       0
## 56            0       0
## 57            0       0
## 58            0       0
## 59            0       0
## 60           -1      -1
```

```
## 61            1       1
## 62           -1      -1
## 63            0       0
## 64            0       0
## 65            1       1
## 66            0       0
## 67            0       0
## 68            0       0
## 69           -1      -1
## 70           -1      -1
## 71           -1      -1
## 72            0       0
## 73            0       0
## 74            1       1
## 75           -1      -1
## 76           -1      -1
## 77            0       0
## 78            1       1
## 79           -1      -1
## 80            0       0
## 81           -1      -1
## 82            1       1
## 83           -1      -1
## 84            0       0
## 85           -1      -1
## 86           -1      -1
## 87           -1      -1
## 88           -1      -1
## 89           -1      -1
## 90           -1      -1
## 91           -1      -1
## 92           -1      -1
```

```
## 93            1       1
## 94           -1      -1
## 95           -1      -1
## 96           -1      -1
## 97            0       0
## 98            0       0
## 99           -1      -1
## 100           0       0
## 101           0       0
## 102           0       0
## 103           0       0
## 104          -1      -1
## 105          -1      -1
## 106           0       0
## 107           0       0
## 108          -1      -1
## 109           0       0
## 110          -1      -1
## 111           0       0
## 112          -1      -1
## 113           0       0
## 114           0       0
## 115           0       0
## 116          -1      -1
##  [ reached 'max' / getOption("max.print") -- omitted 391 rows ]
```

```
brca_data[1465:1713]
```

```
##     mu_ANK3 mu_GATA3 mu_HECTD4 mu_LRBA mu_LRP2 mu_SYNE1 mu_CDH1 mu_MGA mu_MUC16
## 1         0        0         0       0       0        0       0      0        1
## 2         1        0         0       0       0        0       0      0        0
## 3         0        0         0       0       0        0       0      0        0
```

## 4	0	1	0	0	0	0	0	0	0
## 5	0	0	0	0	0	0	0	0	1
## 6	0	0	0	0	0	0	0	0	0
## 7	0	0	0	0	0	0	0	0	0
## 8	0	0	0	0	0	0	0	0	0
## 9	0	0	0	0	0	0	0	0	0
## 10	0	0	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0	0	0
## 13	0	0	0	0	0	0	0	0	0
## 14	0	0	1	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0	0	0
## 18	0	0	0	0	0	0	0	0	0
## 19	0	1	0	1	0	0	0	0	0
## 20	0	0	0	0	1	0	0	0	0
## 21	0	0	0	0	0	0	0	0	0
## 22	0	0	1	0	0	0	0	0	0
## 23	0	0	0	0	0	0	0	0	1
## 24	0	0	1	0	0	0	0	0	0
## 25	0	1	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0	1	0
## 28	0	0	0	0	0	0	0	0	0
## 29	0	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0	1
## 32	0	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	1	0	0
## 35	0	0	0	0	0	1	0	0	0

## 36	0	0	0	0	0	0	0	0	0
## 37	0	1	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0	0
## 39	0	0	0	1	0	0	0	0	0
## 40	0	0	0	0	0	0	0	0	0
## 41	0	0	0	0	0	0	0	0	1
## 42	0	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0	1
## 45	0	0	0	0	1	0	1	0	0
## 46	0	1	1	1	1	1	0	0	1
## 47	0	0	0	0	0	0	1	0	1
## 48	0	0	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	1	0	0
## 51	0	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	1	0	0	0
## 55	0	0	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0	0	0
## 57	0	0	0	0	0	0	1	0	1
## 58	0	0	0	0	0	0	0	0	0
## 59	0	0	0	0	0	0	0	0	0
## 60	0	0	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	1	0	0
## 62	0	0	0	0	0	0	0	0	0
## 63	0	0	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0	0	0

## 68	0	0	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	1	0	0
## 70	0	1	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0	0	0
## 72	0	0	0	0	0	0	0	0	1
## 73	0	0	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0	0	0
## 76	0	0	0	0	0	0	0	0	1
## 77	0	0	0	0	0	0	0	0	0
## 78	0	0	0	0	0	0	0	0	0
## 79	0	0	0	0	0	0	0	0	0
## 80	0	0	0	0	0	0	0	0	0
## 81	0	0	0	0	0	0	0	0	0
## 82	0	0	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0	0	0
## 84	0	0	0	0	1	0	0	0	0
## 85	0	0	0	0	0	0	0	0	0
## 86	0	0	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0	0	0
## 88	0	1	0	0	0	0	0	0	0
## 89	0	1	0	0	0	0	0	0	0
## 90	0	0	0	0	0	0	0	0	0
## 91	0	0	0	0	0	0	0	0	1
## 92	1	0	0	0	0	0	0	0	0
## 93	0	1	0	0	0	0	0	0	0
## 94	0	0	0	0	0	0	0	0	0
## 95	0	0	0	0	0	0	0	0	0
## 96	0	0	1	0	0	0	0	0	1
## 97	0	0	0	0	0	0	0	0	1
## 98	0	0	0	0	0	0	0	0	0
## 99	0	0	1	0	0	0	0	0	0

## 100	0	0	0	0	0	0	0	0	0
## 101	0	0	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0	1	0
## 103	0	1	0	0	0	0	0	0	1
## 104	0	0	0	0	0	0	0	0	0
## 105	0	0	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0	0	0
## 108	0	0	0	0	0	0	0	0	0
## 109	0	0	0	0	0	0	0	0	0
## 110	0	1	0	0	0	0	0	0	0
## 111	0	0	0	0	0	0	0	0	0
## 112	0	0	0	0	0	0	0	0	0
## 113	0	0	0	0	0	0	0	0	0
## 114	0	0	0	0	0	0	0	0	0
## 115	0	0	0	0	0	0	0	0	0
## 116	0	0	0	0	0	0	0	0	0
## 117	0	0	0	0	0	0	1	0	0
## 118	0	0	0	0	0	0	0	0	0
## 119	0	0	1	0	0	1	0	0	0
## 120	0	0	0	0	0	0	0	0	0
## 121	0	0	0	0	0	0	0	0	0
## 122	0	0	0	0	0	0	0	0	0
## 123	0	0	0	0	0	0	0	0	0
## 124	0	0	0	0	1	0	0	0	1
## 125	0	0	0	0	0	0	0	1	0
## 126	0	0	0	0	0	0	0	0	0
## 127	0	0	0	0	0	0	0	0	0
## 128	0	1	0	0	0	0	0	0	0
## 129	0	0	0	0	0	0	1	0	0
## 130	0	0	0	0	0	0	1	0	0
## 131	0	1	0	1	0	1	1	0	0

## 132	0	0	0	0	0	0	1	0	0
## 133	0	0	0	0	0	0	1	0	0
## 134	0	0	0	0	0	0	0	0	0
## 135	0	0	0	0	0	0	0	0	0
## 136	0	0	0	0	0	0	0	0	0
## 137	0	0	0	0	0	0	0	0	0
## 138	0	0	0	1	0	0	0	0	1
## 139	0	0	0	0	0	0	0	0	1
## 140	1	1	0	1	0	0	1	0	1
## 141	0	0	0	0	0	0	0	0	0
## 142	0	1	0	0	0	0	0	0	0
## 143	0	0	0	0	0	0	0	0	0
## 144	0	0	0	0	0	0	0	0	0
## 145	0	0	0	0	0	1	0	0	0
## 146	0	1	0	0	0	0	0	0	0
## 147	0	0	0	0	0	0	0	0	0
## 148	0	0	0	0	0	0	0	0	1
## 149	0	0	0	0	0	0	0	0	1
## 150	0	0	0	0	0	0	0	0	0
## 151	0	0	0	0	0	0	0	0	0
## 152	0	0	0	0	0	0	0	0	0
## 153	0	0	0	0	0	0	0	0	0
## 154	0	0	0	0	0	0	0	0	0
## 155	0	0	0	0	0	0	0	0	0
## 156	0	0	0	0	0	1	0	0	0
## 157	0	0	0	0	0	0	0	0	0
## 158	0	0	0	0	0	0	0	0	0
## 159	0	0	0	0	0	0	0	0	0
## 160	0	0	0	0	0	0	0	0	0
## 161	0	0	0	0	0	0	0	0	0
## 162	0	0	0	0	0	1	0	1	0
## 163	0	0	0	0	0	0	0	0	0

## 164	0	0	0	1	1	0	0	0	0
## 165	0	0	0	0	0	0	0	0	0
## 166	0	0	0	0	0	0	0	0	0
## 167	0	1	0	0	0	0	0	0	0
## 168	0	0	0	0	0	0	0	0	0
## 169	0	0	0	0	0	0	0	0	0
## 170	0	0	0	0	0	0	1	0	0
## 171	0	0	0	0	0	0	1	0	0
## 172	0	0	0	0	0	0	0	1	0
## 173	0	0	0	0	0	0	0	0	0
## 174	0	0	0	0	0	0	0	0	0
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## 187	0	0	0	0	0	1	0	0	0
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## 269	0	1	0	0	0	0	0	0	0
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## 293	0	0	0	0	0	0	0	0	0
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## 303	0	0	0	0	0	0	0	0	0
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## 305	0	0	0	0	0	0	0	0	0
## 306	0	0	0	0	0	1	0	0	0
## 307	0	0	0	0	0	1	1	0	1
## 308	0	0	0	0	0	0	0	0	0
## 309	1	0	0	0	0	0	0	0	0
## 310	0	0	0	0	0	0	0	0	0
## 311	0	0	0	0	1	0	0	0	0
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## 315	0	0	0	0	0	0	0	0	0
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## 317	0	0	0	0	0	0	0	0	0
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## 382	0	0	0	0	0	0	0	0	0
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## 384	0	0	0	0	0	0	1	0	1
## 385	0	0	0	0	0	0	0	0	1
## 386	0	0	0	0	0	0	0	0	0
## 387	0	0	0	0	0	0	0	0	0

```
## 388        0         1         0         0         0         0         0         0         0
## 389        0         0         0         0         0         0         0         0         0
## 390        0         0         0         0         0         0         0         0         0
## 391        0         0         0         0         0         0         0         0         0
## 392        0         0         0         0         0         0         0         0         1
## 393        0         0         0         0         0         0         0         0         0
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## 395        0         0         0         0         0         0         0         0         0
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## 397        0         0         0         0         0         0         1         0         0
## 398        0         0         0         0         1         1         0         0         0
## 399        0         0         0         0         0         0         0         0         0
## 400        0         0         0         0         0         0         0         0         0
## 401        0         0         0         0         0         0         0         0         0
##     mu_ZFHX4 mu_LAMA2 mu_MLL3 mu_MUC5B mu_PLXNA4 mu_PTPRD mu_CSMD2 mu_DSCAM
## 1          0        1       1        1         1        1        0        0
## 2          1        0       0        0         0        0        0        0
## 3          0        0       0        0         0        0        0        0
## 4          0        0       0        0         0        0        0        0
## 5          0        0       0        0         0        0        0        0
## 6          0        0       0        0         0        0        0        0
## 7          0        0       0        0         0        0        0        0
## 8          0        0       0        0         0        0        0        0
## 9          0        0       0        0         0        0        0        0
## 10         0        0       0        0         0        0        0        0
## 11         0        0       0        0         0        0        1        0
## 12         0        0       0        0         0        0        0        0
## 13         0        0       0        0         0        0        0        0
## 14         0        0       0        0         0        0        0        0
## 15         0        0       0        0         0        0        0        0
## 16         0        0       1        0         0        0        0        0
## 17         0        0       0        0         0        0        0        0
```

## 18	0	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	0	0
## 21	0	0	0	0	0	0	0	0
## 22	0	0	0	0	0	0	0	0
## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0
## 25	0	0	1	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0	0
## 28	0	0	0	0	0	0	0	1
## 29	0	0	0	1	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	1	0	0	0	0	0
## 39	0	0	0	0	1	0	0	0
## 40	0	0	0	0	0	0	0	0
## 41	0	0	0	0	0	0	1	0
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
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## 46	0	1	0	0	1	0	1	1
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## 50	0	0	0	1	0	0	0	0
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## 59	0	0	0	0	0	0	0	0
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## 81	0	0	0	0	0	0	1	1

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## 92	0	0	0	0	0	0	0	0
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## 95	0	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0	0
## 97	0	0	0	1	0	0	0	0
## 98	0	0	0	0	0	0	0	0
## 99	0	0	0	0	0	0	0	0
## 100	0	0	1	0	0	0	0	0
## 101	0	0	0	0	0	0	0	0
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## 106	0	0	0	0	0	0	0	0
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## 133	0	0	0	0	0	0	0	0
## 134	0	0	0	0	0	0	0	0
## 135	0	0	0	0	0	0	0	0
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## 144	0	0	0	0	0	0	0	0
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## 287	0	0	0	0	0	0	0

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## 399        0         0         0           0         0         0         0
## 400        0         0         0           0         0         0         0
## 401        0         0         0           0         0         0         0
##     mu_COL7A1 mu_CSMD1 mu_CUBN mu_DMD mu_DNAH8 mu_GOLGA6L2 mu_HYDIN mu_MUC12
## 1           0        0       0      0        0           0        0        0
## 2           1        1       1      1        1           1        1        1
## 3           0        0       0      0        0           0        0        0
## 4           0        0       0      0        0           0        0        0
## 5           0        0       0      0        0           0        0        0
## 6           0        0       0      0        0           1        0        1
## 7           0        0       0      0        0           0        0        0
## 8           0        0       0      0        0           1        0        0
## 9           0        0       0      0        0           0        0        0
## 10          0        0       0      0        0           0        0        0
## 11          0        0       0      0        0           0        0        0
## 12          0        0       0      0        0           0        0        0
## 13          0        0       0      0        0           0        0        0
```

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## 15	0	0	0	0	0	0	0	0
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## 21	0	0	0	0	0	0	1	0
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## 46	1	0	0	0	0	0	0	1
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## 397	0	0	0	0	0	0	0	0

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##      mu_PLCE1 mu_RYR2 mu_USH2A mu_AHNAK mu_CDH23 mu_CEP350 mu_DNAH1 mu_DNAH7
## 1           0       0        0        0        0         0        0        0
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## 3           0       0        0        0        0         0        0        0
## 4           1       0        0        0        0         0        0        0
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## 6           0       1        0        0        0         0        0        0
## 7           0       0        0        0        0         0        0        0
## 8           1       0        0        0        0         0        0        0
## 9           0       0        0        0        0         0        0        0
## 10          0       0        0        0        0         0        0        0
## 11          0       0        0        0        0         0        0        0
## 12          0       0        0        0        0         0        0        0
## 13          0       0        0        0        0         0        0        0
## 14          0       0        0        0        0         0        0        0
## 15          0       0        0        0        0         0        0        0
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## 17          0       0        0        0        0         0        1        0
## 18          0       0        0        0        0         0        0        0
## 19          0       0        0        1        0         0        0        0
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## 21          0       0        0        0        0         0        0        0
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## 25          0       0        0        0        0         1        0        0
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## 27          0       0        0        0        0         0        0        0
```

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## 401         0         0         0         0         0         0         0         0
##     mu_HERC2 mu_IGSF10 mu_KAT6B mu_PIK3CA mu_QSER1 mu_RB1 mu_TAF1L mu_TCHH
## 1          0         0        0         0        0      0         0       0
## 2          0         0        0         0        0      0         0       0
## 3          0         0        0         0        0      0         0       0
## 4          0         0        0         0        0      0         0       0
## 5          0         0        0         1        0      0         0       0
## 6          0         0        0         1        0      0         0       0
## 7          0         0        0         0        0      0         0       0
## 8          0         0        0         1        0      0         0       0
## 9          0         0        0         0        0      0         0       0
```

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## 27	0	0	0	1	0	0	0	0
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## 212	0	0	0	1	0	0	0	0
## 213	0	0	0	0	0	0	0	0
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## 215	0	0	0	1	0	0	0	0
## 216	0	0	0	0	0	0	0	0
## 217	0	0	0	0	0	0	0	0
## 218	0	0	0	0	0	0	0	0
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## 221	0	0	0	1	0	0	0	0
## 222	0	0	0	1	0	0	0	0
## 223	0	0	0	0	0	0	0	0
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## 228	0	0	0	0	0	0	0	0
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## 253	0	0	0	1	0	0	0	0
## 254	0	0	0	1	0	0	0	0
## 255	0	0	0	1	0	0	0	0
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## 262	0	0	0	1	0	0	0	0
## 263	0	0	0	0	0	1	0	0
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## 275	0	0	0	1	0	0	0	0
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## 283	0	0	0	1	0	0	0	0
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## 285	0	0	0	1	0	0	0	0
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## 299	0	0	0	0	0	0	0	0
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## 320	0	0	0	1	0	0	1	0
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## 388	0	0	0	0	0	0	0	0
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## 391	0	0	0	0	0	0	0	0
## 392	0	0	0	0	0	0	0	0
## 393	0	0	0	0	0	0	0	0

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## 394         1         0         0         0         1         0         0         0
## 395         0         0         0         1         0         0         0         0
## 396         0         0         0         1         0         0         0         0
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## 398         0         1         0         0         0         1         0         1
## 399         0         0         0         0         1         0         0         0
## 400         0         0         0         0         0         0         0         0
## 401         0         0         0         0         0         0         0         0
##     mu_TEX15 mu_TP53 mu_ZFHX3 mu_SPEN mu_FAT3 mu_MUC4 mu_OBSCN mu_MUC20 mu_ODZ4
## 1          0       0        0       0       0       0        0        0       0
## 2          0       0        0       0       0       0        0        0       0
## 3          0       0        0       1       0       0        0        0       0
## 4          0       0        0       0       0       0        0        0       0
## 5          0       0        0       0       0       0        0        0       0
## 6          1       1        0       0       0       0        0        0       0
## 7          0       0        0       0       0       0        0        0       0
## 8          0       1        0       0       0       0        0        0       0
## 9          0       1        0       0       0       1        0        0       0
## 10         0       0        0       0       0       0        0        0       1
## 11         0       0        0       0       0       0        0        0       0
## 12         0       0        0       0       0       0        0        0       0
## 13         0       1        0       0       0       0        0        0       1
## 14         0       0        0       0       0       0        0        0       0
## 15         0       0        0       0       0       0        0        0       0
## 16         0       0        0       0       0       0        0        0       0
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## 19         0       0        0       0       0       0        0        0       0
## 20         0       1        0       0       0       0        0        0       0
## 21         0       0        1       0       0       0        0        0       0
## 22         0       1        0       0       0       0        0        0       0
## 23         0       1        0       0       0       0        0        0       0
```

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## 25	0	0	0	0	0	0	0	0	0
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## 27	0	0	0	0	0	0	0	0	0
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## 29	0	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0	0	0
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## 35	0	1	0	1	0	1	0	0	0
## 36	0	0	0	0	0	0	0	0	0
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## 38	0	1	0	0	1	0	0	0	0
## 39	0	1	0	0	0	1	0	0	0
## 40	0	1	0	0	0	0	0	0	0
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## 44	0	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0	0
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## 47	0	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	0	0
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## 55	0	0	0	1	0	0	0	0	0

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## 95	0	0	0	0	0	0	0	0	0
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## 191	0	0	0	0	0	0	0	0	0
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##     mu_ZAN mu_AKAP9 mu_DNAH12 mu_DNAH5 mu_KIF26B mu_NCOR1 mu_ARID1A mu_ASPM
## 1        0        0         0        0         0        0         0       0
## 2        0        0         0        0         0        0         0       0
## 3        0        0         0        0         0        0         0       0
## 4        0        0         0        0         0        0         0       0
## 5        0        0         0        0         0        0         0       0
```

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## 179	0	0	0	0	0	0	0	0
## 180	0	0	0	0	0	0	0	0
## 181	0	0	0	0	0	0	0	0
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## 190	0	0	0	0	0	0	0	0
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## 288	0	0	0	0	0	0	0	0
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## 295	0	0	0	0	0	0	0	0
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## 298	0	0	0	0	0	0	0	0
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## 301	0	0	0	0	0	0	0	0
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## 304	0	0	0	0	0	0	0	0
## 305	0	0	0	0	0	0	0	0
## 306	0	0	0	0	0	0	0	0
## 307	0	1	0	0	0	0	0	1
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## 310	0	0	0	0	0	0	0	0
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## 312	0	0	0	0	0	0	0	0
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## 329	0	0	0	0	0	0	0	0
## 330	1	0	0	0	0	0	0	0
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## 350	0	0	0	0	0	0	0	0
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## 379	0	0	0	0	0	0	0	0
## 380	0	0	0	0	0	1	0	0
## 381	0	0	0	0	0	1	0	0
## 382	0	0	0	1	0	0	0	0
## 383	0	0	0	0	0	0	0	0
## 384	0	0	0	0	0	0	0	0
## 385	0	0	0	0	0	0	0	0
## 386	0	0	0	0	0	0	0	0
## 387	1	0	0	0	0	0	0	0
## 388	0	0	0	0	0	0	0	0
## 389	0	0	0	0	0	0	0	0

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## 390       0         0         0         0         0         0         0         0
## 391       0         0         0         0         0         0         0         0
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## 394       0         0         1         0         1         0         0         0
## 395       0         0         0         0         0         0         0         0
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## 397       0         0         0         0         0         0         0         0
## 398       0         0         0         0         0         0         0         0
## 399       0         0         0         0         0         0         0         0
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##     mu_CROCC mu_DNAH17 mu_DSPP mu_HRNR mu_SVEP1 mu_ANK1 mu_CROCCP2 mu_MTOR
## 1          0         0       0       0        0       0          0       0
## 2          0         0       0       0        0       0          0       0
## 3          0         0       0       0        0       0          0       0
## 4          0         0       0       0        0       1          1       1
## 5          0         0       0       0        0       0          0       0
## 6          0         0       0       0        0       0          0       0
## 7          0         0       0       0        1       0          0       0
## 8          0         0       0       0        0       0          0       0
## 9          0         0       0       0        0       0          0       1
## 10         0         0       0       0        0       0          0       0
## 11         0         0       0       0        0       0          0       0
## 12         0         0       0       0        0       0          0       0
## 13         0         0       0       0        0       0          0       0
## 14         0         0       0       0        0       0          0       0
## 15         0         0       0       0        0       0          0       0
## 16         0         0       0       0        0       0          0       0
## 17         0         0       0       0        0       0          0       0
## 18         0         0       0       0        0       0          0       0
## 19         0         0       0       0        0       0          0       0
```

## 20	0	0	0	0	1	0	0	0
## 21	0	0	0	0	0	0	0	0
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## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
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## 27	0	0	0	0	0	0	1	0
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## 30	0	0	0	0	0	0	0	0
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## 33	0	0	0	0	0	0	0	0
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## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0
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## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
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## 45	0	0	0	0	0	0	0	0
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## 47	0	0	0	0	0	1	0	0
## 48	0	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0	0
## 50	0	0	1	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0

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## 54	0	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0	0
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## 59	0	0	0	0	0	0	0	0
## 60	0	0	0	0	0	0	0	0
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## 97	0	0	0	0	0	0	0	0
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## 99	0	0	0	0	1	0	0	0
## 100	0	0	0	0	0	0	0	0
## 101	0	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	1	0
## 103	0	0	0	0	0	0	0	0
## 104	0	0	0	0	0	0	0	0
## 105	0	0	0	0	0	0	0	0
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## 108	0	0	0	0	0	0	0	0
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## 137	0	0	0	0	0	0	0	0
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## 140	0	1	0	0	0	0	0	0
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## 399         0         0       0       0         0       0         1       0
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##     mu_LAMA1 mu_MST1P9 mu_PCNT mu_SCN2A mu_TTN mu_DNAH6 mu_DYNC2H1 mu_OTOGL
## 1          0         0       0        0      0        0           0        0
```

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## 6	0	0	0	0	0	1	1	1
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## 383	0	0	0	0	0	0	0	0
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## 385	0	0	0	0	1	0	0	0

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## 386         0         0       0         0       0         0         0       0
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## 401         0         0       0         0       0         0         0       0
##     mu_TNRC6B mu_NF1 mu_PCLO mu_ADAMTSL1 mu_CACNA1D mu_FBN3 mu_MEGF8 mu_DST
## 1           0      0       0           0         0       0        0       0
## 2           0      0       0           0         0       0        0       0
## 3           0      0       0           0         0       0        0       0
## 4           0      0       0           0         0       0        0       0
## 5           0      0       0           0         0       0        0       0
## 6           1      0       0           0         0       0        0       0
## 7           0      1       1           0         0       0        0       0
## 8           0      0       0           0         0       0        0       1
## 9           1      0       0           0         0       0        0       0
## 10          0      0       0           0         0       0        0       0
## 11          0      0       0           0         0       0        0       0
## 12          0      0       0           0         0       0        0       0
## 13          0      0       0           0         0       0        0       0
## 14          0      0       0           0         0       0        0       0
## 15          0      0       0           0         0       0        0       0
```

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## 17	0	0	0	0	0	1	0	0
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## 19	0	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	0	0
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## 23	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	1	0	0
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## 30	0	0	0	0	0	0	0	0
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## 189	0	0	0	0	0	0	0	0
## 190	0	0	0	0	0	0	0	0
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## 193	0	0	0	0	0	0	0	0
## 194	0	0	0	0	0	0	0	0
## 195	0	0	0	0	0	0	0	0
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## 197	0	0	0	1	0	0	0	0
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## 199	0	0	0	0	0	0	0	0
## 200	0	0	0	0	0	0	0	0
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## 307	0	0	0	0	0	0	0	0
## 308	0	0	0	0	0	0	0	0
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## 395	0	0	0	1	0	0	0	0
## 396	0	0	0	0	0	0	0	1
## 397	0	0	0	0	0	0	0	0
## 398	0	0	1	0	0	0	1	1
## 399	0	0	0	0	0	0	0	0

```
## 400          0       0        0            0           0        0         0       0
## 401          0       0        0            0           0        0         0       0
##      mu_LYST mu_MDN1 mu_TP53BP1 mu_ABCB1 mu_MXRA5 mu_HEATR7B2 mu_ATP10B mu_CHD4
## 1          0       0          0        0        0           0         0       0
## 2          0       0          0        0        0           0         0       0
## 3          0       0          0        0        0           0         0       0
## 4          0       0          0        0        0           0         0       0
## 5          0       0          0        0        0           0         0       0
## 6          0       0          0        0        0           0         0       0
## 7          0       0          0        0        0           0         0       0
## 8          1       1          1        0        0           0         0       0
## 9          0       0          0        1        1           0         0       0
## 10         0       0          0        0        0           1         0       0
## 11         0       0          0        0        0           0         0       0
## 12         0       0          0        0        0           0         0       0
## 13         0       0          0        0        0           0         0       0
## 14         0       0          0        0        0           0         0       0
## 15         0       0          0        0        0           0         0       0
## 16         0       0          0        0        0           0         0       0
## 17         1       0          0        1        0           0         0       0
## 18         0       0          0        0        0           0         0       0
## 19         0       0          0        0        0           0         0       0
## 20         0       0          0        0        0           0         0       0
## 21         0       1          0        0        0           0         0       0
## 22         0       0          0        0        0           0         0       0
## 23         0       0          0        0        0           0         0       0
## 24         0       0          0        0        0           0         0       0
## 25         0       0          0        0        0           0         0       0
## 26         0       0          0        0        0           0         0       0
## 27         0       0          0        0        0           0         0       0
## 28         0       0          0        0        0           0         0       0
## 29         0       0          0        0        0           0         0       0
```

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## 31	0	0	0	0	0	0	0	0
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## 33	0	0	0	0	0	0	0	0
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## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	1	0	0	0	0
## 40	0	0	0	0	0	0	0	0
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## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0
## 46	0	1	0	0	0	0	0	1
## 47	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	1	0	0	0
## 51	0	0	0	0	0	0	0	0
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## 53	0	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0	0
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## 110	0	0	0	0	0	0	0	0
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## 114	0	0	0	0	0	0	0	0
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## 120	0	0	0	0	0	0	0	0
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## 122	0	0	0	0	0	0	0	0
## 123	0	0	0	0	0	0	0	0
## 124	0	0	0	1	0	0	0	0
## 125	0	0	0	0	0	0	1	0

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## 130	0	0	0	0	0	0	0	0
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## 133	0	0	0	0	0	0	0	0
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## 149	0	0	0	0	0	0	0	0
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## 187	0	0	0	1	0	0	0	1
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## 202	0	0	0	0	0	1	0	0
## 203	0	0	0	0	0	0	0	0
## 204	0	0	0	0	0	0	0	0
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## 208	0	0	0	0	0	0	0	0
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## 294	0	0	0	0	0	0	0	0
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## 304	0	0	0	0	0	0	0	0
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## 340	0	0	0	0	0	0	0	0
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## 372	0	0	0	0	0	0	0	0
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## 375	0	0	0	0	0	0	0	0
## 376	0	0	0	0	0	0	0	0
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## 379	0	0	0	0	0	0	0	0
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## 381	0	0	0	0	0	0	0	0

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## 382       0       0         0       0       0         0       0
## 383       0       0         0       0       0         0       0
## 384       0       0         0       0       0         0       1
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## 388       0       0         0       0       0         0       0
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## 397       0       0         0       0       0         0       0
## 398       0       0         0       0       0         0       0
## 399       0       0         0       0       0         0       0
## 400       0       0         0       0       0         0       0
## 401       0       0         0       0       0         0       0
##     mu_FAT4 mu_FREM1 mu_MUC17 mu_TG mu_TLN1 mu_DNAH3 mu_MGAM mu_NEB mu_RNF213
## 1         0        0        0     0       0        0       0      0         0
## 2         0        0        0     0       0        0       0      0         0
## 3         0        0        0     0       0        0       0      0         0
## 4         0        0        0     0       0        0       0      0         0
## 5         0        0        0     0       0        0       0      0         0
## 6         0        0        0     0       0        0       0      0         0
## 7         0        0        0     0       0        0       0      0         0
## 8         0        0        0     0       0        0       0      0         0
## 9         0        0        0     0       0        0       0      0         0
## 10        0        0        0     0       0        0       0      0         0
## 11        0        0        0     0       0        0       0      1         1
```

## 12	0	0	0	0	0	0	0	0	0
## 13	0	0	0	0	0	0	0	0	0
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## 15	0	0	0	0	0	0	0	0	0
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## 17	0	0	0	0	0	0	0	0	0
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## 19	0	0	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	0	0	1
## 21	0	0	0	0	0	0	0	0	0
## 22	0	0	0	0	0	0	0	0	0
## 23	0	0	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0	0	0
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## 28	1	0	0	0	0	0	0	0	0
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## 35	0	0	1	0	0	0	0	1	0
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## 37	0	0	0	0	0	0	0	0	0
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## 41	0	0	0	0	0	0	0	0	0
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## 43	0	0	0	0	0	0	0	0	0

## 44	0	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0	0
## 46	0	1	1	1	0	0	0	1	1
## 47	0	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0	0	0
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## 51	0	0	0	0	0	0	0	0	0
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## 81	0	0	0	1	0	0	0	0	0
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## 87	0	0	0	0	0	0	0	0	0
## 88	0	0	0	0	0	1	0	0	0
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## 90	0	0	0	0	0	0	0	0	0
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## 92	0	0	0	0	0	0	0	0	0
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## 94	0	0	0	0	1	0	0	0	0
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## 102	0	0	0	0	0	0	0	0	0
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## 105	0	1	0	0	0	0	0	0	0
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## 181	0	0	0	0	0	0	0	0	0
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## 185	0	0	0	0	0	0	0	0	0
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## 187	0	0	0	0	0	1	1	0	0
## 188	0	0	0	1	0	0	0	0	0
## 189	0	0	0	0	0	0	0	0	0
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## 197	0	0	0	0	0	0	0	0	0
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## 202	0	0	0	0	0	0	0	1	0
## 203	0	0	0	0	0	0	0	0	0

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## 205	0	0	0	0	0	0	0	0	0
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## 207	0	0	0	0	0	0	0	0	0
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## 222	0	0	0	0	0	0	0	0	0
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## 234	0	0	0	0	0	0	1	0	0
## 235	0	0	0	0	0	0	0	0	0

## 236	0	0	0	0	0	0	0	1	0
## 237	0	0	0	0	0	0	0	0	0
## 238	0	0	0	0	0	0	0	0	0
## 239	0	0	0	0	0	0	0	0	0
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## 245	0	0	0	0	0	0	0	0	0
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## 267	0	0	0	0	0	0	0	0	0

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## 269	0	0	0	0	0	0	0	0	0
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## 271	0	0	0	0	0	0	0	0	0
## 272	0	0	0	0	0	0	0	0	0
## 273	0	0	0	0	0	0	0	0	0
## 274	0	0	0	0	0	0	0	0	0
## 275	0	0	0	0	0	0	0	0	0
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## 277	0	0	1	0	0	0	0	1	0
## 278	0	0	0	0	0	0	0	0	0
## 279	0	0	0	0	0	0	0	1	0
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## 283	0	0	0	0	0	0	0	0	0
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## 285	0	0	0	0	0	0	0	0	0
## 286	0	0	0	0	0	0	0	0	0
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## 291	0	0	0	0	0	0	0	0	0
## 292	0	0	0	0	0	0	0	0	0
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## 294	0	0	0	0	0	1	0	0	0
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## 301	0	0	0	0	0	0	0	1	0
## 302	0	1	0	0	0	0	0	0	1
## 303	0	0	0	0	0	0	0	0	0
## 304	0	0	0	0	0	0	0	0	0
## 305	0	0	0	0	0	0	0	0	0
## 306	0	0	0	0	0	0	1	0	0
## 307	0	0	0	0	0	0	1	0	0
## 308	0	0	0	0	0	0	0	0	0
## 309	0	0	0	0	0	0	0	0	0
## 310	0	0	0	0	0	0	0	0	0
## 311	0	0	0	0	0	0	0	0	0
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## 313	0	0	0	0	0	0	0	0	0
## 314	0	0	0	0	0	0	0	0	0
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## 316	0	0	0	0	0	0	0	0	0
## 317	0	0	0	0	0	0	0	0	0
## 318	0	0	0	0	0	0	0	0	0
## 319	0	0	0	0	0	0	0	0	0
## 320	0	0	0	0	0	0	0	1	0
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## 322	0	0	1	0	1	0	0	0	0
## 323	0	0	0	0	0	0	0	0	0
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## 325	0	0	0	0	0	0	0	0	0
## 326	1	0	0	0	0	0	0	0	0
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## 335	0	0	0	0	0	0	0	0	0
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## 341	0	0	0	0	0	0	0	0	0
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## 346	0	0	0	0	0	0	0	0	0
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## 350	0	0	0	0	0	0	0	0	0
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## 352	0	0	0	0	0	0	0	0	0
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## 355	0	0	0	0	0	0	0	0	0
## 356	0	0	0	0	0	0	0	0	0
## 357	0	0	0	0	0	0	0	1	0
## 358	0	0	0	0	0	0	0	0	0
## 359	0	0	0	0	0	0	0	0	0
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## 370	0	1	0	0	0	0	0	0	0
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## 374	0	0	0	0	0	0	0	0	0
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## 377	0	0	0	0	0	0	0	0	0
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## 379	0	0	0	0	0	0	0	1	0
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## 387	0	0	0	0	0	0	0	0	0
## 388	0	0	0	0	0	0	0	0	0
## 389	0	0	0	0	0	0	0	0	0
## 390	0	0	0	0	0	0	0	0	0
## 391	0	0	0	0	0	0	0	0	0
## 392	0	0	0	0	0	0	0	0	0
## 393	0	0	0	0	0	0	0	0	0
## 394	1	0	0	0	0	0	0	1	0
## 395	0	0	0	0	0	0	0	0	0

```
## 396       0        0        0     0       0       0       0      0        0
## 397       0        0        0     0       0       0       0      0        0
## 398       0        1        1     1       0       0       0      0        0
## 399       0        0        0     0       0       0       0      0        0
## 400       0        0        0     0       0       0       0      0        0
## 401       0        0        0     0       0       0       0      0        0
##     mu_SPTA1 mu_FLNC mu_MLL2 mu_PDE4DIP mu_MYH9 mu_AFF2 mu_COL6A5 mu_CTCF
## 1          0       0       0          0       0       0         0       0
## 2          0       0       0          0       0       0         0       0
## 3          0       0       0          0       0       0         0       0
## 4          0       0       0          0       0       0         0       0
## 5          0       0       0          0       0       0         0       0
## 6          0       0       0          0       0       0         0       0
## 7          0       0       0          0       0       0         0       0
## 8          0       0       0          0       0       0         0       0
## 9          0       0       0          0       0       0         0       0
## 10         0       0       0          0       0       0         0       0
## 11         0       0       0          0       0       0         0       0
## 12         0       0       0          0       0       0         0       0
## 13         1       0       0          0       0       0         0       0
## 14         0       0       0          0       1       0         0       0
## 15         0       0       0          0       0       1         1       1
## 16         0       0       0          0       0       0         0       0
## 17         0       0       1          0       0       0         0       0
## 18         0       0       0          0       0       0         0       0
## 19         0       0       0          0       0       0         0       0
## 20         0       0       0          0       0       0         0       0
## 21         0       0       0          0       0       0         0       0
## 22         0       0       0          0       0       0         0       0
## 23         0       0       0          0       0       0         0       0
## 24         0       0       0          0       0       0         0       0
## 25         0       0       0          0       0       0         0       0
```

## 26	0	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0	0
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## 29	0	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0	0
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## 33	0	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0	0
## 35	0	0	0	0	0	1	0	0
## 36	0	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0
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## 41	0	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0
## 46	0	0	1	0	1	0	1	0
## 47	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
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## 65	0	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	1	0
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## 72	0	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0	0
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## 75	0	0	0	0	0	0	0	0
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## 77	0	0	0	0	0	0	0	0
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## 83	0	0	0	0	0	0	0	0
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## 89	0	0	0	0	0	0	0	0

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## 98	0	0	0	0	0	0	0	0
## 99	0	0	0	0	0	0	0	0
## 100	0	0	0	0	0	0	0	0
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## 104	0	0	0	0	0	0	0	0
## 105	0	0	0	0	0	0	0	0
## 106	0	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0	0
## 108	0	0	0	0	0	0	0	0
## 109	0	0	0	0	0	0	0	0
## 110	0	0	0	0	0	0	0	0
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## 112	0	0	0	0	0	0	0	0
## 113	0	0	0	0	0	0	0	0
## 114	0	0	0	0	0	0	0	0
## 115	0	0	0	0	0	0	0	0
## 116	0	0	0	0	0	0	0	0
## 117	0	0	0	0	0	0	0	0
## 118	0	0	0	0	0	0	0	0
## 119	0	0	0	0	0	0	0	0
## 120	0	0	0	0	0	0	0	0
## 121	0	0	0	0	0	0	0	0

## 122	0	0	1	0	0	0	0	0
## 123	0	0	0	0	0	0	0	0
## 124	0	0	0	0	0	0	0	0
## 125	0	0	0	0	0	0	0	0
## 126	0	0	0	0	0	0	0	0
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## 129	0	1	0	0	0	0	0	0
## 130	0	0	0	0	0	0	0	0
## 131	1	0	0	0	0	0	0	0
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## 133	0	0	0	0	1	0	0	0
## 134	0	0	0	0	0	0	0	0
## 135	0	0	0	0	0	0	0	0
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## 138	0	0	0	0	0	0	0	0
## 139	0	0	0	0	0	0	0	0
## 140	0	1	1	0	0	0	0	0
## 141	0	0	0	0	0	0	0	0
## 142	0	0	0	0	0	0	0	0
## 143	0	0	0	0	0	0	0	0
## 144	0	0	0	0	0	0	0	0
## 145	0	0	0	1	0	0	0	1
## 146	0	0	0	0	0	0	0	0
## 147	0	0	0	0	0	0	0	0
## 148	0	0	0	0	0	0	0	0
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## 150	0	0	0	0	0	1	0	0
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## 152	0	0	0	0	0	0	0	0
## 153	0	0	0	0	0	0	0	0

## 154	0	1	0	0	0	0	0	0
## 155	0	0	0	0	0	0	0	0
## 156	0	0	0	0	1	0	0	0
## 157	0	0	0	0	0	0	0	0
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## 377	0	0	0	0	0	0	0	0

```
## 378         0       0       0         0       0       0         0       0
## 379         0       0       0         0       0       0         0       0
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## 399         0       0       0         0       0       0         0       0
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##     mu_MACF1 mu_APOB mu_CNTRL mu_FLG mu_FMN2 mu_UBR4 mu_GPR98 mu_PKHD1 mu_PTEN
## 1          0       0        0      0       0       0        0        0       0
## 2          0       0        0      0       0       0        0        0       0
## 3          0       0        0      0       0       0        0        0       0
## 4          0       0        0      0       0       0        0        0       0
## 5          0       0        0      0       0       0        0        0       0
## 6          0       0        0      0       0       0        0        0       0
## 7          0       0        0      0       0       0        0        0       0
```

## 8	0	0	0	0	0	0	0	0	0
## 9	0	0	0	0	0	0	0	0	0
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## 13	0	0	0	0	0	0	0	0	0
## 14	0	0	0	0	0	0	0	0	0
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## 16	0	0	0	0	0	0	1	1	1
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## 19	0	0	0	0	0	0	0	0	0
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## 126	0	0	0	0	0	0	0	0	0
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## 305	0	0	0	0	0	0	0	0	0
## 306	0	0	0	0	0	0	0	0	0
## 307	0	1	0	0	0	0	0	0	0
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## 388	0	0	0	0	0	0	0	0	0
## 389	0	0	0	0	0	0	0	0	0
## 390	0	0	0	0	0	0	0	0	0
## 391	0	0	0	0	0	0	0	0	0

```
## 392        1       0       0       1       0       0       0       0       0
## 393        0       0       0       0       0       0       0       0       0
## 394        0       1       0       0       0       0       0       0       0
## 395        0       0       0       1       0       0       0       0       0
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## 397        0       0       0       0       0       0       0       0       0
## 398        0       0       0       0       0       0       1       1       0
## 399        0       0       0       0       0       0       0       0       0
## 400        0       0       0       1       0       0       0       0       0
## 401        1       0       0       0       0       0       0       0       0
##     mu_VPS13D mu_ANK2 mu_MYH11 mu_FAM157B mu_SRCAP mu_CMYA5 mu_BRWD1 mu_HSPG2
## 1           0       0        0          0       0       0       0       0
## 2           0       0        0          0       0       0       0       0
## 3           0       0        0          0       0       0       0       0
## 4           0       0        0          0       0       0       0       0
## 5           0       0        0          0       0       0       0       0
## 6           0       0        0          0       0       0       0       0
## 7           0       0        0          0       0       0       0       0
## 8           0       0        0          0       0       0       0       0
## 9           0       0        0          0       0       0       0       0
## 10          0       0        0          0       0       0       0       0
## 11          0       0        0          0       0       0       0       0
## 12          0       0        0          0       0       0       0       0
## 13          0       0        0          0       0       0       0       0
## 14          0       0        0          0       0       0       0       0
## 15          0       0        0          0       0       0       0       0
## 16          1       0        0          0       0       0       0       0
## 17          0       1        1          0       0       0       0       0
## 18          0       0        0          1       1       0       0       0
## 19          0       0        0          0       0       1       0       0
## 20          0       0        0          0       0       0       1       1
## 21          0       0        0          0       0       0       0       0
```

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## 25	0	0	0	0	0	0	0	0
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## 67	0	0	0	0	0	0	0	0
## 68	0	0	0	1	0	0	0	0
## 69	0	0	0	0	0	0	0	0
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## 101	0	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0	0
## 103	0	0	0	0	0	0	0	0
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## 105	0	0	0	0	0	0	0	0
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## 120	0	0	0	0	0	0	0	0
## 121	0	0	0	0	0	0	0	0
## 122	0	0	0	0	0	0	0	0
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## 368	0	0	0	0	0	0	0	0
## 369	0	1	1	0	0	1	0	0
## 370	0	0	0	0	0	0	0	0
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## 373	0	0	0	0	0	0	0	0

```
## 374         0       0       0         0       0       0       0       0
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##     mu_RP1 mu_RUNX1 mu_TBP mu_WDR52 mu_BIRC6 mu_FAT1 mu_TPR mu_FRAS1 mu_RELN
## 1        0        0      0        0        0       0      0        0       0
## 2        0        0      0        0        0       0      0        0       0
## 3        0        0      0        0        0       0      0        0       0
```

## 4	0	0	0	0	0	0	0	0	0
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## 10	0	0	0	0	0	0	0	0	0
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## 13	0	0	0	0	0	0	0	0	0
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## 19	0	0	0	0	0	0	0	0	0
## 20	1	1	1	0	0	0	0	0	0
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## 45	0	0	0	0	0	0	0	0	0
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## 115	0	0	0	0	0	0	0	0	0
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## 387	0	0	0	0	0	0	0	0	0

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## 388      0        0      0        0        0       0      0        0       0
## 389      0        0      0        0        0       0      0        0       0
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## 395      0        0      1        0        0       0      0        0       0
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## 399      0        0      1        0        0       0      0        0       0
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##     mu_RPGR mu_NOTCH2 mu_DNHD1 mu_XIRP2 mu_ANKRD30BL mu_CBFB mu_PDE3A
## 1         0         0        0        0           0       0        0
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## 3         0         0        0        0           0       0        0
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## 5         0         0        0        0           0       0        0
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## 9         0         0        0        0           0       0        0
## 10        0         0        0        0           0       0        0
## 11        0         0        0        0           0       0        0
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## 13        0         0        0        0           0       0        0
## 14        0         0        0        0           0       0        0
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## 16        0         0        0        0           0       0        0
## 17        0         0        0        0           0       0        0
```

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## 21	0	0	0	0	0	0	0
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## 397	0	0	0	0	0	0	0
## 398	0	0	0	0	0	0	0
## 399	0	0	0	0	0	0	0
## 400	0	0	0	0	0	0	0
## 401	0	0	0	0	0	0	0

```
##     mu_CACNA1A mu_THSD7B mu_ABCA13 mu_EYS mu_PKD1L1 mu_RYR3 mu_FRG1B mu_HUWE1
## 1            0         0         0      0         0       0        0        0
## 2            0         0         0      0         0       0        0        0
## 3            0         0         0      0         0       0        0        0
## 4            0         0         0      0         0       0        0        0
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## 8            0         0         0      0         0       0        0        0
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## 13           0         0         0      0         0       0        0        0
## 14           0         0         0      0         0       0        0        0
## 15           0         0         0      0         0       0        0        0
## 16           0         0         0      0         0       0        0        0
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## 21           0         0         0      0         0       0        0        0
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## 23           0         0         0      0         0       0        0        0
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## 29           0         0         0      0         0       0        1        1
## 30           0         0         0      0         0       0        0        0
## 31           0         0         0      0         0       0        0        0
```

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## 132	0	1	0	0	0	0	0	0
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## 383	0	0	0	0	0	0	0	0

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## 384          0         1         0      0         0       0       0        0
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##     mu_FOXA1 mu_FCGBP mu_CACNA1E mu_ANKRD12 mu_CHD5 mu_GRID1 mu_KIF4A mu_MLL
## 1          0        0          0          0       0        0        0      0
## 2          0        0          0          0       0        0        0      0
## 3          0        0          0          0       0        0        0      0
## 4          0        0          0          0       0        0        0      0
## 5          0        0          0          0       0        0        0      0
## 6          0        0          0          0       0        0        0      0
## 7          0        0          0          0       0        0        0      0
## 8          0        0          0          0       0        0        0      0
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## 12         0        0          0          0       0        0        0      0
## 13         0        0          0          0       0        0        0      0
```

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## 22	0	0	0	0	0	0	0	0
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## 28	0	0	0	0	0	0	0	0
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## 103	0	0	0	0	0	0	0	0
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## 142	0	0	0	0	0	0	0	0
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## 304	0	0	0	0	0	0	0	0
## 305	0	0	0	0	0	0	0	0
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## 310	0	0	0	0	0	0	0	1
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## 313	0	0	0	0	0	0	0	0
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## 315	0	0	0	0	0	0	0	0
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## 386	0	0	0	0	0	0	0	0
## 387	0	0	0	0	0	0	0	0
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## 391	0	0	0	0	0	0	0	0
## 392	0	0	0	0	0	0	0	0
## 393	0	0	0	0	0	0	0	0
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## 395	0	0	0	0	0	0	0	0
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## 397	0	0	0	0	0	0	0	0

```
## 398        0        0          1          0       0        0        0      0
## 399        0        0          0          0       0        0        0      0
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##     mu_PCNXL2 mu_PRKDC mu_SI mu_PTPRB mu_CACNA1C mu_CSPP1 mu_PREX2 mu_SMG1
## 1           0        0     0        0          0        0        0       0
## 2           0        0     0        0          0        0        0       0
## 3           0        0     0        0          0        0        0       0
## 4           0        0     0        0          0        0        0       0
## 5           0        0     0        0          0        0        0       0
## 6           0        0     0        0          0        0        0       0
## 7           0        0     0        0          0        0        0       0
## 8           0        0     0        0          0        0        0       0
## 9           0        0     0        0          0        0        0       0
## 10          0        0     0        0          0        0        0       0
## 11          0        0     0        0          0        0        0       0
## 12          0        0     0        0          0        0        0       0
## 13          0        0     0        0          0        0        0       0
## 14          0        0     0        0          0        0        0       0
## 15          0        0     0        0          0        0        0       0
## 16          0        0     0        0          0        0        0       0
## 17          0        0     0        0          0        0        0       0
## 18          0        0     0        0          0        0        0       0
## 19          0        0     0        0          0        0        0       0
## 20          0        0     0        0          0        0        0       0
## 21          0        0     0        0          0        0        0       0
## 22          0        0     0        0          0        0        0       0
## 23          0        0     0        0          0        0        0       0
## 24          0        0     0        0          0        0        0       0
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## 26          0        0     0        0          0        0        0       0
## 27          0        0     0        0          0        0        0       0
```

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## 34	0	0	0	0	0	0	0	0
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## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	1	0	0	0	0
## 40	0	0	0	0	0	0	0	0
## 41	1	0	0	0	0	1	1	1
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## 44	0	0	0	0	0	0	0	0
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## 46	0	0	0	0	0	0	1	0
## 47	0	0	0	0	0	0	0	0
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## 109	0	0	0	0	0	0	0	0
## 110	0	0	0	0	0	0	0	0
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## 121	0	0	0	0	0	0	0	0
## 122	0	0	0	0	0	0	0	0
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## 133	0	0	0	0	0	1	0	0
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## 138	0	0	1	0	0	0	0	0
## 139	0	0	0	0	0	0	0	0
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## 379	0	0	0	1	0	0	0	0

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## 380          0        0     0        0          0        0        0       0
## 381          0        0     1        0          0        0        0       0
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##     mu_UBR5 mu_KIAA1210 mu_COL6A3 mu_ODZ1 mu_AHNAK2 mu_AKAP13 mu_ASTN1
## 1         0           0        0       0         0         0        0
## 2         0           0        0       0         0         0        0
## 3         0           0        0       0         0         0        0
## 4         0           0        0       0         0         0        0
## 5         0           0        0       0         0         0        0
## 6         0           0        0       0         0         0        0
## 7         0           0        0       0         0         0        0
## 8         0           0        0       0         0         0        0
## 9         0           0        0       0         0         0        0
```

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## 16	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0
## 18	0	0	0	0	0	0	0
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## 164	1	0	0	0	1	0	1
## 165	0	0	0	0	0	0	0
## 166	0	0	0	0	0	0	0
## 167	0	0	0	0	0	0	0
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## 172	0	0	1	0	0	0	0
## 173	0	0	0	0	0	0	0
## 174	0	0	0	0	0	1	0
## 175	0	0	0	0	0	0	0
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## 179	0	0	0	0	0	0	0
## 180	0	0	0	0	0	0	0
## 181	0	0	0	0	0	0	0
## 182	0	0	1	0	0	0	0
## 183	0	0	0	0	0	0	0
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## 186	0	0	0	1	0	0	0
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## 188	0	0	0	0	0	0	0
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## 196	0	0	0	0	0	0	0
## 197	0	0	0	0	0	0	0
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## 206	0	0	0	0	0	0	0
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## 212	0	0	0	0	0	0	0
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## 217	0	0	0	0	0	0	0
## 218	0	0	0	0	0	0	0
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## 238	0	0	0	0	0	0	0
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## 248	0	0	0	0	0	0	0
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## 284	0	0	0	0	0	0	0
## 285	0	0	0	0	0	0	0
## 286	0	0	0	0	0	0	0
## 287	0	0	0	0	0	0	0
## 288	0	0	0	0	0	0	0
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## 291	0	0	0	0	0	0	0
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## 293	1	1	0	0	1	0	0
## 294	0	0	0	0	1	0	0
## 295	0	0	0	0	0	1	0
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## 299	0	0	0	0	0	0	0
## 300	0	0	0	0	0	0	0
## 301	0	0	0	0	0	0	0
## 302	0	0	1	0	0	1	0
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## 321	0	0	0	0	0	0	0
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## 337	0	0	0	0	0	0	0
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## 343	0	0	0	0	0	0	0
## 344	0	0	0	0	0	0	0
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## 346	0	0	0	0	0	0	0
## 347	0	0	0	0	0	0	0
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## 364	0	0	0	0	1	0	0
## 365	0	0	0	0	0	0	0
## 366	0	0	0	0	0	0	0
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## 383	0	0	0	0	0	0	0
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## 386	0	0	0	0	0	0	0
## 387	0	0	0	0	0	0	0
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## 389	0	0	0	0	1	0	0
## 390	0	0	0	0	0	0	0
## 391	0	0	0	0	0	0	0
## 392	0	0	0	0	0	0	0
## 393	0	0	0	0	0	0	0

```
## 394       0           0         0       0         1         0        0
## 395       0           0         0       0         0         0        0
## 396       0           0         0       0         0         0        0
## 397       0           0         0       0         0         0        0
## 398       0           0         0       1         0         0        0
## 399       0           0         0       0         0         0        0
## 400       0           0         0       0         0         0        0
## 401       0           0         0       0         0         0        0
##     mu_CACNA1F mu_CHD6 mu_CHD8 mu_CNTNAP2 mu_DNAH2 mu_DYNC1H1 mu_FLNA mu_GRIN2A
## 1            0       0       0          0        0          0       0         0
## 2            0       0       0          0        0          0       0         0
## 3            0       0       0          0        0          0       0         0
## 4            0       0       0          0        0          0       0         0
## 5            0       0       0          0        0          0       0         0
## 6            0       0       0          0        0          0       0         0
## 7            0       0       0          0        0          0       0         0
## 8            0       0       0          0        0          0       0         0
## 9            0       0       0          0        0          0       0         0
## 10           0       0       0          0        0          0       0         0
## 11           0       0       0          0        0          0       0         0
## 12           0       0       0          0        0          0       0         0
## 13           0       0       0          0        0          0       0         0
## 14           0       0       0          0        0          0       0         0
## 15           0       0       0          0        0          0       0         0
## 16           0       0       0          0        0          0       0         0
## 17           0       0       0          0        0          0       0         0
## 18           0       0       0          0        0          0       0         0
## 19           0       0       0          0        0          0       0         0
## 20           0       0       0          0        0          0       0         0
## 21           0       0       0          0        0          0       0         0
## 22           0       0       0          0        0          0       0         0
## 23           0       0       0          0        0          0       0         0
```

## 24	0	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0	0
## 28	0	0	0	0	0	0	0	0
## 29	0	0	0	0	0	0	0	0
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## 31	0	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0	0
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## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0
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## 42	0	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0
## 46	1	1	1	1	1	1	1	1
## 47	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0	0
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## 55	0	0	0	0	0	0	0	0

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## 58	0	0	0	0	0	0	0	0
## 59	1	0	0	0	1	0	0	0
## 60	0	0	0	0	0	0	0	0
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## 112	0	0	0	0	0	0	0	0
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## 114	0	0	0	0	0	0	0	0
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## 116	0	0	0	0	0	0	0	0
## 117	0	0	0	0	0	0	0	0
## 118	0	0	0	0	1	0	0	0
## 119	0	0	0	0	0	0	0	0

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## 122	0	0	0	0	0	0	0	0
## 123	0	0	0	0	0	0	0	0
## 124	0	0	0	0	0	0	0	0
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## 134	0	1	0	0	0	0	0	0
## 135	0	0	0	0	0	0	0	0
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## 138	0	0	0	0	0	0	0	0
## 139	0	0	0	0	0	0	0	0
## 140	0	0	0	1	0	1	0	0
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## 142	0	0	0	0	0	0	0	0
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## 144	0	0	0	0	0	0	0	0
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## 159	0	0	0	0	0	0	0	0
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## 178	0	0	0	0	0	0	0	0
## 179	0	1	0	0	0	0	0	0
## 180	0	0	0	0	0	0	0	0
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## 182	0	0	0	0	1	1	1	0
## 183	0	0	0	0	0	0	0	0

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## 186	0	0	0	0	0	0	0	0
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## 188	0	0	0	0	0	0	0	0
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## 400            0       0       0          0       0          0       0          0
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##     mu_KIAA0947 mu_KIAA1109 mu_LRP1 mu_MYH1 mu_MYO18B mu_RYR1 mu_SDK1 mu_STARD9
## 1             0           0       0       0         0       0       0          0
## 2             0           0       0       0         0       0       0          0
## 3             0           0       0       0         0       0       0          0
## 4             0           0       0       0         0       0       0          0
## 5             0           0       0       0         0       0       0          0
```

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## 13	0	0	0	0	0	0	0	0
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## 15	0	0	0	0	0	0	0	0
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## 389	0	0	0	0	0	1	0	0

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## 399           0           0       0       0         0       0       0         0
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##     mu_ERBB2 mu_SETD2 mu_VCAN mu_WDFY3 mu_ATM mu_UTRN mu_VPS13B mu_MAP2
## 1          0        0       0        0      0       0         0       0
## 2          0        0       0        0      0       0         0       0
## 3          0        0       0        0      0       0         0       0
## 4          0        0       0        0      0       0         0       0
## 5          0        0       0        0      0       0         0       0
## 6          0        0       0        0      0       0         0       0
## 7          0        0       0        0      0       0         0       0
## 8          0        0       0        0      0       0         0       0
## 9          0        0       0        0      0       0         0       0
## 10         0        0       0        0      0       0         0       0
## 11         0        0       0        0      0       0         0       0
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## 14         0        0       0        0      0       0         0       0
## 15         0        0       0        0      0       0         0       0
## 16         0        0       0        0      0       0         0       0
## 17         0        0       0        0      0       0         0       0
## 18         0        0       0        0      0       0         0       0
## 19         0        0       0        0      0       0         0       0
```

## 20	0	0	0	0	0	0	0	0
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## 27	0	0	0	0	0	0	0	0
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##     mu_DNAH10 mu_SYNE2 mu_MAP2K4 mu_TNXB mu_ASH1L mu_ASXL2 mu_HMCN1 mu_ALMS1
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##     mu_ITPR2 mu_TBX3 mu_F8 mu_AKD1 mu_ERBB3 mu_CENPE mu_ABCA12 mu_C9orf174
## 1          0       0     0       0        0        0         0           0
## 2          0       0     0       0        0        0         0           0
## 3          0       0     0       0        0        0         0           0
## 4          0       0     0       0        0        0         0           0
## 5          0       0     0       0        0        0         0           0
## 6          0       0     0       0        0        0         0           0
## 7          0       0     0       0        0        0         0           0
## 8          0       0     0       0        0        0         0           0
## 9          0       0     0       0        0        0         0           0
## 10         0       0     0       0        0        0         0           0
## 11         0       0     0       0        0        0         0           0
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## 14         0       0     0       0        0        0         0           0
## 15         0       0     0       0        0        0         0           0
```

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## 398	1	0	0	0	0	0	0	0
## 399	0	0	0	0	0	0	0	0

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## 400        0       0     0       0        0        0         0           0
## 401        0       0     0       0        0        0         0           0
##     mu_F5 mu_FRMPD4 mu_LRP1B mu_DCHS2 mu_HERC1 mu_CSMD3 mu_USP34 mu_BAZ2B
## 1       0         0        0        0        0        0        0        0
## 2       0         0        0        0        0        0        0        0
## 3       0         0        0        0        0        0        0        0
## 4       0         0        0        0        0        0        0        0
## 5       0         0        0        0        0        0        0        0
## 6       0         0        0        0        0        0        0        0
## 7       0         0        0        0        0        0        0        0
## 8       0         0        0        0        0        0        0        0
## 9       0         0        0        0        0        0        0        0
## 10      0         0        0        0        0        0        0        0
## 11      0         0        0        0        0        0        0        0
## 12      0         0        0        0        0        0        0        0
## 13      0         0        0        0        0        0        0        0
## 14      0         0        0        0        0        0        0        0
## 15      0         0        0        0        0        0        0        0
## 16      0         0        0        0        0        0        0        0
## 17      0         0        0        0        0        0        0        0
## 18      0         0        0        0        0        0        0        0
## 19      0         0        0        0        0        0        0        0
## 20      0         0        0        0        0        0        0        0
## 21      0         0        0        0        0        0        0        0
## 22      0         0        0        0        0        0        0        0
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## 26      0         0        0        0        0        0        0        0
## 27      0         0        0        0        0        0        0        0
## 28      0         0        0        0        0        0        0        0
## 29      0         0        0        0        0        0        0        0
```

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## 37	0	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0	0
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## 43	0	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0	0
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## 47	0	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0	0
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##      mu_FLG2 mu_PCDH19 mu_VPS13A mu_PAPPA2 mu_PDZD2 mu_BCORL1 mu_APC mu_PRUNE2
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## 10         0         0         0         0       0         0      0         0
## 11         0         0         0         0       0         0      0         0
```

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## 395	0	0	0	0	0	0	0	0

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## 400        0         0         0         0         0         0       0         0
## 401        1         0         0         0         0         0       0         0
##      mu_GON4L mu_SPHKAP mu_SACS mu_MYCBP2 mu_DOCK11 mu_FBN1 mu_DNAH11 mu_PIWIL1
## 1           0         0       0         0         0       0         0         0
## 2           0         0       0         0         0       0         0         0
## 3           0         0       0         0         0       0         0         0
## 4           0         0       0         0         0       0         0         0
## 5           0         0       0         0         0       0         0         0
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## 8           0         0       0         0         0       0         0         0
## 9           0         0       0         0         0       0         0         0
## 10          0         0       0         0         0       0         0         0
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## 13          0         0       0         0         0       0         0         0
## 14          0         0       0         0         0       0         0         0
## 15          0         0       0         0         0       0         0         0
## 16          0         0       0         0         0       0         0         0
## 17          0         0       0         0         0       0         0         0
## 18          0         0       0         0         0       0         0         0
## 19          0         0       0         0         0       0         0         0
## 20          0         0       0         0         0       0         0         0
## 21          0         0       0         0         0       0         0         0
## 22          0         0       0         0         0       0         0         0
## 23          0         0       0         0         0       0         0         0
## 24          0         0       0         0         0       0         0         0
## 25          0         0       0         0         0       0         0         0
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## 45	0	0	0	0	0	0	0	0
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## 214	0	0	0	0	0	0	0	0
## 215	0	0	0	0	0	0	0	0
## 216	0	0	0	0	0	0	0	0
## 217	0	0	0	0	0	0	0	0

## 218	0	0	0	0	0	0	0	0
## 219	0	0	0	0	0	1	0	0
## 220	0	0	0	0	0	0	0	0
## 221	0	0	0	0	0	0	0	0
## 222	0	0	0	0	0	0	0	0
## 223	0	0	0	0	0	0	0	0
## 224	0	0	0	0	0	0	0	0
## 225	0	0	0	0	0	0	1	0
## 226	0	0	0	0	0	0	0	0
## 227	0	0	1	1	0	0	0	0
## 228	0	0	0	0	0	0	0	0
## 229	0	0	0	0	0	0	0	0
## 230	0	0	0	0	0	0	0	0
## 231	0	0	0	0	0	0	0	0
## 232	0	0	0	0	0	0	0	0
## 233	0	0	0	0	0	0	0	0
## 234	0	0	0	0	0	0	1	0
## 235	0	0	0	0	0	0	0	0
## 236	0	0	0	0	0	0	0	0
## 237	0	0	0	0	0	0	0	0
## 238	0	0	0	0	0	0	0	0
## 239	0	0	0	0	0	0	0	0
## 240	0	0	0	0	0	0	0	0
## 241	0	0	0	0	0	0	0	0
## 242	0	0	0	0	0	0	0	0
## 243	0	0	0	0	0	0	1	0
## 244	0	0	0	0	0	0	0	1
## 245	0	0	0	0	0	0	0	0
## 246	0	0	0	0	0	0	0	0
## 247	0	0	0	0	0	0	0	0
## 248	0	0	0	0	0	0	0	0
## 249	0	0	0	0	0	0	0	0

## 250	0	0	1	0	0	0	0	0
## 251	0	0	0	0	0	0	0	0
## 252	0	0	0	0	0	0	0	0
## 253	0	0	0	0	0	0	0	0
## 254	0	0	0	0	0	0	0	0
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## 257	0	0	0	0	0	0	0	0
## 258	0	0	0	0	0	0	0	0
## 259	0	1	0	0	0	0	0	0
## 260	0	0	0	0	0	0	0	0
## 261	0	0	0	0	0	0	0	0
## 262	0	0	0	0	0	0	0	0
## 263	0	0	0	0	1	0	0	0
## 264	0	0	0	0	0	0	0	0
## 265	0	0	0	0	0	0	0	0
## 266	0	0	0	0	0	0	0	0
## 267	0	0	0	0	0	0	0	0
## 268	0	0	0	0	0	0	0	0
## 269	0	0	0	0	0	0	0	0
## 270	0	0	0	0	0	0	0	0
## 271	0	0	0	0	0	0	0	0
## 272	0	1	0	0	1	0	0	0
## 273	0	0	0	0	0	0	0	0
## 274	0	0	0	0	0	0	0	0
## 275	0	0	0	0	0	0	0	0
## 276	0	0	0	0	0	0	0	0
## 277	0	0	0	0	0	0	0	0
## 278	0	0	0	0	0	0	0	0
## 279	0	0	0	0	0	0	0	0
## 280	0	0	0	0	0	0	0	0
## 281	0	0	0	0	0	0	0	0

## 282	0	0	0	0	0	0	0	0
## 283	0	0	0	0	0	0	0	0
## 284	0	0	0	0	0	0	0	0
## 285	0	0	0	0	0	0	0	0
## 286	0	0	0	0	0	0	0	0
## 287	0	0	0	0	0	0	0	0
## 288	0	0	0	0	0	0	0	0
## 289	0	0	1	0	0	0	0	0
## 290	0	0	0	0	0	0	0	0
## 291	0	0	0	0	0	0	0	0
## 292	0	0	0	0	0	0	0	1
## 293	0	0	0	0	0	0	0	0
## 294	0	0	0	0	0	0	0	0
## 295	0	0	0	0	0	0	0	1
## 296	0	0	0	0	0	0	0	0
## 297	0	0	0	0	0	0	0	0
## 298	0	0	0	0	0	0	0	0
## 299	0	0	0	0	0	0	0	0
## 300	0	0	0	0	0	0	0	0
## 301	0	0	0	0	0	0	0	0
## 302	1	0	1	0	0	0	1	0
## 303	0	0	0	0	0	0	0	0
## 304	0	0	0	0	0	0	0	0
## 305	0	0	0	0	0	0	0	0
## 306	0	0	0	0	0	0	0	0
## 307	0	0	0	0	0	0	1	0
## 308	0	0	0	0	0	0	0	0
## 309	0	0	0	0	0	0	0	0
## 310	0	0	1	0	0	0	0	0
## 311	0	0	0	0	0	1	0	0
## 312	0	0	0	0	0	0	0	0
## 313	0	0	0	0	0	0	0	0

## 314	0	0	0	0	0	0	0	0
## 315	0	0	0	0	0	0	0	0
## 316	0	0	0	0	0	0	0	0
## 317	0	0	0	0	0	0	0	0
## 318	0	1	0	0	0	0	0	0
## 319	0	0	0	0	0	0	0	0
## 320	0	0	0	0	0	0	0	0
## 321	0	0	0	0	0	1	0	0
## 322	1	1	0	0	0	0	0	0
## 323	0	0	0	0	0	0	0	0
## 324	0	0	0	0	0	0	0	0
## 325	1	0	0	0	0	0	0	0
## 326	0	0	0	0	0	0	0	0
## 327	0	0	0	0	1	0	0	0
## 328	0	0	0	0	0	0	0	0
## 329	0	0	0	0	0	0	0	0
## 330	0	0	0	0	0	0	0	0
## 331	0	0	0	0	0	0	0	0
## 332	0	0	0	0	0	0	0	0
## 333	0	0	0	0	0	0	0	0
## 334	0	0	0	0	0	0	0	0
## 335	1	0	0	0	0	0	0	0
## 336	0	0	0	1	0	0	0	0
## 337	0	0	0	0	1	0	0	0
## 338	0	0	0	0	0	0	0	0
## 339	0	0	0	0	0	0	0	0
## 340	0	0	0	0	0	0	0	0
## 341	0	0	0	0	0	0	0	0
## 342	0	0	0	0	0	0	0	0
## 343	0	0	0	0	0	0	0	0
## 344	0	0	0	0	0	0	0	0
## 345	0	0	0	0	0	0	0	0

## 346	0	0	0	0	0	0	0	0
## 347	0	0	0	0	0	0	0	0
## 348	1	0	0	0	0	0	0	0
## 349	0	0	0	0	0	0	0	0
## 350	0	0	0	0	0	0	0	0
## 351	0	0	0	0	0	0	0	0
## 352	0	0	0	0	0	0	0	0
## 353	0	0	0	0	1	0	0	0
## 354	0	0	0	0	0	0	0	1
## 355	0	0	0	0	0	0	0	0
## 356	0	0	0	0	0	0	0	0
## 357	1	0	0	0	0	0	0	0
## 358	0	0	0	0	0	0	0	0
## 359	0	0	0	0	0	0	0	0
## 360	0	0	0	0	0	0	0	0
## 361	0	0	0	0	0	0	0	0
## 362	0	0	0	0	0	1	0	0
## 363	0	0	0	0	0	0	0	0
## 364	0	0	0	0	0	0	0	0
## 365	0	0	0	0	0	0	0	0
## 366	0	0	0	0	0	0	0	0
## 367	0	0	0	0	0	0	0	0
## 368	0	0	0	0	0	0	0	0
## 369	0	0	1	0	0	0	1	0
## 370	0	0	0	0	0	0	0	0
## 371	1	1	1	1	0	1	1	1
## 372	0	0	0	0	0	0	0	0
## 373	0	0	1	0	0	0	0	0
## 374	0	0	0	0	0	0	1	0
## 375	0	0	0	0	0	0	0	0
## 376	0	0	0	0	0	0	0	0
## 377	0	0	0	0	0	0	0	0

```
## 378         0         0         0         0         0         0         0         0
## 379         0         0         0         0         0         0         0         0
## 380         0         0         0         0         1         0         0         0
## 381         0         0         0         0         0         0         0         0
## 382         0         0         0         0         0         0         0         0
## 383         0         0         0         0         0         0         0         0
## 384         0         0         0         0         0         0         0         0
## 385         0         0         0         0         0         0         0         0
## 386         0         0         0         1         0         0         0         0
## 387         0         0         0         0         0         0         0         0
## 388         0         0         0         0         0         0         0         0
## 389         0         0         0         0         0         0         0         0
## 390         0         0         0         0         0         0         0         0
## 391         0         0         0         0         0         0         0         0
## 392         0         0         0         0         0         0         0         0
## 393         0         0         0         0         0         0         0         0
## 394         0         0         0         0         0         0         0         0
## 395         0         0         0         0         0         0         0         0
## 396         0         0         0         0         0         0         0         0
## 397         0         0         0         0         0         0         0         0
## 398         0         1         1         1         0         0         0         0
## 399         0         0         0         0         0         0         0         0
## 400         0         0         0         0         0         0         0         0
## 401         0         0         0         0         0         0         0         0
##     mu_SCN10A mu_ATRX mu_PKHD1L1 mu_MAP1A mu_DNAH9 mu_MYH7 mu_PEG3
## 1           0       0          0        0        0       0       0
## 2           0       0          0        0        0       0       0
## 3           0       0          0        0        0       0       0
## 4           0       0          0        0        0       0       0
## 5           0       0          0        0        0       0       0
## 6           0       0          0        0        0       0       0
## 7           0       0          0        0        0       0       0
```

## 8	0	0	0	0	0	0	0
## 9	0	0	0	0	0	0	0
## 10	0	0	0	0	0	0	0
## 11	0	0	0	0	0	0	0
## 12	0	0	0	0	0	0	0
## 13	0	0	0	0	0	0	0
## 14	0	0	0	0	0	0	0
## 15	0	0	0	0	0	0	0
## 16	0	0	0	0	0	0	0
## 17	0	0	0	0	0	0	0
## 18	0	0	0	0	0	0	0
## 19	0	0	0	0	0	0	0
## 20	0	0	0	0	0	0	0
## 21	0	0	0	0	0	0	0
## 22	0	0	0	0	0	0	0
## 23	0	0	0	0	0	0	0
## 24	0	0	0	0	0	0	0
## 25	0	0	0	0	0	0	0
## 26	0	0	0	0	0	0	0
## 27	0	0	0	0	0	0	0
## 28	0	0	0	0	0	0	0
## 29	0	0	0	0	0	0	0
## 30	0	0	0	0	0	0	0
## 31	0	0	0	0	0	0	0
## 32	0	0	0	0	0	0	0
## 33	0	0	0	0	0	0	0
## 34	0	0	0	0	0	0	0
## 35	0	0	0	0	0	0	0
## 36	0	0	0	0	0	0	0
## 37	0	0	0	0	0	0	0
## 38	0	0	0	0	0	0	0
## 39	0	0	0	0	0	0	0

## 40	0	0	0	0	0	0	0
## 41	0	0	0	0	0	0	0
## 42	0	0	0	0	0	0	0
## 43	0	0	0	0	0	0	0
## 44	0	0	0	0	0	0	0
## 45	0	0	0	0	0	0	0
## 46	0	0	0	0	0	0	0
## 47	0	0	0	0	0	0	0
## 48	0	0	0	0	0	0	0
## 49	0	0	0	0	0	0	0
## 50	0	0	0	0	0	0	0
## 51	0	0	0	0	0	0	0
## 52	0	0	0	0	0	0	0
## 53	0	0	0	0	0	0	0
## 54	0	0	0	0	0	0	0
## 55	0	0	0	0	0	0	0
## 56	0	0	0	0	0	0	0
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## 59	0	0	0	0	0	0	0
## 60	0	0	0	0	0	0	0
## 61	0	0	0	0	0	0	0
## 62	0	0	0	0	0	0	0
## 63	0	0	0	0	0	0	0
## 64	0	0	0	0	0	0	0
## 65	0	0	0	0	0	0	0
## 66	0	0	0	0	0	0	0
## 67	0	0	0	0	0	0	0
## 68	0	0	0	0	0	0	0
## 69	0	0	0	0	0	0	0
## 70	0	0	0	0	0	0	0
## 71	0	0	0	0	0	0	0

## 72	0	0	0	0	0	0	0
## 73	0	0	0	0	0	0	0
## 74	0	0	0	0	0	0	0
## 75	0	0	0	0	0	0	0
## 76	0	0	0	0	0	0	0
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## 79	0	0	0	0	0	0	0
## 80	0	0	0	0	0	0	0
## 81	0	0	0	0	0	0	0
## 82	0	0	0	0	0	0	0
## 83	0	0	0	0	0	0	0
## 84	0	0	0	0	0	0	0
## 85	0	0	0	0	0	0	0
## 86	0	0	0	0	0	0	0
## 87	0	0	0	0	0	0	0
## 88	1	0	0	0	0	0	0
## 89	0	0	0	0	0	0	0
## 90	0	0	0	0	0	0	0
## 91	0	1	0	0	0	0	0
## 92	0	0	0	0	0	0	0
## 93	0	0	0	0	0	0	0
## 94	0	0	0	1	0	0	0
## 95	0	0	0	0	0	0	0
## 96	0	0	0	0	0	0	0
## 97	0	0	0	0	0	0	0
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## 99	0	0	0	0	0	0	0
## 100	0	0	0	0	0	0	0
## 101	0	0	0	0	0	0	0
## 102	0	0	0	0	0	0	0
## 103	0	0	0	0	1	0	0

## 104	0	0	0	0	0	0	0
## 105	0	0	1	1	0	1	0
## 106	0	0	0	0	0	0	0
## 107	0	0	0	0	0	0	0
## 108	0	0	0	0	0	0	0
## 109	0	0	0	0	0	0	0
## 110	0	0	0	0	0	0	0
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## 112	0	0	0	0	0	0	0
## 113	1	0	0	0	0	0	0
## 114	0	0	0	0	0	0	0
## 115	0	0	0	0	0	0	0
## 116	0	0	0	0	0	0	0
## 117	0	0	0	0	0	0	0
## 118	0	1	0	0	0	0	0
## 119	0	0	1	0	0	0	0
## 120	0	0	0	0	0	0	0
## 121	0	0	0	0	0	0	0
## 122	0	0	0	0	0	0	0
## 123	0	0	0	0	0	0	0
## 124	0	0	0	0	0	1	1
## 125	0	0	0	0	0	0	0
## 126	0	0	0	0	0	0	0
## 127	0	0	0	0	0	0	0
## 128	0	0	0	0	0	0	0
## 129	0	0	0	0	0	1	0
## 130	0	0	0	0	0	0	0
## 131	0	0	0	1	1	1	1
## 132	0	0	0	0	0	0	0
## 133	0	0	0	0	0	0	0
## 134	0	0	0	0	0	0	0
## 135	0	0	0	0	0	0	0

```
## 136   0   0   0   0   0   0   0
## 137   0   1   0   0   0   0   0
## 138   0   0   0   0   0   0   0
## 139   0   0   0   0   1   0   0
## 140   1   0   0   1   1   0   0
## 141   0   0   0   1   0   0   0
## 142   0   0   0   0   0   0   0
## 143   0   0   0   1   0   0   0
## 144   0   0   0   0   0   0   0
## 145   0   0   0   0   0   0   0
## 146   0   0   0   0   0   0   0
## 147   0   0   0   0   0   0   0
## 148   0   0   0   0   0   0   0
## 149   0   0   0   0   0   0   0
## 150   0   0   0   0   0   0   0
## 151   0   0   0   1   0   0   0
## 152   0   0   0   0   0   0   0
## 153   0   0   0   0   0   0   0
## 154   0   0   0   0   0   0   0
## 155   0   0   0   0   0   0   0
## 156   0   0   1   0   0   0   0
## 157   0   0   0   0   0   0   0
## 158   0   0   0   0   0   0   0
## 159   0   0   0   0   0   0   0
## 160   0   0   0   0   0   0   0
## 161   0   0   0   0   0   0   0
## 162   0   0   0   0   1   0   0
## 163   0   0   0   0   0   0   0
## 164   0   0   0   0   1   1   0
## 165   0   0   0   0   0   0   0
## 166   0   1   0   0   0   0   0
## 167   0   0   0   0   0   0   0
```

## 168	0	0	1	0	0	0	0
## 169	0	0	0	0	1	0	0
## 170	0	0	0	0	0	0	0
## 171	0	0	0	0	0	0	0
## 172	0	0	0	0	0	0	0
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## 174	0	0	0	0	0	0	0
## 175	0	0	0	0	0	0	0
## 176	0	0	0	0	0	0	0
## 177	0	0	0	0	0	0	0
## 178	0	0	0	0	0	0	0
## 179	0	0	0	0	0	0	0
## 180	0	0	0	0	0	0	0
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## 186	0	0	0	0	0	0	0
## 187	0	0	0	0	0	0	0
## 188	0	0	0	0	0	0	0
## 189	0	0	0	0	0	0	0
## 190	0	0	0	0	0	0	0
## 191	0	0	0	0	0	0	0
## 192	0	0	0	0	0	0	0
## 193	0	0	0	0	0	0	0
## 194	0	0	0	0	0	0	0
## 195	0	0	0	0	0	0	0
## 196	0	0	0	0	0	0	0
## 197	0	0	0	0	0	0	0
## 198	0	0	0	0	0	0	0
## 199	0	0	0	0	0	0	0

## 200	0	0	0	0	0	0	0
## 201	0	0	0	0	0	0	0
## 202	1	0	0	0	0	0	1
## 203	0	0	0	0	0	0	0
## 204	0	0	0	0	0	0	0
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## 211	0	0	0	0	0	0	0
## 212	0	0	0	0	0	0	0
## 213	0	0	0	0	0	0	0
## 214	0	0	0	0	0	0	0
## 215	0	0	0	0	0	0	0
## 216	0	0	1	0	0	0	0
## 217	0	0	0	0	0	0	0
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## 219	0	0	0	1	0	0	0
## 220	0	0	0	0	0	0	0
## 221	0	0	0	0	0	0	0
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## 224	0	0	0	0	0	0	0
## 225	0	0	0	0	0	0	0
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## 227	0	0	0	0	0	0	0
## 228	0	0	0	0	0	0	0
## 229	0	0	0	0	0	0	0
## 230	0	0	0	0	0	0	0
## 231	0	0	0	0	0	0	0

## 232	0	0	0	0	0	0	0
## 233	1	0	0	0	1	0	0
## 234	0	0	0	0	0	0	0
## 235	0	0	0	0	0	0	0
## 236	0	0	0	0	0	0	0
## 237	0	0	0	0	0	0	0
## 238	0	0	0	0	0	0	0
## 239	0	0	0	0	0	0	0
## 240	0	0	0	0	0	1	0
## 241	0	0	0	0	0	0	0
## 242	0	0	0	0	0	0	0
## 243	0	0	0	0	0	0	0
## 244	0	0	0	0	0	0	0
## 245	0	0	0	0	0	0	0
## 246	0	1	0	0	0	0	0
## 247	0	0	0	0	0	0	0
## 248	0	0	0	0	0	0	0
## 249	0	1	0	0	0	0	0
## 250	0	0	0	0	0	0	0
## 251	0	0	0	0	0	0	0
## 252	0	0	0	0	0	0	0
## 253	0	0	0	0	0	0	0
## 254	0	0	0	0	0	0	0
## 255	0	0	0	0	0	0	0
## 256	0	0	0	0	0	0	0
## 257	0	0	0	0	0	0	0
## 258	0	0	0	0	0	0	0
## 259	0	0	0	0	0	0	0
## 260	0	0	0	0	0	0	0
## 261	0	0	0	0	0	0	0
## 262	0	0	0	0	0	0	0
## 263	0	0	1	0	1	0	1

## 264	0	0	0	0	0	0	0
## 265	0	0	0	0	0	0	0
## 266	0	0	0	0	0	0	0
## 267	0	0	0	0	0	0	0
## 268	0	0	0	0	0	0	0
## 269	0	0	0	0	0	0	0
## 270	0	0	0	0	1	0	0
## 271	0	0	0	0	0	0	0
## 272	0	0	0	0	0	0	0
## 273	0	0	0	0	0	0	0
## 274	0	0	0	0	0	0	0
## 275	0	0	0	0	0	0	0
## 276	0	0	0	0	0	0	0
## 277	0	0	0	0	0	0	0
## 278	0	0	0	0	0	0	0
## 279	0	0	0	0	0	0	0
## 280	0	0	0	0	0	0	0
## 281	0	0	0	0	0	0	0
## 282	0	0	0	0	0	0	0
## 283	0	0	0	0	0	0	0
## 284	0	0	0	0	0	0	0
## 285	0	0	0	0	0	0	0
## 286	0	0	0	0	0	0	0
## 287	0	0	0	0	0	0	0
## 288	0	0	0	0	0	0	0
## 289	0	0	0	0	0	0	0
## 290	0	0	0	0	0	0	0
## 291	0	0	0	0	0	0	0
## 292	0	0	0	0	0	0	0
## 293	0	0	0	0	0	0	0
## 294	0	0	0	0	0	0	0
## 295	0	0	0	0	0	0	0

## 296	0	0	0	0	0	0	0
## 297	0	0	0	0	0	1	0
## 298	0	0	0	0	0	0	0
## 299	0	0	0	0	0	0	0
## 300	0	0	0	0	0	0	0
## 301	0	0	0	0	0	0	0
## 302	0	1	0	1	0	0	0
## 303	0	0	0	0	0	0	0
## 304	0	0	0	0	0	0	0
## 305	0	0	0	0	0	0	0
## 306	0	0	0	0	0	0	0
## 307	0	0	0	0	0	0	1
## 308	0	0	0	0	0	0	1
## 309	0	0	0	0	0	0	0
## 310	0	1	0	0	0	0	0
## 311	0	0	0	0	0	0	0
## 312	0	0	0	0	0	0	0
## 313	0	0	0	0	0	0	0
## 314	0	0	0	0	0	0	0
## 315	0	0	0	0	0	0	0
## 316	0	0	0	0	0	0	0
## 317	0	0	0	0	0	0	0
## 318	0	0	0	0	0	0	0
## 319	0	0	0	0	0	0	0
## 320	0	0	1	0	0	0	0
## 321	0	0	0	0	0	0	0
## 322	0	0	0	0	0	0	0
## 323	0	0	0	0	0	0	0
## 324	0	0	0	0	0	0	0
## 325	0	0	0	0	0	0	0
## 326	0	0	0	0	0	0	0
## 327	0	0	0	0	0	0	0

## 328	0	0	0	0	0	0	0
## 329	0	0	0	0	0	0	0
## 330	0	0	1	0	0	0	0
## 331	0	0	0	0	0	0	1
## 332	0	0	0	0	0	1	0
## 333	0	0	0	0	1	0	0
## 334	0	0	0	0	0	0	0
## 335	0	0	0	0	0	0	0
## 336	0	0	0	0	0	0	0
## 337	0	0	0	0	0	1	0
## 338	0	0	0	0	0	0	0
## 339	0	0	0	0	0	0	0
## 340	0	0	0	0	0	0	0
## 341	0	0	0	0	0	0	0
## 342	0	0	0	0	0	0	0
## 343	0	0	0	0	0	0	0
## 344	0	0	0	0	0	0	0
## 345	0	0	0	0	0	0	0
## 346	0	0	0	0	0	0	0
## 347	0	0	1	0	0	0	0
## 348	0	0	0	0	0	0	1
## 349	0	0	1	0	1	0	0
## 350	0	0	0	0	0	0	0
## 351	0	0	0	0	0	0	0
## 352	0	0	0	0	0	0	0
## 353	0	0	0	0	0	0	0
## 354	0	0	0	0	1	1	0
## 355	0	0	0	1	0	0	0
## 356	0	0	0	0	0	0	0
## 357	0	0	0	0	0	1	0
## 358	0	0	0	0	0	0	0
## 359	0	0	0	0	0	0	0

## 360	0	0	0	0	0	0	0
## 361	0	0	0	0	0	0	0
## 362	0	0	0	0	0	0	0
## 363	0	0	0	0	0	0	0
## 364	0	0	0	0	0	0	0
## 365	0	0	0	0	0	0	0
## 366	0	0	0	0	0	0	0
## 367	0	0	0	0	0	0	0
## 368	0	0	1	0	0	0	1
## 369	0	0	0	0	0	0	0
## 370	0	0	0	0	0	0	0
## 371	0	1	0	0	1	0	1
## 372	0	0	0	0	0	0	0
## 373	0	0	0	0	0	0	0
## 374	0	0	0	0	0	0	0
## 375	0	0	0	0	0	0	0
## 376	0	0	0	0	0	0	0
## 377	0	0	0	0	0	0	0
## 378	0	0	0	0	0	0	0
## 379	0	0	0	0	0	0	0
## 380	0	0	0	0	0	0	0
## 381	0	0	0	0	0	0	0
## 382	0	0	0	0	0	0	0
## 383	0	0	0	0	0	0	0
## 384	0	0	0	0	0	0	0
## 385	0	0	0	0	0	0	0
## 386	0	0	0	0	0	0	0
## 387	0	0	0	0	0	0	0
## 388	0	0	0	0	0	0	0
## 389	0	0	0	0	0	0	0
## 390	0	0	0	0	0	0	0
## 391	0	0	0	0	0	0	0

```
## 392         0       0         0       0       0       0       0
## 393         0       0         0       0       0       0       0
## 394         1       0         0       1       0       0       1
## 395         0       0         0       0       0       0       0
## 396         0       0         0       0       0       0       0
## 397         0       0         0       0       0       0       0
## 398         0       0         0       0       0       0       0
## 399         0       0         0       0       0       0       1
## 400         0       0         0       0       0       0       0
## 401         0       0         0       0       0       0       0
##  [ reached 'max' / getOption("max.print") -- omitted 106 rows ]
```

```
# only use variances using the corr mat
non_categorical_brca = cbind(brca_data[1:604], brca_data[1714:1936])


# use correlation matrix
cor_mat = cor(non_categorical_brca)


# returns vector of indices to remove
cor_list = findCorrelation(cor_mat, cutoff = .7)
```

```
non_categorical_brca =  non_categorical_brca[, -c(cor_list)]
```

```
non_categorical_brca
```

```
##      rs_CLEC3A    rs_CPB1   rs_MUCL1   rs_GSTM1     rs_PIP  rs_HMGCS2
## 1    0.8928184  6.5801033  6.6494660 10.5203345 10.3384899  7.9046093
## 2    0.0000000  3.6913108  9.6916668  8.1795215  7.9117233  1.2895984
## 3    3.7481499  4.3752550 11.6443070 10.5173296  5.1149250  9.3833794
## 4    0.0000000 18.2355185  8.9137601 10.5574647 13.3044344  4.3479916
## 5    0.0000000  4.5837237  8.4300285 12.9646066  6.8065174  6.1115697
## 6    0.6028369  1.0266584  6.0855245  7.7737478 11.0807761  5.8463755
## 7    5.6543124  2.8420737  8.4904815  0.0000000  6.8230513  2.7623063
```

```
## 8    2.3709454  0.4304994  2.7889989  5.4519199  2.5529426  1.6259250
## 9    0.0000000  0.6035967  0.0000000  5.9492338  1.6220870  1.8470749
## 10   0.0000000  8.1872872  0.0000000  0.4930324  0.0000000  0.8598106
## 11   0.0000000  1.8783330 14.6119938  2.5893800 10.2794793  8.6670647
## 12  12.0808128  1.0785415  4.3676646  9.6116141  8.2523286  0.0000000
## 13   0.5474498  3.6482353  7.8245362  6.1528142  0.5474498  0.0000000
## 14  10.2200022 10.1382787 12.0278828  0.7400209 10.5085516  8.7435348
## 15   0.0000000  5.0356195  5.4670708 12.5542905 17.1536420  7.0690340
## 16   0.0000000 12.1852492  9.4787813  9.8415241 15.8856559  3.5377682
## 17   5.2076274  6.3884634  4.8375396 11.8685503  3.7141026  4.3384815
## 18   0.0000000  0.8186052 11.0721101  8.9856094  1.8768803  1.1013139
## 19   4.3764571  4.1622987 11.9703469 10.1852487 12.8571583  7.8396812
## 20   5.2723629  5.5889604  9.1285125 12.6594932  9.3053778  3.0827537
## 21  12.6756974  1.3864799 14.9086522  1.9354975  9.7425031 10.6163301
## 22   0.0000000  0.0000000  0.0000000 11.3883250  0.0000000  0.4976379
## 23   0.0000000  9.2388306  5.4072202  6.9908630  4.4717662  1.5278210
## 24   1.6860298  2.7894997  6.1240965  1.6860298  1.9843706  0.7984238
## 25   4.7263680  0.7179122  6.4228671  5.7077870 10.5928744  0.0000000
## 26   5.3923861 19.3759731 11.5194274  8.5924320  9.6624745  6.1663479
## 27   3.7606255  2.1974880  6.0268819  1.2837440 13.2090082  3.0309716
## 28   7.2546488  4.2659094  7.5636653  7.6614275  8.9707542  5.2118766
## 29   0.0000000 20.1945020  8.0399099 10.9367280  6.8443982  3.8338717
## 30   3.3097728  7.3051206 12.9963889  1.5147535 13.5683126 11.4241200
## 31   5.7718803  9.6617207  0.0000000 12.1855344  4.5391960  0.0000000
## 32  11.7149760  6.6481519  6.5380694  1.4617381  9.4503793  5.6270552
## 33  10.4178372  4.7848965 11.3950903 11.9539592 12.5233014 12.2958481
## 34   0.0000000  4.9435604  6.4252360  0.9074291 11.6528065  9.5842814
## 35   0.0000000  5.8690324 16.3044068  1.0688084  8.6445593 10.7722289
## 36   5.1729875  8.3679673 13.1139177  9.5865251 12.5188026  8.8427677
## 37   0.0000000 15.1482707  6.9404628 10.7571065  5.4750297  4.8570404
## 38  13.5033324  5.8252565  5.2206743  0.8827604  9.3579227  2.5316435
## 39   7.5638735  3.2227737 12.7771142  7.0980879  8.8656999  8.2507674
```

```
## 40   1.6995072  3.6134845  1.3816710  0.9733541  0.0000000  0.4017397
## 41   0.0000000  3.5216413  4.6391337  6.2547244  4.8504994  0.0000000
## 42   1.5224073  2.3561156 11.8335768 11.6493811  6.2390314  4.9698182
## 43   2.1911520  1.6911768  8.5848468  0.0000000  9.2911744  2.5617172
## 44   4.0553866  5.8234768 10.6823940  0.9542708  9.9460136  3.9129947
## 45  10.8308322 16.6831784  7.3051479  0.9826560 12.3266193  7.8201011
## 46   2.3253864  6.4320725  6.1428933  1.0663992  7.8571997  5.9857031
## 47   0.3810618  1.3285493  2.2102642  1.6397415  5.0724531  1.7733212
## 48  10.2537331  9.5033843 10.7722814  0.0000000  7.8710988  7.0141187
## 49  15.8929853  6.1792961  3.6310461  1.4374408 13.9118349  6.6327713
## 50   0.9754835  3.0717627  4.3221517 10.3924283  7.6649706 10.8069381
## 51   0.3971458  5.5431061  0.9639180  0.0000000  1.3697736  1.1810389
## 52   0.3399355  9.8661243  5.1074786 11.5438008 12.1084325 10.3750891
## 53  12.9559900 12.8428149 10.6000128  5.5221468 11.5710460  7.4148738
## 54   4.8768312 11.8264243  7.3309169  6.9595267  6.2851155  8.1663996
## 55  15.3516285 19.0190839  5.1410812 11.1597589 12.0463336 14.5525085
## 56   0.0000000  0.4924172  0.0000000  9.5647324  0.0000000  0.0000000
## 57  12.1282514  8.0965375 12.0453631 11.5897223 13.4294201 10.4031252
## 58   0.0000000  6.0379818  9.1456469 10.5029791 10.9341581  6.7024816
## 59   0.0000000  0.6681191  0.3723950  0.6681191  0.0000000  0.0000000
## 60   9.9481510  7.8249167  9.0198798  5.6997265  4.8196784  3.4208057
## 61   6.9607422  2.9440338  5.3093145  7.1457508  7.2446064  8.3583013
## 62   2.1892236 10.2902983  2.2801546  0.3748447  2.4464415  4.6628036
## 63  11.3304874 11.1703653  1.7812338 12.8337673  0.3457370  3.4261037
## 64  13.3230548 14.1103659  5.2877567  7.9685677 11.1307045  5.9880961
## 65   0.0000000  0.6320820 10.1805406  6.2949956  0.0000000  0.0000000
## 66   0.0000000  4.9093411  5.9050692  5.3386241 12.8620936  2.6339659
## 67   9.8738924  8.7823198 15.5289481  9.9929553 12.9149733 11.7425693
## 68   2.4208057  6.2113452 11.8309513 10.3644661 11.2842904  8.1531918
## 69   1.7068620  5.5466723  9.1578504 10.2956400  8.8582571  7.0332237
## 70   0.0000000  6.8198891  5.6317126  6.6766116  6.8110625  5.1893581
## 71   5.2075259  4.3354547  9.0968134 10.1356482 12.2030234  2.7980505
```

```
## 72   0.0000000  5.4096625  4.8287382 11.3667355  7.9572460  1.8740887
## 73   0.0000000  1.6136731  0.0000000  1.6136731  1.3477790  0.0000000
## 74   2.1668440 13.1697351  3.4058018  1.6022193  8.9869772  1.1133671
## 75   0.0000000 12.5386470 13.3465467 10.7670152 14.6134670 11.6532929
## 76  13.1499701  2.9621973  4.6526700  1.0923428  9.0126812  3.9743825
## 77   0.0000000  6.4095980  2.7226409 10.6990564  3.7791651  1.0131406
## 78   2.8794705  1.4186757  4.8963590  8.9156634  4.1484135  0.7392433
## 79   0.5997939  6.8764531  3.7410463 10.6349701  1.0221192  0.0000000
## 80   0.0000000  1.5998414  3.8886264  6.6802371  3.9656642  0.0000000
## 81   1.3008266  6.8897595 13.8934506  0.0000000 10.3809482  8.2408920
## 82   0.0000000  5.8474558  7.4080070  0.9245560  6.7104896  6.3061893
## 83   1.0439744  8.6732052  8.7894208  7.1493508  9.5893000  5.6772996
## 84   1.0316775  2.2976023  2.6966616  2.0472592 10.3270483  7.3101792
## 85   0.0000000  0.6353365  0.8717648  0.3523066  5.8781049  4.4242704
## 86   0.0000000  7.6150307  4.3897939  2.6502361  0.5448810  0.0000000
## 87   7.3245064  3.8952735  5.8374337  2.1059127 10.0401304  4.4692348
## 88   1.5787455  0.5818815  1.8007032  7.5414498  3.9912361  0.0000000
## 89  10.9672517 12.9525360  4.7596725  4.8452943 12.3557073  6.8440265
## 90  16.5283731 18.7746067  7.4068742 10.3272935 15.1572006 12.0149085
## 91   0.0000000  8.7938016  8.9494380  6.0104129  7.6515662  8.7938016
## 92   7.3468000  9.6642814 12.3935207  1.8841681  7.9225951 11.7662624
## 93  10.6303349  5.1929082  0.7464848  1.4298570  9.1137057 13.9270460
## 94   1.9505804  3.9379658 10.9012148  1.1017173  9.3095318 10.8803138
## 95   5.3489830  4.3452828 12.4293177 11.2849479  9.5957819  6.0538455
## 96   2.0309716  1.2159270  9.0101280  6.0973538  6.7151782  4.1856842
## 97  10.7433346 12.7695813  4.0999937  4.2661569  9.3917883  6.1123206
## 98   9.2292291 11.4055763  2.9838418  5.6753558  7.6834242 10.0214731
## 99   0.3981314  2.5277710  7.5753093  1.3723392  9.0665071  8.9132823
## 100  0.0000000 10.9849015  5.5298428  0.0000000 14.5023720  1.7893537
## 101 12.1264532  1.2018847 11.8448012  1.2018847 10.2547998 11.0142717
## 102  3.9068906  0.0000000  4.9909549  6.1333991  9.6194864  1.3785116
## 103  0.0000000  2.3661963  2.8019864  9.8145512 13.2659594  1.2008182
```

```
## 104 14.7440662  1.5527213 16.9844051 10.4502287 12.6180651 10.9438831
## 105  0.9761436 12.6306008  3.8858769 13.0871720 11.6283510  5.8475761
## 106  8.0872438 11.6092048  1.6725159  9.5230618  6.1687824  7.6171207
## 107  5.4493633  0.4455148  3.6528306  0.7854250 17.8107584  1.2911910
## 108  0.0000000 16.7016759  5.8107618 11.4342086  5.3281543  0.9034240
## 109  2.0420840  6.4351768  9.0661597  1.2243490  6.4051585  9.5615738
## 110  8.8394740 17.0251063  3.0563581  2.5825560  6.5207114  7.9933670
## 111  2.1666512 11.1038602  8.6476869 10.3388467  3.5197306 10.1487314
## 112  3.4590250  8.5873279  5.2347772 10.8415724  4.8943813  3.4590250
## 113  0.0000000  3.8348123  6.5712111  0.8513593  2.7288565  6.4100188
## 114  0.0000000 12.1568387  1.5833747  0.9987732  9.0717434  9.1345929
## 115  0.0000000  1.1382247 13.8916101  1.7664680  7.1140359  0.0000000
## 116  0.0000000  6.7202593  2.0921059  0.0000000  2.9733909  0.0000000
## 117  0.5749250 19.8176679  6.6978739  1.9773166  7.1145388  5.6284820
## 118 10.7564891  0.0000000 14.6246505  6.2231117 14.4355255  8.1206355
## 119 13.1260417  6.2089054  8.2423305  2.6179802 10.6045992 11.5026928
## 120 12.2456132 12.2731047  3.3290949  0.3405053 13.5168723 11.3284887
## 121  0.0000000  9.4746524  8.8383486 10.6516008  7.7654260  5.5750006
## 122 13.6141569 17.7662218 10.3678677  2.2724114  6.2054551  9.8042078
## 123  7.9119917  8.2682280  5.6305540  3.2579309  7.3106900  7.6138130
## 124 12.0582795  0.6890307 17.3390729  2.7025689 16.4954497 13.3556084
## 125 14.3196676  6.0720951  4.2188664  0.4859420 12.3180135 11.2987625
## 126  0.0000000  7.2835820  3.3617403  5.5538827  0.5077185  4.2583455
## 127 10.4579250 11.9901812  7.8939883  0.0000000  8.3091271  3.7106246
## 128 12.1066794 11.2389021  3.8026379  5.9879688 10.3919322  0.8980922
## 129  0.0000000  3.0955869  4.7989422  0.0000000 10.5980612 14.9172485
## 130  0.0000000  0.8701871 14.2034337  6.7632389 15.5093421  3.6542751
## 131  2.3003581  1.0501186  0.4403144 10.7643749  3.5045950  1.2795307
## 132  0.5212518 11.3374339  9.2390018  2.1641426 10.5385408  3.5705965
## 133  6.6143683  7.5476758 12.5240247  2.1806571  7.5170796  5.6232845
## 134 15.4252881 11.7598830  8.0986838  9.5901001 13.9673111  6.3346970
## 135 11.0853482  7.8338243  7.2099387  0.9390008 11.3006689  9.1700590
```

```
## 136  0.0000000  7.3789910  7.1065431 10.1547527  5.7088494  5.1199828
## 137 14.6349742 15.3851114  6.8862685  9.3523990  7.6045718  3.3367975
## 138  1.1054769  1.2867038  5.4750297  6.8601459  2.2458607  0.3650206
## 139  6.3792571  4.4152449  8.6565754  0.3775125  4.1000946  7.3495555
## 140  0.8793921  8.1936318  4.8221183  5.9115478  5.2297379  0.5056877
## 141  0.0000000  7.8383108  0.4881036  3.1125333  6.8746076  2.0774481
## 142 10.9518632 11.3150050  5.7455170  2.6392785 11.3287602  7.6242896
## 143  0.0000000  6.4989194  2.9053124  2.0860704  9.6693670  1.8174595
## 144  9.6056706  3.1142671  5.1206588  1.4865599  9.3745220  7.3141862
## 145  0.0000000  1.2876496  0.3654686  1.2876496  1.4486896  0.3654686
## 146  7.9916794 16.4378924  6.2705177  1.2696915 12.4567173  1.5268200
## 147  8.4094249 16.5896563  4.0082359  6.7999434 11.7611169  9.2302931
## 148  0.0000000  0.6782522  0.0000000  0.6782522  3.6328033  0.6782522
## 149 15.9573859  6.8062557  6.3336044  9.8941977 15.9349480  9.9902423
## 150  5.3762313  0.5465611  5.0748394  5.6782776 11.9016081  3.8893275
## 151  1.4712915  6.6837119 10.2043462 11.7514613 13.6164920 10.5888754
## 152 15.5043604  6.3928721 14.3520899  7.0282409  7.2917279  3.0828558
## 153  4.2224027  6.8318025 11.6926475  7.8205619 15.3146456  8.7142833
## 154  3.0594418  7.0137939  4.4418619  0.3994446  7.4071828  3.7484827
## 155 10.9397704  5.8066721  5.5205511  0.8610819  5.3672872  6.2397035
## 156  3.5186358  1.3186928  1.9959548 11.9747409  6.8020032  3.1651241
##     rs_CYP2B7P1 rs_ANKRD30A   rs_PRAME     rs_TAT rs_SERPINA6  rs_TFAP2B
## 1     8.7548007   9.6811760  9.3632576  2.1463945   1.4402081 11.6758959
## 2     5.6982879   7.8855225  1.8188915  2.4151637   0.0000000 11.5752060
## 3     8.6309132   9.6103101  4.7336743 16.1731768   6.7910248  8.2901368
## 4     7.8362650   9.7323740  9.0692008  2.9742172   2.9742172  3.6666884
## 5     7.7019011  10.7591985  1.3700527  2.7955384   8.4805103 11.4500520
## 6     4.6654837   0.0000000 11.4872438  2.0398403   0.6028369  6.0744626
## 7     2.3901724   4.5933060  8.2095757  8.0757497   0.0000000  6.3090252
## 8     1.4534912   0.0000000 11.8210339  1.6259250   0.0000000  5.7132779
## 9     1.8470749   0.0000000  8.1185212  2.3663642   0.0000000  0.0000000
## 10   10.3208690  10.6930618  1.9455702  1.3948982   1.6026944  9.3649720
```

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## 11   14.1371027  10.7770611  1.4183519  6.4259007   6.9594537 11.7571210
## 12   10.2465768   2.3440047  3.7258829  1.3118518   0.0000000  4.3676646
## 13    0.5474498   0.0000000  1.2537473  1.2537473   0.0000000  0.0000000
## 14    8.9335009   9.7452350  0.0000000 10.5420127   8.5403749 11.2621499
## 15   16.3599095  11.3480676  0.0000000  2.0757722   2.6689133 10.8160843
## 16   10.5686844   9.6682542  9.0915190  0.5474498  10.1198167  9.8136828
## 17    8.2384205   0.0000000  2.1191901  0.5039593   1.1726155  2.5889724
## 18    8.1337988   8.3917188 10.6069698 12.7241253   5.6837217  1.3375969
## 19    6.9398624   9.3954909  1.4431823 11.3854096   8.8580690 11.1253541
## 20    2.4089835   7.0260132  9.3612935  2.6260185   1.7221162  8.5788504
## 21    1.7746711   0.0000000  4.4585657  9.5732134   0.0000000  7.5504351
## 22    0.4976379   0.0000000  9.7825665  0.8668684   0.0000000  0.0000000
## 23    1.7460117  10.4032961  0.0000000  2.7334411   0.0000000 13.3126055
## 24    1.0764907   1.3094673  8.8560875  2.3407901   0.0000000  4.7678031
## 25    2.8331127  10.8591628  0.7179122 14.4313788   0.0000000 12.5486599
## 26    3.8657803  10.0474881  5.6358472 14.9094541   2.7205411  4.7019482
## 27   10.6522368  10.3344657  1.0538064  4.8921190   7.3498199 10.6167559
## 28    1.8019864  11.0427544  3.3390233  4.4685768   0.0000000 13.1084711
## 29    6.8817441  10.9763265  0.0000000  4.6843307   8.3732510 11.2806540
## 30    5.4503238  10.1124030  0.8015726 13.1429530  11.7217886 11.5050894
## 31    7.4806480  11.0050673  3.6915342  8.1145008   8.8821487  3.5021524
## 32    8.7972063   8.6116718  4.4856522  3.2886391   8.2251862 10.2927050
## 33   11.1508640  10.6355350  3.5827005 11.2973539   7.7407529  9.8976746
## 34    3.4685963   8.9699269  0.9074291  6.1684856   2.6447562 10.9349108
## 35   11.9426010   2.9913359  7.9814988 10.1751015   1.3007680 10.3663914
## 36    3.8339628   5.6246010  8.9601731  7.1295159   4.9515552  7.1557199
## 37   13.1667242   5.1296004  9.7333437  1.8411278   4.4933847  6.6189434
## 38   12.6519989   5.7816561 10.8042569  2.6001746   6.1956704 10.9521107
## 39   10.8069075   8.5123189  2.4295624  3.5272455   0.0000000 10.3775819
## 40    3.4952091   4.5132949  7.2195664  1.3816710   0.0000000  7.9980623
## 41    1.2082675   0.0000000  9.9845656  1.9814143   0.0000000  6.8580345
## 42    4.3820032   9.4988121  4.0963546  0.8066128   0.0000000 11.4424557
```

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## 43    2.8563085   0.5318680  4.7231435  2.0429244   0.0000000  2.0429244
## 44    7.8979580   8.9981741  2.5078961 10.3214066  14.0081090  6.1561943
## 45   10.9366412   9.0122709  9.7258407  3.8255007  11.6726654  9.5926587
## 46   10.8949420   8.6280390  0.7903550 11.2623099   1.0663992 11.3644318
## 47    4.9366474  11.7862019  1.3285493  2.1128002   0.6822137 12.6348404
## 48   10.1238034   7.9456814 11.1812022  5.0722087   0.6578229  8.7635301
## 49   11.1432684  10.3540309  0.8907969  3.0709388  13.0418700 10.2779889
## 50    9.7584331  10.7481752  0.4028313  1.8386291   0.4028313 10.2671836
## 51    1.3697736   0.9639180 11.3359301  2.2637255   0.9639180  3.8064375
## 52   10.1664726   8.6061546  0.0000000  7.8220430   5.2752231  3.1651402
## 53   10.6984490   9.2511687 10.3980150  3.3945141   0.0000000  4.9322691
## 54   12.4952983   0.0000000  8.7855051  2.6602669   6.2519198  1.6455172
## 55   11.3906846   9.0593404  1.8810381 11.8810074  14.0994690  6.2617283
## 56    0.0000000   0.0000000  0.8589358  0.4924172   0.0000000  0.8589358
## 57    4.8120361  10.5735304  3.4266405 12.6912501   1.6632535 11.6040228
## 58    9.0468757  10.4075349  1.1898562  8.3871001   0.0000000 11.0589779
## 59    0.0000000   0.0000000  9.4635816  2.3569889   2.3569889  3.0639171
## 60   12.2263448   0.3444877  5.3828574  7.1142598  11.9262105  2.7363451
## 61    6.3621192  12.4807087  0.3832757  2.7618171   0.3832757 11.8094554
## 62   11.4411887  13.1327154  3.0734432  5.2513101   0.0000000  3.0216752
## 63   11.2533670   2.7985897  1.7812338  0.3457370   2.2603870  4.4316831
## 64    9.9576538  10.0862120 10.5814238  1.8000819   8.2706205  9.4609985
## 65    2.2775385   0.8676593  1.2476238  2.1933302   1.7966393  1.6777112
## 66    3.2473351  12.7094156  0.3494785 16.5299742   0.0000000 11.2086865
## 67    4.7197420   8.5657441  1.2229282 11.4048614   5.8422472  9.8216720
## 68    5.6300559   9.3895102  2.3344825  7.3547334   5.9167346  8.6741124
## 69    8.4141643  11.1578149  1.9795864  7.2418621   6.3785307 10.3999087
## 70    9.8097797   9.6307502  3.1009776  2.9157886   4.1604927  0.0000000
## 71   10.8558244  11.4184932  1.4669664  4.4121786   2.7035216  6.8150784
## 72    7.9857008   8.1201222 11.6403196  2.3754287   0.8168864  8.4122739
## 73    1.3477790   0.5994130  7.3577130  0.5994130   1.4868173  1.0215508
## 74    9.8222598   6.4005174  1.4569113  1.2953116   6.5058560 10.2224536
```

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## 75    8.6565668   8.6757330  4.6142446 11.9939212  10.3531293 10.1223761
## 76    4.9277400   9.5517173  1.0923428  3.3301998   4.2848324 11.3294141
## 77    6.0257996   4.1946859  1.0131406  2.3429245   1.8261112  4.6100858
## 78    1.4186757   0.0000000 10.1453286  3.5902667   0.0000000  2.4197276
## 79    4.3637038   1.6144272  1.3484591  0.0000000   0.5997939  0.0000000
## 80    1.9424207   0.0000000 10.5781604  1.3922625   1.3922625  2.8264366
## 81    4.5808208   8.0254823  1.9735745  9.6273648   3.5525984  9.4655436
## 82    4.1014148   8.0766644  2.3337958  8.1695898   4.9371702  8.1354405
## 83    5.6393827  11.7184166  2.3166961  6.2249432   4.1476486 11.7842864
## 84   13.1696613   6.4150522 10.6111958  6.9869638   4.5517805  9.6624895
## 85    2.9846987   0.0000000 10.9368853  3.9172312   2.1108643  7.5798296
## 86    8.6563469  10.1479013  0.2980717 11.4987698   0.9395275 10.9636902
## 87    7.6529482   8.5280352  1.4072440  3.8628679   9.7803549 10.3098640
## 88    5.2946722   0.0000000 10.7810066  0.5818815   2.1626612  0.0000000
## 89   14.6251542   9.7549364  1.8010345  2.3621051  14.9591301  4.1001956
## 90   14.8079291  11.3602029 12.6918890  1.5976504   6.5999738  0.5912964
## 91   10.9883132  10.2027152  5.6054736  2.7520635   0.7799741 12.8076607
## 92    8.8651487   6.0615494  1.3191555  4.0224743   0.6763577  6.6436152
## 93   13.4953518   7.6333106 10.1640193  1.0118534  15.4022806  9.6668620
## 94    5.2134717   9.7472744  8.1618212  1.8394759   3.4631908 10.1990571
## 95   13.8887010  11.0953468  2.5776584  2.5093411   3.0318186 11.5990128
## 96    8.7483928  10.2314499  2.0309716  2.0309716   0.0000000  5.0334010
## 97    8.8056513   5.1574076 10.5326123  0.3774014   0.9237957  2.2891262
## 98   11.0099413   7.9261495  1.7734900  4.1363555   2.2633349  8.2283103
## 99    8.7933725  10.4382823  0.7098200 11.6590412   6.8143415  1.9486382
## 100  12.0915477   9.2566816  1.9810854  4.7035936  10.4825228  3.9305481
## 101  10.2869903   0.0000000  2.7488262 12.2134823   3.1378805 12.6259727
## 102   8.5368300  11.5156013  0.0000000 15.4376416   0.0000000 11.5023346
## 103   9.1130318  11.1285886  2.1298105 14.5372381   3.7233183  0.8312287
## 104  11.6037575  11.7004749  0.4716557  8.8408015   0.0000000 10.7050921
## 105   8.0749415   0.3124328  9.4037343  0.5691022   0.5691022  0.3124328
## 106   9.2588258  10.4240821  2.2480186  2.7945198  11.5303056  7.6444195
```

```
## 107  14.3004632   9.7852537  2.6841904  3.3795101   3.2755286 10.2767922
## 108   8.2324022   9.5388415  0.6601985  2.4202398   7.0043306  2.3398215
## 109  10.6275543   4.0131496  2.4475263  3.3722835   8.4037654  6.9536564
## 110   9.3077347   8.6754314  9.2482101  0.4143521   0.0000000  7.5049278
## 111   0.7088494  10.0171086  6.6931329  4.7556995   0.0000000 12.9288800
## 112   7.2379566  10.7224993 11.3418556  3.0870724   1.8070251  5.7297458
## 113   8.4840443   0.0000000  4.7187288  0.0000000   0.0000000  6.5215612
## 114  10.2655566  11.6319555  6.3014084  1.2210109   0.9987732 11.1820607
## 115   3.1386998   0.0000000  7.6292378  2.0010095   0.0000000 10.3429749
## 116  12.0512586  10.1589854 11.4500106  1.8523984   3.4747605 11.4650788
## 117   7.1670899  12.2518898  0.5749250  7.2850063   0.5749250 11.9902173
## 118   1.8066953  10.0979540  4.6995738 13.7418818   0.0000000 12.3358494
## 119   6.5468883   9.2682767  4.6818203  7.3308282   8.3416576 11.5996835
## 120  12.5246403  11.3397927  3.5418617  0.3405053   8.8078871  7.0174766
## 121  10.1509291   8.5793665  0.5391340  8.2048856   0.5391340  6.6730207
## 122  10.8315240   9.8977785  9.9150571  6.2523494   6.4434525 11.4439934
## 123   9.2956886   9.7089220 10.5251792  2.4956952   7.1853958  7.8839268
## 124   0.6890307  11.3845045  8.7961246  3.0072134   0.0000000 12.4183562
## 125   9.5260757   9.3491295  3.5865486 12.0032104   2.5374949 11.1098639
## 126  13.5988410   8.3608225  3.3617403  0.5077185   2.8732423  1.1797658
## 127  12.3707633   9.0387544 11.7543535  1.6479591   8.0531325  0.4390380
## 128  10.8476944   9.1925271  2.6936765  2.2456174   1.5922059 11.1749551
## 129  10.6799945   0.0000000  1.1750455  5.7947564   0.0000000 10.7052165
## 130   3.8738526   0.0000000  2.1082233  7.6416623   0.0000000 13.1907604
## 131   1.0501186   0.0000000  9.9517122  2.4012755   0.0000000  1.6513617
## 132   8.9962537   9.9190346  0.5212518 11.4934523   1.6673018 12.3579981
## 133   7.3255591   4.9466841  7.6639565  1.9062364   0.0000000  9.5682351
## 134   8.9536471  10.8310894  1.6348720  3.4094588   2.2958406  8.6411681
## 135  11.7177475   9.7807537  1.9074676  7.7624943   7.9328094 10.5774816
## 136  12.6542023   2.9709457  4.0719943  2.3992531  15.1344467  6.8844038
## 137   9.0308293   7.6877753 10.9038186  5.3668852   5.1563926  5.7230315
## 138   2.0591130   0.3650206  7.6078370  2.6282603   0.3650206  6.3148125
```

```
## 139  11.1479122   4.3948845  3.4019171  3.1335142   0.9238718  6.3792571
## 140   8.4419789   4.0834687 10.7858477  5.9115478   1.6318493  0.0000000
## 141   0.8521587   0.4881036  0.4881036  2.2088918   0.8521587  4.2259998
## 142   9.2077757   3.7604765  7.2543200  9.6832348  10.4946394 10.1664103
## 143   3.3753175   0.0000000 10.1647508  1.4871261   0.0000000  7.0276219
## 144  12.5936761  10.9537807 11.0319174  0.0000000   4.0677506  9.7990227
## 145   0.3654686   0.0000000 10.3242490  1.1064153   0.6567252  0.0000000
## 146   8.5468979   8.1069256  1.2696915  6.2617019   1.5268200  3.0918521
## 147  12.7768870   9.9286513  0.7959331  6.3892140   1.6818990  1.0733404
## 148   0.6782522   0.0000000  9.1426833  1.7659590   0.0000000  0.0000000
## 149  14.1986674   7.0607186  0.4564908  5.7206998   1.9918982  0.0000000
## 150   0.0000000   0.5465611  0.0000000  0.5465611   0.0000000  8.7767173
## 151   9.4384906  11.3682462  0.3256167 12.9073458   0.5912007 11.5452949
## 152  12.7670935   4.4156843  2.8534767  4.6243466   0.0000000  0.5010060
## 153   1.1058122   8.3618933 11.8295635 13.3027110   0.0000000 11.0515865
## 154   3.5268576   3.7823247 10.3431042  5.7955981   0.0000000  8.5014531
## 155  11.7770517  10.6281829 11.4241875  3.0614133   1.8958842  2.2660369
## 156  10.1930496   8.7759720  0.0000000  2.6958825   6.3522183 10.6621584
##      rs_CYP4Z1   rs_DHRS2   rs_KCNJ3  rs_MYBPC1  rs_C4orf7    rs_MUC6
## 1    2.6184266  8.3757172  0.8928184  6.4376389  6.0562735 10.2097588
## 2    3.0396824 11.5046951  3.2182387  8.5443784  6.8334063  0.7843365
## 3    2.7766936 16.1894747  4.9876392  2.3287790  2.6138145  0.0000000
## 4    1.3860936  4.7452104  4.3762904  5.4648937  2.4429966  5.4382962
## 5   10.7959921 14.1196321  1.7558276  5.0993162  6.3544539  4.6306268
## 6    9.9909513  1.0266584  0.6028369  5.8068215 17.6800230  1.3538878
## 7    2.7623063  2.2799170  2.1605653  9.7447035 16.7070359  8.1579148
## 8    0.0000000  0.4304994  0.4304994  5.1467285  7.1013171  1.4534912
## 9    5.5459745  5.6541233  0.0000000  6.2930154  2.3663642  0.0000000
## 10   5.0524941  9.0145637  5.9941701  1.7842946  2.0906163  8.5617034
## 11   6.0349662 10.4367934  6.6917491  6.0349662  4.2274099  9.2196097
## 12   4.1439648 13.9269565  8.9633204  6.4610963  3.5992345  2.6297063
## 13   0.0000000  2.3656086  0.0000000  8.2771428  7.5539433  1.7257848
```

```
## 14   6.6466768  8.2603550  0.7400209  7.3325978  8.0466046  4.7975163
## 15   6.9066706 10.3781641 10.4700675  4.9040746  3.6770572  2.6689133
## 16  13.6020398  8.6209851  8.0293850 10.3651754  2.8992723  6.7921955
## 17   8.8779945  6.7937633  7.9325750  1.4180280  1.6277469  0.0000000
## 18   2.5762077 12.1396357  5.3607716  3.4498915  3.5937004  4.1225485
## 19  12.8949880  3.2186727  2.4814023 13.6176096  7.9756273  1.5877010
## 20   3.1308815  7.5793702  9.0879441  0.0000000  1.2851063  9.5040328
## 21  11.0796534  6.4949564  7.6724734  5.7186301  0.0000000  3.4711614
## 22   4.9572599  3.9843159  0.0000000  3.9462817  6.2704243  0.4976379
## 23   4.6715764  5.0244970  9.7030206  1.2705887  0.9573203 15.6709209
## 24   3.4073663  3.7221818  0.0000000  2.4423862 12.6956166  1.9843706
## 25   8.6351097  3.3716007  0.0000000 15.8786329  2.2836551  0.4031586
## 26   6.6367899  9.5174985 11.0524239  1.3771237  0.6158871  5.7184137
## 27   6.5803189 11.2486448  1.8117998  6.0813929  5.5737502  1.6563133
## 28  11.7870250 13.6672776  1.8019864  0.5002922  6.7651634 14.0942354
## 29   3.0413481  6.8406093  7.3944901  2.4647728  3.6727534 13.3547411
## 30   8.0137598  8.9308665  2.5433969 11.4223635  6.0688428 11.4835387
## 31   3.8589060 15.4004318  4.0088633  5.7823325  0.4826418  2.4251101
## 32   3.8761928  8.5908168  3.5268576  3.3886993  3.8412989  1.2651368
## 33  14.4532544  8.7217250  3.1933617  8.7144437  7.0908217 10.5518785
## 34  14.4069053  9.4758009  2.5400521 13.0262651  6.6304288  0.5238630
## 35  13.0758752 10.5010663  2.5252420  7.5822022  4.8846028 11.2014033
## 36   9.7445089  3.4939419  1.1911204  8.0401138 10.3262693  3.8766053
## 37   6.4373792  8.1356636  9.9237687  2.9795864  8.5158780  2.0047890
## 38  10.0970998  2.2194009  0.0000000  0.3576083  0.3576083  1.9309644
## 39   6.0039777  6.1358385  9.4546012  2.6472454  6.3214014  2.5425057
## 40   1.9598443  2.1802752  0.0000000  8.9879566  8.7045435  1.5493242
## 41   2.4820996  1.8564679  0.0000000  2.9170498  0.7270927  1.3995539
## 42  10.2977123  0.0000000  1.0865120  0.0000000  6.7413847  2.4579619
## 43   8.2101375  1.4767964  0.0000000  0.0000000  2.7646434  3.5484366
## 44   5.3576611  6.8964438  8.4871989  7.5633084  6.8385283  3.6148158
## 45   4.5211701 13.3953397  6.9821608  2.2940472  6.5801500  2.5559143
```

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## 46   7.4600110  6.2084022  7.0908005 14.6609167  3.8207202  8.7948954
## 47   9.8210837  4.0634598  0.9312292  5.5343293  6.9893434  0.0000000
## 48   9.6763392  5.2359797  3.5108860  3.2729339  9.2477341  2.6979072
## 49  11.5689137  8.5079571 12.7513510  0.3614315  0.6503050  0.6503050
## 50   6.4159412 10.0577481  7.1005877  3.7952994  6.1863698  0.7173858
## 51   2.3558902  4.8201636  0.3971458  4.3677275  9.1364454  1.5366000
## 52   3.8889965  8.5611997 12.5913582  2.6584400  7.4579061  0.0000000
## 53   4.0941347  0.7279640 11.5142387  1.7211539  3.1497959  0.9887029
## 54   5.6426409  8.0989306  9.2729789  2.2934882  0.0000000  5.2970043
## 55   5.9912225  9.1123736  6.3004441  7.5723304  5.4670186  1.3166092
## 56   0.0000000  4.8815863  0.0000000  1.1508846  1.3935809  8.8566471
## 57  14.2456464  3.5651585  1.6632535  6.1585935  8.7167516  6.5182928
## 58   9.6338402  2.0715224  5.6441735  8.1144045  8.2870835  7.0893774
## 59   0.0000000  0.3723950  0.0000000  5.5161318  5.0228693  1.7467427
## 60   1.6588284  9.1807225  3.3074722  0.6223682  1.0557510  8.4809146
## 61  11.8547342  5.2296379  8.4972287  3.1057786  5.6612993  4.7314494
## 62   3.9016489  5.5173954  7.4452707  1.3124328  3.0216752  7.4329369
## 63   2.6816741 11.1424662 10.7025411  0.3457370  1.3922075  1.7812338
## 64   8.7580246  7.2944232  1.1642714  3.5037812  5.8396598  1.8000819
## 65   0.6320820  2.0085586  0.0000000 14.1054998 10.9644229  3.2922811
## 66   2.5688104  8.3573818  0.6304987  4.9986243  6.6429614 15.9076141
## 67   8.9667445  3.9077848  5.6447994 10.3130880  7.7691423  6.9198180
## 68   7.3602062 14.9907992  9.4619304  7.9827181  6.5208465  8.1002113
## 69   7.8003842  3.6752966  5.6990824  6.1306632 11.2556583  4.1318199
## 70   4.9369159 10.5732175  8.3190398  0.0000000  0.4270698  2.4539389
## 71   5.2415656  8.8440325 10.1672616  3.4201455  2.4359219  1.3470420
## 72   5.6474325  6.8627564  0.8168864  4.2971621  6.0959856  1.0992279
## 73   0.5994130  0.5994130  1.4868173  0.5994130  8.5925004  2.1203188
## 74   1.1133671 11.6451457 12.2549851  8.6535151  2.6405284  3.4058018
## 75  10.3104866  5.9967751  2.8138735 11.2549442  9.4970281  9.7519955
## 76   6.9234903  5.3709036  3.6231411  1.3274574  2.7357171 10.9230009
## 77   3.9313616  3.1932356  1.6025044  0.5937840  0.5937840  4.1539998
```

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## 78   2.7418768  2.0043216  0.0000000 10.8810167  3.6297996  8.1972329
## 79   3.2873098  2.0330882  1.0221192  0.0000000  0.0000000  3.3615438
## 80   0.0000000  3.5312692  0.0000000  3.1897139 19.6630942  0.8579014
## 81   5.6795786  2.8763107  2.8763107  6.3401225  3.7221928  5.0949581
## 82   3.1831053  3.4434475  2.7734478  8.2377033  6.9804892  5.0780761
## 83  10.7215690  7.5018332  5.2641723  5.4064108  6.1991128  2.1541295
## 84   9.4735469 11.8805217  7.8681256  1.8523984  2.2976023  8.9865995
## 85   0.8717648  1.9131479  0.3523066  0.0000000  1.8030617  0.0000000
## 86   7.6874807  5.1181562 11.4298861  1.8172549  0.0000000  2.2238550
## 87   5.3454070 14.2457736  1.9906645  1.7282688  1.2153058  8.8077571
## 88   2.8987888 14.9903669  7.8945741  0.0000000  1.8007032  0.0000000
## 89   7.2688928 13.4283716  7.7236521  1.4095267  0.0000000  1.9630672
## 90   4.1471764  3.3390091 13.0410314  0.3257318  0.0000000  0.8154935
## 91   8.0570608  6.9991792  0.0000000  0.4421208  0.7799741 10.1260968
## 92   6.7069297 10.6894902  6.0354766  0.6763577  0.3774014  2.8034130
## 93   7.4072006 13.4698129 10.5291010  3.4809372  0.0000000  3.8293117
## 94  12.3951789  2.3252425  0.6536104  7.7864056  0.3634515  6.2107376
## 95   8.5221892  7.2270238  0.0000000  7.7971797  1.5521803  5.2686028
## 96   3.7384436 12.3157504  0.0000000  0.5270703  0.0000000  2.5485846
## 97   0.3774014  0.0000000  7.3414895  0.6763577  2.6049490  1.4824869
## 98   7.4834482 14.5646153  7.9883274  4.3712731  1.4476850  4.1363555
## 99   9.3040715  6.8305444  9.7524205  0.7098200  1.3723392  6.2174072
## 100  2.5639147 10.3129096  9.6760479  6.8141377  0.0000000  1.7893537
## 101 10.7089302 12.3905104  7.1961713  2.6326405  3.9840789 13.6271640
## 102  6.8504994 12.3197286  0.0000000  0.0000000  0.0000000  9.1308279
## 103 10.4227884  4.5284400 11.8786929  6.6507717  0.0000000  4.1605249
## 104 13.8924878  6.0181735  8.4632334  2.4958998  1.7313570  9.0531485
## 105  2.4202398 13.1135872 11.4669155  6.7039354  0.0000000  2.2101083
## 106  6.3838149 12.5376648  9.6575427  3.3310172  6.2480395  3.3310172
## 107 14.2937733  4.5051796  3.3795101 11.6411517  0.4455148  4.5504390
## 108  1.9641029  4.8508194  7.8212784  1.5998890  0.3675947  2.3398215
## 109  7.0777845 10.4855035  2.7636878  3.6533582  6.7236773  3.4330396
```

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## 110  6.3663869 10.0623118  9.7469902  0.4143521  0.0000000  1.8723560
## 111  5.3566580  5.0183048  2.3573831  5.9071358  2.8130937 12.3744127
## 112  1.9693071  8.9144336  7.5643362  4.9144497  2.4807563  4.5795121
## 113  6.6192076  6.5024945  3.3572846  0.0000000  3.1109812  7.5009351
## 114 12.0215834  5.3434327  5.5212110  0.7360420  3.2708578  5.9362351
## 115  7.3970859  8.8985836  0.0000000  3.3231395  3.0368022  2.8085086
## 116  8.5508272  3.7088163  0.9848445  0.0000000  0.0000000  5.9849721
## 117 10.0607968  6.5091527  4.4788036  1.5648171  3.8543847  3.4318770
## 118 10.0880532 12.0326078  9.1580254  2.8572047  5.0103547  6.9547558
## 119  9.6785132  7.0908915  9.6651824  9.9342998  2.3536338  9.0488094
## 120  6.2389301  4.8946383  8.1735752  1.3768460  0.3405053  0.0000000
## 121  2.3442320 12.3491661 11.1497192  3.6758949  2.5811343  4.8848665
## 122  7.3108945 13.9371356  8.8950742  5.7810160  0.7626465  8.9087304
## 123  6.0667393 10.7615405  6.8570877  4.1804741  0.0000000  2.4956952
## 124 12.2160357  2.1266425  2.3159140  5.1028219  3.6934981  7.3480403
## 125 10.7629500  7.0129463  1.6792436  1.6792436  2.3233124  0.2632748
## 126  1.9828385  7.3817186 12.2396518  2.8732423  2.8732423  4.3205785
## 127  3.2533237 14.3446514 11.1261855  0.0000000  1.2765562  1.4742024
## 128  4.7805358  7.2216335  9.8708278  0.3650206  0.0000000  3.4313154
## 129 13.0250023 13.7413278  7.6146289  2.3766516  0.0000000  0.0000000
## 130  8.7901360 13.3814608  0.0000000 12.4141843  2.3616280  4.7368700
## 131  0.4403144  8.2240084 10.4556184  0.7771988  0.0000000  0.7771988
## 132  8.8282177  7.1004710  3.5167590  8.1690561  9.1367392 10.4280261
## 133  7.8423761  9.4821495  5.1517979  1.5671073  8.7260744  2.3004752
## 134  8.4730522  9.6561308  4.5209376  0.9278206  4.7316069  6.5304812
## 135 11.0347387  3.7585590  7.4979436  5.6236123  6.0734047  2.3144935
## 136  6.4768968  8.9102521 11.5255139  2.7132339  6.5642227  1.6497074
## 137  3.5240888  7.2993234  8.4253716  7.1401242  3.9732347 10.5667736
## 138  8.3259633  1.7239953  0.3650206  4.7656461  1.2867038  5.0300226
## 139  6.6566093  8.8230102  0.6763577  2.3748726  2.1981169  5.0703077
## 140  1.8151245  7.3565691 10.8190818  0.8793921  0.0000000 12.8986355
## 141  1.1425441  5.6815083  0.4881036  4.9631597 10.9522126  0.0000000
```

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## 142  8.9545537 10.8133656  8.7512766  4.4769908  2.9952312  3.6037984
## 143  1.0579701 10.7954024  0.7834986  0.0000000  2.9053124  1.0579701
## 144  6.6194013  4.1060049  0.0000000  0.0000000  0.0000000  8.3970829
## 145  0.0000000  1.7251304  0.3654686 10.1215347  8.4118461  3.1813411
## 146  6.7581392 11.3896485  5.7837762  6.1609807  0.0000000  4.1645610
## 147  2.4374941  3.8330014  9.5430469  0.4521737  1.6818990  2.9308509
## 148  0.0000000  1.4857875  2.0004327 13.9411477  6.7923856  6.7447329
## 149 13.9781048  5.7206998  7.5704326  1.3154503  0.0000000  4.2089308
## 150  4.9077992 11.4324282  0.0000000  4.6674778  0.0000000  0.9420077
## 151 11.9330312  9.6896334  4.6616755  6.4612895  4.8507994  4.8380845
## 152  5.0964685 14.1439633  0.5010060  0.0000000  0.0000000 13.8392228
## 153  2.6728553 13.5824679  8.9776248  3.3529703  0.4689482 12.0624308
## 154  1.5429514  2.6096841  0.7119354  9.9496499  4.9081932  5.4822094
## 155  1.8958842  7.2990605  4.5599873  0.0000000  0.0000000  6.3156061
## 156  9.6784785  3.3170725  1.3186928  5.0608515  0.0000000  0.0000000
##     rs_SLC30A8  rs_VSTM2A  rs_COL2A1  rs_CALML5     rs_GP2   rs_GSTT1
## 1    8.7901337  7.2653412  7.1316636  5.1750894 10.4901429  0.5144000
## 2    0.7843365  0.0000000  3.8800782  4.5026616  7.7075241  9.3362381
## 3    3.8972695  3.0224921 11.6484227  9.8595803  4.0324095  3.9322596
## 4    1.7742494  0.0000000  5.5038957  6.6061402  7.3068583 10.2633142
## 5    2.3109217  3.3935123  3.4983913  6.3474513  7.7317867  9.0931968
## 6    1.0266584  0.0000000  3.2953410 11.3891025  0.6028369  0.6028369
## 7    0.4706150  1.5500634  3.7789024  6.3229917  3.3030501  8.3543067
## 8    2.8598106  0.0000000 10.5090977 11.7072643  1.9191112  9.2030257
## 9    0.0000000  0.0000000  4.7536794  7.7345443  0.0000000  0.0000000
## 10   6.0484629  3.8945753 12.4557440  0.4930324  4.2730459  9.4912118
## 11   8.6777119  0.0000000  3.0046452  6.9787162  4.1479579  6.3627872
## 12   3.4604018  0.0000000  2.9395275  3.5992345  5.1485274  6.5776479
## 13   0.0000000  0.5474498  5.1543766 12.6126181  0.0000000  6.8966267
## 14   3.5513807  7.5761623  5.6417657  4.4884957  3.9768493 10.1434174
## 15   8.2478914  0.0000000  4.4878786  7.4746364  8.1072982 10.1531095
## 16  10.3381718 11.6520461  3.0675527  4.7710193  9.9288091 10.3288846
```

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## 17  11.7413233 12.5579195 11.5564436  4.0777813  6.4992862  9.3411303
## 18   5.8552896  1.6144272 12.2622172  2.0195596  4.6248729  9.6510126
## 19   2.0537369  0.3634515  4.4157181 11.8022813  5.9549012  0.0000000
## 20   4.3806186 11.8005807  1.4459385 12.4615603 11.0964073  7.8761590
## 21   5.3272706  0.0000000  3.1813888  4.3196757  7.3184217  9.3629329
## 22   0.4976379  0.0000000  0.4976379  6.9701887  0.0000000  8.8423192
## 23   7.5968152  0.0000000  2.6274901  8.2821627  4.2033578 10.5263115
## 24   0.4537546  0.0000000  6.1839986  8.2253583  0.7984238  8.7609594
## 25   2.0786781  1.0409625  1.8397178 10.4226897  8.1825796  0.4031586
## 26   7.3940613  8.4328074  4.3901518  5.1325604  8.4404016  8.4601688
## 27   3.0309716  6.0138888  9.6608245  6.9078737  7.8953481 10.1242975
## 28   9.0896735  0.0000000  9.0786555  3.9549221  7.2970942  9.9121214
## 29   2.8735179  0.3800645  2.0048968  2.0048968 11.4706465  9.4264623
## 30   0.8015726  0.4557546  7.0255150  4.7351918  7.2498501  0.4557546
## 31   4.1446909  1.6496614  8.2505902  4.0440356  6.1563905  8.1811900
## 32   8.5829176  1.3667558  1.0374525  8.2799569  9.4489313  6.7644643
## 33  10.1501496  1.0445340  3.9230826  6.5241562  9.6498631  9.2313911
## 34   7.8092376 11.2539913  2.6447562  3.2201287  8.1037106 10.9196657
## 35  14.1216147  6.4613436  0.7922723 11.6450324  5.1304573 10.2866490
## 36   1.1911204  0.0000000  3.3800090  9.6214178  8.2573600  9.2720703
## 37   7.2691276  0.5165195 14.7210242  5.1818658  7.3127505 10.0690217
## 38   2.7281817  0.0000000  1.2669364  2.6001746  5.9221384  6.7345863
## 39   9.2670093  0.0000000  1.2117598 13.1703400  0.9088129  8.9228951
## 40   1.6995072  0.7157177  4.8060662 11.4017116  0.7157177  8.7156062
## 41   0.0000000  0.0000000  6.9373114 14.5628601  3.3925647  9.2583076
## 42   1.6991962  0.0000000  0.8066128 13.2150195  2.8810968  8.8116011
## 43   2.4484517  0.0000000  2.1911520  9.3396307  0.9196833  9.7823848
## 44  11.2231339  0.3923174  4.2574934  5.4430529  5.0252503  8.9323273
## 45   5.0322243  8.7859912  7.3576074  5.0322243  6.7533023 10.0879397
## 46   0.0000000  1.2980131  5.7420386 10.3298411  9.6925796  9.4433091
## 47   1.1435240  0.0000000  1.4925198  1.6397415  8.7860977  9.7967733
## 48   2.0626744  6.5042756  7.1257565 12.6958023  8.1354789  9.3400094
```

```
## 49   2.6147805  0.0000000  1.0969365  1.8329305  8.3806312  9.6121422
## 50   6.0804871  8.1375650  2.3749282 10.2098775  3.9233204  9.3648921
## 51   0.0000000  0.3971458  8.1734573  3.2076274  0.0000000  9.1069037
## 52   7.4535398  5.7367320  4.3120044  6.6452506  3.6655861  5.8806145
## 53  12.4425666  6.2721259  0.0000000  9.9223155  6.7589041  8.2535346
## 54   9.0224355 11.4172947 12.2937463  8.0123798  9.7136779  0.0000000
## 55  10.5727601  0.9218171  0.3765127  3.9916443 12.9001896 10.1901494
## 56   0.0000000  0.0000000 13.8288751 12.6614717  0.0000000  8.9953635
## 57  14.9309158  2.4251101  5.4707191 10.5081212 10.0592651  8.7352121
## 58   7.3803502  0.0000000  6.5431231  6.1200056  6.3862246  0.0000000
## 59   0.3723950  0.0000000 12.5508697 12.2302756  0.0000000  8.5035789
## 60  10.3224715  0.3444877  2.6145685  6.1953673  7.8771565  8.7155907
## 61  10.9487325 11.7500189  3.1559111  1.6463470  6.9250547  8.0374717
## 62  10.5201736 14.0369579 14.1845267  2.9122091  5.7968936  0.3748447
## 63   8.7856888  0.0000000 12.6463016  2.5544415  1.2351143  9.1492042
## 64  10.8584520  2.5674481  2.8491987  2.3610384  6.3664271  9.2808121
## 65   1.4056657  0.3503841  1.0701145  2.1039004  0.0000000  7.5935906
## 66   0.6304987  4.1107641  3.2473351  2.8685880  0.3494785  9.0660292
## 67   5.0453250  0.0000000  6.2038883  4.5034187  1.8751510  9.3650954
## 68   4.2510373  2.2293110 11.1481575  1.6678467  7.1232720  9.7675768
## 69   5.4302719  7.8063073  3.8666113  8.1021185  5.5605835  8.0226896
## 70   2.6248495  1.0240359  8.0955837  7.1206288  7.8244955  9.2465029
## 71   1.3470420 12.7432544  6.5284166  8.6838150  3.9998016  9.4691607
## 72   0.4655044  0.4655044  8.2082095  4.6211786  9.4413086 10.4911608
## 73   0.5994130  1.1938979 10.0346629  0.3305584  0.3305584  7.3644928
## 74   4.5836695  0.3683772  8.7667111  4.3567143  8.1949060  9.4760764
## 75   0.7092024  0.0000000  8.2320971  9.2982262  9.3489740  0.9652487
## 76   3.5319428  9.0102125  2.4669403  1.7068178  9.2899373 10.3022145
## 77   1.0131406  0.0000000  0.5937840  1.0131406  2.3429245 10.8849492
## 78   0.4165155  0.0000000 13.1182212 12.8304089  0.4165155  8.9086478
## 79   0.0000000  0.0000000  0.0000000  1.0221192  0.0000000  9.1166655
## 80   1.1496496  0.0000000  9.8369619  4.0027025  2.7413591  5.9807314
```

```
## 81   0.0000000  0.9824369  5.8107644  3.7221928  2.4305797 11.1317724
## 82   0.5350576  0.0000000  6.5329886  5.6292313  0.0000000  9.8180411
## 83   7.0254785  0.0000000  3.4708752  3.5709486  8.6909213  9.5484557
## 84   9.9116032  0.8345494  3.0089171 12.2237741  7.4373260  1.2050797
## 85   3.6887287  0.0000000  1.4113178  6.9162222  0.3523066  6.3239969
## 86   8.0703002  0.5448810 14.8660316  0.5448810  8.4747195 10.0585289
## 87   3.7610512  0.7319652  7.1475092  6.3334792  7.8924882  7.0821597
## 88   5.6201993  0.5818815  1.5787455  8.6017017  8.5980071  9.1057134
## 89   4.9261228  0.0000000  4.9456452  1.6185206  7.7179882  9.8550982
## 90   6.1272206  0.3257318  1.4715517  5.3583541  7.3042509  9.8462913
## 91   4.6451771  8.9575037  3.6816966  6.7237906  7.9460740  6.0023672
## 92   4.8029118 10.0804797  4.3531680 12.1378499  8.5361124  8.4136787
## 93   4.2954439  6.2380932  1.0118534  5.4038948  3.5659505  8.5445186
## 94   6.4470237 11.2982464  0.8949923 13.3582391  6.3840757  8.3648057
## 95   0.0000000  1.4095810  2.9822726  4.3839531  4.6765044  7.5812262
## 96   4.8905829  1.2159270  3.6899812  3.4197007  2.0309716  8.7305316
## 97   1.1350094  0.0000000  6.6777281 11.1916260  0.9237957  4.0746168
## 98   5.2337155  1.4476850  6.5905077  8.9795710 10.1707929  7.4778659
## 99   7.4471857  1.7435150  3.4398093 11.6694944  2.8788823  0.0000000
## 100  1.7893537  4.7798848  5.8206436  3.9763086 11.6579324  0.0000000
## 101  0.0000000  4.0723717  3.5438918 11.2184388  9.7835943  8.2687160
## 102  0.0000000  5.2917509  4.1538053  3.2326608  6.4296160  9.1121788
## 103  1.6219464  0.0000000  1.4947740  7.2955752  6.0026328 10.3248088
## 104 14.6345502  4.0359494  1.7313570 13.0097826  3.7826497  9.9662505
## 105  3.2787431  6.5020139  0.5691022  2.8653250  3.9773074  8.6156168
## 106  6.9630082  7.7549997 11.5625638  4.2808747  6.3287862  8.6632258
## 107  1.6648924  0.0000000  1.0603241  6.2321196 13.5745406  2.4173260
## 108  4.3328010  2.1291841  4.6652961 10.0777828  9.5229965  9.3152712
## 109  2.7636878  0.0000000  7.9135824  3.2424806  1.2243490  0.0000000
## 110 12.4374681  0.9985566  4.3430311  7.1434944  8.2670329  9.8705646
## 111  9.6925447  2.7014160  5.0600647 11.2244930  8.2220162  9.2095833
## 112  2.9382105  5.0403095 10.3463403  5.5231197  5.0475951  0.8742855
```

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## 113  3.2393828  8.7578023  5.7353001  9.1134164  8.5065496  8.8397622
## 114  7.9633915  7.2649933  1.9981955  2.1136338 11.7239583  2.1136338
## 115  2.0010095  0.0000000  0.0000000 12.3738299  1.1382247  7.7428066
## 116  8.8522545  0.0000000  6.4183586  6.8605768  8.7465976  8.7222768
## 117  3.3648946  2.1849467 14.9833583  1.5648171 14.1598761  9.1822121
## 118  8.1303157  0.0000000  1.8066953  7.5187397  8.9713622 10.9692050
## 119  8.3340194 10.4431027  3.0346383  6.1050306  8.6442850  9.9642952
## 120  9.9896840  0.0000000  0.6156988  3.5085047 12.9680748 10.5252444
## 121  7.6819397  8.1172026 12.8099454  6.6857762 10.5880468  0.0000000
## 122  8.9751378  8.6652215  0.7626465  6.2849379  8.0480236  0.4311415
## 123  7.2712342  9.3795378  7.4078889  3.6347559  6.4898159 10.2596829
## 124  3.5872810  3.1222420  0.0000000 13.5456324  8.7070008  8.6498791
## 125 12.9953781  4.2612149  2.4868431  4.4479097  9.0466695  8.7248770
## 126  3.9784977  5.4323147 14.4953957  0.0000000  9.6512695  9.4879861
## 127 12.0219893  2.1879261  7.9175231  3.2533237  5.1640501  9.7746224
## 128 14.3897456  0.3650206  4.0483408 10.4518707 11.1655839  5.9615539
## 129  3.5214654  0.0000000  6.4283468 10.4493668  9.1345934  9.0975260
## 130  1.6181447  0.0000000  0.0000000  6.3815620  9.7086792 10.5261690
## 131  0.0000000  0.0000000  1.0501186  3.2029505  0.0000000 10.6992863
## 132  1.4547023  3.1649954  6.1688225  5.9827677  5.9115334 10.2004052
## 133  2.1806571  0.0000000  2.3004752 12.6253958  5.1195720  9.1193637
## 134 10.5641585 10.0754023  4.1574157  7.3230250  8.9615029  9.3094279
## 135  7.5786059  0.0000000  3.3891813  5.0882010  8.3116244  9.3259409
## 136 10.0922775  3.6488566  2.9709457  4.1082150  7.7058473  9.1484293
## 137  4.2896427 11.4419510  7.6302955  5.5067733  8.5666299  9.0680105
## 138  0.0000000  0.0000000  1.4476321  6.4444799  0.0000000  0.0000000
## 139  6.6736144  0.0000000  2.6050439  4.0747195  5.7370485  7.7983584
## 140  7.0210721  9.2045834  1.6318493  2.9480401  5.8180222  9.4028044
## 141  1.5911528  0.0000000 12.1137941  2.0774481  1.5911528 10.0937970
## 142  1.4559650  0.4315695  1.7827021  9.0572718  7.0793898 10.5267055
## 143  0.0000000  0.0000000  6.3151006  8.8057055  0.0000000 10.5429724
## 144  1.8888114  0.0000000  1.2337040 13.1219737  5.4823159  3.4478569
```

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## 145  0.3654686  0.0000000 11.5545497  9.9259250  0.0000000  0.0000000
## 146 10.9960443  3.2914857  9.4404357  6.5922253  9.1299686  9.5781943
## 147  6.6910888  1.8982084  2.8594727  3.8697925 10.5327897  0.0000000
## 148  3.1380117  1.4857875  5.6673216 11.1136679  0.0000000  0.0000000
## 149 11.6539038  0.0000000  7.8541821  7.7901243  6.4487308  0.0000000
## 150  0.0000000  0.0000000 11.7275558  5.4234504  0.0000000  9.2943910
## 151  2.7161569  0.3256167 11.6352152  3.8245948 10.0660047 10.3785673
## 152  2.3650206  0.0000000  9.7270930  7.7717833  4.7631566  0.0000000
## 153  2.2751859  2.1793518  3.0526246  7.1295942 10.0417912  9.9739912
## 154 10.9676549  0.3994446 13.8328337  9.1876915  0.7119354  0.0000000
## 155  0.8610819  6.9538053 11.3405119  2.6254575  6.8007860  6.2857222
## 156  1.3186928  0.0000000  1.8035164  1.3186928  4.1241958  9.5692006
##       rs_FABP7  rs_CRABP1   rs_KLK11    rs_CST9    rs_CST1    rs_PIGR
## 1    2.7157177  4.6183679 11.6222060  1.8360857 10.4610609  7.1094556
## 2    4.9863199  5.6367870  1.4884122  0.4448791  7.8039374  7.0882169
## 3    3.7868995  2.3287790  2.6975514  3.1179942  9.1139671  6.0226918
## 4    2.0797706  3.1808798  1.1442422  2.8981890  6.0868092  7.1186587
## 5    0.4815056  4.3514587  2.6207272  7.0372581  9.9036026  7.2132024
## 6    7.9863734 10.1724379  6.7318688  0.0000000  8.6875755 10.2894641
## 7   11.4958568  5.8598876  4.7462483  0.0000000  3.7377841 10.6340141
## 8    9.7848988 14.7092297  2.9273276  0.0000000  7.4558467  2.3709454
## 9   10.1427418 12.4853796  0.0000000  0.0000000  6.4383827  2.5048492
## 10   0.8598106  0.8598106  0.0000000 10.6006968 11.2954980  1.7842946
## 11   3.9118354  3.9745844  0.4164074  0.4164074 11.0234973  7.7489871
## 12   4.3149068  5.4223306  1.6888070  0.0000000  1.9873936  7.7792630
## 13   4.5895238 11.2190665  7.6332198  0.0000000  5.7691476  2.4893374
## 14   5.7889336  6.8192888  2.5088596  4.6512641  7.1809226  8.1625061
## 15   1.0509544  0.7778720  0.7778720  0.0000000  7.9680740  8.8470285
## 16   0.0000000  6.7055453  9.5506731  2.4892089  8.3824857  9.6707069
## 17   1.6277469  1.8108132  6.3446084  2.3731192  7.7115775  5.5018977
## 18   0.4665488  7.6239407  0.0000000  0.0000000  7.0272282  2.4807563
## 19   5.8584535  5.7474143  3.6058025  0.0000000  9.9526717  9.5065000
```

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## 20   1.2851063  5.3455702  0.3644604  0.3644604  7.6262931  3.4291473
## 21   7.1192368  6.0959223  1.1445685  0.4891319  6.3947182  9.8835567
## 22  10.7898250  8.3898748  0.4976379  0.0000000  2.1026245  2.6677105
## 23  11.2973937  3.6748674  0.5566992  0.0000000  2.8321204  3.0113167
## 24   7.9493318  6.7475190  1.8428984  0.0000000  2.5372961  7.9664893
## 25   4.2024882  4.4566485  1.7035437  0.0000000  8.5971762  5.5178111
## 26   2.3950628  1.2210728  1.7639214  7.6921552  2.5990083  6.2085114
## 27   4.1584986  5.9536284  8.5879189  4.9434713  7.7538813 10.5350648
## 28   0.0000000  5.5925736  0.5002922  0.0000000  6.1253267  3.2157097
## 29   3.7393729 10.1663771  4.7823771  8.2714019  0.3800645  3.5666812
## 30   5.8815398  5.7876362  7.1248616  6.2835811  5.7876362 10.3232890
## 31   0.0000000  2.0630542  6.4855073 11.9844883  7.0586574  5.0695819
## 32   1.2651368  2.2808376  2.9386057  6.8503244  9.7069049  6.6226947
## 33   5.8762714  5.1295468  9.3180124  7.5871092  7.1351223 10.0753873
## 34   4.6230884  7.0765538  9.5340456  6.7349345 10.4361007  6.8920971
## 35  12.3172576  1.0688084 12.1480013  0.0000000  7.9668036 13.3153566
## 36   9.8751066 11.7761710  6.4496918  2.6166165  7.0244083 12.4593362
## 37   7.6084064  6.2460869  1.1962293  8.2684774  8.8491886  8.4516954
## 38   0.0000000  1.2669364  0.3576083  0.0000000  8.8926551 10.3038691
## 39   2.0254187  0.9088129  7.6608915  5.4448161 11.0537591  8.8383048
## 40   5.5121352 10.2715417  7.9369859  0.0000000  4.8388106  3.5751187
## 41  11.2565398  8.9079374  7.3818864  0.4088205  0.4088205  3.6775421
## 42   0.0000000  7.6724176  0.0000000  0.0000000  3.6130719  5.1015576
## 43   4.3019461 13.7700229  1.2249664  0.0000000  7.1931912  5.4962482
## 44   5.5138381  4.1086332  2.7280076  4.4758437  1.9308130  7.2265239
## 45   5.1948396  3.4277268  0.5733745  8.5062715  5.0535806  8.1098630
## 46   2.9193592  9.5411940  2.7730891  0.7903550 10.9542254  9.0573883
## 47   0.0000000  2.5451776  6.4604428  2.6873743  9.1584464  3.9551547
## 48   7.1167764  7.7368781  4.4461702  0.0000000  1.8479168 13.0289996
## 49   0.0000000  0.0000000  0.0000000  9.7686779  9.9523764  4.9494182
## 50   2.8956322  4.5173954  2.1836453  5.9662136  7.2606580  7.1828412
## 51   4.7368971  8.4135742  9.2749707  0.0000000  5.0305877  7.1039728
```

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## 52   4.1048566  0.6147570  0.3399355  0.6147570  9.6893946  7.5650137
## 53   3.0389629  5.9005456  0.7279640  0.0000000  6.9278337  9.2925218
## 54   0.0000000  7.2356486  3.1383066  5.9380599  1.2744704 10.3628550
## 55   3.3565242  2.5286713  2.7997090  4.2843216  4.8293371  8.0311327
## 56   5.8365099  5.4366549  4.7784346  0.0000000  1.6013162  2.7432349
## 57   6.4779379  8.3135429  6.6996890  1.0590783  8.7654645 12.9552065
## 58   7.0550362  6.4615711  4.7859533  5.8262434 11.3196593 10.5077483
## 59   6.5002826  9.3806022  7.5364431  0.0000000  4.3109145  0.3723950
## 60   1.2317396  5.8954505  0.6223682  2.9528181  5.2044068  4.8058341
## 61   2.0155689  4.0726118  4.9602383 13.0413905  9.1878744  6.0604452
## 62   0.6721085  1.3124328  0.3748447  4.6962164  0.3748447  5.9008523
## 63   0.3457370  7.8796666  0.0000000 10.0960483 10.2907581  5.5220840
## 64   2.7639002  4.5190386  0.0000000  5.2092584  8.2531195  7.5953492
## 65   2.2775385  4.4156370  5.5175245  0.0000000 10.0117958  3.2089698
## 66   1.4029404 12.2745171  0.0000000  5.6997848  3.1615491  4.1692917
## 67   6.7953695  7.3701904  8.2786339  4.9858237  1.2229282 10.3085417
## 68   4.5092905  4.9183290  4.4489274 10.5519014  0.6978628  5.8247220
## 69   7.2397026  5.7963460 11.4623245  0.7478600  1.7068620 10.3005701
## 70   0.0000000  2.1523457  0.0000000  3.7811708  3.3158850  2.4539389
## 71   0.0000000  2.1071187  8.4426711  0.2875905  6.2435244  4.5407774
## 72   4.4305261  2.9018227  2.3754287  2.5730109  8.6537469 11.6012436
## 73   0.0000000  6.5815335  4.2303414  0.3305584  6.8303491  3.5938199
## 74   0.0000000  0.3683772  0.3683772 13.1926406 11.4480662  6.3551044
## 75   7.8327894  9.3615609  8.0120261  4.8705620  0.3978030 12.0809603
## 76   3.0955700  5.1586723  3.7898753  3.4840866  6.5049350  4.4181427
## 77   4.2727623  4.5486401  4.2727623  0.0000000  1.0131406  8.2858636
## 78   7.1988575 11.5399212 10.0123365  0.0000000 10.3804552  2.5072619
## 79   0.0000000  1.3484591  3.9953488  0.0000000  0.0000000  3.2873098
## 80   3.4796703  8.4425608  2.8264366  0.0000000  7.1616388  3.1240138
## 81   5.3917505  5.8479017  6.0526419  3.1385524  0.0000000  8.1693448
## 82   6.8685250  7.7763067  8.2204311  1.4834160  0.0000000 13.0921753
## 83   3.7805411  3.9878575  1.2186572  5.6772996  5.8332114  7.8242822
```

```
## 84   1.0316775  2.3722556  0.8345494  4.7184383  9.6712939  5.0719814
## 85   1.9131479 11.4557102  4.6946741  0.0000000  3.6574457  1.2528395
## 86   0.0000000  0.0000000  0.0000000 14.1038813  0.0000000  0.5448810
## 87   0.7319652  6.3096346  1.2153058  8.0210210  8.5215628  1.8654438
## 88   0.0000000  0.0000000  0.0000000 10.8219652  7.8424427  1.8007032
## 89   0.4998841  3.2774790  8.7159795  8.9871804  9.5864294 13.2866315
## 90   0.0000000  0.0000000  0.0000000  5.1269481  7.7920224  5.7397104
## 91   0.4421208  8.1780867  1.0535979  0.4421208  7.5938288  6.4963233
## 92   0.0000000  8.3971372  3.5193532  3.1334156  7.2982871  7.3146403
## 93   0.4209405  0.4209405  0.4209405 10.3342307  7.4553461  2.4342679
## 94   1.2825584  3.0789343 11.5386378  1.5877010  5.2134717  5.5760656
## 95   3.5567482  0.3517414 11.0200485  0.0000000  8.0837133  8.5795385
## 96   1.4667054  1.2159270  1.2159270  0.0000000 10.9878077  2.9287493
## 97   5.1082233 10.9364407  2.4556494  0.3774014  3.4018216  4.5501742
## 98   0.0000000  1.2522945  1.6197886  5.0044475  8.9262580  5.0044475
## 99   0.0000000  3.9942176  0.0000000  6.2658757 10.2033979  0.9659874
## 100  1.5681294  0.0000000  3.8344483 10.0361057  5.8080478  8.7528459
## 101  2.1312602 12.2701088  5.6256942  6.1906465  2.8035990  9.5844176
## 102  0.0000000 11.9883296  0.0000000  6.2667865  2.5360529  1.5849625
## 103  0.0000000  0.8312287  1.2008182  6.8555562  4.8476061  4.6968340
## 104  5.4314257  0.4716557  0.0000000  0.0000000 10.4558012 12.2143311
## 105  0.0000000  0.3124328  0.0000000 10.1574674 10.6887916  2.8653250
## 106  4.8170911  2.4263453  1.5236121  8.1200263  9.9637312  6.6448686
## 107  0.4455148  0.7854250  1.0603241  9.5478726  4.5504390  7.1690882
## 108  1.1114988  8.2476332  0.9034240  8.2870331  6.1833297  4.8362372
## 109  5.4517551  5.1048105  4.9260896  7.4709565  0.0000000  8.2176781
## 110  0.0000000  4.4566813  0.0000000  2.1132671  7.7113765  6.0269085
## 111  3.3049782 10.2044904  0.0000000  0.0000000  8.6601860  1.8229748
## 112  2.3688801  3.3453680  2.9382105  9.9858658  6.8627068  8.3864907
## 113  0.0000000  5.6910707  1.7708290  6.0028893  7.0452857  9.8413522
## 114  0.7360420  6.6221133  6.0200021  2.1136338 11.8582972 12.0423337
## 115  5.2568106  6.5373846  4.6793675  0.0000000  6.1306097  1.7664680
```

```
## 116  0.0000000  5.3965260  1.9772066  0.7248249  7.5868646  6.1129399
## 117  1.6795139  2.6184266  0.3159140 12.1911819  8.4991774  5.1404392
## 118  3.5383395  5.8224829  2.7271581  0.0000000  8.7714152  7.7030065
## 119  0.0000000  4.0370835  9.0157710  2.6963277  9.1984851  7.5418083
## 120  0.0000000  6.8937651  0.0000000  4.1512662 12.2489305  9.4042979
## 121  4.3879553  5.6155634  2.7845668  5.9475703  4.8848665  8.8553849
## 122  0.0000000  4.3331804  0.7626465  7.0477783  9.0585497  5.0310202
## 123  0.0000000  1.4774701  0.7771988  5.5226804  7.8374059  5.5001041
## 124  6.0751432  2.5601035  0.6890307  0.0000000  4.9822681 15.1760045
## 125  0.8487982  5.3308129  0.0000000  2.6337102  1.0008654  5.7076766
## 126  2.1291181  0.8825257  0.0000000 13.2193535  1.1797658  5.6418263
## 127  0.0000000  0.0000000  0.0000000  3.7106246 13.1577773  9.8150558
## 128  0.6559929  7.8943315  0.0000000  5.0169509  9.1631268  8.5790602
## 129  0.0000000  0.0000000  0.0000000  2.4886692  1.6307316 13.9862968
## 130 11.4418636  3.9140191  7.6771100  0.0000000  8.8313617  6.1821639
## 131  0.0000000  0.0000000  0.0000000  1.0501186 10.2082500  1.9467683
## 132  5.6110838  9.7002373 13.3667453  7.9655552  4.1325193  8.4904181
## 133  3.4350285  5.3313434  5.0528810  0.8360857  8.3800519  7.1372197
## 134  2.6812918  3.0908365  4.0035932  0.0000000 10.7368413 12.6004600
## 135  2.1252874  4.0787208  2.1252874  3.6918691  0.9390008  6.6837484
## 136  2.8043634  2.9709457  0.8914970  8.2963739  9.8978022  6.6949916
## 137  2.7229468  3.9407024  3.3859556  3.8384778  9.4284129  8.0650482
## 138  5.7388840  8.6871023  6.1491028  0.0000000  5.2314247  2.0591130
## 139  0.0000000  1.1350751 10.8517709  1.7623488 10.4036193  5.8157573
## 140  0.0000000  1.1759397  0.0000000  0.8793921  9.5554891  5.3385171
## 141  5.8520813  8.5707176  0.0000000  0.0000000  3.9905283 12.8269249
## 142  0.7633266  9.1309008  3.9350637  3.3804940  2.5561841  7.0868092
## 143  5.8930175 12.2320208  3.0999179  0.0000000  6.8083992  5.6963277
## 144  0.0000000 11.8993109  0.5366498  0.0000000  7.2387276 10.2341279
## 145  8.4215822  7.0834357  4.7518975  0.0000000  0.0000000  3.0368022
## 146  2.7321389  1.2696915  3.7256866 11.4388774 11.7698639  4.7729677
## 147  0.4521737  0.0000000  7.6969446  9.4496868  8.5075318  4.4338208
```

```
## 148  7.8844398  6.0405834  1.1378314  0.0000000  8.6465943  5.3006875
## 149  0.0000000 11.0586302  0.4564908  0.4564908  5.7206998  9.5590453
## 150  2.0787123 10.6494816  6.1311902  0.0000000  4.7438704  7.1112807
## 151  4.6177099  3.5087709  4.2843883  4.0397876  6.8289654  7.8063763
## 152  0.0000000 11.8688003  0.0000000  0.0000000 10.3879043  3.7938959
## 153  0.8221999  5.0887056  1.5461166  0.0000000  7.9313929  5.3955633
## 154 12.0275065 12.3551522 11.3250768  0.0000000  3.2162220  9.0846644
## 155  1.0625362  7.5688621  4.4564908  9.5832532  9.2953010  3.5711671
## 156  0.9973285  9.5405371  1.9959548  1.9959548  9.9253429  0.0000000
##       rs_SYT13   rs_OLFM4  rs_HOXB13    rs_LTF   rs_MUC5B rs_BMPR1B rs_CEACAM6
## 1    4.1463049  6.1892671  2.5140970 10.219641  9.4319777  8.961093  6.5207617
## 2    3.9491707  5.6262785  0.0000000 11.232154  6.3039451  9.164374  6.6792535
## 3   10.0900863  2.6975514  0.4497462  7.810588  6.8833190  8.187072  8.5430956
## 4   12.6341363  2.2112926  0.0000000 12.975535 12.0105501 14.149194 18.3298913
## 5    7.4733291  4.4850790  3.9319761  8.387990  2.0599090 10.259790  7.3279316
## 6    6.7458800 10.1502213  1.3538878 14.484815  7.3193443  3.633524  8.9231486
## 7    2.1605653  5.7709849  4.4980338 17.796624 10.8243118  6.731774  6.2222617
## 8    5.9344740  1.9191112  9.1252063  7.193312 12.8157639  9.294545  0.4304994
## 9    9.1922235  2.6312207  7.4037236  5.162279  9.7188200  6.497649  1.3553546
## 10  12.1879400  1.1519887  0.0000000 11.238984  2.4545971 13.764188  5.9849197
## 11  10.7057361  7.4174855  0.4164074  9.833959  8.8029493 10.662912  5.9280434
## 12   8.1278654  4.7716638  0.8001648 10.620235  8.1240370  3.072603  5.1485274
## 13   1.2537473  0.9433588  2.0808623  7.392923 13.2657511  6.152814  8.0869997
## 14   7.7736562  6.8780141  0.0000000 11.590011  4.2036945  7.283789  4.4447664
## 15  13.0527876  2.1931409  0.0000000 18.091015 10.5554382 13.977553 10.5475382
## 16   2.7087611  1.2536263  0.0000000 17.336523  3.2880484  6.606541  8.8329118
## 17   5.2870105  3.9273276  6.0582191  7.983508  3.4080868  5.541286  8.4254652
## 18   6.7689320  2.3785394  0.0000000  6.509549  4.5326848 13.607308  9.7750229
## 19   3.9379470  7.1782844  0.0000000 14.573048  5.6601871  5.035822 12.7384763
## 20   8.9429909  2.3287216  0.0000000  8.426905 11.8611693  8.585342  9.6365191
## 21   3.8398085 12.4686847  7.7796983 12.723831 14.3173765  8.541903  7.6260689
## 22   4.6133018  1.6132016  7.7382315 14.635211  9.4339858  7.509530  0.4976379
```

```
## 23  14.1144043  0.5566992  0.0000000  5.485121  2.5131622  3.314174  3.5643660
## 24   0.7984238  8.8009627  0.4537546 11.191800 11.2511973  5.288012  3.3562002
## 25   3.9847260  3.6926169  0.0000000 12.415104 12.8437865  8.454631 12.2495911
## 26   6.3376058  6.9788374  1.0461418 10.378768 10.7985754 14.616630 12.7610376
## 27   4.0058132  9.1841389  0.0000000 13.302426  6.6896318  6.326758  5.9198382
## 28   7.7418512  0.8710551  5.4629946 10.365376  3.3969404  8.167041  5.4217383
## 29  13.5364173  3.7064532  0.0000000 10.420029  8.3914915 14.068076 11.4228317
## 30   5.9085583  9.1617542  0.0000000 12.556470  8.8828539  8.931965  8.8997847
## 31  11.7642284  3.3417865  1.5785523  7.929376  3.2841143  9.572688 11.1282367
## 32  10.1653698  4.7149708  0.7670615 12.247454  3.1242123 13.907347 11.1739730
## 33   8.2029035  6.4559371  3.0770550 14.940926  7.8947080 13.712789  7.2232652
## 34   2.4271502  6.6928149  5.8116354  9.909943  5.1709786 11.818141  8.3769332
## 35   1.0688084 15.1077967  7.3068482 17.660782 12.2835608  3.897637 10.4578070
## 36   4.6898694 13.3252256  5.7329990 16.650001 11.0887084  6.477660  9.8790442
## 37  13.0568828  8.1940871  0.0000000 13.377946  6.9200944 14.690416 15.0629198
## 38  10.5004595  2.8457510  8.5706318 12.537202  8.3117660  7.468416  9.4437637
## 39   0.0000000  0.9088129  0.9088129  6.868192 10.7902052  4.966809 12.7032052
## 40   9.0248906 13.5429313  3.3663642 11.773816  9.3082207  6.585783  7.5903236
## 41   4.4137362 12.8372387  0.0000000 15.296638 12.5197454  4.600686 12.0427314
## 42   5.6457103  0.8066128  8.2916938  8.584123  3.8563185  5.545150 13.5484075
## 43   7.5219215  6.3910236  7.3393619 15.109808 11.8174290  3.602386  7.6394854
## 44   2.7280076  6.1177532  0.0000000 11.232908  7.2052948  7.499958  9.6879257
## 45  11.2971303  4.0546228  6.4166945 10.792839  1.7824924 10.167234 11.3797782
## 46  10.4113094  8.9540200  0.0000000 13.071631 10.9550208  8.959315 12.4962552
## 47   6.2473541  3.1956626  2.8167840  9.281985  1.6397415 10.294781  4.4096557
## 48   7.3945176 10.1178148  8.1677207 13.563005 10.5032518  8.027818 10.6934376
## 49  12.7339693  0.8907969  0.0000000  9.539481  9.6376358 14.629185  9.0530630
## 50   9.1436860  6.5657099  0.7173858 12.482444 10.8543935  7.431894  8.8832955
## 51  10.7500085  6.9970970  4.2997282 11.322427 10.6964707  3.477600  4.2283570
## 52  11.2171394  1.3751785  0.0000000 13.587074 13.2746896 15.174645 14.8888324
## 53   7.7030945  4.0084779  6.6117729 12.880845  9.3194461 10.491408 12.5037579
## 54   9.7124584  2.7390488  0.0000000 10.089352 11.7750673 10.471024 11.6306515
```

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## 55   9.1385580  4.1932040  1.3166092 17.841639  7.0849625  5.666509 16.4655555
## 56   1.7828279  7.2891972  0.0000000 10.003701 11.8807843  9.313040  4.3011779
## 57   4.6759570  8.6312822  8.6892415 15.566623 12.6705369 12.659383 10.7713483
## 58   8.9807234  9.0779933  0.0000000 12.573036  7.8873132  5.818073  8.0390973
## 59   0.0000000  1.3059705  7.6717824  7.846239 12.2536941  8.039484  3.2979104
## 60   7.5621249  2.2557726  9.3107884  7.831765  8.9060698  7.024463  9.7997631
## 61   8.8347987  3.1057786  0.9358369  8.063966  7.6767082 13.678919  4.8579661
## 62  11.0814910  5.3490715  0.0000000  9.190663  4.0381815 11.408020  5.6167017
## 63  11.5237261  3.0073390  4.5696916  9.093080  3.1896664  9.771145 10.0540359
## 64   6.9671778  7.7138106  0.0000000 12.321855  4.5448377  5.808048 11.2848246
## 65   2.2775385  4.3587901  5.0514896  8.044802 10.2932383  7.379265  1.5480913
## 66   9.6431882  3.3282908  0.0000000  8.657775  4.6506382 13.856596  4.0310158
## 67   6.7106108  9.2599191  0.0000000 12.788933  5.7735349  8.128523  6.3585018
## 68   7.8115096  3.4937370  0.0000000  8.771800  4.7450921 11.000678  6.5011652
## 69   4.9701266  4.9385163  0.7478600 14.971779 11.0059614  6.386363  5.8539657
## 70   6.0242620  0.0000000  3.5880250  3.412416  5.5806942 11.181492 10.1253910
## 71   4.7796117  4.7911525  0.0000000 10.745240 14.4028205 12.388569 11.2820417
## 72   0.8168864  4.8092755  8.8944137 10.393250  4.1501941  2.901823  5.0767899
## 73   6.7289191  1.1938979  6.4474718  8.666603  9.9871315  6.285445  0.0000000
## 74  12.7689631  3.0980321  0.0000000  5.623045  7.0621573  4.897037 13.4176595
## 75   6.0321978 10.6770065  3.2587300 14.623427  9.6062436  9.455882  8.5047086
## 76  13.9410262  3.9393206  5.5207334  9.481859  9.7638494 12.983483  3.7089156
## 77   1.0131406  5.6255832  0.0000000  9.774368  3.4160425  4.272762  4.9795635
## 78   8.1922894 11.1964277  7.1212175  7.726854  9.1980653  7.776145  8.1072992
## 79   0.0000000  4.4681923  0.0000000  8.343014  2.6216651  4.363704  4.1707503
## 80   8.7093909  5.7820573  6.5549464  6.417729 12.0175109  5.420893  8.9284873
## 81   4.3586705  5.0318098  0.0000000 12.407473  6.5119297  6.644482  5.3053869
## 82   5.9134304 10.3146557  0.0000000 15.277314  8.0352835  3.382626  4.1386752
## 83   6.8506832 10.8206092  0.0000000 13.724419  8.5282490  7.364492  5.6921900
## 84   5.3920495  4.5677523  9.1918291  9.885955  6.3518915 13.553532  8.9259359
## 85   8.7704478  0.3523066  4.2879081  6.952119  7.3666606  5.850704  3.2170446
## 86  12.8975462  0.0000000  0.0000000  2.752021  2.0746767 15.321271  9.6717072
```

```
## 87  11.3130483  1.4072440  0.0000000  6.577643  6.9801156  8.195420  8.9320440
## 88  11.8345764  0.0000000  9.9807659  3.313522  2.3144645  3.450934  6.5064544
## 89   6.6314943  3.3378110 10.4016184  7.391381  7.4265348  4.945645 12.4459541
## 90  12.6535506  0.0000000  0.0000000  3.061085  5.9493972 13.453009  9.5380884
## 91   3.3166961  1.0535979  6.0104129 13.020209 13.1139810  9.574035 12.4246787
## 92   6.3046972  0.0000000  0.3774014 12.614350 10.9313685  6.878073 11.3699430
## 93   2.3408756  1.4298570  0.4209405  3.646220  4.2187579 13.839218  3.0797194
## 94   8.3748030  3.8258365  0.6536104 12.589190 13.2691773 11.135707 10.8305606
## 95   2.0132836  2.9309644  9.0861909 10.511351 11.1051443  4.402906  8.3399724
## 96  10.2240223  3.5878570  0.0000000  6.665907  3.2293264  6.842592  7.4417706
## 97   6.8484276  0.3774014  6.6086747 13.190517 13.4616716  9.608449  3.9683765
## 98   8.1106002  2.7811918  2.1555550  8.702822  6.1666391 11.763263 11.5210126
## 99   1.1834548  0.0000000  4.9630070  2.998430 10.4442178  5.076055 11.0627740
## 100 11.0438366  1.9810854  0.0000000  9.964840  0.5765705  3.369453  9.3323016
## 101  4.4293615  0.8320393  0.8320393 11.866166 12.5927076  1.201885  9.1006213
## 102  6.9188632  0.0000000  0.0000000  7.290940  2.4329594 13.050155 11.0678377
## 103  0.0000000  0.0000000  0.8312287 12.019017 10.5874609 14.348431  9.7969666
## 104  2.5915837  4.3731958  0.0000000 17.244636 14.8399665  5.469700 11.0508471
## 105 10.2979354  0.0000000  0.0000000  2.483983  0.3124328  5.387697  7.1196965
## 106  7.5680678  6.2119992  1.1699891 10.205524  4.6294674 14.216769 10.5649767
## 107 10.6067125  3.5673507  1.4901080 12.666041  9.9951895  5.700875  9.4982118
## 108 13.0121501  1.1114988  1.1114988  8.023046 12.9140812 14.079339 12.2277234
## 109  6.3352403  9.6296834  0.5315686 12.254885  6.1754727  8.717989 11.3558416
## 110  8.4428303  1.4132149  8.8746633  9.027790 11.8746580 10.275569 16.7096221
## 111 11.4358540  1.5378427  8.0357410  7.391271  6.5971170  2.060947  9.7975957
## 112  8.5185312  5.1185051  0.0000000 10.703885  5.8069117 14.578114  6.4466384
## 113  8.1784219 11.4246329  6.1242764  9.140393 11.4003729  7.560535  7.8006036
## 114 11.9250057  0.0000000  0.0000000 11.297760 10.0591960  7.597523  8.8060308
## 115  2.5371718  1.1382247  4.3375612  9.191662  5.8741527  5.036930 11.7871249
## 116 11.4672424  0.9848445  0.0000000  6.477679  4.0011807  7.412666  7.2145095
## 117  4.2001198  4.8775774  0.0000000  7.575301  3.5868728  3.829758 10.9140255
## 118  2.4255399  7.3074431  7.6501549  9.496702 11.0631681  5.462645 13.8634299
```

```
## 119 11.3167946 12.8239477  1.6114085 14.372047 11.7556162 13.246838 11.3636882
## 120 11.3937369  3.3667978  9.9016960 15.424646  4.0621217 14.337619 13.8482192
## 121  4.7456084  6.9088885  0.9306995 11.375142  9.9362023  8.372049  5.7910978
## 122 10.8414171  5.4881968  5.2045790 12.969005  2.7165081 14.218190  6.8353974
## 123  7.5952933  2.4956952  6.6775815  9.205242  1.4774701 11.572814 10.5562893
## 124  8.0738309  2.1266425  9.6141120 16.241799 17.3979504  2.021800 12.3175423
## 125  8.4254736  4.4346082  7.3522191  8.280641 12.3354464 13.869783 13.4476522
## 126 10.9994278  4.3205785  0.0000000  8.406373  4.7404041 12.683857  2.8732423
## 127  9.4734586  0.0000000  8.9081425  8.611573  2.8168250 12.213280  7.5303775
## 128 11.5356089  1.1053428  0.0000000  6.767555 12.1785904 14.196698 15.6784990
## 129  0.0000000  0.0000000  0.0000000 11.141264  1.8139351  8.062183  7.6750792
## 130  0.8701871 11.2675154  0.0000000 12.881905  8.7435234  4.823785  7.4466293
## 131  1.2795307  0.4403144  0.4403144  2.074505  1.6513617  2.300358 10.0286524
## 132  4.9757769  7.2063082  4.4233429 11.311974  9.3344930  7.734469  5.3436672
## 133  5.3172064  4.3107545  0.0000000 10.887379  3.8028549  4.281928 12.1836236
## 134  8.0306136  5.1038543  8.4093837 15.102732  9.1807426 13.215792  9.7827224
## 135  6.0929199  4.1045883  6.9881780 11.173918 12.2184415  7.804531  9.4106818
## 136  7.8782852  5.7438004  6.6154457 10.964037  7.8275968 13.306850 13.3404202
## 137 12.7090898  7.0090011  7.7871712 11.392116  8.7584658  7.240411 13.9050048
## 138  9.6060159  3.1332840  0.0000000  7.891146 10.7589993  8.024751  2.6282603
## 139  0.0000000  0.0000000  0.0000000  6.652326  6.6307185  2.198117  6.5408968
## 140 10.3507027  0.0000000  7.0070138  5.277367 13.8621132 10.578097  9.8434755
## 141  0.0000000  6.2532670  0.0000000 13.579426 12.0060872  4.866928 10.5334065
## 142  9.7893688  3.9675836  0.0000000  7.792551 10.4275563 10.553396  6.9388574
## 143  9.0062108  8.1721289  2.9053124  9.397330  6.7074599  6.687406  5.3331088
## 144  8.6133419  0.9268344  6.5994309 10.972341 12.9726919 10.447920 11.3763182
## 145  4.1705500  3.3940751  0.8990209  8.380991 11.7020180  7.851983  1.1064153
## 146 11.7983411  5.5718679 10.6957267  8.327866  8.1742491  9.417795  8.6280365
## 147  4.9455609  0.4521737  0.0000000  6.771060 13.9016758 14.575877 10.8762985
## 148  1.7659590  8.2682982  3.0361340  8.842298 12.4892206  6.653059  1.4857875
## 149  7.1840065  0.0000000  0.0000000 18.166970  3.9206268 12.454552 13.3241480
## 150  5.8378247  2.2280183  0.0000000  7.972206  4.9937378  1.723821  8.0113637
```

```
## 151  6.5181999  6.6330795  0.5912007 11.028727  8.5351922 14.554531  7.2992099
## 152  1.6209617  0.5010060  4.9098355  6.039252 10.2584428  6.226869 11.6686409
## 153  8.0000947  4.5407465  6.4112483 14.773784 11.2904201  5.104894 14.4499887
## 154  8.9081698  6.4237210  7.3119272 11.550000 11.2758154  7.006654  5.2720083
## 155 13.3825878  3.6357660  0.3472121  7.420914  3.4685051  8.318039  9.4413758
## 156  8.7710454  0.5831339  7.1745462  7.925360  4.4866951 12.114839  8.1341706
##        rs_TCN1 rs_SLC34A2  rs_CRISP3   rs_CLCA2   rs_GRIA2 rs_C20orf114
## 1    5.2089035  5.7466782  3.3214231  6.6678183  0.8928184    7.8440309
## 2    6.7679805  8.0751983  2.5983890 10.1999062  2.5983890    9.4627247
## 3    2.8517191  6.6404677  2.8517191  4.5202902  0.4497462   11.0590752
## 4    8.0533802  6.3086175  7.0144725  0.8535167 10.7132678    8.3636586
## 5    4.1728475  4.6306268  6.4025431  6.0351840  4.7628272    8.8780291
## 6    6.4273078 11.2945588  8.4642533  7.1293253  2.6291701    1.0266584
## 7    3.6518668 11.8950295  5.0106859  4.6161753  1.1090262    4.1980540
## 8    0.0000000  8.5673329  0.4304994  4.9002389  6.6353060    0.7617108
## 9    6.5545750  7.3123620  2.5048492  5.3758978  3.4424658    1.6220870
## 10   4.3326005  0.0000000  2.0906163  1.6026944  0.0000000    8.8510816
## 11   1.2253983  5.6776210  6.6297369  6.3150880  1.2253983    7.3889722
## 12   1.3118518  6.9804595  0.0000000  9.8954927  0.8001648    3.1944338
## 13   1.5089864 11.2949628  0.0000000  2.7088935  0.0000000    0.0000000
## 14   7.1403738  6.1437424 11.4296017  4.7262427  2.5088596    5.4112567
## 15   1.6525094  3.2593177  4.1239889  1.4784542  3.7554858    7.0728679
## 16   2.7087611  2.8071694  1.2536263  1.9141052  8.6277334    7.5922365
## 17   4.3083536  6.1544961  1.6277469  7.3282171  5.2870105    7.1485915
## 18   3.5937004  2.2685242  4.6688453  3.6821912  7.3066268    7.8721836
## 19  10.0703777 11.3043692  8.6203760  5.5932641  0.3634515    3.0789001
## 20   2.6260185  5.4440972  0.0000000  6.2261463  1.4459385   11.1276901
## 21   4.9851816  3.6672336  0.0000000 12.8882228  0.0000000    6.2492197
## 22   4.9572599  9.6819908  0.8668684  6.9654415  0.8668684    3.3885753
## 23   0.0000000  3.7271036  3.1706782 13.0101114  0.0000000    3.3809095
## 24   4.3111034 10.5583540  0.0000000  2.7102389  0.4537546    0.7984238
## 25   7.5960966  7.4547657  4.6726686  4.0977119  0.4031586    2.6962610
```

```
## 26   6.8213276  5.6124852  3.8120977  4.3901518  1.8728288   7.9577394
## 27   8.2635640 10.1413504  2.4071352  6.3202969  1.0538064   8.1624382
## 28   1.1657512  1.4103411  3.4526218  8.7454609  0.8710551   4.2023629
## 29   4.3637458  4.5972034  3.1916574  3.2384812  6.5747797  13.0900399
## 30   9.0295462  9.4384962  4.5644879  7.7229585  4.8695951   6.5976563
## 31   2.0630542  6.5843958  3.5021524  6.8508944  0.0000000   8.4973729
## 32   4.5301519 11.2549146  3.3886993  4.1572135  2.8001026   8.0337126
## 33   7.7620976  9.3115928  3.0151942  6.0482994  4.8033149   8.5739959
## 34   4.9435604  7.7400141  6.9947200  3.9493762  0.5238630   9.4141797
## 35   0.0000000  1.0688084  8.1582002  9.4501798  1.0688084   7.1183566
## 36   2.8050241 10.2267796  6.1700933  5.8869305  3.1902198   1.1911204
## 37   7.0382035  8.0445143  5.0380586  6.6686269  4.8135298  10.8699224
## 38   0.8827604  6.2500046 16.5306270  0.6439485  0.0000000   7.0453774
## 39   2.1730635  0.5247658  7.0841610  3.0035303  0.9088129   5.1019526
## 40   0.9733541 13.9731525  2.4583295  2.3714752  2.0742657   0.7157177
## 41   7.3903633 12.1252493  8.1551744  5.3794927  4.3221878   0.4088205
## 42   0.4589069  6.4699120 13.9982828  6.5813181  0.0000000  10.5538855
## 43   4.0534676 12.2035192  3.7531017  8.3972763  0.0000000   2.3255303
## 44   6.2715751  6.7575020  6.3729765  5.4221758  2.5078961   8.9606574
## 45   5.8236704  6.5123517  7.1893185  9.9024898  3.4277268   6.5353080
## 46   5.8092678  7.8639917  6.4259661  7.0595846  0.4485838   8.8642837
## 47   2.3874177  3.6768992  2.4684530  4.7547593  0.9312292   4.7547593
## 48   6.4774458 10.4876626  5.7120207  6.4395367  3.0394543   6.2984090
## 49   2.3179697  2.7430410  5.5758266  4.2213976  6.5822218   6.0488683
## 50   7.7211047 11.1666461  0.9754835  6.6139471  0.7173858   9.8493915
## 51   9.0519824 10.6854094  5.1640702  0.0000000  0.0000000   5.3436601
## 52   8.1139302  5.9064048  4.6386937  2.5315936 12.6904765   9.9975380
## 53   5.5627736  5.6965892  4.3934437  8.2811891  1.4009204   4.5018913
## 54   0.0000000  6.1183203  8.7178282  3.0170845  3.3538737  11.4313922
## 55  10.4806360  6.4357869  0.0000000  2.2856981 12.3090907  10.1203738
## 56   2.9848081  7.2703112  0.4924172  2.2207943  0.0000000   0.8589358
## 57   9.5955109  9.9198930  1.4885664  9.1081342  4.9865566   3.3773459
```

```
## 58   7.1813998 10.0393761  3.7194792  8.3120184  6.0727275    6.1976158
## 59   0.3723950 11.5543629  0.6681191  2.2715751  0.0000000    0.0000000
## 60   0.6223682  4.3518262 12.1268480  2.4101511  0.6223682    4.2735159
## 61   6.6381839  4.9460664  3.6513502  5.2981964  1.6463470    7.8427444
## 62   5.4504459  5.8122107  2.5955275  3.4709663  5.1464434    8.1872674
## 63   3.5972690  4.6496902  1.7812338  2.3397075  3.2728593    0.3457370
## 64   5.4872291  6.7951149  0.8698714  6.0067827  2.1076544    8.2570271
## 65   6.3736273 10.7062486  2.2775385  2.8723560  3.1205344    0.0000000
## 66   5.4054478  3.4777421  4.8827849  4.1471520  0.3494785    9.9211728
## 67   7.6944443 10.3005509  3.5452024  4.7735164  3.7013273    7.0270169
## 68   5.5933478  5.6834242  1.6678467  6.3387845  6.4196400    6.8199044
## 69  11.4265715 10.0631801  2.0601512  6.3785307  6.5098035    5.6413437
## 70   7.1098735  0.7562547  6.5759990  0.4270698  3.1577713    9.4328018
## 71   8.3015538  4.3035762  2.3759013  2.7035216  4.0772430   10.2736521
## 72   4.2401540  7.2241455  2.9018227  4.2401540  0.4655044    5.4352819
## 73   1.4868173  4.7961513  0.8258670  2.6207506  0.8258670    0.3305584
## 74   4.7488423  3.7242574  2.9965334  1.8551127  5.3315261   10.4873929
## 75   9.0382658 10.6032584  4.9318627  9.4963940  5.3121642    7.8307795
## 76   7.3939104  5.0312673  2.0069084  2.8152270  2.8905829    2.8905829
## 77   1.6025044  6.6183928  0.5937840  7.0089933  0.0000000    1.0131406
## 78   3.0050586 11.0069531  4.1209242  1.0028825  1.2257068    0.0000000
## 79   2.6216651  4.2114639  0.0000000  6.0656455  0.0000000    1.3484591
## 80   8.7149804 11.4077745  3.5810861  3.6292400  0.0000000    5.0659686
## 81   7.5270844  7.5832197  2.2937236  8.7329187  3.0563234    2.2937236
## 82   7.0748083 10.6853723  0.9245560  7.0259368  4.1386752    5.2411080
## 83   8.3472294  6.6131500  0.6143800  4.4575680  1.3745109    5.4769001
## 84   5.0607392  4.1884326  7.4610357  5.6388008  0.8345494    6.3097765
## 85   1.6839210  7.8159788  1.4113178  7.8969039  3.4170964    0.0000000
## 86   0.5448810  0.2980717  4.6359981  0.0000000  3.2111212    7.0620958
## 87   2.4049304  5.8290707 12.9697138  4.6698602  7.3245064   10.5273639
## 88   0.0000000  1.5787455  3.6352552  1.3163196  0.0000000    5.5300145
## 89   7.7236521  4.0287901  0.0000000  6.2232990  9.8329966    8.7301179
```

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## 90   0.3257318  0.3257318  6.2901885  0.3257318  9.8080742    6.8642951
## 91   0.7799741  2.0796341 11.4529815  7.4796429  0.4421208    5.9193282
## 92   1.7622638  2.6049490  4.8781907  4.5501742  0.9237957    5.6875730
## 93   0.7464848  2.7570873  4.7776564  0.4209405  3.7222693    0.0000000
## 94   4.3564396  8.2635213  8.3343917  9.6808356  3.3461201    6.8709294
## 95   0.3517414  4.0649863 16.0467765  7.9288725  0.0000000    7.5065274
## 96   2.7511638  4.6329719  0.0000000  2.4355486  0.0000000    8.5740727
## 97   0.9237957  9.1685761  2.1980226  0.3774014  3.3604064    0.3774014
## 98   2.7811918  4.1363555  8.3539941  1.2522945  2.2633349    7.2835792
## 99   5.6142976  2.5277710 12.3824954  1.3723392  6.3858607    7.4233454
## 100  4.7569966  2.8850081  0.5765705  2.8850081  7.7129224    8.1720144
## 101  0.3335382  3.2990541  6.1803369  5.9015331  0.0000000   13.5879361
## 102  3.7865964  0.0000000  3.0356239  0.0000000  0.0000000   10.5926439
## 103  1.3552418  4.3923174  0.0000000  7.4956992 13.3381159    8.8720053
## 104  8.2743292  3.4152719  1.1111649 13.2547599  0.0000000    9.2196165
## 105  0.0000000  1.9641029  0.0000000  0.5691022  4.4298636    7.1146710
## 106  6.0581022  8.1409422  8.6543009  2.7280076  2.3399355    8.7568772
## 107  6.4267042  2.5118728  1.0603241  0.4455148  3.5673507    9.2905126
## 108  1.4547023 12.2797530  2.7662559  1.2933116  5.3793402    9.5075509
## 109  8.1355010  7.7912573  2.0420840  5.8249078  0.5315686    3.0998338
## 110  0.4143521  1.7349589  4.5415644  4.6217237  4.9972066    5.3429636
## 111  0.9648052  3.7750927  7.0131563 11.4707840  1.9468431    5.8044099
## 112  5.9204053  8.0343500  2.6814493  3.5643660  3.6625473    9.7269031
## 113  0.0000000  5.5246342  7.4880675  3.7073812  0.0000000    1.5900031
## 114  9.0383484  9.2845442  6.0637230  2.2205157  0.4144603    8.5813136
## 115  0.0000000 11.2155431 11.3374056  8.1490551  1.1382247    0.0000000
## 116  4.0302831  8.5420115  1.8523984  2.9733909  1.2050797    5.1269151
## 117  2.5597365  5.0258660  2.1463945  2.2240403  2.5597365    8.6693103
## 118  2.4255399  6.2351239 11.9728859  9.0225082  0.0000000    4.3914584
## 119  8.9251369  9.7352842  6.5468883 10.8134640 10.0262746   11.1035738
## 120  0.0000000  6.2641310  0.8467942  0.0000000  0.0000000    5.4010945
## 121  4.0361077  7.7981004  6.7600293  5.9790010  1.4918018   11.9270622
```

```
## 122  6.9777447  8.7979393  2.6379580  4.1185425  2.7165081    7.0741222
## 123  1.9468805  2.3004459  5.0652147  3.2030758  9.8349245    9.4749780
## 124  9.6775007 10.1218620  8.6377349 10.5547941  0.0000000    4.8040536
## 125  2.5374949  3.7882054  2.5864045  4.3379323  1.4865599    5.6965781
## 126  1.1797658  4.2583455  6.9561473  1.1797658  2.9539915    1.6364506
## 127  0.4390380  0.0000000  7.1151654  1.2765562  1.4742024    5.2338881
## 128  3.7725614  4.0483408  1.7237770  3.0350608  8.7917275    8.3914442
## 129  0.0000000  0.0000000  7.1486830 11.3295703  0.0000000    6.8514667
## 130  0.0000000  3.9140191 11.9964240 11.4868794  0.0000000    0.8701871
## 131  2.4955673  0.0000000  0.7771988  0.0000000 11.5376096    5.1831649
## 132  8.7042305  8.7221839  5.4335871  6.4530862  3.7210335    5.1973189
## 133  2.0499792  5.4783474  7.5476758  9.3676321  0.0000000    5.9959141
## 134  4.4231882  6.2517058  8.7111782  9.6609632  1.8903299   10.4029965
## 135  5.1011080  6.5010426  4.5989904  4.7864604  1.1524430    9.2300466
## 136  3.3793021  6.0157473  4.7817321  2.2773302  4.8039813    8.0510213
## 137  8.3653667  7.2928949  1.2633950  6.6996238  3.6093413    8.2947365
## 138  0.0000000  6.5051907  4.6212138  6.2176883  4.5520696    0.0000000
## 139  1.3192133  4.0488813  9.7206998  4.5866447  3.0316775    5.2735979
## 140  0.8793921  0.5056877  7.0669653  0.0000000  6.1688987    4.1868491
## 141 12.8558882 14.6736321  1.3842156  1.9328171  1.3842156   15.5156633
## 142  2.9952312  9.0694951 10.5019427  9.4966838  4.3593806    4.7253867
## 143 10.3499673 10.1483397  0.4443490  0.4443490  7.4909215    0.0000000
## 144  3.1874352 12.7915667  4.1795907  0.9268344  4.9835637   10.4474545
## 145  0.6567252  8.2131650  0.8990209  1.4486896  1.1064153    0.0000000
## 146  9.1575609  4.6432039  0.5562087  2.9231682  7.0469319    8.6416934
## 147 11.2191651  1.3058538  1.0733404  6.4871792 12.3298879    8.4372677
## 148  9.5381831 11.9995200  3.7009723  3.7009723  2.0004327    0.0000000
## 149  0.4564908  9.9093534  2.2393980  0.8027309  9.2794996    8.4969999
## 150  4.3789624  9.3237243  2.3633393  2.4870232  7.6101427    6.2668203
## 151  6.7564763  6.5575173  1.5973643  6.3447575  4.3752063    8.4331886
## 152  1.1670367  0.5010060  1.9657289  0.5010060  0.0000000   12.6534368
## 153  8.3139478  5.0723288  2.5832302  8.3449523  0.0000000    5.4599201
```

```
## 154  4.3319058  8.1116474  3.9102626  5.9891367  0.7119354    0.7119354
## 155  3.3579742  3.5377558  0.6269530  1.8958842  3.3957620    6.5598894
## 156  0.0000000  0.9973285 14.0937837  4.9720539  1.5813512    7.1341901
##        rs_DSG3   rs_OBP2B   rs_KIF1A  rs_CYP4F8   rs_TNNT1    rs_LRP2
## 1    8.3663834  3.4959126  2.8068808  5.1049866  4.5929832  9.2285979
## 2    9.1405693  0.4448791  3.1016837  4.7742125  4.7356197 12.1102050
## 3    8.7582475  1.3005338  1.3005338  5.8504669  8.6690115  9.7294839
## 4    4.8896439  0.8535167  0.0000000  1.3860936  4.5100251 13.0900976
## 5    6.6950877  5.2420804  1.5757964  5.3299667  8.3499548 11.9512102
## 6    3.3696200  5.9708997  3.8565376  0.6028369  0.0000000  7.4362885
## 7    6.4556905  5.5393791  2.2799170  0.4706150  7.0330408 10.9338855
## 8    6.3518156  1.7799321 10.6701648  0.0000000  5.6040624 11.8487739
## 9    4.6380275  8.0034763 11.5418937  0.0000000  4.1815081  0.0000000
## 10   0.8598106  0.8598106  0.0000000  2.3431520  4.0066930  9.7963067
## 11   5.7865624  0.7390704  2.7414670 10.1634839  5.6394000  9.8975838
## 12   7.4650415  0.0000000  0.8001648  9.0566507  8.9835323  9.7068282
## 13  10.7823758  8.7734643 12.3291156  0.0000000  4.0610590  4.8882221
## 14   8.5863820  0.0000000  3.4664444  3.1767855  9.7486110 10.5484836
## 15   3.9347146  7.7555286  0.4407396  7.6720554  9.4331852 11.6515355
## 16   2.3654686  1.2536263  5.7443576 10.7227827  5.8170118  8.8859440
## 17   9.2219587  0.0000000  4.7280130  1.6277469  9.5946180 11.5646306
## 18   3.4994377  6.0171380  3.9191017  5.3741179  3.9550710 12.7331340
## 19   7.9237975 10.3377314  1.7190520  2.1500072  7.7675303  9.1879055
## 20   4.3196324  0.0000000  7.1273547  0.3644604 11.6984079  5.7439942
## 21   6.5331802  1.1445685  6.3596969  7.9958401  3.7985586  8.7961941
## 22   1.1606621  9.4953710  6.1831669  0.0000000  7.7326552  7.7739621
## 23   3.0931883  0.9573203 13.0065662  5.8455854  3.4446936  2.6274901
## 24   6.8801847  5.4308339 11.8637000  0.0000000  0.0000000  9.4647493
## 25   5.6533754  8.2875379  2.6226493  2.8331127  8.4170204  5.1232772
## 26   4.1516640  1.3771237  4.1731114  0.6158871  7.6021079 13.3097698
## 27   9.4921606  4.7260846  0.0000000  5.5183778  6.7389110 10.2950574
## 28   1.1657512  0.8710551 11.3830803  8.1248177  6.2405319  6.3324484
```

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## 29   5.4225223  0.3800645  1.7701525  8.1918602  7.1408911 13.2758859
## 30  10.5607407  4.8135196  1.5147535  3.1974094  8.0179013 12.6357514
## 31   9.5190073  0.4826418  1.1322478  5.9769089  3.8978793 11.1279806
## 32   6.3646337  1.2651368  2.1727435  1.0374525  1.0374525  3.2358955
## 33   8.8535145  2.8118820  3.0770550  5.0235526  1.6440408 11.1063562
## 34   6.5382898  1.4601135  4.4314826  2.7423943  6.5314766  9.8303084
## 35   0.0000000  0.4498519  0.0000000  9.5337428  1.0688084  1.3007680
## 36   8.1065525  2.8050241  6.4426135  0.0000000  2.7138937 10.4496621
## 37   8.1940871  8.4427988  5.7185616  0.0000000 11.3475225 10.6713545
## 38   1.7006617  0.0000000  0.8827604  2.1295138  8.2099071  9.5401275
## 39   0.9088129  4.4916992  1.4620000  0.5247658  0.9088129  9.7192464
## 40   9.3220397  8.6444515 12.4546580  0.9733541  2.8281238  9.2568927
## 41  12.5375848  4.0064596  3.9154062  0.0000000  5.0774481  3.4368814
## 42   0.0000000  1.0865120  6.5178725  1.9986649 10.8936983  2.8058290
## 43   4.5690900  2.6667566  7.6459228  2.4484517 10.3169967  4.2006456
## 44   6.3004642  0.9542708  0.3923174  2.2480186 10.7907157  5.9085031
## 45   6.1943708  0.5733745  3.1389291  1.9739051 10.9629824 10.7820833
## 46   8.4055891  8.8654122  1.0663992  2.6102748  9.0122454  8.5360587
## 47   3.6070343  1.3285493  2.8773909  8.4716358  5.3541453 11.3310693
## 48   9.1044234  7.6420040  9.0714935  1.5955514  9.2311866  9.6090906
## 49   3.8745413  0.0000000  1.8329305  0.0000000  8.9678467 11.3624007
## 50   6.8894954  4.6342680  3.4991188  2.9567630  7.5873635  6.9583718
## 51   3.6694464  0.7081431 13.0091893  0.0000000  2.0595629  3.5957423
## 52   5.2042229  0.3399355  0.0000000  6.2960352  4.5757964 13.2615574
## 53   6.1608718  0.9887029  7.4693162  3.2527184  8.7825937  6.8763807
## 54   3.3029331  0.7735744  7.6918482  3.8203219  3.6267312  9.9041256
## 55   6.5178741  8.8515685  1.3166092  6.5037240  7.5380252 13.2895760
## 56  14.4308198  7.8660592  8.4447536  0.0000000  2.2207943  1.1508846
## 57   7.9205952  3.5651585  3.7313245  9.7787142  0.0000000 13.2607450
## 58   9.6002961  8.1923086  2.0715224  9.6958921  9.7750344 10.6807340
## 59  14.1546194  6.5327658 13.3931390  0.0000000 10.0967938  2.7214820
## 60   5.2253598  0.0000000  7.4171301  1.0557510  5.8690620  9.7087682
```

```
## 61   7.7499264  0.3832757  0.0000000  3.6159694  8.9982683 14.5118873
## 62   6.7682359  0.0000000 11.4603049  0.0000000  3.7822723 13.0425941
## 63   5.1888321  0.6244285  0.6244285  6.2532821  8.7297315  6.7795487
## 64   6.9382670  1.4086575  2.3610384  0.4994760  8.2274590  7.5290307
## 65  13.2093642  7.1638580 10.0741942  0.0000000  1.7966393  2.1039004
## 66   3.2883733  0.0000000  0.3494785  7.3891572  9.1623327 12.6637140
## 67   9.7140610  3.6253757  5.0453250  1.2229282  5.7910222 11.4832655
## 68   9.0054107  2.5022797  5.1758759  4.9330958  8.4563294 12.9683620
## 69   9.2952283  5.6149218  4.7327468  7.6636741  5.3840809  8.8398371
## 70   0.4270698  0.0000000  5.0004102  0.7562547  9.4478269  4.6703135
## 71   4.6588456  0.7326599  3.4495614  7.6749154  7.9166343  5.2992703
## 72   5.8419605  0.0000000  1.7158055  1.0992279  9.1785312 11.9508221
## 73   1.1938979  3.5627187 10.0118129  0.0000000  6.4935577  8.9940278
## 74   0.9050428  0.3683772  1.4569113  6.9546221  9.0611249 11.7752284
## 75   9.3305967  6.5052764  4.3703387  5.0191948  5.0332468 12.1299116
## 76   7.0603209  8.9839362  0.4619476  1.5295711  8.5666207  5.8099160
## 77   6.8007550  1.8261112  1.0131406  0.0000000  1.0131406  6.1132858
## 78   4.5290963  8.9868626  9.1495805  0.7392433  5.2020219 11.9340525
## 79   6.5353158  0.0000000  0.0000000  0.0000000  1.0221192  0.5997939
## 80   8.3395873  4.5448439  7.7676475  1.1496496 10.1717175 10.2976522
## 81   8.3527766  2.4305797  2.1425115  0.0000000  1.5614972 10.2512387
## 82   8.8620230  5.0587711  1.4834160  0.0000000  2.0507455 11.4357724
## 83   7.6018243  0.6143800  8.3832330  1.0439744  6.8339944 11.9315610
## 84   6.9294087  2.6966616  5.2606580  0.0000000  8.1696505 11.0120866
## 85   5.2918356  5.8298064 11.8064031  0.0000000  0.0000000 10.8489595
## 86   0.0000000  0.0000000  0.0000000  0.5448810  5.9062172 11.7204862
## 87   1.2153058  3.6514995  3.5735563  8.3495325  8.3466059 10.1377319
## 88   0.0000000  0.9953036  0.0000000  0.5818815 11.0157969  5.2003592
## 89   3.3378110 10.6604941  2.9309076  0.0000000  9.3569497  7.8481428
## 90   0.3257318  0.0000000  1.5976504  0.8154935  8.6409733 13.6060714
## 91   0.0000000  1.0535979  5.0715997  3.7601464  9.3996738  3.9394241
## 92   0.9237957  0.3774014  0.6763577  4.7234876  5.9190921  7.6145339
```

```
## 93   3.7222693  0.0000000  0.0000000  2.8276361 11.4594718  4.5461783
## 94   9.5070961  2.6223682  8.6235512  3.9107423  5.8150861  2.9776096
## 95   6.6770247  4.3055474  2.0132836  6.6963583  1.2512646 11.4103907
## 96   6.4717110  0.0000000  0.0000000  1.4667054  2.7511638  9.5323550
## 97  12.1175079  9.5148367 12.3217650  0.0000000  5.7288321  7.9954088
## 98   4.0785244  0.4281424  0.7579620  1.4476850  9.9992394  9.3170390
## 99   1.1834548  0.0000000  9.6894047  0.0000000 10.4448758 10.6318710
## 100  4.0636755  0.9873936  6.7628444 11.6697291 11.1663977 11.8500829
## 101  3.1798932  2.5708272  0.0000000  1.7401504  8.0777813 12.6868764
## 102  0.0000000  0.0000000  1.3785116 10.4815976 11.2301406 12.9404237
## 103  0.0000000  1.8469546  6.6766440  1.7388543  4.3377682 12.0462072
## 104  5.9744742  0.4716557  4.9071358  3.7415209  7.6083731  6.5458093
## 105  0.9761436  0.9761436  0.5691022 10.9170255  6.8532135 12.3044739
## 106  7.5344149  0.3923174  2.8580805  1.3576083 10.5554208 10.6968629
## 107  0.0000000  0.0000000  4.0494565  8.0893731 10.9710101 10.0723638
## 108  3.0451459  1.2933116  5.6943175  0.6601985  8.7281539  8.8565242
## 109  7.2008368  2.0420840  0.5315686  1.4760706  6.9742482  4.7462106
## 110  6.0488225  0.4143521  2.5001392  2.4127002  9.3656282  8.5858395
## 111  0.0000000  8.5200953 11.4712677  0.7088494  9.8516024  9.1512096
## 112  8.6044124  3.5643660  1.1696685  6.6813776 10.6097285 10.6461832
## 113  4.0601771  3.8749051  0.4875892  0.0000000  8.6862796  9.3208463
## 114  0.4144603  7.4867900  7.7049681  3.2708578  9.0374349 13.0317089
## 115  5.4073052  2.6791986  7.3970859  3.4866500  5.5620317  3.1386998
## 116  2.8481973  5.8769491  5.2433606  0.0000000  7.6747502  7.5166054
## 117  4.8895417  0.3159140  0.9849174  2.7290959 11.1725660 12.1329272
## 118  7.7788223  2.0436945  1.5229597  8.0645181  1.8066953  9.7531521
## 119  6.5678800  8.6760494  2.0297356  6.4198759  9.1488477  8.5366016
## 120  0.6156988  1.5176284  7.2009202  0.0000000  7.5014153 13.6954862
## 121  7.8471858  1.7073039  2.7845668  1.2383589  9.9475009 10.1900658
## 122  4.4296026  0.4311415  2.4667315  1.6275135  9.9550936 12.6696163
## 123  2.5842169  4.4864055  2.3004459  0.0000000  8.0466155  8.0793482
## 124  2.4019854  5.0099428  6.2822341  0.3852654  5.2376746 11.1444201
```

```
## 125  4.9465344  3.3234854  0.2632748  0.2632748  7.8547225  2.8494789
## 126  0.5077185  0.0000000  0.0000000  0.0000000  9.1644406  9.6237650
## 127  0.4390380  0.0000000  0.0000000  0.0000000  2.3972006  5.7829039
## 128  5.5912964  0.3650206  7.2437243  6.4103920 10.1980270 11.8480917
## 129  0.0000000  0.5051796  2.2551986  7.3325692  1.4207788  4.4294285
## 130  1.1647219  0.8701871  7.5553982 11.2795773  2.7645372  0.4997821
## 131  0.0000000  0.7771988  2.3003581  0.0000000  7.3170345  7.8327679
## 132  7.0912904 11.2923291  6.1512601  6.4954601  5.1801041  8.1864045
## 133  4.3939378  0.0000000  3.0120501  1.9062364  7.1611621  5.9780537
## 134  7.0688116  3.9762811  4.2741573  2.8106282  8.6691547  8.4220913
## 135  7.6195509  0.9390008  5.8315277  2.4817639  6.9096483 10.3096056
## 136  5.6850683  0.5134907  2.1441443  0.8914970  2.1441443  5.9965560
## 137  9.5560283  1.6326405  4.0361692  0.4330663 10.1997582  9.8196380
## 138  5.0300226  8.1789103  7.6456685  0.3650206  5.8725111  0.8982471
## 139  0.6763577  1.3192133  0.0000000  0.0000000  6.5638827  2.5323170
## 140  1.9777195  0.8793921 11.0810887  0.0000000 11.6760455  8.0155076
## 141  3.5691994  0.8521587  1.9328171  0.0000000  1.1425441  3.5194161
## 142  6.6290433  7.8568917  9.4376994  2.3740935  8.5323563  2.9307184
## 143  3.3242778  4.3301711 11.9065400  0.0000000  6.6772743  8.5562742
## 144  2.3377111 11.0071816  9.8048482  0.0000000  7.9744542  8.9255378
## 145 12.1950937  4.3443953 11.3219003  0.0000000  4.4240487  1.8457510
## 146  6.4902380  0.0000000  5.5575326  1.5268200  9.0643030 12.4838629
## 147  1.0733404  9.2214242  4.0727661  1.5060941 10.1058402 11.5570112
## 148 11.4421725  0.0000000 12.7856617  0.0000000  9.5681522  0.0000000
## 149  0.0000000  6.8488032  2.4505910  6.4851515  8.3533431 13.2288683
## 150  1.7238206  5.2421985  2.0787123  0.0000000  0.5465611  1.5071603
## 151  6.3037223  4.0835453  1.3330802  6.9985509  7.7965504 11.0807636
## 152  0.8720801  2.3650206  0.5010060  1.6209617 11.3116274 11.4458624
## 153  6.7362923  0.0000000 10.2389889  5.2429797  9.2226679  2.2751859
## 154 11.9520439  3.2648967  7.2678167  0.9685700  9.6548216  7.5317791
## 155  1.3966527  1.3966527 11.5987773  2.5603726  5.5874010  7.7347205
## 156  1.8035164  4.9016730  6.2138411  1.5813512  8.3890789  4.3871764
```

```
##       rs_PROM1   rs_PVALB   rs_FAM5C    rs_ELF5  rs_GFRA1    rs_PGR     rs_CGA
## 1    6.8609702  3.9200360  0.5144000  9.1161511 14.487078 12.787348  0.0000000
## 2    8.3710949  5.4937946  6.2501980  5.9210126  8.041977 12.176893  0.0000000
## 3    7.6621670  1.5002922  6.0468403  4.5202902 11.307703 11.885023  9.3037839
## 4    6.0255870 12.6313870  0.4889263  5.2057522  8.493677 13.033314  0.4889263
## 5   10.3426787  3.3935123  0.0000000  2.1908677 14.324104 14.057517  0.4815056
## 6   12.7976161  1.3538878  9.5734429 12.3562373  7.328684  4.509962  1.0266584
## 7   10.6781472  2.5882049  1.5500634 10.9446528  9.465836  6.972303  0.0000000
## 8   11.8635239  0.0000000  1.7799321 12.4927722 10.372347  4.116331  0.4304994
## 9   11.7842963  0.0000000  0.0000000 11.8889948  9.145342  3.136388  0.0000000
## 10   8.5909601  8.6121442  0.0000000  2.3431520 14.570822  7.055308  5.5432020
## 11   8.2357027  0.4164074  0.0000000  9.2883796 12.358905  9.689779  8.2373032
## 12   6.9762181  9.8463838  0.0000000  6.1280459  6.340906  7.547387  1.0785415
## 13  13.0071470  0.0000000  4.8655625  9.5754838  5.706774  4.138708  0.5474498
## 14   9.5807208  1.5900990  2.3280897  6.2491988 13.907606 13.231550  0.7400209
## 15   3.7168044  2.3016754  1.8078083  4.3929287 14.149654 11.857110  0.4407396
## 16   5.6938047  5.6414189  0.0000000  7.3237871 12.722930 11.687281  0.9432837
## 17   4.0045194 13.5708310  1.4180280  3.6674040 13.266960  5.191211  3.2266935
## 18   2.1493894  1.7185260  1.3375969  1.5405729 14.232081  8.381844  0.0000000
## 19  10.5269589  1.1017173  0.0000000  8.4488072 10.853503 11.685107  2.0537369
## 20   6.9204386  0.3644604  0.0000000  6.1287759 12.388586 11.451186  0.0000000
## 21  10.7494610  2.8184211 10.7286803  5.7405768  3.879912  5.783491  0.4891319
## 22  11.5286786  0.4976379  0.0000000  7.7575807  4.193630  2.102625  0.0000000
## 23   2.8321204  3.0113167  0.9573203  5.9808068  3.564366  4.006092  0.5566992
## 24  11.7193508  0.0000000  0.0000000 11.6986442  5.503161  5.962468  0.0000000
## 25   8.5067150  0.4031586  1.8397178  5.0266938  6.181466 13.505617  0.0000000
## 26   5.6889328  7.8717968  2.5990083  5.4195659 11.920140  7.932804  0.0000000
## 27   9.9882670  4.6661999  0.7802261  8.1015708 14.219116 13.415912  2.3061164
## 28  10.3530840  9.5339349  1.8019864  8.6444728  7.897924  3.791783  2.4749811
## 29   5.7956007  8.6108628  0.3800645  1.6366826 12.831390 10.177938 13.4517586
## 30  10.4695626  2.1188580  1.6910874  7.7355878 12.322758 13.038994  0.0000000
## 31   9.5711811  2.3142035  1.1322478  3.5518851 14.048726 13.856478  6.1563905
```

```
## 32   6.2954273  1.2651368  0.4339209  8.1199423 12.094384 13.246247  0.0000000
## 33   9.2432456  0.7727302  0.7727302  8.3226673 12.485660 11.164527  0.7727302
## 34   7.8092376  1.8587767  0.0000000  5.3519957 13.679297 12.357809  0.9074291
## 35  10.6908978  0.7922723  7.5986362  8.6810282 12.098545  5.273796  1.0688084
## 36  11.3104798  2.3998820  1.4388251 10.9675845  8.905885  7.387150  0.0000000
## 37   8.6047052  2.1517939  0.0000000  7.4540401  9.164821 10.428554  6.9852670
## 38  12.3220016  0.8827604  0.3576083  9.2985795 11.608442  9.585116  1.4264795
## 39   2.5425057  1.4620000 10.9929446  2.3069913 11.600578 10.117314  0.0000000
## 40  13.8479440  0.7157177  1.6995072  8.4261272  7.462193  5.829766  0.4017397
## 41  10.4475491  1.8564679  8.8507260 13.5183742  4.172943  4.413736  0.4088205
## 42  11.5772974  1.0865120  4.9349127  8.3020032 10.549205  4.786183  0.4589069
## 43  13.1349403  0.0000000  0.5318680 12.1162459  3.373300  3.973832  0.5318680
## 44   7.1492238  0.7004397  0.7004397  5.2071237 13.170674 13.233643  6.1750375
## 45   7.3873505  9.7530225  0.9826560  3.6682326 13.451855 12.467117  8.3935428
## 46  10.4113094  0.4485838  0.0000000  4.7687454 10.954756 12.958903  4.8068447
## 47  11.3949765  0.0000000  0.9312292  0.9312292 11.843102 11.946175  0.6822137
## 48  10.1624991  3.5108860  1.8479168  9.1724505 10.159587  9.248728  3.5469809
## 49   4.8532122  0.6503050  1.5816887  4.6555064 14.435292 14.076439  4.1305026
## 50  10.4150668  2.6949916  0.0000000  4.2749325 12.572621 12.851851  0.7173858
## 51  13.3879250  0.0000000  2.7448930 11.2182578  9.333535  4.411345  4.0740601
## 52   7.5197825  0.0000000 11.1989936  4.7987349 10.997207 10.538533  6.2209471
## 53   6.9043143  4.0941347  1.9830209  4.8025706 13.360638  5.776488  0.0000000
## 54   5.4686354  8.7843446  8.4805329  8.2102637 12.563682  9.020081  8.5775044
## 55   9.5304477  1.1326426  0.3765127  4.7029179 14.272347 11.837826  0.0000000
## 56  11.4815076  0.0000000  5.9164265 12.7011459  0.000000  3.125965  0.0000000
## 57  10.2424915  8.3885452  2.6821687 10.6066601 10.323620  7.851564  0.0000000
## 58  11.3424411  2.0715224  7.7437701  8.6021536 11.032306 13.150555  0.0000000
## 59  14.0184673  0.6681191  2.3569889 11.2723990  4.996493  3.642170  0.3723950
## 60   6.0677635  6.4480039  0.6223682  7.8936128  7.761777  5.835386  6.6705826
## 61   7.0984743 13.4339326  0.0000000  2.7618171 12.901433  7.371998  7.5252499
## 62   6.4189236 11.3509846  4.6628036  9.0676188 15.200163  6.271566  1.7543317
## 63   6.0382913 11.3557518  0.0000000  2.9579146 14.340431 11.764992  9.8528444
```

```
## 64   7.5704432  5.0740387  0.0000000  8.3125281 12.085903 12.825629  0.0000000
## 65   8.8973723  1.0701145  0.0000000  7.7855591  4.452332  5.756351  0.0000000
## 66   2.4289731  0.6304987  0.0000000  3.0224921 12.980910 11.965225  0.0000000
## 67  11.3754579  2.0007212  3.2738739  7.4216188 11.941153 12.570342  0.0000000
## 68   9.2416803  3.1838517  0.3907777  4.5092905 15.281767 12.884488  7.1676449
## 69  10.5453825  6.0589723  2.8758980  8.4341370 13.641368 12.826803  0.0000000
## 70   2.2600257  3.5460795  0.4270698  6.1625283 13.009835  8.466849  3.0418562
## 71   4.9642184  9.4852328  0.0000000  7.1823298 11.069889 10.256641  0.9124199
## 72  11.5365073 10.4907791  2.0166746  5.5801244 12.578374  4.598675  7.5248809
## 73  10.2880491  3.0375404  0.0000000  6.6898652  9.235665  6.102891  0.0000000
## 74   4.0370219  3.4058018  0.3683772  2.1668440 10.563680 13.489414  1.7341785
## 75  10.8130558  1.8236271  4.4563068 10.2769183 12.740460 11.190183  1.1825652
## 76   5.8195890  0.4619476  0.8113066  2.9621973 14.210166 13.698819  2.3649366
## 77   6.6033623  1.0131406  1.0131406  6.1238586 10.729228  7.988997  0.0000000
## 78  12.9607655  0.4165155  2.4197276 11.4402348  4.590506  5.278650  0.0000000
## 79   2.2042033  0.0000000  0.0000000  1.8388711 10.976505  6.932321  0.0000000
## 80  12.2488321  0.0000000  0.0000000 10.3385081  4.594208  6.830071  0.0000000
## 81   8.9189208  1.9735745  1.3008266  6.4244905 12.257269 11.141153  0.0000000
## 82  11.7112553  0.9245560  0.0000000 11.3492772 10.751123 11.002554  0.0000000
## 83   7.1627770  4.5089357 10.4025167  5.9306120 14.220283 10.746544  0.3397075
## 84   5.4098797  4.3994719 10.7497753  7.3637633 13.467858 13.437631  2.4432353
## 85  11.5425576  0.8717648  0.3523066 12.9282662  5.427841  5.464456  0.6353365
## 86   1.5037049  6.7539494  0.2980717  0.0000000 13.580409  3.767708  5.7853753
## 87  11.0027393  5.2102798  0.4119685  6.2165363 12.932630 13.470526  4.4475527
## 88   1.3163196  0.0000000  0.0000000  0.0000000 11.982354  4.718926  3.6918133
## 89   5.5535909  0.0000000  0.0000000  8.3176175  8.684379  6.954128  2.4738648
## 90   4.2847732  0.3257318  0.0000000  3.2649117  9.370984 11.199251  6.5225878
## 91  13.4963144  2.8979955  8.6415124  8.2963381 13.436168  6.694124  1.6559471
## 92   6.6650303  6.1733713  8.8743710  8.9729660 13.473478  8.512679  1.1350094
## 93   2.8949147  0.0000000  0.0000000  4.4148391 15.721780 11.526677  1.2359721
## 94   7.9390655  3.7963901  1.2825584  5.4398525 14.262746  8.160377  0.8949923
## 95   7.7627474  3.9408057  6.8318975  5.8617321 14.163888 16.479440  0.0000000
```

```
## 96   5.2156475  6.8969838  0.9121900  0.9121900  6.115818  5.752639  2.6534270
## 97  11.7689846  3.3604064  0.0000000 11.8430758  3.592708  5.618999  1.4824869
## 98   8.3263054  5.7879078  3.4621440  6.7610685 12.887809 10.493273  8.4483509
## 99   1.9486382  0.3981314  8.3879975  8.8776621 12.946640 11.833085  0.3981314
## 100  2.7856970  2.4387719  0.0000000  0.9873936 12.497051 12.286989  0.0000000
## 101 10.9563441  8.1282707  0.0000000  8.5725634  4.162299  3.960178  0.8320393
## 102  5.6836965  8.2278566  0.0000000  0.0000000 11.886078 11.739080  0.0000000
## 103  4.9841062  2.6310577  0.0000000  0.0000000 12.134114 11.060878  0.0000000
## 104  6.2702822  4.5263130 11.6435398  8.5931595 12.425618  4.811029  0.0000000
## 105  1.7731946  6.5998846  0.0000000  0.0000000 12.382596  4.239841  0.0000000
## 106  8.6698832  4.7005507  2.8580805  5.1948671 14.797635 14.429341  1.8074374
## 107  3.7335387  5.3504796  0.4455148  7.2154845 12.681618 12.086560  0.4455148
## 108  3.8716465  7.3959916  0.6601985  4.1325522 12.231297 10.022165  8.9062331
## 109  8.4956592  7.0919864  2.3246378  6.9115682  8.036169  9.510209  4.0131496
## 110  7.3369849 10.2693608  4.0561847  8.0231910 11.873124  9.307735  4.6790522
## 111  2.8768018  7.3912711  6.0101487  8.6781755 13.506798  3.052590  0.3975839
## 112  8.1446338  4.0728261  0.0000000  6.7217923 13.292925 11.941173  1.6241945
## 113  5.1691995  2.3279460  0.0000000  6.9405603 12.845109  9.153858  0.0000000
## 114 12.4270047  5.8220673  1.4135399  7.1405721 14.427854  9.283004  9.6910874
## 115 12.1553409  0.0000000  8.8067645  5.4867433  5.903397  6.202962  0.0000000
## 116 12.9815342  1.2050797  0.0000000  7.9827552 14.701750 12.856811  7.2612967
## 117  5.0040249 12.8987875  0.0000000  3.5268576 12.700032  5.237246  3.4642370
## 118  8.7878190  5.3784978  7.4010502  4.6995738  5.522680  8.084575  0.7000845
## 119 10.5472908  3.3085065  4.7568578  5.1949341 12.938245 12.608677  0.0000000
## 120  4.8286062  7.5328585  0.0000000  5.3735717 13.223029 12.334177  0.3405053
## 121  8.0727350  0.0000000  0.0000000  9.1946510 13.815297  8.708424 12.5749693
## 122  3.5171623  6.8176885  0.0000000  2.7910013 13.457966 14.724411  6.3230944
## 123  7.5792269  2.7464633  2.3004459  3.9332705 15.410534 13.355540  1.8066953
## 124  8.3258240  1.3394225  9.0979926  9.2964416  8.120594  4.205330  0.6890307
## 125  5.7076766  7.8358799  9.8773262  1.3795655 10.004546  4.264679  2.2644163
## 126  3.9784977  8.0058328  0.0000000  7.5950277 14.617956  8.384178  9.1235674
## 127  3.2533237  4.9316358  1.2765562  8.1574495 13.742406 10.546227  7.6007916
```

```
## 128  4.5159143 10.4783134  0.0000000  4.1217449  8.572529  7.179708  8.4049853
## 129  7.6177121  0.8786861 12.7344370  8.0868681 13.305203  5.336894  0.0000000
## 130  9.6907252  0.0000000  4.8025448  8.4930897 11.434330  4.759097  0.0000000
## 131  0.4403144  0.4403144  0.0000000  0.4403144  2.074505  1.806613  3.8641069
## 132  9.0060573  4.7139267  1.8525982  7.1455165 14.387599 11.500771  0.0000000
## 133  6.5910570  2.1806571  3.1460686  8.0680979 10.042738  7.809652  0.8360857
## 134  6.9262319  8.1787405  2.8106282  9.0419167 11.951208  8.405767  0.0000000
## 135  7.0157061  2.2229900  0.0000000  0.9390008 13.190346 12.712224  5.2820283
## 136  6.7360731  0.0000000  0.0000000  4.8474809 13.090909 11.809416  1.1906781
## 137  7.6226259  8.0268216  1.9264170  5.8422875 13.039205  9.240504 10.0877080
## 138  8.4259762  0.3650206  0.3650206 12.3459624  1.592397  2.983769  0.0000000
## 139  5.4713338  7.5946911  0.9238718  9.7232543 12.716898 12.978709  1.8842462
## 140  0.0000000  4.3140947  3.5747313  4.8005479 12.753309  4.373739  6.4509126
## 141 14.4472616  3.0437644  0.8521587 12.1053829 10.258369  5.949278  0.0000000
## 142  8.9736908  3.1161817  1.0328061  6.1010512 10.887466  4.953559  6.5236404
## 143  8.6486258  4.6532722  3.6485690 12.5153932  7.428863  2.203671  3.2164549
## 144 10.6604251  1.2337040  0.0000000  1.4865599 11.708760  5.672745  4.0284631
## 145 10.6147303  1.9570602  0.8990209 10.3939049  8.943124  2.332192  0.0000000
## 146  4.3423414  2.7321389  0.0000000  0.9565771 13.148555  8.433903  4.7975785
## 147  4.3054161  3.9406742  0.0000000  2.7843783 14.288660 10.252788  0.0000000
## 148 12.0916818  0.0000000  5.3006875 12.4425357  4.712051  3.632803  0.0000000
## 149  0.4564908  0.4564908  0.0000000  0.4564908  7.768123 13.290710  0.0000000
## 150 11.5282374  0.0000000  0.0000000 11.8630597  4.667478  8.543723  0.0000000
## 151  7.6514600 10.2870844  2.6004363  6.2326281 10.764431  8.455216  0.3256167
## 152  5.0610244 10.2302981  0.8720801  7.8926454  5.437844  9.565953  0.0000000
## 153  5.8540231 12.5687437  8.9554735  7.7605037  4.390338  4.878750  1.3426685
## 154 12.0081979  1.5429514  0.3994446 11.8417756  9.506438  7.671511  0.0000000
## 155  9.8780383  4.3831236  0.3472121  7.3814287 13.849806 13.740564  1.6677559
## 156 10.7182642  0.5831339  0.0000000  0.0000000  5.533875 14.619912  1.3186928
##          rs_CP   rs_KCNC2   rs_MUC16    rs_AQP5   rs_CBLN2   rs_KRT81
## 1    5.3034922  2.9735194  2.7157177  2.9735194  1.9995671  9.0582009
## 2    6.5554818  0.0000000  4.8117998  2.9070252  6.8650379  8.7483582
```

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## 3   11.1324398  1.0686020  6.8425150  1.9732072  3.3937868  9.1234603
## 4    4.8988420  2.3317912  4.5353438  2.0797706  0.0000000  6.1940437
## 5    9.1717102  1.1300083  4.6760530  1.1300083 10.0638459  7.7101135
## 6   10.5995955  0.0000000  2.9528367 11.4725729  0.0000000  5.0957135
## 7   10.7711836  3.1856604  7.9732049  5.8789239  2.0304067  5.8308587
## 8    6.2866058  0.7617108 10.9507502  9.5858113  3.2770028 12.2178316
## 9    0.0000000  0.0000000  5.9370524 12.2350708  1.3553546  4.0060197
## 10   2.9843706  0.0000000  1.9455702  1.3948982  9.5362379  3.4835449
## 11   4.4306466  1.8783330 10.0878874  3.0046452  2.6674380  3.4642500
## 12   6.4561704  0.0000000  4.1439648  1.3118518  0.8001648  4.3933338
## 13  10.0834444  0.0000000 11.4718151  1.7257848  3.1450089 14.4913400
## 14   9.9848059  7.2713258  2.1214133  4.9923651  9.9180998  7.6918419
## 15  11.7190255  0.4407396  3.0260918  8.2814131  0.4407396  2.6689133
## 16   5.2119350  8.3724764 11.2396979  4.9323400 11.6291698  3.0675527
## 17   6.8188224  0.5039593  6.0582191  0.8766446  8.5481584  3.1607750
## 18   5.3532456  4.5562884  0.8186052  2.6657566  3.1104468  4.6248729
## 19   9.2299135  9.0457515  8.7971135  4.9581652  1.7190520  8.4488072
## 20   4.6791141  0.0000000  6.8175938  3.6761884  1.8426169  4.1893423
## 21  14.6383604  0.0000000  3.7561053  1.9354975  1.5935928  7.6112558
## 22  12.3864565  0.0000000  4.5385692  6.9559009  0.0000000 10.3383545
## 23   0.6461627  0.0000000  1.9355352  0.0000000  1.7460117  6.0439438
## 24   6.2053299  0.4537546  7.7655069  9.9605520  2.5372961 12.5076915
## 25   6.3995283  0.0000000  4.6543095  1.5531147  0.0000000  5.0408924
## 26   4.2516358  2.8855548  1.9740520  3.9675006  0.0000000  3.6067265
## 27   9.0052279  2.1974880  6.4620409  6.3395953 13.4570295  6.3586371
## 28   3.2150573  0.0000000  1.8019864  5.7999939  5.4493732  4.7609661
## 29   3.6185676  3.2384812  1.1410403  0.3800645  6.4460593  2.4647728
## 30  13.2021090  5.6233899  7.1702215  5.5679774  2.1188580  9.7146422
## 31   6.6789550  8.9497864  4.7668019  0.8437427  1.7587296  2.4251101
## 32   7.0530733  0.0000000  7.9885853  0.7670615 10.0445139 10.0550207
## 33   8.1359893  2.9505431  7.2998582  7.8243001  7.1639183  6.8462814
## 34   8.8694628  0.0000000  3.4685963  1.2100771 11.3988569  6.8323799
```

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## 35  10.5045152  2.3290949  0.4498519  2.5252420  1.3007680  2.5252420
## 36  10.3079938  2.7138937  9.6722240  7.6276827  3.4939419  6.9007461
## 37   7.1805000  4.9603912  4.5738168  6.0254984 10.5630419  4.8570404
## 38   9.7882665  0.0000000  4.4286516  0.6439485  4.9847124  4.3709733
## 39   7.7698590  0.5247658  3.4130524  2.1730635  2.3069913  6.3214014
## 40   8.7163112  0.4017397 11.0842763  8.5865760  4.5132949 14.4567747
## 41  11.6763155  0.0000000  4.7130854 10.1023361  3.7140257  3.7140257
## 42   9.2967547  0.0000000  1.5224073 12.3626595  5.2077172  4.8624663
## 43   7.1227586  0.0000000  5.6450531  7.8659077  0.5318680 10.8072784
## 44   8.0530538  7.3141291  7.0057368  3.5775376  3.1396496  4.7005507
## 45   9.4361954  0.9826560  6.1051333  0.9826560 11.6183839  6.4890259
## 46   6.6557354  0.4485838  4.4695214  3.3388950  4.6054232  7.6236986
## 47   5.6680567  0.0000000  1.4925198  2.0082717  8.5199593  3.3745109
## 48  10.8149017  2.0626744  8.8777927  6.3907021  3.0892778  9.1789364
## 49   8.0838309  0.3614315  9.6095153  0.3614315  3.7879757  1.7127718
## 50   7.3202852  0.7173858 10.8621532  1.3842709  1.5521311  4.1755725
## 51  12.1944660  0.0000000  6.4248818  4.6116091  0.3971458  9.7219071
## 52   9.9841846  6.1471540 10.4308535  1.2193389  1.2193389  5.7370891
## 53   8.8264573  0.7279640  3.0954519  0.4093638  0.9887029  6.0580480
## 54   9.1039820  3.4506834  7.7922385  0.4380799  0.7735744  8.0820309
## 55  12.1033038  9.1293706  2.6013637  3.3979125  0.3765127  3.6240775
## 56   8.2334639  0.0000000  8.4278098  0.4924172  3.4816735 14.2922967
## 57   9.3320815  3.0398929  8.0889016  6.4779379  1.0590783  5.5727866
## 58   9.9278668  0.4008658  8.2080221  5.7074502  4.7173364  7.7587842
## 59  11.4289681  0.0000000 13.4448454  7.9165053  4.2226423 14.4581315
## 60   5.8803353  1.0557510 10.9529272  2.1719113  0.3444877 10.9572392
## 61   6.1908222  8.3340149  3.1559111  3.5425181 10.8974024  4.0462815
## 62   4.4462298  5.2736166  4.1388145  0.6721085  5.1704138  3.1717352
## 63   4.6047949  0.3457370  1.0588014  1.0588014 11.5391678  5.8681385
## 64   6.4431358  8.2725519  9.1968485  4.6906518  6.8374854  4.7802628
## 65   9.7651657  0.0000000  7.8315511  4.9266542  1.4056657 12.0927522
## 66   6.5206957  0.0000000  1.6746866  0.0000000  2.2740827  2.3536056
```

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## 67  11.5881908  6.2038883  5.7197612  5.0453250  1.8751510  9.8820750
## 68   8.2075474  5.0595846  3.6803244  2.6525783  3.8763991  7.7122897
## 69   9.7212626  2.6341983  7.8704652  4.2045007  9.5156571  8.5484940
## 70   1.7951020  0.0000000  9.1280152  0.0000000  7.8698264  2.6248495
## 71   6.2296418  4.2376402 12.0586302  1.7765673  2.0313246  3.0872761
## 72   8.5680272  0.4655044  5.2014731  0.8168864  1.0992279  5.5334419
## 73  11.6845271  0.0000000 10.6978856  6.7872692  4.4502347  9.9219839
## 74   2.7159153  0.3683772  1.1133671  0.9050428 12.0060717  2.9965334
## 75  11.6655319  7.5373108  8.5034473  8.4920438  1.5384388  8.2336197
## 76   8.7293142  0.0000000  2.2551683  0.4619476  6.5808374  5.2757297
## 77   6.5880205  0.5937840  3.0229537  4.0245768  2.8298496  1.6025044
## 78   8.2274147  0.0000000  2.0043216 10.4369275  1.5888046  7.4151392
## 79   8.8489615  0.0000000  2.3571860  1.8388711  2.3571860  0.0000000
## 80  13.2532947  0.0000000 11.0358350  5.7605989  0.0000000 13.6907061
## 81   9.9165123  2.6705911  5.9539008  4.6664669  1.3008266  6.7463370
## 82   8.4348434  6.5811448  9.7721037  9.5113239  0.9245560  6.0662636
## 83   6.7873254  2.8818799  5.3790629  0.6143800  2.5306451  3.5383519
## 84  11.9297866  7.6302882  3.8656219  4.1884326  2.2976023  4.2291726
## 85   2.9417261  0.0000000  7.6148622  3.9691136  0.6353365  5.2293764
## 86   3.4029677  0.0000000  0.2980717  0.0000000  4.9569720  2.2238550
## 87   5.3248574  0.0000000  9.6540859  1.5766672  3.0479397  8.3289226
## 88   5.3983948  0.0000000  6.2668990  0.0000000  2.7993567  3.3135216
## 89  13.1271113  1.6185206  3.3957209  5.4204251  0.0000000  4.0649346
## 90  11.6417085  4.1264030  0.0000000  0.3257318  1.0094905  0.8154935
## 91   6.1516397  0.0000000  4.1287388  2.5011079  5.8759471  9.1310822
## 92   8.8405803  1.6291468  9.2215697  0.6763577  6.1793379  4.1494545
## 93   7.4246047  0.4209405  2.2409859  0.7464848 12.7657318  3.6847514
## 94   8.6440423  0.0000000  3.4631908  7.4411133  4.9714286  2.7507566
## 95   4.2540876  8.5436965  3.8608139  3.3378538  0.3517414  5.0455609
## 96   3.4865084  0.0000000  3.7853413  3.0099741  4.1856842  8.1185596
## 97  15.0520796  0.0000000 10.7001617  2.8639186  3.7927408  8.7212790
## 98   5.0839111  3.5066908  2.3635916  1.0261627 10.7242917  5.3235970
```

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## 99   9.1488126  0.0000000  4.3717610  1.6890755  0.7098200  5.4973760
## 100  1.8097025 10.9566473  0.0000000  2.3017340  5.2233106  6.3500569
## 101  7.8577627  0.0000000  3.6671541  3.4780658  3.2990541  8.9562562
## 102  0.0000000  9.3746048  2.9634741  4.0179219  1.5849625  7.7210992
## 103  3.3914240  0.0000000  2.5692723  2.6903053  0.0000000  2.4371212
## 104  9.0932641  0.4716557  5.3240977  2.1636919  1.1111649  5.0317613
## 105  1.6934535  0.5691022  2.1326755  0.0000000  7.2422690  0.5691022
## 106  8.9774997  4.8796911  5.8393147  1.8074374  9.7861780  6.8697061
## 107  2.9416134  1.6648924  6.0937588  4.3084701  2.3161457  5.3883618
## 108  1.2933116  0.9034240  9.3224816  1.9641029  2.8265180  9.3951592
## 109 10.7330268  0.0000000  3.6533582  3.0228472  1.8769196  8.8658282
## 110  8.3254125  8.3851432  9.6911887  1.8723560  6.9474534  7.5049278
## 111  1.0688084  0.0000000  2.2651668  4.6319424  0.3975839  8.5606626
## 112  4.9772250  1.4147309  4.6530084  4.8943813  7.1602637  7.2179141
## 113  8.9856681  0.0000000  5.4469708  6.0561673  9.1393651  3.6622739
## 114  6.4277989  3.3197624  8.3492803  5.3899729 12.8720670  3.6607575
## 115  5.8756277  0.0000000 10.1275329  0.0000000  3.1386998 13.6593564
## 116  7.4601003  0.0000000  5.5651280  1.2050797  5.4405603  5.5247909
## 117  7.6968952  0.7944367  2.6748222  1.6795139  8.3523798  2.5597365
## 118  8.5876283  0.0000000  9.0068284  5.7739014  4.5537230  6.7439404
## 119 10.0946466  8.1565928  5.7111838  5.6034839  7.4056087  5.7484371
## 120  2.3976387  4.2146844  3.5418617 10.4783707  0.6156988  2.5986510
## 121  7.2185720  2.6864333  5.0319818  4.4490859  8.4803443  8.1275239
## 122  5.2212430  6.9454930  2.4667315  0.7626465  4.6255394  4.4755065
## 123  9.7840557  4.0926641  4.5316310  3.6347559  9.3005962  3.0247452
## 124  8.3499402  0.0000000  4.7720862 10.3765985  0.6890307  5.3283949
## 125  8.9551396  0.0000000  5.4871197  0.0000000  1.9272897  9.1076377
## 126  2.6017203  0.0000000  3.4197546  1.6364506  2.9539915  3.4197546
## 127  9.1828755  2.2963693  0.7750927  1.0475384  0.0000000  2.0706984
## 128  8.5333850  0.6559929 11.0755025  2.0588706  2.3306158  6.0644302
## 129 13.1384314  0.5051796  8.3725734  0.0000000  4.7548074  0.5051796
## 130  9.5982988  0.0000000  3.9531069  2.1082233  0.0000000  3.7461515
```

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## 131  6.1372207  0.0000000  4.0308834  0.7771988  0.0000000  4.8318975
## 132  7.8401560  0.0000000  5.8905172  5.8905172  7.9092025  7.2768391
## 133  6.3319255  1.5671073 10.4603851  3.1460686  5.1676429  6.9437385
## 134  9.6923695  4.4432751  5.9202409  7.8027690  3.1408932  6.1575794
## 135 11.2881289  3.1115155  8.9839911  0.9390008  1.7847971  6.7467091
## 136 13.4672438  2.1441443  5.7779246  2.7132339  5.1550287  5.4513199
## 137  5.9835842  6.6552073  4.8053337  3.5240888  1.6326405  9.9717609
## 138  4.1196467  0.0000000  7.8911457 13.8214995  0.6561760  4.5696673
## 139  7.0121630  1.3192133  7.6212306  4.0747195  1.4825385  9.3468864
## 140  0.5226584  2.7818633  0.0000000  1.1759397  3.4693130  5.0029860
## 141 12.0623504  0.0000000  9.0585495 10.3635052  3.6638797  5.4880265
## 142 15.8367727  0.0000000  7.3834520  3.3804940  2.9952312 10.7069421
## 143  1.9144880  0.4443490  2.0860704  7.5053114  0.7834986  5.2535053
## 144 11.9011237  1.4865599  6.0613572  6.6777084  5.1575491  2.7776196
## 145  8.1652924  0.0000000  8.4763234  9.2556478  3.3127087 11.8969477
## 146  3.2109499  0.0000000  8.9861686  1.5268200  0.0000000  5.7336445
## 147  2.9034240  0.7959331  1.6818990  3.1259486  2.9308509  3.2427549
## 148 13.8359178  0.0000000  4.2933263  6.4301866  0.0000000  8.9977556
## 149  4.1784119  3.1401406  1.9918982  6.8205785  0.0000000  1.9918982
## 150  4.7391460  0.0000000  7.3335561 13.8747631  0.5465611  8.2913941
## 151  5.5428152  1.8206487  3.9946702  3.1038501  5.2078772  5.5259467
## 152 11.5293362  1.1670367  7.8976773  2.3650206  0.0000000  3.9570417
## 153  5.8584237  0.0000000  4.2517872  7.4916335  0.0000000  5.7549009
## 154 12.0320474  4.9828567 10.0606765  9.7069599  3.8153807 13.1483415
## 155  2.1092603  9.3528775  2.7474089  0.8610819  7.9357114  8.6948440
## 156  9.2976587  8.4145762  0.9973285  1.9959548  1.3186928  4.6672393
##      rs_EEF1A2 rs_SERPINA11     rs_LBP    rs_MMP1   rs_BPIL1    rs_MSLN
## 1    6.7156477    6.8287090  1.8360857  0.8928184  8.2310008  2.7157177
## 2    5.0026620    6.3105237  1.0590091  3.4264124  7.9710699  6.6379971
## 3   13.6278422    9.0417068  6.7326735  8.0263381  4.7137013  4.0324095
## 4   13.3952354    7.9722682  1.1442422  3.9183862 14.6273582  2.2112926
## 5   10.3523303    9.3238596  2.3109217  5.4525032  5.5410997  2.4217484
```

```
## 6    2.3644043    1.0266584  3.8039296  3.6335242  0.0000000 11.8562043
## 7    4.3960224    4.9399459 11.1113562 10.5291064  2.9894660  9.4340145
## 8    2.7145313    1.7799321  3.7568632  9.3245874  0.0000000  8.0052495
## 9    7.2348634    0.0000000  0.0000000  7.6807632  0.6035967  4.5765282
## 10  10.1072922    7.5886022  6.0215708  8.0048193  2.2224027  0.8598106
## 11  11.8493501    5.6963583  3.1746301  8.5940006  2.8119025  1.2253983
## 12  11.1137253    3.9842065  5.9918393  5.5070779  6.7514865  3.3067726
## 13   3.7003842    1.2537473  3.2183782  9.9013917  0.0000000  8.7349148
## 14   8.6063678    7.0915803  3.6315816  5.2680413  3.0656929  3.6315816
## 15  11.2034237    6.6226888  7.8093759  3.4600217  6.6639423  3.5507899
## 16  10.3252567    7.4773819  0.5474498  6.9458991  4.6167576  2.2301108
## 17  10.5641113    7.2863295  0.0000000  6.9433775  2.2517191  1.4180280
## 18   9.3154229    6.4414619  3.8822224  2.1493894  5.0967173  2.3785394
## 19   9.3340500    9.2097117  0.0000000  3.0789001  5.2787877  1.1017173
## 20  12.4329021    6.0805767  2.2437300  7.6136466  7.6030224  0.6551686
## 21   9.5815968    4.0300270  9.3857431  8.6746439  7.5597235  1.5935928
## 22  10.4947831    0.0000000 11.7648696  9.4779782  6.0003336  9.4348446
## 23   9.8029842    0.0000000  1.7460117  6.8913742  1.2705887  0.0000000
## 24   4.7872496    2.6263457  1.6860298  8.8128691  0.0000000  3.4567667
## 25  10.0588216   10.8443119  3.5004961  5.0963335  0.9762170  0.7179122
## 26  11.4899493    7.9623668  5.7401369  2.5990083  0.3405053  4.1942526
## 27   9.1074104   10.8521869  3.3681677  6.7533732  1.0538064  5.0721015
## 28   9.0484798    0.5002922  0.5002922  6.8401497  6.7485753  3.7479459
## 29  10.8210903    5.9300300  3.0413481  5.3917883  8.9037382  1.1410403
## 30   8.0865476    9.4614856  4.8695951  2.1188580  2.7164642  2.9424394
## 31  10.4281038    3.5999485  1.7587296  7.2095781  3.8978793  1.9188823
## 32   3.5701229    7.3681616  5.8714470  8.7811872  0.4339209  0.0000000
## 33   7.9902555    8.1660139  5.3954399  6.2294860  3.1363719  2.6584400
## 34   9.2547804    7.3679441  0.5238630  3.1507059  2.4271502  1.4601135
## 35   9.2806070    2.1020198 10.9630719 11.4070549  4.9712952  8.3977195
## 36   4.8266400    4.0727232  9.4625505  4.4568259  3.3800090  8.6549797
## 37   8.2583719    6.7458827  3.3276874  5.6705968  3.4463886  2.0047890
```

```
## 38  11.0514476    8.2262619  6.2553270 10.2378483  5.9086904  2.2194009
## 39   4.2470009    0.0000000  7.6577607 12.5316690  2.0254187  0.9088129
## 40   2.1802752    0.0000000  5.6007247  8.7760369  0.4017397  5.2574293
## 41   7.3474699    2.7158934  0.4088205  9.6877361  0.0000000  0.9876119
## 42  10.3693140    0.4589069  5.5218171 14.8621852  7.5595140  0.0000000
## 43   8.6374791    1.2249664  9.2206949  7.5701024  0.0000000  7.1394603
## 44  11.8660634    8.2065162  4.4554324  9.0628333  0.9542708  1.5236121
## 45   8.4184514    8.5388198  5.4894113  4.9204172  6.1847226  2.7774723
## 46  10.6405445    9.4319269  8.2689766  6.1051731  5.0485980  3.2859200
## 47   6.7469670    6.7347340  7.9505407 10.7320136  5.0061454  1.6397415
## 48  10.0248669    7.1464954  4.5024134  7.4693284  4.4461702  2.1591448
## 49  11.0691102    9.7217727  6.8689880  8.3368346  0.3614315  0.0000000
## 50  10.6457441    6.1671010  6.5459529  4.8749789  4.1755725  1.1942762
## 51   8.2016799    0.3971458  4.7874325 11.7316895  0.0000000  9.1052446
## 52   6.1308382    8.5042819  6.6830437  4.8659930  6.9261940  1.5158638
## 53  13.1094636    3.8857501  3.3945141  8.8922668  5.2755956  0.4093638
## 54  10.0210477    5.7978975  5.2970043  7.3870333  7.1041836  4.4780658
## 55   6.5731306   10.1618921  3.8792156  4.3278095 10.0356221  1.9933121
## 56   9.7816386    0.0000000  9.8620447 10.4259448  0.0000000 12.9399834
## 57   6.7046936    5.3223284  3.7700361  2.9750982  5.1273898  2.9072368
## 58   7.6293923    6.0589290  1.8329710  5.3363191  1.6970176  2.1775033
## 59   2.5865246    2.0838941  4.3531045 12.6642572  0.0000000 11.7634880
## 60  13.1265127    6.6895550  1.5300208  5.9404957  3.9092643  1.9879757
## 61   8.8144623    3.5043280  0.6858953  2.4764335  2.5532376  2.3093217
## 62  12.0294639    4.5020823  3.1234344  1.6215244  3.5823633  0.3748447
## 63  10.5080760    7.9043372  0.8579014  1.7812338  0.0000000  1.2351143
## 64  11.6085498    7.8519814  5.8705941  4.1333498  0.0000000  2.6732398
## 65   8.0567672    0.0000000  5.8418096 12.6220054  0.0000000  1.9065058
## 66  11.8258286    8.3681917  6.0730511  5.1398910  1.7935214  1.0678452
## 67   7.6278833    9.8962840  3.9077848  2.0007212  8.2249606  5.5452611
## 68  10.0436621    7.9844908  7.3602062  6.2052752  5.4467194  2.9714240
## 69   8.5449996    6.8640512  1.4913914  5.2701776  3.2293726  2.2778658
```

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## 70  10.2201154    1.9093507  1.0240359  7.9075787  0.4270698  0.4270698
## 71  10.4315160    7.8241861  4.6334312  4.0772430  2.2477453  1.4669664
## 72   2.4775996    5.3435500  2.1464271  4.5289963  2.3754287  0.0000000
## 73   5.4930741    0.0000000  9.1584461 14.0348125  0.0000000  8.3012566
## 74  11.0304950    7.1651552  1.2953116  4.5660601  6.1924901  0.3683772
## 75   8.5309482    8.8506085  7.0628384  4.0492474  8.8555606  4.3480270
## 76   3.4345882    8.5809098  6.3264798  6.7822369  1.7068178  0.4619476
## 77   1.3377111    1.8261112  7.9299785  3.4832741  4.4512639  0.0000000
## 78   6.7381788    2.2269400  0.7392433  8.4556022  0.0000000 13.4605095
## 79   1.0221192    0.0000000  9.1379417  4.6568853  3.2090478  0.0000000
## 80  12.9344193    0.8579014  0.0000000  6.5918664  0.0000000  7.9181805
## 81   6.1350751    6.6515009  9.3343037  0.9824369  5.7726458  1.9735745
## 82   6.0270633    6.2132034  8.5917938  0.0000000  2.1992169  1.8852620
## 83   9.3896608    8.9169146  3.0298945  3.8618164  0.0000000  1.8697135
## 84  11.4181209    8.5958199  3.8656219  7.9404457  0.6061579  1.9531162
## 85   1.9131479    0.6353365  0.0000000  6.2681331  0.0000000 10.6302268
## 86  10.6174548    6.1587652  0.0000000  2.7520206  2.1511769  0.7556567
## 87  10.8114554    8.3553670  4.9575757  7.8435109  4.1312191  1.7282688
## 88   0.5818815    2.5771750  1.5787455  9.2374088  0.5818815  1.8007032
## 89  12.9882676    8.3454372  0.4998841  6.2232990  6.1325419  5.3922487
## 90  13.2802544    7.2111329  0.3257318  5.3222743  2.4749811  0.8154935
## 91   9.7915919    9.3647924  4.7450060 12.6654510  7.3397574  8.0096764
## 92   7.5743536    6.2827011  5.1330250 11.8856562  2.1008095  2.6049490
## 93  13.0444399    7.4072006  1.7535618  8.3678603  0.4209405  2.6046881
## 94   9.5368957    7.1407234  4.5803023  9.2325962  8.6308696  2.1500397
## 95   5.4343647    2.7650891  0.3517414  8.2886709  7.4346716  5.2788992
## 96  11.2440245    6.7744919  4.1502916 10.8300592  6.3906264  0.5270703
## 97   7.3334872    1.6291468  1.9965334 12.4587371  0.0000000 10.0977644
## 98   9.2571971    7.8525688  3.4161912  7.0211177  4.5940289  0.0000000
## 99  12.8441231    8.8149109  3.8742953  9.8853674  6.5366870  1.5393822
## 100 11.2912851    7.2036994  0.9873936  5.5451035  3.8832982  2.3017340
## 101  2.9072753    7.3987463  1.6232114  7.1651361 12.2881509  8.8201001
```

```
## 102 12.4868853    4.3362834  0.0000000  7.2798427  8.1967251  0.8479969
## 103 11.7425008    8.9399608  0.8312287  4.5763468  7.9497322  3.1362242
## 104 11.1963241    8.4679682  5.6582715  9.5434926  8.3064072  0.4716557
## 105 12.6270758    3.2787431  0.5691022  6.7789169  2.4202398  1.9641029
## 106 12.2594330    9.1848330  1.1699891  6.8226830  4.6831013  4.6111311
## 107 11.8539456   11.2755791  2.4173260  5.4963761  5.2580214  4.7767567
## 108 13.2467792    2.4963856  2.3398215  7.0429387  3.5881449  1.7317915
## 109  6.1843378    3.7989837  8.2664980 10.2472025  2.6658021  3.9312576
## 110 13.6758279    7.0488018  0.7357821 11.5159355  7.4969792  1.8723560
## 111 11.5290961    5.7113820  1.9468431  3.9029804  3.1589025  0.7088494
## 112  9.7004229    9.5449971  2.8575830  7.6203826  1.1696685  0.0000000
## 113  9.7976986    7.7743476  2.7288565 12.9588418  2.8940417  4.9614752
## 114  9.7418736    5.7702318  3.5421218  6.8679829  2.9365155  3.5421218
## 115  4.2492026    0.0000000 11.0525543 11.2575541  2.2026998  0.0000000
## 116  6.2676182    2.5596386  2.1985256  5.0997076  0.7248249  4.5952828
## 117 13.0590352    6.6876318  0.7944367  8.0861182  6.5474144  3.3648946
## 118  7.6986755    2.4255399  1.1694120 13.1726392 11.2542013  4.3914584
## 119 11.1375372    8.7831443  6.3788913  9.1046417  6.6340661  4.2337884
## 120 10.5055683    9.3722082  0.0000000  8.0193177 10.7375978  0.0000000
## 121  8.8638285    4.1136755  7.3425627  8.2334025  3.3308595  0.0000000
## 122 11.0543942    8.6305340 10.4091025  3.6828317  0.4311415  0.0000000
## 123  9.2034965    9.2104670  4.2632523  5.6096161  5.3055073  1.4774701
## 124  5.4646323    4.8659386  5.9873800  1.9087361  5.2493316  3.6589541
## 125  8.2991018    3.3520664  3.4075567 11.0506270  7.5237156  1.4865599
## 126 12.5249457    0.5077185  1.6364506  1.1797658  0.0000000  2.8732423
## 127  9.1064090    8.3739740  3.3061601  5.1640501  0.0000000  0.7750927
## 128 12.3967599    7.5310001  2.8744429 11.1125504  6.7012538  0.6559929
## 129  3.2306027    5.4928082  1.9764736  8.5541364  2.2551986  0.0000000
## 130  6.5630468    0.0000000  9.2786755  9.8343638  5.0020859  1.6181447
## 131 12.1522959    0.4403144  0.7771988  2.0745054  6.5623126  0.0000000
## 132  7.2440774    7.6803947  0.0000000  3.3420142  5.1091056  2.4202129
## 133  8.9021472    4.9649346  3.3262785  9.3598945  0.8360857  2.1806571
```

```
## 134  9.4376168    8.2316719  6.9684272  6.1268593  5.0260785  2.1072861
## 135  7.7254610   10.0284749  5.2706485  8.0321918  8.4030610  1.6507646
## 136 12.4807487   10.8784903  5.9272944  9.2911269  3.4932374  1.4383461
## 137 13.3044792    8.4150492  2.0535632 10.2603200  6.0623441  0.4330663
## 138  2.9302642    0.0000000  0.3650206  9.9319392  0.0000000  2.7567458
## 139  8.0919669    7.4541356  2.3748726  9.0781882  3.6626157  3.1818658
## 140 12.5268669    3.4693130  1.1759397  6.5185367  7.9136931  0.5056877
## 141  3.3588604    1.1425441  0.8521587 10.6311258  0.4881036  5.7370080
## 142 13.4797856    8.3881620  5.8363584 11.2941230  4.5646281  5.0629463
## 143  1.6617040    0.7834986  0.0000000  4.4057610  0.4443490  3.1593708
## 144 10.6708295    7.2727529  8.5780590  8.0548729  6.8110381 10.9580347
## 145  3.2702299    2.3321923  3.7436765 13.2543701  0.0000000  7.2180178
## 146 11.3271053    6.9293685  0.5562087  7.0158075  3.8719028  1.5268200
## 147 11.5598284    7.2610418  4.8929155  8.9819870  7.0687503  0.0000000
## 148  6.0405834    0.0000000  0.0000000  9.8826082  1.1378314 11.2553694
## 149 10.4962341   10.0070382  1.3154503  4.5670586  7.1654236  3.4164479
## 150  3.7967327    0.0000000  0.5465611  5.0944219  2.2280183 13.3451117
## 151 11.5539481    8.8827039  1.0092755  6.2228780  4.8252514  0.5912007
## 152 10.6133965    8.3924681  8.4972930  7.1042119  6.5092208 11.6071877
## 153 12.9584660    6.2747872  0.4689482  6.5537122  4.5875870  1.8829951
## 154 10.6917004    5.0538455  6.0319642  8.8888842  0.0000000  5.4718768
## 155  8.0556626    6.2344975  5.2891115  8.3496762  0.6269530 11.0475752
## 156  9.9818693    6.2425987  6.3783694  9.9246037  5.2985190  2.9022087
##       rs_A2ML1   rs_NLRP2   rs_PROL1 rs_PPP1R1B  rs_SLC5A8   rs_PTPRT
## 1    2.1463945 10.4487314  7.2378438 12.3443253  5.6141562  9.9658380
## 2    1.2895984 10.7806143  9.9447150  7.2198713  8.0260736  8.5018921
## 3    0.7921057  4.4004628  0.4497462  7.0872443  4.8295858 10.3519314
## 4    1.5931625 10.1047970  3.3616140  5.2974042  0.0000000  6.9917860
## 5    0.4815056 10.3675532  3.9319761  9.9172633  0.0000000 11.4060761
## 6   10.6854031  8.5565777  1.0266584 13.2025570  3.1342374  3.8039296
## 7   11.1639531 11.4358677  6.4365467 10.1550978  0.0000000  5.9436307
## 8   13.7596159 10.1404538  0.0000000 10.0185499  0.7617108  7.5091424
```

```
## 9    9.4138974  1.3553546  0.0000000 11.1618673  5.9370524  2.0416986
## 10   1.3948982  2.6545272  0.0000000 10.3037652  0.4930324 12.5988633
## 11   0.0000000 10.9766010  0.4164074  6.7422151 10.8233462  6.2081680
## 12   5.2076040  8.1841032  0.0000000  6.2871417  2.4456473  5.8414197
## 13   9.8930127  5.2093988  0.0000000  0.0000000  0.0000000  0.5474498
## 14   0.7400209  7.6199302  6.8943631  9.6413060  0.0000000 10.3322646
## 15   1.0509544  4.0324535  1.6525094  8.5414626  0.0000000 10.9989825
## 16   1.7256539  4.4440044  0.0000000  8.1861786  0.5474498 12.1081769
## 17   6.1544961  2.3731192  1.1726155  9.0090280  0.0000000  5.0885996
## 18   2.0195596 10.4692055  0.8186052  9.2096125  5.0967173  4.7932612
## 19   3.4631647  7.2315169  8.8219882  8.2184053  9.0052992 10.2491399
## 20   5.9390737  3.7396429  0.8970080  1.5906260  7.1124510  4.1194973
## 21  10.1053786  4.6092999  0.4891319 14.7574050  9.1732506  9.3397563
## 22   2.4674099 10.6011267  0.0000000 11.8673455  1.4045762  3.3885753
## 23   2.3889610 10.7945474  0.0000000 11.6383526  1.5278210  4.7990510
## 24   0.7984238 12.1980882  3.0040879  9.7818841  0.4537546  5.1141671
## 25   3.1796066  3.1796066  0.0000000 11.0804422  6.0819765  7.4626986
## 26   1.0461418  9.3563096  0.0000000  9.8543635  0.0000000  8.2729288
## 27   2.4071352  3.9732347  1.6563133  9.9578911  0.4422269 10.9639171
## 28   3.8756621  4.4685768  2.7661923  7.7966704  4.1695082 11.9964643
## 29   0.0000000  9.2788975  1.7701525  6.9145502 10.5991512  9.4340243
## 30   2.2372884  6.3175790  8.8885195 10.1942815  0.0000000 11.1929790
## 31   6.4267512 10.5543100  0.0000000  9.9011473  1.1322478  9.6687806
## 32   1.0374525  3.3886993  4.6559528  6.3335865  6.6175483 10.3932399
## 33   2.1834230  9.7290765  4.3055620  9.5524989  0.0000000 11.4594779
## 34   0.9074291  3.1507059  4.6230884 11.8629203  3.0777728 12.3625806
## 35   7.1960119  9.0570446  0.0000000 14.2974120  0.0000000 10.9960119
## 36  10.0714157  6.3920735  4.5119613  8.1463024  0.5137939  6.3548576
## 37   2.0047890  9.2681520  6.8137017 10.9730085  0.8960781 11.2197652
## 38   3.9918075  5.7290687  0.0000000  5.8675753  0.0000000  9.5357598
## 39   4.2132773  9.1954008  0.0000000  4.0698912  0.9088129  1.8609231
## 40   9.7674967 10.0132308  0.0000000  6.9982689  0.7157177  7.8791249
```

```
## 41   8.5156975  8.2326488  2.9783055 14.2499954  2.3948982  3.2996110
## 42   7.2294495  2.2465297  0.0000000 15.3699040  0.0000000  5.3066013
## 43   8.4570669  6.7785095  0.0000000 10.8838209  2.7646434  2.3255303
## 44   0.3923174 12.3650852  7.2768177  7.5775406  3.8827506  8.2967419
## 45   1.9739051  9.8492880  0.5733745  8.7015647  7.6447324 10.4245368
## 46   2.2163928  9.1984124  5.9690008 11.1137478  6.7772843 10.0235420
## 47   0.6822137  9.4009439  2.1128002 10.1329185  0.0000000  9.9488103
## 48   7.9708169  4.9014510  3.5469809 11.2707912  2.3346255  9.5935314
## 49   1.0969365  9.4035506  0.0000000  5.0270611  2.3179697 12.6753282
## 50   1.7024802  5.0534893  2.7650255  6.2730421  2.9567630 10.3460569
## 51   5.3988771  5.3094854  0.3971458  3.5574223  1.3697736  5.1121496
## 52   0.3399355  7.1396598  3.3266668  7.6590383  8.4603416 10.5084210
## 53   2.9801899 10.4126758  7.0964421  4.7507619  1.2095158  9.7422341
## 54   7.4292184 12.2493388  0.0000000  7.8532715  0.0000000 12.2350769
## 55   2.0975097 10.5151409  4.0447351  5.3132350  2.9740704 11.4858416
## 56  10.4667473 11.5545487  0.0000000 14.6427474  0.4924172  1.1508846
## 57   4.8486680  4.1089091  7.7759263 10.7647740  0.4448791 11.2118920
## 58   1.1898562  9.3952756  7.6153199 10.2862084  1.1898562 10.1718757
## 59  12.0564479  6.2719298  0.0000000  4.9422471  1.3059705  1.6142387
## 60   5.9019722  3.7448500  0.3444877  4.9258998  0.0000000  5.0248294
## 61   0.6858953  0.9358369  5.6350317 10.0815547  0.0000000  8.0835213
## 62   1.1288873  3.7186685  4.7764988  4.5757359  0.0000000  6.3628135
## 63   0.0000000  4.0147927  0.0000000  4.4674425  0.0000000 11.1710432
## 64   0.4994760  6.1814266  4.5701897  9.9636440  3.2133006 11.2565588
## 65  13.9441233  3.7990977  0.0000000 12.8570716  0.0000000  1.6777112
## 66   0.0000000 10.8491276  4.8000457  8.2445793 12.5475900 11.3268388
## 67   2.0007212  9.5720813  5.6447994  9.1319598  2.8753083 10.0728704
## 68   1.3534927  8.7972413  6.0648591  8.4331472  2.9714240  9.8418293
## 69   1.3702201  8.6649496 11.4347377  8.7561757  5.2786167  9.6318064
## 70   1.6169693  6.8286620  0.0000000  9.1648541  0.0000000  4.0745996
## 71   1.0723116  4.1144586  0.7326599  4.8252209 10.9211148 12.1448397
## 72   0.8168864  5.6253436  2.2654669 11.8260937  0.0000000  4.6211786
```

```
## 73   9.3986655  6.9372914  0.0000000  6.7839006  0.5994130  3.4984168
## 74   0.0000000 10.0479304  1.1133671  5.5621752  0.3683772 12.7846890
## 75   4.1558625  9.3615609  8.6622304 10.8758224  3.3513880 10.3104866
## 76   0.4619476  5.4352319  4.0086124  4.1685377  0.0000000  5.4477610
## 77   4.5796870  4.2727623  2.6068212 12.0852054  0.0000000  6.3657345
## 78  11.4450917  1.0028825  0.0000000 11.5549233  4.0643310  5.8801541
## 79   3.4321310  1.6144272  0.0000000 11.2784435  0.0000000  7.5594069
## 80  10.9346727 11.4936065  0.0000000 10.2078437  2.2190601  1.3922625
## 81   2.2937236  4.3239465  3.3603783 11.5158919  1.3008266  8.4323590
## 82   3.4434475  5.0971304  3.9419608 11.5224478  0.9245560  9.1816582
## 83   1.5151069  9.9869855  9.2904011 10.1478765  5.8264798 10.5609914
## 84   2.0472592  4.2882035  0.0000000 12.1780106  0.6061579 10.0178804
## 85   9.4643297  4.7100019  4.5991095  7.5374949  0.0000000  2.2847510
## 86   0.9395275  9.1520848  0.0000000  1.9082749  0.0000000  4.9354928
## 87   0.4119685 10.5322014  0.0000000  7.5875278  0.0000000 10.9393272
## 88   1.9929859  4.0356151  0.0000000  1.3163196  0.0000000  4.3130499
## 89   0.8704239 10.8233302  0.0000000 13.1011554  0.4998841  5.0929558
## 90   0.5912964  9.3626814  0.0000000  2.0142482  0.0000000  9.1024141
## 91   4.8017484  4.9925600  0.0000000 10.9006560  0.0000000 10.0476259
## 92   5.6277527  4.3741214  0.0000000  6.3155717  8.0839308 10.7468538
## 93   0.0000000 11.1687090  0.0000000  2.8949147  0.0000000  8.4609739
## 94   5.8441596  2.7507566  2.0537717  7.7232527  1.4431823 10.0314375
## 95   1.2512646  3.0318186  0.0000000  7.2507570  0.8705028 10.5386533
## 96   1.6802343  9.9642042  0.0000000  4.0385942  0.0000000  5.1090847
## 97   9.8792608  4.9773898  0.0000000 12.9488785  1.6291468  3.3177816
## 98   0.4281424  4.0182692  0.0000000  7.8782214  0.7579620  7.0552521
## 99   1.8246864  5.1029856  0.0000000  6.8425791  0.0000000  1.6890755
## 100  0.5765705  3.1474695  1.5681294  4.6481375  1.3067872 12.5734652
## 101  6.4443656  3.9601781  1.0287813 12.7774662  2.2931350  9.7486923
## 102  0.0000000  6.5453506  0.0000000 11.6538303  4.8777442 10.9441264
## 103  1.0278618 10.7628997  0.0000000  1.0278618  6.8195162  8.6907237
## 104  1.5527213  1.8902910  0.4716557  9.9757014  0.0000000 10.5331431
```

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## 105  0.3124328  0.5691022  0.0000000  0.7869309  0.0000000  4.7219140
## 106  1.5236121 10.2357529  0.7004397  7.3886674  1.1699891 12.1670603
## 107  0.7854250 10.0592140  0.0000000  9.4460320  0.0000000 12.3169074
## 108  2.1641426  9.9379706  1.1114988  3.8427576  0.9034240 13.6273588
## 109  4.6975014  7.3812834  5.8020510  7.9055639  0.0000000  6.0741864
## 110  3.5416883  8.7893719  0.0000000 12.1207007  0.0000000  6.3951828
## 111  6.9553175  4.8696740  0.0000000 12.1418146  4.3244866  5.6212724
## 112  1.1696685  4.1761632  0.8742855  8.3990066  0.0000000 10.6465582
## 113  6.6250966 10.6142921  0.0000000  6.0386249  0.0000000  8.1295463
## 114  2.5005216  1.2210109  0.0000000 11.3424491  0.0000000 11.2643850
## 115 11.0927807 10.1041078  0.0000000  4.0543797  0.6786128  6.4005004
## 116  0.0000000 10.1630979  0.0000000 10.2359673  5.7860082  9.4661097
## 117  0.7944367  8.9419869  2.4346683 12.0113304  0.3159140 12.8947586
## 118  5.3784978  7.5812450  0.0000000 10.6182875  1.8066953  6.0839196
## 119  0.4250295  4.7198296  1.0199154  9.3240916  8.2341468 12.5979371
## 120  0.8467942  8.4109452  0.0000000  7.0612643  0.0000000 10.2141384
## 121  3.7261555  9.0651802  2.6864333  7.0634965  7.7009141  7.4770588
## 122  1.6275135  3.2264006  2.4667315  7.9127720  9.5517986  9.7723850
## 123  5.3184723 10.0517646  0.4403144  6.9432955  0.0000000 11.2084218
## 124  6.8008857  9.8196410  2.8929544 11.7758830  3.8849983  2.7688618
## 125  1.3795655  1.8492387  0.0000000 11.9128991  4.3521441  8.7771741
## 126  1.1797658  3.2381907  1.1797658  9.1419962  0.0000000  5.8670514
## 127  1.0475384  4.2849434  0.0000000  4.7717852  0.7750927  8.0742271
## 128  2.4109109  0.8980922  0.0000000  4.7653491  0.0000000 10.4066931
## 129  6.0715546  9.9012235  0.5051796  1.8139351  6.9428124  5.1450742
## 130  9.5100487  6.3671649  0.0000000  5.7980868  5.4474767  7.3400869
## 131  0.7771988 10.1938155  0.0000000  1.0501186  0.0000000  1.8066128
## 132  1.4547023  3.6726064  2.4202129  7.6242150  1.4547023  8.2599419
## 133  9.0569243 11.5489609  0.0000000  7.7427608  0.0000000  5.3592084
## 134  4.8264214 10.7622991  1.8903299 11.9453884  0.3793992  6.3926609
## 135  2.9496843  8.7833941  1.7847971  6.6577743  0.3848235 10.4289468
## 136  0.0000000  3.3187796  4.0719943  6.0346889  0.0000000  9.7451766
```

```
## 137  1.2633950  8.7666077  4.0666317 10.4760569  0.0000000  8.2406511
## 138  6.8493788 10.7450287  0.0000000 13.5579110  6.4914058  5.3583611
## 139  5.0312584  4.4551365  0.0000000  2.5323170  0.0000000  1.4825385
## 140  3.9720952  3.3555661  0.0000000  1.1759397  3.6729684  9.4769222
## 141  6.6031189  4.6756579  1.1425441 12.1761144 11.3117840  2.9715528
## 142  5.8797205  9.7595016  0.0000000  6.7831449  5.2856205  4.3836836
## 143  6.6255174  9.1687220 10.4169587  7.6980379  1.0579701  3.8423956
## 144  1.2337040  4.8547039  0.0000000 10.2845079  0.0000000  8.2078001
## 145  7.4233630  8.7334154  0.0000000  9.4164370  0.8990209  1.7251304
## 146  0.9565771  9.7683820  0.0000000  6.4206508  0.0000000  8.5667200
## 147  0.0000000 11.1264821  0.0000000  6.2772800  5.6636776  9.8100247
## 148 12.3725715  2.2020729  0.0000000  9.4567255  3.2331825  0.6782522
## 149  0.8027309  9.9897142  0.0000000 10.1617685  3.0779095  9.6059678
## 150  2.6009358  2.0787123  9.1497974 13.7276287 11.4776369  2.4870232
## 151  1.3330802  9.4866462  3.2260152  9.1542338  2.6594679  9.4993217
## 152  0.0000000  3.7938959  0.0000000 15.8846664  6.8835658  7.5436281
## 153  2.8369340  1.3426685  0.0000000 11.8868693  1.1058122  4.4923275
## 154 10.8955656  8.8869412  2.5322421 11.6347872  2.1727435 10.3901569
## 155  0.0000000 10.4380756  3.1077046  9.0268415  0.0000000  8.1006970
## 156  2.8027309  5.7361692  0.0000000  9.9074949  0.0000000 10.3944160
##          rs_CA9   rs_NXPH1   rs_MUC15  rs_CALML3 rs_PPP2R2C rs_CNTNAP2
## 1    0.58611620  3.4959126  6.8662775  9.5918927  9.8733189  9.8857853
## 2    4.63352421  2.7609448  5.0026620  8.9619367  2.2052361  9.3442766
## 3    0.00000000  1.6757256  4.1559678  8.6716023 10.5623484  8.6520573
## 4    0.00000000 10.6231478  2.8179097  5.4780108  7.9155436 12.5862918
## 5    2.21197782  1.1300083  0.4815056  6.8762935  9.6469424 10.7325706
## 6    8.29803873  0.0000000  7.9505227  9.6592335  2.7453234  4.3356333
## 7    2.07601174  0.0000000  4.7041803  7.6326659  3.8577720  3.8577720
## 8    7.99700612  0.0000000  9.5427402  2.7889989 10.0064074  7.8957601
## 9    9.35206705  0.0000000  5.0308834  2.6312207  8.0180076  7.5980696
## 10   1.43674818  5.5927590  0.0000000  0.4930324  1.7842946 10.5486702
## 11   0.41640741  0.0000000  3.4642500  4.6680567 10.1242360  9.4238473
```

```
## 12   0.00000000  0.4548076  2.3440047  5.8599522  8.7401595 10.6712984
## 13   4.21598139  0.0000000  8.2984480  2.7088935  3.5941305  3.2183782
## 14   5.28946194  3.3762070  7.4255222  9.3762098  9.3921274 11.6717154
## 15   1.32642230  0.4407396  0.4407396  4.8153192  9.3644652  7.2080031
## 16   3.30901607  0.0000000  1.2536263  0.5474498  6.9350578  3.0675527
## 17   2.88354262 11.0997172  4.1130587 10.1802584  9.5749827  6.4791449
## 18   0.00000000  0.0000000  1.3375969  4.5562884 10.9375873  7.1251810
## 19   2.60613423  0.0000000  6.1244646  9.7278779  5.5049921  9.5644273
## 20   1.97401528  0.8970080  1.5906260  3.1308815 11.0595827  7.3004139
## 21   6.23119622  9.7787489  5.7186301  6.8278470  9.3840012  7.3111080
## 22  10.17150346  0.0000000  8.2446321  0.8668684  4.2571540  5.7473417
## 23   7.61050592 13.8948697  0.5566992  3.5057639 10.9581639 14.5542840
## 24   5.75477262  0.0000000  4.1701173  5.7310773  1.3094673  2.5372961
## 25   1.62124310  0.0000000  0.7179122  4.9384317 10.8516306 10.2981782
## 26   0.62339868  3.3294681  4.3149502  5.3832135  3.1245267  9.2044208
## 27   0.44222695  3.3171593  7.3079794  9.5670668  3.0929347 10.7264980
## 28   0.00000000 11.0135468  0.0000000  0.5002922 10.0751050 10.3136878
## 29   1.23456263  3.5666812  1.8922744  3.6382592  4.1599520 11.0697013
## 30   0.00000000  4.4217484  7.9631111  9.5684175  6.8035964  5.2951757
## 31   2.35512906  0.0000000  4.0783793 10.3629994  9.9136822  9.6814020
## 32   2.29018846  2.5637195  9.5442188  5.4297934  1.4617381  7.5082115
## 33   0.60814687  8.7349795  7.4388875  7.4121328  2.2917803 10.6521442
## 34   0.00000000  7.7311228  5.8989097  7.1361432  7.6070195  8.2643483
## 35   0.92888193  7.6256168  8.6432397  1.3007680  8.6232988 10.5735228
## 36   7.01050013  0.0000000  6.1177345  6.6473246  2.7138937  5.6977627
## 37   0.57598995  2.5198690  6.4084266  8.2151384  8.2684774 12.4163612
## 38   3.37909413  0.6439485  8.5949762  0.8827604  9.6406601 10.6980844
## 39   1.51167044  4.9668088  7.9567647  1.8609231  1.8609231  5.9435533
## 40   9.52649865  0.0000000 10.1269788  3.4105989  8.1958820  8.5250243
## 41  10.74475867  0.9876119  5.7657098  2.7861154  5.2856648  3.4368814
## 42   0.00000000  2.6423550  5.3336527  1.3208312  9.2980000  6.5060306
## 43  10.48465858  0.0000000 11.5727140 11.5986630  8.4896413  9.4027573
```

```
## 44   0.95427077  0.0000000  2.9773715  6.7449455  9.3686191  7.8654586
## 45   0.00000000  0.9826560  1.3010608  6.3578176  9.6401981  6.6378522
## 46   5.55894412  0.0000000  3.7442472 11.1051741 10.5430497 10.2866825
## 47   4.49355768  3.4159614  1.3285493  3.0971725  1.3285493  6.6504185
## 48   1.72726701  0.0000000  7.1376439  9.5039585 10.0264660  9.7964923
## 49   3.91649575  0.0000000  0.3614315  3.4169883  1.0969365  7.3362146
## 50   5.23840856  0.0000000  2.9567630  6.2968795  9.5089729  4.2749325
## 51   5.06144356  0.3971458  6.1177179  6.0911413  8.5709092  5.7778326
## 52   0.34891224  0.0000000  2.5964104  5.4343714  3.7816115  8.4668563
## 53   0.00000000  8.0928961  1.9830209  6.1870987  9.2834340 11.3698411
## 54   4.10690103  1.0456526  6.6384403  5.4570295  8.9723653 11.5537410
## 55   0.37651266  0.3765127  3.6922152  6.9418563  6.9866373  4.3906746
## 56  11.05580749  0.4924172  8.9826571  4.4156032 10.0553630  1.3935809
## 57   0.00000000 11.1421261  8.1525521 11.9018524  4.3579390  6.0289227
## 58   3.37831740  2.0715224  7.5649566  8.9180943  3.5324416  9.0381116
## 59   8.54331994  0.0000000  9.4785480  3.5724532 10.8805000  8.6848541
## 60   0.00000000  1.0557510  1.9879757  4.8869793 10.9568477  9.9873949
## 61   0.38327574 13.5467268  5.3312896  7.4342504  3.1057786 11.1668570
## 62   0.00000000 13.7657475  5.1939964  5.0463645  9.4641146 11.1902764
## 63   0.00000000  0.0000000  2.0873271  6.9692150  7.9974776 11.3581351
## 64   0.49947600  0.0000000  5.5774953  6.8633488  8.7329923  3.0784732
## 65   7.97489350  0.0000000  4.1059127  4.0107082  9.9352787  6.5866702
## 66   6.09085343  0.0000000  2.2740827  3.1166808 10.3238571 11.6452948
## 67   0.00000000  0.4153260  7.9667425  9.7407416  4.4603494  3.1707743
## 68   0.00000000  3.5712885  4.6410257  7.4243108  9.8471985  5.6921314
## 69   0.74785998  7.0870788  8.2218495  9.2790176  5.2184673 10.3796982
## 70   3.71457524  5.4951131  7.1348462  1.0240359  8.4370408  5.9377069
## 71   0.00000000  9.2107461  1.3470420  5.7352974  8.6899917  8.6181201
## 72   1.15950002  3.4463886  3.9514666  5.1089844  1.3352546  4.8668931
## 73   0.82586702  0.0000000  6.7973256  0.0000000  8.9200226  5.8102374
## 74   0.90504276  0.6614760  1.9666889  3.0481839  2.3425832  5.4418353
## 75   2.51777960  0.0000000  7.9448397  9.7230243  3.9341107  2.6773504
```

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## 76   8.24602038  0.0000000  3.5782625  4.6087146  1.7068178  7.3874211
## 77   1.33771109  0.0000000  3.1106138  7.6735338  4.5486401  2.6068212
## 78   9.08416262  0.0000000  4.9284224  3.5496076  7.9618930  3.8798626
## 79   0.00000000  0.0000000  0.0000000  7.7196886  4.3271268  1.6144272
## 80   9.13714357  0.8579014  8.0345035  4.8794656  9.1956328  2.4511188
## 81   0.01406958  4.9200026  7.7881774  6.6929098  5.7202018  6.4162723
## 82   1.48341596  0.0000000  8.7109827  7.2209239  4.0631750  0.9245560
## 83   0.33970751  5.1063651  6.0040564  6.7546430 10.6651375  5.6772996
## 84   3.56313372  1.3598585  3.0549700  6.6127476  9.0758596  8.9259359
## 85   7.36905288  0.0000000  9.2044122  7.8681546  9.4660236  5.9637238
## 86   0.00000000  3.2464233  0.0000000  0.0000000  1.5037049  1.8172549
## 87   0.00000000  0.0000000  0.0000000  0.7319652  9.2299512 10.6320155
## 88   0.00000000  0.0000000  6.8109148  0.5818815  1.3163196  5.7721839
## 89   5.48280957  0.0000000  1.8010345  4.2646340  8.4240760  5.4480585
## 90   0.00000000  2.0142482  8.5414997  1.8209346  5.6110366  7.5580265
## 91   7.51270649  1.4817123  0.0000000  0.4421208  8.9272956  9.5452456
## 92   0.00000000  8.9452267  6.0807983  2.3747891  9.9225808 10.1138169
## 93   2.18405808  0.4209405  0.4209405  5.3806152  1.6007455  9.9469397
## 94   1.98753916  3.0789343  7.9789358  3.1735912  9.9325363 10.7088937
## 95   1.93315714  2.1087252  9.3060031  5.5663098  2.9309644 12.0688325
## 96   0.00000000  7.2955568  1.2159270  7.0726696  9.1307906  8.4809933
## 97   4.45719371  0.0000000  5.0178996  1.8841681  9.2092318  4.9773898
## 98   0.75796197  3.6326056  2.0391033  5.0947470  1.9123816  9.9572314
## 99   3.62808532  3.1088422  0.9659874  2.1685458  4.4153801  8.9554517
## 100  2.28291420  0.0000000  0.5765705  5.7300693  2.4387719  5.4510165
## 101  6.26478787  9.3917617  8.4598631  2.8035990  2.0429595  9.6220447
## 102  5.78732798  4.8176233  0.0000000  0.4854268 10.7106343 10.5843988
## 103  0.60359667  2.6903053  0.0000000  0.3330802  6.7199446  0.8312287
## 104  6.80970254  9.8681717  1.8902910  6.8514192  2.8455503  9.7205786
## 105  1.17159115  0.0000000  0.0000000  0.0000000  2.2835959  4.9646805
## 106  5.74704360  2.6583029  4.5925647  6.6716529  9.2778358  9.2147351
## 107  1.30812784  1.6648924  0.7854250  0.0000000  7.8135420  9.6765520
```

```
## 108  0.66019846  1.9641029  2.7662559  4.1325522 10.9200534  8.6820138
## 109  0.00000000  0.0000000  5.0476605  7.8114254  7.5858083  8.5446728
## 110  1.54897907 11.3535706  3.6977738  5.9820558 10.2798222 11.7153658
## 111  5.72658875 10.6718890  2.0609466 10.6662668  9.1901254  8.5858966
## 112  1.16966850  1.4147309  4.7455224  7.7955910  3.7544707  7.9614833
## 113  0.00000000  5.0690748  8.0703491  4.7621309  9.0535401  0.0000000
## 114  3.86335372 10.7061081  0.0000000  0.4144603  7.4921328  8.6159893
## 115 10.31423236  0.0000000  8.4803140  4.3375612  6.9273347  9.6520370
## 116  7.97313711  0.0000000  8.6242585  2.3903375  3.3874728  6.2241908
## 117  0.00000000  8.1157044  3.4958870  4.7909284  3.1024398 11.0780389
## 118  4.72262449  8.0911984  3.1890180  7.8112796  9.5529691  7.6635503
## 119  2.86659152  6.7940493  0.7529198  6.5255881  8.1548596 11.0954648
## 120  0.34050530  1.0459322  0.3405053  0.0000000  0.3405053  3.9423456
## 121  0.53913399  2.8764678  6.6007752  8.8525595  1.7073039  9.1789474
## 122  3.26402592  2.2724114  2.9938736  6.0472897 10.8185052  7.0889620
## 123  2.39355349  3.2030758  2.1919416  3.6756353  2.0746082  9.8934843
## 124  0.38526536 10.6413886  4.3851480  2.8929544  8.8333885 10.4710926
## 125  2.97566687  0.6787029  6.5593694  4.9835318  4.3235718  8.0537505
## 126  0.50771854  1.8199951  9.3239147  0.8825257  0.0000000  8.2867606
## 127  0.00000000  0.0000000  2.8168250  1.0475384  9.0638990  9.5147257
## 128  4.15055968  7.8995587  1.5922059  5.5998861 10.2818150  7.2188480
## 129  0.00000000  1.8139351  0.0000000  0.0000000  9.9978720  8.5621611
## 130  1.61814467  3.0066930  4.0643742  0.0000000  7.6053217 11.3662851
## 131  0.00000000  0.0000000  0.0000000  0.0000000  0.4403144  1.6513617
## 132  0.54300088  3.8999297  8.9614074  3.2125226  8.2141578 11.3240254
## 133  0.47778093  3.1460686  3.5361400  5.5159679  9.6159369  9.9558643
## 134  0.37939916  5.8239404  4.2964134  6.5812172  8.5445271  9.6550546
## 135 10.44714172  3.1115155  7.3784492  6.4464581  1.3383388  6.9351014
## 136  1.77391195  0.5134907  2.7132339  6.4489290  9.7946292  3.7439996
## 137  6.59382732  4.6530428  4.0361692 10.8457140  9.6254632 10.2019042
## 138  2.92097923  0.0000000  3.3112125  3.9173172  8.8951014  3.4695865
## 139  7.08902880  3.9122762  7.6644060  1.4825385  2.9220836 11.0038594
```

```
## 140  1.22860323  5.0766275  6.6925792  1.9777195 10.2793942 10.6672047
## 141  6.83532283  0.4881036  8.0503395  3.6638797  1.3842156  3.4678533
## 142  7.09933624  1.6285870  4.7442795  2.6392785  9.8608983  8.8263349
## 143  3.35257493  1.6617040  9.4323932  3.2713809  4.6940444  7.4318795
## 144  6.78645914  0.0000000  2.4608736  1.2337040  7.7208065  6.4212873
## 145  7.45520720  0.8990209  4.9798607  4.4240487  4.8845247  2.0603587
## 146  5.98617198  0.0000000  1.7449361  7.4359144  5.1430995  8.4666891
## 147  1.72111013  0.0000000  0.0000000  1.3058538  8.8943088 10.4641507
## 148 10.72413710  0.0000000  3.7009723 10.2095426  8.2739047  9.4992262
## 149  0.00000000  0.0000000  3.1401406 12.0945954  8.9114106 11.3149067
## 150  7.71721990  0.0000000  6.8484114  4.0977456  1.2521128  2.7065085
## 151  0.89413869  8.9922181  6.3626259  6.5497400  9.0886441  8.1946667
## 152  0.50100595  6.7227474  7.6607319  1.1670367  9.2876833 10.5879392
## 153  5.79147289  8.3753045  9.5320019  6.2089015  8.8185953 10.9434781
## 154  9.35679769  0.3994446  6.8598640  7.0137939  5.1861321  1.5429514
## 155  8.24081518  0.0000000  1.7863036  3.9213982 11.5645759  5.8413241
## 156  9.33036725  0.5831339  0.9973285  3.6388848  8.4924669 10.2989556
##     rs_SLITRK6    rs_BEX1 rs_SCGB2A1 rs_KLHDC7A  rs_SLC6A4    rs_ORM1
## 1    10.158225  4.8503094  8.3475323 10.5089275  6.3719961  1.9995671
## 2     7.350121  3.1611460  6.3809857  4.5917871  0.7843365  0.0000000
## 3     8.103197  8.2438837  5.0366967 10.4977538  1.0686020  1.0686020
## 4     5.267495  0.4889263 10.3362612  2.4429966  0.4889263  0.8535167
## 5     5.565445  4.1080309  9.3345229 10.5044853  7.6170994  0.8418926
## 6     4.635691  3.3696200  6.9832068  2.3644043  3.2170446  7.0581151
## 7     5.142544  2.1605653  2.8420737  3.6069159  3.5605071 10.8310467
## 8     3.756863  2.8598106  4.5819839  2.7145313  1.7799321  1.7309225
## 9     5.683590  3.8587966  1.8470749  0.0000000  0.6035967  1.3553546
## 10    6.767721  2.2224027  2.2224027  8.5710066  7.9700794  0.4930324
## 11    3.419835  2.3261634  3.5073380  6.9000734  1.5885168  4.9279581
## 12    5.754946  2.7136298  1.3118518  3.5992345  0.0000000  1.0785415
## 13    2.899427  1.2537473  0.9433588  0.0000000  0.5474498  2.0824642
## 14    8.218766  3.4664444  9.8166706  8.2057244  3.6315816  3.7075579
```

```
## 15   10.990393  2.1931409  3.2593177  6.6434637  3.3631571  8.9103537
## 16   11.321836  0.0000000  5.2794824  4.0609034  9.9430821  5.5590849
## 17    5.034418  6.6629802  2.7766936  3.2266935  9.0195257  0.8766446
## 18    8.168676  4.8324546  2.9051583 10.4523985  3.0452158  2.5762077
## 19   11.629090  7.4763323  4.8039296  5.2573350  9.4222477  5.1796265
## 20    3.222573  7.3921285  2.7544600  5.2507456  8.1355179  7.0574817
## 21    3.244187  0.0000000  5.8953220  7.1645852  9.3952861 10.2289049
## 22    4.160783  2.7583245  0.4976379  3.8670464  0.4976379 12.4598464
## 23    1.746012  1.5278210  3.6748674  1.7460117  1.5278210  0.0000000
## 24    6.722489  1.6860298  1.0764907  0.0000000  0.7984238  0.4537546
## 25   12.933926  3.7281491  1.8397178  5.4766182 11.9490702  7.0816283
## 26    2.661043  1.7639214  3.7276373 10.1907625  8.5178945  0.0000000
## 27   14.281744  3.0309716  8.4152660  6.3959848  6.3523171  1.2837440
## 28    5.567573  1.6194130  0.5002922 12.1157933  5.0224832  0.8710551
## 29    5.879230  6.7546444  6.1418721  8.1511470  5.1438301  2.5414405
## 30   11.568934  3.5112403  7.9780680 10.1094949  2.7957877  2.9424394
## 31    5.052412  8.5395776  5.7400587  3.0271541  7.6065755  1.1322478
## 32   14.707542  0.0000000 13.7234009  6.7219386  3.2886391  0.7670615
## 33    6.651619  4.6075907  6.0788617  8.0141739  5.0391823  1.6440408
## 34    9.628045  4.5167338  6.9236579 10.7982873  9.7628401  3.4685963
## 35    5.145449  0.4498519  7.5202902  8.4560040  5.6127270  6.0788126
## 36    5.349854  2.3998820  3.0482187  4.6898694  1.1911204  7.9481511
## 37   12.281404  5.7419604  7.6052202  6.1531548  0.8960781  5.5564631
## 38    9.572469  0.6439485  5.4790656  5.9354621  1.8204036  8.4654856
## 39    7.691834  0.0000000  8.9716186  5.3548788  0.0000000  2.6472454
## 40    9.004288  4.0368813  6.7497394  3.4952091  1.3816710  6.7963343
## 41   10.381757  1.9814143  0.0000000  0.9876119  5.8252794  3.5216413
## 42    5.709056  0.4589069  9.6770390  6.7159098  2.2465297  4.8056330
## 43    5.124460  3.2434863  5.4962482  6.4288425  4.9892480  9.9108803
## 44    9.643518  0.0000000  2.4263453  4.4758437  4.2337270  3.2139382
## 45    9.198758  6.4001161  3.8255007  4.9204172  0.9826560  0.5733745
## 46   10.259896 10.2264672  3.7829956  5.2277834 11.0647215  8.8631539
```

```
## 47    8.971276  1.8955741  0.6822137  4.3889885  6.2644745  1.3285493
## 48    7.161128  2.6321984  8.5742321  7.5626637  4.3057225  8.2077401
## 49   12.529887 11.4064992  7.3463471  4.9225785  8.4195427  6.2884324
## 50    7.103969  1.7024802  4.9964068  7.4532632  2.2824398  4.7249176
## 51    6.325786  2.1652366  0.0000000  7.9439629  4.6845270  3.8387501
## 52    7.296612  1.0445340  5.3984735  8.1959494  4.9176322  2.3260483
## 53    6.923941  1.8580208  4.8025706  7.6662801  4.6221045  1.2095158
## 54    5.502900  7.1226644  5.4335370  5.8520663 10.5594873  6.2110511
## 55    4.719342  2.7997090  4.2843216  6.0701660  6.2784476  2.4521473
## 56    7.835550  0.4924172  0.8589358  0.0000000  1.9440338  6.4470667
## 57    7.710257  3.1019022  6.8652804 11.0610301  5.6052632  0.4448791
## 58    9.471467  4.1936141  5.1274393  8.7457933  6.7288633  2.5372961
## 59    5.074219  5.1238027  0.0000000  0.3723950  0.6681191  4.5105063
## 60    6.130202  0.8552722  4.9000698  2.4815573  1.5300208  4.8333911
## 61    7.899013 11.1263802 12.1562873  7.1144055  9.0221109  0.0000000
## 62    4.837661  1.4752406  2.4464415  8.4460440  2.3656925  0.3748447
## 63    4.852623  1.3922075  2.4863540  4.8794166  0.6244285  0.0000000
## 64    7.625889  0.8698714  4.6195891  8.8423686  8.1539213  3.7892911
## 65    7.442190  1.5480913  0.3503841  1.0701145  0.0000000  0.3503841
## 66   12.795024  7.2506272  4.9354220 11.2196708  0.6304987  7.2763608
## 67    9.933668  5.0883960  6.8040084  6.5297319  1.0005049  1.8751510
## 68    6.419640  8.4161697  5.8714617  9.6024843  9.4752318  4.1535460
## 69    9.549621  4.6954037  5.9039252  6.5556735  1.9795864  1.2379919
## 70   10.138239  1.0240359  4.5267512  3.7445486  1.7705331  0.4270698
## 71    3.296046  2.1071187  8.1806487  1.4669664  3.9594642  0.2875905
## 72    4.378650  2.9735194  2.1464271  9.7509155  1.0992279  0.0000000
## 73    3.994299  0.8258670  0.0000000  1.6136731  2.5590267  3.4311148
## 74   10.266726  1.6022193  1.4569113  6.3955410  0.6614760  0.6614760
## 75    9.175282  4.5175781  5.7296479  6.2703514  2.2658869  0.7092024
## 76   10.940837  1.3274574  1.8646517  9.1015913  6.4623468  2.8152270
## 77    4.516904  3.7791651  0.5937840  5.4179031  3.0229537  0.5937840
## 78    6.351487  1.4186757  6.5187885  3.9440057  5.3864661  5.4430529
```

```
## 79    3.432131  3.2090478  0.0000000  4.7972257  0.5997939  5.0649777
## 80    8.603387  1.7812758  4.0027025  5.4613583  1.5998414  2.0873610
## 81    8.397298  3.1385524  4.4257077  8.6806995  3.5525984  2.2937236
## 82    6.634283  2.3337958  8.4340385  6.1956350  2.7734478  0.5350576
## 83   10.310214  2.1541295  7.5081584  9.7172002  9.1531892  0.0000000
## 84   15.374243  4.2687937 11.1946459  6.5131654  5.7052840  6.5578313
## 85    7.122182  7.4282010  0.8717648  3.7193477  0.8717648  4.5316934
## 86    1.720103 12.6228669  4.4963026 12.4487000  9.0339069  0.0000000
## 87    4.047198  3.0479397  8.1322529  5.8866136  3.5735563  0.4119685
## 88    9.252763  4.2765339  0.9953036  6.3126978  6.6631695  2.8987888
## 89    7.333290  5.1613315  1.8010345  7.0698214  2.8503594  6.6553991
## 90    5.419404 11.1245420  3.4094860  6.2475364  3.6613164  0.8154935
## 91    5.471991  1.0535979  5.2588731  7.1597341  1.0535979  2.9657843
## 92   10.362154  3.2738441  4.6220167  5.2846067  7.3414895  1.9965334
## 93    9.798397  4.1922573  1.7535618  9.9533639  1.2359721  0.0000000
## 94    6.603999  2.4054478  5.1566595 10.2144478  2.8108955  0.0000000
## 95    8.959902  0.0000000  5.2372654  5.9286522  2.1087252  0.6343145
## 96    6.152052  1.6802343  2.4355486  1.2159270  1.4667054  0.5270703
## 97    3.273844  5.1206796  4.6043916  1.1350094  1.7622638 14.2594087
## 98   12.126250  5.2204074  5.6156046  9.6763238  9.0980158  3.7484076
## 99   12.728298  0.7098200  3.2114016 10.5418624  4.3494431  1.3723392
## 100   7.236972  2.9779027  4.1460523  8.7313262  9.4083329  3.1474695
## 101  11.529180  0.3335382  5.4393805 12.0414211  8.7521100  6.6224809
## 102   6.605850  6.7087390  4.5484366 13.4723101  1.1375035  0.0000000
## 103   9.067661  1.0278618  5.2033656 11.8401699 10.9814097  1.3552418
## 104   8.256195  0.0000000  4.2018769 10.6936837 10.1605968  7.6506353
## 105   5.152938  0.5691022  2.5450293 14.3289138  0.3124328  1.1433934
## 106  11.320138  7.2855141  3.6148158  5.2785610  9.8924657  3.0875647
## 107  13.434694  1.6648924  1.8207712  6.9627838  7.2739904  7.0870024
## 108   4.059113  7.4615859  6.8202530  4.6319191  1.1114988  5.2422862
## 109   5.391785  2.9415383  3.3088414  1.2243490  1.2243490  4.5406597
## 110  11.540795 10.1811688  6.1469057  5.5619645  8.1502576  2.4127002
```

```
## 111   6.338945  7.0166947  6.7831567  6.8873522  8.7232756  3.9332516
## 112   6.799375 11.7580849  2.3688801  9.5831027  8.0727999  0.0000000
## 113   9.418174  3.4128086  8.2808269  8.0331862  5.8198853  2.9700253
## 114   9.170029  0.9987732  6.7702093 10.7800511  1.2210109  2.5174017
## 115   6.167239  0.0000000  5.5435763  1.1382247  2.0010095  5.6160283
## 116  10.298245  2.2976023  1.3961047  5.4076621  3.3417581  1.6955039
## 117   9.313452 11.2322118  0.3159140 11.8409999 11.1189482  0.0000000
## 118   5.617501  0.0000000 11.6899699  2.7271581  1.1694120  6.9692115
## 119  12.568133  0.0000000  8.3340194  6.6340661  7.1337556  5.7017182
## 120  13.560911  0.0000000 10.3843953  2.8322622  2.9855733  3.6674494
## 121   6.607495  3.5136676  0.9306995  8.3661180  5.1654698  2.0606354
## 122  13.679881  1.0320303  5.7810160  6.9657347  5.7810160  4.4060944
## 123  11.750105  4.1517939  3.8642357  5.6816095  8.0869435  6.4608801
## 124   2.126643  8.3244470  6.6682326 10.5167187  8.5614724  0.8617966
## 125   3.407557  1.0008654  7.6656379  4.2188664  1.5861162  4.6909646
## 126   1.179766 10.4975430  3.3617403  9.6535380  1.6364506  0.0000000
## 127  10.784892  1.8030617  2.4914683  7.9696260 10.4590189  6.2145911
## 128  13.963485 10.2412156  3.8026379  5.7920250  2.1552635  3.0848637
## 129   4.117188  0.5051796  0.0000000 10.4372009  3.1646737  0.0000000
## 130   0.000000  2.1082233  7.5617340  0.4997821  0.0000000  5.4198422
## 131   1.651362  0.4403144  3.3106600  8.6832199  0.4403144  0.0000000
## 132   8.644289  4.0590783  9.3681395 10.2661287  4.4807175  0.0000000
## 133   9.226312  2.6097550  3.6756579  8.2924344  6.1151103  1.5671073
## 134  13.374543  6.2854781  4.2964134  8.5981430  2.7474089  7.7812305
## 135  10.694684  8.8306588  6.8762480 10.2236901  7.1583835  3.7255994
## 136  10.603172  6.7647164  6.9306415  6.8473869  1.9973647  0.0000000
## 137  11.810867  9.5937808  4.4827515  4.9593992  0.0000000  0.0000000
## 138   8.494381  3.3112125  3.6458630  2.6939441  8.0733699  1.9558335
## 139   8.962734  1.7623488  6.1913021  9.2078809  2.3748726  0.6763577
## 140   2.948040  0.0000000  5.1970909  5.2297379  0.5056877  0.0000000
## 141   4.886692  1.1425441  5.1708945  6.2302434  0.8521587  0.0000000
## 142  12.427866  4.0609553  6.8887980  6.2001630  2.2736651  7.4824111
```

```
## 143   8.195391  1.8174595  0.0000000  4.6940444  2.0860704  0.0000000
## 144   9.624733  3.0371713  8.0227418  3.5623279  0.0000000  9.6516511
## 145   6.547417  3.3539725  0.3654686  0.0000000  0.3654686  3.4711094
## 146   7.920640  4.7224551  1.5268200  9.2134987  2.6262055  4.5006045
## 147   9.097002  2.4374941  5.6741160  3.7564896  0.4521737  3.9748505
## 148   6.947771  2.9264929  0.0000000  0.0000000  1.7659590  5.3651361
## 149  12.010548  2.2393980  7.1351839  0.0000000  5.4772564  6.5780028
## 150  10.468091  0.0000000  8.8214707  0.0000000  0.0000000  0.9420077
## 151   7.213189  3.7985794  7.5459344 13.1235635  5.5880250  1.4393040
## 152   6.084086  0.5010060  9.8320176  5.4652170  7.9663428  8.1076711
## 153   4.098504  1.3426685  7.7858323  8.6605258  4.8974631  2.0259147
## 154   6.769957  4.7114619  1.8285503  4.8455503  2.8197908  0.0000000
## 155   9.437417  3.6975959  1.9976898 10.1429718  7.2379499  2.4922378
## 156  13.168434  0.9973285 10.5332777  3.6954594  1.8035164  9.8011557
##     rs_SCGB3A1 rs_C10orf82  rs_LRRC31    rs_HBA1   rs_RPS28   rs_PDZK1
## 1    5.6759062   8.1109452  7.9123265  1.0109946 10.5470184  8.8395395
## 2    0.4448791   5.6262785  7.9627399  1.8188915  8.2341842  2.4151637
## 3    1.5002922   6.3482944  3.2897017  6.7766567  4.2421528  8.7872055
## 4    2.4429966   5.2369556  6.5388764  5.1246590  8.6966835  7.8438853
## 5    3.6426669   8.2762794  1.3700527  1.0794976  2.6207272  9.7861608
## 6   12.8722686   0.0000000  3.1342374  5.0170177  4.4079101  4.6946741
## 7    5.6978377   2.3901724  1.7285301  1.4333334  9.8599515  3.0578661
## 8    1.6259250   2.0460020  0.0000000  3.0389629  9.6963649  3.2770028
## 9    3.2192150   0.0000000  0.0000000  1.0279325 10.6640110  2.6312207
## 10   2.3431520  10.1815471  0.4930324  0.9719573  9.7006591  5.9377540
## 11   8.5170378   2.7414670  0.0000000  3.8859550  9.1967612 10.2914681
## 12   3.2516888   6.7314983  0.8001648  4.3415233  1.5125809  7.4032064
## 13   0.9433588   0.5474498  0.0000000  0.0000000  2.2302645  2.7088935
## 14   4.3531115   7.4085488  1.2268168  8.3812821  9.7395906  7.8882860
## 15   8.4337807   7.5780700  1.9480027  7.1583471  3.8656714  4.4647205
## 16   9.0506736   0.0000000  5.4414503  5.5160877 10.2528984 10.7624158
## 17   2.4850919   9.2370299  0.0000000  1.8346708  7.9051607  3.1607750
```

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## 18   2.8296872   8.0655282  1.1013139  5.6066821  1.8768803 12.9266019
## 19   9.7077515   2.7507137  6.5027618  0.0000000 10.6081210  6.4279179
## 20   6.3834123   7.8637520  5.6644772  6.1108894  8.3841094 10.1959965
## 21   1.3864799   0.0000000  4.1980619  0.0000000 10.2103489  2.8184211
## 22   3.1416617   0.8668684  0.0000000  1.0270833 10.7458653  2.3557493
## 23   0.0000000   2.1030276  0.0000000  0.0000000  9.9372261  3.1706782
## 24   1.6860298   1.0764907  0.0000000  0.0000000  9.0496378  2.5372961
## 25   6.8592937   6.3562953  6.0401779  2.8969499  1.5531147  4.3466378
## 26   2.3201092   8.0078453  0.3405053  7.5497685  6.0494238  7.1616449
## 27   3.9057841   0.7802261  0.4422269  0.0000000  3.2642812  3.8708381
## 28   1.8019864   8.3722674  0.5002922  0.0000000  4.2966630  2.2420232
## 29   1.7701525   7.8994820  2.6835617  0.0000000  7.8737621 13.7315151
## 30  10.1529818   6.9451547  5.8996083  6.2202932  2.5433969 11.0609754
## 31   2.4251101   9.0645040  0.0000000  3.3972553  9.1180986  5.4434243
## 32   1.0374525   1.2651368  5.2815017  0.0000000  8.2336197 10.5567582
## 33   4.6075907   7.2966116  8.0646754  6.0249446  2.1834230  7.8084288
## 34   1.4601135   1.6731493  3.7289218  0.8904856 10.3044343  6.2619877
## 35   6.1097178   1.3007680  5.3790213  0.8607642  9.0045674 10.4525426
## 36   6.2288726   0.5137939  1.8345494  3.4380932  8.6822773  6.3010864
## 37   2.5198690   7.3588806  7.1118910  5.6827390  9.3137567  3.4463886
## 38   0.6439485   5.0717541  4.7333055  2.8457510 10.0629808  7.1231281
## 39   0.9088129   7.4777235  9.0959637  1.2627338  8.6159768  6.6711122
## 40   3.4535176   3.2735905  0.0000000  1.6995072  8.6866647  3.3207302
## 41   9.3661019   0.0000000  0.9876119  0.0000000  4.5810680  2.5643050
## 42   5.6986908   5.8655254  5.6129628  6.7464256  7.6294025  1.6991962
## 43   3.9323069   0.0000000  0.0000000  1.4767964  9.6348581  3.0238408
## 44   2.5078961   3.8827506  9.5509795  0.0000000 10.3999246 10.4590959
## 45   0.0000000   7.7167879  3.4277268  7.7498755  3.7225862  7.7949584
## 46   4.2100069   7.0073716  6.1279242  2.5214277  9.7033497  7.6553647
## 47   4.6193661   6.6931914  3.9267585  3.5707908  8.5199593  2.5451776
## 48   6.0443067   8.0872570  5.5875450  4.8445664  1.8479168  6.3706979
## 49   1.0969365   6.7365751  6.4800841  5.2592989  1.7127718 11.3917451
```

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## 50   7.2636852   0.0000000  8.5956692  1.9630301  8.4962282 12.5094724
## 51   4.1532703   0.7081431  0.3971458  0.0000000  7.8638096  0.9639180
## 52   8.4003488   5.2350798  6.7522308  4.6989630  2.1550368 11.3562409
## 53   0.9887029   1.5698799  8.6164327  4.3934437  7.0684988  3.0954519
## 54   0.7735744   8.2827238  1.2744704  5.2574105  8.9414673  6.8124584
## 55   2.9740704   6.8215176  8.6681195  1.3166092  1.4796962 12.9810993
## 56   3.6778690   0.0000000  0.0000000  0.0000000  8.9282744  4.5718467
## 57   7.5387042   3.5204474  4.8843977  7.5470873  8.4269059  4.5702504
## 58   6.5331786   6.3241319  6.1657833  3.5324416  2.7583032  6.9050091
## 59   1.9800253   1.1230040  0.3723950  0.0000000  8.5256516  6.5189348
## 60   1.0557510   5.8690620  4.6595536  3.1476160  8.9357724  8.0863178
## 61   1.6463470   9.2272340  0.9358369  6.4601282  8.6449378  8.9835976
## 62   0.0000000   1.6215244  0.3748447  0.6422857  1.1288873  4.0640033
## 63   1.7812338   8.1823258  0.3457370  3.2512798  2.4148932  3.6909981
## 64   7.7777656   2.1076544  8.6946097  1.9712216  7.8047119 11.6915596
## 65   0.8676593   0.0000000  0.0000000  0.0000000  9.3935385  3.0263220
## 66   0.0000000   8.1765118  1.5452271  1.2078929  2.0052922 10.4532991
## 67  11.0859915   2.2231445  3.8082512  4.6057847  9.9551574 11.1504972
## 68   6.7507485   2.3344825  1.1662013  1.7999991  8.7034738  6.5689062
## 69   8.8813024   6.6268202  7.0156570  0.7243883  9.0091744  8.6769726
## 70   1.2498700   3.5460795  7.2072711  4.3135724  1.9093507  4.8361059
## 71   8.9254737   0.7326599  2.2477453  0.8730257  7.6608331 10.2424717
## 72   1.8740887   8.7294770  0.8168864  4.7286879  2.9735194  3.3950902
## 73   1.3477790   0.0000000  0.0000000  5.0859430  8.3338642  4.6410026
## 74   2.4230403   0.9050428  7.1941008  4.8733260  8.6176423 11.9135976
## 75   9.8599292   5.1279758  3.8412989 10.2706290 10.3276952 10.6269113
## 76   8.9280256   4.6526700  5.1888361  0.0000000  9.8064272 11.3512524
## 77   5.0026620   1.6025044  0.5937840 11.2954820  9.8286923  2.0197019
## 78   1.2257068   0.4165155  0.0000000  0.0000000  9.1622768  3.5077693
## 79   2.2042033   0.5997939  0.0000000 11.1602678  8.4991471  2.7377084
## 80   0.8579014   0.0000000  0.0000000  1.8282254  9.4072104  2.5544906
## 81   5.2693399   3.7745657  2.8763107 12.0870031  0.9824369  8.1094368
```

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## 82  10.6511367   5.1528202  0.5350576 13.2996621  1.8852620  7.8026592
## 83   3.0298945   1.0439744  5.8197142  1.2284801  2.0654344  5.2641723
## 84   4.1676229   8.0122346  7.2569936  0.7271799  2.2976023  3.5490530
## 85   1.2528395   7.3471846  0.0000000  0.0000000  2.1108643  2.4398890
## 86   0.2980717   9.0026240  0.0000000  8.3092494  2.8003305  6.3895014
## 87   3.8952735   5.7603700  0.0000000  1.1799568  8.7279228  5.4141051
## 88   0.9953036   0.0000000  0.0000000  5.0994509  9.5718656  7.4253351
## 89   0.8704239   2.2409554  7.4709907  0.4998841  8.6159786  3.8744035
## 90   1.0094905   5.9315460  2.6007931  2.6598104  8.9811046  2.8236271
## 91   6.1840878   7.8189771  7.9035005  5.2988416  7.8258327  8.6492634
## 92   1.4824869   1.1350094  4.5128653  4.0746168  8.5694288  9.6827720
## 93   0.4209405   8.3898877  2.8276361  0.8175414  3.6066436  5.7143444
## 94   7.6956021   6.6250907  9.4928230  6.1106201  8.5147393  5.8513368
## 95   1.6819889   1.0734090  7.8704979  0.0000000  2.7650891 10.5541016
## 96   1.2159270   0.5270703  6.9999786  2.0309716  8.1790756  5.6675828
## 97   0.0000000   1.7622638  0.0000000  0.0000000  4.2206008  3.2738441
## 98   0.7579620   7.3369733  4.6743194  0.6791535  3.5066908  6.4378686
## 99   0.7098200   5.9619266  0.7098200  4.5396489  8.6961337  4.3037442
## 100  4.7035936   0.5765705  0.5765705  0.0000000  8.8786457 11.6941071
## 101  1.3564256   3.1378805  5.7283450  0.0000000  7.9636741  5.0439394
## 102  0.0000000   0.8479969  0.0000000  0.0000000  0.4854268  6.7032115
## 103  3.6654269   0.0000000  6.5937183  9.0415880  8.4749438 10.2763813
## 104  1.5527213   3.8615286  9.0708943  0.7120234  1.7313570  9.0050928
## 105  2.3535209   0.3124328  4.9978118  0.0000000  5.8656393  9.3432546
## 106  0.7004397   7.7360914  1.5236121  0.0000000  3.0875647  4.3707920
## 107  9.0497718   0.4455148  7.4274210  1.0578315  8.7951367  8.4186555
## 108  3.2787431   5.6111163  1.7317915  1.7776617  7.6316565  9.4087728
## 109  2.4475263   4.6470900  0.9191494  7.6639437  8.6840146  3.7989837
## 110  1.2207633   1.5830376  2.4127002  2.2865559  7.7044902  2.9974731
## 111  0.3975839   6.4213597  8.0513536  0.8526381  8.7036489  4.3914447
## 112  4.7455224   8.0089132  0.0000000  0.0000000  7.5191880 10.9669559
## 113  4.5307575   7.7065375  2.8940417  1.6668929  4.7405930  4.1281036
```

```
## 114  6.3899436   0.9987732  4.0274903  2.2122269  3.8722279  2.9979066
## 115  1.4863025   0.0000000  7.4624082  1.1460686  4.3375612  3.5619493
## 116  1.2050797   5.9319714  5.8363231  0.8397984  1.7157177  4.4520485
## 117  0.5749250   9.5290816  0.0000000  0.8085910  8.4095831  3.3301998
## 118  4.0544318   2.0436945  2.9764920  0.0000000  8.2856593  2.5842169
## 119  4.6427824   7.9701007  9.4594261  0.0000000  4.0370835  8.0185552
## 120  4.2554630   0.0000000 10.6141663  1.2208252  1.0459322  3.5418617
## 121  1.8947596   8.2613663  0.0000000  1.2300185  7.8556771  7.2381878
## 122  0.7626465   1.7816115  4.3821969  4.4060944 10.0759398 12.1676323
## 123  3.5926962   7.4378960  5.0652147  2.3004459  3.0247452  2.3004459
## 124  1.1534162   0.6890307  9.3690276  4.3203186  8.4858877  3.2117131
## 125  3.7882054   0.8487982 10.0249305  0.7143994  1.7667648  5.2111407
## 126  0.0000000   7.3853629  1.4261037  1.0882773  1.4261037  6.7283301
## 127  2.0706984   8.3770639  2.7420925  0.0000000  2.2963693  4.5267136
## 128  0.6559929   1.1053428  2.6280036  0.6559929  1.4474205 10.4267457
## 129  5.0750106   0.5051796  5.4380400  1.7086728  1.9764736  2.1225402
## 130  1.9626231   0.0000000  7.3363959  0.0000000  9.1256480  1.6181447
## 131  0.0000000   7.0005871  1.6513617  6.7747067  8.3665438  2.4955673
## 132  8.4261528   7.8396353  4.5890444  1.6673018  3.2787133 11.1403899
## 133  3.2686739   0.4777809  1.3620490  0.0000000  3.4864698  2.9400728
## 134  0.9278206   7.7021671  7.9256535  0.0000000  8.0747398  4.9438698
## 135  1.1524430   6.8911883  8.1440005  0.0000000  9.6518123  5.2820283
## 136  5.6486466   6.9306415  7.4757229  3.1895241  9.2028232 10.9328248
## 137  2.6443409   6.6947549  4.4133301  0.0000000  3.8027309  7.3404234
## 138  0.0000000   0.0000000  0.0000000  0.0000000  8.7453721  3.6458630
## 139  1.4825385   7.1543918  2.6742799  1.9901199  9.4645362  8.1401728
## 140  1.1759397   3.4135670  2.7818633  1.6874191  9.8054000  7.1288594
## 141  3.2409401   0.4881036  1.3842156  6.7773632  9.2500390  3.3011047
## 142  8.9018935   1.0328061  1.7827021  0.5462648  8.1870987 11.7828732
## 143  7.2794657   0.4443490  1.0579701  0.0000000 10.5240160  2.9053124
## 144  5.5111074   0.5366498  1.2337040  7.0651501  5.1018517  3.7186247
## 145  3.5794457   0.0000000  0.6567252  0.3654686  3.9728397  2.5608372
```

```
## 146  4.4703091   8.6159797  4.0463252  2.2518403 10.6449271  5.5430504
## 147  2.1086248   7.9816894  6.3955358  6.4512177  8.1978511 10.6560571
## 148  3.0361340   0.0000000  1.1378314  1.1689629 10.1784944  6.2484969
## 149  5.9723411   0.0000000  3.8479067  0.9710745  8.8169388  4.6760981
## 150 10.2600278   0.0000000  4.9077992  3.4964112  3.5915358  0.9420077
## 151  4.4771527   8.1580431  6.2519311  4.9837506  8.2934583  9.1996780
## 152  6.9037144   0.0000000  2.4768483  1.8104842 10.7258881  5.8957316
## 153  0.0000000   1.7243883  0.0000000  0.0000000  9.3897458  2.9124583
## 154  4.3768946   2.0668814  0.7119354  2.5322421  9.5977615  5.9224143
## 155  1.6677559   7.9642906  0.3472121  0.0000000  8.2305513  9.4425048
## 156  5.3697701   5.9719665  3.5800128  1.5956946  8.7242335  3.3170725
##        rs_SYT9    rs_DLK1   rs_IGSF1    rs_GRPR   rs_FOLR1  rs_S100P  rs_CXCL13
## 1    7.9046093  0.8928184  1.9995671 10.2564863  6.2874834  8.018631  9.1973546
## 2    7.8833178  0.0000000  6.3621069  2.9070252  4.6132311  6.917703  7.1951950
## 3    4.5876830  0.4497462  9.5629535  4.6094654  5.2597018  9.918025  9.0386996
## 4    0.4889263  5.6030210  2.3317912  3.1152330  3.3616140 13.008752 13.8883901
## 5    8.0361170  0.0000000  4.9031492  9.9954984  4.5103797  6.103279  8.0705439
## 6    1.0266584  1.0266584  1.0266584  1.6204457 10.6151030  9.399329  9.7128267
## 7    0.4706150  4.6608488  3.1856604  2.2799170  6.3019900  2.588205 12.1381914
## 8    2.5529426  0.4304994  9.6933383  1.7799321  5.6547334  8.913685 10.5111618
## 9    0.0000000  0.0000000  3.5098225  0.6035967  2.2131295  8.838204  3.8587966
## 10   9.0337556  0.0000000  0.4930324  6.4287739  0.4930324  4.979847  4.6693046
## 11   2.0039620  3.1746301  2.2265702  7.4146590  6.1884484  6.106761  6.7512053
## 12   8.9633204  2.2346239  1.9873936 10.8860021  3.0726032  3.554429 11.6133058
## 13   0.5474498  0.0000000  1.5089864  2.0808623  0.5474498 10.903421  9.2897861
## 14   6.7580713  3.3762070  6.3474708 10.3700183  7.1809226  6.525956  5.8738329
## 15   9.5608397  0.0000000  1.8078083  2.8225466  2.0757722  7.669526  2.1931409
## 16  11.2785403  0.0000000  7.2337683  5.3300098  1.7256539  9.341853  7.0650402
## 17   6.6807266  0.5039593  3.1607750 10.1640535  2.4850919  8.379118 10.7876760
## 18   7.4552787  0.0000000  7.7367050  5.1597139  9.8539311 10.805316  6.0997791
## 19   5.3207626  5.5320457  6.4469972  8.8967426  7.1811354  6.552053 10.4346989
## 20   5.3250302  0.3644604  5.3758423  5.5363265  6.9675813  9.385673  7.4945444
```

```
## 21   7.2358477 15.0098383  0.0000000  3.5725259  4.4318369 12.109676  8.1737326
## 22   0.0000000  0.0000000  0.4976379  0.8668684  7.8531885  5.370248  9.4595296
## 23   8.5948419  0.0000000  0.0000000  3.8733309  0.0000000  5.144585  4.9821357
## 24   0.4537546  0.0000000  2.1132337  1.3094673  5.5832001  9.823675  9.8591307
## 25   2.0786781  0.0000000  0.0000000  9.0028440  0.9762170  9.935513 10.9941349
## 26   1.5178804 10.3258812 12.8640672  3.2100303  4.1731114 12.108843  5.5726836
## 27   9.5704737  2.1974880  5.9112649  6.6996238  7.3718559  4.856836  7.9297105
## 28   5.4898576  1.4103411  1.1657512  1.9640659  1.1657512  2.363199 12.4823129
## 29   5.8111704  0.6805044  8.5095240  4.1354199  5.4123514  5.317416  4.6326870
## 30   5.8259331  7.9886580 11.0445757  6.9538274  8.9858149  4.923572  6.4824982
## 31   5.5078327  0.0000000  1.3725621 10.0469915  4.7022087  8.670552  6.2269651
## 32   7.1958791  0.0000000  5.8186103  3.8055504  5.4645997  5.947241  6.0114241
## 33   8.7948889  3.7439673  5.9525223  9.3019093  6.9240904  6.159718 10.1429358
## 34   6.1056655  2.0231844  4.2104746  9.5685617  5.4706995 10.334097 17.1648261
## 35   6.9788500  0.7922723  3.7485149  3.1778859 10.1446475  9.807334  8.3515996
## 36   3.1209657  4.0727232  5.7096050  5.7329990 10.0465395  6.659585 12.2253609
## 37   5.3126289  0.5165195  2.0047890  3.1290522  5.9868500  9.324452  4.4655436
## 38   7.0727682  0.0000000  1.4264795 10.3977096  8.6475354  7.414722  5.5061068
## 39   0.5247658  0.0000000  0.9088129  1.6751836  0.5247658 10.704044 10.1838678
## 40   5.9243446  2.9530231  3.5751187  1.8355199  7.0792981  9.426724  9.3001592
## 41   1.9814143  1.7196216  4.2494909  0.4088205  8.7653126 10.850686  6.5146068
## 42   1.5224073  0.0000000  2.1278974  3.5219302  5.3991369 10.484676  9.9322780
## 43   1.6911768  0.0000000  7.9798482  1.6911768  7.8211037 10.336528  7.4427992
## 44   6.8926545  2.7945198 14.0664332  9.2595616  4.1849785 11.036329 13.0360287
## 45   9.1855177  2.2940472  6.9020060  4.8731488  3.7225862  8.901790  7.1251985
## 46   2.4267478  0.0000000  1.9700438  7.3089178  5.8186205  9.822621 13.6704271
## 47   9.2693189  0.0000000  2.4684530  5.2887092  0.6822137  2.618027  8.4152639
## 48   5.2248815  5.3008522  8.1792682  5.5788512  8.0594067  8.308453  3.9756669
## 49   8.8825107  0.0000000 12.6828446  9.7948117  0.6503050  6.661462  4.3876176
## 50   7.4585567  0.0000000  8.6614122  9.4174827  4.4552088 11.062296  5.9437432
## 51   0.7081431  2.6750481  8.2919571  2.9947245 10.7099061  8.193895  7.2127483
## 52  10.2182280  0.0000000 11.0035687  3.2481705  2.5964104 12.972370  4.6691459
```

```
## 53   7.1204556  0.4093638  2.3966527  5.1209408  3.3487848 11.518279  6.2318759
## 54   3.4030904 12.3030941  8.2761346  9.6989741  8.3359646  9.959665  9.3897397
## 55   9.2458899  0.0000000  6.1510795  5.5971170  5.5054019  8.866391  7.8341006
## 56   0.4924172  0.4924172  0.0000000  0.8589358  9.2585017 11.048047  2.0890574
## 57   8.4284192  6.5011366  4.3322998  6.1512784  7.5470873  8.516437  9.8656267
## 58   7.4846634  2.6147805  7.2283849 10.6430824  7.5077011  8.134278  5.9658766
## 59   2.9585643  0.0000000  5.4300577  0.3723950  9.0391650  9.397710  6.9723779
## 60   0.6223682  0.3444877  3.0022164 10.6706742  6.6933197  9.313849  2.0828729
## 61   6.3885633  0.0000000  2.1202856  4.6463470  4.5559082  1.334397  6.3885633
## 62   3.8727106  0.3748447  1.4752406  3.5090624  2.7306617  5.789171  6.4729312
## 63   8.4647989  0.0000000  3.6909981  7.3672426  3.5972690  2.260387  4.7691211
## 64   6.3148741  0.8698714 10.0534463  4.4387453  4.6906518  7.613750  3.6053639
## 65   0.0000000  0.0000000  6.3000377  3.0263220  8.5148557  7.298433  9.1542060
## 66   3.3671334  0.0000000  1.6746866  2.5005726  5.6216329  1.674687  7.0414368
## 67   4.8753967  8.0508069 10.4699248  8.6956080  9.4432131  3.116331  3.7734795
## 68   8.3448090  4.7112306  5.7432914 10.1541196  5.2834885  7.216740  8.4550514
## 69   8.1975730  4.8731340  7.4727347  9.1754727  7.3439256  8.393911  5.6608488
## 70   4.1324288  0.4270698  5.3319273  7.9362740  0.7562547 11.296230  6.5707802
## 71   9.8059586  0.0000000  6.2767367  6.9133825  6.6506310 10.610080  6.7922932
## 72   8.3121192  0.8168864  2.2654669 10.4454019  4.7695443  5.027110  9.7515529
## 73   5.8686324  1.4868173  3.5309197  3.2477149  1.1938979  2.991572 12.4491584
## 74   9.8611311  3.5913084  3.3243642  9.2719749  1.7341785  9.683710  2.5716040
## 75   6.4849663  8.4494433 11.0810818  6.9188632  9.2418507  5.179435  6.3678480
## 76   8.1209361  0.0000000  6.2209451  9.9706217  2.7357171  4.008612  5.4098457
## 77   2.3429245  4.5486401  7.4606828  2.8298496  4.1946859  6.081097  1.0131406
## 78   0.4165155  0.4165155  2.1199205  1.0028825  9.9399588 10.591993  4.3274215
## 79   1.6144272  3.4321310  6.1093856  2.0330882  0.0000000  5.672425  1.3484591
## 80   1.3922625  0.0000000  0.4918018  0.4918018  6.0353644  9.866769  1.5998414
## 81   6.0419986  8.9218264  9.1042672  7.1247737  6.7064532  3.722193  1.3008266
## 82   3.8550927  6.4088732  8.0957346  4.4952922  9.2555904  1.698307  0.9245560
## 83   9.9866080  0.6143800  3.7805411  8.6581158  4.8779700  8.583205  3.9387563
## 84   8.6493359  0.0000000  1.4996291 10.7272874  2.1356334 11.211741  5.7267822
```

```
## 85   4.3866040  0.0000000  7.2768707  1.6839210  4.4609719  9.137962  3.1734633
## 86   1.1025238  0.0000000  0.0000000  7.3548162  1.5037049  6.784300  6.9134914
## 87   5.4903262  0.0000000  4.9421485 10.7860293  7.2450202  6.983886  4.3339389
## 88   0.0000000  0.9953036  0.0000000  4.6348836  0.5818815  7.040572  8.3126103
## 89   3.7905427  0.0000000  3.7014936 11.1062624  3.1486576  5.755091  4.6449522
## 90   7.1299692  0.0000000  5.4447963  5.1579855  3.2263852 10.582630  1.1804662
## 91   8.1691293  0.4421208  1.0535979  9.1329261  9.2716194 10.363305  8.5547607
## 92  10.1669469  3.5565030  1.3191555  5.9190921  2.9778294 10.862363  7.1081240
## 93   9.8396287  0.0000000  8.7950721 11.1646687  0.7464848  7.308889  4.8128678
## 94   8.5113447  0.3634515  4.0166924  9.0543574  3.8829951  9.875589  5.1214672
## 95   5.7987297  0.8705028  0.6343145 11.7089916  3.5567482  4.612812  5.1834786
## 96   9.0998196  0.0000000  1.8662354  1.4667054  0.9121900  6.848123  7.2122045
## 97   2.6049490  0.3774014  1.1350094  0.0000000  5.4809210  9.241664  6.9875153
## 98   9.2957809  5.1378601  0.7579620  6.5905077  0.0000000 10.707695  3.4161912
## 99   1.8246864  0.0000000  6.3469640 10.5746997  6.9127504  8.416455  5.8391660
## 100  9.5709334  0.0000000 11.3949434  4.4021628  1.7893537  6.458812  4.0206533
## 101  0.6042611  2.2144668  0.6042611  2.7488262  8.4534554 10.942302  8.4862610
## 102  3.9818527  0.0000000  3.7865964  2.3219281  6.2364926  2.536053  0.4854268
## 103  5.8023277  0.0000000  1.2008182  9.3124410  0.0000000  4.478888 13.6209532
## 104  6.8895636  0.0000000  2.4958998  7.7024498  2.5915837 11.322378  4.5739440
## 105  8.3260380  0.0000000  4.3971253  3.0022525  0.0000000 11.777109  0.3124328
## 106  5.7831082  4.0280121  5.8858062  9.1214840  4.9396873  9.425460  0.7004397
## 107  8.3354542  0.4455148  8.8817863  9.4400326  0.7854250  7.577068 11.3530522
## 108  3.0451459  0.0000000  8.5741140  7.1963867  6.2834625  9.476742  6.4555081
## 109  5.6820030  2.8553519  4.0906333  9.5236568  5.0281006  9.272491  5.5646922
## 110  5.7697585  3.2704392  1.4132149  4.5415644  2.2201132 12.768539  4.9821037
## 111  3.7066190  1.3708896  4.7039589  2.6031456  0.0000000  7.338516  8.1673419
## 112  6.7993749  3.8822224 12.1780845  6.3832585  5.5231197  5.186088  4.7000068
## 113  5.4201287  0.0000000  3.9139138  6.0119071  3.7935734  8.891981  8.9887886
## 114  7.7833335  0.0000000  0.4144603  7.2070670  0.9987732  9.911985  6.0850953
## 115  0.0000000  0.6786128  2.5371718  2.2026998 10.2183332  8.310591  7.6204588
## 116  4.5557916  0.0000000  2.2976023 10.7255643  0.0000000  8.388894  4.9554105
```

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## 117  0.3159140  9.4085000  2.2977197  3.5868728  2.5597365  6.764355  5.3279640
## 118  0.7000845  1.1694120  0.0000000  4.9821220  7.3522509  8.268228 10.3319750
## 119  6.7984964  4.9451114  6.9659920  9.8349776  3.3575520  9.369632  7.9582250
## 120  6.6857019  0.0000000  2.1571084  1.3768460  0.8467942 10.261832  3.2903654
## 121  1.2383589  2.3442320  7.8471858 10.3235853  5.9045684  9.009193  6.9251164
## 122  8.4964336  0.0000000  8.4015486  8.0365869  3.2264006  9.890914  3.2264006
## 123  8.4777263  0.4403144  0.0000000  8.6284576  2.1919416  9.718733  2.8923133
## 124  1.3394225  0.3852654  0.3852654  2.0217995  1.3394225 11.516226  9.4046471
## 125  9.0580957  0.2632748  2.1388472  2.6795364  4.3662173 13.241539  9.6577974
## 126  6.5053352  0.8825257  0.5077185  8.8198987  0.8825257  3.529221  8.2412315
## 127  6.9630845  0.0000000  2.6632991 10.6855810  1.6479591  6.616072  8.9881217
## 128  7.0220049  0.0000000  7.3132685  3.9972382  0.8980922  8.219581  8.2097955
## 129  9.9169538  0.0000000  0.0000000  7.7723667  0.0000000 13.062683 11.8627309
## 130  3.0791391  0.0000000  1.4091465  4.2948266  0.0000000 12.057804  8.4881089
## 131  0.0000000  0.0000000  1.0501186  2.8921967  0.7771988  7.631970  7.4729710
## 132  8.8837757  1.4547023  4.1325193 10.0946923  6.0315783  2.912401  6.3100529
## 133  4.7075027  1.7466137  2.6097550  3.4350285  3.8818310  9.779548 11.3915188
## 134  8.2574270  0.0000000  2.2958406  8.2630884  1.3242346  7.440101  6.4924285
## 135  8.7793845  0.0000000  2.9496843  6.1248719  2.7010832 10.917180 11.0796533
## 136  9.6064752  1.1906781 12.0478075  8.4734014  3.6488566 11.780494  5.7322421
## 137  6.0317878  4.5915119  4.0666317  4.2635828  4.6123171 11.568129  2.9359688
## 138  0.6561760  1.7239953  6.5502112  2.1554902  8.4368056  0.656176  5.1518710
## 139  8.3020302  0.3775125  2.4557546  8.9383155  2.8640177  6.197193  9.3770482
## 140  2.4900566  0.0000000  7.6558648  6.1434200  0.0000000  7.300042  7.5596249
## 141  0.4881036  0.8521587  4.3733837  1.7720968  5.4486730  9.777768 10.0451530
## 142  3.6445947  0.0000000  6.8587743  8.1905467  4.2839144  9.311170  8.1450691
## 143  1.4871261 10.2637192  4.3809995  2.9053124  8.8914733  1.487126  2.8341246
## 144  2.2030132  0.0000000  2.2030132  5.5670221  9.5795726 10.926988  4.0284631
## 145  1.2876496  0.0000000  5.0442936  2.1567849  8.2312687 10.322951  9.7248554
## 146  6.1029268  0.0000000  6.3138136  6.9893468  2.5118981  7.202458  8.1433822
## 147  7.6501269  0.0000000 12.9082091  6.5337751  0.0000000  9.545892  7.1344766
## 148  0.0000000  0.0000000  8.0922751  3.2331825  7.2158640  8.196316  5.7175558
```

```
## 149  9.7090049  0.0000000  1.5165195  1.5165195  0.8027309 10.691355  4.7175064
## 150  0.0000000  0.0000000  0.0000000  1.5071603 11.1384891  8.690879  2.8048796
## 151  8.1567637  3.3743162  5.8637279  7.1707123  5.6402334  5.340025  5.1779138
## 152  1.1670367  1.4117516  1.4117516  3.5083019  7.2371927 12.618051  3.7500490
## 153  6.4561145 16.2444943  1.3426685  0.8221999  3.2976903 11.451430  8.5671975
## 154  2.5322421  5.1215045  7.8275415  2.4504063  8.3000990 11.091765  4.9828567
## 155  3.4325987  9.5765839  1.3966527  9.8830367  2.2660369  9.420901  5.1957846
## 156  4.9016730  0.0000000  1.8035164  8.1893754  8.1264763  7.237809  5.5338748
##         rs_DCD   rs_FOXI1   rs_PYDC1 rs_ANKRD30B  rs_CXCL17 rs_PLA2G2A
## 1    0.0000000  2.5140970  3.9200360   7.3632605  6.2554818  9.2782171
## 2    7.8475704  4.4320040  0.7843365   2.5096958  3.9150428  6.0602593
## 3    0.0000000  3.7481499  0.4497462   2.6138145  5.4407064  8.1503952
## 4    0.0000000  6.5008228  0.0000000   7.0009037 10.3308486  6.5326037
## 5    5.3993215  3.6877214  5.5654449   6.8065174  5.1645168  1.5757964
## 6   13.8174518  7.8632354  5.7243010   0.0000000 11.5222641  7.2813672
## 7    0.0000000  5.1106931  0.8248086   3.5125556  9.7395060  5.7811367
## 8    1.9191112  7.0030524  3.1127335   0.0000000  1.6259250  4.3058028
## 9    0.0000000  7.2097662  0.0000000   0.0000000  8.2325610  0.0000000
## 10   0.0000000  4.1124166  0.0000000   3.7687031  1.9455702  9.1334068
## 11   0.0000000  9.7986260  0.0000000   2.8119025  3.7053366  5.3627224
## 12   0.0000000  7.3615438  9.4611821   7.5896392  2.3440047  5.3455028
## 13   1.5089864  4.8425364  0.0000000   0.0000000  0.0000000  3.1450089
## 14   2.8139761  6.6847725  0.7400209   2.5088596  3.7075579  3.0656929
## 15   0.0000000 10.4863293  5.5683149  10.1256880 10.6275913  5.0667135
## 16   6.5437047 10.5078015  8.9995618   6.2167129  5.9735332  2.6031456
## 17   0.0000000  7.3834442  2.9427960   6.4449387  5.6533782  0.5039593
## 18   0.0000000  8.1416223  3.7655560   0.0000000  2.2685242  7.8532503
## 19   0.0000000  5.6354555  4.0913190   7.3451968  5.6271136  5.2022571
## 20   0.0000000 10.4624744  0.8970080   7.4713671  6.9238575  2.6916682
## 21   6.1212351  8.8527030  6.9172742   2.3322496  9.3620484  9.2091087
## 22   0.0000000  6.6710966  0.0000000   1.6132016  4.5127768  0.4976379
## 23   1.7460117  3.4446936  5.5445441  11.9596786  2.1030276  5.1252502
```

```
## 24   0.0000000  3.7620298  0.4537546   1.0764907  3.3562002  6.7672350
## 25   4.1510551  6.3506069  7.0884798   1.3852101  6.5672047  4.8764384
## 26   0.3405053  3.8918858  1.2210728   2.8326268  2.2410775  3.4747475
## 27  11.0113165  5.7949201  0.0000000   5.4607950  6.1845977  5.2321005
## 28  12.2111964  8.9707542  7.4348008   8.1753395  3.6560616  6.1675346
## 29   0.3800645  3.8935952  0.9291092   6.8594528  1.7701525  4.4458326
## 30   2.7957877  5.4866404  0.4557546   5.7680996  5.3876934  7.7431123
## 31   0.0000000  5.5078327  1.1322478   6.7372852  4.4103343  5.6286132
## 32   0.0000000  8.7497813  0.0000000   3.8761928  6.8850008  4.6758949
## 33   0.0000000  6.9858727  1.7989215   6.2019827  5.7490166  5.0546401
## 34   6.2537340  4.2442021  0.5238630   5.8775799  4.3408756  3.0009555
## 35   0.4498519  8.5349767  0.4498519   5.3273676 12.8956635  7.7896693
## 36   1.1911204  3.9582766  7.5342274   5.1899906  9.2448647  5.3192675
## 37   0.0000000  8.4121337  4.4082023   6.4373792  8.9175678  2.2851950
## 38   0.0000000  0.0000000  5.6342012   3.8859745  2.3839393  5.0350916
## 39   0.0000000  1.4620000  3.6330708   8.1043592  8.7847755 11.3377179
## 40   0.0000000  3.7227939  1.1918784   2.2790552  6.9428605  7.7960967
## 41  10.0426368  7.1080717  3.2996110   1.2082675  6.8822787  0.4088205
## 42   5.1631726 10.7036341  1.0865120   1.3208312  6.7910235 11.4926354
## 43   0.0000000  4.6985852  3.8000301   1.4767964  6.4062696  0.9196833
## 44   0.3923174  2.7945198  0.0000000   5.4939643  9.2403077  5.6636691
## 45   2.5559143  2.1428382  0.9826560   6.0100100  6.2416610  8.6481605
## 46   9.6636766  7.2057610  8.3978098   1.6728326  6.6042033  6.5490777
## 47   0.0000000  0.6822137  0.0000000   3.7757354  3.8977922  9.3268180
## 48   4.2188664  6.1884187  0.3661403   6.9035939  5.8556808  5.0845448
## 49   0.0000000  3.6638342  2.9162855   7.3208800  5.4499146  5.7385463
## 50   0.0000000  7.5776660  9.1977047   4.8907288  5.4434575  7.0453720
## 51   0.0000000  7.6230350  2.2637255   0.0000000  8.6251718  5.8666879
## 52   0.0000000 11.1660116  3.2481705   7.8505538  9.5804698  6.6259762
## 53   0.0000000  4.8849886  0.0000000   5.1209408 10.7657956  4.1749816
## 54   3.5846980  7.7309198  4.8236016   1.9403923  7.6693960  6.3430062
## 55   1.1326426  6.9348420  1.1326426   3.7251085 11.8469660  5.5242173
```

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## 56   1.9440338  6.1656969  0.0000000   0.0000000  1.1508846  3.1916732
## 57   5.2419851  9.6379898  3.0398929   1.6632535  6.7441180  9.4003394
## 58   0.9715895  6.7024816  3.4073528   8.3746226  4.2674609  4.3146748
## 59   0.3723950  0.3723950  4.0538412   0.3723950  0.0000000  5.7472558
## 60   0.3444877  7.3108636  0.0000000   9.5255715  2.3350258  3.6856038
## 61   0.0000000  2.9440338  0.0000000   4.9460664  3.6159694  8.2340208
## 62   0.0000000  2.0921736  0.0000000   9.7250900  6.7721575  1.9880848
## 63   0.0000000  8.3328900  0.0000000   2.5544415  6.1904766  2.4863540
## 64   0.0000000  4.8849788  9.5858645   6.5432345  5.1432342  5.1600247
## 65   0.0000000 10.2686942  0.8676593   1.2476238  9.7519567  3.5167716
## 66   0.0000000  7.2583955  0.0000000   8.9144892  4.0066302  4.7857807
## 67   1.7376435  7.7106157  0.4153260   6.2986308  5.3467123  5.2739559
## 68   0.3907777  4.3423556  0.0000000   8.2118829  3.1336128  7.2902557
## 69   0.7478600  7.6211625  3.7255558   6.4134435  5.8196707  6.6367029
## 70   0.0000000  5.0158543  0.0000000   6.8373807  0.7562547  0.0000000
## 71   0.0000000 10.1225780  2.0313246   8.1937486  7.5083993  5.2499535
## 72   0.0000000  1.5380415  0.0000000   6.1355944  3.5438175  2.1464271
## 73   0.0000000  1.1938979  0.0000000   0.0000000  0.8258670 11.8552947
## 74   0.0000000  7.9334281  0.3683772   3.4058018  3.7242574  1.9666889
## 75   5.2889196  7.9706311  1.8236271   6.4539570  7.9815444 11.5541244
## 76   0.0000000  0.0000000  0.4619476  10.0997815  3.1579007  0.4619476
## 77   0.0000000  4.2342560  0.0000000   1.0131406  3.1932356 10.3179306
## 78   0.0000000  1.2257068  0.4165155   0.4165155  6.2849323  1.4186757
## 79   0.0000000  0.5997939  0.0000000   0.0000000  2.9450458 11.9556986
## 80   0.0000000  4.3285565  6.5424252   0.0000000  5.9335679  0.0000000
## 81   3.0563234  6.8291455  0.0000000   5.6092231  4.4580932 12.0567570
## 82   0.5350576  8.7063375  0.0000000   3.8096202  4.0631750  9.6451731
## 83   0.0000000  3.3633393  3.1641266   8.6760170  5.0952029  4.0117997
## 84   5.0607392  1.9531162  5.2106733   6.6767399  3.3784423  4.7607372
## 85   0.0000000  9.3853732  0.0000000   0.3523066  9.2672886  0.3523066
## 86   0.0000000  0.0000000  0.0000000   4.7994604  2.4826676  1.9938555
## 87   0.0000000  6.4580112  6.0962555   4.7429009  0.9937830  8.0283443
```

```
## 88   0.0000000  0.5818815  4.6057432   0.5818815  0.0000000  0.5818815
## 89   0.0000000  4.4122396  9.9305039   1.1650436 11.7893986  0.8704239
## 90   1.0094905 10.0701605  0.0000000   7.3653671  5.5421218  1.1804662
## 91   0.0000000  2.5896916  0.7799741   7.6360474  7.0585925  7.3587910
## 92   0.0000000  2.7402368  1.3191555   5.4905477 11.6109299  6.2659788
## 93   0.0000000  0.4209405  0.0000000   2.2409859  1.0118534  5.4493567
## 94  10.4972657  6.3388291  2.7507566   7.0057054  4.0166924  9.0229162
## 95   0.3517414  1.2512646  9.0163737   7.1107986  5.1834786  3.0797194
## 96   0.0000000  1.6802343  0.9121900  11.2223544  3.7853413  4.6329719
## 97   0.0000000  4.9497357  0.6763577   1.8841681  0.9237957  0.3774014
## 98   0.0000000  3.1046554  3.8896390   5.5638506  7.0701682  4.1077297
## 99   0.0000000  5.9545523  0.0000000  10.1963816  9.6760159  4.4577256
## 100  0.0000000  9.0259678  8.4362626   2.6790634  1.7893537  4.4676968
## 101  1.8483175 10.6478011  8.7694101   5.4903519  9.6753308  5.5635822
## 102  0.4854268  1.3785116  0.0000000   8.8795832  0.0000000  4.5484366
## 103  0.0000000 12.6528362 10.7961556   8.7203441  3.4074071  2.2130050
## 104  0.8265993  8.5356852 11.1791022   9.7902881 11.9183677 14.1230096
## 105  0.0000000  0.0000000  0.0000000   3.8132887  2.0508499  2.9124199
## 106  0.0000000  3.4999479  3.1899194   5.5236717  5.3129918  3.0875647
## 107  4.3854172  7.1581653  9.7935119   5.2715975  2.3161457  5.8531174
## 108  0.0000000  8.8420014  5.9045949   3.0949792  2.3398215  2.9399600
## 109  0.0000000  5.0281006  2.0420840   0.9191494  4.9677635  7.2565389
## 110  0.4143521  6.4121887  3.0563581   6.3721912 12.4885536  2.3196179
## 111  0.0000000  1.8229748  1.9468431   3.0525898  6.0030287  7.7038157
## 112  0.0000000  4.8324546  2.3688801   6.5845161  4.0366704  3.2850026
## 113  0.0000000  0.4875892  1.1416290   5.8900380  9.3244702  3.6622739
## 114 10.3981230  4.3669446  5.1269481   8.1641874  3.4572528  4.1676550
## 115  7.9911607  0.6786128  0.0000000   1.4863025 11.9866895  9.8778614
## 116  5.9624958  1.5647196  3.8129910   4.1676229  2.3903375  3.4747605
## 117  0.0000000  9.3828079  0.0000000   6.0733982  5.4701887  3.0607219
## 118 15.7306762 10.0995975  2.8572047   6.3165223 11.5970350  7.0865683
## 119  1.0199154  9.3984810  8.4502128   6.2089054  7.1053208  7.6903808
```

```
## 120  0.0000000  7.0204378  5.0533938  10.4274155  7.2771693  2.4659484
## 121  0.0000000  4.9068233  0.0000000   7.6333818  7.3099774  3.4552680
## 122  3.9661259  5.3716669  3.6431635   9.2694706  8.3454922  4.4755065
## 123  0.4403144  1.0501882  5.0023425   8.5995447  7.8839268  5.5776252
## 124  9.0612656  1.1534162  0.9398284   5.3393441  8.8256231 11.6618036
## 125  0.0000000  1.0008654  6.3767505  10.5878204  4.3939653  3.2943414
## 126  0.0000000  0.0000000  0.0000000   6.4437508  2.3835246  4.6941336
## 127  0.0000000  0.4390380  2.0706984   6.7121817  3.1984942  0.0000000
## 128  0.0000000  8.2027644  0.8980922   2.1552635 11.0345112  2.4109109
## 129  0.0000000  0.5051796  2.5926364   1.4207788  8.3889080  4.3721581
## 130  5.2419012  6.8118897  4.0282332   2.6738730  8.3612793  6.7522013
## 131  0.0000000 11.5711629  0.4403144   4.1516721  0.7771988 12.7611592
## 132  0.0000000  5.8691904  1.2052048   5.9526667  5.4480419  3.6225087
## 133  0.0000000  3.8028549  3.7193149   2.5138444 11.3380401  7.0671418
## 134  0.0000000  6.5068161  6.8901025   8.7600419  6.5020362  6.0698611
## 135  0.0000000  0.9390008  2.9496843   6.7301862  6.3524284  6.3361423
## 136  0.8914970  4.6891258  0.8914970   8.9166480  6.0718399  6.4906808
## 137  0.0000000  5.8066334  0.4330663   7.8321989  5.7975785  2.2784309
## 138  6.8128961 12.7202239  2.6939441   0.6561760  1.4476321  2.2458607
## 139  0.3775125  0.0000000  0.0000000   5.2624031  6.5315998  4.2885136
## 140  0.0000000  7.7118266  0.0000000   4.3140947  0.5056877  1.8151245
## 141  0.0000000  5.2795530  2.0774481   0.0000000 13.0098605  4.0266142
## 142 17.4066512  4.4075771  5.6881328   3.7971271  6.6391728  2.9307184
## 143  0.4443490  6.0025720  3.2164549   2.5080483 10.6808953  7.1014694
## 144  8.1147226  6.1646395  3.3870316   0.9268344  5.6599445  8.2252817
## 145  5.6605522  8.8261299  1.2876496   0.0000000  0.3654686  4.4622814
## 146  0.0000000 10.3063886 10.4978190   5.5575326  3.2428464  0.9565771
## 147  0.0000000  5.9043372  6.0715825   5.3225483  4.7620405  6.9831943
## 148  0.0000000  2.6785677  4.6093649   0.0000000  8.3920340  2.0004327
## 149  9.2983848  9.2559796  5.0284233   6.6599388  8.7709697  7.6713450
## 150  0.0000000  9.4611174  7.6863233   0.0000000  6.0126849  0.9420077
## 151  0.3256167  7.1933558  0.8153295   6.7360582  4.1467855  8.1387290
```

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## 152  2.6774180  8.2909464  4.6484309   4.2366380 11.9359188  9.5689054
## 153  6.7047682  4.5875870  5.8540231   8.9588180  4.5875870  6.6506483
## 154  0.7119354  5.7620697  0.0000000   2.3636477  3.7823247  6.2889676
## 155  0.0000000  6.7136917  1.7863036   7.8549157  4.2858387  6.3303182
## 156  0.0000000  4.8527679  2.3176224   3.6388848  2.8027309  1.9959548
##        rs_DIO1   rs_NBPF4  rs_ABCA12   rs_GLRA3    rs_SAA2    rs_CHAD
## 1    6.7273610  1.1923204  3.9602986  1.9995671  6.4588725 10.2840116
## 2    5.8684719  0.0000000  7.7969261  1.6630713  3.5202211  7.0572542
## 3    5.2035222  8.1335810  4.5202902 10.6218320  9.2631356  8.9227818
## 4    3.9933936  1.3860936  3.7980194  6.1455389  3.1152330 11.6700766
## 5   10.5356250  2.4217484  6.6784424  5.3581079  2.9514572  9.6842430
## 6    2.8528179  3.3696200  5.2803291  1.3538878  7.1346604  3.6925946
## 7    1.8873693  0.0000000  3.3030501  2.6778916  7.7510312  6.3974813
## 8    2.8598106  0.0000000  3.4704458  2.2705588  6.6403433  3.6002103
## 9    0.0000000  3.9095619  3.7515923  0.0000000  3.9095619  6.0317481
## 10  10.9846034  3.5351572  2.0906163  0.0000000  5.5048809 10.4688016
## 11   7.2531923  9.2090466 11.6960236  2.2265702  7.6051854 10.2060466
## 12   2.1162982  0.4548076  9.2552210  0.4548076  7.5473866  3.1347959
## 13   1.7257848  1.2537473  4.1004058  0.0000000  6.4930308  2.3656086
## 14   8.4071479  3.0656929  6.6272450  3.9140957  7.0188823  7.6587285
## 15   4.8692249  1.2804813  8.4864718  0.4407396  3.8656714  9.6956231
## 16   9.7196936  6.3203204  8.2245227  0.5474498  7.8273052 10.4460837
## 17   5.7573860  7.0878171  5.8120849  0.0000000  3.0917168  5.3622525
## 18   9.4864407  2.1493894  3.6821912  9.8202051  9.7296778 10.6136263
## 19  10.4196878  7.4049550  6.5652087  5.1796265  5.9615516  9.5977420
## 20   3.8870475  8.2116192  7.4406699  2.4089835  5.2723629  9.1571183
## 21   6.6537365  2.0802142 10.6623253  0.0000000  3.2441868  2.0802142
## 22   1.1606621  0.0000000  2.2347466  0.0000000 10.0418372  1.9571717
## 23   2.1030276  0.5566992  6.1433955  0.0000000  0.9573203  6.5724804
## 24   0.4537546  5.4058971  3.1908677  3.1312602  8.3885951  2.7102389
## 25   4.6168870  9.4439172 10.6539097  0.0000000  5.7166590  8.0985254
## 26   7.6236920  9.8241732  5.7256921  0.0000000  6.4949404 11.7457818
```

```
## 27   9.7482578  2.5015156  4.7835771  2.4071352  9.1671374  7.9986858
## 28   2.1097283  0.0000000 10.7798001  0.5002922  4.6221631  2.1097283
## 29   5.2390008  9.5194405  4.2767051  2.8735179  5.3917883 10.1632943
## 30   4.1165477  4.9235723  6.8179200 11.3494694  9.5754595 11.0430525
## 31  10.9893628  5.2000609  6.6022059  1.7587296  4.5143306  9.5794466
## 32   3.6529339  6.4423613 11.3113799 11.5364773  6.9601039  7.5192911
## 33   1.9388127  6.4442463  7.2703692  6.2294860 11.3439073  9.5694138
## 34   6.8652594  3.5245527  3.3497050  8.3674012  5.5803747  8.1840938
## 35   3.7086949  3.1778859 11.7719673  2.2200203 10.8220665  7.6013570
## 36   3.3800090  1.9979427  4.4846602  3.0482187  8.5795554  5.6616470
## 37  11.9319031  6.1531548  9.7142478  0.5165195  5.8748953 11.7980877
## 38  10.7414007  3.3222022  7.0174565  0.0000000  5.4422037  6.3379216
## 39   5.1383517  8.3296138  8.5261201  5.2589636  6.0235681 10.3458337
## 40   1.9598443  5.4604641  3.5357171  0.0000000  5.2933153  5.2206279
## 41   7.3474699  1.2082675  5.3794927  0.4088205  3.9154062  2.2029192
## 42   9.2685149  0.8066128  8.9148464  0.0000000  7.7396922  1.9986649
## 43   7.4166861  2.0429244  5.6831069  2.5617172  6.1676630  2.4484517
## 44   5.3242922  7.1806432  5.4430529 11.2923624  6.0169197 11.7099504
## 45   8.1426217  0.5733745  9.9236683  3.4277268  8.0286073  7.2690846
## 46   5.4843863  7.3188392  7.4298118  2.8480771  6.5034076  9.3831156
## 47   2.4684530  0.0000000  7.0759369  0.3810618  5.3434434  6.8862014
## 48   8.9239986  0.0000000  5.3830407  1.4505910  8.5894590  7.2785164
## 49   5.9460103  8.3111975  7.0379313  7.9845774  8.0863268 10.4850567
## 50   1.1942762  9.2702364  9.4437436  0.7173858  9.3270485  9.9701246
## 51   0.0000000  3.9315507  4.1009524  0.9639180 11.6942437  3.3931004
## 52   1.3751785  9.4061429  4.9796870  5.4519891  5.8208427 10.2697441
## 53   4.7682373  3.9484233 10.4825019  0.0000000  5.5013946  1.8580208
## 54   9.5167438  2.4885150  9.8612968  0.4380799  3.6267312  7.5007081
## 55   2.9182526  8.2630419  3.5525615  0.3765127  6.2504728 11.3020990
## 56   5.5285307  5.1196591  6.1656969  0.0000000  4.4156032  3.4816735
## 57   2.3142035  2.7611576  5.0508499  0.0000000  6.3936753  7.9162873
## 58   8.9520831  0.7143115  8.0959429  7.2253000  7.4846634  9.2825478
```

```
## 59   3.3404768  2.9028454  4.0538412  0.0000000  9.1177457  2.1807844
## 60   8.2952083  7.0772815 12.0898373  0.6223682  4.6126120  5.1061598
## 61   0.9358369 10.4963605  1.4988125  0.3832757  5.9722768  7.7022323
## 62   2.0921736  2.7306617  6.9898588  0.0000000  7.9272760  5.0847106
## 63   5.5885467  6.4313271  7.9140885  0.0000000  4.9186963  8.2063336
## 64   8.3731919  5.2877567  7.5225525  1.9620677 10.1683868  8.1476206
## 65   0.6320820  0.3503841  5.8624068  0.8676593  7.1246094  0.8676593
## 66   0.8656813  3.2883733  6.2703514  0.8656813  5.3090088  8.3966283
## 67   3.9705316  2.4158127  4.7378922  7.9316955  8.5061096 10.5443156
## 68  12.2757895  4.6588970  5.6118186  6.7423903  7.1738740 10.0512950
## 69   1.8942939  1.6031219  7.8898787  2.3437205  6.7654008  9.2336110
## 70   6.2565465  1.4450380  5.1478968  7.5366459  1.7705331 11.3793495
## 71   2.2477453  7.7770922 12.4126379  3.2297571  5.1549112 11.1639892
## 72  12.3960172  2.5730109  1.5380415  1.0992279  8.3445933  4.8092755
## 73   3.2863045  4.1697006  1.8380643  1.1938979  9.5545230  1.7302269
## 74  10.0687885  0.6614760  9.5817100  0.0000000  7.5345714 11.4703001
## 75   2.1673900  6.7159894  7.6141253  6.7333110 11.7951055  9.0564443
## 76   7.2294985  6.3196793 11.6735702  0.0000000  4.3662872 10.1139764
## 77   1.0131406  1.3377111  2.4809113  0.0000000 11.4603026  3.1106138
## 78   4.5498540  2.5897875  5.4650831  0.0000000  5.0205555  4.8300068
## 79   2.9450458  1.0221192  2.0330882  0.0000000  9.5506873  3.4321310
## 80   0.8579014  3.1240138  6.5611657  2.0873610  3.2525519  3.4796703
## 81   2.8763107  2.5555708  5.1750734  3.0563234 14.6809909  6.9592868
## 82   2.0507455  1.2308793  3.4434475  3.3826258 13.9255589  6.3935432
## 83   2.3166961  9.5902940  7.6310985  2.7169251  4.2110589 10.2009012
## 84   9.5718516  6.8102786 10.3456948  6.4840044  5.5611459 10.3482312
## 85   1.6839210  5.9049946  6.9195224  0.3523066  1.6839210  3.2170446
## 86  10.7823521  9.2912082  2.0746767  0.0000000  0.2980717  5.0892736
## 87  10.1069352  5.0894515  6.5164659  3.7254576  7.2035722 10.7686004
## 88   9.1057134  1.3163196  3.9454579  0.0000000  5.9907983 10.3427034
## 89  11.1458244  5.4204251  0.8704239  0.0000000  1.8010345  6.3586828
## 90  11.4608693  8.9658374  2.9707248  0.3257318  0.0000000 11.0434802
```

```
## 91   4.5600240  4.0053281 11.3307813  0.0000000  3.8345494  7.5830783
## 92   4.7070609  4.6394290 11.8598877  7.0668878  3.8536863  8.1940969
## 93   5.0673203  6.8135016  9.3921074  0.4209405  0.7464848  7.2000629
## 94   3.0291525  7.2260326 11.9068788  0.3634515  7.7882766  7.8142223
## 95   6.8458162  2.5093411 10.4762701  0.6343145  2.4376272  5.9673646
## 96   2.0309716  2.3128684  9.9365553  0.0000000  6.2885247  8.6412259
## 97   9.0708785  4.7557796  3.5927082  0.0000000  6.8257882  5.2510108
## 98   8.3169562  7.7931266  8.5661435  0.0000000  3.7484076  5.8497241
## 99   9.0053722  7.1826506  8.6637161  2.9399036  5.4030120  6.4449420
## 100 11.6975258  6.2511642  6.2134542  1.5681294  8.2108096  6.8436284
## 101  2.5708272  1.2018847 13.1746938  0.3335382  3.0946246  2.6918914
## 102  2.9634741  9.3901690  2.6322682  0.8479969  1.1375035  3.2326608
## 103  6.1523842  7.4810914  3.8325660  0.0000000  5.5696582  9.5419012
## 104  4.7707234  8.6316496  8.7203048  0.0000000  3.5642074  9.1807272
## 105  3.9773074  8.7904609  8.0060478  5.9127241  0.7869309  9.6964086
## 106  9.8772050  0.3923174  4.2095625  8.4502924  5.9528530  7.9698585
## 107 11.0077259  7.1173948  9.3404842  0.0000000  6.6818667  9.0722492
## 108  8.2141923  6.9341780  7.5106178  8.9235792  5.6281466  9.6261903
## 109  6.6678836  5.1048105  5.9340517  2.6658021  6.4790656  6.9536564
## 110  5.3664201  0.4143521 10.8384214  1.5830376  2.7345254  5.4996801
## 111  9.3536673  0.9648052 10.8240562  2.6765834  0.3975839  2.9377963
## 112  3.2850026  9.8387536  3.0870724  8.4007855  5.7410247  9.4690221
## 113  8.0810999  5.1529865  7.9535202  7.2188722  5.9286427  5.5119771
## 114  9.6067794  5.6606092  5.6700698  0.0000000  4.6795139  7.9214893
## 115  9.3711594  0.6786128  7.7224387  0.6786128  3.7016821  3.6335010
## 116  7.0956101  0.9848445  5.6425745  0.9848445  4.6895340  5.6043709
## 117  4.2931277  0.0000000  7.5453638  2.1463945  4.4467723  4.2931277
## 118  6.1987829  5.4420643 11.4826628  0.0000000  4.6995738  2.8572047
## 119  2.1459709  7.2551976  8.6602544  6.9500916  5.8375649  8.1144118
## 120  5.8701847  7.2521980  4.3713219  0.0000000  0.8467942 11.5685953
## 121  3.0443417  7.1396445  9.4174884  7.5239845  5.8714543  5.0319818
## 122  5.5750854  3.3299703  9.1480695  4.2028173  5.5431123  7.3452935
```

```
## 123  9.2515965  1.0501882  7.0941252  0.0000000  6.3197498  8.4396738
## 124  7.8943000  0.9398284 11.7852970  0.0000000  6.9759649  6.0487026
## 125  4.6104698  8.7712356  9.1885864  9.1656304  4.3090743  3.8089616
## 126 10.9390269  1.4261037  3.8991370  0.5077185  3.4755259  4.5194161
## 127  8.6732020  4.4814927  4.3618245  1.4742024  7.3659269  7.2152408
## 128  8.6948318  7.9407088  7.2437243  3.1330045  4.8541802  9.2562396
## 129  6.5430767  3.7181534 11.7930105  1.6307316  2.4886692  8.4104043
## 130  7.2644201  0.0000000 12.1900842  0.0000000  7.3178006  3.1481369
## 131  6.2126082  1.0501186  3.5045950  0.0000000  1.0501186  3.8990403
## 132  2.7351322  0.9034240 10.5078194  6.1947706  7.4157054  9.1097152
## 133  3.6756579  1.9062364  8.7004328  0.4777809  5.8064942  7.6357537
## 134  8.5258109  5.3038538 11.9227650  1.3242346  8.6181601  7.3148714
## 135  6.5107483  7.7966172  6.9494474  1.1524430  5.6056069  9.3307437
## 136  2.5116957  8.9369262  4.1780214  0.5134907  7.2911440 10.5399491
## 137  5.2255294  2.8683905  6.7891267  6.7661061  4.6328208 12.2284783
## 138  9.8141380  0.6561760  3.1332840  0.0000000  2.6282603  4.5870529
## 139  8.8827286  3.7613597 12.2290293  0.0000000  4.1000946  1.8842462
## 140  1.9777195  4.9451816  9.5294995  1.1759397  3.0970545  2.2564974
## 141  0.4881036  0.0000000  3.5194161  1.1425441  4.5071032  0.0000000
## 142  5.1073991  1.6285870 12.0304580  7.1269512  6.1228715  6.0563993
## 143  0.7834986  0.7834986  3.2164549  0.7834986  1.8174595  1.2884176
## 144  6.9646505  0.0000000  3.6163342  0.0000000  5.5941902  9.6922880
## 145  0.0000000  5.5226113  1.5935450  1.7251304  8.9184104  4.6561817
## 146  9.8188437  3.8247984  2.2518403  0.0000000  2.1018517 10.2157111
## 147  5.7938153  6.5337751  2.3359977  0.0000000  4.9106799 11.9091480
## 148  2.5365254  0.0000000  0.0000000  0.0000000  5.9732600  3.0361340
## 149  3.5599445  2.5456225  7.9310010  0.0000000  1.3154503 10.1145987
## 150  0.9420077  0.0000000  3.1424951  0.0000000  2.6009358  1.5071603
## 151  3.9946702  3.5715797  6.9579865  3.3386383  6.8385737  9.4907145
## 152  5.3814841  1.1670367 10.6552231  0.0000000  3.3410606  8.2871167
## 153  0.8221999  5.0557683 10.8198798  0.4689482  3.0526246  2.4876664
## 154  0.9685700  3.9992785  3.2648967  3.1136172  9.1156888  4.8614691
```

```
## 155  2.8047144  5.8884803  1.9976898  0.0000000  5.1412039  9.4649014
## 156  4.2043442  0.0000000  2.9952674  0.0000000  4.6952478  7.7727019
##       rs_ASCL1   rs_LRP1B  rs_SLC5A1 rs_ATP13A5  rs_PTPRZ1    rs_WNK4
## 1    0.0000000  1.8360857  8.2715667  1.8360857  5.2255179 12.3203516
## 2    0.0000000  3.5202211  5.1566676  3.9825191  4.6551915  8.5956778
## 3    0.7921057  4.3752550  3.5818212  1.6757256  3.1179942  8.6400829
## 4    7.7113084  6.5941409  3.5719923  1.1442422  2.3317912  8.2921555
## 5    0.0000000  2.3109217  4.0401648  2.4217484  3.0235215  9.8623733
## 6    0.0000000  1.8453495  9.3960006 10.4942456  4.0496482  1.7771146
## 7    0.8248086  0.4706150  6.9135190  4.0379181  3.8956419  5.0663777
## 8    3.6410026  2.4648251  7.7588621  1.6259250  7.7542228  4.2799541
## 9    1.3553546  1.8470749  7.7485538  2.8549133  3.5098225  4.9766890
## 10   0.8598106  0.8598106  0.4930324  0.0000000  1.3948982 12.5262925
## 11   8.1600993  0.4164074  4.6295781  5.6296830  3.7053366  5.2447120
## 12   1.6888070  1.8457911  3.5081878  1.0785415  4.6058854  7.6144912
## 13   0.9433588  1.2537473  6.7863402  6.5998578  2.3656086  2.6087619
## 14   1.2268168  4.8982277  5.1640018  3.3762070  5.9224714  8.8918284
## 15   0.4407396  7.9199306  9.8120181  0.4407396  0.7778720  9.2153265
## 16   0.0000000  0.0000000  7.6059706  0.0000000  0.0000000  7.8161818
## 17   2.6858953  1.6277469  2.4850919  4.2140082  6.1544961 10.6073349
## 18   9.0103891 12.4202114  6.2375618  0.0000000  3.5937004 11.4619148
## 19   0.3634515  2.8686078 10.9448310  3.2186727  5.9681691  5.4740791
## 20   0.0000000  3.0329648  2.6916682  5.2287995  1.7221162  6.7180794
## 21   0.0000000  2.3322496  9.0567206  7.5126725  0.8537562  6.9779324
## 22   0.0000000  3.5993535  6.9170940  7.4221548  0.0000000  6.8564952
## 23   3.3809095  0.5566992  1.5278210  3.9189586  0.0000000  4.9362799
## 24   0.4537546  2.6263457  6.3035853  1.3094673  6.2485405  7.4043650
## 25   0.0000000  1.5531147  8.9101639  3.0167281  0.7179122  6.3475239
## 26   3.6067265  9.2860596  4.8689929  1.6461627  2.1574318  9.5006029
## 27   7.1853522  4.6248554  7.8010487  5.2042973  6.1774654 11.0086491
## 28   7.9736268  0.8710551  1.8019864  4.4953370  0.8710551  6.3175302
## 29   2.8735179  4.4656480  3.6029082  0.9291092  2.9316641 11.0683980
```

```
## 30   0.4557546  6.6031797  7.8328261  6.2058441  8.3927381 11.0131579
## 31   0.0000000  0.8437427  1.7587296  3.5518851  6.5784104  9.1257327
## 32   9.0644356  8.3121664  5.4414868  1.6347327  2.8001026 10.7563486
## 33   0.0000000  4.2258687  7.8355300  7.2835505  6.3408595  9.4738279
## 34   0.5238630  7.0858824  4.5440649  0.9074291  4.1043031 10.1704436
## 35   0.0000000  6.1769251  8.2529563  8.7852092  1.5005471  7.4937082
## 36   0.5137939  3.1902198  7.7645226  3.9582766  5.4236017  5.3087176
## 37   7.7933438  3.6079102  8.8745508  1.4446141  6.9098019 12.6338072
## 38   0.0000000  2.0336521  5.5758357  1.5700743  0.0000000  8.4833426
## 39   2.0254187  6.8129679  6.7672151  1.6751836  0.0000000 10.2137725
## 40   0.7157177  2.6177921  6.8969499  9.4427903  0.4017397  1.4167857
## 41   0.0000000  0.7270927 10.4032085  4.1464923  4.9608638  3.0935433
## 42   0.8066128  0.8066128 12.1359287  7.7064470  1.6991962  1.0865120
## 43   1.6911768  0.9196833  7.7748635  7.4864940  3.1008263  2.9265308
## 44   0.0000000  3.1899194  5.1190490  3.7880070  4.3707920  8.8856467
## 45   8.9999465  5.9656319  3.2167187  2.1428382  3.3607576  8.1537653
## 46   0.0000000  4.8255211  8.5627438  3.4870361  5.4843863  7.1284058
## 47   0.0000000  2.6180272  0.6822137  0.0000000  0.6822137 10.1334311
## 48   7.9320943  5.9051992 11.0215705  6.0631276  6.8719200  7.2133978
## 49   0.0000000  8.3507430  2.0468752  2.4739947  5.2046494 10.7302027
## 50   0.0000000  9.0494867  4.3221517  0.9754835  2.2824398  9.4235112
## 51   0.0000000  8.1478979  8.8117032  5.8976882  0.9639180  2.1774076
## 52   0.6147570  9.2829603  6.5088058  2.6584400  1.7617533  8.2712496
## 53   6.0721873  6.3410179  3.6795364  9.2773437 11.0436604  3.7863245
## 54   0.7735744  6.2719280  2.3942946  0.0000000  6.0960467  9.3298466
## 55   0.3765127  2.7997090  9.5146571  5.5971170  3.2246886  5.1244067
## 56   0.0000000  0.0000000  5.2641160  4.3011779  7.2395708  4.7762935
## 57   0.0000000  6.9006024 10.4362240  7.8341765  6.7682227  9.2963333
## 58   0.4008658  8.3507558  9.2487616  5.0317922  7.7176620 10.2693784
## 59   0.0000000  0.6681191  7.0609563  0.0000000  8.0730040  7.3829119
## 60   2.1719113  1.5300208  4.9130426  0.6223682  2.5495952  8.8529087
## 61   7.6616078  3.1057786  4.9881757  2.6261821 10.5332717 12.0302208
```

```
## 62   9.8500150  6.9244064  4.2996110  1.8759373  2.6646876  7.8160320
## 63  12.1271163  2.9579146  3.7209351  0.3457370  3.1896664  6.4248835
## 64   1.1642714  3.0060287  8.1178477  2.8491987  4.2633650 10.1584927
## 65   0.3503841  2.7597524  8.0402897  4.3393298  2.1039004  0.8676593
## 66   5.2478895  1.7935214  3.2473351  0.3494785  0.6304987 13.0215373
## 67   2.0007212  5.4820674  7.5349355  6.5140212  7.9705845  7.5275732
## 68   1.8025655  3.9652671  5.2366495  1.8025655  6.2764725  7.5299443
## 69   5.1648345  9.4601516  7.4837279  4.4926672  6.9772799  5.6906937
## 70   1.4450380  5.3319273  0.4270698  1.6169693  1.0240359  8.7383696
## 71   0.0000000  8.9287419  2.9291661  0.9124199  1.7765673  3.9399036
## 72   0.0000000  0.8168864  4.2689433  0.4655044  2.2654669 11.2636085
## 73   1.8380643  2.4945692  1.9384364  0.0000000  3.2477149  1.2744108
## 74   2.8294843  0.0000000  2.3425832  0.9050428  1.2953116 12.1662790
## 75   1.5384388  3.9341107  9.3241805  7.4639788  8.8693369  9.3000947
## 76   0.0000000  2.4669403  2.1363555  1.3274574  2.0069084  6.7265138
## 77   0.0000000  6.8777295  4.7256430  2.8298496  4.9322313  2.9072753
## 78   0.0000000  1.0028825  9.0501656  5.2280221  7.9792177  2.8774891
## 79   0.0000000  7.3057563  0.0000000  1.0221192  4.9251164  1.6144272
## 80   0.4918018  2.3397645  8.3806078  7.5843695  9.0339873  3.9047635
## 81   0.0000000  6.3314078  7.3002647  5.3230782  7.2913052  7.6804073
## 82   0.0000000  4.1014148  9.3279352  4.2787579  7.4269541  6.8485403
## 83   0.0000000 13.4038117  5.8924372  2.8818799  4.9906690 11.7462674
## 84   0.8345494 12.2205417  5.4874928  1.2050797  3.6723461 12.5843070
## 85   0.0000000  1.9131479  4.7842946  3.3792467  1.8030617  3.8501893
## 86  11.6628442  0.9395275  0.0000000  0.0000000  0.7556567 13.1074701
## 87   0.0000000  3.1588702  1.4072440  0.0000000  0.4119685  8.4849848
## 88   0.0000000  0.5818815  5.5144190  0.0000000  0.0000000  6.3201615
## 89   0.0000000  2.1086917 10.2891346  1.4095267  0.8704239  7.3265688
## 90   6.8983922  2.1846929  8.0970503  0.0000000 12.4905143  2.9970575
## 91   0.4421208  1.6559471  5.4246030  1.0535979  0.4421208  5.5753063
## 92   2.5322421 10.7732240  0.9237957  5.7369431  0.6763577  7.6405826
## 93   3.6066436 10.8865194  0.4209405  0.4209405  0.7464848  8.4827830
```

```
## 94   0.0000000 11.9884945  8.9678415  3.0789343  5.7551172  5.4884507
## 95   0.3517414  1.4095810  2.9822726  0.6343145  1.6819889  8.2298104
## 96   1.2159270  1.2159270  2.1787784  0.0000000  3.6398226  5.4122091
## 97   1.7622638  2.9778294  5.9047610  2.1980226  6.5953515  1.9358369
## 98   4.0487070  0.7579620  2.3635916  0.4281424  2.2633349 12.8928980
## 99   0.0000000  2.5277710  7.8221680  0.0000000  0.7098200 10.0968096
## 100  0.0000000  0.5765705  5.4988285  0.0000000  0.9873936  6.9928296
## 101  1.6232114  3.0039800  9.0255715  0.8320393  0.8320393 12.4490403
## 102  1.1375035  0.0000000  0.8479969  0.0000000  0.8479969  9.3740222
## 103  0.3330802  0.8312287  4.2420003  0.0000000  0.0000000  9.0947188
## 104  0.0000000  1.3487423 10.4739605  7.7781120  2.0334759  8.0514308
## 105  0.3124328  1.4290535  0.0000000  0.0000000  5.2569540 10.6740169
## 106 11.1020063  2.7945198  5.6813481  2.0444641  2.4263453  8.4660104
## 107  0.0000000  0.0000000  9.4035021  0.4455148  0.4455148  9.2407854
## 108  7.3607681  4.5086061  5.2750890  0.9034240  1.8525982  7.4724220
## 109  5.7068234  3.2424806  5.8695605  2.6658021  4.5948590  7.1539066
## 110  4.7160471  0.9985566  1.5830376  5.5207428  4.1402388  8.9344973
## 111  6.1326262  0.0000000  8.1383952  6.7280933  0.3975839  9.2550510
## 112  7.4209152  2.5845777  5.7297458  4.2411614  5.0475951  8.6714158
## 113  8.4346032  4.9982406  0.8513593  0.0000000  0.8513593  8.7388364
## 114  7.1708745  9.1849537  6.9164802  1.8727106  0.4144603 10.4757250
## 115  1.7664680  0.0000000  7.7468462  7.5620539  0.0000000  4.6100976
## 116  0.7248249  3.7791021  6.8646220  0.4075159  0.0000000  8.3146467
## 117 10.7691651  5.0366660  4.4140137  0.9849174  1.8847151 12.0487357
## 118  0.0000000  1.1694120 10.5710888  6.4253737  2.7271581  3.9695465
## 119  0.0000000 10.6983053  8.1108403  6.5782625  1.6114085  9.6118940
## 120  5.2778397  0.3405053 10.0132846  0.8467942  0.0000000 10.4929532
## 121  4.5640855  2.8764678  6.6601514  7.4056061  6.2942660 10.2795506
## 122  8.2742430  3.6023737  3.3790941  1.0320303  2.1644645 11.4128391
## 123  7.2878056  2.1919416  3.2579309  0.0000000  0.7771988  8.6504217
## 124  0.0000000  2.1266425 12.0780240 10.5503838  0.9398284  6.6968646
## 125  0.2632748  9.4384413  1.9272897  0.4859420  0.2632748  7.8765710
```

```
## 126 11.5191903  2.7877041  2.2619219  0.8825257  3.5292213 11.3363774
## 127  6.6775139 11.4334948  2.0706984  2.6632991  2.0706984 10.3940724
## 128  9.4296013  8.5304676  7.1935352  1.9555732  2.9299992  7.2737443
## 129  0.0000000  1.1750455  6.6850641  2.1225402  1.1750455  9.7711941
## 130  0.0000000  0.0000000  5.3773702 10.2014454  0.4997821  4.6168987
## 131  0.0000000  0.0000000  0.0000000  0.0000000  0.0000000 10.2458046
## 132  2.7351322  3.8572445  6.4167992  4.2361175  5.5720165 11.8479578
## 133  3.6306268  3.6756579  3.6306268  6.3963513  0.8360857  6.9364047
## 134  5.3994856 10.7722585 11.0722688  6.3346970  2.4625759  6.9564226
## 135  0.0000000  1.3383388  5.3484874  1.1524430  0.9390008 10.5465362
## 136  0.5134907 11.3882057  5.8545418  1.9973647  3.9575525  8.2534013
## 137  3.5673386  9.7942612  5.0687998  1.7870145  4.0666317  9.8168627
## 138  0.0000000  2.2458607 10.3049638  4.1220349  5.2314247  4.6348198
## 139  6.0745161  1.6292400  1.6292400  3.1335142  0.0000000  7.9804247
## 140  8.4138411  0.8793921  0.0000000  0.5056877  2.2564974  4.3951999
## 141  1.1425441  0.0000000 11.2998541  3.3588604 10.5625020  0.5647196
## 142  1.4559650  5.0779138  8.2446202  3.2805110  1.4559650  4.0053461
## 143  3.8782153  0.7834986 11.4588234 10.3046106  6.8940113  2.1199869
## 144  0.0000000  2.4608736 10.5267006  0.9268344  0.5366498  3.6163342
## 145  1.5935450  2.8183598  8.6206612  0.3654686  6.2524346  3.1981955
## 146  9.0731492  0.9565771  6.6269691  0.0000000  0.5562087  7.9122133
## 147  9.6949279  1.6818990  8.3274880  0.0000000  1.0733404  6.3334112
## 148  0.0000000  0.0000000 10.3207004  5.9869797  0.0000000  3.0361340
## 149  0.0000000  0.0000000  8.8843949  0.0000000  0.0000000  7.7521973
## 150  0.0000000  8.2548774 12.0545632  4.0179575  9.6818697  5.6392090
## 151  0.3256167  2.6004363  6.4818721  2.0139267  5.0514156 10.7748654
## 152  2.4768483  2.4768483  0.0000000  0.0000000  0.0000000 10.6618338
## 153  1.8829951  1.3426685  9.2736905  7.9245673  4.0985038  3.7196982
## 154  1.1864372  3.2162220  8.7674188  5.9891367 10.3345762  5.7728833
## 155 11.5108292  1.6677559  1.5385382  0.0000000  1.6677559  8.4933187
## 156  0.0000000  4.0393227  4.2043442  1.3186928  0.0000000  7.2241763
##        rs_CST5  rs_PEG10  rs_CLIC6  rs_MS4A15   rs_ABCC8 rs_PPAN.P2RY11
```

```
## 1    2.8068808  8.435851 11.526563  9.8600791  7.5463327      5.7227693
## 2    0.0000000 11.121915  7.061161  0.0000000  8.0693912      4.7615938
## 3    1.3005338 10.506124 10.287521  2.9230351  4.6934479      4.6639821
## 4    7.2994874  7.058801  5.411196  4.1326262  8.0178924      5.1284914
## 5    0.0000000 14.331636 12.483022  7.0197453  8.4267101      7.0449831
## 6    0.0000000 11.433066  8.041375  1.3538878  1.0266584      0.0000000
## 7    0.0000000  8.501270  5.869437  0.4706150  4.8071385      7.7459862
## 8    0.0000000 14.706249  4.795746  0.4304994  0.0000000      0.0000000
## 9    0.0000000  9.087271  5.162279  2.5048492  0.0000000      8.3096601
## 10   6.2472516 13.497588 11.548385  9.3407011  6.4219352      4.7263735
## 11   0.0000000  7.737725 10.599932  4.2780442  5.6586371      0.0000000
## 12   0.0000000 12.498080  5.931789  8.7451529  3.0726032      5.4738940
## 13   0.5474498  5.017183  5.641581  0.0000000  0.0000000      5.0388137
## 14   0.0000000 12.874156  8.079149  7.6001322  4.7262427      8.2840009
## 15   0.0000000  4.886755 13.102456  2.0757722 10.6620402      7.8405872
## 16   9.1951032 13.744232 12.178658  4.9323400  5.8861819      7.7991851
## 17   0.5039593 10.562517  7.471036  8.6582472  7.7981277      0.1047392
## 18   8.2738641  5.374118 12.098525 10.2218330  7.3779072      8.0596970
## 19   1.8394356 10.475917 13.314935  0.0000000  5.1909862      7.3922401
## 20   1.5906260  9.461734  6.625200  3.7082645  7.4406699      0.0000000
## 21   2.6430942 14.585917  5.980784  0.8537562  6.7542448      6.6757172
## 22   0.0000000 13.142522  2.467410  1.1606621  0.0000000      3.2183472
## 23   0.0000000  5.391125  3.674867 10.4875650 11.3485676      6.4127832
## 24   0.0000000 11.953697  5.159629  0.0000000  2.2314939      5.0484934
## 25   0.4031586 15.856812 15.202173  0.0000000  7.1155670      7.1807556
## 26   5.0304862 11.755258  3.891886  7.6696930  6.0667200      4.9594224
## 27   1.4820222 14.785281 12.502139  0.0000000  8.0181980      3.7807195
## 28   0.0000000  7.489068  6.081847  0.0000000  1.9640659      0.0000000
## 29   5.1438301  4.903535  7.131620  6.6240965  6.9288938      0.0000000
## 30   2.3467016 12.883395 10.955616  2.6325242  6.0118400      7.1634333
## 31   2.4251101  7.281347  7.335588  9.3127387  4.8486580      0.0000000
## 32   8.5616396 13.753512 13.686863  5.7822801  2.8001026      5.2307756
```

```
## 33   0.0000000  8.728970  7.444766  6.3408595  6.0170756      0.0000000
## 34   1.8587767  9.117099 14.165690  5.8989097  9.7019543      5.6494545
## 35   0.0000000 12.135502  6.023082  6.5021571  5.3916509      5.0249712
## 36   0.0000000 10.522794  6.804651  5.5993654  3.6979183      0.0000000
## 37   2.4072984  7.676775  9.859706  9.1484990  6.8247004      5.0348408
## 38   0.0000000  6.876049  6.162061  1.4264795  5.6423492      0.0000000
## 39   0.0000000 13.806468  6.921379  6.1975096  4.1787385      4.9562426
## 40   0.0000000 12.267851  7.865284  3.1221923  1.3816710      0.0000000
## 41   0.0000000 10.664027  6.472642  2.2029192  0.0000000      7.8438413
## 42   0.8066128 13.174565  8.631216  5.5681112  3.5682267      0.0000000
## 43   0.0000000  9.858493  3.845480  2.5617172  0.0000000      6.9680366
## 44   0.3923174  8.817096  4.717786  8.2823318  9.5623550      9.3943341
## 45   6.2601518 14.837395  6.557903  6.9078821  8.5725009      0.0000000
## 46   0.4485838 10.480710 14.295551  1.2980131  6.8924882      5.4031552
## 47   1.6397415  6.532880  7.454715  5.4570098  9.4118696      0.0000000
## 48   0.0000000 10.155939 10.884778  1.4505910  5.7199500      3.9170116
## 49  12.6801557  8.523669 13.091095  0.0000000  8.9970829      6.4879317
## 50   6.1927367  9.208741  7.331609  6.3086521  7.8045325      0.4815056
## 51   0.0000000 13.392268  4.770781  5.6194776  0.0000000      0.0000000
## 52   5.8477139 13.244123 12.264823  7.5771078  6.9135321      7.8167322
## 53   0.7279640 14.157324  4.094135  0.7279640  4.9322691      7.1007937
## 54   8.3827174 12.816254  7.100458  6.1831490  7.8264640      7.7571099
## 55   7.5123391  6.723165  6.767268  4.5460548  6.1204930      6.8326179
## 56   0.0000000  8.152609  5.476748  1.7828279  0.0000000      0.0000000
## 57   8.4314416 10.021158  6.878627  5.8048925  7.0178328      7.6454171
## 58   0.0000000 10.270954  6.518131  5.3248322  6.5130785      6.9810569
## 59   0.0000000 13.612807  5.973717  3.2979104  0.0000000      3.9151193
## 60   0.0000000  6.674397  4.273516  1.5300208  2.7363451      6.8695025
## 61   1.3343967 16.460278  6.027170  0.3832757 10.2311534      6.9892912
## 62   0.0000000 12.049900  5.369924  3.1234344  4.7288674      5.2866151
## 63   4.4496736 14.358993  5.123091  6.7103477  5.0304994      6.4707109
## 64   0.0000000 11.139727 11.877707  6.8426948  6.7514624      7.2378514
```

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## 65   0.8676593  6.754008  6.071456  1.6777112  0.0000000      7.2812494
## 66   0.8656813 15.481176  5.451356  4.0786013  8.6772228      8.1581229
## 67   2.6637772 10.391130  8.527133  0.0000000  6.4820787      7.3996428
## 68   5.3728372  8.737516 12.242097  3.8763991  6.6381216      6.8083799
## 69   1.7068620  9.547439 10.037609  6.5899896  5.9416228      7.4863540
## 70   0.0000000 11.764105  6.332529  3.4124157  2.1523457      5.1024650
## 71   0.5271704 15.387925 10.339474  0.2875905  6.6186072      4.5195734
## 72   0.4655044 10.594620  5.602911  8.6713719  7.3674410      7.2841338
## 73   0.0000000 12.888460  8.640772  0.0000000  0.3305584      6.9247163
## 74  10.0935800  4.882883  5.166073  0.9050428  6.6714462      2.9187678
## 75   0.0000000 10.595287 10.012713  0.0000000  8.2681986      7.1395841
## 76   4.7770304 15.372755  3.828713  5.7605563  1.5295711      8.0490388
## 77   0.5937840  8.716140  8.849515  0.0000000  2.6068212      4.8477614
## 78   0.0000000 10.683205  5.240845  3.6297996  1.0028825      0.0000000
## 79   0.0000000  7.892378  8.326893  0.0000000  1.8388711      5.9695857
## 80   0.0000000  9.963269  4.328556  5.0833581  0.0000000      6.7874690
## 81   0.0000000 13.651374  8.006447  0.0000000  6.6016371      6.1988438
## 82   0.0000000 11.980965  8.284162  0.0000000  5.3080477      6.8539258
## 83   1.6432559 10.709955 10.996058  1.9708905  7.4303622      7.1455959
## 84   0.6061579 12.850549  6.436956  0.8345494  5.0719814      7.0364682
## 85   0.0000000  4.615481  5.666544  2.8801761  0.0000000      6.8588240
## 86   9.0589504 11.190968  6.741627  9.1967723 10.0063760      6.6348502
## 87   0.4119685  5.786518 11.958738  6.5925408  4.8624464      6.7889506
## 88   1.8007032  2.577175  4.921698  1.8007032  0.0000000      0.0000000
## 89   2.3621051  4.926123 12.017052  6.4034825  1.9630672      0.0000000
## 90   3.3390091 12.928298  3.995050  1.5976504  9.7825750      0.0000000
## 91   1.2834477 13.943657  8.737954  6.1911836  4.8916185      7.6504084
## 92   8.6975744  8.976396  8.813344  6.3046972  7.3388273      6.8959339
## 93   0.0000000 11.054292  4.437574  7.3119681  8.1984809      6.3236457
## 94   0.3634515 10.996154  8.676038  3.3048761  4.7740491      7.3563419
## 95   1.0734090 15.485830  8.020692  6.9298880  2.5776584      5.0911455
## 96   0.9121900  5.940456  5.716799  0.9121900  7.9666243      7.3840602
```

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## 97   0.3774014 12.093917  5.031157  4.1494545  3.4420677      7.5715441
## 98  10.3341729 12.705780 10.430154  1.0261627  7.8739774      4.8396069
## 99   0.0000000 12.704455  6.253910  6.2539099  6.5117811      6.0402283
## 100  0.9873936  4.530383  5.498828  0.5765705  4.8335732      6.1822652
## 101  2.5062465 12.685738  5.043939  7.9546273  9.2330928      6.3516142
## 102  7.9530324 10.547087  8.481396  1.7655347  8.5902128      0.0000000
## 103  9.0121348  4.117994  9.793593  0.0000000  8.5347702      0.0000000
## 104  4.5971795  4.642563  4.750135  4.7910170  6.7821372      7.8864648
## 105  0.0000000  5.172420  4.654258  4.1640300  1.2933116      7.6270049
## 106  9.5647385  9.847659 12.940610  7.1960995  6.6804706      6.6974708
## 107  1.0603241  5.258021 13.933057  1.9614381 10.4997397      5.4031143
## 108  2.0676043  3.954987 10.849885  3.1431648  6.9945152      7.2345808
## 109  0.0000000  9.171340  8.603688  5.1597785  4.1995860      6.5656109
## 110  9.5758085 13.888775  9.437991  4.9041035  8.9924192      6.2088177
## 111  0.0000000  8.848702  5.087246  7.4913240  7.7911297      8.5848840
## 112  4.3918914 11.871166 11.522253  7.9124403  6.0799285      0.0000000
## 113  0.0000000 12.131447  8.194353  6.0208666  6.3543869      7.4704474
## 114  1.5833747 13.689159  9.439162  3.8722279  6.8555998      2.6790409
## 115  0.0000000  5.505935  6.737397  0.6786128  0.0000000      7.7345315
## 116  4.0588187 15.671990 12.269810  5.1798295  7.0713079      4.5896257
## 117  3.9258381  8.802621  8.879621  7.4496158 10.5642416      0.0000000
## 118  0.0000000 14.694082  6.536326  2.2472288  4.8320191      0.0000000
## 119  2.3536338  9.137484 11.116543  5.3724577  5.7205877      6.6381405
## 120 13.4041436  4.371322  8.952093  3.4035541  9.2807109      4.5102467
## 121  0.0000000  9.336892  5.384716  7.3099774  5.8602452      0.0000000
## 122  9.1717873 15.716947  5.886709  7.1853264  6.8701760      5.0175879
## 123  9.2191329 10.810531  9.206114  4.0310069  6.5894279      5.4717240
## 124  0.0000000  9.095573  7.350747  2.3159140  2.7688618      6.9729453
## 125  2.6337102 14.688758  5.063455  0.8487982  5.8696000      5.3962040
## 126  0.0000000  8.672582  3.771273  6.9852568  1.9828385      3.5880850
## 127  9.7903526 11.926887  5.855594  8.4030640  6.4847327      5.2918798
## 128  7.4334636 11.146657 11.118727  2.5591981  9.0288415      6.1905062
```

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## 129  0.0000000 12.712792  7.987871  2.8659188  6.6065340      3.7625083
## 130  0.0000000 13.950226  5.819395  0.0000000  0.4997821      5.5004133
## 131  0.0000000  4.509075  3.310660  0.4403144  1.0501186      6.8375522
## 132  0.5212518  7.683453  6.834961  8.8582950  8.5718812      4.7531071
## 133  7.6639565 10.997589  8.575341  1.3620490  3.0120501      7.1957285
## 134  1.6348720 10.306236  9.407261  6.5902532  5.7041942      6.1261779
## 135  6.0132188 13.632457  7.271182  5.5502081  6.4615498      0.0000000
## 136  1.1906781 13.637537 13.024876  4.5643355  5.8438432      6.7196051
## 137  7.7641192  9.030829 11.155079  3.8384778  7.0323433      3.8493888
## 138  0.3650206 11.802507  3.861261  0.6561760  0.0000000      6.1881398
## 139  0.3775125  6.526930  6.118650  4.0747195  4.1495602      3.7999784
## 140  1.1759397  6.783352  3.522985  0.8793921  3.6246858      0.0000000
## 141  0.0000000 10.681859  6.198962  0.0000000  0.0000000      0.0000000
## 142  0.4315695  3.797127 11.134798  2.2736651  3.9675836      5.6263369
## 143  0.0000000 14.063343  4.733696  6.4989194  2.5080483      6.3953610
## 144  2.6795589  5.863445  7.657827  2.3377111  3.1142671      7.0260354
## 145  0.0000000  7.411197  5.652306  2.1567849  0.0000000      8.2253892
## 146  0.0000000  7.455377  8.879266  6.1322457  4.5878450      0.0000000
## 147  0.4521737  5.663678  5.621155  8.9714464  6.0315540      7.0242831
## 148  0.0000000 10.731047 13.071838  2.2020729  0.0000000      0.0000000
## 149 14.3270069  4.023264  4.373398  1.3154503  9.0032168      6.3641066
## 150  0.0000000 13.144188  3.889328  3.8893275  0.0000000      5.4423696
## 151  0.3256167  9.305663 11.147993  4.6902606 10.7351516      6.5106866
## 152  0.0000000 11.760238  5.992981  5.2301338  6.7113614      3.0310422
## 153  0.0000000 12.232232  5.659465  3.9269767  6.3716477      6.8501206
## 154  0.7119354 11.065165  6.010710  0.7119354  3.3576083      0.0000000
## 155  5.7273732  8.963760 12.237388  7.9830341  6.3156061      4.7227283
## 156  0.9973285  5.948883 11.549910  7.3344834  3.0827026      7.0458503
##      rs_SORCS1 rs_ARHGAP36 rs_SDR16C5   rs_GSTA1      rs_TF rs_C2orf54
## 1    7.6576493   0.0000000  2.7157177  0.8928184  9.3809787  9.0535556
## 2    3.1016837   0.0000000  8.1283027  4.3059632  5.5167369  6.6379971
## 3    6.2125616   4.1559678  9.5060274  3.2347159  8.0974275  5.4407064
```

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## 4    8.0922878   0.0000000  9.5077536  1.3860936  3.4171504  7.0761582
## 5    6.0610979   2.4217484  9.1616650  0.4815056  5.9998918  6.9004176
## 6    2.3644043   0.0000000  4.3722208  5.9468385  7.4406018  3.2953410
## 7    2.8420737   4.8463479  2.3901724  3.9685332  7.6129061  5.3613473
## 8    6.1825632   3.6002103  3.2770028  5.7510298  5.0440312  2.7889989
## 9    0.6035967   0.0000000  8.9162990  4.3745387  7.7025163  3.9585922
## 10   9.8983762   0.4930324  6.8717611  1.7842946  5.1046721  0.4930324
## 11   1.0026665   2.2265702  7.8254549  1.2253983  5.6001359  9.2891511
## 12   2.8680941   0.0000000  1.9873936  3.4109923  8.3925879  4.3676646
## 13   0.0000000   0.0000000  1.5089864  2.2302645  3.2183782  6.0359076
## 14   4.3531115   2.6694577  6.0736896  1.8800977  7.1056906  7.9715436
## 15   9.8005033   2.4026130  5.8443304  0.0000000  3.5507899  3.3121714
## 16   6.8795992   2.2301108  9.1814085  0.0000000  2.4892089  2.9858647
## 17   1.6277469   0.5039593  4.2775831  8.6671768  2.6858953  2.7766936
## 18   5.0475951   5.0641543  8.2985681  2.3785394  7.5756686  2.1493894
## 19   3.7963589   6.3285511 10.0498558  4.2077523  7.5553744  3.7963589
## 20   5.1952413   0.0000000  9.1908548  2.4850146  5.0896126  8.0076367
## 21   5.8148606   0.0000000  7.5842034  0.8537562 10.8541403  7.6319519
## 22   0.0000000   0.0000000  3.6942116  8.0453753 13.2920688  6.5109255
## 23   0.5566992   0.0000000  6.1142733  0.5566992  6.9364401  9.1107547
## 24   0.7984238   1.5099998  1.3094673  3.7620298  8.1911012  7.8325426
## 25   4.5188435   0.0000000  9.9355132  1.1951586  4.7086894  2.5450788
## 26   0.8469546   7.7681274  4.5787697  3.7844935  7.9669795  1.8728288
## 27   9.2097085   3.0309716 10.3276364  4.7646646  7.6076699  3.5111770
## 28   6.6802456   0.0000000  6.4804299  0.5002922  1.8019864  5.4217383
## 29   4.6150572   5.1802593  8.4890997  1.4895943  5.4526185  3.1916574
## 30   6.2058441  10.7346938  8.9826400  4.4709142  8.2713608  5.6124764
## 31   0.8437427   0.0000000  9.6553372  8.9898001  5.0865503  3.2240403
## 32   7.8307795   0.4339209  8.0083793  1.2651368  5.9307373  9.0482719
## 33   6.0560004   4.7473337  7.8533189  5.8849446  9.9168340  7.0177727
## 34   4.8148272   0.9074291  8.4273439  4.1759477  6.3342250  8.5704607
## 35   2.4304994   1.8324040 10.1548704  0.0000000  6.7330655  6.8197308
```

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## 36   4.8904467   3.9180141  3.5476966  6.5584529  8.2309004  6.4776595
## 37   9.8756598   0.0000000  8.9999358  3.3276874  6.7970428  4.0441493
## 38   0.3576083   3.1035480  9.1335245  0.3576083  3.3622174  6.9068149
## 39   1.6751836   0.0000000 10.7048024  3.4712785  4.8618809  9.0948066
## 40   5.0770421   1.5493242  6.8575419  3.5357171  8.0566578  8.1542070
## 41   0.0000000   0.0000000  1.9814143  3.3925647 10.2501598  6.8539532
## 42   1.0865120   1.8567069 11.3018555  0.0000000  5.2790329  9.7887709
## 43   0.0000000   4.2006456  0.0000000  6.3041551 10.9970382  6.7247921
## 44   2.5078961  14.7268697  9.7525977  2.0444641  6.8773958  6.5324681
## 45   3.5529795   1.5617905  6.7001220  0.9826560  8.1426217  3.0566876
## 46   5.2136700   1.0663992  8.4393293  0.0000000  7.4449900  6.5091954
## 47   4.5278023   0.0000000  4.4699381  0.3810618  8.0041851  8.9199764
## 48   5.2136933   8.7098000  6.5680808  4.5741500  8.9951453 10.3116098
## 49  11.4373409   9.9507170  7.6984949  0.0000000  4.4825515  7.7024449
## 50   4.6154398  13.3083629  8.5128609  1.3842709  7.3686322  6.3434025
## 51   0.3971458   0.3971458  0.7081431  5.8899991 10.4605701  8.5600496
## 52   9.5526691   0.0000000 10.7465616  0.3399355  4.8659930  6.4573924
## 53   1.7211539   0.9887029  7.6732547  0.7279640  3.1497959 11.3581666
## 54   8.5018682   2.2934882  3.4030904  0.7735744  1.8004961  5.4686354
## 55   6.8404091   0.3765127  8.2630419  2.1946544  6.7231653  1.8810381
## 56   0.0000000   0.0000000  0.0000000  7.9843478  6.6593737  8.8679974
## 57   5.3352939   0.0000000  6.0913973  5.4229326  9.7113109  2.6821687
## 58   5.9805875   0.4008658  8.4225518  5.6441735  6.8855975  6.4563183
## 59   0.3723950   0.0000000  7.4072448  3.6077327  8.2509014  6.8888005
## 60   1.6588284   2.4815573  2.4101511  0.6223682  4.6900203  8.0128977
## 61  11.6179508   0.0000000  2.5532376  0.0000000  7.5582385  0.3832757
## 62   9.8086090   0.0000000  2.4464415  1.9880848  6.8031534  0.3748447
## 63   2.6816741   3.3892915  1.0588014  1.3922075  3.9403923  1.9923334
## 64   5.2877567   9.4919998  8.5947053  2.3610384  8.0764330  8.7594029
## 65   2.3571015   0.0000000  5.2521318  8.2226090  5.7489952  6.4885005
## 66   7.1202845   0.3494785  8.9548887  0.3494785  6.1750714  3.7069615
## 67   3.4159074   9.4583416  6.3047301  6.8125958 10.6150579  4.6638911
```

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## 68   8.2928126   2.0393139  7.1707633  1.3534927  8.9153377  2.6525783
## 69   6.2513631   4.6440639  5.6281933  6.6168679  7.1085433  8.5580602
## 70   3.4583558   5.9538356  4.7829327  0.4270698  1.2498700  6.6018183
## 71   8.0947977   5.0435457 10.2025241  1.3470420  5.8500693  6.5110774
## 72   5.9876028   2.7467642  2.3754287  4.0869451  6.9046274  4.6433310
## 73   2.3562847   0.5994130  4.5801696  0.0000000  7.5641990  3.5938199
## 74  10.0007890   0.0000000 11.4482163  0.3683772  5.0694057  0.6614760
## 75   4.2789289   7.1362991  7.0966941  6.9264134 11.1640589  4.5763468
## 76   8.7909300   0.0000000  1.5295711  0.0000000  5.3035689  6.1070789
## 77   3.8317050   1.0131406  3.2713958  6.6841595 11.1490214  1.6025044
## 78   0.4165155   0.4165155  7.1520982 10.5825778  9.5558802  8.2662909
## 79   3.9953488   0.0000000  2.2042033  6.4357453 11.1818758  0.0000000
## 80   0.8579014   0.0000000  0.0000000  7.8486949 12.0231539  9.7518386
## 81   3.7221928   7.2410078  5.3578229  1.5614972 11.2820790  5.7726458
## 82   4.9992514   2.1992169  3.9835044  6.7828724  8.8409862  3.1831053
## 83   8.8487725   3.7237005  2.3916028  1.2186572  6.3522783  8.8108990
## 84   3.1428872   0.0000000  9.3346029  0.3346827  4.5027761  5.5611459
## 85   4.3866040   2.7674641  1.2528395  6.1210776  3.0342685  5.9248363
## 86   8.2636598   0.0000000  0.0000000  0.0000000  1.7201033  0.0000000
## 87   6.1709445   3.5329403  9.8330542  0.0000000  5.9105888  8.2418326
## 88  10.3238154   0.0000000  7.9622338  0.0000000  1.8007032  1.3163196
## 89   0.4998841   0.4998841  6.9637319  9.1305144  9.6599087  6.9589378
## 90   8.0075801   0.0000000  8.4483216  0.0000000  2.1846929  2.5392581
## 91   1.4817123   0.0000000 11.5354561  0.4421208  2.5896916 10.1362445
## 92   7.1329274   0.0000000  9.3139408  2.9219885  4.1735672 11.3371337
## 93   0.7464848   4.6856767  0.4209405  0.4209405  3.3432230  1.8916914
## 94   7.4740369   0.8949923  8.3772912  2.6223682  5.3715972  9.8227055
## 95   2.1982427   0.0000000  7.0459627  0.0000000  3.0318186  8.8223678
## 96   1.2159270   0.0000000 10.7624501  0.0000000  4.2869255  4.8689731
## 97   2.3747891   0.0000000  2.9778294  1.6291468  6.8962961  3.8235354
## 98   8.8088918   0.0000000  2.9193973  0.4281424  4.8401308  2.2633349
## 99   1.5393822   0.0000000  4.3717610  1.5393822  5.4138073  7.8933149
```

```
## 100  6.0194907   9.1194140  7.7129224  0.0000000  3.9763086  0.9873936
## 101  2.0429595   0.0000000  9.1778017 10.1723349  4.2238318  7.3163947
## 102  5.5172757   6.9236246  7.8008999  0.4854268  3.3504972  0.0000000
## 103  7.4385216   0.0000000  7.8030830  0.0000000  0.8312287  4.4955928
## 104  2.3934437   3.4152719  8.3446683  0.4716557  1.7313570  9.3839589
## 105 11.0657024   0.0000000 10.0437490  0.0000000  3.5106835  5.8536240
## 106  9.2192811   0.0000000  9.7897482  0.9542708  5.7666402  2.9773715
## 107 10.2822518   1.2911910  8.2994571  0.0000000  5.1297158  0.0000000
## 108  6.6177554   2.4202398  8.7379919  1.2933116  4.1795190  4.4523516
## 109  3.4330396   2.4475263  7.5655949  3.2424806  6.3272580  3.0998338
## 110  8.0064910   0.7357821  9.5914459  6.1332943  1.8723560  4.6410893
## 111  0.7088494   0.3975839  6.7452602  1.1820566  6.2694465 10.7674136
## 112  9.6556767   7.7982929  7.7599940  2.7722024  6.9332433  1.4147309
## 113  6.0386249   0.0000000  8.7670595  0.0000000  1.5900031  8.4041040
## 114  6.4733583   0.0000000  7.2550012  4.1132171  3.3197624  5.7255639
## 115  0.0000000   0.0000000 10.0890728  4.8691953  2.9271759 10.1205453
## 116  4.8450635   1.8523984  6.8605768  1.2050797  1.9772066  8.1295252
## 117 10.1982076   0.9849174  4.6290885  1.3038100  5.0998212  1.6795139
## 118  0.7000845   0.0000000 10.0494583  6.3935724  1.5229597  2.2472288
## 119  9.1618496   8.7763972  9.3940800  0.0000000  7.7022953  8.2952106
## 120  5.2274831   0.0000000  0.3405053  0.3405053  0.8467942  3.0332644
## 121  4.6183209   2.0606354  2.2093910  3.7261555  6.8016411  6.9411638
## 122  8.6594048   1.7816115  8.4512074  0.0000000  5.3347899  4.3821969
## 123  8.2378476   0.0000000  7.4817680  2.8923133  6.0039350  5.6715425
## 124  6.6375146   0.3852654 10.8344045  1.3394225  5.1282975  9.7734632
## 125  0.8487982   0.0000000  8.0570083  3.3520664  2.4343747  6.9277175
## 126  8.2250527   0.0000000  0.5077185  0.5077185  4.0165944  0.0000000
## 127  4.5042835   0.0000000  4.5705601  0.7750927  1.6479591  6.5018197
## 128  1.8443455   1.1053428  6.7713627  0.0000000  2.4869717  5.5564202
## 129  0.0000000   0.0000000 10.0823252  0.0000000  1.8139351  3.4677881
## 130  0.0000000   0.8701871  9.3950092  0.8701871  2.3616280  7.4703969
## 131  9.0660219   0.4403144  8.7105165  0.0000000  3.0246388  0.7771988
```

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## 132  5.1626773   0.9034240  8.2742099  3.6726064  7.2849148  7.8341423
## 133  6.0396232   0.0000000  6.8087853  1.3620490  5.5526353 10.5698955
## 134  2.5392333   0.0000000  9.2292702  1.3242346  6.1757022  9.8608720
## 135  7.5786059   0.0000000  7.5900967  2.7673582  2.1252874  5.7104042
## 136  3.9575525   5.2553270 10.1202556  2.2773302  5.9474254  4.8474809
## 137  7.0964970   4.3403985  7.3651457  1.6326405  4.3651186  5.0687998
## 138  1.8445463   0.6561760  2.6282603  1.9558335  2.4872291  0.3650206
## 139  0.9238718   0.6763577  0.9238718  0.0000000  2.3748726  7.9526190
## 140  4.7564095   0.5056877  6.4229511  0.5056877  1.6318493  1.8151245
## 141  7.4404980   2.2088918  3.3588604  5.3665880 11.7690652  2.5437186
## 142  2.4680098   0.7633266  8.5418354  3.6445947 11.2373301  8.9372128
## 143  7.3256068   0.0000000  3.0379269  9.2349822  9.5865204  0.4443490
## 144  3.5062338   0.0000000 10.4399872  1.2337040  4.8769982  4.9205744
## 145  0.8990209   0.8990209  7.1783711  4.7048332  7.3359709  6.4074513
## 146  9.2618319   0.9565771  9.1141366  2.8308232  3.4433016  4.1645610
## 147  2.9308509   7.3805831  4.9963571  0.4521737  6.8514367  7.9541166
## 148  2.3789832   0.0000000  0.6782522  4.4200916  5.2785461  2.3789832
## 149  6.4548652   0.0000000  8.4501741  2.1209491  1.0817487  1.0817487
## 150  0.0000000   0.0000000  0.0000000  5.6782776  6.1216786  2.2280183
## 151  7.8826644   0.5912007 10.0121854  1.7132999  7.6239422  3.6019817
## 152  0.0000000   0.0000000  0.0000000  0.5010060  2.4768483  9.4667994
## 153  0.8221999   0.0000000 10.6437189  9.2914841  1.8829951  7.3219407
## 154  2.1727435   6.5905841  3.5268576  5.9375115  9.6387476  5.9818755
## 155  0.6269530   7.8817986  8.9463563  0.0000000  7.8717759  7.0462979
## 156  6.4209270   0.0000000  8.2137866  2.5804591  2.9022087  6.1844985
##     rs_S100A7A  rs_KRT15 rs_CYP4F22 rs_GLYATL2   rs_CAPN8 rs_TMPRSS4  rs_CASP14
## 1    0.0000000  9.793387 11.9018640  5.9503121  8.6662943  2.4016305  0.0000000
## 2    0.0000000  9.646874  7.5744429  7.7685330  7.4156716  2.9070252  0.4448791
## 3    1.8321204  8.320169  3.7481499  4.8295858  8.7740052  7.2381859  2.4301782
## 4    0.0000000  8.163035  2.8981890  0.4889263  7.1680593  1.7742494  0.0000000
## 5    0.0000000 13.052273  3.6877214  5.3993215  8.4100027  2.5246655  4.0401648
## 6    2.9528367 12.505127  1.0266584  9.1769231  6.1606661  4.4767446  0.0000000
```

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## 7    2.0304067 12.733787  5.8694372 10.1879031  3.1856604  0.8248086  2.9894660
## 8    0.0000000 13.778411  1.4534912 10.6349478  0.4304994  0.4304994  0.0000000
## 9    0.0000000 12.434968  0.6035967  3.7515923  0.0000000  7.9529468  0.0000000
## 10   0.0000000  8.663782  8.6256004  6.3372348  6.4954377  0.8598106  0.0000000
## 11   0.4164074  9.455128  3.0635547  4.0924527  6.2844549  7.3510417  4.6099440
## 12   0.0000000  6.870511 10.9995284  1.9873936  7.3968745  9.0384614  7.3582890
## 13   0.5474498 12.199924  2.3656086  7.3968787  0.5474498  1.9142201  0.0000000
## 14   0.0000000 15.950970  4.7975163  8.1925641  6.7846257  5.5621386  7.6100651
## 15   0.0000000 14.024368  5.8079885  6.8893823 11.8277882  5.5353500  0.0000000
## 16   2.0807600  6.536550  7.8677705  6.1432628  9.0112208  0.0000000  0.0000000
## 17   1.8108132 11.218881  9.5348917  3.2897312  4.0045194  9.2390278  0.5039593
## 18   0.0000000 11.862262 12.5669624  4.5326848  8.4047805  4.7732526  0.0000000
## 19   0.0000000 10.667274  8.4067956  8.7412169  6.1938683  2.4814023  0.0000000
## 20   8.7790016  6.974192  1.7221162  7.6157620  6.1981837  7.9006567  0.3644604
## 21   8.7373809  7.515858  3.7123537  1.9354975  5.8756253  3.7985586  8.3374881
## 22   6.4236370  8.256339  0.0000000  6.8257627  0.0000000  8.0588073  8.8755912
## 23   0.0000000  8.240093  3.9631782 10.3084509  4.2397723  8.5264824  8.4014747
## 24   1.5099998 10.818751  3.0040879 10.2341880  1.8428984  1.3094673  0.4537546
## 25   7.1020870  6.887069  9.4736631  4.0702863  9.3957008  1.9641398  0.0000000
## 26   0.6158871  7.902623  7.0267569  2.6610427  9.2024662  6.6444894  0.0000000
## 27   0.0000000 13.200073  5.9283608  6.6896318  6.9121768  2.7525131  0.0000000
## 28   0.5002922  6.142358  3.3969404  3.2786836  5.3648280  5.6884573  1.4103411
## 29   0.0000000  9.257747  8.5918327  4.3424765  9.0379936 13.3217878  2.8129294
## 30   1.5147535 11.694072  7.1132942  7.6947799  8.3473813  2.7957877  0.4557546
## 31   2.8791764 11.941705  8.3714839  4.2387792  5.8334923  8.7828315  4.2387792
## 32   0.7670615 13.478249  5.5749098  6.8282203  8.1362268  5.9472407  0.0000000
## 33   0.7727302 12.264823  5.8762714  6.6259762  7.2470094  0.7727302  0.0000000
## 34   0.0000000 10.021106  9.9841641  6.3575203  4.4604674  1.2100771  3.2863785
## 35  11.3744202  5.665683  6.4963217 14.2017078  5.5689168  1.6759965  4.3756303
## 36   2.2779550 11.307318  7.7645226  7.9152944  4.3089942  2.2779550  7.1206733
## 37   0.0000000 11.021317  6.4587183  6.9353973  4.8570404  4.2539968  0.0000000
## 38   4.7484827  6.115992  1.7006617  6.4065044  6.3177111  2.3040145  9.3640946
```

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## 39   1.2117598  3.352377  1.6751836  8.9928942  7.2801388  6.2061099  0.0000000
## 40   0.0000000 11.095330  6.9982689  8.1411374  0.7157177  2.6913555  2.6177921
## 41   3.2002532 11.404246  1.7196216  7.2545638  1.3995539  0.4088205  2.9170498
## 42   0.4589069  6.439106  3.6987963 10.6847183  8.9879694  1.5224073  1.3208312
## 43   7.8068119 10.724927  7.2322146 10.9674694  0.0000000  5.5793099  9.3336619
## 44   2.0444641  8.822086  7.5846048  9.5316158  8.4229654  7.7147868  2.1498447
## 45   0.0000000  7.699956  5.0953717  4.4261171  7.7334262  7.0686246  0.0000000
## 46   6.9489454  7.854929 10.1845791  2.7730891  9.6315314  4.8801467  0.0000000
## 47   0.0000000  5.266221  5.3326614  5.7763383  2.0082717  0.6822137  0.6822137
## 48   0.0000000 11.387702  6.0939615  8.8181038  6.0568826  4.8590005  2.4910578
## 49   0.0000000 11.163468  4.1305026  5.9054664  8.7127502 11.1521404  1.4374408
## 50   9.0031482 12.070086  8.0059574  3.7614342 10.7954800  7.8313028  0.0000000
## 51   0.7081431 11.526802  0.7081431  8.2550257  0.0000000  6.6824469  0.3971458
## 52   3.7816115  5.820843  5.2350798  3.1651402  8.1682364  8.7123131  0.3399355
## 53   7.8291842 12.201946  2.6439024  8.9081206  5.5324105  3.8202300  5.9701611
## 54   0.0000000  8.351718  5.4915677  2.2934882  6.8791960  8.4833958  8.4205531
## 55   0.0000000 14.364057  5.1890338  3.3138988  9.8255637  2.2856981  0.0000000
## 56   0.0000000 11.670904  0.4924172  8.8579126  3.2545185  1.7828279  7.3335391
## 57   1.8190550 13.418039  7.9291726  5.7575140  8.7594645  2.7611576  3.2184557
## 58   0.0000000 11.946257  9.3945890  7.7437701  8.2556745  7.4267503  0.0000000
## 59   0.0000000  9.712769  1.3059705  0.3723950  2.2715751  1.1230040  0.0000000
## 60   0.6223682  5.869062  5.3160588  4.9386434  5.7071935  8.7229765  1.0557510
## 61   0.0000000  8.427525  5.7618251  6.2910049  1.7802261  1.3343967  0.0000000
## 62   0.0000000  7.335589  0.3748447  4.2099290  3.0734432  6.9173410  0.0000000
## 63   0.0000000 13.995311  4.7106412  4.9057215  4.5194727  4.2587978  2.3397075
## 64   0.0000000  9.410143  5.4050938  3.7002510  9.4223737  1.6176276  0.4994760
## 65   2.1039004 10.927228  2.8171525  6.9171250  5.0394806  5.9801693 10.3716626
## 66   0.8656813  8.505081  6.8863111 11.5679618 11.1351752  6.4301966  9.0959626
## 67   1.0005049 13.145036  5.8917157 10.2108207  8.7300139  1.2229282  0.7373406
## 68   0.0000000 10.219188  8.7972413  6.6471044  8.0821096 10.3542176  4.2510373
## 69   0.0000000 12.494304  8.5484940  7.7647754  8.6348571  2.7357821  0.0000000
## 70   0.0000000  4.160493  1.4450380  5.3804663  7.4511732  5.2816983  0.0000000
```

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## 71   7.2169631  6.538721  1.2161755  2.1071187  9.4980508  2.8430995  0.0000000
## 72   0.4655044  8.453604  3.6786353  6.2839792  1.7158055  0.4655044  0.0000000
## 73   0.3305584  4.699368  4.3626452  3.2477149  1.7302269  0.8258670  0.0000000
## 74   0.0000000 16.051200  2.7692005  3.9031926  8.2176384  6.5058560  0.0000000
## 75   0.3978030 14.279540  8.9269314  6.7923517  8.7478200  5.2044929  0.3978030
## 76   0.0000000  8.169021  2.8152270  6.0341805  9.8027742 11.1457679  6.4248163
## 77   0.0000000  9.474284  3.2713958  3.5475115  0.5937840  6.2737900  0.0000000
## 78   0.7392433 12.978283  1.4186757  7.0169654  4.7425291  5.2408447  4.7060000
## 79   0.0000000  8.920368  0.0000000  3.2090478  0.5997939  6.3653303  0.0000000
## 80   0.4918018 12.093366  0.0000000  7.3743727  0.0000000  3.7209898  5.9239478
## 81   0.0000000 10.606726  3.9211602  7.5232632  6.2779847  1.9735745  1.5614972
## 82   0.0000000 12.647236  5.6551743  5.8247755  6.5399668  0.0000000  0.0000000
## 83   0.3397075  8.744587  1.6432559  5.6772996  8.6666231  2.8818799  0.0000000
## 84   1.9531162 10.139748  2.6373552  4.2491191  7.4021270  4.0128904  2.5108860
## 85  11.8474857 11.450871  2.2847510  5.3418933  1.6839210  4.2037806  5.1073364
## 86   0.0000000 11.214145  9.4339689  3.7918037  4.2575840  0.0000000  0.0000000
## 87   0.0000000 14.989985  4.7780771  0.7319652  9.1211431  5.9263529  0.0000000
## 88   0.9953036  6.190453  4.6634471  6.2002336  3.5150312  6.6772447  0.0000000
## 89   0.0000000  5.809368  7.0015242  4.8862770  7.4608523  1.9630672  6.5187334
## 90   0.0000000  5.901294  1.0094905  1.1804662  5.9670302  4.0839367  0.0000000
## 91   7.6821118  6.757649  2.0796341  4.1580057  6.4016049  2.7520635  4.3977277
## 92   3.2285417  9.846833  2.7402368  0.6763577  7.9749772  8.3290079  0.0000000
## 93   0.0000000 12.082750  6.7192190  4.2187579  8.9143579  7.6935873  0.0000000
## 94   6.0390594  8.053961  4.2518403  8.8678628  6.2762044  1.9505804  0.8949923
## 95   0.0000000  8.037465  6.6613705 10.1059799  5.2788992  1.4095810  3.7761250
## 96   0.0000000  6.021035  5.1274022  3.3590010  8.4154270  0.9121900  4.2539590
## 97   4.3741214  8.354276  1.7622638  1.3191555  0.3774014  0.3774014  1.8841681
## 98   0.0000000  9.786547  5.0800820  0.7579620  7.3307932  6.3611104  0.4281424
## 99   0.0000000  8.644368  1.6890755  5.2183123  8.2198074  9.4870610  2.8151655
## 100  0.0000000  7.426068 10.0095340  2.5639147  9.0555753  5.7565350  0.0000000
## 101  0.3335382  7.639807  4.4118397  3.4440044  9.0455910  4.7553042  7.7948467
## 102  0.0000000  8.308339  9.4850242  3.7865964  9.1472049  2.3219281  5.7813597
```

```
## 103  0.0000000  4.005840  8.5598115  2.0415584 11.4939139  3.7789760  0.0000000
## 104 10.0927299  7.058137  1.8902910  9.5193666  9.2474225  2.8455503  5.8542451
## 105  0.0000000  2.958026  3.5706329  2.5450293  7.5239477  3.3142470  0.0000000
## 106  0.0000000 12.726996  5.9455539  6.6312891  8.3991232  3.4595365  9.4814075
## 107  0.0000000  4.527984  9.2762719  3.4764854  9.5569101  1.2911910  0.0000000
## 108  0.3675947  7.729581  5.7183698  3.3212499  7.4279464  2.9399600  1.2933116
## 109  0.0000000 11.114287  3.3088414  6.6032480  3.4913529  2.9415383  0.0000000
## 110  2.6605408  7.681296  4.1402388  1.5830376  6.9705983  5.0121574  2.7345254
## 111  0.0000000  6.620564  2.2651668  9.4846594  5.4642500  8.8713579  4.4965646
## 112  0.0000000 13.967976  7.9396198  2.5845777  8.2008579  6.4535110  0.0000000
## 113  2.2075181  7.377291  2.2075181  7.8083876  5.7569165  7.8913548  1.1416290
## 114  0.0000000  6.572532  5.6415027  4.8221132  8.9537364  3.5003049  7.4624974
## 115  4.8985421 10.152107  2.3795932 13.5111703  1.1382247  6.4208697  8.7833581
## 116  0.0000000  9.290019  3.8461122  6.8194791  5.5145263  2.9121516  2.0921059
## 117  0.0000000  6.912427  5.9474301  3.1429852  6.0681441  0.0000000  0.0000000
## 118  3.0866649  8.235714  1.1694120  5.7739014  7.1889290  9.1969311  8.9108669
## 119  2.4472353  6.241934  8.0617406  5.9774860  9.7497087  4.6026588  0.4250295
## 120  0.0000000  3.574465  2.4659484  2.0683269 10.4454277  0.6156988  0.0000000
## 121  0.0000000 10.008427  3.9541312  5.5886487  4.6705911  8.0678710  0.5391340
## 122  8.9509728 14.321889  7.5970193  1.9208268  9.4818400  7.0515711  0.4311415
## 123  0.0000000  7.317163  3.6756353  2.3004459  9.2667228  3.0866649  0.4403144
## 124  0.6890307  6.354172  0.6890307 12.1857396  3.8849983  3.6235626  0.0000000
## 125  8.1092049  5.474180  3.0371538  1.4865599  9.6552917  6.3836870  0.2632748
## 126  0.0000000 10.613170  2.8732423  3.9784977  1.8199951  4.8499642  0.0000000
## 127  0.0000000  3.894372  3.7869518  5.1496699  7.1943727  8.5783999  0.0000000
## 128  3.3109363  7.462011  4.9242472  4.1217449  9.0688325  6.9228056  5.8069375
## 129  0.0000000  7.683932  2.2551986  0.8786861  7.5450703  8.4949999  0.0000000
## 130  3.6060513  7.740979  2.3616280  9.6710809  6.1572762  3.5561473  0.0000000
## 131  0.4403144  7.063528  7.7728200  0.4403144  9.0602466  4.2631321  0.0000000
## 132  1.2052048 12.078684  8.6890964  5.6491182  7.4083314  0.9034240  0.0000000
## 133  1.3620490  9.268252  5.0183449 12.5697426  3.8028549  9.6424019  2.1806571
## 134  6.1757022  6.656276  3.0908365  9.5679726  8.3157917  3.9484420  3.1408932
```

```
## 135  0.6883147  7.256834  4.9805600  8.1092832  8.2125119  7.5529995  8.0101208
## 136  0.0000000  8.557661  3.9967232  3.5469932  9.6661492 10.6134454  0.8914970
## 137  3.1215294  9.238264  5.1277818  4.9430727  6.8905330  7.2370656  2.2784309
## 138  0.0000000 14.138602  2.3308739  9.7172852  0.8982471  1.2867038  0.0000000
## 139  0.0000000 10.534757  3.0834857  9.1113308  4.9216458  3.2286340  7.5143732
## 140  2.9480401  4.964708  1.4218561  0.0000000  6.6749055  7.4565039  0.0000000
## 141  0.0000000  7.518591  2.5437186 10.4256314  1.9328171 11.1412444  1.1425441
## 142  5.7266405  8.395650  7.5348919  7.7696818  7.0147291  1.9219694  8.1253882
## 143  0.0000000 11.076004  3.4245997  9.3534605  1.0579701  5.6137320  3.0379269
## 144  2.0544665  7.297755  2.6795589  3.8141402  5.8295553  3.3235142  2.0544665
## 145  1.1064153 11.755442  1.8457510  8.6248810  2.8183598  0.6567252  0.0000000
## 146  1.2696915  6.234923  5.6684284  6.1514672  6.5566225  2.5118981  2.1018517
## 147  0.0000000 12.409352  3.9406742  3.0637963  9.2832430  2.1086248  0.0000000
## 148  0.0000000 10.377787  2.0004327  4.0536501  0.0000000  0.6782522  3.3224474
## 149  7.7000339  3.771326  3.9556569  5.4030598 10.0293042  0.0000000  0.0000000
## 150  0.0000000  8.369824  2.4870232  7.5826727  0.5465611  0.5465611  0.0000000
## 151  0.0000000 10.370854  4.6760360  6.2081290  8.1896704  0.5912007  0.0000000
## 152  1.9657289  6.084086  6.1016354  2.4768483  8.7195887  8.2123495  0.0000000
## 153  4.9341721  6.600142  0.8221999  1.8829951  9.0410570  3.5071223  1.1058122
## 154  0.3994446 13.470327  2.6096841  8.1429173  4.3545721  2.2713659  4.1364293
## 155  0.3472121  9.782749  4.5765403  6.4293097  5.3861867  4.9887983  5.3384672
## 156  3.5800128  6.776009  3.3874315  2.8027309  3.5186358  2.8027309  9.8879072
##        rs_LCN2 rs_PGLYRP2   rs_SPAG6   rs_CAPN6   rs_CCL21 rs_SLC7A4  rs_MAGEA3
## 1    3.9602986  8.6293133  0.8928184  7.3213662  6.7562347 7.3367413  0.0000000
## 2    4.9361432  4.4559453  0.4448791  3.8800782  6.3934351 5.6472224  0.0000000
## 3    6.1320791  5.1745902  4.2968758  6.7957825  8.8908975 7.4186622  0.0000000
## 4    1.1442422  2.6426092  0.8535167  5.8947499  7.8388100 6.4879108  0.0000000
## 5    4.5596876  6.2974574  0.4815056  3.3935123  6.4621047 5.1803667  0.0000000
## 6    8.2548425  4.9819303  1.0266584 10.4952828 11.1330223 1.0266584  0.0000000
## 7    7.3139532  1.3463045  2.0304067 12.5860670  8.1540135 2.0304067  0.4706150
## 8    4.9169447  1.0308304  1.6259250  7.9636521  6.8418411 2.2705588  0.4304994
## 9    9.4919621  0.0000000  0.0000000  4.5765282  6.3025421 6.9375115  0.0000000
```

```
## 10   0.4930324  6.2394916  0.4930324  4.0780291  5.9281334 6.0573160  0.0000000
## 11   7.9614126  4.2274099  0.7390704  6.5288041  5.8714568 1.2253983  0.0000000
## 12   1.5125809  7.4406242  2.8680941  7.3936985  9.8745691 0.4548076  3.9842065
## 13   7.4625260  0.5474498  1.7257848  3.5941305  6.1148896 0.0000000  0.0000000
## 14   6.1974349  6.9501674  2.5088596  7.1126949  8.9175920 2.3280897  0.0000000
## 15   6.4328809  8.1784174  8.5497396  4.9713458  2.8225466 7.5590612  0.0000000
## 16   8.0496275  6.3451000  2.3654686  0.0000000  0.5474498 8.1952930  0.0000000
## 17   8.4669648  2.5889724  1.6277469  1.9732072  5.2557802 8.7935246  2.7766936
## 18   2.3785394 11.3530025  3.1104468  4.8129910  8.0427302 6.8427765  0.4665488
## 19   6.6622710  8.2486202  4.1390274  8.0694047  8.4511715 7.3247134  0.0000000
## 20   9.4421971  5.1017383  0.8970080  6.1346892  5.1608839 0.8970080  0.0000000
## 21   7.7849881  4.0652362  3.0469625  2.8986921  4.8704338 0.4891319  1.3864799
## 22  12.0831929  0.0000000  2.2347466  8.5927956  3.3307018 0.0000000  0.0000000
## 23   1.5278210  2.1030276  0.5566992  1.9355352  7.8938791 0.5566992  0.0000000
## 24   9.0036298  0.7984238  0.4537546  9.9781058 10.4266280 0.7984238 11.2711846
## 25   5.2871066  9.0439621  8.7648172  5.0408924  4.1770009 0.7179122  0.0000000
## 26   4.0853227  3.6684482  0.0000000  6.3423485  3.8918858 1.0461418  4.6105642
## 27   7.5201716  5.3635986  1.8117998  6.5419608  9.6153670 7.5480890  0.0000000
## 28   1.4103411  2.8515192  1.1657512  2.3631991  7.7334459 0.8710551  0.5002922
## 29   3.4913529 11.5982654  4.2077914  5.7719278  6.7055011 3.8935952  0.0000000
## 30   5.9867045  7.3681170  6.1004311  9.0438333  8.4658059 4.8695951  0.0000000
## 31   8.7880279  7.5708424  1.1322478  3.4506570  5.2309139 5.5815079  3.0958063
## 32   6.4481708  4.3923174  0.7670615  3.2886391  6.1604019 1.4617381  9.8074961
## 33   6.1308382  5.0391823  3.1363719  9.0514224  9.5741146 3.4487028  0.0000000
## 34   4.9435604  7.9045834  0.0000000  6.2537340  8.5654673 0.9074291  0.0000000
## 35  12.8982934  6.5195230  0.7922723  4.4739233  6.8702389 1.8324040  8.1928890
## 36   6.7711421  1.4388251  3.6495695 11.6593051  9.7814423 3.6495695  6.1353994
## 37   4.7686660  5.3887199  0.5165195  6.4935977  9.6538538 1.8411278  0.0000000
## 38   7.5001471  3.5471660  0.0000000  2.6655974  1.9309644 0.3576083  9.3775804
## 39   4.1787385  0.5247658  8.9990927  4.3745318  5.1202690 1.2117598  0.0000000
## 40   4.7382490  5.1700532  5.9619914  5.4709468  7.3559069 5.6931691  0.4017397
## 41   5.4568653  0.0000000  3.8182268 10.1300192  0.7270927 0.4088205  4.4998268
```

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## 42   7.2258446  3.3734255  0.4589069  5.1172088  8.6847216 0.8066128  0.0000000
## 43   9.9742771  2.3255303  2.8563085 10.3429807  4.9058804 5.2979801 10.7479247
## 44   3.5392581  4.4347350  0.9542708  5.4430529  7.5489344 2.1498447  0.0000000
## 45   6.4653166  5.1158240  0.0000000  5.8725604  6.3405445 4.2522945  0.0000000
## 46   5.4725820  9.2468520  0.7903550  4.0915391  7.2269911 6.4074887  0.0000000
## 47   0.6822137  2.6180272  0.6822137  4.4300310  7.4245703 3.9551547  0.0000000
## 48   8.0436988  4.8874424  3.1374216  7.1047151  8.3058219 2.4910578  0.3661403
## 49   6.8548609  6.5119424  0.0000000  2.9162855  5.9123026 1.8329305  0.0000000
## 50   9.7760298  8.6920701  0.4028313  5.5364975  8.4636927 6.7795933  0.0000000
## 51  11.2346649  2.7448930  0.0000000 11.9424146  1.5366000 0.0000000  4.6666430
## 52   6.9039614  5.9811197  8.8746270  4.5917811  4.9302595 1.5158638  0.0000000
## 53   5.1611863  1.4009204  0.0000000  4.9629515  6.6357733 0.0000000  0.0000000
## 54   7.1189867  6.6486783  6.0426969  4.7108615  7.6465889 6.7614781  7.4232672
## 55   6.0046834  7.4619959  9.0561117  5.9912225  7.3451666 1.3166092  0.0000000
## 56  10.0392772  0.0000000  0.0000000  5.5907457  2.2207943 0.0000000  9.7362533
## 57   5.8234156  3.3773459  2.5098985  9.9025747 10.3829731 5.5617935  0.0000000
## 58   5.7680678  6.2101550  3.3631290  7.7132642 10.2544019 6.2949993  1.1898562
## 59   9.3863275  0.9134160  0.9134160  9.0844792  5.8973639 4.2893476  0.0000000
## 60   5.9084647  4.6126120  0.3444877  5.7798139  6.5344943 0.0000000  2.7363451
## 61   3.0538586  4.8118152  1.1488690  5.8095791  6.3567706 6.9214375  0.6858953
## 62   5.1822553  0.3748447  3.9300087  5.0202222  7.7655420 0.9184626  0.0000000
## 63   3.9403923  6.1689188  2.4148932  3.5972690  6.9376928 0.8579014  0.0000000
## 64   3.9133203  3.5037812  9.4162712  4.9443431  7.3356548 1.4086575  0.0000000
## 65   6.0050833  0.0000000  0.6320820 12.9183460  8.8568880 3.5510114  9.0835950
## 66   0.0000000  9.5769132  7.4672037  4.5697037  5.1840660 0.0000000  0.0000000
## 67   7.5061068  4.9858237  6.0813205 10.1388063  7.4355844 5.9934140  0.0000000
## 68   4.6410257  7.1769789  3.0275433  7.8095103  9.6805714 5.5170048  0.0000000
## 69   7.2759894  6.7009168  2.4066727  8.4208529 10.4317152 1.8035990  0.0000000
## 70   5.8282355  1.7705331  1.2498700  0.4270698  3.0418562 0.0000000  0.0000000
## 71   7.2105321  1.2161755  8.2954898  5.3778977  5.8389946 1.3470420  0.0000000
## 72   3.8786371  1.8740887  1.8740887  5.7632256  7.4545847 5.7221873  0.0000000
## 73   3.1672776  0.8258670  0.8258670  5.8364847  9.2540370 0.8258670  0.0000000
```

```
## 74   1.2953116  2.8873498  9.8799583  1.8551127  4.6182504 0.9050428  0.9050428
## 75   7.8043873  6.8330912  5.7888345  8.7918863 10.2831803 6.2703514  0.0000000
## 76   3.3833449  7.7250997  1.3274574  1.0923428  5.7198132 1.5295711  0.0000000
## 77   6.3567988  0.0000000  1.3377111  7.4010877  7.5179142 6.9388786  1.6025044
## 78   7.9906526  1.5888046  0.0000000  3.1750615  2.5897875 0.0000000  0.0000000
## 79   6.2430273  0.0000000  1.0221192  6.9683995 10.4113253 3.7956215  2.0330882
## 80   5.8136606  0.0000000  0.8579014  9.4063470  0.8579014 0.4918018  0.0000000
## 81   5.8232500  2.2937236  3.8739313  8.7849106  9.7696299 7.0038439  0.0000000
## 82   7.7159627  3.6639025  1.4834160  8.8081224 10.8576022 6.1507506  0.0000000
## 83   6.6555551  3.8618164  9.0164097  5.2741051  4.6221221 0.8451086  0.0000000
## 84   5.7757327  3.3784423  1.3598585  3.8129910  6.5295680 1.6270465  0.0000000
## 85   5.5263787  0.0000000  1.2528395 13.6379080  4.7251685 0.0000000  0.3523066
## 86   1.2490205  6.6555865  1.2490205  0.0000000  0.0000000 9.0866142  0.0000000
## 87   6.1971734  7.4901200  0.4119685  3.3579883  7.1741637 0.7319652  0.0000000
## 88   2.7993567  4.7458881  2.4517782  5.8237086  5.0994509 8.1903571  0.5818815
## 89   4.1346235  5.1275507  6.6193925  0.4998841  1.1650436 0.0000000  0.4998841
## 90   1.4715517  1.0094905  0.3257318  3.0610849  0.0000000 1.0094905  6.4533793
## 91   5.6880628  6.1260209  6.4848181  1.6559471  6.3390839 0.0000000  0.0000000
## 92   6.1793379  2.8034130  4.4352285  1.1350094  3.6625132 0.6763577  0.9237957
## 93   4.6275368  6.1036634  0.4209405  2.2409859  4.1652688 0.4209405  0.0000000
## 94   6.6663746  5.7397266  2.8108955  7.0809134  8.8976374 1.4431823  0.0000000
## 95   7.2945463  6.0235503  0.0000000  3.8879736  5.7987297 0.6343145  0.0000000
## 96   2.8426772  2.3128684  0.5270703  3.5339620  7.7620378 0.0000000  0.0000000
## 97   9.3132629  0.3774014  0.0000000  4.6043916  5.5284307 1.8841681  1.4824869
## 98   4.7503760  3.7108340  6.1941343  2.1555550  5.0351796 1.2522945  2.7067957
## 99   3.5996272  1.5393822  0.7098200  3.1610331  0.9659874 0.0000000 10.1587748
## 100  7.9832382 11.0184337 10.7262695  4.9978614  3.7838862 6.8014833  0.5765705
## 101  7.8216311  6.2261655  0.3335382  3.9111355  5.9325809 1.0287813  6.8703006
## 102  0.0000000  9.7598882  0.8479969  1.3785116  1.1375035 0.0000000  0.0000000
## 103  7.2811928  5.3575520  9.1681348  2.3661963  1.4947740 7.8718855  0.6035967
## 104 10.1562029  2.0334759  4.7080658  3.0614306  2.2831217 1.3487423  0.0000000
## 105  0.0000000  3.0451459  0.5691022  2.2101083  1.5531147 6.4200966  0.3124328
```

```
## 106  6.3892054  5.3794893  4.9831031  1.8074374  2.2480186 1.8074374  0.3923174
## 107  3.7722552  6.6248276  9.9425850  2.3161457  3.2205931 8.9146070  0.0000000
## 108  5.6943175  9.0323130  5.1858983  1.8525982  4.5977457 7.9689351  1.7317915
## 109  5.6944679  1.6903724  0.9191494  7.2268129  9.9499482 1.4760706  0.0000000
## 110  3.6603126  0.7357821  5.3191193  2.1132671  2.5001392 1.7349589  8.2403010
## 111  0.7088494  1.5378427  0.3975839  2.6031456  2.5257933 1.5378427  0.0000000
## 112  5.8176079  7.3341982  0.5023306  5.8176079  6.3018126 1.8070251  0.0000000
## 113 10.3037435  3.2393828  2.7288565  5.5496199  7.8592385 7.1180814  2.6385836
## 114  9.1328835  5.5826102  1.2210109  4.6415518  0.9987732 0.0000000  0.0000000
## 115  8.1792592  0.0000000  1.1382247  1.4863025  9.5059645 0.0000000  0.0000000
## 116  2.7111204  4.0011807  0.9848445  0.7248249  6.1129399 3.9101474  0.0000000
## 117  0.5749250  2.8806268  0.5749250  5.1992994  5.7117041 1.5648171  0.5749250
## 118 10.9387701  0.7000845  1.8066953  4.7673158  6.7523231 2.7271581  3.2845882
## 119  9.9413546  5.5517375  9.0157710  7.0049957  4.9768493 4.6818203  0.0000000
## 120  0.0000000  1.7636240 10.4981532  0.8467942  3.5418617 8.3380580  0.0000000
## 121  3.1214796  3.6238201  2.3442320  7.0036270  9.3629380 5.1471398  0.0000000
## 122  5.0912217  9.7532982  0.7626465  4.9999504  5.0155689 1.4549655  0.0000000
## 123  6.6826028  3.3617543  4.8320191  1.9468805  3.3617543 2.4956952  0.0000000
## 124  9.0521439  0.0000000  0.6890307  5.6606891  6.7688486 0.0000000  0.0000000
## 125  8.3548739  3.1390438  9.5455352  2.9649900  3.4610046 6.3905903  0.0000000
## 126  6.2494776  4.1596534  2.2619219  5.2363855  6.3573233 7.7613212  8.6695959
## 127  7.2661278  5.0602290  1.0475384  2.2963693  1.2765562 0.0000000  7.1114602
## 128  3.6120104  6.3403629  0.0000000  2.3306158  6.2775069 2.3306158  1.7237770
## 129  4.2817428  2.3766516  7.7751309  3.4677881  1.9764736 0.5051796  0.0000000
## 130  7.5522195  1.1647219  1.1647219  2.4733973  7.2721679 0.4997821  0.0000000
## 131  0.0000000  3.8990403  1.0501186  2.8211183  0.0000000 0.0000000  0.0000000
## 132  7.0866776 10.8808172  8.0952050  7.9805498  9.2010974 6.4814733  0.0000000
## 133  8.5753411  1.7466137  2.8643149  5.5405171  7.8595503 0.0000000  7.0023481
## 134  8.1361857  2.2046416  5.3147980  2.8711931  5.3577631 0.9278206  0.0000000
## 135  6.7832065  2.8307218  0.3848235  1.5029925  0.3848235 2.0204844  0.0000000
## 136  5.0840685  5.0472330  1.9973647  5.2060493  7.7862827 3.5988297  0.0000000
## 137  6.4851917  3.3367975  1.7870145  5.7037763  8.1022881 4.2635828  0.0000000
```

```
## 138  4.2800581  5.3379679  2.4872291  3.1332840  4.8107464 0.0000000  0.0000000
## 139  8.1764180  5.4810276  1.1350751  3.7928345  1.6292400 0.0000000  0.0000000
## 140  7.7060373  4.2833218  1.4218561  3.0970545  1.8151245 0.0000000  6.9880552
## 141 12.6467467  0.4881036  0.4881036  5.1382820  8.5522699 0.4881036 11.2829382
## 142  4.9372314  8.3776131  0.4315695  2.5561841  3.2805110 0.0000000  0.7633266
## 143  6.2205853  3.2164549  0.0000000 11.2286393  3.3242778 0.4443490 10.7580339
## 144 10.6217579  2.7776196  0.5366498  5.3451338  5.5252922 1.8888114  0.0000000
## 145 10.9409239  0.0000000  0.8990209 11.5276152  4.8270772 5.7712993 11.2422494
## 146  3.8247984  5.5284213  0.5562087  3.6192721  5.9685078 6.7891489  0.9565771
## 147  9.8759359  5.8222483  0.7959331  6.1181977  6.9405990 9.0901982  0.0000000
## 148  3.4859549  1.7659590  1.4857875  2.8078495  7.4268384 2.2020729  7.7501087
## 149  4.6116681  7.5505206 10.4593336  8.2371387  2.7980920 6.5780028  0.0000000
## 150  9.7582885  0.0000000  0.0000000  3.2856537  3.3522359 1.9121516  0.0000000
## 151  4.9127552  3.5405109  9.0832658  8.3639061  9.4442710 8.2676102  0.0000000
## 152  7.7524703  4.7850431 12.1113129  6.6470770  3.8364493 9.2290055  0.0000000
## 153  8.7378358  0.8221999  0.4689482  0.4689482  3.7322692 2.2751859 10.8336079
## 154  6.1852779  2.2713659  1.1864372  6.6513603  7.6441671 0.9685700  0.0000000
## 155  1.7863036  3.2792781  0.3472121  2.9641398  5.1187791 4.9887983  0.0000000
## 156  5.3522854  6.6741329  0.5831339  1.3186928  5.4704555 1.8035164  0.0000000
##      rs_TSPAN8   rs_RIMS4    rs_MSMB    rs_IL20   rs_NEK10 rs_SLC13A2
## 1    1.4402081  7.9577829  8.0815862  6.3794390  8.6479221  6.3110289
## 2    1.0590091  4.7742125  4.2522945  2.4151637  4.2793821  2.8358432
## 3    8.4912426  9.2579731  5.3004459  4.3752550  6.2820246  1.6757256
## 4    7.1841573  5.7829196  5.3267027  1.1442422  3.2436691  2.4429966
## 5    2.3109217  8.7324269  5.3581079  4.9221265  6.9930708  1.9158650
## 6    6.8916452  3.6925946  7.7873606  2.8528179  2.3644043  9.5596270
## 7    4.2574406  4.1674222  1.3463045  1.8873693  3.1231861  3.3583541
## 8    1.4534912  6.2166915  3.3278454  0.7617108  2.5529426  0.4304994
## 9    5.8872669  7.6210965  2.7473874  0.0000000  2.9549593  5.9492338
## 10   0.8598106 10.5731830  5.5805284  6.2854281  3.3165947  0.4930324
## 11   1.0026665  4.0049687  3.4642500  3.6678467  5.4425819  2.6674380
## 12   0.0000000  5.3055000  3.4604018  7.6144095  2.4456473  2.6297063
```

```
## 13   2.3656086  2.3656086  0.0000000  1.2537473  1.7257848  0.9433588
## 14   4.7623169 10.3217257  4.0369868  7.0114073  8.2024456  4.9302926
## 15   1.9480027  7.3089788  3.4600217  6.0986659  9.2980509  5.5353500
## 16   0.0000000  8.2640409 10.2610596  4.1758679  8.3151025  4.0609034
## 17   2.5889724 10.9877488  1.8108132  3.7593476  3.8871353  1.1726155
## 18   5.1442218 11.6123251  3.1104468  1.7185260  3.4994377  8.3867903
## 19   4.5452950  4.4157181  4.1153746  4.6804031 10.9644102  5.2355548
## 20   1.1040682  9.3384182  6.5116404  4.7006395  8.2379523  4.0709817
## 21   9.8378420  3.3043650  6.5205511  3.6672336  4.9097059  3.9939370
## 22   4.3179986  8.5537986  0.0000000  1.9571717  0.8668684  0.0000000
## 23   0.5566992  3.4446936  0.0000000  1.5278210  1.7460117  0.0000000
## 24   1.3094673  2.4423862  1.0764907  0.7984238  2.7102389  3.0690663
## 25   0.0000000  8.4572807  6.3562953  6.4119821 10.6394017  4.1246342
## 26   7.8945747 10.6077085  6.8713964 10.0579758  5.0993331  5.0186876
## 27   2.6736016 10.1694811  5.8317278  4.9601920  6.5964522  6.7045940
## 28   0.5002922  2.1097283  2.2420232  1.1657512  0.0000000  0.5002922
## 29   1.7701525  6.2543541  2.7497059  1.1410403  4.9464689  1.1410403
## 30   4.8324546  8.2093335  6.6358850  5.9867045  9.3607380  5.8069117
## 31   1.9188823  7.8912521  3.5021524  3.5999485  2.4251101  1.3725621
## 32   2.8001026  9.9732819  1.4617381  1.2651368  6.6278213  4.5733139
## 33   4.7473337  6.0712821  3.5394070  3.8540854  9.4568384  7.1131420
## 34   4.5167338  9.0363951  0.0000000  5.3048359  9.0519493  2.0231844
## 35   6.8657197  7.2662759  9.8980950  4.8666212  9.2128351  5.2181573
## 36   4.1089342  2.5123280  3.0482187  0.5137939  5.9178828  8.2309004
## 37   2.9795864  8.2583719  2.0047890  1.1962293  4.6745284  4.9802036
## 38   0.0000000  8.1710091  1.5700743  7.5201826  7.8681589  4.7333055
## 39  11.7598131  6.5137702  7.9895103  3.3523772  3.4712785  3.2227737
## 40   2.8919246  6.0967130  5.7545268  0.0000000  4.0083704  0.9733541
## 41   0.0000000  2.9783055  6.2234361  1.3995539  1.5684700  8.2668137
## 42   2.2465297  3.8931583  3.8563185  1.6991962  2.3561156  0.8066128
## 43   0.0000000  7.7894730  5.5244712  1.6911768  0.5318680  2.1911520
## 44   5.7331265 11.6009548  9.3996575  7.3697090  6.8502981  4.3038903
```

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## 45   3.0566876  8.5120688  5.6239927  5.0746296  4.1764425  2.4309275
## 46   1.2980131  6.2225650  2.7730891  5.8735032  9.9673577  5.0326122
## 47   2.9914629  6.5422689  0.0000000  4.2583531  7.1515027  0.6822137
## 48   2.7607319  9.2882910  3.8656120  5.3113832  8.0964221  9.0807592
## 49   0.3614315 10.8712527  6.0426509  8.8859882  9.5597625  2.8031237
## 50   3.0717627  8.1205852  0.0000000  8.9182926 10.0939132  3.0717627
## 51   8.9549149  5.3436601  2.9362139  0.0000000  0.3971458  0.9639180
## 52   7.2745012  8.8197008 12.0218632  5.6172720  9.1597079  8.4733413
## 53   5.6502102  8.4354661  4.7330669  4.2009516  3.8857501  7.4639632
## 54   0.0000000  8.9915972  3.4030904  8.9497719  4.7494270  2.4885150
## 55   5.6408754 10.0083175  3.5525615  3.3138988 10.7056772  9.4570699
## 56   0.0000000  1.1508846  1.1508846  0.4924172  0.8589358  0.0000000
## 57   5.3092453  4.6554263  3.9493949  2.2054238  9.2093205  8.7266266
## 58   4.1936141  6.7760105  1.8329710  7.4078252  8.4663286  7.0585070
## 59   0.3723950  4.8714396  0.3723950  0.0000000  1.6142387  2.2715751
## 60   1.5300208 10.3399893  6.5176064  6.6121195  3.6550426  4.9885211
## 61   3.3833172  8.7019312  1.7802261  4.4189388  6.6643932  2.2178821
## 62   1.1288873 10.4174983  7.4526210  7.3592453  3.1717352  5.8045725
## 63   0.8579014 13.2760698  4.5364073  3.8885777  3.4620000  1.9923334
## 64   1.8000819  7.5953492  4.4387453  4.7361502  7.3020082  3.6535875
## 65   9.6386106  3.1654296  1.2476238  0.0000000  2.1933302  0.6320820
## 66   1.0678452  5.9505337  3.9308792  5.3960910  6.7423256  2.5005726
## 67   5.9858397  6.7602862  8.2848190  3.2738739  8.4726348  6.1439056
## 68   4.3200586  8.8757632  4.4282362  8.0315557  7.5373310  2.9714240
## 69   4.6043264  7.9399623  5.2008103  6.7165342  8.8211789  7.0156570
## 70   1.2498700  6.4622160  9.5790466  8.1699566  6.8632286  2.7776406
## 71   5.8827946  9.9943079  5.0722044  4.9333130  5.5776645  7.2715265
## 72   3.6786353  5.2599918  4.4557809  9.9277227  3.9155113  3.2292495
## 73   3.9707984  6.9761734  0.0000000  0.0000000  2.4270966  0.0000000
## 74   0.6614760  6.6631880  2.0702176  1.9666889  2.2574029  1.4569113
## 75   6.0321978  4.7565803  2.4447731  0.9652487  9.6689132  8.6057440
## 76   0.0000000  6.3196793  0.0000000  9.2412870  7.7250997  4.0420489
```

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## 77   5.4850468  5.5648049  0.0000000  1.0131406  1.6025044  3.1106138
## 78   0.7392433  3.5496076  1.0028825  0.0000000  1.4186757  2.8794705
## 79   5.9135692  5.7710457  0.5997939  0.0000000  2.3571860  0.0000000
## 80   2.3397645  9.2262884  4.3574324  1.7812758  2.0873610  0.4918018
## 81   6.3314078  6.5272737  3.4913272  0.5732776  7.0838505  5.9652117
## 82   4.7085128  5.4181967  0.9245560  0.0000000  5.0193639  9.2136525
## 83   1.7609448  7.8967810  4.0813226  1.3745109  9.6129693  5.2134639
## 84   0.6061579  7.6435359  2.7536259  1.2050797  8.6945874  3.3041167
## 85   1.9131479  3.1285409  0.0000000  1.0748479  1.6839210  1.4113178
## 86   0.0000000 10.9365835  0.9395275  0.9395275  2.2238550  4.4815637
## 87   2.4922634 10.2951406  4.0180644  3.7957981  3.3579883  0.7319652
## 88   0.5818815  4.2765339  4.5456410  1.8007032  2.8987888  4.1610976
## 89   5.1613315  8.7074295  3.4513958  1.8010345  7.5749167  9.0717723
## 90   4.1053261 10.6576197  8.1076884  8.0957151  5.0296119  3.7724558
## 91   0.4421208  8.5043701  4.6859458  6.7432349  6.3002281  5.1465290
## 92   6.4792581 10.4309601  8.5103148  7.2734049  5.5834529  5.2281761
## 93   0.0000000  5.4268048  6.1318220  8.9680568  9.2395343  2.0177794
## 94   5.9813435  9.0782616  8.6350346  7.5399366  6.1938959  9.1197216
## 95   2.4376272  5.9988499  3.0318186  5.9220979  6.5122585  2.1087252
## 96   3.7853413  7.4009469  0.9121900  6.6968980  2.1787784  0.5270703
## 97   1.1350094  4.9773898  2.8639186  2.6741894  1.8841681  0.3774014
## 98   1.2522945 10.1811351  4.3951656  5.3604661  5.8323305  6.1456693
## 99   0.9659874 11.8000699 10.8009885  5.2305719  5.4030120  4.1572701
## 100  0.5765705  8.7561283  4.3335096  6.0303758  4.3335096  3.6206099
## 101  2.7488262  2.2144668  1.4959509  3.2207169  4.8231481  7.4468517
## 102  0.0000000 10.7109786  1.7655347  3.6553518  3.8678965  4.3645724
## 103  0.0000000  8.6390234  3.8325660  1.4947740  9.1211299  0.3330802
## 104  7.8881849  5.5069859  3.6555808  5.6692763  7.5997701  7.2717786
## 105  0.0000000 11.6317631  7.7203469  9.3400285  1.8718042  0.5691022
## 106  0.7004397 13.1168729  7.4646576  4.8170911  5.7831082  5.2901295
## 107  2.8381047 11.0358439  9.4195981  7.1618151  1.6648924  3.6937546
## 108  0.9034240 10.7518139  6.6006028  7.4967779  5.0280652  2.9935113
```

```
## 109  2.5607883  6.4790656  0.0000000  0.0000000  4.5948590  3.9727845
## 110  6.2576820  8.9734485  3.8046835  8.2716993  5.3070459  5.4996801
## 111  6.0452267  6.0382781  3.7750927  2.3573831  2.7464633  6.2455166
## 112  0.0000000 12.1286176 10.3886431 10.0319398  7.2849545  3.5643660
## 113  2.5422828  6.3401367  7.8135542  4.2243490  5.4336105  4.0945401
## 114  1.7353055  5.5316279  3.1677914  3.5827607  6.4126630  5.4239176
## 115  0.0000000  5.2568106  3.8290681  2.3795932  1.7664680  0.0000000
## 116  0.4075159  7.4236782  0.0000000  7.7962304  8.4222187  2.7111204
## 117  1.6795139  8.7337766  1.4402081  0.9849174  2.9278017  5.6141327
## 118 10.6404736  3.1890180  3.8818016  2.0436945  0.0000000  5.9591140
## 119  2.9086592  9.6724690  4.2598223  6.6038963  9.6036210  6.7303071
## 120  0.0000000  4.4436862  1.3768460  0.0000000  7.4207914  5.4010945
## 121  3.5697949  8.9416680  6.8191138  7.0087121  4.3241193  5.0319818
## 122  0.7626465  9.5584781  1.6275135  7.2593497  9.0357531  0.0000000
## 123  1.6514536 10.6544382  4.2632523  2.3004459  6.4608801  5.0183181
## 124 10.6129094  5.7371892  5.8176872  0.0000000  5.4745983  4.0272071
## 125  0.0000000  2.8494789  6.6684723  2.4868431  4.2188664  6.1144066
## 126  0.0000000 11.0516789  5.0651931  0.0000000  5.2363855  0.5077185
## 127  1.4742024 11.5116651  5.6461569  6.8341145  9.2131373  2.0706984
## 128  2.4869717 10.6214835 11.5205616  7.5242471  3.5424190  6.3857692
## 129  5.1620690  5.5061798  9.9901599  5.4656839  6.7706626  8.3449306
## 130  6.3958169  4.8653547  0.0000000  0.8701871  2.7645372  1.4091465
## 131  0.0000000  0.4403144  0.0000000  1.9467683  2.5840966  0.4403144
## 132  4.6403028  9.4962576  2.0167459  2.8264773  8.4406836  4.6403028
## 133  3.0806236  7.0671418  3.6756579  0.0000000  3.2686739  3.4864698
## 134  2.1072861  8.2431754  3.1892711  5.1288749  8.5210935  8.4396959
## 135  0.0000000  8.6893016  4.6349359  4.8792990  9.4653629  4.8336238
## 136  1.9973647 10.0786528  4.8687460  5.4228452  7.9548605  2.9709457
## 137  1.6326405 11.5971162  7.7406928  7.4657321  6.6651966  3.7660651
## 138  0.0000000  7.5558016  3.1332840  0.0000000  1.5923972 11.4833517
## 139  1.1350751  5.1575127  4.8635470  5.4517518  6.2205254  3.7613597
## 140  0.0000000 10.9393121  8.0178462  4.5128842  0.0000000  1.6318493
```

```
## 141  8.9962243  3.7527379  1.3842156  1.7720968  1.9328171  6.5850842
## 142  4.9697031 10.6829692  5.3487034  2.3740935  7.8911986  5.4784800
## 143  7.6102261  4.9843843  5.3331088  0.7834986  0.7834986  5.8026895
## 144  1.4865599  8.5865385  0.0000000  7.9614734  4.9628729  9.7725129
## 145  5.6769021  3.9990890  0.0000000  0.0000000  2.6296597  4.6228074
## 146  1.2696915  9.2305436  9.5440593  7.4859822  7.1072359  1.2696915
## 147  3.4513166  9.2461209 14.6478938  6.4693113  9.5740326  7.3709907
## 148  9.8844418  2.9264929  2.3789832  0.0000000  1.1378314  1.4857875
## 149  0.0000000  6.1030737  4.5210256  8.1395959  8.6518704 10.8381954
## 150  0.9420077  2.3633393  0.5465611  0.5465611  1.7238206  5.0944219
## 151  4.4771527  6.7497032  1.4712915  4.9127552  6.7732737  4.3030135
## 152  1.4117516  8.1940595  4.6484309  6.1445991  0.5010060  6.6883161
## 153 12.9732867  2.4876664  6.1160923  3.7322692  2.1559435  5.1984038
## 154  1.5429514  8.4576197  1.1864372  0.3994446  4.8455503  5.7450114
## 155  1.0625362 14.8597743  1.0625362  8.4086337  4.6250776  0.6269530
## 156  0.5831339  6.1342271  1.8035164  3.3874315  7.1083812  0.0000000
##        rs_PON3   rs_FAM3B   rs_LPPR3  rs_HS6ST3 rs_SERPINA5   rs_WFDC2
## 1    8.5290955  8.1087079  8.9310179  9.2368164    9.864727  9.3651332
## 2    2.6819664  3.5649390  4.5254613  8.2984824    7.999852  7.0175913
## 3    7.1141588  4.6094654  9.5168736  8.2263693   12.931184  9.2768125
## 4    1.9350825 11.4528687  2.8179097  0.8535167   13.455387  9.1706512
## 5    1.1300083  5.4654978  7.1582401  8.6451760   10.549803  6.5622791
## 6    6.6145877 10.5148490  0.0000000  4.1792085    5.426681 13.2854604
## 7    5.8405992  5.8694372  1.1090262  0.8248086    6.918127 10.6593489
## 8    0.0000000  4.4038608  0.4304994  7.7726926    3.112733  6.6553533
## 9    6.7482908  5.3577350  5.9851771  6.1941107    1.355355 12.4635160
## 10   1.9455702  6.2316916  6.8413291 10.0290071   10.233247 11.4259807
## 11   4.6099440 10.5678566  5.4863089  8.6212222   10.718969  5.2530892
## 12   4.4421208  8.3423992  0.4548076  7.7497541    6.411704  5.2362553
## 13   0.0000000  3.2881961  0.5474498  1.2537473    2.080862  5.1355554
## 14   5.0807344  4.0369868  5.3414236  8.2697850    8.779187  8.8437484
## 15   1.8078083  1.4784542  3.0260918  1.8078083   11.944075 11.8403540
```

```
## 16  11.1693959  4.1002544  7.0896888  8.4042654   10.466521 13.2842574
## 17   1.1726155 10.0967988  5.5282744 10.2343328   12.467617 11.1547208
## 18   8.3030049 10.9598833 10.2397115  9.0114568   10.446094 10.9994369
## 19   4.2077523  4.8760847  6.1125646  3.7042301    8.732497  9.1271055
## 20   4.3196324  9.8447415  8.9404613  6.7803587   11.089384 12.1159236
## 21   2.2117287  4.6791479  3.9569209  6.4556938    7.089618  8.2636274
## 22   3.7832157  0.8668684  0.4976379  1.1606621    8.673596 11.8550474
## 23   1.9355352 10.5942395  0.5566992  8.8279562    3.314174  3.5057639
## 24   5.8559249  4.0138463  1.0764907  1.6860298   10.214576  6.5736835
## 25   0.7179122  0.4031586  6.9372749  6.9181715   10.129043  9.3379318
## 26   6.9166104 10.1012803  8.5914363  8.5973990   12.926481 10.7927408
## 27   3.2642812  5.2861456  5.6885692  8.2836297    6.674514  9.6402216
## 28   1.8019864  5.9718125  1.4103411  9.6381732    6.552280  7.6555078
## 29   8.2699944  6.4805495  9.4608015  4.1354199   12.993117  9.3815412
## 30   6.6191342  7.8859068  8.0282039  5.5679774   11.764163 10.3228706
## 31   7.8471231  9.9225694  6.3862074  9.3297643    9.156776 11.3847038
## 32   8.3983910  3.9102626  4.6955652  5.1307291   10.186375  8.1944112
## 33   3.8540854  6.4265315  5.8140479  7.0451175    9.917891 11.1920750
## 34   1.4601135  8.9812199  6.7170348  7.2019739   10.010735  8.1622105
## 35   1.6759965 10.9006561  5.1895123 11.4631020    9.055061  9.9200565
## 36   8.0517897  6.8481522  3.1209657  2.3998820    7.235695  8.6702087
## 37   2.4072984  3.7063537  5.4325185  7.9942510    9.276187 10.4481572
## 38   7.2905295  8.6953125  8.1440035  2.1295138    4.331204 11.2526352
## 39   9.3508148  6.0901167  0.0000000  1.6751836    7.055898  7.4271326
## 40   6.2985410  5.3167540  0.0000000  5.4916896    3.757461  9.5249524
## 41   5.3672907  3.7843260  7.2421280  5.6291176    4.006460  5.4992846
## 42   7.1053292  5.7894111  0.4589069  6.6528708    3.373425  0.8066128
## 43   4.1981955  5.1427810  3.7045843  6.5297507    6.724792  9.6644857
## 44   2.5078961  4.2574934  6.9301093  5.4116195    6.589762  8.2003979
## 45   8.3138943  8.0579668  8.6879712  6.3917557   12.878722  9.3049846
## 46   1.9700438  3.8933428  6.4502396  6.3887716    9.722162 10.1465539
## 47   3.0452857  2.5451776  3.8072313  8.1137297    6.450504  5.3753140
```

```
## 48   3.7771882  5.8339274  6.2662824  9.8793590    9.518237  7.9724773
## 49   1.9438838  3.5631581  8.2638706  4.5366498   10.568577  7.3234475
## 50   1.5521311  1.7024802  6.6421340  3.8607344    9.253585 10.3844549
## 51   6.8718646  7.6843243  1.5366000  6.4512424    3.050972 11.2783854
## 52   9.9775278  2.2386035  4.3500941 10.4834721   12.136966 11.6339965
## 53   7.2062115  3.9484233  5.6216504  9.3045503   10.955820  4.6412050
## 54   7.6717569  6.5754349  6.5538059  7.7666130   12.555033 10.6872826
## 55   9.8102803  4.9732163  8.2962610  1.3166092    8.251796 11.0627505
## 56   1.1508846  1.1508846  9.6851223  6.2139363    5.973586  7.9703740
## 57   7.5018022 10.0420682  2.2054238  9.0374981    8.516437  9.3533105
## 58   4.0335111  4.4687136  7.8950996  5.9805875   10.708894  9.5382514
## 59   4.9673162  3.8915553  8.3029510  3.9199026    5.022869  9.1023684
## 60   1.2317396  5.3735021  7.3964935  9.6416696   10.737607  6.9477386
## 61   8.7225750  4.7314494  6.8084584  7.2005102    8.986197 10.7373787
## 62   1.9880848  4.8963300  0.3748447 13.5669707    8.740370  6.4387968
## 63   0.8579014 11.1034020  2.3397075  9.7612748   13.546106  7.1615904
## 64   8.7947775  3.8318367 10.2188445  4.3537185    8.577621 11.4962933
## 65   5.1100792  2.5041627  6.0655465  3.2089698    3.292281  7.5263435
## 66   0.8656813  2.8134221  9.3215874  8.9918597   12.234380  4.8693187
## 67   7.6942353  7.8795201  6.6303094  3.5033742   11.806034 11.1536691
## 68   3.9638348  8.3653662  6.3220561  8.5406914   12.102639  9.7463124
## 69   6.0633260 10.2971988  5.0112273  8.3555269    9.824636  9.7770230
## 70   2.2600257  3.0418562  4.2931865  6.9258914    7.770883  8.1010255
## 71   9.2064435  4.3666369  3.9998016 10.8969550   12.894550  9.8323756
## 72   2.0166746  4.2401540  3.0418212  7.7276979    9.178531 11.4338059
## 73   5.2314977  3.2477149  1.6136731  2.7367564    4.249999  3.6242647
## 74   0.3683772  1.8551127  7.7719410  0.9050428    4.336083  8.4537723
## 75   7.6437646  9.0198553  6.9818161  5.3463364   11.153039 11.4553191
## 76   1.0923428  2.8905829  6.6637260  5.1738350   12.863245 12.0594104
## 77   5.0253921  5.5802420  0.5937840  1.6025044    9.645475  5.1954067
## 78   4.4640801  4.0054180  6.1622060  4.8468844    3.420280  6.1622060
## 79   4.8497541  4.9493902  0.0000000  1.0221192    8.231147  3.8989339
```

```
## 80   8.1483530  4.8390828  2.6509483  5.7605989    8.234544  9.3418815
## 81   6.3909135  4.9430680  5.2509729  5.4572988    9.464548  8.6104000
## 82   5.7303139  8.5799924  5.0193639  2.6754546    9.507769 10.1539353
## 83   5.4243578  2.3166961  8.0140166  5.9920727    9.101139  5.2641723
## 84   1.7441180  4.3633253  8.3151201  3.0549700    9.285951  7.5420924
## 85   5.8553992  4.0192037  0.0000000  3.7193477    5.207944  6.2525141
## 86   0.7556567 12.8384778  6.3207608  9.3678653   13.123867  7.1556147
## 87   7.8053570  8.1082652  6.4251001  8.8034951   10.801606  6.2853893
## 88   6.4745739  9.7262199  9.5471714  9.2409666    5.200359  8.9404986
## 89   6.5762152  3.6548250  8.8935542  8.5068847    5.603597 13.2857942
## 90   9.3649000  5.3038867  7.7586616  0.0000000   12.688405 13.3162779
## 91   0.4421208 10.7293365  4.7641710  9.0258544    8.811180  8.1528638
## 92   8.6248393 10.9447821  5.4614696  8.4948508    8.748618  7.0343445
## 93   1.7535618  8.8169158  7.4385366  8.6160327    7.737771  8.3634142
## 94   5.9415407  9.2250175  4.5275083  9.4818803    9.165073  6.8567330
## 95   1.4095810  6.1964516  5.5236560  8.8276377    5.841035  6.5467525
## 96   5.4949468  4.4703026  2.3128684 10.3011772    3.738444  2.4355486
## 97   5.1931054  0.9237957 10.7771629  0.0000000    6.977280  8.2361974
## 98   1.2522945  3.5498909  8.3736665  8.5315351   12.536292  9.4448546
## 99   0.3981314  8.7892330  7.2624548  8.4324684   11.083838  1.1834548
## 100  0.9873936  2.8850081  9.9852635  1.3067872   11.796292 14.4621122
## 101  3.7807090  8.4470187  8.1402894  9.4248925   11.956453 10.4871671
## 102  0.0000000  2.0703893  9.3623822  8.5243458   10.620770 10.2395985
## 103 10.3805061  2.8019864  6.1204224  3.2973675   13.206469 11.5256543
## 104  2.1636919  5.0820426  5.3101038  8.5052983    9.217744 11.5399823
## 105  6.2003670  2.3535209 11.2034407  0.3124328    8.314031  9.8637554
## 106  1.3576083  9.3151206  8.2648484  6.2361252   12.601303  7.8182952
## 107 10.6628483  3.6107237  8.9221589  7.5825251   10.783548 11.7896407
## 108  9.3268818  7.8505932  8.9449726  9.0902966   10.463626  9.4271324
## 109  5.8584162  2.6658021  1.8769196  4.1278726    6.374500  7.4004303
## 110  0.7357821  9.1392298  6.1332943 10.5045837    7.157009  9.5349868
## 111  4.0204489  7.1802623  6.1712469 11.4031026    4.631942 10.8901813
```

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## 112  5.1860885  7.3997197  7.9469443  9.6301202   10.225560  9.3274767
## 113  1.3831651  6.6484137  7.4750849  7.3807762   10.290835 10.1344774
## 114  0.4144603  2.6609514  5.3195854  9.5831892    8.665306  8.1008941
## 115  3.4072168  3.0368022  1.1382247  6.6365057    2.001010  7.7983526
## 116  4.3165947  4.4303790  6.1858983  8.5794193    4.268794  6.7728767
## 117  0.9849174  5.8770645  7.6190725  4.2380455   11.287512  7.9398918
## 118  0.0000000 11.2681526  0.0000000  9.6704196    9.639119 12.7747604
## 119  4.9281666  3.9755752  5.5932821  9.5792756    9.976612 10.6194418
## 120  1.2208252  3.1675346  5.7822120  0.3405053    3.838801 12.0339188
## 121  7.3016736  7.2766390  5.7672893 11.5334751    9.609631  6.3025713
## 122  1.6275135  1.0320303  9.9150571  7.4524579   10.382246  5.8523310
## 123  3.4109923  4.2632523  7.5187397  7.7153100   11.719282  8.5727480
## 124  5.1656869  2.8322419  0.0000000  8.2881781    5.382325  9.6281311
## 125  3.7457644  3.9650916  6.9744111  6.3697805   11.390718  9.1159920
## 126  0.0000000  3.8151655  7.3183132  8.9718516    3.726003 11.7309289
## 127  3.8236577  6.3017230  8.4595419  6.5018197   12.300388 11.9466493
## 128  0.6559929  8.5123841  6.1251903  9.3005333    9.800382  9.4740780
## 129  2.4886692  3.5214654  0.0000000  9.4828892    2.255199  2.2551986
## 130  2.7645372  4.6203049  0.8701871  8.5877093    4.134057  6.4308489
## 131  0.4403144  1.8066128  8.6231151  0.0000000    1.946768 11.6047804
## 132  8.8512831  3.7210335  3.1431322  5.4623567    9.791633  9.0097164
## 133  0.8360857  4.9829616  4.4206306  9.0451781    5.244362  5.9870116
## 134  2.6120222  6.2743083  7.1626632  6.7194107    9.259323  9.6496620
## 135  1.3383388  1.7847971  7.8943970  3.1616620   11.318394  8.2419479
## 136  1.8339830  4.1082150  7.1933903  6.0252503   11.527605 11.2847089
## 137  4.1824460  3.6093413  5.4501258  9.5027121   11.163472  9.4313426
## 138  7.7913570  6.4058086  5.5829624  6.8421555    3.179861  4.6545845
## 139  3.0794122  7.3065940  7.5284635  5.0574113    8.304762  7.1902859
## 140  0.5056877  7.0759722  8.4627280  9.4971782    6.755594  0.8793921
## 141  3.5194161 10.6413435  0.4881036  2.3293533   11.082195 13.1441695
## 142  1.0328061  4.4769908  8.5765089  7.0493215   10.076562  8.9606244
## 143  6.2482274  7.2073629  2.2036710  2.6802793    2.203671  6.3151006
```

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## 144  4.3486361  2.7776196  7.8104033  2.5743680    6.443862  9.9479418
## 145  5.4765599  6.6992115  3.2264777  3.9188728   10.368963  8.8783201
## 146  1.7449361  7.2478117  8.0820990  9.0413038    3.917527 13.1284623
## 147  1.0733404  4.7620405  8.3058356  7.5544975   11.501497 12.1543914
## 148  7.4418577  2.2020729  0.6782522  9.2100296    6.368641  4.3790595
## 149  1.0817487  2.8732817  6.8764875  6.1865402    6.796628  8.9225196
## 150  9.6745371  9.2071381  0.0000000  6.0927593   11.802211 10.1757848
## 151  7.9986237  5.7255639  7.5302089  5.0732847    9.806847 11.9976207
## 152 10.3681004 10.2773882  6.5797956  9.4786012   11.699944 12.1862241
## 153  8.0983885  4.1924151  1.1058122  7.9672603    7.763057  6.9796138
## 154  5.4178930  5.4614696  3.7138278  5.1346645    6.902801  8.0046216
## 155  1.3966527  9.1869756  8.1581785  8.5968420    5.238011 12.4767479
## 156  0.9973285  2.8027309  7.9776148  5.8773344    1.803516  6.7088976
##        rs_ZIC1    rs_CST4 rs_NCRNA00052   rs_ERBB4 rs_C16orf89   rs_ACTL8
## 1    7.1360642 10.6187382     6.3942106 11.0298067   4.9734597  1.6516832
## 2    3.7310963  6.3747196     3.6504084  9.8996065   1.4884122  0.0000000
## 3    0.0000000  3.0558898     5.3912659  8.8132489   5.8686448  0.0000000
## 4    0.0000000 12.9846833     0.0000000 10.8604621   6.5199759  0.4889263
## 5    1.1300083  3.3935123     0.0000000 10.6725500  11.4741615  1.9158650
## 6    2.9528367  3.9563169     0.0000000  5.6367754   5.9945639  8.6264059
## 7    0.0000000  3.3583541     1.1090262  5.5393791   6.5237862  0.0000000
## 8    8.1196939  2.5529426     1.9191112  6.9873231   2.3709454  5.2557915
## 9    5.2826993  1.6220870     1.0279325  1.3553546   4.0519289  0.0000000
## 10   0.8598106  5.7539227     3.1935037 10.0906783  10.5793426  0.0000000
## 11   1.4183519  5.1616539     0.4164074 10.1852041   4.6680567  3.1201694
## 12   1.6888070  3.8045286     7.0180755  4.7117096   5.1180565  1.0785415
## 13   8.0918886  0.9433588     1.2537473  1.2537473   1.2537473 11.8992143
## 14   1.8800977  0.7400209     8.4928518  9.5578102   8.1625061  3.0656929
## 15   2.5854914  3.3631571     0.7778720 10.4092009   6.3277071  0.4407396
## 16   6.5858984 10.8158388     0.9432837  9.2789426   1.2536263  0.0000000
## 17   0.5039593  3.2897312     9.8622745 12.1453795   2.7766936  0.5039593
## 18   1.7185260  3.1104468     3.0452158 12.0745874   5.1127252  1.1013139
```

```
## 19   7.5943985  3.5362394     0.0000000  9.4673266   5.5932641  0.0000000
## 20   0.3644604  2.2437300    10.7784259  6.3069220   3.2225727  6.5825741
## 21   0.4891319  5.9528554     0.0000000  9.9858644   5.0034493  6.8123878
## 22   8.2602200  0.0000000     0.0000000  1.4045762   1.4045762  3.1416617
## 23   0.0000000  0.0000000     1.2705887 11.9905562   6.3153217  0.0000000
## 24   1.0764907  0.0000000     0.0000000  3.7221818   3.8385686  3.6390122
## 25   0.0000000  2.4630731     2.0786781 11.6903844   8.3756047  3.4588019
## 26   1.8728288  1.9740520     0.3405053  9.5248171   5.0653181  2.8855548
## 27   2.3061164  2.8984406     0.7802261 11.1294373   5.6985686  0.0000000
## 28   0.0000000 12.0501888     0.0000000  9.3325526   6.0993962  2.4749811
## 29   0.0000000  2.3837734     5.6122286 10.1229795  10.3167783  0.3800645
## 30   1.0803166  4.6523660     0.4557546 10.3485842   9.6901967  0.0000000
## 31   2.4251101  1.1322478     3.2841143 11.0446822  11.8897797  0.0000000
## 32   2.9386057  4.7716638     7.1854840  8.9400945   4.2664567  0.0000000
## 33   2.3925372  7.1094462     0.4374408 10.4241741   9.1847323  0.4374408
## 34   7.3014285  4.9840424     5.0234151 10.4919953   8.4437637  2.1707583
## 35   0.0000000  3.3430524     0.7922723  9.9974930   7.9391096  1.3007680
## 36   7.5375531  2.7138937     2.1447317  7.5736351   7.4449610  4.6162930
## 37   0.5165195  3.7063537     0.0000000 11.4666375  11.7565102  4.3786503
## 38   0.8827604  3.4390646     6.8304189  8.1003065   4.3108999  5.5061068
## 39   1.2117598  5.0262822     0.0000000  9.6618000   3.2890229  0.9088129
## 40   8.6696997  2.3714752     0.0000000  3.2735905   4.9628405  0.0000000
## 41  10.7742049  0.9876119     0.0000000  4.7130854   3.2996110  7.0051181
## 42   6.6582301  4.5060878     0.0000000  6.0562345   3.2651818  0.0000000
## 43   8.8078991  1.6911768     0.0000000  2.3255303   3.2434863 11.5160818
## 44   0.9542708  0.0000000     3.5775376  7.6444195   5.2192770  2.1498447
## 45   2.8766839  6.8357473     8.7741229 10.3697154   7.6412100  1.7824924
## 46   7.1251303  4.7296126     7.4748765 11.1316822   9.3325947  2.6102748
## 47   3.0452857  4.8785292     0.0000000 10.9641060   5.3108527  0.0000000
## 48   1.9592879  3.7464740     2.1591448  8.8936516   5.6879705  4.8874424
## 49   1.5816887  5.3923964     0.6503050  9.6873099   6.3144736  0.0000000
## 50   6.8497604  7.0523898     1.7024802  8.7824308   4.4122057  1.5521311
```

```
## 51   8.9391696  0.0000000     0.0000000  5.2386111   4.9441322  0.9639180
## 52   0.0000000  3.9645927     0.0000000  9.7516313   4.2529227  0.8455904
## 53   7.7144090  3.2021669     5.0512633  7.9022430   2.8549133  4.9009199
## 54   0.0000000  3.1952846     7.0040676  9.1404983   6.6537709  5.6528478
## 55   2.2856981  9.3164024     0.0000000  7.4837868   4.7832209  1.8810381
## 56   4.7568845  0.0000000     0.0000000  0.0000000   3.4281424  5.1530352
## 57   4.2796124 10.6370841     0.0000000 10.0415739   7.2749791  0.0000000
## 58   0.4008658  5.3132567     6.9203517 10.5855983   7.5600668  0.4008658
## 59   8.9517728  0.0000000     0.0000000  1.1230040   1.6142387 10.8811759
## 60   0.0000000  1.7770725     2.7935838 10.5163805   2.0828729  7.1198656
## 61   0.6858953  3.4247878     4.4393173 11.8686559   9.4305278  0.0000000
## 62   6.8742043  0.0000000     0.3748447 13.1552729   4.1143087  1.7543317
## 63   1.2351143  4.7691211     4.6804875 10.6439277   7.9898134  6.5148718
## 64   0.8698714  5.1090513     2.1076544 11.7875489   6.4777712  0.0000000
## 65   2.7597524  3.9858920     2.1039004  5.6732992   1.7966393  8.4448803
## 66   0.0000000  1.0678452     1.0678452 12.0047578   5.3189458  0.3494785
## 67   3.3227935  0.0000000     0.0000000 10.5600198   7.7735474  0.0000000
## 68   0.0000000  0.6978628     0.0000000 10.7595191  11.6523193  2.0393139
## 69   1.9795864  4.3234926     1.4913914 10.5748112   6.7862696  0.0000000
## 70   2.1523457  1.2498700     2.4539389  9.9211227   5.2296571  2.1523457
## 71   0.9124199  1.2161755     6.6757468  9.5999744   3.2632899  3.8752394
## 72   1.0992279  9.9066994     2.1464271  9.3219161   8.7778418  1.0992279
## 73   5.2801138  1.4868173     0.3305584  3.1672776   5.6117950  9.2781741
## 74   1.1133671  6.0603912     0.0000000 11.0027459   2.4992464  0.3683772
## 75   4.8389014  0.0000000     0.0000000  9.9357731  11.0412137  0.0000000
## 76   1.0923428  3.5319428     0.0000000 10.8989655   3.2750220  2.1363555
## 77   0.0000000  0.0000000     0.0000000  8.0033819   7.4183679  0.0000000
## 78   7.9066249  4.4429236     1.0028825  1.8786861   2.6678467  5.1888440
## 79   0.0000000  0.0000000     0.0000000  5.6429643   7.4866380  0.0000000
## 80   7.9374344  2.3397645     0.0000000  0.8579014   0.8579014  6.9120175
## 81   3.8251038  0.0000000     0.0000000  9.1004253   9.3222590  0.0000000
## 82   2.5703172  0.0000000     0.0000000  8.3960820   8.1469133  0.0000000
```

```
## 83   7.8427514  3.4708752     0.8451086 10.3353320   6.8068860  0.3397075
## 84   1.6270465  3.2654669     0.6061579 11.2581555   8.8642267  1.0316775
## 85   7.1838666  1.2528395     2.6452175  1.0748479   3.1734633  5.0957135
## 86   0.0000000  0.7556567     1.2490205 12.8831139   1.9082749  0.2980717
## 87   4.0180644  3.4037585     1.5766672  9.5254329   7.5189993  3.3107327
## 88   0.0000000  3.6918133     0.9953036  9.7006095   8.6648682  9.2714387
## 89   0.0000000  3.8330824     0.4998841 10.8931634  11.0669781  5.1103549
## 90   0.0000000  3.1042192     0.0000000 10.8656248   4.1264030  1.8209346
## 91   0.4421208  3.4645899     4.5817911  8.6350212   5.1318528  3.5553867
## 92   0.9237957  6.4200309     4.5316435  8.7596096   1.9965334  1.6291468
## 93   0.7464848  2.5220055     0.0000000 10.6812381   3.1909467  0.0000000
## 94   1.8394759  4.8039554     0.0000000 10.1888226   5.5498324  2.0537717
## 95   6.1690351  6.9035143     0.3517414  9.9806994   2.2825288  0.8705028
## 96   1.2159270  5.1454859     0.0000000  7.9868284   1.8662354  0.0000000
## 97   7.1018559  0.6763577     0.3774014  5.2049702   2.5322421 11.8889590
## 98   0.4281424  6.4775689     5.9738890  9.9865193   5.6655662  0.7579620
## 99   6.3967846  5.1029856     3.5613017 10.0331398   6.5947605  1.1834548
## 100  0.0000000  5.1047224     8.8076566  3.8344483   4.5607333  1.3067872
## 101  1.0287813  9.9954363     6.5034585 10.3090446  11.6043743  0.0000000
## 102  0.4854268  1.5849625     7.8467440  1.1375035   5.0089888  0.4854268
## 103  0.6035967  0.0000000     0.0000000 11.8375102   4.1394204  0.6035967
## 104  8.0900489  7.0026553     1.7313570  8.4215334   6.2989094  0.0000000
## 105  1.4290535  5.1331936     1.1433934 11.7365869   1.8718042  0.7869309
## 106  1.1699891  5.8858062     5.7499793 10.0568349   5.1700332  0.0000000
## 107  0.0000000  6.8942272     0.0000000 10.0743016   4.4820093  4.3084701
## 108  1.4547023  1.1114988     2.2546545 10.0874345   1.8525982  0.6601985
## 109  0.5315686  0.5315686     0.0000000  7.8839598   7.9135824  2.4475263
## 110  6.4943356  5.5720863     4.9200455 10.0999707   3.1129336  1.7349589
## 111  8.5225866  3.2579158     3.6347443 10.7100962  11.0864949  1.1820566
## 112  6.2154922  3.4590250     8.0615969  9.8215894   4.3629748  1.9693071
## 113  4.5800972  3.5178300     5.4469708  7.7231046   3.2393828  1.5900031
## 114  3.3670635  6.2070827     2.9365155 10.8784578   7.0456483  0.4144603
```

```
## 115  1.7664680  1.1382247     3.8290681  1.7664680   2.2026998  4.7454579
## 116  3.1952373  4.8450635     6.9584727 10.6731799   3.3417581  0.0000000
## 117  0.3159140  3.3648946     3.9715803 11.8772198   9.2763436  0.0000000
## 118  2.7271581 11.1620410     0.0000000  8.4180082   4.6284937  1.1694120
## 119  2.8412888  6.5148182     3.4954010 11.2348785   5.3115322  2.2535355
## 120  0.6156988  8.6225380     0.0000000  9.7100689   0.6156988  0.0000000
## 121  2.7845668  0.9306995     4.3241193 11.4012369   3.6238201  0.0000000
## 122  1.0320303  4.1752691     7.9639827  9.1418563   5.1631082  4.8512093
## 123  0.7771988  7.3009272     4.8677334 11.5458556   6.8211081  7.9247626
## 124  7.9273288  3.0072134     0.0000000 10.1182908   6.1701895  3.0611195
## 125  0.4859420  2.2029818     4.5252170  5.6164077   1.4865599  2.6795364
## 126  0.0000000  0.0000000     4.8287077 11.9241698  10.1391007  0.0000000
## 127  1.2765562  7.2925508     1.2765562 11.2510120  11.2497483  0.0000000
## 128  2.3306158  3.4313154     1.1053428  8.5270942   1.4474205  1.1053428
## 129  0.0000000  0.5051796     0.0000000  9.0145693   0.8786861  5.1104676
## 130  0.0000000  3.6060513     0.0000000  5.2884841   1.8006204  8.4373289
## 131  0.7771988  4.9860650     3.8283168 11.3558545   0.4403144  0.0000000
## 132  2.1641426  4.3937800     0.0000000  9.8695500   6.4020246  0.5212518
## 133  2.7843574  4.2819282     3.2086733  7.1452444   6.1313611  6.9979235
## 134  3.3253720  5.8162592     3.8313807 12.8579364  10.1991971  0.9278206
## 135  2.2229900  5.2933190     9.0619814  7.3570866   5.1516153  1.3383388
## 136  0.8914970  4.1780214     1.8339830  7.7806841   4.3692222  7.9398671
## 137  1.2633950  4.7311941     9.0259925 10.2303569   7.1649773  1.7870145
## 138 10.6236390  1.1054769     0.0000000  6.0709302   1.2867038  0.0000000
## 139  1.1350751  4.6737486     0.0000000  7.8830428   3.4421739  5.9404299
## 140  7.0759722  3.8514092     3.0970545  9.2599567   0.5056877  4.8643149
## 141  7.0069342  0.0000000     0.0000000  3.1125333   3.9535260  1.7720968
## 142  4.2042894  0.7633266     1.4559650  8.4208213   7.4482543 10.5012487
## 143  7.4557867  1.9579889     0.7834986  5.0797792   8.5451742  7.2003042
## 144  3.4478569  4.6368740     0.5366498  8.6199657   7.6738313  2.0544665
## 145  6.5340165  0.0000000     2.9317209  5.7248740   3.7743970  5.8455001
## 146  7.4280544  6.4127087     0.0000000  9.2574034   4.0046542  4.4077470
```

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## 147  0.0000000  3.3508084     2.9988634  9.4033862   3.6335126  2.9988634
## 148  6.3152673  3.3224474     0.0000000  6.5643401   8.0240520  2.3789832
## 149  0.4564908  2.6347791     0.0000000  7.6870642   2.5456225  5.4772564
## 150  6.6575528  1.5071603     0.5465611  8.4499212  10.1414841  0.0000000
## 151  3.1457264  5.8384098     0.3256167 10.1947146   8.6304572  0.5912007
## 152  3.2177270  8.8250408     5.0964685  7.2131752   7.0097693  3.6581543
## 153  6.8122133  5.2282723     0.0000000  1.3426685   2.9124583  3.6463701
## 154  7.7843581  1.5429514     0.0000000  5.7364046   6.1852779 11.0028408
## 155  0.8610819  4.4564908     6.3303182  9.6811954   8.6149807  2.3454532
## 156  7.0444892  6.6881398     0.5831339 11.1357516   2.4550181  4.6095304
##        rs_TMC5  rs_SLC9A2   rs_FOXJ1  rs_THRSP  rs_ABCC13 rs_PPP1R1A   rs_PI15
## 1   10.7505010  6.9734437  8.8381898  6.661727  3.8786175  8.2554767  6.263549
## 2   10.2327532  1.4884122  5.6156900  6.546201  0.0000000  6.9262960  6.052429
## 3    8.2850702  4.6520677  1.8321204  7.015639  1.5002922  7.9494299  5.956247
## 4    3.9183862  0.8535167  1.1442422  8.351237  0.0000000  3.1152330  5.706959
## 5   11.3330676  7.8455001  8.4283702  8.972085  6.0438738  6.3474513  7.599524
## 6    9.2352000  4.5741984  0.6028369  7.872844  0.6028369 10.9865591  6.766646
## 7    6.7525626  5.1737071  1.5500634  4.003647  0.4706150  4.5224513  9.982156
## 8    1.4534912  4.1449682  1.6259250  2.927328  0.0000000  9.6383749  7.034007
## 9    1.0279325  2.0416986  0.6035967  2.213130  0.0000000  6.7759131  9.750492
## 10  10.4168633  0.4930324  3.4300176  5.171435  1.1519887  6.0573160  5.879042
## 11   7.0202088  9.2428992  5.7421652  9.016517  0.0000000  7.3090470  7.639479
## 12   9.0003361  0.8001648  3.0076082  7.544525  0.0000000  6.8705114  8.018698
## 13   0.5474498  5.8521737  2.4893374  1.253747  0.0000000  6.6928958  5.394902
## 14   9.0728923  4.2552363  6.6658504  8.688349  7.8718683  7.8801008  8.205724
## 15  10.5516653  1.0509544  9.3013226  2.893634  1.8078083  3.0260918  6.365708
## 16  11.5717131  3.1448458  9.1905529  4.771019  5.3464676  7.2513527  3.978836
## 17   9.3364729  5.5151447  4.3679860  1.810813  1.1726155  1.6277469  5.501898
## 18   9.5295633  5.7770856  5.3741179  8.135759  1.1013139  7.8146228  6.917588
## 19  13.7595685  4.3764571  8.5734022  6.243816  1.5877010  8.4225429  8.773692
## 20   8.4050546 10.5757464  4.9490399  6.864605  4.8081482  5.5363265  4.584469
## 21  11.2592765  6.9268771  4.9666796  7.877028  0.0000000  9.2383245  7.243553
```

```
## 22   4.8376759  4.5127768  2.3557493  1.795434  0.0000000  6.3233232 10.112779
## 23   3.7271036  0.5566992  0.0000000  2.627490  0.0000000  7.9109149  4.893498
## 24   4.2839884  1.0764907  0.0000000  2.626346  0.0000000  3.9112601  7.621299
## 25  12.7481781  7.7956066  6.7073357  5.644101  4.4353086  8.0200610  5.734244
## 26   5.9221812  9.2160932  2.8326268  7.510283  3.8120977  6.2893107  3.668448
## 27  11.7405109  4.3226493  4.8022449  5.495618  5.6270757  6.3267584  8.187505
## 28   4.8044150  6.7869897  3.3969404  9.055240  0.0000000 10.1824394  6.703383
## 29   8.8109507  3.1432791  2.6835617  6.726181  0.0000000  3.6029082  6.123281
## 30  10.1482667  7.9544941  1.8481973  6.337599  3.7688407  8.0363929 12.831176
## 31  10.2479762  6.8359190  6.1644062  7.832108  0.0000000  4.2982624 13.641420
## 32   7.6409426  1.6347327  3.4362418  5.735541  7.0507074  6.3646337  6.832669
## 33  10.4945843  7.9474195  4.4054002  8.952769  0.4374408  9.3829843 11.085106
## 34   9.5752015  6.1945934  1.4601135  9.581811  4.2771516  4.3717192  5.682301
## 35  10.2476692  9.4991465  8.3106219  8.852990  0.7922723  8.0267326  3.582183
## 36   6.7426113  5.1207335  1.1911204  4.277524  0.0000000  5.9778638 10.649990
## 37  10.7742294  4.1528811  7.8044989  3.842456  0.0000000  5.1472334  8.465817
## 38  10.1732376  6.6959632 11.0408918  7.716263  1.2669364  4.3108999  3.939866
## 39   9.9142101  0.5247658  1.4620000  6.188860  4.3745318  5.5157030  3.222774
## 40   2.7613491  3.6872623  2.8281238  6.149877  0.0000000  8.2255936  8.654834
## 41   5.8085086  6.4726421  0.0000000  2.917050  0.0000000  8.3603976  9.002212
## 42  10.1787490  9.3781392  7.4525263  7.570927  0.0000000 10.9237720  5.989766
## 43   7.6002474  7.0156882  0.5318680  6.818949  0.9196833  6.2289726  7.801056
## 44   8.0705686  4.6831013  2.9773715  4.515807 10.7881682  4.8796911  7.788015
## 45  10.3515079  6.8601943  7.7433184 10.583488  1.9739051  9.1963599  8.625163
## 46  11.9270868  2.6939887  8.2291990  7.147571  2.9873027  6.8746617  6.672855
## 47  10.4802334  4.0893117  7.8614585  7.508399  0.6822137  8.0493351  5.343443
## 48   9.4691015  9.4790634  9.5379931  3.746474  5.3929940  6.6027968  9.072268
## 49   7.6522771  1.4374408  4.9089714  7.656355  4.7952163  6.2672567  7.646138
## 50  10.1567284  0.7173858  3.4991188  7.762352 11.0635991  7.4611962  7.107343
## 51   3.4359752  5.5625813  0.7081431  2.875210  0.0000000  3.5957423  8.221725
## 52  11.5821845 10.3242751  7.9837085  4.967487  6.9878881  5.7442580  5.495120
## 53   9.6967521  7.0291701  4.3242346  4.415792  1.2095158  4.9166820  5.640751
```

```
## 54   8.9845415  6.1329798  5.9380599  6.183149  3.2501127  3.3538737  5.878409
## 55  10.8335167  8.4269872  1.3166092  5.772606  7.1799807  5.3767280  7.454658
## 56   6.4061285  1.7828279  0.0000000  2.652808  0.0000000  2.4529117 10.404020
## 57  10.3984996  6.0682860  0.7844202  7.887967  0.0000000  8.6495648  9.596184
## 58  10.3814415  2.2761989  3.3631290  6.210155  8.5050048  6.9654253  8.596195
## 59   4.3940957  8.4167304  3.7086728  3.113850  0.3723950  5.4689482  5.953291
## 60   5.9277685 10.2726993  4.4794052  6.879980  5.1285780  2.7935838  5.464436
## 61   9.0953815  3.3406050  5.3093145  7.510877  0.6858953  6.9501278  5.456563
## 62   7.6055106  5.4207754  1.1288873  6.271566  0.0000000  5.6596734  7.090658
## 63   6.0908238  0.0000000  5.7277517  8.472519  3.5646221  2.5544415 10.779461
## 64   8.8081556  7.9493768  2.4727737  7.286798  2.4727737  8.8591757 14.807380
## 65   5.6178480  7.9708519  0.0000000  2.572429  0.0000000  5.6655065 13.267308
## 66   8.8533966  0.0000000  3.2473351  6.631043  4.1246590  5.1058499 14.785508
## 67   9.4202186  7.7691423  1.4156505  7.067044  0.0000000  8.1940733 12.225466
## 68  11.7492296  7.1264866  0.6978628  8.603185  2.7222256  3.9937196 12.392643
## 69   9.1805487  5.0313467  7.4928258  4.222109  6.9511157  4.7810764  8.455700
## 70   9.6450998  6.6911154  4.6703135  2.260026  5.8882123  1.6169693  4.526751
## 71  10.6055943  8.0366088  2.7980505  5.758993  6.5658439  5.1988870  6.582541
## 72  10.4835066  1.3352546  3.2866742  7.216777  1.0992279  6.3119081  4.809276
## 73   3.3238888  4.1278066  1.0215508  7.730874  0.0000000  7.9298709  8.464770
## 74  10.0816248  1.1133671  1.6022193  5.299919  0.9050428  5.0185274  4.397105
## 75   8.9269314  6.8569932  2.6039289  7.421865  0.0000000  8.5109995 13.074436
## 76   8.6090705  4.4925903  7.8221202  8.593650  4.3662872  1.3274574  5.496817
## 77   5.0698139  3.1932356  2.4809113 12.376449  0.0000000 13.5507446  5.215317
## 78   2.0043216  4.8129294  0.4165155  2.879471  0.0000000  3.8466839  8.382252
## 79   3.3615438  2.2042033  0.5997939 11.662086  0.5997939 12.7990333  4.434201
## 80   5.9239478  6.3474991  0.8579014  1.149650  0.0000000  3.4261574  4.385742
## 81   7.8896123  4.5808208  2.6705911 12.632656  0.5732776 11.6355408 11.462018
## 82   8.0178935  3.1099623  0.5350576 12.482115  1.2308793 12.1519892  8.774493
## 83  11.1935995  3.4000870  0.3397075  4.590680  8.4059932  5.0263619  8.863648
## 84  10.4680178  5.0607392  5.6761122  5.346485  5.5041882  7.0762021  9.753889
## 85   9.0593539  7.5777423  0.8717648  1.074848  0.3523066  3.0821746  7.957564
```

```
## 86   9.7414321  0.2980717  4.5678375  8.129423  0.5448810  0.5448810  1.817255
## 87   9.9931872  9.6439909  5.9105888  6.837325  7.1339950  6.7646460  6.567626
## 88   5.3128140  7.2807318  0.5818815  9.263298  0.0000000  1.9929859  4.482926
## 89  10.6612321  7.3842458  2.4738648 12.195020  0.0000000  1.4095267 15.064431
## 90  12.0646393  7.2620187  6.7052868  8.383047  1.8209346  1.3333665  4.900973
## 91   8.5213633 10.8667073  8.6376211  8.491492  9.9764981  5.5840665  5.245298
## 92   9.6325649 10.2433221  7.3652341  3.317782  6.3477117  4.3947816  6.545417
## 93   4.4820028  9.7246259  6.4383993  8.554954  4.6665521  3.5659505  4.777656
## 94  10.1460489  8.4104726  7.0312121  4.944830  8.9225568  6.4890483  6.983010
## 95  10.8221775  9.3903302  4.6765044  4.494108  5.9286522  5.0575716  8.653611
## 96   9.9378531  7.0726696  3.8747871  5.314878  0.5270703  5.7876101  3.917518
## 97   6.1613677  3.9683765  1.3191555  2.977829  1.3191555  5.3912487  8.098171
## 98   9.1330649  7.5354286  4.3951656  4.786952  7.0959054  4.3469852  5.553274
## 99   9.4934358  0.3981314  8.2917960  5.687293  5.3136159  5.4871905  6.418387
## 100  9.7659023  0.0000000  6.3928618  3.561803  0.0000000  2.5639147  5.529843
## 101  9.0045402  3.8859745  9.0730203  9.240556  0.3335382  1.0287813  3.696395
## 102 10.2106713  3.1043367  2.5360529  4.217231  9.7180191  2.9634741  3.350497
## 103  8.1477005  0.8312287 10.0564970 10.147519  1.0278618  0.0000000  6.672977
## 104 11.1083349  5.8734072  4.0417161  3.655581  7.0113313  2.9929859  4.943856
## 105  9.8934024  0.3124328  0.0000000 11.703810  0.0000000  0.5691022  7.204924
## 106  8.6885815  0.7004397  2.5078961  4.734818  6.3231665  3.9716447 16.653488
## 107  9.0673924  0.4455148  3.9849903  5.779005  4.1111649  7.8319868  4.657726
## 108  5.6862120  5.0660504  6.3414005  6.591950  1.7317915  4.1325522  4.290638
## 109  7.6254049  2.0420840  1.2243490  6.741807  0.0000000  7.7649061 11.927563
## 110  9.3721612  2.2201132  4.3664901  3.904205  6.1195554  4.0270390  6.091677
## 111  9.5587509  4.5561473  6.7914442  6.164881  0.0000000  5.8125752  4.945903
## 112  9.6316362  2.5845777  1.1696685  6.255370  8.9561682  6.1827777  7.126257
## 113  9.5013667  6.8974183  7.4912951  6.476672  3.3572846  0.0000000  6.259143
## 114 13.0323395  8.2216074  4.3669446  2.805292  0.7360420  6.0492953  7.636649
## 115  9.2180895  6.7931481  0.6786128  5.386745  0.0000000  9.1722702  3.633501
## 116 11.9153636  0.4075159 10.4152729  3.245739  8.9630169  3.4747605  8.391701
## 117 12.4748605  6.9950390  0.5749250  3.804704  0.0000000  5.2183976  6.003555
```

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## 118  8.4100824 10.2102271  4.5148355 10.359672  0.0000000  7.9525712  5.790277
## 119 10.3306625  3.0937292  8.4768159  4.719830  8.6067424  6.1613597  6.222208
## 120  9.8422796  8.0029444  2.3947062  6.365413  0.0000000  3.4035541 16.027165
## 121  8.6461537  7.7227399  0.9306995  8.592973  4.3563903  4.5914580  6.647166
## 122  9.5363172  0.4311415  2.7165081  7.483676  3.1148168  7.2126861  8.404517
## 123 10.2571606  9.5843306  9.8287090  6.567879  5.7972387  7.0941252  7.028590
## 124 11.6949479  7.5021372  3.3040145  7.689210  0.9398284 10.1694201  4.968229
## 125  9.0645846  6.6882153  2.3233124  3.352066  9.9110236  5.0720715  4.562377
## 126  7.5306638  0.0000000  3.3617403  7.935487  0.0000000  2.3835246  5.629587
## 127  8.6593092  7.4148560  1.4742024  8.471155  9.6537071  0.7750927 11.584648
## 128  6.4631254  0.6559929  5.2959874  6.701254  0.0000000  3.9709917  4.810448
## 129  9.7597532 10.6718591  3.1646737  5.465684  3.4120498  1.6307316  4.662274
## 130  9.6384832  9.3231739  4.8025448 10.322514  0.0000000  4.9643247  3.450855
## 131 12.1386585  0.0000000  6.3888439  1.050119  0.0000000  0.4403144  3.145922
## 132  8.8474301  8.3703208  4.6148983  7.585509  2.4202129  6.3720136  6.634672
## 133  9.1733383  9.1183449  2.8643149  9.552480  3.5841568  3.9197500  4.909476
## 134 10.7023570  8.9545220  3.5642196  6.089113  3.9484420  5.7289517  5.661963
## 135 12.2747998  2.0204844  1.6507646  6.451506  5.3376219  4.0523811  7.145981
## 136 10.0162932  6.8999816  2.3992531  6.462982  7.0930530  6.0990890  7.314581
## 137 11.0161313  3.1784278  1.0359054  2.472956  7.8563776  3.3367975  6.285972
## 138  6.7015615  3.8895612  1.4476321 12.208343  0.3650206 12.7362023  8.050049
## 139  9.6606623  0.6763577 11.5995436  6.987622  1.4825385  4.7235913  5.145372
## 140  2.4900566  8.8344698  2.2564974  1.631849  6.1688987  3.1661530  2.690998
## 141  9.0487127  6.4653068  2.6400424  1.384216  0.0000000  2.9715528  7.277862
## 142  8.2076635  6.5181621  5.2464043 11.784870  1.2598449 11.1432739  7.030206
## 143  3.8423956  2.9053124  3.4722668  1.817460  1.0579701  9.5207518  9.111551
## 144 10.3763719  6.6127756  7.8699658  0.000000  3.1874352  6.6391005  5.329052
## 145  1.4486896  5.8598950  7.8962973  1.725130  2.3321923  6.8582135  8.641639
## 146  8.0669954  4.0868262  6.9514689  3.009974  1.5268200  1.5268200  6.680876
## 147  8.7062346  3.3508084  8.1778187  6.974775  4.9626925  7.1864421  5.123666
## 148  1.7659590  8.9530260  6.1543746  3.700972  2.2020729  0.6782522  5.650182
## 149 10.0537599  8.7107276  1.0817487  6.555344  0.0000000  7.1275239  3.810124
```

```
## 150  7.3580665  5.4840930  1.2521128  2.228018  0.0000000  9.3656282  4.378962
## 151 10.5031157  3.9946702  2.8232806  6.793177  1.8206487  7.8226059  9.794147
## 152  7.9853758  9.4281973  4.7631566  4.328937  1.4117516  5.2460052  3.151875
## 153  9.8706569  7.5008403  0.0000000  8.825940  0.0000000  9.8593678  3.852219
## 154  3.6045814  2.7530910  1.8285503  5.419077  0.0000000  7.0454921  9.703653
## 155  8.5998809  0.0000000  7.4186217  4.383124  4.4564908  5.5119708  5.367287
## 156  9.0155904  6.8020032  3.1651241  3.852958  7.7857872  4.8774253 13.429033
##       rs_WDR72  rs_AKR1C2   rs_SPDYC rs_ATP6V0A4 rs_ALOX15B   rs_TRPA1
## 1    2.2796496  5.8359468  0.8928184   6.5072365   9.395735  0.8961556
## 2    1.0590091  4.2793821  0.0000000   4.0469799   8.600491  2.6876430
## 3    2.3287790  8.8330564  2.6138145   4.9876392   6.978458  1.5002922
## 4    8.4969025  4.9283845  0.0000000   1.9350825   4.376290  1.1599520
## 5    0.0000000  4.6535187  7.6141849   4.1408032   7.906328  3.7014049
## 6    0.6028369  8.7514748  4.5099618   8.7918958   2.745323  0.6223682
## 7    1.8873693  3.6518668  0.8248086   5.0278441   6.936413  4.6386821
## 8    2.8598106  3.2242873  0.0000000   5.4171166   4.623282  3.8981503
## 9    1.0279325  9.4138974  0.6035967   5.8998741   3.858797  1.6220870
## 10   9.7265603  6.8413291  0.4930324   2.4545971   5.764776  5.1309103
## 11   0.4164074  7.0569216  8.7822690   7.8673974   6.649102  1.4183519
## 12   1.8457911  6.2241619  0.0000000   6.8381614   3.950020  3.3753592
## 13   0.0000000  4.1760275  0.0000000   3.7507244   3.067690  4.0283835
## 14   1.8800977  6.2868386  1.2268168   5.0518767   8.487473  1.2268168
## 15   3.8656714  3.5941185  0.7778720   0.4407396   6.444765  7.8765004
## 16   2.8992723  2.6031456  0.0000000   6.7245561  11.408394  7.0971957
## 17   6.1460055 10.1854472  0.0000000   6.0939763   4.978122  2.8621340
## 18   5.7466326  7.0187577  6.4287287   4.0905740   2.576208  9.4980895
## 19   3.7355980  4.0419876  0.8949923   2.5536063   5.401217  1.9505804
## 20   2.5572385  2.6260185  9.8438394  10.3646060   8.759999  4.9843068
## 21   0.0000000  3.5725259  1.7746711  10.2850503   5.971534  3.8031547
## 22   0.0000000  0.4976379  2.6677105   5.6793985   1.957172  1.9571717
## 23   0.5566992  1.2705887  0.9573203   8.0861230   3.244217  2.1030276
## 24   1.5099998  9.2832416  2.5372961   8.7058867   7.144195  2.5546625
```

```
## 25   2.5450788  2.7662983  0.0000000   3.5004961  11.250651  8.0068293
## 26   0.3405053  7.1041762  0.0000000   8.1294216   6.730200 11.4163771
## 27   2.0800095  7.0077573  0.0000000   6.2675395   5.605980  2.2042346
## 28   2.7661923  3.7027351  0.0000000   6.9163895   7.190592  4.1695082
## 29   5.6033118  5.2274407  0.3800645   3.8338717   3.093205  2.8392945
## 30   4.9925419  8.4673211  0.4557546   6.5412267   9.981213  0.4557546
## 31   6.3303146 10.4071493 10.0284498   6.7101672  10.662953  2.0698740
## 32  10.1967639  9.3265477  5.9307373   5.6473951   8.284834  3.3395365
## 33   4.1701815  9.5449932  0.0000000   7.0795307   7.109446  1.2795307
## 34   1.8587767  4.6230884  0.0000000   3.0009555  11.572953  1.4601135
## 35   0.0000000  5.5122142  6.9830289   8.8946238  12.614824  4.9199073
## 36   4.5650731  4.1442667  0.0000000   5.3798081   7.387150  5.4354853
## 37  13.6021098  5.3887199  8.8745508   7.6676410   4.878308  1.6564506
## 38   0.0000000  6.3328941  9.9930193   2.1295138   4.226701  4.0663734
## 39   0.0000000  6.8463554  7.8647216   6.7613930   6.090117  3.6330708
## 40   1.3816710  7.6879166  3.2248738   0.7157177   5.813381  4.7068399
## 41   4.2494909  5.8984236  1.2082675   6.7514677   5.248846  4.8643595
## 42   3.0208044  7.5990678  1.8567069   8.1041317   5.020640  5.4775122
## 43   0.0000000  9.5142643  3.7531017   5.6955707   3.243486  0.0000000
## 44   0.7004397  4.9972879  0.3923174   2.2480186   5.255138  7.8043847
## 45   6.5046188  9.8659837  0.0000000   0.9826560   6.349208  1.5665229
## 46   4.3964472  3.6635040  5.9521006   6.0426881   7.761023  5.7214438
## 47   0.0000000  7.9680642  0.0000000   0.0000000   8.120014  4.2809637
## 48   3.9756669  5.3322246  8.3601009   5.9121373   7.215418  1.5983176
## 49   8.6060994  7.6624512  0.0000000   0.0000000   5.052042 10.8018906
## 50   3.4574236  8.1437720  0.4028313   3.5440278   4.966993  6.5729018
## 51   6.5275521  5.8666879  0.0000000   5.2744853   2.811533  1.3697736
## 52   4.2529227  5.9380081  1.9717367   7.3841085   6.748671  8.1240225
## 53   1.4009204  4.1749816  0.4093638   5.2258649   4.622105 12.9613486
## 54   5.5141444  5.2839255  8.4790992   9.0104968   9.898238  7.2769581
## 55   1.7592411  6.1987063  0.3765127   5.9500694   9.910253  1.8845198
## 56   0.0000000  5.7188548  7.4421539   5.7299578   5.476748  1.9440338
```

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## 57   1.4885664  8.1488848  0.0000000   7.1918775   8.615425  2.4221792
## 58   2.3685728  5.7595633  0.0000000   3.9759328   6.776011  2.4696516
## 59   4.8272246  3.3818232  7.2597941   2.0838941   7.552375  4.8520038
## 60   1.3885753  5.8353860  8.0338348   7.6047267   4.461856  1.4077878
## 61   0.0000000  7.7396915  0.0000000   1.6463470   5.217890  0.9358369
## 62   1.3124328  6.0632980  0.3748447   1.8759373   7.081205  1.1288873
## 63   5.8343016  4.5023370  2.6194600   0.0000000   3.807190  1.5338623
## 64   0.8698714  9.0814914  0.0000000   3.6535875   5.539500  3.1474695
## 65   7.2313950  3.7703216  0.0000000  10.2628957   5.039481  3.5880850
## 66   0.8656813  5.7149186  0.0000000   0.8656813   3.736930 11.6779434
## 67   3.3227935  8.1007449  0.4153260   3.2738739   8.942497  0.4153260
## 68   2.2426330  5.0595846  1.9258096   2.5793733   5.446719  0.3907777
## 69   2.6858953  6.1166080  0.0000000   2.7357821   4.150332  2.9261892
## 70   8.7387770  2.6248495  3.5460795   9.8202643   3.983267  7.9483988
## 71   2.2477453  4.8694322  0.0000000  10.1622720   3.390104  4.5159584
## 72   1.0992279  6.3528150  0.0000000   7.2424015  11.881894  1.7158055
## 73   0.0000000  9.2294891  0.0000000   6.0406448   7.935952  6.6504285
## 74   8.7414414  5.1892592  0.0000000   2.4230403   3.845982  1.2953116
## 75   5.0191948  8.7154991  0.0000000   6.6879229   8.586810  0.9652487
## 76   0.8113066  2.0069084  0.0000000   0.0000000   9.685347  2.1363555
## 77   3.5475115 14.1172670  0.0000000   3.2713958   4.112141  3.7829117
## 78   0.4165155  3.4202803  4.6104048   1.5888046   6.529282  4.0985543
## 79   3.2090478 12.6408249  0.0000000   1.0221192   3.563732  2.5073126
## 80   1.5998414  7.9959966  0.0000000  10.3582869   5.659873  3.9694176
## 81   2.1425115 12.4647535  0.0000000   4.9657704   4.214459  2.1472741
## 82   4.6835224 13.1669130  0.0000000   7.1033560   6.027063  1.2336427
## 83   7.6214065 11.8544340  0.0000000   2.6574800   4.386100 10.6683511
## 84   5.5041882  7.6472987  8.5085293   5.2158533   6.196210  3.6473145
## 85   6.1268015  8.7713617  1.4113178   7.6410901   6.001588  3.7593902
## 86   7.6533553  0.9395275  0.0000000   1.9082749   3.020307  9.1700112
## 87   0.0000000  6.9649300  1.8654438   5.1842882   6.976334  2.5809896
## 88   5.0133104  8.2050034  6.0131652   0.0000000   6.374469  2.4517782
```

```
## 89   0.4998841  6.6314943  0.0000000   5.9318627   6.424501  2.4738648
## 90   3.1868016  3.8505394  2.4749811   6.0130267   1.471552  9.0829694
## 91   0.0000000  4.5600240  6.6012776   7.3744631   8.669731  4.3257750
## 92   8.8248067  5.6875730  3.9405520  11.1288561   4.353168  6.7968235
## 93   2.6046881  7.5392085  0.4209405   0.0000000   4.830154  1.9008765
## 94   5.9943693  7.8806274  0.3634515   6.7798178   2.977610  3.5440897
## 95   6.0112519  2.7052702  0.3517414   0.3517414  10.801124  0.8705028
## 96   0.5270703  5.4226266  0.0000000   0.0000000   4.779149  4.3784700
## 97   1.1350094  9.4814277  5.9612483   6.3317321   6.155326  6.4847601
## 98   0.0000000  4.3951656  3.1046554   7.0995445   5.685077  8.4630751
## 99   6.8741883  5.1424584  7.5729033   8.1681456   7.294933 13.8549875
## 100  3.2991860  4.3335096  8.2739998   3.0651759   3.930548  0.5765705
## 101  9.1855554  2.5708272  7.8116451  10.9680048   6.939185  2.3677065
## 102  0.0000000  3.7441611  0.4854268   0.0000000   3.405992  1.9259994
## 103  0.6035967  3.0483583  0.0000000   7.6787487   3.806015  1.2008182
## 104  1.5527213  3.8615286  1.5527213   5.6360039   6.545809 12.9457769
## 105  1.5531147  1.7731946  0.0000000   2.6598789   3.813289  0.7889362
## 106  9.8338921  5.2785610  7.2144308   5.8471676   6.744945  7.7405046
## 107  1.4901080  5.3115794  0.0000000   3.6937546   5.216509  0.7884351
## 108  5.7498292  8.9925948  0.3675947   3.1431648   5.661613  6.6571541
## 109  3.6013518  9.3454396  3.0998338   2.1902672   7.377423  3.4389848
## 110  5.0560979  5.7959124  7.0488018   8.3822695   7.616741  7.6783466
## 111  0.0000000  6.4160104  2.6031456   6.8834803   5.836803  2.4540969
## 112  4.6044272  4.9342381  0.0000000   3.6625473   5.010789  8.2001635
## 113  8.2487649  5.5619523  0.0000000   7.9010950   6.259143  7.3700858
## 114  0.0000000  4.0274903  0.9987732   7.6473210   6.655833  5.6140237
## 115  0.0000000  0.6786128  2.3795932   0.6786128   7.611625  4.4208192
## 116  0.0000000  2.9733909  5.0148730   1.2050797   7.344771  6.1170155
## 117  1.3038100  5.0473857  0.0000000   3.6998958   5.691344  8.8481631
## 118  3.7540537  3.9991522  7.3187760  10.6113918   5.987798  3.6856711
## 119  8.7363965  5.2216722  0.0000000   4.7568578   9.952871  7.1057514
## 120  3.3290949  2.3947062  0.0000000   1.2208252   8.763513  1.5176284
```

```
## 121  7.5967049  6.3272059  5.8375623  10.1236498   6.406404  7.6965719
## 122  2.7165081  7.1290017  0.7626465   4.3578968   6.957672  6.6168943
## 123  4.0310069  6.4840753  4.3667139   3.8642357   8.100140  7.4933023
## 124  0.9398284  4.4871261  0.0000000   7.4874478   3.258609  2.8421341
## 125  4.6104698  3.4075567  0.4859420   4.7565537   6.059156 15.2227217
## 126  4.3205785  3.8991370  0.0000000   6.6456541   3.529221  0.8825257
## 127  7.5660137  7.6679283  8.2327245   5.8732078   4.674681  3.1127001
## 128  3.5776343  5.0040654  0.8980922   6.2117871   6.000998 11.1043698
## 129  0.0000000  4.6859682  0.0000000   4.1516316  14.254433  1.8139351
## 130  0.8701871  8.8701665  2.4733973  10.9075672  14.004904  2.4733973
## 131  0.0000000  0.7771988  5.9381470   9.0709034   2.401275  1.0575542
## 132  2.8264773  5.6238727  0.0000000   0.9034240  13.074373  3.0762170
## 133  2.6997071  5.8265968  5.5765705   9.3633384   8.393590  6.3948039
## 134  1.3242346  9.3418902  0.3793992   6.8827665   5.618459  4.9504824
## 135  0.3848235  2.7673582  0.0000000   7.2994562   8.647018  7.6152839
## 136  4.9103633  7.8887329  0.0000000   4.1780214   4.640499  2.0035303
## 137  6.2465981  7.2831986  4.5489914   8.2085655   7.494029  5.6563905
## 138  1.1054769  1.1054769  1.5923972   9.7913480   4.023309  0.0000000
## 139  1.8842462  3.7613597  0.0000000   0.3775125   9.304527  3.7514637
## 140  4.4026608  5.9706880  4.5649878   7.4770458   5.129489  7.8931268
## 141  4.0266142 10.8489341  2.2088918   9.4476257   3.915540  2.3351116
## 142  3.3313613 11.3493432  2.3740935   2.4680098   8.185372  7.7961084
## 143  9.4399042  6.3537855  2.6802793   6.7515869   1.487126  6.3660756
## 144  2.0544665  4.9835637  6.6194013   4.6105052   6.721482  3.1995153
## 145  3.3940751  5.9501044  4.8270772   6.8108454   5.467283  4.8270772
## 146  1.9344033  2.2518403  0.9565771   5.9793029   6.713573  5.0974465
## 147  0.0000000  5.9393723  0.0000000   0.4521737   2.998863  6.2038256
## 148  0.0000000  5.4468186  3.4065095   8.2642765   3.406509  3.0361340
## 149  2.1209491  3.0128726  0.0000000   2.7980920   8.453241  1.0893626
## 150  0.0000000 13.9610905  5.0549874  10.3527672   3.535331  2.6063948
## 151  5.9607712  7.2758247  0.0000000   2.9229780   8.905739  6.1234117
## 152  3.4546892  4.9098355  0.0000000   6.0116678  11.591552  1.9764370
```

```
## 153  2.5832302  9.0283796  4.5167401   7.0313599  12.172751  4.9037710
## 154  0.0000000  6.6095585  0.0000000   5.3754009   5.996364  2.3734533
## 155  7.9736928  6.3497050  8.8466882   1.2392147   6.003103  7.8192013
## 156  0.5831339 10.4804331  0.0000000   2.3176224   9.439623  6.2005161
##      rs_ELOVL2 rs_SLC26A3 rs_LGALS12     rs_TRH   rs_SYTL5   rs_KNDC1
## 1    4.8503094  5.9799910  5.3519639  1.1923204  6.4588725  5.0869154
## 2    4.5254613  9.1806273  0.4448791  1.6630713  8.2009275  1.8188915
## 3   11.2368735  3.7083307  5.3400708  3.7083307  7.2658822  6.9909583
## 4   10.7563010  1.9350825  3.5222064  7.6633062 10.4121182  0.4889263
## 5   11.8013631  3.1576743  2.9514572  3.9319761  6.8956250  3.5481037
## 6    4.3356333  0.6028369  4.2980864  3.1342374  4.8839629  0.6028369
## 7    3.1856604  1.8873693  1.5500634  0.8248086  2.6778916  1.5500634
## 8    5.2688610  0.0000000  2.2705588  1.0308304  0.7617108  0.4304994
## 9    7.0090873  0.0000000  0.0000000  0.0000000  5.8487656  1.3553546
## 10   9.7348617  1.3948982  5.0346735  3.4835449  7.1031199  0.0000000
## 11  10.3943892  2.4193501  6.3918175  1.2253983  2.4193501  5.8631902
## 12   4.6276827  1.3118518  6.7415263  2.9395275  5.2782004  5.7045677
## 13   4.0206089  0.0000000  0.5474498  2.3656086  0.0000000  1.5089864
## 14  10.2623437  2.6694577  3.6315816  2.8139761  8.0095622  2.9453080
## 15   8.0884835  2.8225466  3.7931572  3.0260918  9.3094698  1.2804813
## 16   7.2773348  6.9512882  1.7256539  4.2122425  8.7347486  7.3320742
## 17   4.0416110  6.5897290  2.5889724  3.1607750  6.6145626  3.6674040
## 18  10.8714975  1.3375969  6.8427765 14.1031069  9.0514575  0.0000000
## 19   4.9177086  2.9775913  2.4054206  4.2945693  6.7835470  9.0141206
## 20  12.4328271  0.0000000  0.0000000  4.9756348  6.4887383  7.4117415
## 21   4.3196757  5.5548804  2.4434740  0.8537562  8.0517674  7.3329406
## 22   5.9531605  0.0000000  4.0575109  0.0000000  2.2347466  5.7137700
## 23   3.7271036  2.1030276  1.9355352  0.5566992  5.0034718  0.9573203
## 24   3.0040879  0.0000000  2.5372961  0.4537546  1.3094673  1.6860298
## 25   8.0254264  6.8512581  1.9641398  1.1951586  6.6984060  9.3336125
## 26  11.3502506  1.2210728  6.0894621  5.6435532  7.1097492  3.5748402
## 27  10.2519986  5.9536284  3.7219304  3.7983098  8.7090962  0.4422269
```

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## 28   5.7999939  5.7453046  1.9640659  1.1657512  5.3206183  2.3631991
## 29  10.9951930  3.6382592  3.5295086  3.8338717  8.4769487  1.1410403
## 30  10.5797763  7.0898795  4.2063932  5.1058247  8.7384868  3.5112403
## 31  12.7246747  4.8486580  2.5280712  4.9261228  9.8781848  0.8437427
## 32  10.0203465  1.0374525  4.8614691  2.1727435  9.8321405  0.7670615
## 33   9.2880787  7.0605144  7.7359662  1.0445340  5.8675456  2.7371892
## 34   9.9697481 12.9927149  3.7289218  2.9197977  6.4030154  1.2100771
## 35   4.0646759  6.6461396  4.7537543  2.5252420  7.0402974  8.0920298
## 36   5.1729875  2.1447317  2.7138937  0.0000000  3.3800090  1.6502131
## 37  10.0039798  1.6564506  3.0562540 13.1421347  8.9046674  6.2296302
## 38   3.0555427  1.0875986  1.8204036  3.4390646  3.2386799  1.4264795
## 39   6.0901167  0.0000000  4.2132773  2.6472454  7.5162642  0.5247658
## 40   6.7192848  0.0000000  5.9619914  1.5493242  1.5493242  2.1802752
## 41   5.3680908  0.0000000  0.9876119  0.4088205  1.3995539  0.0000000
## 42   4.0317481  0.8066128  4.6203401  0.4589069  3.6130719  1.6991962
## 43   3.6543897  0.5318680  2.1911520  0.9196833  1.6911768  1.8777442
## 44   6.8926545  4.8329963  3.7549944  4.6831013  7.8827555  5.1319681
## 45   7.5121637  6.4249137  7.9367645  3.9215506  7.0042677  7.3403326
## 46   7.9893831  4.0603414  2.5214277  3.3388950  5.5973822  8.2672694
## 47   6.7790903  5.3753140  7.1142140  0.9312292  3.4562542  0.9312292
## 48   5.4126969  0.9004128  1.9592879  4.4651648  5.1328565  9.6854784
## 49   9.9098794  2.9696939  5.3727014  1.9438838 11.0624027  0.8907969
## 50  11.7650818  1.3842709  6.0873377  2.8318165 10.1448749  7.1472263
## 51   3.0509718  0.0000000  2.0595629  0.7081431  2.9362139  2.6750481
## 52  12.1103408  0.6147570  3.2879598  8.6883563 10.5097361  1.2193389
## 53   8.4544840  3.7160141  9.6743314  1.4009204  7.1869442  9.7311366
## 54   9.6021989  4.9281666  2.3942946  3.4967435  4.4780658  1.8004961
## 55   9.1888064  2.6705458  4.9732163  2.3713079  9.6936128  0.3765127
## 56   0.4924172  0.0000000  6.4199029  0.0000000  1.7828279  2.4529117
## 57   8.3314495  7.2816927  7.7901223  0.0000000  6.9811802  5.6474613
## 58  11.2798804  5.5086283  1.8329710  2.0715224  8.4158013  4.9141005
## 59   7.8572744  0.0000000  2.9028454  0.0000000  0.3723950  4.1041186
```

```
## 60   5.1174125  0.0000000  2.4101511  2.8486380  3.3462478  1.0557510
## 61  13.4752717  5.3742675  6.5658728  1.3343967  4.5744528  0.3832757
## 62   9.3460780  1.6215244  5.3595352  2.3656925  7.0132434  0.6721085
## 63  12.0180274  1.6628435  2.2603870  2.2603870  1.6628435  0.8579014
## 64  11.1046483  3.2762733  6.5935480 11.7570043  8.8001434  4.0989332
## 65   4.4703351  0.6320820  0.8676593  0.0000000  1.0701145  1.5480913
## 66  10.5250892  2.0052922  5.0709860  2.6962832  8.1968672  5.6767808
## 67   9.7480350  2.6637772  6.7288729  4.6254166  8.3774465  5.2614631
## 68  12.0805334  5.1882387  3.5712885  4.8577123  7.1103392  5.2949625
## 69   9.2668713  3.0828388  2.7357821  1.6031219  5.9938193  5.3118954
## 70  10.9999608  1.6169693  1.0240359  3.2650768  9.5640210  0.7562547
## 71  12.2994084  2.0313246  4.6461972  2.7980505  9.9075182  7.0636604
## 72  10.0765846  8.4410132  5.3703596  1.5380415  4.3248394  1.0992279
## 73   5.2991128  0.5994130  5.9728741  0.3305584  0.3305584  0.5994130
## 74   4.6182504  2.8294843  4.2939222  5.2676032  9.9843124  0.6614760
## 75   8.5445047  6.4275961  6.9854355  4.9615631  7.0730790  4.1299341
## 76   9.5582317  0.8113066  0.4619476  4.1066749  9.7309104  0.8113066
## 77   6.2156747  1.3377111 10.8136848  0.0000000  1.6025044  2.0197019
## 78   4.8635619  0.0000000  2.7418768  0.7392433  2.3265661  1.2257068
## 79   6.1622624  0.0000000 10.9970267  0.0000000  0.0000000  1.3484591
## 80   5.9431243  0.4918018  0.4918018  0.0000000  6.0442717  2.2190601
## 81   8.1521271  2.2937236 11.2546855  2.4305797  5.9310093  4.1365605
## 82   6.3702393  2.0507455 10.5349956  1.6983074  5.8247755  3.2527335
## 83  10.6348681  5.7992272  3.3256311  2.5954559  8.0692451  2.5306451
## 84   8.6624103  0.3346827  5.0148730  4.0812459  9.5403278  5.8363231
## 85   5.5521250  0.6353365  0.6353365  0.8717648  2.1108643  1.4113178
## 86  10.0560433  8.1918888  0.2980717  5.5861612  7.8978110  0.0000000
## 87  10.8919408  1.5766672  5.3801649  3.5329403  8.0644124  3.0479397
## 88  10.8505808  0.0000000  2.4517782  3.3838563  9.5249683  8.2170964
## 89   6.0716640  0.0000000  2.2409554  0.4998841  5.7770462  8.9538333
## 90   4.3399569  4.6031456  1.1804662  3.8505394  8.9122313  0.3257318
## 91   3.5553867  1.9517370  2.8979955  3.3166961  6.2602967  7.9013388
```

```
## 92   9.4428940  4.0224743  2.2891262  1.6291468 10.1110888  1.1350094
## 93   2.4342679  1.0118534  3.0206978  4.1922573  2.1336950  4.9614705
## 94   8.5136088  0.3634515  3.4631908  2.7507566  5.4012448  5.5760656
## 95  11.0496643  3.6861643  0.8705028  1.5521803  6.9717436  0.0000000
## 96   5.1809952  2.7511638  3.4197007  0.0000000  8.2828100  7.4707508
## 97   4.0746168  0.6763577  3.2285417  0.9237957  3.0834006  1.3191555
## 98   9.2074698  5.6557125  3.1046554  4.2189904  8.4209771  0.0000000
## 99  11.6426446  0.3981314  5.0486111  3.3071516  7.0745568  0.7098200
## 100  8.5158756  4.8084932  2.6790634  5.4510165 10.1527750  1.7893537
## 101  3.2604171  6.6600672  3.2990541  6.8541752  8.2367327  1.0287813
## 102  9.6172838  1.5849625  2.8875253  4.2479275  9.4392076  7.5125430
## 103  6.4849663  3.2587300  1.8469546  3.4763687  8.9611678  2.5692723
## 104  9.4460695  3.6991962  4.4770556  0.0000000  7.6338787  7.9368134
## 105 12.4735470  2.8653250  1.1433934  5.2478022  9.0011985  0.5691022
## 106 11.5986305  3.1396496  1.9308130  4.3038903  7.3751515  0.9542708
## 107  3.2205931  9.3299786  4.5504390  5.0373646  7.6175005  8.0346867
## 108  7.9822407  1.5998890  3.5167842 14.3494280 10.4184571  0.9034240
## 109  7.4193274  0.0000000  7.1291903  6.4051585  2.6658021  3.0228472
## 110  5.6118865  3.8046835  0.9985566  4.3664901  8.5644475  7.6648348
## 111  5.9886847  7.4156024  3.2579158  0.3975839  8.1513322  7.5920204
## 112 11.3159252  1.9693071  5.9595592  2.4807563 10.6394178  1.4147309
## 113  7.5879297  0.0000000  2.4390912  1.7708290  4.9614752  0.0000000
## 114 11.5496269  5.2706784  0.4144603  3.8390627  3.6982185  5.1541700
## 115  4.9831578  0.0000000  9.1480395  0.0000000  2.2026998  6.7615539
## 116  7.0713079  0.0000000  1.3961047  0.9848445  8.5036079  0.9848445
## 117  9.6189582  8.9355095  4.4140137  4.8655131  5.5477336  2.0643310
## 118  1.8066953  1.5229597  1.1694120  0.0000000  2.7271581  4.1590236
## 119 11.6147342  5.6336637  4.1802752  4.1246921  9.0983435  3.1504947
## 120  4.0621217  1.7636240  0.3405053  1.8725136  5.4101545  0.8467942
## 121 11.4816136  4.8399243  4.4188443  2.7845668  7.9191684  1.2383589
## 122 11.4964166  3.6431635  6.2457428  2.9293555 10.7062907  8.3985736
## 123  6.2334145  1.6514536  4.9025801 10.7674607  6.8437000  1.4774701
```

```
## 124  5.1028219  4.4061285  4.5823633  0.0000000  3.9719941  4.5638110
## 125  8.7303292  1.0008654  1.4865599  0.6787029  5.6105052  6.3344181
## 126 11.7807252  0.8825257  2.7877041  2.8732423  6.3120879  0.0000000
## 127  9.9210018  0.0000000  1.0475384  3.0821405  4.4814927  2.6632991
## 128  8.8432754  0.8980922  2.3306158  8.0528701  8.2702327  6.4910979
## 129  9.6786607  3.9314278  2.5926364  0.8786861  4.4010775  0.0000000
## 130  4.0282332  5.0569346  3.2139693  1.1647219  7.1968273  3.5044679
## 131  2.4955673  0.0000000  0.0000000  1.0501186  4.9364825 10.2804040
## 132  9.5969927  4.5358974  0.5212518  4.0590783  2.4202129  3.5167590
## 133  5.7861102  2.5138444  2.8643149  0.4777809  3.9566979  1.7466137
## 134  9.0419167  1.6348720  5.2705140  1.3242346  6.3346970  8.5316860
## 135  8.5829014  4.2507570  3.1616620  2.1252874  9.3798982  1.3383388
## 136  8.6295045  1.4383461  3.9172981  5.3491034  7.0518093  2.1441443
## 137  5.4616333  0.7657893  1.7870145 13.5703912 10.9072421  6.0317878
## 138  1.5923972  0.0000000  0.8982471  0.0000000  0.6561760  0.0000000
## 139  7.7866820  3.4019171  1.9966418  4.0488813  3.3178829  0.3775125
## 140  5.5981002  2.6909981  0.5056877  3.7196873  9.8421564  0.5056877
## 141  6.8087853  0.0000000  2.6400424  0.4881036  4.0618194  1.5911528
## 142  6.4333952  0.0000000  7.6890992  1.6285870  9.7519370  6.6492317
## 143  6.5881494  0.4443490  5.4207418  1.2884176  3.9806469  0.7834986
## 144  2.6795589  0.0000000  5.3767662  2.7776196  3.9880666  9.0199651
## 145  6.4123429  0.0000000  1.2876496  0.0000000  2.0603587  0.0000000
## 146  9.8537320  0.5562087  0.5562087  4.7975785  7.2743549  2.5118981
## 147  8.9393547  2.7843783  5.9735791  5.5773382  6.1559232  5.7151301
## 148  9.0975547  0.0000000  2.2020729  3.7660651  2.2020729  1.1378314
## 149  4.9951362  1.9918982  2.7980920  3.6482468  6.4301698  6.9821996
## 150  3.2856537  0.5465611  1.7238206  0.0000000  2.0787123  1.2521128
## 151 10.2978629  6.2326281  6.8417618  4.8123082  6.1475774  1.0092755
## 152  4.5998533  1.1670367  3.6581543  4.1036067  5.4652170  8.4189598
## 153  5.2575387  7.3595396  0.8221999  0.4689482  9.5199768  9.7959586
## 154  7.3575379  0.0000000  3.4863668  0.7119354  4.9081932  0.7119354
## 155 10.3882647  1.0625362  3.9723159  4.4202735  7.5417262  0.8610819
```

```
## 156  3.4545181  0.5831339  7.4663057  0.9973285  3.3170725  6.8275371
##       rs_CHIT1     rs_HGD   rs_CHST8  rs_VTCN1   rs_ROBO2   rs_INSM1    rs_PKP1
## 1    5.6759062  8.8583053  7.5886877 10.866273  7.2088918  4.4588938 10.2874775
## 2    3.9491707  8.6125221  2.4151637 12.648143  5.8323508  0.0000000  7.4064882
## 3    6.4483774  7.6063897  6.0627175 10.775752  3.2897017  1.6757256  8.4435329
## 4    5.7069587  7.3924866  6.9405849  4.928385 10.6294076  8.4343442  6.1699951
## 5    6.2606561  6.7439013  7.9205535 13.418577  4.3514587  3.9689478  6.7060788
## 6    2.9528367  6.7458800  2.5028398 11.849934  3.2170446  3.6335242  5.7100763
## 7    8.9835817  5.3613473  1.7285301 11.705961  0.8248086  2.4925711  6.9678660
## 8    8.0091495  1.2575538  5.4171166 12.093515  5.0741243  2.7889989 12.1148230
## 9    1.6220870  0.0000000  1.6220870 12.727193  0.0000000  3.2192150 12.0731682
## 10   1.7842946  1.7842946  1.9455702  9.164468  3.7687031  5.1550327  5.3549704
## 11   2.5068558 10.3551296  4.1749337 12.183860  9.3466250  2.1195554  6.6776731
## 12   3.4604018  9.1733096  3.6427016 10.299725  3.0076082  5.4713663  9.4964044
## 13   5.3135252  1.2537473  0.5474498  8.350374  2.4893374  2.7088935 11.1559790
## 14   5.6610056  6.7400924  7.0114073 12.642752  8.7435348  8.1591271  8.5762844
## 15   3.1474207  8.3914253  9.2873659  6.068260  4.1239889  8.8802260  3.8656714
## 16   6.6065414  6.4780059  9.8407982 10.643426 10.5448170  2.8071694  4.4130931
## 17   3.0917168  4.4530566  4.0045194  9.252934  2.5889724  4.7505904  9.3586916
## 18   2.9768952  3.8822224  6.4728094  1.876880  6.7122711  3.7244757  8.2323379
## 19   2.1500072  7.3927081  4.1153746 12.825105  2.0537369  1.2824991  8.1148480
## 20   5.9186558  8.0379269  8.9539016  6.181142  3.4671360  1.1040682 10.3156690
## 21   4.9851816  6.4016219  2.4434740  9.275441  0.8537562  2.3322496  9.8878652
## 22   3.6942116  0.4976379  2.3557493 11.276601  0.4976379  0.4976379  5.1198832
## 23   2.3889610  8.6883769  4.5317370  4.309947  1.2705887  8.0735696  9.8986046
## 24   2.5372961  1.5099998  0.7984238 10.375763  2.1132337  1.3094673  6.8573715
## 25   2.1848198  4.5978053  7.2253309 13.663631  0.0000000  0.0000000  5.9452284
## 26   2.3950628  7.2013359  1.5178804  5.803405  1.9740520  6.1875837 10.6769163
## 27   5.9026404  8.0730313  9.2079597 12.275009  6.6643463  0.7802261  8.9779327
## 28  10.7133242  6.3762991  2.3631991  8.760707  6.9506352  7.8777252  8.7044771
## 29   6.3156785  8.0299635  7.4846376 13.044041  8.3481213  0.3800645  5.4820996
## 30   7.4222414  7.0006186  8.9645153 13.409955  4.9756073  5.0092800 10.3457038
```

```
## 31   5.8828998  5.3339925  5.9585898 12.516601  3.6464622  0.4826418  9.5719346
## 32   8.5098098  9.4025634  8.6848408 12.339503  3.9435463  2.8001026  5.8275523
## 33   7.2835505  9.2913448  6.2362802 12.931119  5.5669521  0.4374408  9.5138744
## 34   5.2226423  6.5246326  4.8148272 13.546597  5.1709786  8.5197326  7.5642730
## 35   5.5465025  9.5577562  3.0562367  8.612550  5.9651124  1.0688084  8.4439278
## 36  10.3906642  2.9716263  4.2124293 12.216830  2.9716263  3.8339628 12.1304146
## 37   7.5697022  2.0047890  5.4609981 10.680844  3.7531659  0.5165195  6.9901607
## 38   6.3227898  6.9599394  3.2810454 12.205074  7.1969031  3.6149925  3.4011526
## 39   7.1072987  9.9102687  0.5247658  9.499890  2.1730635  0.5247658 10.2898002
## 40   8.8501900  1.1918784  3.1221923 11.808975  7.9889726  7.6282844 11.5814754
## 41   5.3215710  3.8837381  0.9876119  8.830102  2.0964305  0.7270927 11.5146695
## 42  11.9573587  8.6648888  1.8567069 10.880287  2.1278974  1.9986649  9.7358887
## 43   2.5617172  1.4767964  8.1838363 13.390073  0.0000000  0.9196833  8.8628121
## 44   0.9542708  7.4492609  2.7945198  8.675408  7.2083466  1.6725159  7.6466710
## 45  11.8246243  9.4142793  4.1764425 11.084686  6.2323250  7.1747719  5.1359863
## 46   3.0521724  6.0266363  7.4236950 12.640114  3.4870361  0.7903550  9.3823272
## 47   6.6547534  3.0971725  1.8955741 12.857671  9.6262542  6.6373349  4.6015123
## 48  10.0970369  5.2359797  5.0967763 11.155672  6.0817082  2.6321984  9.0559174
## 49   6.8548609  8.9296055 10.5440248  9.685814  6.2831680 11.1958752  4.2213976
## 50   7.4102029  5.2974996 10.3244760 12.229332  4.1755725  4.6342680  6.9583718
## 51   3.4775996  0.9639180  6.5275521 12.998392  1.9454953  1.8216694  9.4439808
## 52   8.3198712  6.9230386  7.0700544  8.886014  4.0595976  4.9674868  4.7709242
## 53   3.3945141  9.5772785  7.4148738  8.369722  5.1209408  6.3926420  5.0934714
## 54   8.9518404  7.0854618  2.2934882 12.252069  5.6629859  6.6384403  9.8629466
## 55   4.5824175  5.7407846  9.7157779  9.867609  0.6747318  0.6747318  6.5731306
## 56   5.8770203  5.4230403  6.5063750 11.726349  0.0000000  2.0890574 11.4213600
## 57   3.5204474  8.8241295  3.6915342 11.102859  3.7700361  4.5028907 10.5714771
## 58   8.2929897  3.3174922  8.1243757 13.683166  8.7756258  1.5469562  9.9571496
## 59   5.7629892  1.4683226 10.1895784 11.429916  5.5161318  4.1763946 12.3938653
## 60   2.1719113  9.2314478  6.3559959 10.520360  2.1719113  0.0000000  4.5308074
## 61   2.8251547  5.6612993  5.2981964 10.562019  3.4651125 10.4202192  6.8735622
## 62   7.1819275  4.2996110  1.6215244  5.059260  9.9701099  0.6721085  8.0258300
```

```
## 63   6.2378352  1.5338623  4.4134655  6.637661  9.7440655  7.8290218  4.4849952
## 64   8.2917265  7.7447518 10.1956189 11.961662  2.4727737  0.4994760  7.2001512
## 65   4.2793227  0.8676593  2.4325052 10.812390  2.1933302  3.9858920 12.5986017
## 66   4.7713785  7.9649317  7.6749500 12.842309  4.8827849 10.7085265  5.0231489
## 67   7.6827811  7.2329773  7.3643614 13.102226  4.9858237  1.5855875 10.0941587
## 68   7.7293074  5.6746668  7.8333171 11.945175  3.8763991  1.5191896  8.8881289
## 69   8.0865784  3.1941186  7.5790700 10.423413 10.8077093  6.4771722  8.3027052
## 70   4.3911903  3.5460795  5.6614788  4.818600  7.4653068  1.0240359  5.3804663
## 71   2.6538167  0.9124199  6.5591109  5.307330 10.4259757  0.5271704  6.8263387
## 72   6.6658063  9.0855245  1.8740887 14.357621  1.0992279  2.0166746  9.3389832
## 73  11.7841776  1.1938979  7.9555424  6.382157  3.5627187  4.1278066  9.5093550
## 74   4.2939222  3.1928727  1.2953116 10.846064  3.7242574  3.7863977  3.7242574
## 75   7.9071767  8.9493403  8.7835958 13.290145  3.9038385  1.1825652 11.1153430
## 76   5.5788451  9.6866695  4.4433878  8.603482  6.3196793  5.8482248  6.4374358
## 77   9.0827941  1.0131406  3.7246503  6.610896  4.8066179  1.0131406  9.0289694
## 78   2.4197276  5.4319137  0.4165155 12.115176  3.1750615  0.0000000 11.9847297
## 79   6.4009682  2.0330882  2.2042033  2.737708  5.6429643  1.6144272  8.9965972
## 80   1.5998414  1.5998414  6.9168767 13.225498  3.0551783  0.4918018 10.7249227
## 81   3.7221928  5.2323691  6.0312761 10.782455  4.9881211  1.5614972  9.9863609
## 82   4.1014148  4.4952922  3.1831053 11.240761  5.3080477  2.3337958 11.1603954
## 83   5.8129192 10.9152693  6.9867477 12.112741  3.7524061  0.6143800  7.5978760
## 84  10.4967182  8.3115676  9.3548794 12.948582  4.6600387  4.0812459  5.5927112
## 85   3.4539784  1.5540485  0.6353365 12.590541  8.8921952  3.7493305 10.9192703
## 86   3.9713688  2.8003305  0.0000000  1.249021  6.9079878  6.8574959  3.9285314
## 87   3.8628679  3.8297278  8.0006891 12.905794  7.4633543  4.0757465  6.8985470
## 88   4.8238716  3.3135216  7.4253351 13.300698  1.9929859  0.0000000  1.8007032
## 89   2.6743703  3.7466997  3.0072134 11.765573  2.1086917  2.8503594  2.4738648
## 90   1.5976504  7.9788958  2.7710615  3.264912  9.7846483  9.9348292  1.3333665
## 91   6.8367106  8.1123149  1.6559471 11.175512  8.7257875  1.2834477  9.6022607
## 92   5.4317934  3.5565030  5.2956312 10.740059 12.5105246  4.4745723  9.1313647
## 93   5.5980525 10.1997893  4.0519463 10.169972  9.2872587  0.7464848  7.7582359
## 94   1.7190958  7.5421559  7.0248781  8.272907 10.7615155  3.7963901 10.0011016
```

```
## 95   6.5762712  8.5113142  7.5261079 12.732966  8.4926367  4.7073260  6.9364071
## 96   6.1430791  7.5911116  5.7990795 11.507047  3.4197007  2.7511638  5.6166312
## 97   3.3604064  4.6220167  2.2891262 11.672627  3.1817705  4.1735672 10.5502704
## 98   6.0359845 10.6508477  6.9341084 12.346317  3.6326056  6.1804522  3.5066908
## 99   5.1808838  5.8550952  0.7098200  8.777788  4.0227051  6.4183873  7.9332528
## 100  2.4387719  3.3694525  9.7560994  7.088637  9.5587668  0.9873936  4.0636755
## 101  7.8116451  7.5802744  1.0287813  9.784871  0.8320393  7.1334176  9.9172673
## 102  1.9259994  1.7655347  5.0617762  8.729961  3.9068906  5.1292830  8.5243458
## 103  7.0434003  9.6268231  1.6219464  8.444074  1.0278618  6.8195162  2.6310577
## 104  4.3731958  8.2580190  4.1079305 11.545966  3.9723159  1.3487423  7.4418694
## 105  0.3124328  9.2379967  9.6811917 11.488080  8.0967689  9.2304663  9.3693347
## 106  3.5775376  7.2709914  7.0438224  8.894930  4.9396873  6.0782618  6.9484794
## 107  5.3115794  0.0000000  9.2161068 10.432209  9.9324712  1.4901080  1.8207712
## 108  6.7402827  3.8999683  7.4520542  7.365853  6.8423101  3.8716465  4.1795190
## 109  5.2127327  3.3088414  2.1902672  8.780709  7.9659314  0.5315686  7.6575914
## 110  3.3666300  6.6020099  6.2701738  7.023202  2.7345254  5.6216680  5.3310889
## 111  7.0202255  5.7026215  7.8177467  4.853936  2.7464633  8.1593592 10.0429370
## 112  1.1696685  6.9624484  5.5618027  9.945603  4.3918914  6.0710182  8.0042396
## 113  9.3163039  7.4553881  4.0249845 10.705701  2.8940417  4.2243490  4.3994787
## 114  6.7746013  8.5457835  3.2202526 13.093984  3.9046479  3.5827607  8.7175623
## 115  7.1571670  3.5619493  2.0010095 10.939308  0.6786128  0.0000000 11.1396172
## 116  8.9799007  5.4187128  8.0903268 12.748449  9.4405872  7.9488554  3.0321361
## 117  3.9488905  4.6290885  0.9849174  5.711704 10.2527768  5.0366660  4.5408084
## 118  7.7664593  8.3028820  2.0436945  9.872351  1.5229597  0.7000845  5.8694791
## 119  5.0383045  3.9438088  8.9271691  8.005151  8.3217139  0.7529198  7.3153960
## 120  2.1571084  9.6496798  2.7773040  8.220677  2.5338374  0.8467942  5.1538904
## 121  2.6864333  8.2115170  1.7073039 12.725212  2.4675403  1.2383589 10.4864532
## 122  3.9661259  7.2756562 11.2403527 12.031787  3.9336104  9.5578116  5.7810160
## 123  3.9665874  4.5969232  7.7005334  7.937421  7.8773725  4.8320191  4.3415375
## 124  2.2243799  9.3090277  5.0899176  9.795992  3.2117131  0.0000000  7.5358430
## 125  4.0016221  6.2382022  5.3662628  7.702164  8.5949322  0.8487982  5.6397705
## 126  7.0371461  2.9539915  8.2331647  4.289798  5.0651931  0.8825257  2.5997225
```

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## 127  9.5918858  7.2426035  6.2007064  6.396129  1.8030617  0.0000000  5.0133372
## 128  2.6936765  4.9242472  4.2582174  4.702935  6.1777703  3.6120104  5.0297223
## 129  4.8627093  8.9052573  1.6307316 12.020451  7.0607889  0.5051796  9.1085276
## 130  6.8382244  9.9305193  6.8945243 11.456176  0.0000000  0.8701871  6.6783227
## 131  5.1545387  1.2795307  1.0501186  9.441174  0.4403144  0.0000000  0.4403144
## 132  8.1971420 10.0485976  7.7549623 10.390627  5.5851579  4.6652620  8.0461603
## 133 10.2858065  9.1050345  4.8120207 10.266622  3.3816848  3.7193149  6.7573553
## 134  5.8691854  9.4612036  3.8910983 11.774945  9.4463516  2.7474089  9.2564873
## 135  6.0402788  9.9821300  8.3377615 11.596938  4.1300001  6.4715257  6.8382080
## 136  5.2872654  9.1732142  9.4591539 11.897799  4.3390661  1.6497074  6.2686758
## 137  3.5673386  6.6041974  5.9360278  7.422218  3.8384778  5.3911628  9.2265066
## 138  3.5427038  1.8445463  0.6561760 11.019896  1.4476321  5.5478724  8.9038002
## 139 10.3645540  7.8156977  3.6626157  7.349555  8.6608456  4.4353286  5.8003564
## 140  5.5600943  3.2320928  3.0970545  1.815125  0.8793921  0.0000000  4.5391712
## 141  3.3011047  5.9208006  3.1125333 13.214047  0.0000000  1.7720968 10.3223655
## 142  4.3095109  9.4238508  9.2661292  8.322110  3.5185729  2.3740935  7.3156006
## 143  3.7292482  0.7834986  1.4871261 13.472194  0.7834986  1.0579701 12.3099164
## 144  6.5237423  3.3235142  4.9205744  8.248978  8.4105175  1.8888114  3.3870316
## 145  6.1854424  1.5935450  0.8990209  9.675361  2.4885921  3.8339324 12.8889940
## 146  2.5118981  1.7449361  7.5159521 11.602320  7.0571589  4.9146937  5.1810031
## 147  6.4267361  3.0637963  8.0046160  6.721601  8.5464006  2.6213369  4.3320276
## 148  5.7975785  0.6782522  1.1378314 11.032898  5.4859903  7.6842710 13.2417559
## 149  0.4564908  4.7377733  5.4529446  8.494024  9.8093664  4.5210256  2.6347791
## 150  7.7617473  3.6977738  0.5465611 11.833685  1.2521128  1.2521128  3.6456325
## 151  4.5876350  5.8320115  2.7707022 11.946145  5.0403577  4.3927090  9.1277016
## 152  7.6095149  1.4117516  0.5010060  9.830045  4.6954204  9.5767702  7.6695845
## 153  2.2751859  5.1679038  6.5886727  5.910385  8.1751558  0.0000000  9.7783998
## 154  3.7138278  3.8153807  3.5268576 11.921050  3.4863668  2.4504063 13.3928572
## 155  6.7830703  2.1820248  2.0928163 11.647688  6.6680908  9.3522770  7.7584864
## 156  5.9833699  7.3869497  4.4211156 10.284623  9.5308546  4.3167974  5.0822214
##       rs_SYT1   rs_GPR98 rs_LOC100271831   rs_BCAS1 rs_LOC728606 rs_HORMAD1
## 1    5.351964  8.8912199       0.0000000  8.9208518    5.1404637  1.9995671
```

```
## 2    6.562830  7.8833178       0.0000000  9.5687551    1.8188915  0.0000000
## 3    5.939149  7.6036790       4.3342465  7.2206018    3.7481499  0.0000000
## 4    8.773173  8.1711348       5.2203454 12.9013233    9.9749098  0.0000000
## 5    6.831827  8.7968187       0.0000000  8.7942459    2.7955384  0.0000000
## 6    5.590937  8.3881245       7.3052674  6.8337819    4.9090818  8.5244238
## 7    4.198054  4.1361175       3.1225402  5.1737071    1.5500634  7.1355205
## 8    3.756863  4.4504921       0.0000000  2.7889989    1.6259250  8.4080932
## 9    1.622087  1.6220870       5.2422786  0.6035967    3.9095619  7.8199510
## 10  11.309693  8.9671995       0.0000000  9.5179148    2.0906163  0.0000000
## 11   3.277777  7.5209706       0.0000000 10.7040010    0.0000000  1.2253983
## 12   4.231970  3.1944338       2.0939320  9.2179928    0.4548076  1.0785415
## 13   3.594130  1.5089864       0.0000000  5.0375975    0.0000000  8.6628182
## 14  10.350895  7.5851038       5.5429792  6.6753417    1.8800977  0.0000000
## 15   8.052045  8.3382639       3.9252494  8.3076803    8.2478914  1.2804813
## 16   4.721411  7.1139224       1.3323929  9.4647169    8.3904437  0.9432837
## 17   5.123621  6.6982574       5.1262130 10.9921971    1.9732072  1.1726155
## 18   4.508682  8.2101882       0.0000000 11.6517221    2.3785394  0.4665488
## 19   6.302602  7.7882492       4.1783721  5.8584535    9.4702436  0.0000000
## 20   7.822218  7.9161888       2.7120454  7.8637520    2.4850146  0.0000000
## 21   5.283092  5.9807839       3.6025519  7.7849881    0.4891319  0.0000000
## 22   2.843562  3.8257449       4.5843673  0.4976379    0.4976379  0.0000000
## 23   4.088260  2.8321204       4.6216768  7.9608476    2.5131622  0.5566992
## 24   3.639012  3.3031670       2.5878450  2.3407901    0.4537546  9.2256205
## 25   3.073100  9.6001151       0.0000000  7.4626986    4.9684548  0.4031586
## 26   9.430552  7.8586176       0.0000000 10.9909035    3.7844935  0.3405053
## 27   7.607670  9.3011354       0.0000000  9.2140716    4.0376634  1.6563133
## 28   8.623398  4.2659094       3.8785096  7.2663499    1.8019864  1.6194130
## 29   5.422522  7.1316203       0.0000000 12.0503233    3.6727534  0.9291092
## 30   7.431586  9.6560592       0.0000000  8.3341562    7.4191133  0.4557546
## 31   4.868420  7.6182923       0.0000000 11.5035821    2.0630542  2.5280712
## 32  10.238426  1.9286546       0.0000000  8.7834864    5.8005583  6.5489236
## 33   7.005893  8.6032005       0.0000000  9.0349544    8.4596160  1.2731578
```

```
## 34   5.877580  7.8671978       0.0000000  9.3381451    4.6485000  1.4601135
## 35   6.184203 11.8011054       0.0000000  8.5533597    6.2619238  1.6759965
## 36   5.637054  6.1088192       2.9857190  5.3037296    4.0727232  7.0291414
## 37   8.899475  7.3166508       0.0000000  9.6661365    6.7458827  0.0000000
## 38   8.901169  9.3665561       0.0000000 11.7047195    0.0000000  1.0875986
## 39   4.343692 10.0020094       2.1786828 10.8745471    7.0606473  0.5247658
## 40   4.092250  6.7540377       0.0000000  4.9776188    0.7157177  4.1970004
## 41   4.676583  4.7834305       1.7424374  3.0935433    0.0000000  8.0574205
## 42   4.552881  9.6803356       4.6271340 10.4599532    1.3208312  0.0000000
## 43   1.877744  1.4767964       3.4860836  6.0752952    1.2249664  7.9593198
## 44  11.039974 10.4194803       0.0000000  8.1678441    4.7005507  0.0000000
## 45   9.464975  5.3921663       1.8717648 10.9090779    2.7774723  0.5733745
## 46   9.024422  7.9150273       3.6576743  6.3887716    4.5390719  0.7903550
## 47  10.900961  9.5933222       1.1533514  8.4899475    1.3285493  0.3810618
## 48   8.757765  9.5580349       0.8550329  8.1145799    2.3346255  3.8367422
## 49   7.053477 10.4824749       0.0000000  8.3406410    8.2463915  0.3614315
## 50  10.535168  2.2824398       1.4037585  9.7498235    5.4434575  0.0000000
## 51   7.073752  2.2637255       0.9041180  3.3931004    0.0000000  8.7376040
## 52  11.678176  8.1722280       0.0000000 11.4296363    8.4733413  0.6147570
## 53  12.166445  7.9470536       0.0000000  9.2894988    4.3476727  0.4093638
## 54   9.997708  6.3617982       0.0000000 10.2044384    0.7735744  0.0000000
## 55   7.277467  5.2692988       0.0000000 10.9574486    8.4953306  1.1326426
## 56   4.977857  0.8589358       1.6785227  5.8869744    0.0000000  8.3254053
## 57   7.118771  7.6177731       0.0000000  8.9347547    6.2504387  1.9596589
## 58   8.249614  9.6908684       0.0000000  7.5939505    7.8029118  0.0000000
## 59   3.536289  4.9283608       1.2246577  6.9991950    0.3723950  8.4787838
## 60   9.532944  9.2785717       4.0882858 10.1400225    0.6223682  0.3444877
## 61  12.624134  3.5043280       0.0000000  9.8015873    4.9172933  0.3832757
## 62   8.328455 11.8404620       0.0000000  9.8952188    1.3124328  0.3748447
## 63   4.879417  1.2351143       3.2438823  8.4647989    0.0000000  0.0000000
## 64   5.176626  2.6732398       0.0000000  9.5272109    3.3365976  0.0000000
## 65   6.083203  1.4056657       0.0000000  2.3571015    0.6320820  0.3503841
```

```
## 66   6.345210 10.6363361       0.0000000  7.0711448    1.7935214  0.3494785
## 67   6.895772  8.8422623       0.0000000  6.2551910    7.5245190  1.0005049
## 68   5.487303  8.5430995       5.1684094  9.0877169    5.2004926  0.9509909
## 69   9.083923  6.3346773       0.0000000  5.8022113    7.7797194  1.6031219
## 70   2.703256 10.5884709       0.0000000 10.3838269    6.0166055  0.7562547
## 71  10.830361  8.8315147       0.0000000  7.6655427    7.9047334  0.7326599
## 72   4.351996  7.7431655       5.5623310 10.4303515    2.1464271  1.3352546
## 73   3.794582  0.5994130       0.0000000  3.6242647    0.0000000  9.0885082
## 74   7.495574  9.8692300       0.0000000 11.7029309    6.6548837  0.6614760
## 75   5.535953  8.5748489       2.4739427  7.7372879    6.6261149  2.2658869
## 76   3.095570  7.8388635       4.0885487  4.7367564    3.6666657  0.8113066
## 77   4.579687  3.2713958       0.0000000  4.7531445    0.0000000  1.3377111
## 78   4.064331  4.7781613       0.0000000  8.7662118    0.0000000  8.0483321
## 79   5.346627  0.0000000       0.0000000  4.0412342    0.0000000  3.0385240
## 80   5.659873  4.2990908       3.4494029  4.0027025    1.3922625  7.6205549
## 81   6.587068  7.9591459       0.0000000  5.6092231    3.4913272  1.3008266
## 82   6.204446  8.2247687       4.9128606  5.2411080    2.8652260  0.5350576
## 83  13.282370 11.8800620       0.0000000  8.6050079    8.6138333  1.2186572
## 84   6.056046  8.6945874       0.0000000  9.6522273    7.8921087  1.0316775
## 85   4.225275  2.5799766       0.0000000  3.1285409    0.8717648  7.9430416
## 86  11.666413  8.9916103       0.0000000 12.0035510    2.9362893  0.0000000
## 87   5.333631  0.4119685       4.1528162  8.1741202    2.1059127  0.4119685
## 88   3.746238  8.0513841       3.6806732  8.4439501    0.0000000  1.3163196
## 89   8.904816  5.1275507       1.5010060 10.4217938    4.3549951  0.4998841
## 90   9.736195 10.1674293       0.0000000 11.0458295    8.1838105  0.0000000
## 91   8.213371  9.6095629       0.0000000 10.8313728    2.9657843  0.0000000
## 92   7.726732  8.8238547       0.0000000 11.8546550    2.5322421  0.6763577
## 93   9.269942  9.3066872       5.0525202  9.1468535    1.4298570  0.0000000
## 94   3.964694  9.2173987       3.7729941  7.8031599    6.6417469  0.8949923
## 95   6.974914  9.2670973       0.0000000  8.6043130    4.1793279  1.0734090
## 96   4.973914  9.8708090       0.0000000 11.8487619    1.6802343  0.9121900
## 97   5.145270  4.4151434       3.7381733  5.8232908    2.6049490  9.4496967
```

```
## 98  12.072750  8.5973692       1.4366949  9.9082682    2.9838418  0.4281424
## 99   9.274764  9.5335803       3.2247040  7.3209729    4.4988636  0.0000000
## 100  6.442605  6.3673326       7.1263638 10.7312818    6.9635967  0.0000000
## 101  9.721395  3.9111355       0.0000000 10.5568237    0.3335382  0.3335382
## 102 10.369597  8.5196363       5.2612299  9.1903185    3.9068906  0.0000000
## 103  2.569272 10.3543066       1.5924451  9.7065746    3.9584251  0.3330802
## 104 11.235032 11.3860957       0.0000000  8.4632334    6.5695002  1.3487423
## 105  6.318852  0.7869309       0.0000000 12.2130882    7.6210636  0.3124328
## 106  9.422177  9.7315376       0.0000000  9.5138401    3.2385117  0.3923174
## 107  3.476485  7.7274951       6.0048631  8.4247445    8.2194062  0.4455148
## 108  7.813856  8.2695040       3.8201177 10.0939609    3.8716465  0.3675947
## 109  5.195296  6.0157875       5.3536268  7.7107135    3.2424806  1.8769196
## 110 10.318296 10.8851012       0.0000000 11.6850772    0.9985566  5.1804184
## 111  3.479269  9.3052920       0.0000000  9.0417008    3.5197306  0.0000000
## 112  7.229973 11.4443917       0.0000000  8.6394941    3.0870724  0.0000000
## 113  8.048605  8.0660262       0.0000000 10.1691508    4.1609041  1.1416290
## 114 11.902484  8.0199748       0.0000000 10.8919113    4.9518722  0.4144603
## 115  5.010292  3.8887822       3.6074368  9.3110476    0.6786128  1.4863025
## 116  9.429704 10.1725124       3.0611886  7.1127220    1.7157177  0.0000000
## 117  7.752801  8.8766182       0.0000000 12.8173127    3.3301998  0.0000000
## 118  9.906554  7.5138176       0.9859375 10.3361636    1.5229597  1.8066953
## 119 11.200218  5.6921900       3.0279856  7.4373226    8.4670716  2.2535355
## 120  2.068327  0.3405053       3.7217226 12.9192375    8.8789389  0.0000000
## 121 10.117778  7.5933239       5.0907095 10.1006153    2.9628451  0.5391340
## 122  9.633782 10.4245409       3.0336873  7.2058949    7.2949837  0.0000000
## 123  8.355711  9.4575065       0.0000000 10.3321748    5.8428104  0.0000000
## 124  4.804054 11.0569605       0.0000000  8.7680374    6.4071658  4.8810038
## 125 12.129146  8.9749956       0.0000000 10.8895612    1.7667648  0.0000000
## 126 10.162652  7.4598422       4.0173429 11.7480143    3.3617403  0.0000000
## 127 11.241719  8.3770639       0.0000000 10.0310209    1.6479591  0.0000000
## 128  7.745520  7.9970665       3.5505929 11.3702143    1.2865263  0.6559929
## 129  2.376652  8.9897938       4.1641748 11.3528875    1.6307316  0.0000000
```

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## 130  5.514331  5.6865538       4.9527995 10.0468712    1.6181447  0.0000000
## 131  1.651362  6.3196215       6.8094132  6.4431093    0.0000000  0.0000000
## 132  4.665262  8.5008562       4.9743779  7.8368917    5.7805831  0.0000000
## 133  6.762581  9.4387339       0.0000000 10.6414990    0.4777809  1.7466137
## 134  7.726959  6.4778975       0.0000000 11.3788662    8.0634285  0.9278206
## 135  8.578293 11.0112117       0.0000000  8.4890459    8.8959987  0.0000000
## 136  5.636300  8.9394411       5.2390848  8.5609316    5.1199828  0.0000000
## 137  9.678208  9.4342660       0.0000000 10.1360936    5.9686576  0.4330663
## 138  1.723995  1.4476321       0.0000000  3.1798613    1.1054769  9.7354296
## 139  7.388701  9.1198866       0.0000000  8.2015515    8.2276949  1.3192133
## 140  9.990037  7.7147126       4.6631567 10.9457749    0.5056877  0.5056877
## 141  6.787913  5.9772066       4.1240965  7.4337957    0.8521587  0.0000000
## 142  4.985669 10.1790489       0.6135317  5.6881328    1.2598449  4.1767376
## 143  7.522393  8.6356024       6.3363120  1.6617040    4.1659682  9.1115515
## 144  2.869417  8.4958191       0.0000000  5.1575491    8.4940171  0.0000000
## 145  5.922945  6.0725668       3.7046617  1.8457510    0.3654686  8.7757808
## 146  5.694869  7.1698398       4.5015028 10.0604151    2.6262055  0.9565771
## 147  9.457261  6.7661910       0.0000000 10.9100835    7.3120597  0.4521737
## 148  6.358122  6.4988221       2.9647128  1.7659590    6.9547686  7.9937966
## 149  9.125545  8.8580211       0.0000000 10.1304939    7.8094022  0.4564908
## 150  1.723821  5.5564815       3.7890615  3.3522359    0.0000000  6.9593691
## 151  5.557318  9.4135285       0.0000000  9.9489062    5.7255639  1.1802752
## 152  2.365021  4.3584385       8.1724650  9.1436875    0.8720801  2.8534767
## 153  8.510591  8.2715438       0.0000000  9.5769491    1.3426685  0.4689482
## 154  5.053846  4.6208503       0.0000000  3.7138278    1.8285503  7.2315313
## 155  8.768718 10.6591059       0.0000000  8.4982241    1.0625362  0.3472121
## 156  5.387045  6.9833277       0.0000000  7.2234544    1.8035164  0.5831339
##        rs_SLPI rs_HEPACAM2   rs_FREM2   rs_FSIP1 rs_PIK3C2G  rs_CYP4B1
## 1    7.7437910   5.0313026  2.2796496  8.0492855  6.4015400  7.9897436
## 2    5.9123864   4.7550478  4.3320706  4.9697860  6.1800723 11.7200062
## 3    8.3624730   5.8039942  7.8659293  4.2968758  4.1260560  8.1924945
## 4    8.2874691   8.6438252  8.4071704  6.8726761  4.8896439  4.6087442
```

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## 5    5.3857140   6.0351840  8.6636172  6.0438738  4.1080309  8.5074617
## 6   13.8243291   1.3538878  6.3283482  1.6204457  8.5919142  2.2112303
## 7   13.6085760   1.7285301  1.8873693  1.7285301  5.1890378  3.3583541
## 8    9.1807225   0.0000000  9.8731351  2.2705588  7.8267264  1.2575538
## 9   10.1220402   1.0279325  8.3680411  2.0416986  3.6357660  3.9585922
## 10   3.2563616   7.3319389  9.1654919 11.4366226  1.7842946 10.9493671
## 11   7.4728752   3.9435557  8.4810183  6.7194942  3.5898234  9.0821054
## 12   5.6201113   0.0000000  5.7147840  5.7746158  6.2594909 10.6643959
## 13   8.3666033   0.5474498  3.3547906  2.8994270  1.7257848  0.5474498
## 14   8.0755690   5.4112567  8.6883489  9.2532549  6.5570960  8.1179532
## 15   8.0789834   4.2376478  2.4026130  9.5615220  2.6689133  8.3525281
## 16   8.8226556   7.1796882  2.8071694  8.9982604  0.0000000 12.1395016
## 17   6.8679298   7.6854461  5.3912831  7.2863295  3.9664397  9.1882375
## 18   5.6837217   5.6512067 10.4226070 11.3085204  2.4807563  8.3917188
## 19   8.2954223   9.4180240  3.8258161 10.0791933 10.7459257  5.0853694
## 20   7.4619910   5.9458160  8.3451147  6.0370417  2.6260185  6.9905873
## 21  10.6325591   5.7728807  1.7746711  5.9715344  6.1866471  7.6201619
## 22  10.6500181   0.0000000  4.8376759  1.9571717  5.2347964  3.9072080
## 23   6.0542038   4.5608066  1.9355352  2.1030276 10.1518647 10.2370735
## 24  10.9498878   0.4537546  8.0249812  2.3407901  4.2563540  3.8008067
## 25   7.4810406   9.1102706  3.1273361  9.3607519  5.2630832  6.4119821
## 26   7.7396551   4.0393402  5.6814689 10.4233653  2.6610427 11.5573927
## 27   9.2053321   5.2993472 10.1900035  9.7470540  7.4859420  6.3959848
## 28   6.0094300   8.0545799  6.0640788  2.5787214  6.3690826  7.3748143
## 29   4.5044742   4.7011387  4.0850762  5.8111704  2.2067370 10.1369475
## 30  10.6471659   7.7076566  6.3375987  7.0089653  8.7509813  8.1800648
## 31   7.3671797   4.5391960  9.1806797 10.3755672  1.3725621 11.4344313
## 32   5.6773786   3.7312593  0.7670615 10.1636055  2.3814218 10.6336485
## 33   9.9456226   4.8033149  2.8118820  5.3954399  7.1674774  8.1042129
## 34   8.0664945   6.3263738  7.4460908  8.2013643  4.9639457 10.1372716
## 35  11.4444711   6.3679878  1.8324040  8.7253547  6.1474410  4.4974846
## 36  11.2064651   2.9716263  6.4139511  3.7447101  6.0998506  5.2880189
```

```
## 37   8.2924454   4.9403077  4.6986463  6.8410435  6.2213300  9.1231069
## 38   7.1661500   1.0875986  4.8644784  6.3126144  1.2669364  8.9561333
## 39   7.1569305   5.4735921  2.7448930  7.2923032  5.3077199  4.2799541
## 40  11.6072462   0.7157177  5.7968106  3.2735905  2.0742657  4.3180782
## 41  14.5961636   1.2082675  1.7196216  1.3995539  7.8186857  2.3021143
## 42   9.0069989   4.2462409  1.3208312  4.0963546  3.2651818  7.4244922
## 43  15.3369087   0.9196833  8.2883410  1.8777442  5.7079278  8.1749611
## 44  12.3412145   5.4221758  5.3355011  8.1248797  5.3129918  8.3667078
## 45   7.6726085   7.4809727  4.6668759  8.3117025  3.3607576  8.8508510
## 46   7.2234737  10.4350691  4.0603414  8.4453799  6.6149792  5.8735032
## 47   3.2424958   3.1472578 10.3787404  4.4894851  4.0103233 10.2152013
## 48   9.2661259   2.3346255  9.9484738  4.3472688  7.4972762  7.3234430
## 49   6.5253830   3.4919300 10.6936457  9.1936909  1.2772111  8.9874033
## 50   7.2144736   1.5521311  4.0688685  7.7407900  4.2010614  8.3614381
## 51  12.6162195   0.0000000  7.4945828  1.3697736  4.5348087  2.1652366
## 52  11.4351837   7.4203611  5.6858897  8.6353644  2.1550368  7.1877757
## 53  10.3703861   4.7151576  4.9929950  8.3538922  7.2095089  7.2597988
## 54   4.6096722   2.3942946  6.9677277  6.8660932  3.1952846  8.1681802
## 55  10.2838718   6.2161696  1.8810381  8.3486622  4.8141300  9.4915389
## 56  11.6616944   0.4924172 10.3618234  2.4529117  9.5086281  0.0000000
## 57  10.2116214   6.8244802  5.2281491  6.7489710  8.5093035  4.9865566
## 58   9.0694167   5.6806704  6.6619818  7.2345358  8.6785829  9.9719507
## 59   9.4331746   0.3723950  8.3096614  0.6681191  0.0000000  1.6142387
## 60   5.2663743   0.3444877  8.6228952  6.1467713  2.6767413  9.6508952
## 61   5.6438418   8.0257259  3.3406050  6.4700683  5.2757036  8.4553116
## 62   5.8864502   6.0439634  3.1717352 10.6387559  5.5359658  6.3628135
## 63   5.1230909   8.5433428  7.0974212 10.0295746  5.3217586  6.7580526
## 64   6.9186665   1.8000819  3.3365976  8.8488561  4.4927697  8.8566026
## 65   9.7028353   0.0000000 10.7218310  1.5480913  3.7409599  2.7597524
## 66   7.7206540   6.5864810  8.4709427  5.9946069  3.7950500 13.0382972
## 67  10.2213396   6.6874527  6.4159885  7.2551967  9.3672828  7.0380443
## 68   6.1930601   3.8139556  9.5774460  9.4581074  6.4352802  6.9526283
```

```
## 69   9.7773952   6.2684157  3.3938143  8.0769315  7.7930375  7.3678576
## 70   2.2600257   1.6169693  5.7928085 10.9767163  1.2498700  6.6471576
## 71   9.9911848   2.3132459  7.8547487  9.0898228  3.1242454  5.4954138
## 72   6.9408515   4.6651483  2.1464271 10.4307495  2.9735194 11.0041728
## 73   6.8658223   1.0215508  6.2854448  3.5627187  0.0000000  4.9240381
## 74   4.9110540   2.4230403  2.1668440 10.2980612  0.3683772  8.2063170
## 75  11.2811297   6.9301743  5.1279758  6.8648745  8.6092667  8.0066935
## 76   6.5463018   2.4669403  8.2624078  3.2176495  3.4840866  7.0562356
## 77   8.0176247   3.6089984  4.4512639  2.1903620  3.0229537 10.6835074
## 78   8.1521185   0.7392433  4.2785052  2.6678467  4.3512750  2.1199205
## 79   8.8252046   0.5997939  4.0412342  2.8451086  1.3484591 11.0783778
## 80  12.5932817   2.7413591  8.1850617  1.7812758  5.5390378  3.6292400
## 81   9.0939993   4.9881211  5.7854642  5.4572988  7.3571825  8.7345721
## 82  11.3095022   6.4759085  6.1778480  4.4952922  9.1704592  8.2355552
## 83   7.6502892   1.5151069  6.2043149  7.8377383  5.7431298  7.9519567
## 84   5.2898382   1.0316775  4.2687937  8.9679147  4.3633253  6.6840851
## 85   4.2464537   0.0000000  5.1416576  3.0342685  7.7673509  0.8717648
## 86   1.3819478   9.7172525  3.2464233  6.7782809  1.6159812 12.2492912
## 87   6.5060116   2.7263953 11.1947735  3.4911476  0.4119685  7.7380362
## 88   6.9507297   0.0000000  0.0000000  8.3460328  0.0000000  9.9772152
## 89   8.9010720   4.8862770  3.0072134  7.4642394  1.1650436  8.0509886
## 90   6.2618937   7.3019369  7.2258562  8.8722381  0.3257318  6.6408306
## 91   6.3581254   2.4066999  6.5414482  8.8192185  2.7520635  4.7641710
## 92   6.3739579   6.3317321  3.2738441  7.8440334  0.0000000  5.0573073
## 93   5.9774540   0.4209405  5.7869701  9.3522748  2.4342679  6.0005432
## 94   8.6911185   3.8546939  1.8394759  8.7727754  4.4912118  6.5782730
## 95   6.5510068   4.0409888  8.0807738  9.8282415  5.9988499  6.3459410
## 96   3.6899812   0.0000000  6.6278169  9.4869744  1.8662354 11.5138074
## 97  10.7786372   1.9965334  4.7070609  3.7290959  2.1980226  0.6763577
## 98   7.9220444   4.5940289  3.0455129 10.3147339  1.6197886  7.4973098
## 99   0.0000000   0.0000000  4.1572701  9.1807245  3.3071516  7.0470857
## 100  8.2368886   1.3067872  0.5765705  9.1027505  0.9873936 11.0126129
```

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## 101  7.5978127   8.3352858  1.8483175  5.2551683  6.1383394  7.4295440
## 102  2.6322682   2.4329594  8.3246306  5.5422580  1.7655347  9.0416592
## 103 10.5859990   9.3628262  0.0000000  9.5026640  0.0000000  5.9611302
## 104 12.1614791   6.9221336  0.4716557  8.9201107  4.3731958  7.9230862
## 105  8.5209730   5.7601650  6.2333378  7.5125303  0.3124328 10.5282184
## 106  7.7508188   7.1073290  9.8603266 10.6141323  3.4595365  5.7499793
## 107  7.7101507   3.6107237  0.4455148 10.1331224  0.0000000  9.2046516
## 108  7.1733693   5.2087162  7.1291975  8.3396705  3.0451459  9.4796770
## 109  7.5031977   1.2243490  2.8553519  7.2138838  5.2299609  4.1278726
## 110  6.6361852   0.7357821  0.9985566  9.0360420  4.1127585  7.5337043
## 111  6.8361943   9.0294904  0.9648052  4.7725455  7.5215306  7.2450583
## 112  7.6142615   6.1910256  7.1686420 11.7394003  5.9104497  5.5744679
## 113  7.1346881   2.2075181  4.8452040  7.2686271  2.3279460  4.5054400
## 114  6.9672436   7.8283872  5.8389417  3.9363553  4.3196468  8.0779800
## 115 11.1692652   4.0543797  2.0010095  1.4863025  1.4863025  6.2262947
## 116  3.8129910   2.0921059  8.5100797  9.0667566  0.4075159  8.6110731
## 117  4.3973512   9.8442938 10.7561551  8.0398989  2.6184266  9.1742871
## 118 13.6057497   7.7991935  1.8066953  5.5029447  5.7902768  1.8066953
## 119 10.3144519   3.9438088  2.7706388  8.2126486  5.0532678  9.3124784
## 120  2.4659484   0.3405053  0.3405053  7.8762916  0.0000000  7.0380762
## 121  5.1097659   4.9284509  8.4967240  8.4656264  6.9779278  7.4171259
## 122  7.0999926   2.7165081  3.6828317  8.1751563  2.6379580 11.2003388
## 123  5.6614019   4.9861879 10.4483953  8.6908441  2.4013574  5.6916067
## 124  7.0775421   4.6006801  1.3394225  6.4482022  5.0370966  3.6589541
## 125  8.3715423   2.2644163  1.0008654  8.1494398  3.4075567  5.5126567
## 126  4.0537109   7.9154623  0.0000000  9.1279250  1.9828385  7.1182247
## 127  6.2487284   2.4914683  2.8878567 10.4630231  1.6479591  7.2694568
## 128  6.0456920   6.9090482  1.5922059 10.7653844  2.4109109  8.7757077
## 129  0.5051796   6.0894346  0.8786861  5.3665251  2.4886692  4.6136790
## 130 12.0992260   0.0000000  1.4091465  2.7645372  7.9929463 11.0862942
## 131  4.4631254   3.4108838  0.0000000  3.3106600  0.0000000  3.6346397
## 132  9.2950537   2.0167459  6.2941373  7.8203181  6.1688225 10.3162397
```

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## 133  8.5100323   4.4725787  6.1790452  4.7711197  3.0806236  6.1554011
## 134  7.2761998   4.4826289  5.5917123  8.2331149  5.3891675  8.6302577
## 135  9.0064627   5.4827676  3.5856596  8.4517415  2.8914386  6.0602441
## 136  8.5787863   2.8043634  6.5312582  8.9827558  3.6488566  5.9771036
## 137  6.7661061   3.5673386  3.2859200  8.5956465  4.9098499  3.0622772
## 138 11.9960459   3.4315962  7.4433514  2.2458607  9.4626622  5.7696660
## 139  6.7597484   1.7623488  2.6050439  9.6019097  0.6763577  6.7637249
## 140  6.0459540   0.0000000  1.6318493  8.9491935  1.8151245  5.5078073
## 141 14.9875530   0.8521587  7.2360955  2.3293533  0.8521587  4.4550970
## 142 12.8528236   1.0328061  2.3740935  7.5829090  2.1656869  8.1521596
## 143  7.8455810   5.1692556  9.6539492  1.2884176  8.9013002  3.3242778
## 144  9.5081727   0.0000000 11.9143766  1.8888114  0.5366498 10.6965169
## 145  9.7278014   0.0000000 10.5836312  2.4125106  3.0368022  0.8990209
## 146  6.6742474   6.3307735  1.7449361  8.4356673  1.5268200 11.6959055
## 147  5.8954432   6.3892140  2.5323419 10.3207978  0.4521737  8.7500618
## 148  5.3859935   0.6782522  3.4065095  3.1380117  1.4857875  0.0000000
## 149  7.5956364   3.0128726  5.1392280  7.6527869  0.0000000 12.3338895
## 150 16.8545481   0.5465611  4.3136304  1.5071603  6.1686240  4.2451990
## 151  8.1934194   6.2031796  6.8289654  7.6695172  6.5181999  8.6109665
## 152  9.2028181   0.0000000  8.5381462  3.7500490  1.1670367  6.3046990
## 153  9.6832111   0.0000000  0.4689482  5.9011420  8.2480438  7.8327654
## 154  9.5395886   1.9526318  4.6394290  3.6419275  7.7906072  3.0594418
## 155  5.7567138   4.2241561  9.5459222  4.4384991  1.0625362  3.8686176
## 156  7.8369738   0.0000000  7.4864835  8.8634343  0.5831339  5.7760592
##      rs_TUBA3D   rs_KRT13 rs_PPP4R4    rs_EPYC rs_SLC28A3  rs_AGTR1 rs_IGDCC3
## 1    9.9812066  0.8928184 1.6516832  1.4402081  1.6516832  5.601483 4.3418577
## 2    7.8293593  2.5983890 1.2895984 10.1870021  4.5026616  7.068943 2.9070252
## 3    5.7363099  4.9539822 1.9732072  3.7481499  2.2197106  7.418662 8.4750200
## 4   13.1380180  0.4889263 1.7742494  0.8535167  0.4889263  5.740005 1.1442422
## 5    2.5246655  5.2866927 7.5362674  7.2208861  2.1908677  6.128009 6.7385584
## 6    0.6028369  1.6204457 2.9528367  0.6028369  7.4057244  2.502840 1.3538878
## 7    2.2799170  0.8248086 0.8248086  7.0749100  5.7504618  4.660849 1.1090262
```

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## 8    1.6259250  0.0000000 6.3518156  4.4038608  3.5582431  2.370945 0.4304994
## 9    0.0000000  1.6220870 2.0416986  3.9585922  3.0485326  2.747387 2.8549133
## 10   4.5738108  4.3897939 4.8431899  5.1046721  1.6026944 12.013970 9.4615060
## 11   4.3973649  4.9593250 4.8630960  5.0495349  2.8119025  5.696358 6.4863668
## 12   2.6297063  0.4548076 2.2346239  2.5406225  2.9395275  5.358597 6.5607532
## 13   1.7257848  0.9433588 4.2123981  8.8095273  4.4132488  4.444163 0.0000000
## 14   5.3414236  6.8531386 7.1126949  7.5597029  5.1907255  6.918544 5.2169592
## 15   5.8709984  1.0509544 7.5617920  2.9613826  8.7437940 13.324423 1.6525094
## 16   4.7214109  0.5474498 7.5179024  8.3583453  3.2182232 11.743480 3.8918080
## 17   2.7766936 12.2445388 0.5039593  2.7766936  0.5039593  4.919540 7.9350418
## 18   2.2685242  7.6042589 4.6903389  4.5795121  6.4912967  5.715520 7.5227322
## 19   3.9909004  0.3634515 7.8540455  1.9505804  9.4149995  5.576038 0.8949923
## 20   4.2340951  4.2987170 0.0000000  4.4391311  3.7396429  4.298717 6.0496155
## 21   3.7985586  0.0000000 0.0000000  9.8089227  7.9866874  4.830068 0.0000000
## 22   1.1606621  0.4976379 2.2347466  1.4045762  4.3474885  2.667710 0.8668684
## 23   0.9573203  0.0000000 0.0000000  3.3809095  1.9355352  8.757501 0.5566992
## 24   2.1132337  0.7984238 1.0764907  3.8008067  4.1701173  4.439530 0.7984238
## 25   7.9160514  0.9762170 0.9762170  1.1951586  5.2989698  3.728149 1.9641398
## 26   2.3201092  1.5178804 6.2990999  0.6158871  2.6610427  7.539482 9.4899850
## 27   7.7823660  2.4071352 6.7095457  3.7606255  6.0268819  6.800557 3.2093910
## 28   1.1657512  0.0000000 0.0000000  1.4103411  2.8515192  4.985209 6.4258302
## 29   5.3497580  8.8641676 5.7639480  2.6142622  1.6366826 10.879491 9.0642203
## 30   5.5792314  1.0803166 8.7768722  0.8015726  5.5336786  7.409688 5.9867045
## 31   6.9140490 12.5465170 5.7823325  7.3320348  2.7142675  4.999635 7.6065755
## 32   2.7255230  4.4856522 6.6531905  7.2500909  3.1242123  8.161198 5.0258660
## 33   4.5432917  0.7727302 7.2736763  5.3206868  9.0866275  8.332213 5.7678984
## 34   8.3088491  0.0000000 5.2056232  3.9079001  5.0617460  6.496926 7.5808638
## 35   7.3365449  0.4498519 1.3007680  7.1484339  5.9651124  4.126428 4.7923660
## 36   1.8345494  6.4567339 3.2562861  5.4799969  6.8319925  4.848222 2.3998820
## 37   6.0998212  0.5165195 5.3738187  5.3738187  5.9571694 13.812147 4.1873798
## 38   2.9011276  1.9309644 6.5692055  4.0419438  2.3839393  3.322202 0.3576083
## 39   3.0035303  3.0035303 0.5247658  9.1392612  1.4620000  4.625931 0.9088129
```

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## 40   1.6995072  5.6660521 1.3816710  6.4279346  6.6425312  5.821598 0.7157177
## 41   0.7270927  0.7270927 0.9876119  5.2977343  5.5506144  4.478784 0.4088205
## 42   0.0000000  0.0000000 0.0000000  7.7597764  3.1481695  5.498101 1.0865120
## 43   1.2249664  2.5617172 0.0000000  1.2249664  0.5318680  1.877744 1.4767964
## 44   8.5808419  0.9542708 4.2337270  1.1699891  2.3399355  5.219277 1.8074374
## 45   6.6236416  0.0000000 4.2148631  4.5812307  1.9739051  8.793294 4.3243570
## 46   9.3431655  3.2859200 2.7730891  3.6635040  2.4267478  4.371238 0.7903550
## 47   2.3015584  2.0082717 0.6822137  6.5328795  2.3874177  6.588320 6.5186799
## 48   1.2894804  5.4126969 3.8939252  3.3154213  6.4202011  6.682049 5.0217906
## 49   8.2149388  0.8907969 8.5600412  4.7653173  5.9460103 11.601931 4.1766659
## 50   4.2507267  6.5948456 6.1144191  7.8535734  5.3553969  9.306647 3.7952994
## 51   1.8216694  1.5366000 3.9611973  3.5574223  6.4975102  3.901272 3.5180693
## 52   7.8321704  0.0000000 6.7908202  3.0309010  9.8800210 12.557106 3.4369613
## 53   1.2095158  2.8549133 0.0000000  5.3815983  3.6795364  4.785509 0.7279640
## 54   6.2719280  5.4453327 2.8847542  8.0706534  5.9042770  6.922032 7.5812759
## 55   8.7974913  0.3765127 8.0245402  3.5154223  7.3425183  5.200779 3.4381598
## 56   0.8589358  4.7568845 5.9735860  1.3935809  5.4635080  2.089057 0.0000000
## 57   3.8803035  5.5055512 1.6632535  2.0877683  6.5575495  7.524622 4.3579390
## 58   5.8821613  1.1898562 1.9571717  3.2703794  6.3298878  7.702211 4.9293460
## 59   2.1807844  1.1230040 9.7248702  6.6043798  4.1286151  3.833133 0.0000000
## 60   3.2266472  0.3444877 8.7602456  0.8552722  0.0000000  3.685604 3.3840083
## 61   2.8251547  0.0000000 1.1488690  0.3832757  3.2966042  5.745549 6.0136409
## 62   2.0921736  0.0000000 0.6721085  4.1388145  2.8541952  5.046364 6.5296320
## 63   6.8455804  3.9656181 1.0588014  4.5023370  2.7985897 11.484587 7.8680076
## 64   5.6266465  0.4994760 2.4727737  5.6741810  5.0198753  6.237879 5.7647893
## 65   0.6320820  2.1933302 2.1039004  6.1517432  8.6921541  4.716464 0.0000000
## 66   5.9182049  1.0678452 0.6304987  4.3927914  1.4029404 13.638057 4.7857807
## 67   1.7376435  1.2229282 8.9590294  1.2229282  5.5034410  7.659169 5.1438913
## 68   4.1785394  3.3248826 8.2536504  3.7149049  5.7926992  5.317644 5.8560495
## 69   6.4437840  1.6031219 7.9689380  0.2944296  6.0735975  6.905518 4.6176923
## 70   3.7069836  0.4270698 2.0359406  6.4565663  1.0240359  4.836106 3.5028907
## 71   2.5489791  1.0723116 3.0872761  7.9336529 11.3977692  4.470758 1.0723116
```

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## 72   2.3754287  0.0000000 0.4655044  2.0166746  1.5380415  7.186924 8.6940998
## 73   1.3477790  0.0000000 3.0375404  8.8199874  4.8357220  6.377696 0.3305584
## 74   2.0702176  6.8602577 0.6614760  1.8551127  0.6614760  9.825038 5.6399730
## 75   7.0386579  9.3112617 7.8002839  0.3978030  6.4695441  7.860644 5.8377036
## 76  10.8135089  0.8113066 4.4433878  0.8113066  2.2551683  2.735717 0.0000000
## 77   1.3377111  9.8740172 2.6068212  0.0000000  2.6068212 10.237463 0.0000000
## 78   2.3265661  0.7392433 3.1750615  8.5641876  4.0929093  4.896359 1.4186757
## 79   0.5997939 10.0389614 0.0000000  0.0000000  1.0221192 10.168672 1.0221192
## 80   1.7812758  3.9656642 0.0000000  5.5515868  7.3130435  3.426157 1.1496496
## 81   1.5614972  0.0000000 5.7466621  0.0000000  6.3573954  9.395157 4.5511038
## 82   1.8852620  0.0000000 3.4434475  0.5350576  7.5216562  9.107260 3.7141246
## 83   2.7169251  0.3397075 3.9878575  3.9635204  4.3109145  5.654670 5.5845717
## 84   3.0089171  1.4996291 2.8084262  7.3751533  6.6127476  6.290657 2.4432353
## 85   1.8030617  1.0748479 1.2528395  5.8576029  4.6635154  3.778713 0.0000000
## 86   2.0746767  2.1511769 0.5448810  0.0000000  0.0000000 13.796113 9.0811239
## 87   4.7429009 15.5319317 8.6670611  7.2100264  1.9906645  5.582755 6.5164659
## 88   6.2195964  0.0000000 2.1626612  7.6524772  0.0000000  3.746238 0.5818815
## 89   3.1486576  2.9309076 7.8839934  2.1086917  0.4998841  5.127551 5.3489299
## 90   5.4942780  0.8154935 3.3024360  3.3390091  4.8763008 13.708802 0.0000000
## 91   5.3504690  0.0000000 2.8268840  7.0152634  1.2834477  4.705901 3.3676926
## 92   5.8232908  4.3319058 0.0000000  6.4984727  7.5788738  7.926147 7.2019484
## 93   6.0456439  2.6046881 7.2586970  1.4298570  0.7464848  3.243517 7.8521986
## 94   6.9731727  0.0000000 3.8546939  2.8686275  3.3461201  7.114115 4.2299724
## 95   4.7224933  2.1982427 3.2568295  1.4095810  1.4095810  5.069479 1.6819889
## 96   2.5485846  0.0000000 1.6802343  4.9739143  2.8426772  3.959019 4.1502916
## 97   0.9237957  0.9237957 3.3177816  0.6763577  6.6903151  8.048520 0.0000000
## 98   6.9900813  5.6557125 0.0000000  5.7513566  2.0391033  9.409372 7.9545622
## 99   2.9399036  0.3981314 5.9018516  4.6342506  5.9838259  2.678613 7.0436146
## 100 10.1902652  1.5681294 8.3389226  0.5765705  0.5765705 12.266174 4.3335096
## 101  5.0439394  0.0000000 1.8483175  5.4819802  3.4091058  2.691891 8.3594781
## 102  6.2133473  1.5849625 1.3785116  4.5969351  0.0000000  5.177918 6.7032115
## 103  2.0415584  0.0000000 6.5139581  2.4371212  1.6219464 12.463262 2.5046967
```

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## 104  4.0417161  0.8265993 1.3487423  5.9202266  9.1178457  4.075199 2.4958998
## 105  5.6393885  0.3124328 0.0000000  5.7665872  1.1433934 10.354187 7.5760678
## 106  4.4758437  8.5231844 5.3355011  5.0526767  4.6831013  9.012213 7.6055914
## 107 10.0675074  0.0000000 7.1248936  6.4507741  1.6648924  4.636897 3.1040179
## 108  8.8264090  3.2349458 7.3168074  6.4650162  1.2933116  7.546889 5.6111163
## 109  0.0000000  1.4760706 5.8249078  5.4369946  5.3608418  6.735789 1.8769196
## 110  1.7349589  1.2207633 0.0000000  9.1762021  1.4132149  8.682457 4.7872966
## 111  4.6683972  0.3975839 0.3975839  5.8125752  2.9377963  8.494942 2.1666512
## 112  2.1151331  6.1063358 1.1696685  2.1151331  3.3453680 11.633112 8.5997730
## 113  2.6385836  0.0000000 0.0000000  5.9094707  5.5119771  5.051690 4.1929753
## 114  5.0565619  0.4144603 0.4144603  3.4128628  5.5107183  9.676494 4.3434931
## 115  1.1382247  0.0000000 0.0000000  5.1631968  1.4863025  4.983158 0.0000000
## 116  3.4317700  1.5647196 5.4187128  7.1396854  3.5570669  5.565128 2.6373552
## 117  3.4318770  0.0000000 0.3159140  3.1024398  2.2240403  5.777567 8.7803039
## 118  2.4255399  0.0000000 0.7000845  7.2729003  3.4586182  3.881802 1.5229597
## 119  7.1477646  0.0000000 3.9113273  1.7647283  3.8781073  7.744393 0.0000000
## 120  0.0000000  0.0000000 0.3405053  6.8344357  0.6156988  9.844787 0.3405053
## 121  0.5391340  1.8947596 0.5391340  2.0606354  2.9628451  5.519080 8.1437939
## 122  7.0889620  5.9851839 4.6656884  5.8348300  3.7214383 10.050578 4.6656884
## 123  3.0247452  2.5842169 2.8212204  7.2678972  0.7771988  8.466124 4.4864055
## 124  2.4832096  0.3852654 0.9398284  5.2376746  1.9087361  3.587281 1.1534162
## 125  1.2640560  0.0000000 0.8487982  6.9086088  7.9146142  7.793538 3.0719171
## 126  6.0155355  0.5077185 6.5053352  0.0000000  0.8825257  9.895723 8.5217995
## 127  3.7492983  0.0000000 2.6632991  8.1025049  0.4390380  9.310896 3.5000244
## 128  3.6455749  3.6455749 3.5776343  9.1294118  2.3306158 11.111237 4.0976866
## 129  0.5051796  0.0000000 2.4886692  6.9180129  2.1225402  4.081902 1.4207788
## 130  2.6738730  0.0000000 2.1082233  8.2655541  0.0000000  3.700950 0.0000000
## 131  1.4773665  0.4403144 1.2795307  3.7152564  1.0501186  1.477366 0.0000000
## 132  7.0444903  1.2052048 4.2361175  0.0000000  4.5358974  5.404232 8.6189581
## 133  1.1229377  4.2224800 1.3620490  9.1111931  3.2686739  6.962027 3.0120501
## 134  2.8106282  0.0000000 2.5392333  6.2287437  7.6938075  5.103854 3.4889134
## 135  6.3251831  0.0000000 6.4615498  7.8943970  5.4120193  8.466779 4.6700132
```

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## 136  4.8687460  0.5134907 8.4681858  4.2117053  2.3992531 11.265044 3.9172981
## 137  5.5719377  0.4330663 3.4795022  2.0535632  2.4729556  8.109622 2.7229468
## 138  0.6561760  1.4476321 0.0000000  0.3650206  3.8323837  1.723995 1.7239953
## 139  6.8258950  0.6763577 2.6742799  3.8833276  4.2885136  2.605044 6.2030621
## 140  2.5940230  0.0000000 1.6318493  5.8498767  0.5056877  3.413567 4.4310145
## 141  0.8521587  0.8521587 0.0000000  5.3665880  8.0080991  4.866928 1.1425441
## 142  3.9993867  0.0000000 7.0681871  7.2933254  2.4680098  7.846001 1.6285870
## 143  1.6617040  5.1400424 2.2036710  3.5631093  2.8341246  2.203671 0.7834986
## 144  3.7186247  0.0000000 2.6795589  7.4579070  3.4478569  5.874566 0.0000000
## 145  0.8990209  1.1064153 7.7455479  1.4486896  5.6103575  3.999089 0.0000000
## 146  6.0930213  0.0000000 3.9617530  4.8689830  1.2696915  6.534832 4.5006045
## 147  7.9963209  1.6818990 5.2821766  5.4125715  0.4521737 11.624833 1.9799156
## 148  0.0000000  8.0763218 0.0000000  0.0000000  3.4065095  3.632803 0.0000000
## 149  8.2618401  0.0000000 2.2393980  4.9610630  0.4564908 12.235324 0.4564908
## 150  0.5465611  0.0000000 0.0000000  1.9121516  8.3166250  3.142495 0.9420077
## 151  1.3330802  0.5912007 1.3330802  1.3330802  6.9192698 13.169136 6.8670205
## 152  2.6774180  0.0000000 0.0000000  6.9528891  0.0000000  5.181448 7.9663428
## 153  0.4689482  0.0000000 0.0000000  5.2429797  7.3629099  5.104894 0.4689482
## 154  1.5429514  0.3994446 5.9148061  5.0116745  6.6964293  4.582947 2.8197908
## 155  5.4140780  0.8610819 1.2392147  4.2241561  1.3966527  4.988798 6.7723357
## 156  3.9491427  6.0281050 6.1342271  9.7165600  3.2430902  4.901673 1.9959548
##     rs_HSD17B2 rs_SLC7A2   rs_VSIG2 rs_FLJ45983  rs_KIAA0408   rs_FAM5B
## 1    2.7157177 11.791121  4.7619554   3.3214231  3.648108752  5.0686149
## 2    2.4151637 12.855548  2.5096958   4.8117998  2.565329083  2.9070252
## 3    2.3287790 13.952654  4.6309238   5.2869920  5.878904319  2.9909912
## 4    2.8179097 14.968028  2.2112926   9.1420915  0.000000000  9.5825344
## 5    3.8550628 10.412281  8.3464468   7.2474614  0.000000000  2.0599090
## 6    7.7144166  6.418588  1.0266584   4.0496482  0.000000000  0.6028369
## 7    6.1691293  8.392889  4.3421778   2.8420737  4.758223215  0.8248086
## 8    2.5529426  7.622951  0.4304994   1.7799321  3.852338490  1.4534912
## 9    5.2436653  6.925229  0.0000000   0.0000000  3.442465835  6.7827375
## 10   0.4930324 11.968640  1.6026944   9.9480153  2.497893341  5.0346735
```

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## 11   3.5073380 13.414469  7.5051160   4.4861866  4.256233225  2.2265702
## 12   3.1347959  9.129109  2.3440047   4.7319706  2.640898521  8.0083519
## 13   4.0206089  6.105249  0.0000000   0.9433588  3.081135072  2.6032881
## 14   5.2680413 12.065141  7.4255222   8.4766567  0.000000000  2.9453080
## 15   0.7778720 12.788925  1.9480027  10.4884838  0.000000000  9.9948960
## 16   6.4928658 12.999927  3.7505636   8.2575293  3.065968602  0.5474498
## 17   2.3731192 10.965903  3.8457811   8.6965489  0.000000000  5.7684940
## 18   0.0000000 12.279827  1.3375969   7.8792193  4.126964599  8.8296913
## 19   7.5039235 14.255952  5.0483713   9.0101174  0.000000000  5.4398259
## 20   0.0000000 10.338265  6.1925256   4.0460981  0.000000000  2.1534162
## 21   7.1441484  6.481987  6.3165151   4.0300270  3.499756613  3.4711614
## 22   2.6677105  5.833224  0.4976379   2.2347466  0.000000000  4.9380034
## 23   1.5278210  5.358379  0.9573203   7.7275638  0.380064459  1.5278210
## 24   5.2880115  6.984930  3.5045314   3.0690663  0.000000000  4.1701173
## 25   5.1098703 14.805779  0.4031586   7.9503074  3.453715105  0.0000000
## 26   2.5341612  7.929657  2.8855548   7.8183425  4.360357253  1.2210728
## 27   8.1053334 14.133891  5.1901921   8.4920082  0.000000000  3.5111770
## 28   5.7999939  9.099518  1.6194130   3.3969404  0.000000000  5.3355047
## 29   0.6805044 12.418048  3.3704573   9.2949058  1.698262937  3.6382592
## 30   5.9524943 11.610493  8.2748259   6.0283592  6.707737359  4.2909625
## 31   1.7587296 11.022257  3.5999485   8.4604207  0.000000000  2.4251101
## 32   0.4339209 10.802162  1.9286546   6.9762754  4.262245216  0.4339209
## 33   4.9917849 10.069216  7.4300243   8.6624192  6.921142325  3.3519251
## 34   5.0427100 11.959182  4.7221381   7.8590589  3.128491379  2.0231844
## 35   4.4008385 10.546600  7.1815389   3.7872653  0.000000000  2.8520588
## 36   6.2123223  8.358597  4.9111067   5.1729875  5.128693453  3.9974460
## 37   4.5996630 13.598109  5.6705968  10.1608542  0.000000000  4.1873798
## 38   3.4011526 10.011617  0.3576083   7.4798288  0.000000000  0.3576083
## 39   0.0000000  9.683515  9.0572797   2.4295624  3.105594276  2.1730635
## 40   5.2081505  6.736766  1.5493242   3.1744544  4.709147241  5.9545407
## 41   8.4278349  3.946403  0.0000000   4.0641154  0.000000000  8.2744667
## 42   3.9641121  7.509979  2.9526504   5.4860965  3.465334575  3.3203258
```

```
## 43   8.8669509  6.228973  0.9196833   4.1289367  0.000000000  0.5318680
## 44   4.6475678 12.771654  5.7246257   4.9972879  0.000000000  6.8542014
## 45   2.8766839 13.354379  6.1750115   6.5276959  5.812187576  8.6776911
## 46   6.0022164 15.339290  5.2277834   7.7015976  1.002162421  2.8480771
## 47   4.0893117 12.833197  5.6690012   8.0261001  4.096717263  0.3810618
## 48   6.5459498 11.034543  4.6257030   7.3492308  3.360350229  3.0892778
## 49   1.0969365 14.823688  1.0969365   7.5130398  0.000000000  2.0468752
## 50   1.7024802 12.939827  8.6417693   8.5579450  2.928351371  1.5521311
## 51   4.5149491  6.669034  3.6330592   1.3697736  2.177407578  4.6485287
## 52   1.5158638 13.446823  9.2006706   5.6784241  0.000000000  1.7617533
## 53   1.4009204 13.282165  2.6439024   4.8849886  3.581303036  3.2021669
## 54   6.4047175 11.188119  0.0000000   6.1689910  0.000000000  2.8137299
## 55   1.6262522 12.735561  4.3700247   8.3644100  0.000000000  7.3635671
## 56   3.4281424  5.153035  6.8029570   0.0000000  0.000000000  0.4924172
## 57   5.6159283 10.112487  6.6845691   6.1731094  6.219793876  4.0783878
## 58   5.5086283 13.297964  6.4926960   7.4078252  0.000000000  4.2674609
## 59   3.2979104  6.852495  1.3059705   1.3059705  0.000000000  0.3723950
## 60   4.4261037 13.494297  1.2317396   8.2613705  0.000000000  0.6223682
## 61   4.6637772 12.839282  2.9999820   9.7413048  5.712353660  4.7148280
## 62   1.4752406  9.634284  1.6215244  10.2810389  5.237988113  5.9570579
## 63   0.6244285 13.121398  2.4863540   8.9336411  2.860148384  8.7046680
## 64   1.1642714  9.314951  5.9691666   9.1366157  5.482564362  2.2398868
## 65   2.2775385  7.388762  1.0701145   0.3503841  0.000000000  6.2435834
## 66   0.6304987 10.577780  4.1471520   6.7643156  0.000000000  6.6429614
## 67   3.7378598 11.396496  8.9346510   5.4383461  0.000000000  4.7197420
## 68   5.7179368 12.578437  7.2495496   7.4527667  0.000000000  5.1124333
## 69   5.6281933 11.311227  6.3824511   8.1245334  0.000000000  5.0112273
## 70   0.0000000 14.514780  3.1577713   8.6733186  0.000000000  3.4124157
## 71   0.9124199 13.380311  4.5270453   7.7785424  2.869891142  3.7857807
## 72   2.2654669  9.521986  2.8263756   6.4565450  3.537209080  0.0000000
## 73   0.3305584  8.643562  0.8258670   2.2033578  5.021972682  0.5994130
## 74   0.0000000  6.127951 10.7542983   8.7453580  3.540287705  1.7341785
```

```
## 75   7.9577927 11.346083  8.7531372   7.7858284  3.760135766  6.2343040
## 76   3.8287128 12.144367  1.8646517   8.1671276  3.435601927  4.7367564
## 77   0.5937840  9.590320  2.7226409   0.5937840 10.154788496  2.4809113
## 78   8.6639796  4.778161  0.7392433   3.2782078  0.000000000  2.4197276
## 79   0.0000000  9.750388  1.3484591   0.5997939  9.482090564  0.0000000
## 80   2.9828932  4.569734  1.3922625   2.2190601  0.000000000  2.8264366
## 81   4.7208640 10.979388  6.5723501   4.2883659  9.972520347  3.8739313
## 82   8.0646161 10.594863  6.5259749   4.5516206  9.262800512  3.6118688
## 83   4.1902277  9.866208  2.3916028   7.5144561  3.108825510  2.5954559
## 84   3.9654518 15.275606  5.1798295   8.7455009  0.000000000  1.6270465
## 85   6.2937935  6.143832  2.9333838   4.5991095  0.000000000  7.0785586
## 86   0.2980717  6.581475  0.7556567   9.8411649  0.000000000  7.4219899
## 87   0.9937830 12.502020  7.6972685   7.5111802  4.320159710  0.4119685
## 88   0.0000000  7.312640  5.5907577  10.9061637  3.142266383  0.0000000
## 89   4.2332132 14.744574  6.3677537   8.2815916  0.000000000  6.3892966
## 90   1.4715517 11.540809  1.7136078   7.6169244  1.117894480  4.3578898
## 91   5.0561326 11.029233  6.6484482   7.6592638  0.000000000  0.4421208
## 92   0.6763577 12.315515  8.4225076   5.8902862  0.000000000  6.1613677
## 93   0.0000000 12.676179  1.4298570   9.5826636  1.940918448  7.0346823
## 94   2.9241569  9.334078  5.5409789   3.7663195  3.557838926  4.3962486
## 95   1.0734090 13.709650  5.4974431   8.5014563  0.000000000  2.7052702
## 96   2.3128684 13.709965  1.8662354   1.8662354  3.603121870  3.6398226
## 97   3.7612640  6.493692  0.3774014   3.5193532  0.000000000  0.6763577
## 98   0.4281424 14.367540  1.6197886   8.5529307  2.589116286  2.2633349
## 99   0.3981314  9.887789  0.9659874   7.4550452  1.766595162  3.9651655
## 100  2.4387719 12.584932  1.7893537  10.3973197  1.948376577  9.3289991
## 101  9.3498239  6.133004  6.9813686   7.5161302  2.387224662  9.6999007
## 102  1.3785116  7.721099  0.0000000   9.2531384  0.005759269  4.3645724
## 103  1.9475166 13.468930  1.7388543  10.2032527  0.675725619  2.6903053
## 104  0.8265993 10.968317  8.6525973   8.0879995  3.076045954  0.8265993
## 105  0.0000000  5.660233  6.1424318   5.7919963  0.000000000  0.9761436
## 106  1.9308130 11.798559  3.1396496   8.3293483  0.000000000  5.7499793
```

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## 107  3.5226333 12.561637  1.2911910   8.7939612  0.000000000  8.1346517
## 108  0.6601985 11.803505  1.5998890   9.7533781  0.000000000  5.9115670
## 109  5.7432753 10.572063  4.4553404   5.1776468  5.124658990  8.6233778
## 110  1.9978343 12.486631  3.9973014   7.7205076  0.000000000  0.7357821
## 111  1.5378427  9.445808  3.9029804   4.3914447  3.487048947  1.5378427
## 112  5.2025000 13.172732  1.9693071   9.5353112  0.000000000  1.9693071
## 113  2.3279460  6.443729  2.3279460   3.0422241  0.000000000  1.9315318
## 114  4.5002029 10.752486  4.6606549   9.1775107  0.000000000  2.5005216
## 115  5.7668548  6.080278  0.6786128   0.6786128  5.141514537  0.6786128
## 116  0.4075159 13.913162  1.2050797   8.5620829  2.832424227  0.4075159
## 117  0.9849174  7.479607  1.8847151   9.6610083  2.821914259  9.2021358
## 118  5.4420643 11.780356  6.5069034   2.9764920  2.670251176  0.0000000
## 119  3.0937292 12.701963  6.7984964   8.3537948  2.685603817  2.9086592
## 120  0.0000000  4.945374  1.9737582   9.0451655  0.000000000  0.8467942
## 121  5.1285739 13.102961  2.9628451   9.0218234  4.372889431  1.2383589
## 122  1.2589410 14.569804  4.6656884   8.7297424  3.104906915  1.4549655
## 123  0.7771988 13.188294  5.9042866   8.1892790  0.000000000  3.7540537
## 124  4.3422489 10.959426  4.3203186   5.4033461  3.367860269  0.6890307
## 125  0.4859420  7.775193  2.0716940   6.3054909  0.000000000  1.0008654
## 126  0.0000000  6.401185  0.0000000  11.8101712  0.000000000  7.1225982
## 127  0.0000000 12.365036  0.0000000   9.0980065  1.726046456  4.3366476
## 128  0.8980922 13.415412  0.8980922   8.5582776  3.360294037  2.9834953
## 129  4.8833520 11.885295  6.8825624   7.7806441  2.156881964  0.5051796
## 130  8.4459174  9.799270  1.1647219   1.4091465  0.000000000  0.0000000
## 131  1.0501186  4.236064  0.4403144   4.5753607  0.000000000  1.8066128
## 132  0.9034240 10.571925  4.2690556   9.2379621  3.525505149  4.6403028
## 133  8.4912663  9.506495  4.8517940   4.2224800  0.000000000  1.5671073
## 134  2.8711931  7.955680  5.1412243   7.5872675  3.247547807  8.2560081
## 135  2.9496843 13.431149  3.0595629   7.3704756  0.000000000  0.9390008
## 136  2.7132339 12.547694  3.0475558   8.2403663  3.700062349  6.2444742
## 137  3.7284539 14.371697  2.5612039   4.6729797  3.721963179  2.8683905
## 138  3.8895612  5.928148  0.6561760   0.6561760  0.000000000  1.5923972
```

```
## 139  0.6763577 11.217873  0.3775125   6.5033424  2.691735146  3.9957830
## 140  0.0000000  8.132356  0.5056877   7.3894524  1.670387157  3.2951499
## 141  1.5911528  7.410088  6.9422881   2.9715528  2.621289993  0.0000000
## 142  3.2277873 12.484176  4.3095109   7.6344517  1.775387728  2.1656869
## 143  3.2713809  7.175323  5.8842340   8.9367710  3.122192293  9.5193345
## 144  5.2797090 12.607595  1.4865599   6.9698447  0.000000000  0.9268344
## 145  1.5935450  7.487338  3.8044666   1.5935450  0.000000000  7.0649184
## 146  0.5562087 13.385445  4.5006045   7.2917822  0.000000000  1.5268200
## 147  0.4521737 11.666760  0.0000000   9.1586970  3.595360434  9.6968486
## 148  7.0295843 10.905513  2.0004327   2.2020729  0.000000000  1.1378314
## 149  4.5895358 15.244887  3.7713257   9.9907701  0.000000000  0.8027309
## 150  5.0348584  5.652085  8.1180638   3.5353314  6.374142248  0.5465611
## 151  2.1843755  8.521338  7.4572430   8.3902782  4.365139594 10.0554003
## 152  8.5186811 12.780691  9.2478464   4.7409276  0.000000000  3.3410606
## 153  4.3088123 10.130472  8.7950880   3.4061965  2.278609284  2.9124583
## 154  8.7450699  7.839646  3.8153807   2.9445961  0.000000000  2.1727435
## 155  2.6877102 11.195702  4.9763774   8.4630527  2.737427183  5.3287288
## 156  2.5804591 12.844201  0.5831339   8.0086415  0.000000000  0.5831339
##        rs_GLDC rs_FAM196A    rs_PNMT  rs_NCCRP1 rs_TMPRSS6  rs_KRT23   rs_CNTFR
## 1    1.8360857  9.2265360  6.0186364  5.9097659  4.5671438  9.843357  5.6637659
## 2    1.8188915  4.6959660  8.0399981  3.2731727  5.0188255  8.623132  1.0590091
## 3    8.0323979  5.2597018  8.8457296  6.5017655  9.1990338  9.580981  6.3739735
## 4    0.4889263  8.9040731  1.9350825  3.5719923  6.4215616  6.052144  3.0464387
## 5    8.8473330  5.8885217  3.3935123  5.9171811  5.2571049 11.677877  7.5300957
## 6    6.5914954  1.8453495  1.3538878 11.0034246  1.6204457 12.376362  4.4427379
## 7    6.2949221  5.5273675  3.8956419  5.0944979  2.5882049 11.002749  3.3583541
## 8    9.2589582  2.3709454  2.0460020  9.2165810  1.4534912 13.085291  9.2605950
## 9    4.6678240  1.3553546  2.2131295  4.1395923  3.1363883 11.915819  8.2839667
## 10   3.5849865  7.1031199  7.0859164  3.5849865  5.2507646  4.242320  4.7147785
## 11   6.3211380  4.6295781  1.7406686  2.7414670  3.8462325  7.144813  5.3270945
## 12   3.1347959  3.3598163  1.0785415  4.6703078  3.5081878  4.711710  6.7365210
## 13   1.9142201  2.4893374  0.0000000  9.9786550  2.0808623 11.983514  0.9433588
```

```
## 14   2.9453080  4.2036945  3.1767855  6.4833611  6.4170153 11.287129  5.2929216
## 15   2.7477741  7.4063896  0.0000000  9.2799221  8.8987045  7.292633  1.6525094
## 16   2.7087611  3.8918080  4.7710193  7.7886857  7.0092856  8.532060  2.2301108
## 17   9.0562435  4.2461496  7.5790700  3.9664397  3.1607750  4.899475  8.8468951
## 18  10.0666292  8.3245748  4.6903389  6.3018126  9.0954231 12.664962  7.5957416
## 19   4.1390274  4.5974537  0.8949923  3.7042301  6.0762683 11.026367  3.4631647
## 20   8.3502059  1.9538240  3.2663218 11.9751327  5.2507456  4.908198  9.4451742
## 21   2.9747312  2.8986921 10.0515299  8.7603893  6.7649923  4.290218  6.0439197
## 22   5.9240975  0.4976379  1.1606621  6.8152488  1.7954345  8.396943  3.5993535
## 23  11.3073459  6.1906623  7.4097354  3.0931883  2.1030276  3.620680  7.3275374
## 24   2.8646319  2.4423862  1.9843706  5.6377696  1.3094673 11.188833  1.5099998
## 25   1.3852101  3.3259476  4.4776773  6.8309727  8.9845945  7.896662  2.0786781
## 26   3.6983407  2.8326268  6.2240094  2.8855548  6.4340494  5.455025  5.2683146
## 27   1.6563133  8.9139324  5.1323547  5.7761566  1.9521099 11.745191  3.4650603
## 28   4.3851825  4.9662043  7.0667027  6.3175302  4.1358878  1.801986  7.9760038
## 29  10.0220597 10.2861168  2.3837734  1.8922744 11.4459245  8.520221  2.4647728
## 30   1.9898656  5.1213056  4.9235723  4.9756073  6.2345990 10.731860  6.4023930
## 31  10.8268738  9.8860815  5.6742290  6.0990090  7.7332045  9.058066  4.2982624
## 32   1.2651368  4.0078862  2.1727435  4.0694874  6.6481519 12.160010  5.3698468
## 33   3.4487028  5.7202237  4.4759928  5.2818058  4.5432917 10.403948  7.5078985
## 34   3.8651963  4.1405742  9.8008687  4.1759477  1.2100771 10.050590  4.2442021
## 35   4.2972501  3.2350684 10.2751931  6.3159303  4.4974846  5.756364  9.0219344
## 36   6.2123223  3.3194734  0.5137939 11.0884250  4.2124293 10.610668  5.2067995
## 37   6.6686269  8.3121192  2.2851950  4.7686660  7.1118910  7.129739  7.9294922
## 38   9.3367388  2.9011276  1.4264795  6.1506795  6.7572727  9.421447  0.3576083
## 39   4.2799541  1.6751836  0.5247658  8.6399748  0.9088129  6.352718  4.7487242
## 40   6.2688068  2.6177921  1.1918784  9.5399668  1.5493242 11.409737  7.0792981
## 41   1.5684700  2.0964305  0.7270927  9.4291713  2.5643050 11.472208  2.9170498
## 42   2.6423550  5.9289838 12.0045432 11.7887693  2.2465297  7.890767  8.4744616
## 43   5.1963907  2.6667566  3.1008263 13.1755500  0.5318680 12.780494  7.4464911
## 44   6.9521250  4.8010086  5.1825056  2.7280076  3.6148158  7.816296  6.3999230
## 45   3.2167187  9.0618596  2.2940472  5.6239927  8.4469782  7.031433  6.9653560
```

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## 46   9.4959995  2.3253864  5.1850300  6.4975964  7.9810769  6.324568  1.2980131
## 47   1.3285493  4.2353901  3.9267585  3.5336132  1.3285493 10.301362  6.6152618
## 48   5.1089049  3.4738518  2.0626744  9.2332654  6.5414823  9.822961  6.2770716
## 49   0.6503050  8.3632718  0.0000000  3.9294975  9.0584664 12.752066  5.2046494
## 50   5.2974996  3.3702340  4.1755725  7.2817149  6.8894954 10.320121  5.9662136
## 51   1.1810389  4.2037571  0.9639180 10.0972728  1.6861643 13.199697  5.4096693
## 52   5.8675456 10.6887529  2.8828778  4.0128815  5.7442580  5.380182  5.3238816
## 53   0.7279640  2.3966527  0.7279640  9.9296153  6.6499861  5.705688  0.9887029
## 54  10.3644089  8.7287277  4.9281666  7.0511393  6.0113011  7.302018  8.8884532
## 55   4.4110398  7.3739770  0.0000000  2.1946544  8.0732649  7.744675  3.6585428
## 56   0.4924172  4.5216224  2.8283269 10.8232254  0.0000000 11.789225  2.2207943
## 57   3.2184557  4.2249278  4.8120361  9.1609804  2.0877683  8.438969  7.8318905
## 58   2.4554127  4.3827157  4.3377111  5.5486709  6.6846210  9.358435  5.0317922
## 59  10.1866648  2.4376272  0.3723950  8.6461396  1.1230040 11.780255  7.5770594
## 60   8.4928446  5.7655798  0.0000000  4.8604365  7.3254935  5.751201  4.8058341
## 61   0.6858953 11.3643093  7.1519390  1.3343967  7.7782046  6.080048 11.2494328
## 62   4.1388145  9.3388246  2.0921736  2.4464415  2.9122091  4.645805  7.5494867
## 63   0.6244285 10.6609187  1.0588014  1.2351143  8.3096828  3.272859  5.5473696
## 64   2.3610384  8.4806961  2.1076544  8.1070638  7.5095090  8.074220  7.2519785
## 65   4.9778935  3.5167716  4.2793227  8.5202667  1.4056657 12.210144  1.5480913
## 66   6.9029274  8.6049320  1.7935214  3.6131426  8.6636367  7.326490  4.1692917
## 67   3.6253757  2.8081791  2.7377733  3.4603101  5.2488650 10.582476  7.1973524
## 68   8.4279447  8.5114767  3.5712885  5.2834885  7.6666387  9.562093  6.3107945
## 69   2.7840223  4.3070860  2.8758980  4.7449791  4.0552824 10.455874  4.9061931
## 70   1.4450380  3.9514852  2.2600257  5.0462597  1.4450380  4.650661  3.1577713
## 71   2.1791607  4.9228591  3.0493345  8.2195979  6.6506310  5.445174  3.1242454
## 72  10.3177786  3.7209132  8.6700238  5.6141709  2.3754287  7.740599  5.6364303
## 73   6.3230566  2.3562847  0.5994130  8.5174296  2.2818466  9.026451  5.9787768
## 74   2.3425832 10.0011986  6.3653198  3.1928727  9.3998549  6.573508  3.9031926
## 75   3.3955838  6.8450923  4.9015379  5.6128390  7.7308342 11.159060  7.5298951
## 76   1.0923428  5.2897164  2.5622058  2.1363555  5.7198132  5.809916  0.8113066
## 77   0.0000000  0.5937840  2.4809113  3.4160425  0.0000000  5.175221 10.7231570
```

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## 78   1.8786861  0.7392433  3.3744553  8.8012680  1.2257068 12.507950  6.3632640
## 79   0.0000000  2.2042033  2.9450458  2.0330882  1.3484591  1.022119 10.9462958
## 80   5.1508968  3.5810861  2.5544906 11.7627771  2.4511188 12.697977  2.5544906
## 81   3.3603783  2.4305797  2.4305797  4.5511038  2.9691229  7.179212  9.6703277
## 82   1.4834160  1.2308793  2.0507455  4.8043685  3.0329119 10.614004  9.3409803
## 83   1.0439744  7.3644919  0.3397075  2.3166961  5.5275927  7.389833  3.3256311
## 84   2.0472592  5.2004651  5.2704505  9.4403163  7.5380446 11.444311  4.3449066
## 85   8.5303728  3.6574457  2.6452175 12.6350128  1.2528395  9.707109  1.8030617
## 86  11.3310647 12.4007750  5.1924625  0.2980717  4.8915601  7.767142  8.3196482
## 87  10.3154871  7.1508683  5.2977197  8.2528154  6.7777406 10.440487  6.5726426
## 88   2.1626612  5.3307341  0.0000000  4.2390772  8.3327563  2.451778  1.5787455
## 89   4.9063375  0.8704239  0.4998841  0.0000000  8.8398028  9.680441  0.0000000
## 90   4.9956518  3.7724558  1.3333665  0.3257318 10.6430675  7.989000  2.0142482
## 91   9.8721790  2.8268840  4.8916185  8.1993607  4.6657054  4.891618  4.9762216
## 92   4.1972757  5.2510108  4.3103183  4.5865426  3.0315716 10.393603  3.4018216
## 93   1.6007455  4.3443953  0.7464848  1.0118534  5.6861391  4.666552  2.8949147
## 94   2.6879789  3.4631908  1.7190958  6.6039987  3.7963901  7.467045  4.3764849
## 95   5.1943984  5.3391766  1.0734090  2.8225262  1.4095810  8.925909  1.6819889
## 96   1.6802343  4.0767985  3.3590010  2.5485846  5.2494871  4.911869  3.0868517
## 97   7.4014103  3.0834006  1.3191555  9.8645268  4.6566394  8.406068  6.2937420
## 98   2.6283303  9.8746776  2.4573579  5.9090002  8.0308823  5.875426  2.4573579
## 99   7.0914650  2.1685458  0.9659874  2.0627780  4.1572701  8.460071  6.3858607
## 100  5.1047224 10.2149268  4.0636755  7.7263728 10.2595552  6.626016  5.6045814
## 101  6.8541752  6.0448203  6.9020205  6.9931977  6.1854999  3.575712  3.3366690
## 102  4.7548875  5.0443941  6.3680699  7.3628205  8.3010388 12.702735  1.1375035
## 103  6.7550611  7.6055995  3.6355919  4.4100493  8.5960928  4.948138  3.4074071
## 104  4.0417161  2.9211507  4.5263130  2.7657469  5.2231561  7.163081  5.6801977
## 105 10.8132453 10.6974309  3.5409696  1.7731946  4.7865441  1.773195  0.0000000
## 106 10.1863042  9.7892386  2.6583029  5.6000229  9.6961020  7.040402  2.0444641
## 107  1.6648924  8.3862604  5.5860381  3.6528306 10.4397455  7.868182  4.4101783
## 108  5.8692249  9.9948751  2.1641426  7.7894645  6.4791626  7.526599  2.7662559
## 109  7.0919864  5.8249078  0.5315686  5.3608418  4.1995860  9.239910  6.6678836
```

```
## 110  2.3196179  5.9513593  5.8130860  5.0704537  6.2639414  5.769759  1.5830376
## 111  3.2092506  5.3341428  5.7961954  5.9147415  6.0030287  6.887352  6.3161494
## 112  7.6142615  3.5643660  5.2663480  4.2725906  5.9004225  8.196767  7.2098179
## 113  1.7708290  1.5900031  2.8940417  4.2851211  5.7461488  6.897418  1.3831651
## 114  3.2708578  7.2070670  3.9673808  4.9825647  4.2707382  6.384207  4.8556609
## 115  4.3797942  2.8085086  6.7615539 10.7076684  2.3795932 10.588935  9.5201940
## 116  5.5946620  4.2190911  1.3961047  4.2441564  4.4520485 10.277530  0.4075159
## 117  8.6553633 10.0347720  9.4393491  2.3678183  6.2461838  2.434668  8.5291225
## 118  6.6662183  4.8000301  0.0000000  4.4337674  5.0103547  7.618406  1.1694120
## 119  3.4049848  3.6608488  3.0346383  2.1459709  5.7847500  6.965992  4.0370835
## 120  0.6156988  9.0524162  1.5176284  2.9855733  7.0555015  9.661108  0.3405053
## 121  3.7747238  7.0536892  1.7073039  4.1872848  3.0443417  7.643226  7.2766390
## 122  1.0320303  6.8309905  3.4266002 10.1805296  8.8147753  8.978130  6.1917719
## 123  2.6676197  8.9851455  0.0000000  5.2792298  5.5668030  7.428959  4.9533258
## 124  2.4832096  2.1266425  3.9435744  6.9003512  1.3394225  7.289966  7.3534503
## 125  3.5865486  2.0012978  9.5784033  1.5861162  5.9181811  7.026304  1.6792436
## 126  6.6456541 11.9646231  3.5292213  3.3617403  7.2115068  5.252442  6.8010759
## 127  3.2533237  9.5791971  4.4348083  1.8030617  8.6233303  2.070698  3.3571156
## 128  9.4077555  3.2247040  4.7653491  7.7240731  7.5664879  5.865097  3.8609628
## 129  2.1225402  3.1646737  2.7804361  2.5926364  1.6307316  2.592636  4.9630949
## 130  1.6181447  2.3616280  7.2210467  4.7143005  0.8701871  3.079139  5.0206000
## 131  1.8066128  1.4773665  0.7771988  1.2795307  4.7766146  8.377423  5.1689228
## 132  3.4608212  9.2010974  5.6861783  5.1091056  0.9034240 11.170941  3.2787133
## 133  4.6634813  4.7917151  6.7986455 10.2739607  3.2686739  4.750221  3.5841568
## 134  3.5642196  2.5392333  4.4630862  7.0623322  6.3400637  6.954499  3.1892711
## 135  6.8227059  4.5049953  2.8307218  4.2036632  4.4044468  8.630420  2.4817639
## 136  2.6159812  5.9373962  3.1202856  5.0094323  8.0252093  6.753328  5.2713846
## 137  2.5612039  8.7420429  3.0622772  7.2168341  6.7891267  8.301157  2.1703738
## 138  5.8582596  1.8445463  3.2687488  8.0151491  1.2867038  5.738884  8.2583851
## 139  6.6219830  2.3748726  1.3192133  4.3742257  2.1008768  9.458416  2.7403232
## 140  1.6318493  6.5831324  2.6909981  3.4693130  5.7408439  1.175940  8.9613950
## 141  1.9328171  2.9715528  0.0000000  6.1008284  0.0000000 12.145803  1.9328171
```

```
## 142  4.4075771  2.8631852  0.0000000  6.0335419  8.8017468  9.914527  5.0325285
## 143  5.0486765  3.6894669  3.0999179  4.6940444  0.7834986  7.759358  2.5080483
## 144  1.2337040  2.2030132  0.5366498  3.1874352  8.3835224 10.976863  3.3870316
## 145  8.4563339  1.4486896  1.9570602  5.0059793  1.5935450 10.012219  2.3321923
## 146  5.1430995  5.4529710  3.0099741  3.0099741  8.3715484  5.468381  2.8308232
## 147  4.0727661 10.3645537  1.3058538  0.4521737  6.6226815  9.650027  6.3764884
## 148  7.4956296  5.7339210  2.5365254  4.9547547  1.4857875  9.902650  2.0004327
## 149  8.0970856  7.9976464  1.0817487  3.6482468  8.8133627 11.023464  2.2393980
## 150  0.0000000  5.5422921  2.2280183  8.4114046  0.9420077 12.330295  9.1844745
## 151  3.2645364  7.5242674  4.7593370  2.1843755  7.0240382  7.697948  5.8637279
## 152  1.1670367  3.7938959 12.6184319 10.1333746  8.3099442  6.048330  6.8424031
## 153  1.7243883  4.0323213 10.8828555  8.9610433  5.8444108  5.472452  5.8918396
## 154  6.1789417  2.6831574  3.1658316 11.1158121  2.9445961 12.348108  7.6326187
## 155  6.5887311  6.0512633  6.8043040  4.6408985  2.6877102  9.939305 11.6163918
## 156  1.8035164  4.2043442  0.5831339  1.5813512  6.7955488 11.116136  2.9022087
##        rs_PAX7 rs_UGT2B15   rs_MMP12   rs_GRB14     rs_FGG rs_C2CD4A   rs_TFPI2
## 1    8.5408096  4.7845563  1.1923204  2.5140970  0.0000000 2.5140970  6.1287264
## 2    0.4448791  6.0911582  3.1016837  0.4448791  0.0000000 8.4190720  3.6913108
## 3    0.7921057  5.5118254  7.5370467  7.8816781  4.0643052 3.1179942  4.2968758
## 4    0.0000000  5.2214363  1.7742494  2.8179097  0.0000000 1.1442422  3.3616140
## 5    0.4815056  4.0049957  3.7314114  2.9514572  0.0000000 3.3380678  5.5037939
## 6    0.0000000  4.6052691  5.1806929  9.5336124  0.6028369 3.8039296  6.2220993
## 7    0.4706150  5.8210494  8.1343473  9.3245971  0.4706150 6.6784508  6.0814696
## 8    0.4304994  0.0000000  8.0738829  7.8178605  0.4304994 0.7617108  4.4956696
## 9    0.0000000  0.0000000  4.4790688  2.0416986  0.0000000 3.1363883  1.0279325
## 10   0.0000000  3.8925950  3.2563616  5.0346735  0.0000000 0.4930324  4.0780291
## 11   0.0000000  0.4164074  1.7406686 10.2852927  0.0000000 6.6634585 11.0232653
## 12   7.6547713  3.7657363  2.7136298  1.6888070  0.0000000 2.7929178  6.0575413
## 13   0.0000000  0.0000000  3.8919635  6.4631549  0.0000000 0.5474498  5.2449517
## 14   0.0000000  3.4664444  1.5900990  8.2057244  0.0000000 6.1161277  4.5721742
## 15   1.6525094  4.3430027  1.8078083  1.2804813  3.4600217 0.7778720  3.3121714
## 16   0.0000000  9.1629444  4.1002544  1.5088850  0.0000000 7.3196252  2.0807600
```

```
## 17   0.5039593  3.5174647  6.1288687  1.8108132  3.5174647 1.9732072  3.0191681
## 18   1.5405729  0.4665488  0.8186052  6.0171380  0.0000000 4.1225485  7.9252702
## 19   0.8949923  5.6354555  2.3252137  2.5536063  0.8949923 8.4676129  8.8651780
## 20   5.4249254  5.2615947  1.1040682  7.4830023  0.6551686 1.9538240 12.7281375
## 21   3.9189300  3.4711614  4.7885343  7.2358477  0.0000000 8.2115442  2.9747312
## 22   0.0000000  0.0000000  8.8332288  7.0796650  0.0000000 6.4779752  8.3412359
## 23  11.3396832  0.9573203  2.2530514 11.5937728  0.0000000 4.3437986  3.6206802
## 24   0.4537546  1.5099998  7.8649277  6.8665408  0.4537546 1.6860298  7.2354887
## 25   1.7035437  3.3716007  2.5450788  0.0000000  0.0000000 5.6625872  7.4034867
## 26   2.4662878  0.0000000  1.2210728  6.7729756  0.0000000 3.6983407  5.8373908
## 27   0.0000000  7.5970186  2.9662274  2.0800095  0.0000000 3.0929347  6.4383677
## 28  11.3641488  1.4103411  5.8526880  0.8710551  0.0000000 3.3390233  6.0370132
## 29   0.0000000  3.4118872  2.3837734  1.6366826  1.4895943 2.2979544  3.6382592
## 30   0.4557546  6.1912488  2.2372884  6.1313425  7.0580567 6.2627921 12.9824164
## 31   0.0000000  2.8791764  7.7519403  3.3972553  3.3417865 3.5021524  3.5021524
## 32   2.6468999  2.1727435  3.1242123  8.8908242  1.0374525 8.0064125  3.7312593
## 33   1.6440408  3.0151942  3.3519251 11.9169042  0.0000000 3.6655861  6.2697831
## 34   0.0000000  1.6731493  2.6447562  4.3093654  0.0000000 7.0905253  6.4757902
## 35   5.6234748  7.5849542  1.8324040  7.7848900  1.3007680 7.6229413  9.1379791
## 36   1.6502131  2.8907191 10.4256340  2.8907191  0.5137939 2.6166165  7.6554971
## 37   0.5165195 10.0936708  3.6579715  2.0047890  0.5165195 3.7063537  4.2539968
## 38   1.9309644  0.8827604  8.2703047  3.0058850 10.2512298 6.4302284  2.0336521
## 39   1.2117598  7.0025990  6.4857939 10.5597049  0.0000000 7.8261944  4.0316951
## 40   1.3816710  0.9733541  7.0375898  5.1700532  0.0000000 3.4535176  5.8459642
## 41   2.7158934  0.0000000  9.8107307 10.3396976  0.9876119 0.7270927  0.0000000
## 42   6.8854523  1.5224073  5.9897657  2.8810968  1.9986649 7.8491924  6.1352332
## 43   0.5318680  0.0000000  3.4340677  6.1129545  0.5318680 4.2689658  3.1008263
## 44   1.6725159  3.8518490  4.0553866  4.9100035  2.6583029 5.6813481  8.7273947
## 45   1.7824924  8.4690031  3.8743248  2.2940472  2.1428382 2.7774723  5.3753036
## 46   0.4485838  5.3617824  3.7829956  2.6102748  0.0000000 6.0104017  6.7724795
## 47   1.1435240  4.2120479  6.0442630  1.8955741  0.3810618 7.0097928  5.0462946
## 48   5.5788512  4.1501128  5.7742600  4.6916961  2.2495364 4.4461702  4.0277026
```

```
## 49   0.6503050  6.6695555  4.7653173  7.0931302 12.1273334 5.6014380 10.3524607
## 50   0.0000000  1.5521311  3.8607344  8.0185557  4.2749325 3.9833129  9.8162727
## 51   0.0000000  0.3971458  6.8621526  6.6645340  0.0000000 1.3697736  6.1630780
## 52   0.0000000  6.7307378  7.8237360  0.3399355  0.0000000 4.0128815  5.7153690
## 53  10.6181980  3.0389629  1.2095158  4.1749816  2.6439024 5.3929081  4.4378070
## 54   2.2934882  3.7836243  5.9042770  3.4030904  1.2744704 1.4718638  7.1299908
## 55   0.0000000  3.0277910  1.7592411  8.9470413  0.3765127 2.6013637 11.0827207
## 56   0.0000000  0.0000000 11.0380333  8.3615442  0.4924172 3.8906802  1.6013162
## 57   2.5098985  4.6345991  2.3142035  9.7187515  0.0000000 1.9596589  5.3223284
## 58   0.9715895  3.7194792  1.9571717  3.4919429  0.0000000 4.5498724  4.1157824
## 59   0.6681191  0.0000000 10.5986554  7.1017394  0.0000000 1.1230040  4.3109145
## 60   6.9094107  2.6145685  2.2557726  5.8489509  1.5300208 3.3074722  5.2460128
## 61   2.0155689  4.6980128  0.0000000  8.1865833  0.3832757 3.7847657  4.2675882
## 62   1.1288873  7.7236282  1.9880848  1.8759373  0.0000000 1.7543317  3.1234344
## 63   0.0000000  1.8906412  3.1896664  0.3457370  0.0000000 0.6244285  3.2318624
## 64   3.9904557  2.5764738  6.9527948 11.4374635  0.0000000 7.0729279  4.6673472
## 65   0.3503841  0.3503841  9.3321030  6.2540138  0.0000000 1.6777112  6.5234098
## 66   0.0000000  5.6534040  0.6304987  0.8656813  3.9818161 3.1615491  1.7935214
## 67   0.0000000  7.5909201  3.3701085  5.4272039  4.4159547 3.9705316 11.5122203
## 68   0.0000000  6.2173878  5.9461460  3.8763991  5.7264389 3.8455101  6.6998570
## 69   0.0000000  5.9202028  3.7006395  6.5591415  0.2944296 4.4633478  9.6052078
## 70   0.0000000  8.8267938  2.9157886  7.2273137  1.0240359 2.7776406 12.2092702
## 71   0.0000000  7.1845183  1.0723116  5.0909974  0.0000000 5.5233549  4.5812187
## 72   0.0000000  2.1464271  3.5438175  1.7158055  0.0000000 1.3352546  5.5334419
## 73   0.0000000  0.0000000  8.6001802  5.9369370  0.0000000 1.7302269  7.0169074
## 74   0.0000000  3.6921482  3.9849721  1.7341785  0.0000000 0.3683772  0.9050428
## 75   0.3978030  7.6164614  3.9038385  5.5555616  6.6491139 4.3923174 11.2202344
## 76   1.0923428  5.5207334  7.3874211  9.5618382  2.8152270 4.5165762  2.6515684
## 77   0.0000000  2.0197019  5.3109399  7.2158514  2.9296206 1.3377111  6.6698021
## 78   0.4165155  0.4165155  2.3265661  5.9364259  0.0000000 3.1206008  2.7418768
## 79   0.0000000  0.0000000  3.2873098  3.4321310  2.2042033 0.0000000  6.3832585
## 80   0.0000000  0.4918018  4.5942081  6.8060237  0.4918018 3.3705688  6.0619231
```

```
## 81   0.0000000  3.4273380  1.7821989  7.3224221  0.0000000 2.6705911  9.0294620
## 82   0.0000000  5.7180602  1.2308793  7.4604436  2.1992169 0.0000000  8.0597690
## 83   0.8451086  3.4359086  0.8451086  4.2914857  0.0000000 6.7403852  5.7573593
## 84   6.9569581  3.3417581  4.8018312  5.6312207  0.0000000 5.2801769  8.2361204
## 85   0.0000000  0.0000000  6.2046181  3.2170446  1.0748479 1.5540485  6.4434475
## 86   0.0000000  5.9389632  0.7556567  4.9462723  0.0000000 0.5448810  0.2980717
## 87   0.0000000  6.6218819  3.1044709  4.2106149  0.0000000 0.0000000  4.4031723
## 88   2.1626612  7.7489194  1.3163196  3.4509341  0.0000000 0.0000000  0.9953036
## 89   0.0000000  5.6158312  5.3922487  4.6919417  0.0000000 0.4998841  7.0474130
## 90   0.0000000  3.6023619  6.7261487 13.7992002  2.6007931 3.2649117 11.5987505
## 91   1.2834477  6.0263729  9.1648195  7.8904795  2.6731720 5.5732442  3.5987344
## 92   0.3774014  7.5878720  6.7151658 11.6085831  0.0000000 3.6280270  8.9151576
## 93   0.0000000  4.1377576  3.9289672  6.9343337  0.0000000 0.0000000  4.5669491
## 94   2.1500397 10.5163011  2.1500397  9.0843667  0.0000000 5.4398525  6.1005951
## 95   4.9327132  5.9863381  6.5078898  5.4064618  0.0000000 5.9988499 10.8923821
## 96   1.4667054  3.7384436  7.4563331  2.4355486  0.0000000 6.1066142  2.0309716
## 97   0.0000000  0.0000000 10.2981476  8.9382079  0.0000000 1.3191555  6.3209792
## 98   1.0261627  8.1532500  2.2633349  2.0391033  0.0000000 1.7734900  2.1555550
## 99   2.0627780  4.5190009  3.7434827  5.4973760  0.0000000 4.3037442  5.8471526
## 100  0.0000000  3.5004834  5.7565350  0.9873936  0.0000000 0.9873936  3.8832982
## 101  1.2018847  6.7979611  3.2604171  2.6918914  0.0000000 9.4089742  3.0039800
## 102  0.4854268  0.0000000  0.0000000 11.1938949  0.0000000 0.4854268  0.0000000
## 103  0.0000000  6.3305674  4.3743649  2.2130050  0.0000000 2.4371212  0.6035967
## 104  1.3487423  0.0000000  1.8902910  7.6112292  0.0000000 0.8265993  1.1111649
## 105  0.0000000  2.2835959  5.7982787  1.7731946  0.0000000 6.2425815  1.2933116
## 106  0.0000000  3.2855058  3.3310172  4.0553866  0.0000000 0.0000000  2.3399355
## 107  1.0603241  5.0213820  3.5226333  3.3795101  0.0000000 6.4447946  2.0895998
## 108  1.8525982  5.2087162  2.7033665  7.8793241  0.9034240 1.1114988  7.1050735
## 109  0.0000000  0.0000000  8.0386145  3.9312576  4.1995860 2.0420840  7.9761769
## 110  2.7345254  7.2323528  5.4675012  1.2207633  0.4143521 4.8045751  2.9974731
## 111  7.9678920  1.1820566  2.0609466  5.2403907  0.0000000 7.4938659  4.9309786
## 112  0.0000000  2.1151331  2.5845777  2.8575830  0.0000000 2.3688801  3.4033086
```

```
## 113  0.0000000  5.2628278  6.7543023  5.3789000  3.6622739 5.7243692  4.1609041
## 114  0.4144603  9.6498480  4.2953998  3.8390627  0.0000000 3.7347421  4.0566355
## 115  8.0413563  4.2029035  6.6878334  0.6786128  0.0000000 3.8887822  2.6791986
## 116  0.0000000  2.1985256  8.3619552  2.5596386  2.0921059 7.5621630  5.2433606
## 117  0.5749250  9.9854570  1.1531568  3.4318770  0.0000000 0.3159140  2.6184266
## 118  9.6537358  4.8000301  8.7103374  6.3165223  0.0000000 8.7464545  3.6856711
## 119  0.4250295  3.9755752  4.5189002 10.0549003  5.6136142 5.9537588 12.0418596
## 120  0.0000000  7.5656596  0.3405053  0.0000000  0.0000000 2.3197624  3.2505675
## 121  0.0000000  2.6864333  3.5136676  2.6864333  0.0000000 2.7845668  8.9336694
## 122  0.0000000  2.9293555  2.7910013  8.8695180  1.2589410 8.1488406  4.4060944
## 123  0.0000000  6.0744005  4.9698504  2.9600483  1.4774701 3.9665874  9.6155173
## 124  0.0000000  3.0072134  2.0217995  6.0285515  0.0000000 7.2899663  3.6934981
## 125  2.4868431  3.7457644  7.0151809 11.4765530  0.0000000 6.7076932  1.5861162
## 126  0.0000000  3.1722155  0.8825257  7.8874668  0.0000000 0.0000000  2.8732423
## 127  0.0000000  0.0000000  1.4742024  1.4742024  2.8878567 3.5446708  8.1610391
## 128  0.6559929  6.2340280  4.7187945  5.1632048  1.5922059 7.0967278  2.4869717
## 129  0.0000000  8.3034050  0.8786861  2.2551986  0.0000000 0.0000000  5.9593621
## 130  0.0000000  3.3372687  0.8701871  3.5561473  0.0000000 3.8738526  5.2575953
## 131  0.4403144  1.2795307  8.0696699  0.7771988  0.0000000 0.4403144  3.6755111
## 132  3.3420142  5.4335871  5.0344314  7.2232159  0.0000000 4.6148983  7.9247911
## 133  0.0000000  3.2086733  6.5249350  1.7466137  5.6232845 6.2699308  5.9599672
## 134  6.2171241  7.9131054  4.4432751  9.5889735  2.2046416 0.9278206  6.2686908
## 135  3.1616620  5.1265847  5.1139047  5.3156387  1.1524430 5.3806013  5.1011080
## 136  0.0000000  3.5988297  7.7637555  3.8332443  4.4839254 2.8900575  2.6159812
## 137  0.4330663  7.9974719  6.7284920  3.6501442  0.4330663 5.3545932  6.4040090
## 138  0.0000000  0.6561760  0.3650206  4.9381634  0.0000000 0.3650206  3.3524619
## 139  3.4019171  6.7716440  9.3600778  6.7834422  6.0551805 4.8928913  6.8258950
## 140  4.6875702  6.6984227  5.1294891  5.7064615  0.0000000 0.0000000  3.8088278
## 141  0.0000000  3.2409401  4.6058143  5.5263380  0.0000000 5.9772066  3.0437644
## 142  1.6285870  3.3804940  5.8625307  6.0024933  8.3283841 8.2346345  6.0258438
## 143  0.4443490  0.4443490 10.0932001  9.2105998  1.8174595 3.9473015  8.4094486
## 144  8.4388912  0.0000000  8.5119345  1.4865599  8.4722189 2.2030132  6.2862232
```

```
## 145  0.0000000  0.0000000 10.5250025  7.7299612  0.0000000 1.7251304  5.3999333
## 146  5.0843067  6.0830453  6.2349228  2.7321389  0.0000000 4.9146937  3.2428464
## 147  0.4521737  2.1086248  1.3058538  5.3618210  0.0000000 0.0000000  5.1686541
## 148  0.0000000  2.6785677  5.9313048  7.2332343  0.6782522 1.1378314  2.3789832
## 149  1.5165195  1.5165195  0.0000000  3.0779095  0.0000000 1.3154503  1.8501593
## 150  0.0000000  0.0000000  3.4158938  7.4969792  0.0000000 2.3633393  1.2521128
## 151  1.5973643  6.0626722  1.5973643  5.8255821  0.3256167 1.5973643  4.4606508
## 152  8.8984200  0.0000000  0.5010060  1.8036404  0.0000000 1.4117516  3.5600057
## 153  6.3031323  3.1178945  2.8369340 10.7225669  0.0000000 5.0557683  0.4689482
## 154  7.2618326  2.7530910  6.4968809  4.8294538  0.9685700 0.3994446  4.3545721
## 155  1.0625362  0.6269530  5.1300330  6.5928038  0.3472121 1.2392147  2.8047144
## 156  5.3522854  0.0000000  5.8650577  4.5494166  1.8035164 3.3170725  3.6388848
##      rs_ZBTB16    rs_ART3   rs_NPY5R   rs_DCDC2  rs_PCSK1N rs_UGT2B28
## 1    8.9966156  0.5144000  0.8928184  2.4016305  3.7920328  1.1923204
## 2    6.6536061  0.4448791  0.4448791  6.9559753  3.8442450  1.9594734
## 3    8.5345819  0.4497462  4.9709089  9.5375504  3.2347159  0.7921057
## 4    5.3267027  0.4889263  4.3762904  8.4446882  0.4889263  1.3860936
## 5    5.0993162  1.3700527  3.4983913  7.5288893  2.7955384  1.1300083
## 6    2.7453234  8.7091910  5.5435949  3.2170446  6.6817275  1.8453495
## 7    4.7253649  6.2949221  0.4706150  6.1425993  3.1231861  0.0000000
## 8    2.9273276  7.3552648  2.0460020  3.0733404  4.9976718  0.0000000
## 9    0.0000000  8.7539030  7.6586764  3.3718237 11.0000135  0.0000000
## 10   4.0428019  0.4930324  2.2224027  0.0000000  1.1519887  0.0000000
## 11   4.4644918  0.7390704  4.6295781  4.3742744  2.5893800  1.4183519
## 12   5.5070779  2.5406225  0.4548076  1.0785415  2.5406225  0.4548076
## 13   1.7257848 11.4555484  0.0000000  2.4893374  5.0171826  0.0000000
## 14   7.3563956  0.7400209  2.3280897  6.3786001  3.0656929  2.3280897
## 15   2.4026130  0.4407396  9.3312401  2.5854914  0.0000000  1.9480027
## 16   5.5160877  0.0000000  2.9858647  3.0675527  6.4324834  6.1619784
## 17   4.9393347  0.5039593  0.8766446  8.0946029  6.2684157  0.8766446
## 18   3.9550710  0.0000000 10.7609276  7.3210640  6.7434530  0.0000000
## 19   5.0103994  7.9288955  1.7190520  6.9943421  4.2299493  1.1017173
```

```
## 20   0.8970080  0.0000000  0.3644604  4.3974402  0.6551686  1.7221162
## 21   2.8986921  1.1445685  0.0000000  0.8537562  1.1445685  1.9354975
## 22   0.0000000  5.0318054  0.4976379  4.1818897  7.1649481  0.0000000
## 23   0.0000000  0.5566992  0.5566992  2.7334411  0.5566992  0.0000000
## 24   5.7608836  6.4692234  5.8923813  3.9804549  2.9360443  0.0000000
## 25   6.6059239  0.0000000  0.0000000  7.0573864  0.9762170  0.9762170
## 26   4.7598056  0.6158871  1.6461627  4.5381843  0.3405053  1.7639214
## 27   8.3115871  1.2837440  2.5901229  2.0800095  0.4422269  0.4422269
## 28   1.1657512  3.5062338  0.0000000  2.2420232  1.8019864  0.5002922
## 29   3.4521737  0.0000000  6.0464278 10.9619518  1.4895943  1.7701525
## 30  10.4113253  1.0803166  4.8511444  9.5066735  3.5112403  1.0803166
## 31   4.7022087  1.1322478  8.7445866  2.6241711  0.4826418  0.0000000
## 32   5.5208088  0.4339209  8.5386825  9.5881294  0.7670615  1.0374525
## 33   8.9235976  2.1834230  9.4304178  6.9240904  1.0445340  5.7865362
## 34   8.6899857  0.9074291  2.9197977  6.2757502  3.8651963  3.2201287
## 35   6.3933287  0.0000000  0.0000000  1.6759965  0.4498519  6.0311768
## 36   4.2453435  6.1088192  1.4388251  7.3328708  7.2315937  0.5137939
## 37   3.9265498  0.8960781  1.1962293  4.8135298  7.2650955  5.1988752
## 38   0.6439485  0.6439485  0.0000000  6.1910671  5.6744889  0.0000000
## 39   3.7316612  4.7950552  1.8609231  1.2117598  0.5247658  0.5247658
## 40   3.5357171  9.5461770  2.9530231  9.1577446  1.8355199  1.5493242
## 41   0.7270927  6.8457572  5.2734972  4.2274561  9.0232592  0.4088205
## 42   2.8810968  7.2859404  1.0865120  1.8567069  0.8066128  7.1441616
## 43   0.9196833  4.5690900  4.3965979  4.0142035  9.2011582  0.0000000
## 44   6.5373302  0.7004397  3.3310172  5.5311007  8.8020229  0.0000000
## 45   2.5559143  1.3010608  3.7225862  6.9672147  2.7774723  0.0000000
## 46   5.6082090  2.2163928  1.4975868  7.9361291  3.6213603  0.0000000
## 47   6.6719642  2.2102642  1.7733212  6.8745044  2.8167840  0.0000000
## 48   4.0779180  0.9004128  1.2894804  7.1284099  6.1301113  2.4149744
## 49   4.3275005  0.3614315  5.9191088  5.2929032  1.0969365  0.0000000
## 50   4.4338675  1.1942762  2.4618428  8.8171717  2.0775506  0.7173858
## 51   0.7081431  1.1810389  2.7448930  2.9768402  5.0165320  0.0000000
```

```
## 52   1.5158638  0.0000000  6.8878701  8.4966085  1.0445340  3.0770550
## 53   3.2527184  0.4093638  0.0000000  2.9189205  0.4093638  0.9887029
## 54   5.2574105  1.4718638  0.7735744  2.7390488  1.2744704  0.0000000
## 55   4.4704588  1.1326426  1.3166092  8.9790779  1.6262522  2.9182526
## 56   0.0000000  9.5238569  0.0000000  4.5323170  3.2545185  0.0000000
## 57   8.9368829  2.7611576  3.9152627  6.7847644  1.4885664  1.8190550
## 58   7.6571319  3.7194792  1.1898562  8.0622604  3.9462630  1.1898562
## 59   0.6681191 10.5419338  3.6758046  4.6008228  8.2198868  0.0000000
## 60   4.7918557  0.0000000  1.2317396  8.1512353  0.0000000  0.0000000
## 61   5.0557380  0.6858953  2.9999820  4.7478868  0.9358369  0.0000000
## 62   8.3443474  0.0000000  2.9122091  6.4632611  0.3748447  2.2801546
## 63   3.2728593  0.3457370  1.6628435  7.4975884  1.0588014  0.0000000
## 64   6.9087649  0.4994760  3.2762733  2.1076544  1.6176276  1.4086575
## 65   1.2476238  3.3710570  0.3503841  5.0554343  4.0107082  0.0000000
## 66   3.7950500  0.0000000  4.8557306  1.4029404  0.0000000  0.0000000
## 67   5.6733699  2.6637772  4.8253582 10.7764895  4.8589110  0.0000000
## 68   6.4196400  1.1662013  6.9954608  7.7405768  3.0815442  0.0000000
## 69   6.5556735  1.8942939  7.7127760  7.0715932  3.5691994  2.5249162
## 70   0.7562547  0.0000000  0.7562547  6.7441046  1.4450380  1.0240359
## 71   2.7515708  0.2875905  1.0723116  6.8698369  3.5883009  1.3470420
## 72   7.6775921  1.3352546  0.8168864  4.6218468  1.0992279  0.0000000
## 73   5.5576061  7.2199565  3.2477149  1.9804641  5.3905198  0.0000000
## 74   6.2432273  1.1133671  5.6059150 11.4348077  1.1133671  1.2953116
## 75   8.6267520  2.2658869  4.0766446  9.6759290  4.7734267  4.2551381
## 76   1.7068178  0.8113066  0.0000000  7.4779468  1.0923428  0.0000000
## 77  10.6335188  1.8261112  7.8778418  1.8261112  0.5937840  0.0000000
## 78   1.0028825  7.8344224  2.5072619  5.9581003  8.3515396  0.0000000
## 79   8.9567429  2.0330882  6.0090358  1.0221192  0.5997939  0.0000000
## 80   0.0000000  7.5751792  3.5312692  2.5544906  8.5068038  0.0000000
## 81   8.6318519  2.7771146  7.7753831  8.0186859  3.2901590  1.3008266
## 82   9.6524361  1.8852620  7.2467463  6.6931273  2.8652260  0.0000000
## 83   3.8879249  0.0000000  1.0439744  3.5050144  1.7609448  4.2717992
```

```
## 84   2.5108860  2.0472592  6.6693571  6.3702201  1.9531162  0.3346827
## 85   2.1108643  1.2528395  0.0000000  5.5756633  2.9333838  0.0000000
## 86   7.9787791  0.7556567  4.2575840  9.1027870  5.8783502  0.9395275
## 87   7.1407684  0.9937830  5.4141051  8.8081295  2.3119681  0.0000000
## 88   1.8007032  1.5787455  0.5818815  1.9929859  0.5818815  0.0000000
## 89   3.5050017  4.9649022  0.0000000 11.9966162  5.3042664  0.0000000
## 90   2.2629142  0.3257318  0.3257318  7.7230766  0.3257318  2.4749811
## 91   3.0305127  0.0000000  0.0000000  7.5117993  3.8703647  2.8268840
## 92   2.6741894  0.3774014  1.1350094  8.3956391  0.9237957  0.6763577
## 93   4.2447729  0.4209405  1.8916914  7.1088036  1.0118534  0.7464848
## 94   5.7005202  1.5877010  2.5536308  2.8686275  3.0291525  6.1995310
## 95   7.5347262  2.4376272  0.6343145  9.3294039  0.3517414  0.0000000
## 96   0.9121900  0.5270703  0.0000000  7.7552521  3.3590010  1.2159270
## 97   0.3774014 10.6561917  6.0089238  2.2891262  4.1735672  0.0000000
## 98   2.2633349  0.7579620  0.4281424  7.5699444  0.7579620  0.0000000
## 99   1.9486382  0.3981314  0.0000000  7.1601649  1.8246864  1.8246864
## 100  5.6756409  0.0000000  7.8045454  6.9230505  5.9409020  0.0000000
## 101  2.4386388  0.3335382  0.0000000  5.2153214  0.3335382  3.1798932
## 102  3.1043367  0.0000000  4.8579810  6.7806251  9.3650101  0.0000000
## 103  4.0962534  0.0000000  5.0191948  9.5263545  0.0000000  6.4933095
## 104  2.2831217  5.3921079  0.0000000  1.3487423  0.8265993  2.5915837
## 105  6.0187566  0.7869309  9.0167724  6.3338513  0.3124328  1.2933116
## 106  4.4347350  0.3923174  4.5925647  5.6210643  6.1242330  0.0000000
## 107  7.2467539  0.4455148  1.4901080  0.7854250  3.7335387  2.6841904
## 108  1.7317915  1.4547023  0.9034240  7.8331494  3.1897929  0.0000000
## 109  4.4553404  1.6903724  2.1902672  5.4971429  0.9191494  0.0000000
## 110  0.9985566  0.0000000  0.4143521  6.1670829  7.5154586  9.5732906
## 111  2.1666512  0.3975839  0.3975839  2.4440309  6.0794720  1.3708896
## 112  5.2347772  0.8742855  3.7983202  8.7001779  3.7983202  0.0000000
## 113  0.0000000  0.0000000  0.0000000  6.8065419  0.4875892  1.5900031
## 114  4.3669446  1.4135399  9.1972740  3.5003049  5.5212110  0.7360420
## 115  5.0102920  6.4899748  0.0000000  0.6786128  6.8766225  5.3867454
```

```
## 116  4.1676229  5.2922443  0.0000000  7.2078997  1.5647196  0.0000000
## 117  6.0942255  0.0000000  0.5749250  2.2977197  6.9443220  3.9488905
## 118  0.7000845  2.0436945  0.0000000  2.4255399  1.8066953  6.9692115
## 119  6.3058028  0.0000000  1.4398890  5.0532678  0.0000000  1.4398890
## 120  0.3405053  0.0000000  0.0000000  9.1042627  0.6156988  0.6156988
## 121  4.7456084  0.5391340  2.2093910  9.5580730  2.8764678  1.8947596
## 122  5.0155689  2.9938736  5.1908874  8.2887452  4.7614289  0.0000000
## 123  3.2030758  0.0000000  1.8066953  8.2372845  2.4013574  1.4774701
## 124  3.2586094  3.0072134  0.0000000  1.7860526  3.4726177  4.7059503
## 125  1.0008654  0.8487982  0.0000000  6.4712086  0.4859420  1.4865599
## 126  2.4956696  0.0000000  0.0000000  4.6463355  0.5077185  0.0000000
## 127  0.0000000  0.0000000  0.0000000  5.4605362  0.0000000  0.0000000
## 128  2.0588706  1.2865263  0.6559929  4.5159143  5.3169748  0.0000000
## 129  4.1852798  1.8139351  0.0000000  0.0000000  0.0000000  4.0457313
## 130  8.8022265  0.0000000  0.4997821  0.8701871  3.0066930 10.2295728
## 131  8.1570422  0.7771988  0.0000000  8.7808120  0.7771988  0.0000000
## 132  7.5151676  1.2052048  1.8525982  8.0099573  2.1641426  0.0000000
## 133  2.7843574  1.5671073  0.4777809  3.5841568  6.4097371  1.5671073
## 134  2.9293176  1.1396005  0.9278206  8.4409825  2.2046416  0.6795139
## 135  6.7951708  0.6883147  0.0000000  4.2177115  0.9390008  2.3144935
## 136  5.0840685  1.4383461  1.9973647  8.2814845  5.0472330  0.0000000
## 137  1.9264170  0.7657893  0.7657893  4.5489914  6.8690867  0.0000000
## 138  0.3650206 11.5897437  7.5469431  1.4476321  8.0119339  0.0000000
## 139  2.9220836  1.6292400  2.8640177  3.7301726  0.3775125  0.0000000
## 140  1.1759397  0.8793921  0.5056877  5.8180222  0.8793921  4.5903505
## 141  1.7720968  6.5232844  4.3733837  7.5841936  0.0000000  1.1425441
## 142  1.7827021  7.4337799  0.4315695  6.5175040  6.7033319  0.0000000
## 143  1.2884176  4.0451022  0.4443490  9.3740179  5.9944349  0.0000000
## 144  5.3451338  0.0000000  0.9268344  4.3068819  6.1092205  1.2337040
## 145  0.8990209  3.5081244  1.7251304  5.7572180  7.6348219  0.0000000
## 146  4.0463252  0.9565771  0.9565771  1.2696915  7.7795263  0.0000000
## 147  2.8594727  0.0000000  9.6480431  8.1062981  0.0000000  0.0000000
```

```
## 148  1.4857875  4.0005409  4.4987998  4.2021826  0.6782522  1.1378314
## 149  5.9723411  0.4564908  9.4504145  0.8027309  2.9447648  0.0000000
## 150  3.2158494  5.0144446  7.0821512  6.5788934  4.2451990  0.0000000
## 151  4.8123082  1.1802752  2.0139267  8.3626965  1.4712915  8.7215514
## 152  1.1670367  0.5010060  1.1670367  0.0000000  0.8720801  0.0000000
## 153  5.1524065  0.0000000  0.0000000  2.5832302  2.4876664  7.7983325
## 154  2.8835426  5.0948188  5.2235616  6.8476099  8.2112790  0.0000000
## 155  6.8695519  0.0000000  0.3472121  2.4922378  2.2660369  2.1820248
## 156  4.4211156  0.9973285  0.0000000  3.0827026  3.4545181  0.5831339
##     rs_ONECUT2     rs_DCX   rs_RGS22    rs_GJB1 rs_C1orf173   rs_RBM24
## 1    3.0501360  8.0281326  4.4588938  5.9200098   5.2419431 10.4689318
## 2    2.2052361  2.2052361  8.3991463  3.2731727   0.7843365  2.5983890
## 3    4.1559678  3.0558898  4.2139927  3.5370599   2.6138145  8.3910506
## 4    2.2112926  1.9350825  8.1071396  2.4429966   3.6201172  7.3359691
## 5    2.5246655  0.4815056  5.2571049  5.7678269   8.2445917  8.4546756
## 6    3.2170446  6.1606661  1.6204457  3.1342374   1.8453495  4.2980864
## 7    6.4365467  7.9951781  2.4925711  3.6518668   2.7623063  4.2574406
## 8    4.1163315 10.6355786  0.7617108  3.2242873   1.6259250  1.9191112
## 9    5.7822251  1.0279325  0.0000000  5.5135255   0.0000000  1.8470749
## 10   0.4930324  1.6026944  7.8554721  1.1519887   1.7842946  8.5254750
## 11   3.9118354  4.7599920 10.5130906  1.8783330   5.2656882  7.9594746
## 12   8.3423992  3.7657363  5.9578310  0.8001648   3.0726032  8.2329087
## 13   0.9433588  2.8073137  0.9433588  0.9433588   0.9433588  6.3856416
## 14   1.5900990  2.6694577  8.1557406  5.7172268   4.1502347  6.6847725
## 15   0.4407396  1.8078083  8.0501011  6.4740531   7.2760993  6.9490061
## 16   0.9432837  0.0000000  7.7459055  3.4792694   6.1526519  9.0976079
## 17   0.8766446  3.3501153  2.2517191  0.5039593   1.6277469  7.3017029
## 18   2.9768952  1.5405729  2.9768952  5.0308437   9.0347500 12.0660053
## 19   2.1500072  5.1332676  8.6474307  5.3413027   5.4493171  3.5001647
## 20   5.9117850  7.3747456  2.4089835  0.0000000   5.5803204  4.0954434
## 21   5.3701364  0.8537562  3.0469625  9.7787489   0.0000000  2.2117287
## 22   0.0000000  3.8670464  0.4976379  0.0000000   1.1606621  3.1416617
```

```
## 23  10.6832750  6.0439438  1.2705887  6.0336102   0.0000000  7.3019360
## 24   4.5574530  3.1908677  1.3094673  0.7984238   2.2314939  5.4184194
## 25   0.0000000  2.9580817  9.6126468  3.8621340   6.5524124  2.8969499
## 26   1.6461627  6.5736699  2.2410775  2.5341612   6.4863974 12.1335875
## 27   1.2837440  2.8273313  4.5822850  3.5111770   4.4464812 10.5291238
## 28   6.5586381  3.1498447  4.4413108  1.8019864   1.6194130  7.4655770
## 29   2.6835617  4.0329119  9.4131322  3.5666812   7.4226375  7.2448728
## 30   5.4130727  6.5121605  3.3097728  6.3175790   7.9949745  7.1210164
## 31   1.7587296  0.0000000  4.8879103  2.1940871   4.9996348 11.1982173
## 32   0.0000000  1.0374525  2.8710156  1.6347327   6.9722492  5.0867201
## 33   1.9388127  4.8747281  5.8140479  5.0391823   8.8678060  6.6667878
## 34   5.1884049  1.8587767  5.7542782  4.1759477   6.5450695  7.8833386
## 35   9.0300350  1.6759965  2.8520588  4.6098436   2.3290949  2.9913359
## 36   2.8907191  6.8211183  1.8345494  4.9909004   4.6412397  3.3800090
## 37   3.3276874  3.6079102  5.8535741 10.1284860   3.0562540  3.1290522
## 38   5.4328358  0.0000000  6.4065044  5.8252565   3.5120246  3.0058850
## 39   6.9369594  1.6751836  3.0035303  7.8483356   6.6957447  1.4620000
## 40   4.8549083  3.0679828  6.1433383  1.6995072   2.3714752  4.7382490
## 41   7.8518028  0.9876119  0.4088205  1.7196216   0.7270927  0.9876119
## 42   1.6991962  0.4589069  1.9986649  8.5728150   1.9986649  2.5531147
## 43   2.9425145  4.2006456  3.5484366  3.3733002   0.9196833  3.9323069
## 44   7.3642467  3.5392581  6.5470056  2.3399355   2.3399355  7.6712106
## 45   5.0746296  4.3929905  7.9792371  4.4901786   4.9661859  6.2784067
## 46   0.7903550  3.2309408  9.4425531  5.0955236   5.9350000  3.1737831
## 47   5.1725875  0.6822137  7.4321660  1.1435240   2.6180272  4.4894851
## 48   2.2495364  4.2844993  2.6321984  5.7894111   2.9878484  3.8367422
## 49   0.6503050  0.3614315  9.8362948  4.2213976   6.2672567  9.5695270
## 50   3.7952994  2.0775506  4.8590552  0.4028313   7.3488149  8.0833788
## 51   6.6690339  3.0509718  1.1810389  1.9454953   0.3971458  3.2562710
## 52   1.0445340  1.7617533  6.0750769  0.8455904   7.6225497  8.9408589
## 53   8.3142855  4.3004093  4.4378070  7.1170498   0.0000000  3.8533670
## 54   2.5769332  0.0000000  6.6020218  3.4506834   5.5582584  8.1520769
```

```
## 55   2.4521473  3.6922152  7.2994782  4.8443907   9.9512387 10.7899647
## 56   4.2089776  0.0000000  0.0000000  1.1508846   0.0000000  1.3935809
## 57   2.7611576  6.7146508  4.5028907  8.3586930   3.2184557  6.1439280
## 58   3.0085048  5.6896514  4.7859533  3.8210673   5.8098594  8.0214198
## 59   7.9112200  3.4220177  1.4683226  1.3059705   4.0280298  6.0137191
## 60   0.6223682  2.6145685  5.8888991  6.5880550   2.3350258  8.6376247
## 61   8.2340208  9.6687152  5.9368782  1.6463470   8.1390908  9.7672332
## 62   8.4337169  1.6215244  4.1388145  1.6215244   3.6176629  3.5090624
## 63   5.3885650  1.6628435  7.2566267  4.6022252   1.0588014  8.5703161
## 64   1.6176276  5.0562107  7.1920097  5.6506095   8.4621980  9.0792861
## 65   6.4840785  5.5768909  1.5480913  0.6320820   1.2476238  3.4816993
## 66   6.9516554  1.2450697  2.7560412  3.0224921   7.6277505  8.3157972
## 67   2.2231445  7.5426991  3.5858399  6.0233152   6.1973465  6.6591639
## 68   1.6678467  3.2324152  7.1954667  2.7886857   6.8744675 10.1032153
## 69   1.3702201  4.4780787  4.9278206  2.6858953   5.0804487  8.3900210
## 70   2.7032558  0.4270698  6.2303049  0.4270698   1.9093507  7.6961517
## 71   5.8500693  2.6538167  6.8759459  0.9124199   1.2161755  8.7613883
## 72   4.0869451  1.0992279  5.7530750  4.7078174   1.7158055  8.2193123
## 73   6.4517221  0.8258670  4.2303414  0.0000000   2.4270966  4.1489016
## 74   6.1517553  0.9050428  8.5543099  0.0000000   4.5482332 11.5264050
## 75   2.4447731  5.4442596  5.3236439  6.2762715   7.3108654  6.1847960
## 76   8.8721864  3.4345882  6.8356487  0.0000000   6.8116162  9.8197427
## 77   3.1106138  3.8823985  8.3184438  1.6025044   2.7226409  5.6839013
## 78   3.3744553  5.0056021  2.0043216  1.8786861   0.7392433  3.0050586
## 79   1.0221192  2.0330882  8.3175989  0.0000000   2.0330882  4.8237290
## 80   4.3857416  2.3397645  0.8579014  0.4918018   0.8579014  3.0551783
## 81   2.4305797  5.8959763  7.6756297  5.2323691   5.5200010  6.1047120
## 82   2.6754546  5.6679716  6.6013013  5.7783164   4.6580915  5.3403842
## 83   3.0760460  2.2377167  8.0360708  6.5815079   4.1258742  5.6995766
## 84   5.6312207  1.3598585  8.7198221  4.8548584   6.7130964  5.2994352
## 85   2.4398890  9.0237602  3.0342685  1.0748479   0.6353365  4.2037806
## 86   2.2238550  0.0000000  4.8112963  1.9938555   0.5448810  9.5351513
```

```
## 87   0.0000000  1.2153058  5.2732734  2.9891208   5.8704066 10.4033014
## 88   8.6291121  0.9953036  5.0994509  4.3486644   1.8007032  2.1626612
## 89   5.5662550  0.0000000  4.3838978  9.2628325   5.1275507  1.9630672
## 90   4.9490866  2.2629142 10.4832465 10.6128152   6.9903627  1.8209346
## 91   1.0535979  0.0000000  4.5154854  3.9053028   0.0000000  2.5011079
## 92   8.0517750  0.3774014  3.6961830  3.5927082   0.6763577  4.3741214
## 93   6.2131392  0.0000000  4.6275368  3.0797194   7.5729753 11.3464942
## 94   0.3634515  3.6058262  4.3155083  3.8546939   5.8224089  4.8901208
## 95   4.4583164  4.2438214  5.0812928  2.2825288   2.7650891  7.2792428
## 96   6.4354169  0.0000000  3.2293264  5.0334010   0.0000000  4.6329719
## 97   5.4116635  0.0000000  4.0999937  4.8927844   1.3191555  3.7612640
## 98   2.0391033  1.9123816  6.6008168  3.8207508   1.7734900  6.7332255
## 99   8.0081770  2.5277710  4.6707101  4.1049405   1.6890755  5.7482680
## 100  0.5765705  3.6206099  6.9635967  4.7305421   3.1474695 10.8831166
## 101  9.3012881  0.3335382  0.6042611  6.6563534   1.6232114  1.4959509
## 102  3.0356239  4.3923174  3.9448584  1.7655347   6.8404632 10.4481163
## 103  0.3330802  0.0000000  5.2921118  2.9547919   5.8223325  6.1204224
## 104  6.7617148  0.8265993  2.2831217  7.7184329   0.4716557  5.3101038
## 105  6.5449011  1.2933116  1.6673472  0.0000000   5.9010962  8.8185493
## 106  1.6725159  0.9542708  5.2901295  2.6583029   7.0022232 10.1234258
## 107  0.0000000  0.4455148  7.9100173  8.8091691   6.3065503  8.8207591
## 108  2.4963856  2.5687375  7.7780666  6.7903081   9.3361475  5.9391208
## 109  3.4913529  1.8769196  4.4553404  2.7636878   1.4760706  3.0228472
## 110  8.2355318  1.9978343  5.8384703  8.4849654   0.9985566  3.8717845
## 111 10.0725680  6.7409883  1.1820566  8.3869674   2.7464633  2.4440309
## 112  2.1151331  5.7961383  6.9576221  1.9693071   4.9730234  8.4359152
## 113  0.0000000  0.4875892  5.5119771  6.1075498   3.1766100  3.7935734
## 114  8.3029071  0.0000000  6.8761793  3.4128628   5.2071159  7.2706317
## 115  8.2830397  2.2026998  1.1382247  7.0170289   1.4863025  1.1382247
## 116  1.9772066  2.0921059  8.7801864  0.9848445   6.4723854  2.9733909
## 117  0.5749250  8.5243345  4.9248505  0.7944367   0.9849174  7.3513907
## 118  0.0000000  0.0000000  2.4255399  5.0918817   0.0000000  1.5229597
```

```
## 119  2.6963277  6.0161843  4.6818203  4.9610676   7.5550093  6.0313776
## 120  6.5323544  0.0000000 10.9065539 10.0310104   3.2903654  3.1675346
## 121  5.4756686  4.8399243  4.6446927  1.8947596   1.7073039  5.9045684
## 122  5.8610025  2.6379580  9.4846483  4.6255394   7.3108945  7.4351402
## 123  3.0247452  0.0000000  8.4441158  4.0310069   6.3002793  7.0903517
## 124  8.8372558  0.9398284  1.7860526 11.0875187   0.0000000  1.6519587
## 125  6.2834088  2.9274983  4.9371372  2.0716940   2.4343747  3.4075567
## 126  0.8825257  8.2412315  7.9625756  6.3498818   1.8199951  2.4956696
## 127  4.1756204  0.4390380  8.3786061  8.3395409   3.0202355  3.3061601
## 128  8.1081010  3.2684643  7.2654810  9.1294118   4.0483408  7.3314329
## 129  0.0000000  1.9764736  5.4656839  0.5051796   1.9764736  5.4240184
## 130  6.8434349  0.0000000  0.4997821  6.1404433   1.6181447  1.6181447
## 131  1.6513617  5.1545387  1.9467683  0.0000000   1.0501186  0.0000000
## 132  5.0151452  3.6726064  2.9934751  5.3281220   8.6567892  9.3991604
## 133  4.6409506  0.8360857  3.8428783  1.9062364   2.7843574  3.2086733
## 134  6.6037020  1.1396005  4.7478492  8.5789791   4.6647445  4.5209376
## 135  4.3834693  2.0204844  7.4782907  2.9496843   1.1524430  3.7255994
## 136  0.5134907  1.6497074 10.4104332  2.9709457   4.5643355  2.1441443
## 137  5.9026404  6.0394872  8.5492048  3.1784278   6.3430898  5.6644800
## 138  8.0183565  2.4872291  0.6561760  1.5923972   0.0000000  1.7239953
## 139  7.4688236  0.0000000  4.0225720  3.9406460   4.8183904  8.6746379
## 140  7.6346876  0.8793921  7.2728854  4.7786502   6.9975657  4.9647082
## 141  1.5911528  2.6400424  2.3293533  7.2927551   2.5437186  2.0774481
## 142  5.4557349  0.4315695  1.2598449  7.4279489   2.4680098  7.3804360
## 143  5.4448327  9.1884756  0.0000000  4.5680990   0.0000000  2.2036710
## 144  3.1142671  0.0000000  2.9557406  5.3767662   0.0000000  0.9268344
## 145  5.2658419  6.8034169  0.3654686  2.6296597   1.4486896  4.4622814
## 146  4.7479352  1.7449361  6.5780888  4.0463252   8.1882758  5.9244942
## 147  4.0727661  4.1039843  8.9533491  4.1345413   3.2977930  7.8242415
## 148  8.4099666  5.4665390  4.6444101  1.1378314   0.0000000  3.6328033
## 149  1.0817487  2.2393980  6.8855988 10.0931287   4.3472546  9.1949870
## 150  0.5465611  0.0000000  0.0000000 10.2014089   2.8969693  0.5465611
```

```
## 151  2.4073528  6.9638521  3.5405109  4.0835453   6.2519311  7.2156485
## 152  8.8434123  5.2460052  2.6774180  6.3640751   0.5010060  5.3670425
## 153  6.2604040  0.0000000  0.4689482  2.6728553   1.1058122  1.3426685
## 154  0.9685700  9.0205391  2.0668814  5.1861321   3.3119971  5.2838662
## 155  5.0374305  4.7616044  2.8598503  0.8610819   1.2392147  8.5846213
## 156  8.0741051  0.0000000  3.7498882  0.9973285   1.9959548  4.3871764
##       rs_TRPV6 rs_ATP13A4  rs_AKR7A3 rs_C19orf33    rs_KRT4     rs_DES
## 1    4.6919473  2.2796496 10.4931478  10.7946910  0.8928184  2.1463945
## 2    5.0506149 11.2221556  2.6819664   9.4265654  2.5983890  1.8188915
## 3    4.6094654  2.7766936  8.8975524  10.1313189  1.3005338 10.0104619
## 4    2.4429966  1.5931625 10.4971296  10.1012884  0.4889263  1.7742494
## 5    5.6012092  3.6877214 10.6077275   7.9883876  1.3700527  2.7107899
## 6    9.9014616  8.7216522  4.6654837   8.0794960  0.6028369  9.1349481
## 7    8.2411785  2.8420737  3.3583541   5.3109399  1.1090262  5.4144941
## 8    9.2703766  3.3278454  2.8598106   1.6988408  0.0000000  5.8412964
## 9    7.2885874  2.5048492  5.7822251   4.7882681  1.0279325  4.2222327
## 10   1.3948982  1.7842946 11.1301682  10.3894967  0.0000000  1.7842946
## 11   8.8381781  5.2656882  9.7518078   3.9159989  5.1206257  7.1617668
## 12   6.9418364  1.8457911  5.0711105   6.9223941  0.0000000  3.5544292
## 13   7.5610122  4.2824991  4.7465922   4.4194850  9.5596893  2.0808623
## 14   7.9085493  4.2552363  9.8316045  10.1573113  0.0000000  5.9064385
## 15   5.5791379  4.4878786  9.1579901   3.7285192  0.0000000  3.4124022
## 16   6.4554242  6.6862806  6.7618424   4.5467031  0.0000000  0.9432837
## 17   2.6858953  4.8162874  6.7991896   7.4505283 10.4028445  5.6771474
## 18   1.3375969  3.4498915  9.2336022   9.2580277  0.4665488 10.7184034
## 19   7.0024573  6.5027618  8.6890891   5.6461425  3.7662983  3.0291348
## 20   4.6519931  4.4953626  7.6574321  11.0535480  2.6260185  1.1040682
## 21  10.4032719  9.1240099  8.3905030   1.8379029  2.8184211  2.7334194
## 22   7.2454709  3.4442297  4.1607831   6.1690331  0.8668684  3.5494720
## 23  11.2887307  3.0931883 11.5168093   0.0000000  0.5566992  4.5893081
## 24  10.2230774  1.3094673  3.0690663   4.5311693  0.4537546  3.6390122
## 25   7.6869354  5.5479526  9.6108634   9.7461693  1.3852101  0.4031586
```

```
## 26   5.4810567  2.3201092  8.8555067   9.3915308  0.0000000  1.7639214
## 27   6.9250084  5.3253900 10.5336690   7.9749617  2.3061164  6.4263855
## 28   6.2085446  2.3631991  1.9640659   2.0167102  0.0000000  3.8343269
## 29   2.0048968  1.1410403 10.3082312   8.3694700  0.6805044  2.3837734
## 30   7.5846153  6.7842763  8.2954439   6.0122558  0.0000000  6.3040766
## 31   1.1322478  4.7668019 10.2801408   9.5468252 10.7336701  3.5999485
## 32   3.8761928  5.1873956  8.3105728   9.6161619  0.0000000  4.7149708
## 33   6.7064767  7.2966116  7.1423757   7.6675849  0.7727302  8.4123984
## 34   7.8833386  7.1271339 10.3311581   5.5603023  0.5238630  5.0038630
## 35  10.8781146  9.1482490  5.1602869   8.2742551  0.7922723  6.9535190
## 36   9.2356811  5.4661018  6.4845684   7.0453043  3.6495695  3.1209657
## 37   5.5826192  7.6460993 10.7357774   9.1267445  0.0000000  4.0060017
## 38   7.0237078  0.8827604  9.8525879   5.9097035  3.3622174  4.0663734
## 39   8.2021645  7.3477560  9.6205837   3.6315350  2.0254187  1.4620000
## 40   6.9277187  3.4952091  4.5729079  10.6419160 11.4508659  6.2199216
## 41  10.2952471  3.2996110  4.8988372   1.1959145  0.9876119  4.1729435
## 42   9.4898217  8.3541237  8.1750195   0.4589069  7.4860667  5.8184262
## 43  11.2556471  5.4528524  5.6321402   7.8332260  4.5138507  6.6815842
## 44   5.7415775  9.0278457  6.1242330   4.5831881  0.0000000  4.6111311
## 45   5.7470812  4.2522945  3.2167187   9.5141513  0.0000000  4.0546228
## 46   6.4800195  3.3899797 10.0545502  10.2983879  2.2163928  3.4870361
## 47   2.1128002  4.5465858  6.0961838   2.1318199  1.1435240  3.2878564
## 48   8.0436988  6.2824342  7.9490580   7.1059253  4.8003822  5.7742600
## 49   1.4374408  8.0245657  7.7978314   8.4876616  0.8907969  3.0212132
## 50   2.5438175  2.4618428  7.8475335   8.6030013  4.1496252  6.2179267
## 51   3.1051081  5.3880001  3.2076274   4.5764012  4.9589076  4.3227502
## 52   2.0662959  7.3063306  8.3270505   8.6563298  0.0000000  1.8705423
## 53   8.4368327  8.8426030  9.5920752   2.9638995  1.5698799  2.5661089
## 54   4.4549194  1.4718638  8.8289209   7.2715022  4.1722315  3.8203219
## 55   3.5154223  8.7231018  6.2103713   3.4850146  0.9218171  3.2246886
## 56  10.7026764  4.7350130  6.4604592   2.2119467  3.1259651  3.1259651
## 57   9.6208833  8.6034164  8.1396752   6.9356754  3.0398929  8.1905072
```

```
## 58   7.6082319  6.1722075  7.7416119   7.5077011  1.3794546  8.7087187
## 59   8.1750200  3.8626398  4.9283608   3.6520046  4.3940957  8.7305805
## 60   5.8285554  1.2317396 10.2511505   8.2166178  1.3885753  3.5592715
## 61   5.0155823  3.2512040  8.7688880   4.2144124  0.0000000  6.2910049
## 62   2.7306617  5.3172136  7.5101090   1.6894781  0.0000000  3.1717352
## 63   4.3187579  1.3922075 11.5817241   7.4045685  0.0000000  3.3127233
## 64   7.0001916  7.0949264  7.1208890   4.7167605  0.0000000  4.8018209
## 65   4.9652533  1.6777112  2.5724289   3.5618027  7.0306727  3.2512343
## 66   6.3883290  2.2740827 12.6949384   5.2207904  0.3494785  0.3494785
## 67   8.0233263  6.9896397  6.6399918   6.4593447  0.4153260  4.3228439
## 68   5.9315152  3.4533332 10.9489502   9.0954242  0.0000000  5.6026142
## 69   6.9927537  5.1556966  6.8414385   7.1998814  0.2944296  7.6685000
## 70   3.1577713  8.8080629  8.5802823   8.7827794  1.2498700  1.4450380
## 71   3.0493345  6.6088595  9.2911622   3.1634826  5.0435457  4.6588456
## 72   3.6350811  1.7158055  9.4963525   9.5221056  0.4655044  4.8092755
## 73   4.4158330  1.7302269  1.7302269   2.2185952  0.0000000  8.8444421
## 74   2.1668440  1.2953116 10.4981681   6.8799165  0.0000000  3.0481839
## 75   8.0102506  6.7203387  8.9419094   6.9791325  7.3590871 10.2235229
## 76   3.9033854  1.5295711 11.1077850   8.8309110  1.0923428  0.4619476
## 77   2.1903620  3.6089984  1.8261112   4.4633020  7.9449609  7.5058401
## 78   9.6687402  3.3271268  3.8798626   4.5139581  3.8127241  6.3094909
## 79   1.6144272  3.4994377  2.4954905   4.2420461  8.3430138  8.2750206
## 80   9.1785411  5.9620515  3.8886264   7.3385768  6.2584435  7.5535057
## 81   6.9649323  5.2693399  5.8232500   5.0303008  0.0000000  9.3783328
## 82   8.1673384  8.1028213  4.9992514   5.2027507  0.5350576  7.8170943
## 83   4.4748967  8.9169146  7.2049203   2.9019964  4.1258742  2.2377167
## 84   5.0607392  5.5691022  9.2293396   8.6421506  0.8345494  2.2189051
## 85   7.8265663  1.9131479  3.1285409   4.9658628  5.0721830  6.0324028
## 86   0.2980717  0.2980717 12.4379414   7.7481130  0.0000000  0.0000000
## 87   3.2112770  0.9937830 10.4089233  10.2594866  2.9277827  7.7380362
## 88   5.9680815  1.8007032  8.3438284   9.8149855  0.0000000  3.1616136
## 89   7.1179288  5.3042664  8.3745314   5.7410840  0.0000000  1.9630672
```

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## 90   3.7989629  1.0094905 10.5105589   5.8577173  0.0000000  1.0094905
## 91   8.0355359  2.7520635 10.4498024   9.1182572  4.6243583  5.7566390
## 92   1.8841681  8.7586137  9.8538430   6.1498081  1.1350094  2.2891262
## 93   6.6478901  1.2359721 10.6160782  10.0649538  0.0000000  0.7464848
## 94   7.1260013  3.0291525  9.5217916   8.9592714  2.9776096  7.3803831
## 95   6.4769211  1.6819889  3.2979104   2.7819891  0.0000000  2.1982427
## 96   4.5539318  5.8329558  2.6534270   4.7122876  0.0000000  1.2159270
## 97   6.3101456  4.9215411  7.3547290   0.0000000  0.0000000  3.6280270
## 98   2.3635916  2.0391033  9.4012849  10.5640270  0.4281424  3.6722443
## 99   8.1569446  1.6890755 11.7775236   5.2211385  1.1834548  2.5277710
## 100  2.8850081  0.0000000  3.3694525   7.1735752  0.0000000  3.0651759
## 101  6.2608292  2.9564284 10.1213702   8.1060824  0.8320393  1.9489372
## 102  6.5999128  0.8479969 10.3804611   9.7491320  0.0000000  2.3219281
## 103  0.8312287  0.3330802  7.8014038   8.9950000  0.0000000  2.4371212
## 104 10.3686011  8.6759761  8.1755126   3.4100290  0.4716557  2.8455503
## 105  1.8718042  0.3124328 10.6599736   9.4831860  0.0000000  1.4290535
## 106  4.6654439  3.4595365 10.5616989   9.6824434  0.0000000  3.5775376
## 107 11.0482217  7.2940858 10.6602702   8.7208619  0.4455148  6.3455862
## 108  1.7317915  2.4202398  9.2651248   9.2225790  1.7317915  1.8525982
## 109  5.6944679  3.3088414  7.2649211   7.2454424  0.5315686  6.5765614
## 110  4.3895737  5.8468343 10.6765993   8.1845456  0.9985566  2.4127002
## 111  8.4194150  5.9668965  6.6663462   6.3817298  0.0000000  2.1666512
## 112  4.4202331  3.6625473 10.4982326  10.3071394  0.5023306  4.2725906
## 113  6.7861873  2.2075181  9.9302469   8.7588608  0.0000000  0.8513593
## 114  7.0420095  3.9046479 10.1392811   3.5003049  1.5833747  0.7360420
## 115 10.3071786  8.6941325  6.6365057   3.3188085  8.4754538  5.3232404
## 116  3.2945472  0.4075159  9.4647777   8.6254393  0.0000000  3.2945472
## 117  2.7290959  1.3038100 12.7061232   7.3032109  0.0000000  3.3301998
## 118 10.7517933  7.4169562  8.7610675   3.9215982  2.2472288  1.8066953
## 119  4.8281898  8.5137951  9.3424807   4.0562280  0.0000000  5.4309108
## 120  8.2550205  9.0775101  9.2532866   0.0000000  0.0000000  0.3405053
## 121  5.5750006  5.8260857  9.5127347   8.5548758  2.0606354  4.2911099
```

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## 122  5.3222851  6.1917719  8.9066378   4.5271955  0.0000000  2.2724114
## 123  2.0746082  2.7464633  8.9132721   9.8635345  1.6514536  3.0247452
## 124 10.6430464  8.2378682  0.6890307   2.9850814  0.0000000  2.5601035
## 125  8.8180721  0.0000000  9.4026092   8.2130794  0.0000000  0.6787029
## 126  0.0000000  0.0000000 10.4937496   1.7991702  0.0000000  0.8825257
## 127  4.5267136  3.1984942  4.7528824   9.4575352  1.8030617  1.0475384
## 128  5.9002920  7.3645716  9.2010199   6.5653352  0.3650206  3.8321001
## 129  9.6021087  7.0425491  9.7064425   0.0000000  4.8627093  1.6307316
## 130  9.8737257 10.6164303 10.0050579   4.4474205  6.5311163  1.6181447
## 131  0.4403144  0.0000000 13.7071763  10.3578259  0.4403144  1.4773665
## 132  6.9358534  5.2642024 11.5148539   6.4386804  0.0000000 15.1978308
## 133  9.2291461  7.8956765  7.9900421  10.3718630 11.6273260  3.3816848
## 134  6.6605721  7.0127877  4.1574157   7.4754003  2.0028825  1.3242346
## 135  2.8307218  4.6872343  7.3570866   8.9430425  2.4817639  2.9496843
## 136  3.9967232  3.6972067  6.4204083   8.3996325  1.1906781  3.0475558
## 137  4.7687401  4.3403985 10.2993266   9.9327234  0.0000000  4.1824460
## 138 10.7072640  4.0233086  2.5594673   3.9920614  0.0000000  4.9913676
## 139  6.2716815  4.2662618  9.5184785   5.1273403  0.0000000  1.7623488
## 140  8.5907772  2.7818633  7.3115258  10.0047559  0.0000000  0.5056877
## 141  2.5437186  7.4735523  2.6400424   3.6652563  0.4881036  4.0618194
## 142  8.3866597  6.1083614  7.4453708   4.4806012  5.6385054  1.0328061
## 143  9.7579656  8.0904909  5.3838356   4.4454619  1.0579701  1.8174595
## 144  2.6795589  1.8888114 11.1378295   9.8125815  2.2030132  2.9557406
## 145  6.7111686  1.2876496  3.2702299   3.3396648  0.8990209  3.8911081
## 146  4.5878450  0.9565771 10.7876561   9.9701587  0.0000000  4.3754148
## 147  2.7843783  1.3058538  9.7716580   8.2466252  0.7959331  2.5323419
## 148  8.6248229  7.8053511  4.9265593   9.7796130  0.0000000  5.3651361
## 149  8.3049253  7.7000339 11.0396244   4.3138988  0.0000000  1.9918982
## 150 11.3654991  5.6254108  6.9324191   6.2656132  0.0000000  4.8628332
## 151  8.6632688  4.4099950  8.7792348   8.7124355  1.3330802  3.8501493
## 152  8.5856908  0.8720801 10.4767494  12.6812184  0.0000000  2.4768483
## 153  9.9138023  7.9561473 11.8777696   7.1862381  0.4689482  2.2751859
```

```
## 154  9.5959787  4.8614691  4.3768946   3.1997823  5.2720083  6.3238546
## 155  1.9976898  2.1820248 10.2144409   8.5862874  2.4922378  6.5219412
## 156  6.2041270  1.3186928  7.3389289   0.0000000  4.0393227  1.3186928
##     rs_TMPRSS3   rs_ZIC2     rs_OGN rs_C3orf57  rs_CACNG4 rs_LOC642587
## 1     9.315556 8.0138564  8.9182992  8.1242966 11.8547485    8.0609045
## 2     5.034806 1.4884122 12.3801608  7.3848286 12.1440981    7.5187090
## 3     6.308898 1.9732072  9.6827322  8.2175317 10.9419013    6.0145517
## 4     4.829505 1.3860936  7.8936832  5.7723106  8.7285913    4.8088895
## 5    10.684756 1.9158650  9.5909725 11.5654423 11.8456770    8.0448012
## 6     9.118887 0.0000000  5.6216563 11.8930686  4.1372986    7.3240221
## 7     7.033041 8.8537072  6.4808257  4.1041270  5.5979900    6.8032606
## 8     7.385582 8.5024134  3.5582431  3.7935006  7.4980849    2.9273276
## 9     9.329037 7.5941962  4.5765282 10.7378517  4.8607443    8.9485162
## 10    8.563258 0.4930324  9.2334689 11.9592237 12.4516576   10.0596215
## 11    8.884872 6.3802758  8.0892026  7.3241859 10.2119025    6.6001909
## 12    5.371569 5.5759567  7.8871000  9.4305130 11.2706499    6.3670547
## 13    7.466296 2.2302645  9.4101513  5.1164895  0.9433588    3.8464031
## 14    7.233273 0.0000000  9.8294805 10.3538534 10.9012653    9.9349911
## 15   10.793318 0.7778720  6.1932809  5.1416371 12.0291668    9.6887689
## 16    6.679801 0.0000000  5.1163273  6.8041594 12.4396290    7.3237871
## 17    1.973207 3.1607750  7.9176865  5.3912831 12.4026021    5.8227811
## 18    6.940193 0.4665488  8.4432710  9.3838090 11.8464925   10.6786264
## 19    8.860739 0.6536104  9.7273904  7.5771848  7.9339756    9.0904184
## 20    8.407499 0.6551686  6.0051192  3.2225727 12.1878046    3.8587469
## 21    6.468901 8.5135046  8.1161386  3.1813888  7.5348203    5.3841465
## 22    9.318682 1.9571717  1.6132016  6.0549787  6.6296932    8.3375666
## 23    4.671576 1.7460117  2.7334411  4.2752827  6.1337526    6.8624762
## 24    6.829511 0.4537546  5.7410813  3.8385686  6.1692536    7.9471729
## 25   12.217914 7.9408732 15.1304680  2.8969499  9.0235495    9.4950937
## 26    5.132560 4.4789589  6.4991921  8.3655136 12.8223557    4.8290072
## 27   10.232775 2.0800095  9.1444571 10.2536949 13.2077507    9.3582303
## 28    5.893498 0.5002922  4.8875740  6.6744027 10.1252261    6.0460916
```

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## 29    7.986054 2.0048968  7.4527305  9.9636071 12.3638973    7.5087107
## 30   10.570290 3.0755497 11.3058882  9.6473971 10.3494061    9.2014420
## 31    5.443424 3.2240403  8.3818319 12.5270306 12.4405782    7.3946916
## 32   11.301185 1.0374525  6.7171349  6.4010297 11.0066705    7.1644655
## 33   10.513587 1.4705108 10.1150971  6.5241562  9.4611952    7.9349434
## 34   10.872602 4.2104746 11.5719161  9.5973872 11.1729233    7.0624456
## 35    6.241138 8.4132873  8.8620946  8.3612635  9.9928378    2.1020198
## 36    9.743789 4.1442667  7.3498049  5.5606630  5.8229595    7.2919102
## 37   11.592638 0.0000000  8.6853652 10.8632699 11.8866957    7.7877341
## 38   10.492875 7.4194706  4.9191541 12.1982678 10.6971069    6.4765388
## 39   10.833166 1.4620000  6.3134654  5.8368583  9.8214189    4.7008503
## 40   12.039404 1.8355199  7.1429648 10.1866328  8.8531985    7.2654566
## 41    5.005692 0.0000000  1.3995539  7.1618776  5.6761009    4.6949470
## 42    9.833282 1.0865120  7.9178321 12.3965265 11.4195590    5.6239605
## 43    9.319638 0.0000000  2.5617172  3.2434863  7.4353861    5.9560311
## 44    7.094190 0.3923174  7.3254179  9.2937280 11.0313831    6.5944366
## 45   10.295464 3.6682326 10.5321087  6.9821608  9.7250090    6.0100100
## 46    9.803317 1.9700438  8.2204044  9.0925124  9.2126724   10.4452950
## 47    9.843568 0.3810618  9.7458724  9.1515610 11.4270081    6.3471536
## 48    7.406850 7.7052757  7.7562834  8.1220789 11.2416567    8.9853111
## 49    7.861037 0.0000000  6.1905892  6.2403410 11.9949123    8.4303003
## 50    9.246717 0.9754835  9.8698973  8.6931932 10.3230257    4.9817750
## 51    9.220073 1.3697736  5.2018220  4.7707815  6.5858188    2.8752099
## 52    7.089885 1.6440408  7.0499465  7.9107249 10.0950284    5.9127816
## 53    7.969892 6.9200360  7.4148738  5.8021674  6.5115613    5.7237169
## 54    8.636568 0.0000000 10.0136399  9.8290231 11.7760892    6.3803485
## 55    7.379154 2.5286713  9.0250734  4.2165247 10.2450559    7.1650718
## 56   10.516079 6.4470667  1.7828279  1.3935809  9.8845729    3.6778690
## 57    9.904207 6.4121515  9.9177396  6.2909349  7.2783398    8.2152670
## 58   11.940977 1.9571717  9.0745689  7.5939505 11.0663241    9.7580558
## 59   12.549736 5.9804618  3.9199026  1.6142387 11.8125060    6.0780227
## 60    6.860022 6.3027723  6.9665285  4.1028513 11.7724256    4.8604365
```

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## 61    5.042478 7.7417447  9.7070433  5.5438577 10.2880980    6.0136409
## 62    6.315226 6.6957572  8.6748451  1.1288873 12.3525103    5.3802377
## 63    6.124812 1.8906412  7.7513720  3.1461990  8.7750262    5.8946480
## 64    9.229035 5.6145155  8.7117946  5.0562107 11.2922219    7.1879221
## 65    8.130794 7.2445313  5.9355069  6.4840785  0.8676593    3.7703216
## 66   12.103032 5.8512943  5.4603625 11.2703331 11.2993333    5.6767808
## 67    9.090190 2.4158127 10.8179452  8.9696271  9.1138343   10.8666949
## 68    7.278742 0.0000000  9.3405133  7.1831679 11.4083479    8.4460722
## 69   10.838366 3.9535260 10.7587709  7.9158143  8.1919978    9.8300299
## 70    5.319531 0.0000000  9.2341748 11.5134484 14.0198379    1.0240359
## 71   10.548737 1.3470420  9.6820599 10.2406319  8.1663208    4.6961497
## 72    8.772827 2.1464271  7.4003330  9.5769699 11.4634859    6.3728407
## 73    6.166344 4.5166645  9.0891904  4.2693923  8.3713720    2.5590267
## 74    8.713724 6.4054751  7.2280856  2.7692005 12.3296834    9.1823655
## 75    9.170521 2.1673900 10.1991855  7.5174505  8.7783900   10.7951249
## 76    7.989998 6.8260832  1.5295711 10.4781806  9.1872078    8.4624258
## 77    3.547512 2.0197019 11.2921025  3.1106138  3.4160425    4.1539998
## 78   10.810717 1.0028825  6.6968883  4.9441932  9.7148592    8.5590765
## 79    0.000000 1.6144272 12.0493819  2.2042033  1.6144272    1.8388711
## 80    9.774097 1.5998414  4.5942081  4.6182680 10.3448308    6.7955111
## 81    6.877839 3.2163462 11.9088244  6.3744640  8.3419706    7.2316714
## 82    9.162568 1.6983074 10.8229750  6.9907133  7.6237213    9.2470866
## 83   11.950167 0.8451086  8.9850094  4.7698193 11.7664782    8.1604135
## 84   11.258155 5.6538425  7.4674352  7.3101792 10.4901858    9.7543250
## 85    5.658666 0.3523066  4.4427379  8.8277831  9.3763941    5.9379164
## 86    0.544881 3.6928847  0.2980717 10.6764972 10.9451722    0.0000000
## 87    9.773834 0.0000000  8.2928917 10.1745008 12.0313782    6.7646460
## 88    3.991236 6.4583640  6.1904529  7.3261014  5.9215434    0.0000000
## 89    7.467619 7.7405127  6.7020521  5.3341928  3.5050017    9.4875273
## 90    3.146101 0.0000000  4.4103886  2.0142482 11.4135590    1.1804662
## 91    7.145190 0.4421208  8.9753625  8.9473438  8.8396860    5.9278514
## 92    8.393293 4.3741214  6.4499476  6.2715751  7.9559904    4.7873698
```

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## 93    2.340876 6.6624405  3.6847514  7.7872940 11.6502506    5.3806152
## 94    3.704252 6.0453338  9.3979719  7.2934615 10.5654131    6.4327390
## 95    7.943509 5.8617321 10.1416776  6.1010302 10.9659151    7.6660415
## 96   11.360142 7.6713231  5.0526985  6.2639001 11.8522075    2.4355486
## 97    7.910094 0.6763577  1.8841681  1.3191555  6.4888974    0.9237957
## 98    8.482203 6.0660590  7.3854819  6.9300265 11.9890132    5.6156046
## 99    7.785234 3.8426872  5.3590045  7.4757983 11.5663868    1.6890755
## 100   9.358453 2.1502997  5.2042112  7.0028116 12.4686956   10.5017162
## 101  13.350375 5.6925165  4.2828475 11.5537260 10.3890096    5.7283450
## 102  10.415531 0.0000000  3.1043367 10.6512311 12.4786180    1.1375035
## 103   6.887557 0.0000000 11.9359543  4.0741800 10.0774573   10.6587331
## 104   8.692254 7.4578257  7.6835758  9.8065786 10.0617429    7.4954154
## 105   6.162051 2.9580260  7.9910428  8.8362123 13.8634738    4.7481123
## 106   7.446679 1.1699891  5.9234392  9.3549129 12.5237972    6.2119992
## 107   9.576185 0.7854250  6.3835920  5.0531722 11.7905251    7.9272760
## 108   3.321250 1.2933116  7.6814493  9.3178974 11.8720059    0.6601985
## 109   7.330278 1.4760706 10.1201443  4.4257480  9.1879644    7.7854433
## 110   7.584597 5.2195867  8.6032217  9.6276916 12.5005297    4.7341893
## 111   8.831725 2.9963345  6.6436369  3.7066190  6.0030287    4.8852473
## 112   9.939496 1.4147309  7.7737893 10.0388115 12.0801726    8.5652872
## 113   5.350745 0.0000000  5.4065163  5.1200035 10.9378116    4.6278053
## 114  11.584594 3.0567743  7.4070026 11.3540504  9.8664226    5.9595685
## 115   3.323139 5.1388104  4.6793675 12.0536420  8.7535561    6.5922926
## 116   8.513949 0.7248249  7.3762869  9.3234752  9.1486789    8.0868671
## 117   5.237246 0.0000000  7.9398918 11.0323991 10.7364175    4.6850767
## 118   5.218293 6.3051716  4.2086031  8.7796406  6.9327970    3.9416698
## 119   8.992671 2.0297356  7.5862085  8.4402870  9.5908587    7.4344681
## 120  10.649977 4.5458634  6.0605641  0.6156988  8.5143298    4.3897526
## 121  10.923399 6.5247204  7.8863916  7.7071838 12.1812788    7.6464917
## 122   8.055598 5.9449662  8.7763274  8.1038863 11.3116727    8.4222040
## 123   8.307765 3.4586182  6.5569827  6.5947650 11.2477043    7.7323601
## 124   5.523418 5.3716982  7.0709882  1.7860526  4.8353279    5.3928738
```

```
## 125   4.898915 7.6868233  7.3575133  6.8320735  8.0934260    2.5864045
## 126   2.787704 0.0000000  5.4463423  5.0283747 13.0660763    3.8577621
## 127   5.696495 3.6708970  2.8878567  6.2145911 10.2922714    6.6924732
## 128   2.929999 4.7344766  7.3236763  7.6117803 12.1018688    2.7564896
## 129   7.369622 5.9977373  8.0020988  6.2087435 11.6665864    2.5926364
## 130   3.700950 5.0747666  7.3692763  2.9303967 10.9749864    5.2099875
## 131   8.131565 3.7916057  3.2029505  1.2795307  2.6675061    0.0000000
## 132  10.398092 6.5766461  6.5298444  8.2883383 11.4279582    7.5756671
## 133   6.202310 5.6460849  9.9012312  7.7506722 10.7618628    5.3313434
## 134   9.347230 2.8106282  8.4984731  7.1985590  9.4085384    7.4475784
## 135   8.937970 2.8307218 12.0982541  8.4492201 10.3436074    6.3306731
## 136   4.071994 5.0657662  6.8312274  5.8222024 11.0930291    7.5301269
## 137   6.920031 1.6326405  7.3341758  8.6138127 13.7354825    6.0317878
## 138   6.149103 0.3650206  1.4476321  7.9544796  4.9913676    3.3112125
## 139   5.500219 7.2453530  3.9406460  7.6980392 11.1078098    7.0798090
## 140   3.719687 7.9630729  2.2564974  3.6246858  6.3726736    0.5056877
## 141  11.815568 0.4881036  6.5358570  8.8728100  3.1125333    1.7720968
## 142   9.653562 8.6052106  6.7967833  6.6984963  9.5283644    4.4075771
## 143   5.253505 0.0000000  5.2670825  7.2038374  5.8665074    7.6022156
## 144   6.690351 6.8843964  8.9494019 11.8054551 10.0141818    2.9557406
## 145   6.900600 1.5935450  1.2876496  5.0316334  6.1624014    0.0000000
## 146   4.845570 2.9231682  8.2044699 10.1551074 12.7860834    7.5561688
## 147   8.920847 1.3058538  7.6789177  8.6960272  7.8312534    2.9988634
## 148   2.678568 5.1864292  4.8384980  1.1378314  3.2331825    4.1048818
## 149   8.815748 6.5265102  6.7869348  5.2278681 11.1269719    1.5165195
## 150   9.039203 2.8048796  4.8398085  9.2382805  4.5588921    6.2754262
## 151  10.190969 1.9205220 10.9171491  6.8949172 10.3336925    8.9632319
## 152  11.568269 7.2292312  9.2089037  5.3670425 11.8926250    2.7681420
## 153   2.912458 6.8318025  8.3803017  7.6351130 10.7942111    3.6899588
## 154   7.399027 7.4888717  6.9777367  5.2956312  9.3614576    9.8907589
## 155  11.670151 1.6677559  5.4504492 10.9035401 12.1548142    6.8895587
## 156  10.378848 5.7089487  8.6257907 12.1598222 11.1115961    8.4924669
```

```
##      rs_ATRNL1    rs_AFP     rs_NDP  rs_GABRB3   rs_LRG1    rs_AREG  rs_GRIK3
## 1    3.2582325 1.1923204  3.3819616  4.4867272 10.249395 10.2050541  7.865391
## 2    8.2530934 3.5649390  4.1965520  4.8484377  6.518052 10.0736007  7.451834
## 3    7.2063795 4.5876830  3.9664212  4.3234782  6.183812  7.2795335  9.988292
## 4    1.9350825 0.4889263  1.1442422  6.9166976  9.598388  5.9802104  8.062117
## 5    5.9452823 2.7955384  8.5308316  4.2649117 10.561575  9.5062643  9.482490
## 6    2.9528367 0.6028369  3.2170446  2.0398403  9.684916  6.9772799  5.299453
## 7    2.0304067 0.8248086  8.4256192  2.0304067  5.791220  5.3881654  5.770985
## 8    8.6345145 0.0000000  6.3518156  9.5024993  3.470446  5.7228103  3.224287
## 9    7.7132717 0.0000000  4.6380275  5.8357018  1.027933  6.8296200  4.006020
## 10   3.7249122 4.8635222  8.0476556  3.8524683  7.809050  8.3528468  8.772616
## 11   3.7053366 1.4183519  8.0962745  4.4644918  9.806194  6.5700287  8.671806
## 12   2.1162982 0.0000000  5.3055000  3.5081878  6.097135  8.6564978  5.598204
## 13   1.5089864 0.0000000  2.3656086  2.0808623  4.020609  4.8191419  4.444163
## 14   4.4447664 3.7797430 10.3171852  3.7075579  9.946796  9.3000244  9.460975
## 15   5.4553700 3.4600217  7.3537873  1.4784542 11.567751  3.7168044 10.809780
## 16   8.9653407 2.3654686  7.3028573  2.6031456 10.354028  6.2345071  8.388458
## 17   5.7573860 6.8884376  8.1220100  3.2897312  5.723545  3.4638055  6.458718
## 18  10.3190414 0.0000000 10.0722685  9.5979771  8.414500  2.9768952  7.306627
## 19   2.3252137 2.6223447  6.1768274  3.7963589 10.820967 12.0762795  8.006497
## 20   1.8426169 1.8426169  1.1040682  7.9816261 10.698343  6.4560521  6.835857
## 21   0.0000000 8.3374881  5.9243755  9.6821212 10.434322  7.2777254  3.993937
## 22   1.7954345 0.0000000  4.5127768  0.0000000 10.261051  4.7955072  7.819390
## 23   0.5566992 0.0000000  1.7460117  8.6192321  2.103028  5.5002061 10.931281
## 24   6.2694297 0.4537546  5.3283841  1.8428984  4.687307  6.2058343  5.051229
## 25   0.0000000 0.0000000  3.5004961  0.9762170 11.498907 12.5536977  9.309623
## 26   5.8901572 1.5178804  3.1679038  5.9658558 11.461764 13.8705250  8.093309
## 27   3.2093910 1.9521099  7.2648901  7.1959784  5.688569 10.5019042 10.424195
## 28   7.8954141 5.4493732  3.8756621  8.2499179  4.966204  7.9520545  5.076649
## 29   5.0809944 1.3258469  7.7560158  5.6386473 11.046250  6.3427147  9.533589
## 30   4.8511444 3.1974094  4.7943327  5.6014796  9.522516 12.2434048  9.655395
## 31   4.5636402 1.1322478  7.8220112  4.0440356 10.778090  4.1446909  4.848658
```

```
## 32   6.7829694 0.0000000  4.1285574  5.1873956 10.456210  8.8062812  5.520809
## 33   9.2790582 4.3055620  4.3055620  4.2258687  8.928850  8.0703904  7.835530
## 34   6.8974062 2.4271502 10.4937486  4.7692269  8.746964  8.4437637  9.879420
## 35   3.8617768 1.0688084  4.3499738  0.7922723  9.557056  6.0709817  9.593726
## 36   3.3194734 5.1899906  5.1207335  1.8345494  6.301086  7.2109148  5.928053
## 37   2.0047890 2.7216351  5.1818658  8.9779341  9.831355 11.8445924  8.126804
## 38   0.8827604 0.8827604  7.7543537  2.3040145  8.196135  6.7076587  8.280782
## 39   7.0222091 9.8743041  0.9088129  1.8609231  6.180158 10.2529278  3.352377
## 40   2.8281238 0.0000000  3.8567368  4.9479046  4.472137  4.3411176  5.144087
## 41   1.5684700 0.4088205  3.9464034  7.1552605  8.742318  7.2972639  2.202919
## 42   1.5224073 8.3156351  4.6203401  3.5682267  4.064409  7.2508934  6.776311
## 43   0.0000000 0.0000000  2.4484517  2.3255303  9.316615  4.0142035  3.932307
## 44   2.1498447 0.0000000  2.6583029  4.5158071  8.515812 13.5416329 11.469754
## 45   8.7497950 4.9434807  8.4729718  7.3704302  9.491627  8.4348217  6.520045
## 46   1.4975868 0.0000000  4.2657744  4.3455880 11.927222 12.7653374  9.850247
## 47   7.4963721 1.7733212  7.1576248  4.7708238  4.527802  6.4703140  8.113730
## 48   5.5435485 3.6501671  5.5961868  5.4889134  9.276915  7.1257565  9.484310
## 49   4.8245082 0.0000000  2.7430410  8.4062850 11.027209  7.4673455 10.439341
## 50   4.6893383 2.0775506  2.5438175  4.0123988 11.237641 11.0808640  8.135534
## 51   5.9650962 0.0000000  3.4775996  5.4932342  6.231596  5.0988743  2.811533
## 52   5.7655507 1.2193389  5.1295468  3.3266668 10.719766  7.4181216  9.086862
## 53   8.5204293 5.4041334  2.3038392  9.7663523  9.495037  9.5184635 10.457133
## 54   3.1383066 4.7302704  9.7069573  2.5769332  9.090676  6.4047175  9.149539
## 55   5.8787597 1.4796962  5.9639180  3.4381598 11.272553  7.5495514  8.174997
## 56   0.0000000 0.0000000  5.0681033  7.8043802  2.341502  8.5889099  2.652808
## 57   4.5481407 5.5836936  5.0350432  7.4310922  9.580615  6.8059708  7.126250
## 58   5.0317922 5.6161812  6.4189995  5.9584622 10.025698 10.9203934  8.799678
## 59   5.6742516 0.0000000  3.2088138  9.9404039  2.655581  7.6655178  0.000000
## 60   1.6588284 0.3444877  6.4962147  3.1410240  9.502690  5.2253598  6.119049
## 61   8.1265765 5.7938361  3.1057786  3.7847657  4.197519  8.9251841  9.470687
## 62  10.6706202 6.2660144  1.3124328  5.9008523  3.391603  4.8672936  4.502082
## 63   3.9904103 5.0890616 10.3761336  5.3792085  9.952811  5.4789362  9.690226
```

```
## 64   3.0060287 0.4994760  3.2762733  4.1333498 10.361783  9.6849125  8.351426
## 65   3.4816993 0.3503841  5.9419725  8.7577580  2.759752  6.7722644  3.332207
## 66  11.4324709 0.3494785  3.3671334  2.3536056  4.373843  6.0671654  7.645632
## 67   4.8253582 8.3526345  6.6827769  4.4383261  8.098991 10.4383668  9.214470
## 68   4.8731094 3.1838517  8.8507094  3.7149049 10.463770  6.3276532  9.092657
## 69   7.3678576 5.3524443  4.9061931  5.3918811  9.299382  9.2352381 10.052760
## 70   3.2124293 1.0240359  1.0240359  1.2498700  9.600335  8.1508455  8.412450
## 71   6.5758856 1.6805944  2.1071187  2.5489791 10.421110  6.4793324 10.727333
## 72   3.5438175 4.4557809 12.1316290  7.0854013 10.285128  7.8132341  4.885599
## 73   4.5645550 0.0000000  4.5328032  7.3779575  4.782718  3.9468993  3.498417
## 74   1.6022193 4.8541553  2.6405284  1.8551127  2.640528  4.3567143  4.111741
## 75   6.0803741 5.4754773  6.1721494  4.5954201  9.724108  9.6795638  9.339815
## 76   1.7068178 0.0000000  1.8646517  1.5295711 10.338830 10.2844254 10.741237
## 77   3.2713958 0.0000000  4.1946859  5.3831236  5.683901  7.1134765  4.516904
## 78   0.7392433 0.4165155  7.7650891  3.5496076  4.795653  6.0427844  4.590506
## 79   4.2510525 0.5997939  3.6843363  6.5353158  5.328237  3.1263121  2.357186
## 80   2.4511188 0.4918018  4.5195167  0.8579014  8.406746  4.4135128  4.641933
## 81   6.5424562 5.8356285  5.3748865  6.3049436  6.752878  9.9835825  8.737873
## 82   4.0631750 0.9245560  4.3755608  6.0369648  5.996949  9.1905554  9.153496
## 83   6.4298452 1.5151069  4.3109145  7.4784008 10.739825  9.8156808  6.647936
## 84   7.5799902 1.0316775  5.0942065  4.1884326  9.964967  5.4009921  7.697158
## 85   2.8249307 0.0000000  3.5250415  2.6452175  2.767464  6.4885905  4.478978
## 86   7.7395261 8.8161760  3.7182520  1.9938555  3.137782  4.8230411  5.379032
## 87   2.2126316 0.0000000  7.2974849  3.7254576 10.237464  8.0536865  8.188900
## 88   1.9929859 0.0000000  2.3144645  8.0913492  6.190453  3.2395661  2.692539
## 89   9.8244557 2.5776101  4.9839057  7.7599368 12.771616  1.4095267  3.556699
## 90   1.3333665 3.9719481  1.0094905  4.2659019 10.669112  6.3087468  6.271388
## 91   2.6731720 2.0796341  8.5887469  2.6731720  9.268268  9.5787776  9.382726
## 92   5.1694440 6.1370526  3.1817705  7.4342095 10.178162  8.0188856  6.885390
## 93   5.9774540 0.0000000  1.4298570  2.7570873 10.855986  5.4268048  9.476187
## 94   5.9280244 4.0668900  1.5877010  6.7183342  8.797141  7.6855975  8.316349
## 95   6.8353898 5.3875555  8.5383496  1.9110779 10.645958  8.9135722  8.286122
```

```
## 96   2.3128684 0.0000000  1.2159270  2.0309716  3.959019 11.4149905  3.689981
## 97   6.4400452 0.3774014  5.5834529  5.1206796  6.352999  3.6961830  1.996533
## 98   6.8544957 3.2688236  3.5066908  3.1046554  8.936469  6.6758724  6.187309
## 99   9.7813632 3.0546922  5.6512584  7.6156076  7.826214 12.0830833  4.596846
## 100  3.1474695 1.3067872  4.0206533  1.9810854  9.753638  2.9779027  5.833130
## 101  1.3564256 7.7256267  3.4780658  8.4545251  6.847675  7.4511468  5.088731
## 102  7.9436870 0.0000000 10.5798816  9.2493505  5.270529  3.9448584 11.716734
## 103  8.1384213 0.3330802  7.4620908  1.0278618 10.912510  5.2033656 10.315135
## 104  2.9211507 5.8348275  7.1976993  2.2831217 11.106818  9.2827870  4.451785
## 105  4.1444380 0.3124328  0.9761436  2.4202398  8.034267  4.3293317  2.766256
## 106  5.5431432 0.0000000  4.2574934  2.6583029  8.824077  4.7177861 10.997380
## 107  4.3854172 2.4173260  5.9743044  2.8381047 10.393927  8.2523040  6.712054
## 108  4.7915901 0.0000000  1.8525982  7.6814493  9.610210  8.5817824  9.625131
## 109  2.9415383 2.3246378  5.6567452  3.5474005  7.373553  4.8831809  5.123368
## 110  4.3664901 2.6605408  4.2702822  5.2577197  8.354678  9.7469902  6.970598
## 111  2.3573831 1.1820566  1.6874191 10.6752518  5.693805  9.3132284  4.536557
## 112  5.1356990 2.2475630  3.5126567  3.6142976  7.492740  9.4630743 10.203815
## 113  8.0853779 0.8513593  2.6385836  1.3831651  9.683822  7.8815490  6.389407
## 114  6.9362163 3.7347421 10.3838211  3.4572528  9.289156  7.0956470  2.936515
## 115  0.0000000 0.0000000  0.0000000  6.1792443  3.701682  0.6786128  4.001262
## 116  5.2801769 1.5647196  8.0140567  3.8784899  9.002110  7.5140315  9.365483
## 117  7.4855315 5.6567595  4.5856236  3.1824222  4.752138  3.6444908 11.511860
## 118  1.5229597 5.4829354  2.7271581  4.8320191  6.350048  4.6644715  3.685671
## 119  3.6608488 2.1459709  2.9730234  8.4892479 10.504381  9.1951160  8.856420
## 120  5.4633445 0.0000000  3.2903654  1.6458861  8.514330  2.4659484  2.598651
## 121  6.5735805 9.7475747  8.3641355  5.2365462  3.623820  8.8454715  6.335324
## 122  5.6063652 0.0000000  7.3359932  3.7956838 11.709465  9.5966214  9.555142
## 123  5.5558990 1.0501882  0.7771988  3.5493735 10.385116  5.4301682  9.052638
## 124  1.7860526 0.9398284  0.9398284  8.9935713  4.618767  5.7618145  4.772086
## 125  5.0891422 0.8487982  3.1714631  2.1388472  9.602386  8.8097273  7.480694
## 126  4.5968994 0.8825257  0.5077185  1.9828385  9.098254  4.1251965  4.193307
## 127  9.9430617 1.4742024  3.3571156  7.8744423 10.981175  5.8644264  8.696888
```

```
## 128  5.3273568 0.0000000  2.9299992 11.1920974  9.634206 10.6671515 10.054269
## 129  8.1045600 9.2253205  3.9314278  9.1399652  9.213140  7.0425491  2.376652
## 130  0.8701871 0.0000000  0.0000000  8.0092637  6.352623  1.4091465  3.654275
## 131  0.0000000 0.0000000  1.9467683 10.1193938 11.081690  5.4300444  1.477366
## 132  4.1678878 1.8525982  3.4608212  3.0702519  7.806360  6.6027241 10.879485
## 133  3.2686739 0.0000000  3.0120501  5.8464206  7.658360  4.9281997  3.719315
## 134  6.4876005 0.3793992  3.1892711  3.7368971 11.278321  4.5019104  8.633539
## 135  6.9530114 0.9390008  1.9074676  2.7010832 11.237041 10.1228699  9.733870
## 136  5.7891215 0.5134907  1.9973647  3.8332443 11.547111  8.4803261  8.572319
## 137  7.8053511 0.7657893  2.5612039  8.3926781  7.672999 12.1788217  9.382227
## 138  0.3650206 0.3650206  2.2458607  1.7239953  3.311212  7.0725571  4.342818
## 139  6.0157139 0.0000000  3.6626157  5.0574113  7.897591  5.7925925  8.441354
## 140  6.4509126 0.0000000  0.0000000  0.0000000  7.133180  3.1661530  3.413567
## 141  1.7720968 1.7720968  4.1297446  2.7303356  9.667820  6.7452400  3.358860
## 142  1.6285870 0.7633266  4.1486494  8.2025495  8.592235 10.9500844  9.034430
## 143  4.8997654 4.2228046  6.4342062  5.7359202  4.714009  4.9170928  1.817460
## 144  2.6795589 0.0000000  1.8888114  6.7459136  6.959436  2.5743680  9.080049
## 145  7.2781995 0.0000000  3.5081244  1.9570602  3.181341  6.9144569  1.845751
## 146  6.2879930 4.8920218 10.1634153  2.5118981  8.628036  8.0669954  4.004654
## 147  4.5963090 0.4521737  4.1644645  8.2991077 11.006419  4.2506812  9.917163
## 148  8.0795264 0.0000000  7.6371987  6.9194354  1.485787  6.0005679  4.000541
## 149  2.7187452 0.0000000  1.9918982  0.4564908  8.437839  5.2562445  5.700190
## 150  0.5465611 0.0000000  5.7292727  7.2574227 10.198584  5.1516275  5.790584
## 151  8.9900642 8.2899608  6.7394823  4.9837506  8.300428  9.6927271  9.030448
## 152  0.5010060 0.0000000  0.5010060  2.7681420  8.063576  7.4266539  9.601653
## 153  7.9628255 7.0143162  2.3853482 11.6373664  9.434475  5.1048943  4.761083
## 154  6.3579162 0.3994446  5.7102747  3.6783198  4.711462  5.6473951  6.863821
## 155  3.6670178 0.0000000  8.6612953  6.4873513  6.359302  8.1485254 11.415446
## 156  7.1943087 0.0000000  7.8148029  3.0827026  7.154509  5.9372031 11.369641
##      rs_TPRG1 rs_AKR1B10    rs_IGJ    rs_PSCA    rs_DKK1  rs_CYP2A7   rs_COMP
## 1    7.241933  1.8360857 13.790641  8.1309262  3.2582325  4.6678354 11.396651
## 2    7.049409  3.3771237 11.101667  5.5053130  4.5254613  2.2052361 13.642377
```

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## 3    6.062718  7.1065200 12.968732  7.2521005  5.3269831  0.0000000 11.555223
## 4   10.098440  1.3860936 11.859761  0.4889263  1.3860936  1.9350825 10.018770
## 5    6.253182  2.4217484 11.029934  9.5693170  5.7252422  0.0000000 12.289828
## 6    4.407910  1.3538878 11.458017  7.4362885  6.9350978  0.0000000 12.514237
## 7    5.061556  0.4706150 14.317628  7.7458565  2.7623063  0.8248086 11.810035
## 8    3.793501  0.7617108 11.392664  3.4704458  5.0741243  0.0000000  9.408185
## 9    3.635766  2.2131295  8.959098  4.2618467 11.0000135  0.0000000 11.211388
## 10  11.293158  1.7842946  6.373133  4.2423205  0.8598106  0.4930324 12.820789
## 11   6.672950  2.8119025 12.029630  8.0767424  0.4164074  0.0000000 10.533425
## 12   5.813168  0.4548076 12.708995  7.1556926  1.5125809  1.3204269 12.283932
## 13   3.891963  0.5474498 10.667943  6.2346699  4.8655625  0.5474498 12.132568
## 14   8.519446  1.8800977 13.011993  4.9923651  5.5621386  0.0000000 13.388761
## 15  11.649932  3.2593177  7.103178  4.6195304  3.5941185  5.1705500  8.792271
## 16  11.989418  1.5088850  3.418298  3.7002399  2.0807600  3.4182979 11.532471
## 17   6.067241 10.7234897  9.586796  8.0668453  4.3679860  1.8108132  7.135782
## 18  11.476644  1.1013139  8.069635  6.1315545  1.5405729  0.0000000 11.728241
## 19  10.377739  1.1017173 13.072086  5.4493171  8.8687195  1.1017173  9.486470
## 20   5.720596  6.0744369  9.535103 11.2275534  1.9538240  0.0000000 10.167438
## 21   3.993937  8.1717147 10.020473  8.0429638  2.5467340  0.0000000 12.649656
## 22   7.473207  5.2189284  5.991023  5.4674588  8.7166034  0.0000000  2.102625
## 23   2.513162  5.6699253  8.429330  4.9161709  0.5566992  0.0000000 10.673742
## 24   4.728116  0.0000000 10.744233  3.6390122  6.7425479  0.0000000  9.898772
## 25  10.658522  0.0000000  9.896026  5.8025086 10.9529592  0.4031586  9.431845
## 26   9.382443  0.6158871  8.960243 12.2178449  2.2410775  0.8469546  7.368719
## 27   7.567315  0.4422269 13.962637  4.6456786  3.3171593  3.4650603 11.369155
## 28   4.030054  2.5787214 14.337449  6.2085446  4.2659094  0.0000000  6.860878
## 29   8.719023  4.2767051 10.486388  1.3258469  1.1410403  2.0048968  8.478169
## 30   8.347381  2.1188580 11.347414  5.0743556  4.5644879  0.0000000  8.290317
## 31   9.485014 11.1328390  9.205166  8.5147168  4.4890226  3.9728121 10.776456
## 32  13.150195  4.3432799 10.977343  6.1604019  3.3886993  0.4339209 12.951531
## 33   9.008407  3.2481705 12.242005  6.4961220  3.7816115  1.3553546 10.666994
## 34   7.710161  0.9074291 12.994960  7.9307060  5.0805340  0.5238630 12.248824
```

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## 35   7.326714  5.6760445 11.890162 11.3511689  3.5374328  5.7465654 12.493562
## 36   5.466102  0.5137939 14.488785  2.8050241  5.9280528  0.8918080  7.326925
## 37  10.585041  3.3276874 10.286009  2.0047890  4.9997475 15.7800023  8.902073
## 38   3.547166  2.3839393  6.184554  7.1026046  4.4473742  0.6439485 12.375681
## 39   7.055898  2.7448930 14.298427  7.0888190  7.4988731  4.1070936 13.511037
## 40   5.675147  0.4017397 12.791822  5.2330022  4.5132949  0.4017397 11.761725
## 41   3.299611  0.9876119  9.121580  6.7741453  6.8702069  0.0000000  9.913314
## 42   4.746474  5.4860965 11.648876  5.9812385  9.1278249  0.0000000 13.140803
## 43   2.856308  4.8174033  8.205787  9.5239071  4.0142035  0.0000000 10.567265
## 44   8.003630  3.7549944 10.081180  3.6511550  6.7407360  3.4179605  8.469500
## 45  10.943093  2.2940472 11.803900  4.6943342  2.4309275  2.9694913 11.738229
## 46   9.636168  1.9700438  9.771762  3.7829956  8.4102368  7.2753451 12.133822
## 47   5.912897  0.9312292 10.532698  2.0082717  4.0893117  0.0000000 13.630916
## 48   6.233426  3.0892778 11.645140 10.0686007  7.1727285  0.0000000 11.465365
## 49  11.681251  3.0212132  8.445698  0.8907969  1.5816887  1.5816887 11.489276
## 50   9.309580  1.5521311 11.111429  3.8607344  3.8923619  0.0000000 12.477075
## 51   2.442545  0.7081431 10.375724  4.7368971  2.4425455  0.0000000 11.885437
## 52  10.548129  1.2193389 10.621736  3.1651402  3.6038696  2.9832217  8.441722
## 53   5.827397  6.8682991 10.595124  4.4157925  1.8580208  0.0000000  9.956546
## 54  10.125081  4.0844470 11.101558  6.9388162  3.7073150  5.4335370 12.387761
## 55  10.627351  0.6747318 15.088593  0.9218171  4.9868478  6.4604182  8.624101
## 56   2.089057  3.4281424  6.107299  5.9357332  4.2403678  0.0000000  4.644047
## 57   6.091397  4.3579390 13.975252  6.9562170  2.5986034  2.2054238  9.522282
## 58   8.769285  1.9571717 12.341273  4.7520528  4.1936141  2.8888309  9.375234
## 59   2.958564  0.6681191  8.686918  5.9464174  5.2407799  0.0000000  9.772283
## 60   5.590913  5.2044068  9.970430 11.4147637  4.0800266  1.0557510  8.168405
## 61   5.395286  0.9358369 10.125061  2.3952822  5.3529386  0.9358369  8.774915
## 62   5.033353  0.9184626 11.874150  0.3748447  3.2184712  0.0000000 11.001483
## 63  12.550303  0.3457370  9.120011  5.1888321  2.7413160  2.2603870  9.761275
## 64  12.471030  3.2133006 10.868384  1.6176276  4.1669725  1.6176276 10.993984
## 65   4.216711  1.0701145 11.640859  1.5480913  6.4751903  0.0000000  9.290276
## 66   7.519859  1.4029404 10.313330  3.5804711  2.3536056  0.0000000  9.720679
```

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## 67   6.654395  4.0306539 14.660159  4.9395322  7.1267994  1.5855875  6.393269
## 68   9.436898  2.5793733 10.912397  6.3387845  4.6588970  0.0000000  9.317488
## 69   8.831973  1.0923428 13.424783  5.0313467  4.0747965  1.2379919 11.384299
## 70  10.064492  0.4270698  9.207518  6.6814619  4.5900331  0.0000000 10.974495
## 71   9.078685  1.5777309 12.488075  8.3990352  1.5777309  1.2161755 10.292296
## 72   5.201473  0.0000000 10.748482  4.5986749  3.4463886  0.0000000 10.189570
## 73   6.075608  0.8258670 14.470385  1.4868173  7.8499949  1.1938979 12.028482
## 74  13.832463  0.0000000 11.345528  1.1133671  0.9050428  1.8551127  9.592621
## 75   8.686890  7.5810213 13.643038  4.8861306  6.1910790  4.5374328  6.500225
## 76   7.303743  0.4619476  6.787175  3.8665322  4.0747281  0.0000000 10.313811
## 77   9.886488  8.2716722  9.142502  2.8298496  6.1551178  2.7226409  7.618527
## 78   3.549608  2.6678467  9.353026  6.6204339  5.6780944  0.0000000 12.744648
## 79   7.768252  8.5236023  6.043268  2.4954905  5.8113323  1.8388711  6.511060
## 80   3.848508  3.0551783  5.971422  4.9569813 11.7365686  0.0000000 13.304085
## 81   8.559070  3.1385524 12.193478  3.0563234  4.2883659  0.5732776  6.706453
## 82   8.818204  0.9245560 13.830884  4.7330831  3.3191410  2.3337958  5.790073
## 83  12.511129  3.7524061 10.788490  6.7403852  4.3300851  0.6143800 11.347910
## 84  11.552858  4.4860643 11.207924  7.4264182  3.7015934  1.0316775 10.183486
## 85   4.496769  4.6791760 10.888864  3.9172312  4.5825500  7.4983019 11.382559
## 86   8.318612  0.0000000  5.593037  1.6159812  1.2490205  2.2930467  3.838841
## 87   7.457941  1.7282688  9.696649  9.5395958  0.7319652  0.0000000 13.238294
## 88   3.079224  3.6918133  8.173079  8.9679513  2.8987888  0.0000000  9.809245
## 89   7.645244  1.1650436  7.624200  3.3957209 10.5324245  4.8452943  7.559164
## 90  11.420642  1.3333665  4.207760  3.7454632  1.1804662 10.8889386  8.381952
## 91   5.448491  0.0000000 14.212644  9.8437510  3.2089386  0.7799741 13.041410
## 92   7.770857  2.3747891  9.718033  8.7182092  0.3774014  1.3191555 12.983011
## 93   7.336372  1.6007455  9.029215  5.6280153  2.8949147  2.4342679  9.882628
## 94   5.907511  1.7190958  6.802215  9.0141483  5.5673720  0.8949923 11.651135
## 95   6.974914  1.0734090 10.249333  5.2582325  2.3621613  1.2512646  9.731758
## 96   5.919588  5.1274022 10.940035  0.5270703  1.8662354  0.9121900 11.685489
## 97   5.627753  0.0000000 10.539875  5.1206796  3.1334156  5.0829878  2.289126
## 98   9.259639  1.0261627 10.149444  6.9259318  2.3635916  4.1919653 10.631809
```

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## 99   5.576368  1.1834548  8.039880  9.3004404  5.4666010  0.3981314 11.504297
## 100 11.735438  4.9755064  8.609586  2.4387719  1.7893537  0.0000000  7.409486
## 101  5.962975  7.4009682 12.296529 12.1894233  1.9489372  0.0000000  9.412833
## 102 10.891024  7.3767766  1.765535  5.0268001  4.8777442  0.4854268  9.578561
## 103  9.786821  1.7388543  5.616237  2.8547537  1.7388543  0.0000000  8.185519
## 104  8.880409  5.3101038  7.691695  4.5503220  0.4716557  0.8265993 12.428657
## 105  6.943844  0.9761436  2.659879  3.3488981  1.6673472  0.5691022 11.380185
## 106 10.160930  1.8074374  9.977661  4.3924273  2.4263453  2.7945198 11.384627
## 107 12.109185  3.6937546  7.885945  3.8099597  2.6841904  6.5543755 11.491467
## 108 10.052382  6.4838480  7.802649  6.5876035  1.1114988  0.0000000 10.929743
## 109  8.028804  3.6013518 10.782996  3.3722835  6.1211087 10.9826349  7.004596
## 110  8.273251  5.7520581 10.247418  7.5388749  6.2066100  0.7357821 12.171732
## 111  3.394761  7.7724109  9.234872  7.3609638  6.1838934  0.0000000  9.576844
## 112  9.719794  1.1696685 11.946943  1.9693071  2.5845777  0.8742855 10.218516
## 113  4.942735  3.3572846  9.219397  9.6394167  5.4201287  0.0000000 11.028914
## 114  6.993854  0.7360420  9.014411  3.8722279  7.9994843  1.2210109 12.613917
## 115  6.816397  5.8888479 12.672666  5.0887692  5.8443003  0.0000000 12.055679
## 116  7.333137  2.1985256  8.395900  4.5952828  8.4098118  4.6337276 13.695944
## 117 10.447444  0.3159140  8.541497  0.3159140  2.6748222  8.1371889  9.620754
## 118  4.433767  8.7918909 12.980421  9.8441975  7.3187760  0.0000000 10.412859
## 119 11.016783  1.2451305  9.307027  2.3536338  5.5197778  0.0000000  8.330953
## 120 11.990130  0.8467942  6.223596  2.7201909  2.3197624  1.6458861 12.046773
## 121  5.165470  0.0000000 11.252699  6.6340632  3.6758949  1.4918018 10.930115
## 122 11.803419  6.1917719  9.218085  3.9003452  2.7910013  1.7816115 11.292969
## 123  9.630537  1.2795902  6.605380  4.7386706  3.2579309  1.6514536 11.810129
## 124  3.472618  7.4701179 12.335425  6.9899292  6.5693999  0.0000000  6.624146
## 125  7.433011  0.0000000 10.909523  2.0012978  1.1384213  0.8487982 10.909824
## 126  9.816953  0.0000000 12.243547  4.3205785  1.1797658  1.6364506  5.824732
## 127 13.186516  0.7750927 11.225096  4.3366476  0.0000000  1.6479591 11.648692
## 128 12.525749  7.8696833 10.094330  4.5693696  2.0588706  6.8309436 11.415770
## 129  3.970541  0.5051796  8.135007 14.4860054  2.6895899  1.4207788 11.559619
## 130  3.450855  4.2948266 12.657196  7.2330060  3.0791391  1.1647219 11.811410
```

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## 131  2.746356  0.0000000  5.499977  5.4180516  1.0501186  0.0000000  9.334362
## 132  8.610950  0.0000000 11.168488  2.2978370  3.4026403  1.4547023 13.075465
## 133  7.067142  5.3029258 15.940450  9.5119366  9.1050345  0.4777809 12.880436
## 134  9.784200  4.4826289 12.277419  8.4864240  3.6004482  2.2958406 11.355870
## 135  9.655645  4.0787208  7.114498  0.9390008  2.4817639  6.7630450 13.468710
## 136 11.022136  1.6497074  9.640876  5.7891215  2.7132339  9.6516523  9.967226
## 137  8.770083  2.5612039 11.347063  7.7264518  3.8384778  0.0000000 11.419299
## 138  2.816927  0.0000000  7.025505  7.5335532 11.5100891  0.0000000  6.143238
## 139  5.193330  5.2511169  9.438034  2.9220836  2.6050439  1.4825385  8.924174
## 140  9.643691  0.8793921 11.347596  4.5391712  0.5056877  0.8793921  9.277630
## 141  3.519416  6.1176535 13.652013  5.4082159  1.5911528  0.0000000  9.714193
## 142  6.501603  6.5236404  8.620629  4.2578630 10.1655345  4.3836836 10.712349
## 143  4.568099  2.3124328  6.863058  4.9843843  3.8782153  1.6617040  8.891473
## 144  6.294527  4.2150184  3.506234  4.7131954  3.9880666  2.5743680 12.471842
## 145  2.695348  0.3654686  9.495769  3.5081244  7.3513333  0.0000000 10.491018
## 146  6.287993  2.3877210  9.803738  4.0868262  1.9344033  3.6734660 13.309207
## 147 14.159184  0.4521737 12.365243  4.9796230  1.3058538  1.0733404 10.964514
## 148  3.700972  0.0000000  6.919435  7.7819341  8.8573127  0.0000000 10.407420
## 149 10.637427  6.3336044 10.464663  4.2935029  1.5165195  9.5447377 11.419567
## 150  3.142495  0.5465611  8.248336  5.8608759  2.0787123  0.0000000  9.584827
## 151  8.099307  2.0139267 12.169015  1.4712915  3.1457264  1.3330802 10.110967
## 152  5.292590  4.4975102  5.164847  9.0095062  6.8266591  0.5010060 13.550446
## 153  3.457542  4.8597957  5.815186  6.5418664  5.2719485  0.0000000 11.610684
## 154  5.081293  0.9685700 11.072235  5.9672378  2.3636477  0.9685700 10.736085
## 155  6.290745  0.3472121  6.944782  2.9641398  4.8459366  2.5603726 11.568718
## 156  9.424015  5.1032794  6.808429  5.6385633 10.3366788  0.5831339 14.502426
##       rs_TSIX    rs_GRM4 rs_HRASLS5    rs_CCNO   rs_ADCY5   rs_TDRD1      rs_F7
## 1    4.665887  4.3720188  8.0114632  9.6705975  8.8232583  0.5144000  9.1004736
## 2    3.573278  1.6630713  3.8800782  7.3533118  6.2364429  1.2895984  6.4600512
## 3    5.382055  5.5347744  6.1692195  3.3937868  7.9387151  2.1017173  2.6975514
## 4    3.939029  8.7557749  7.5560546  0.4889263  6.9500309  0.8535167  1.9350825
## 5    5.852471  5.2268977 11.3201595  7.9806240  6.3262371  2.3109217  6.8859916
```

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## 6   10.807005  3.5075917  6.4701399  5.5595469  3.8039296  1.3538878  1.3538878
## 7    6.947545  3.6518668  4.2280567  4.7871242  4.5933060  9.9543854  2.5882049
## 8    7.821524  4.1163315  4.0268355  3.4704458  5.1181230  0.7617108  2.1626612
## 9    9.658607  2.7473874  6.7759131  4.8607443  1.0279325  0.0000000  1.6220870
## 10   8.275573  6.8464457  9.2315145  4.9033517  6.3588815  8.0498752  2.4545971
## 11   9.172650  4.4424592  6.2404460  5.6296830  9.1319945  0.7390704 10.1324294
## 12   3.265662  8.9209233  8.3636591  2.4456473  8.4302790  2.7136298  5.4470568
## 13   4.454834  2.2302645  0.5474498  3.4184463  2.3656086  1.5089864  0.9433588
## 14   6.479358  5.3650801 10.6685975  6.6466768  5.1367779  2.3280897  4.9616650
## 15   6.233570 10.5636357  5.3455596  7.4033478  3.0880228  4.5331085  6.7904045
## 16   8.198447  5.0970081  8.4042654  9.1733596  3.0675527  1.5088850  8.8093611
## 17   3.610275  9.6998944  2.2517191  1.6277469  9.7671935  0.0000000  6.7607732
## 18   4.970278  8.7929051  9.9416874  6.4540821  9.3394309  1.3375969  4.8706162
## 19   8.003762  4.6144272  7.4243368  9.1396189  5.7084190  8.1617935  4.3360905
## 20   6.976267  5.4909487  6.6787959 10.2518120  9.8252207  0.0000000  9.2458417
## 21   8.155204  6.5268795  2.2117287  6.5765297  8.9536255  2.4434740  7.7955098
## 22   7.052572  3.7832157  3.5494720  2.5710214  1.6132016  0.0000000  2.2347466
## 23   9.765879  6.4765729  1.5278210  0.9573203  2.6274901  2.3889610  5.6699253
## 24   9.866004  1.0764907  2.2314939  2.3407901  3.3031670  1.0764907  1.6860298
## 25   4.476220  5.6347704  4.3693199  8.7465220  2.2836551  2.4630731  6.4119821
## 26   8.634436  2.3201092  5.2072447  2.0686708  8.8337835  2.3950628  7.5165904
## 27   4.617916  7.5618485  5.9866453  5.7084963  5.3761098  2.6736016  4.2153136
## 28   6.282236  6.2246269  2.4749811  1.8019864  8.3541065  0.5002922  8.9979108
## 29   4.648373  2.5414405 10.2096092  2.2067370  8.8660323  0.0000000  2.8735179
## 30   5.520777  2.1188580  8.3291653  6.7094285  8.7093327  2.2372884  5.6449724
## 31   8.184898  4.2688311  9.8229290  8.5349487  3.5021524  2.6241711  2.6241711
## 32   2.219122  3.2358955  8.7043892  3.8412989  5.0566139  1.4617381  5.1593386
## 33   5.257165  3.0770550  9.4110306  6.2631452  9.5954112  3.0770550  7.9474195
## 34   4.025047  6.5039020 10.7779260  6.7049757  5.4273212  2.4271502  5.0805340
## 35   5.803532  5.8780362  4.0958822 10.5381044  9.3574594  9.2305184  9.1285788
## 36   5.839975  7.3573514  5.8869305  3.9582766  7.9203981  1.1911204  3.0482187
## 37   5.297709 10.7328610 10.4230453  6.5004738  5.6083066  8.9926390  2.2851950
```

```
## 38  10.587332  5.3356869  1.2669364 10.9445111  2.8457510  1.8204036  7.2957827
## 39   3.617169  2.6472454  4.5737259  6.1177241  7.2678700  6.4928402  6.2146572
## 40   5.504605  3.0679828  5.8133810  5.9914175  5.2081505  9.2979530  3.0116566
## 41   6.392537  2.4820996  2.7861154  2.0964305  0.4088205  0.0000000  2.0964305
## 42   5.149080  5.9640289  5.0857306  8.8542569  4.1276003  8.8693557  5.7397158
## 43   4.271299  3.5484366  9.0185070  0.9196833  1.4767964  1.8777442  1.8777442
## 44   5.846072  2.9189586  7.3913553  7.5633084  4.6294674  2.5850587  4.8949244
## 45   7.092347  4.9204172  7.5836454  6.6449046  6.2874501  3.3607576  7.4123658
## 46   5.610042  7.1549750  4.8801467  8.5834679  7.4983482  2.2163928  6.6520763
## 47   3.966080  8.7751892  7.8689398  8.7224752  6.9404710  2.3874177  5.2662206
## 48   4.379261  7.7012767  6.1061117  8.9076040  7.5538190  1.4505910  6.1000504
## 49   4.713338  8.0464840  9.6917873  8.5698036  5.2805926  0.8907969  9.4883525
## 50   4.074394  6.4953450  6.6879229  7.4292008  7.5703498  2.7650255  8.0919193
## 51   2.133300  3.0509718  2.7448930  3.6694464  2.4425455  0.0000000  4.3454177
## 52   5.682014  3.5720044  7.4491594  8.7590656  4.2529227  4.5267574  9.4996490
## 53   4.016987  4.6221045  1.8580208  7.4585912  6.6779958  1.7211539  8.5933306
## 54   4.303481  7.2758358  7.4759668  3.1952846  8.5599812  7.9245227  8.4368914
## 55   5.071153  1.7592411  7.8132149  7.3504477  7.0333569  5.1040431  8.1735082
## 56   2.059771  0.0000000  7.9935889  5.1026791  0.4924172  8.3845580  0.0000000
## 57   3.716332  4.2249278  7.2443743  6.6224575  9.5988751  3.1613556  6.2909349
## 58   4.393306  4.5498724  9.2698771  5.7250322  7.1262326  2.9499084  5.2417754
## 59   2.838367  5.2407799  5.3173656  2.5865246  3.1138505  2.0838941  2.5865246
## 60   5.794400  7.1774484  1.8863941  3.4916992  6.6895550  1.5300208  6.0265766
## 61   5.735284 10.5764687 10.2799985  5.2412949  9.3852841  2.3093217  4.4393173
## 62   6.041953  9.6434121  5.5633839  6.2092896  7.8477452  0.9184626  0.9184626
## 63   4.194954  6.1470339  7.3191238  1.8906412  7.9413646  2.3397075  4.0623376
## 64   4.627817  3.1474695  8.5396288  6.6891985  9.1238335  2.3610384  6.6717406
## 65   3.939866  5.6576714  2.0085586  4.9003355  2.6376102  1.0701145  1.5480913
## 66   4.128731  3.4777421 10.7920693  7.2915824  8.6577747  1.9033083  3.5127958
## 67   8.855756  1.2229282  8.3467340  6.4712720  7.7037070  4.2739336  4.6057847
## 68   4.955108  8.1002113  9.5057996  5.2485007  7.8214628  2.0393139  5.1634102
## 69   4.215446  5.2701776  6.2894509  8.7470802  6.8213582  4.8619405  7.3031350
```

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## 70   5.661382  3.9189968  2.9157886  6.7842540  4.5481592  0.0000000  4.0447875
## 71   4.664506  6.4136669  5.9918121  5.9767348  4.5407774  2.1071187  8.1729515
## 72   8.328943  2.2654669  9.7400350  2.0166746 10.3560076  2.1464271  4.4557809
## 73   4.859721  1.6136731  6.9732198  1.6136731  6.4173597  3.2863045  2.8441446
## 74   3.807530  6.2265124  8.7763133  1.2953116  4.2939222  4.0872676  3.7242574
## 75   6.192457  2.4447731  8.2532660  6.8959715  8.6104391  4.0213109  6.8998125
## 76   6.730364  3.9393206  3.1579007  8.3634028  3.4345882  0.0000000  8.8756680
## 77   4.695626  0.0000000 11.9387135  1.8261112  9.5526691  3.8823985  1.6025044
## 78   5.150483  3.7779457  7.6969161  2.1199205  3.3271268  1.4186757  3.1750615
## 79   3.083962  0.0000000 10.8676848  2.6216651  9.2336937  0.0000000  3.6252939
## 80   2.832222  3.1897139  3.1240138  1.9424207  2.7413591  0.4918018  0.8579014
## 81   3.677226  0.5732776 10.9832175  4.9881211  9.4804011  5.6235713  3.8251038
## 82   4.800418  0.5350576 10.6341170  4.1014148  9.8464664  7.9007962  1.6983074
## 83   5.142810  8.6206601  4.5906799  6.2949019  9.0456925  1.3745109  8.3832330
## 84   4.985327  4.0812459  6.9690353  3.0089171  7.7800410  3.2654669  6.6582115
## 85   6.054427  0.8717648  4.1597987  5.0116119  2.5116198 10.8913877  3.1734633
## 86   3.106616  4.4666663  6.3615912  7.1179786 10.4904358  0.2980717  1.1025238
## 87   4.033863  6.1906603  9.5874794  7.2068034  6.6267151  3.2112770  6.0466307
## 88   5.372506  5.6201993  7.0568122  1.8007032  5.7457133  0.0000000  3.6918133
## 89   9.410071  3.2774790  2.5776101  7.3183946  2.3621051  2.9309076  4.6449522
## 90   5.521585  4.3578898  2.7165081  4.2467805  9.9027382  1.9208268  7.6699275
## 91   5.548921  5.9363223  5.4003125  9.6384073  4.0988574  2.4066999  8.5806630
## 92   1.815944  7.1205790  2.1008095  9.3749927  8.5091309  8.9276150  4.9910184
## 93   5.261929  0.4209405  2.5220055  7.7285804  6.7960110  1.7535618  7.7100232
## 94   5.398409  5.1566595  5.6103162  8.6931175  6.3691506  2.2402838  7.3927356
## 95   3.818247  2.0132836  1.8010759  8.1692210  2.9309644  5.3970397  7.5853802
## 96   4.853432  7.6556338  4.5539318  2.4355486  3.6899812  0.9121900  9.0358089
## 97   0.000000  1.4824869  5.5190543  4.5865426  4.0746168  3.8235354  1.4824869
## 98   3.875780  7.0922571  3.5918469  5.9172718  7.4091389  1.7734900  6.1172254
## 99   0.000000  4.9776325  4.2323614  5.6693868  7.3909325  1.6890755  5.7137425
## 100  5.963798  4.3335096  6.4588118  6.1349396  1.3067872  8.0569541  6.6614589
## 101  4.590812  6.5402071  1.2018847  9.2959257 11.3697356  2.1312602  8.2329965
```

```
## 102  4.785551  2.4329594 10.4682167  4.0874628  7.5125430  0.0000000  2.4329594
## 103  5.811697  7.4167562  8.4579939 10.4700514  3.9341107  0.0000000  7.9603026
## 104  6.712449  8.2652906  1.8902910  7.3525175  7.1196093  1.1111649  9.7072915
## 105  0.000000  2.5450293  9.9424449  1.4290535  2.9580260  3.3142470  0.9761436
## 106  5.103137  5.9816792  8.7888309  4.8949244  6.4574925  0.9542708  4.0001082
## 107  4.050397  3.0419964  8.4428581  1.8207712  4.5279836  2.0895998  8.1494342
## 108  5.579775  5.8763671  7.9351250  7.2218491  6.6304870  1.5998890  2.8843635
## 109  6.388990  4.9881575  7.4527289  2.9415383  5.9021677  3.1729195  2.7636878
## 110  8.197372  7.5619172  1.5830376  5.8879371  6.2701738  0.7357821  3.8046835
## 111  5.517279  5.6212724  4.0483844  3.5591002  7.0307653  2.3573831  6.7706348
## 112  6.002745  4.5541590  7.9223834  4.6530084  5.9882416  0.5023306  4.7000068
## 113  7.465270  5.3927742  6.8327318  7.4553881  5.0690748  1.3831651  7.1470197
## 114  4.924623  4.9673024  2.9979066  3.4128628  7.5547546  2.1136338  7.9283449
## 115  4.057502  4.0543797  2.3795932  6.3268591  2.2026998  9.1571739  2.3795932
## 116  4.433867  4.8613549  8.1807272  9.2371631  4.7607372  0.0000000  6.5796554
## 117  4.311380  6.4004713  3.8785978  1.1531568 10.7567676  0.9849174  2.8806268
## 118  2.499093  6.5556137  4.8320191  4.2565352  2.5842169  4.6995738  5.9735286
## 119  5.590003  3.8092601  8.5511688  9.6645735  5.6729429  2.3536338  8.7741410
## 120  1.700040  5.3735717  7.3186531  6.3976524  9.2850262  4.4079577  6.7584418
## 121  4.900490  5.9893275  4.9068233  4.5640855  8.4243612  0.9306995  7.8500218
## 122  5.780284  4.3578968  5.6866098  7.9599521  8.6631283  1.9208268  6.2457428
## 123  6.407591  6.8615224  6.3828142  9.4508997  5.9213792  3.9665874  7.7563735
## 124  3.675635  6.1454492  8.6953299  7.1383609  8.9115813 10.1348816  2.3159140
## 125  6.969071  3.8089616  1.6792436  7.6046081  8.9983436  1.0008654  6.5501511
## 126  5.387952  3.9784977  1.9828385  0.5077185  9.6550484  0.0000000  1.6364506
## 127  6.459186  3.2533237  9.1629992  2.8878567  5.3516566  0.0000000  8.0531325
## 128  3.678387  6.1546379  2.8166611  6.5806023  8.9819725  0.3650206  2.6936765
## 129  5.325775  4.0457313  6.4492675  2.8659188 10.2654959  4.0086213  8.3762192
## 130  1.540176  5.1097784  2.7645372  8.0322585  3.3372687  7.4049516  8.0638475
## 131  5.377630  1.2795307  1.2795307  0.7771988 11.7719327  5.6094890  3.3106600
## 132  6.741579  6.6409780  9.5708101  8.8704208  9.2117267  3.1431322  6.0787913
## 133  3.830590  5.7963382  6.1069136  3.5361400  5.2592273  0.4777809  3.8028549
```

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## 134  5.322519  7.5250149  8.1346425  7.7871366  6.3560452  9.3736378  8.9950591
## 135  5.056345  4.0255427  2.9496843  5.8996010  6.4002083  2.4817639  8.5538554
## 136  5.616822  3.1202856  8.7389384  4.0719943  7.4512606  1.1906781  6.9051367
## 137  4.942252  5.6034483  7.5272690  2.8683905  5.7230315  3.9074291  2.7975111
## 138 10.510846  2.9837689  7.5928532  0.8982471  1.2867038  0.3650206  1.2867038
## 139  6.525385  5.9751372  2.6050439 11.1772740  2.9779210  1.4825385  6.5362565
## 140  5.220508  4.1532054  1.6318493  5.0029860  3.8088278  0.0000000  6.1772920
## 141  7.038027  0.0000000  4.2867703  6.6730857  3.3011047  1.5911528  1.7720968
## 142  8.557969  6.9752954  7.6369805  8.6696292  3.9350637  7.2310695  3.3313613
## 143  9.295570  2.2036710 10.2168334  8.2007059  1.0579701  4.3558127  1.9579889
## 144  5.487830  2.0544665  5.5393356  6.4438619  1.8888114  7.4726210  3.1142671
## 145  6.524515  2.7581752  2.7581752  4.9798607  1.9570602  1.2876496  1.5935450
## 146  6.208646  5.1237655  7.7292448  8.6433912  2.2518403  0.5562087  2.7321389
## 147  5.303715  1.0733404  5.5090149  7.7741769  7.8218964  1.0733404  8.1996581
## 148  3.103162  3.0361340  5.1864292  5.2785461  2.0004327  9.0229439  1.1378314
## 149  5.023149  4.5895358  6.8855988  8.3729121  1.0817487  3.3652586  9.1408454
## 150  9.179406  0.0000000  7.5368883  5.5844515  1.2521128  1.2521128  0.0000000
## 151  4.052616  8.6695633  9.2058778  3.8501493  9.0588122  1.1802752  6.9667754
## 152  3.794759  9.6146992  4.4707451  6.7783702  8.4620589  8.4294214  9.9620097
## 153  5.177583  4.5407465  3.2402227  2.0259147  3.1178945  8.8465482  7.6627204
## 154  6.778156  4.4835965  5.1215045  3.7823247  7.7947577  2.9445961  2.8835426
## 155  5.617783  9.0785920  9.6997272  1.3966527  6.0571730  9.1165753  9.0669258
## 156  4.366770  7.4984559 11.1481545  7.3783365  3.0827026  0.0000000  4.6386705
##       rs_TPSG1  rs_ACTG2    rs_LGR6  rs_CARTPT   rs_POF1B  rs_PRSS21 rs_FAM83E
## 1    8.2330564  9.306799  8.8886142  0.5144000  5.0869154  2.8068808 8.2392056
## 2    2.0875986  8.907640  7.7589434  0.0000000  8.1057828  1.6630713 8.3663659
## 3    1.8321204 10.037829  4.7336743  0.0000000  6.1765342  2.5249162 6.6351681
## 4    1.1442422  7.972268  4.3479916  1.9350825  8.1260132  1.3860936 8.7544276
## 5    8.0026766  7.482947  7.1582401  0.0000000  7.2809248  1.3700527 4.3514587
## 6    0.0000000 10.425177  5.0736617  0.0000000  6.8206028  5.9099795 4.1372986
## 7    1.3463045  8.620570  7.5519497  0.0000000  3.6069159  4.7871242 5.7191177
## 8    0.0000000 15.539413 10.3617107  0.0000000  2.1626612  2.0460020 3.3278454
```

```
## 9    0.6035967 10.434667  8.8100909  0.0000000  1.3553546  0.0000000 2.5048492
## 10  10.3309299  7.041990  2.2224027  0.0000000  1.6026944  0.0000000 6.8667325
## 11   3.5271454  7.253192  4.3508155  0.0000000  8.1584108  2.7414670 7.4971229
## 12   0.8001648  6.621753  5.2362553  0.0000000  9.6258969  3.1944338 1.9873936
## 13   0.0000000  9.171218  7.7147188  0.0000000  6.8797633  0.9433588 5.3135252
## 14   3.0656929 10.770646  7.5021945  0.0000000  6.0736896  4.7623169 4.8654289
## 15   1.4784542  7.528676  4.4878786  2.4026130  1.8078083  0.0000000 1.6525094
## 16   8.5481561  5.614492  2.0807600 14.6479844  5.6678496  7.3768234 2.8071694
## 17   3.8871353  6.171331  3.1607750  0.0000000  8.3498376  3.9664397 4.2775831
## 18   6.8192620  9.743881  4.8129910  0.0000000  7.0314448  0.4665488 5.7670059
## 19   0.0000000 10.249140  8.5863658  8.5592260  4.2518100  4.6641870 7.5531754
## 20   2.3393940  7.022828  5.2065143  0.0000000  9.3986313  0.3644604 7.4454354
## 21   1.9354975 10.039962  3.6672336  0.0000000 10.1835626  0.4891319 3.6672336
## 22   0.0000000  6.262706  9.3445043  0.0000000  3.0727061  0.0000000 2.1026245
## 23   1.5604215  8.035240  3.6748674  0.0000000  8.6053454  1.2705887 2.3889610
## 24   0.4537546 11.292600  5.6377696  0.0000000  3.0040879  8.4599914 2.5372961
## 25   0.0000000  7.539715 11.9314336 11.9335757  2.5450788  7.9275605 8.2452404
## 26   0.0000000  7.216912  3.0797877  3.9175368  9.0477625  1.2210728 8.3455778
## 27   4.6248554  9.165336  7.0707006  0.4422269  3.9057841  2.3061164 3.1523457
## 28   2.5787214  4.760966  7.5445743  0.0000000  8.0181351  4.1358878 4.0662012
## 29   6.1781091  5.901219  3.8935952  0.9291092  5.2157912  3.4521737 7.8921803
## 30   1.0803166 11.342675  8.6140612  4.2351373  7.7456118  5.0258261 6.6625829
## 31  10.1454244  6.012861  6.8106089  0.0000000  8.2748529  2.1940871 8.6233643
## 32   1.0374525  7.560098  4.0993289  0.0000000  9.2065861  7.3558532 7.5302862
## 33   2.8118820  9.143759  7.6238457  0.0000000  6.3089851  3.0151942 7.3287566
## 34   4.4888749  7.167237  6.1148084  0.0000000  6.4757902  1.6731493 3.9493762
## 35   4.2701477  5.895877  2.8520588  0.0000000  7.3299981  1.5005471 7.4066651
## 36   0.0000000  9.187807  8.0610622  0.0000000  6.2694372  6.5584529 7.3797578
## 37   4.8135298  8.227624  6.6747191  0.0000000  4.6745284  2.4072984 8.8771945
## 38   3.4760057  5.601138  2.3839393  0.0000000  2.3040145  6.0684043 0.3576083
## 39   1.6751836  4.069891  3.0035303  0.0000000 10.3865935  3.3523772 6.7259551
## 40   0.4017397  6.792160  4.5922417  0.0000000  5.5222535  0.7157177 3.8243911
```

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## 41   0.0000000  7.980901  9.3916614  0.0000000  3.2996110  9.4522979 3.3468293
## 42   0.4589069  7.618446  7.6074043  0.0000000  4.8809206  2.8810968 2.1278974
## 43   0.0000000  7.801056  3.7531017  0.0000000  2.6667566  7.7630683 7.7301243
## 44   1.1699891  8.872018  5.6547477  0.0000000  8.6709901  3.3310172 7.0608083
## 45   3.1666351  6.686515  4.8242791  0.0000000  7.6018822  5.1948396 2.7774723
## 46   0.0000000 12.714964 10.5616213  0.0000000  3.1142504  5.7222392 7.2854993
## 47   3.1472578  6.911781  3.1472578  0.0000000  1.3285493  3.2424958 1.1435240
## 48   3.7464740 10.073637  8.6724946  0.0000000  4.8590005  3.6501671 6.1941225
## 49   0.8907969  6.724972  3.0212132  0.0000000  2.8608039  1.4374408 1.8329305
## 50   6.4321761  7.447951  4.4762391  0.0000000  3.8923619  4.8266705 8.3852593
## 51   0.7081431  6.143812  7.5122182  0.0000000  8.8278892  1.5366000 7.0939689
## 52   0.8455904  7.616703  4.0595976  9.1888976 10.3883044  0.8455904 8.3126566
## 53   2.2046103  6.582433  4.4378070  0.0000000  8.6031029  4.4378070 5.2755956
## 54   5.6553890  6.183149  4.2003474  0.7735744  6.5483472  3.6267312 6.0885445
## 55   6.4056623  5.542790  6.1328051  1.1326426  5.0401121  8.1494713 8.1868546
## 56   0.0000000 12.554992  8.4192625  0.0000000  3.2545185  0.0000000 4.3878381
## 57   2.5098985 11.151549  8.0850687  0.4448791  6.6845691  5.0972610 4.9865566
## 58   4.0888794  9.267629  9.3256794  0.0000000  6.3067234  3.5324416 5.6441735
## 59   0.0000000 14.419604  7.8351181  0.0000000  5.8015881  7.5455684 3.8030100
## 60   6.6513574  5.139658  3.4916992  0.0000000  5.2044068  0.0000000 7.5139755
## 61   2.8251547  7.534753  7.4939267  0.3832757  4.3124764  1.6463470 6.6730249
## 62   0.9184626  7.783140  3.2637406  0.3748447  6.7364709  0.6721085 2.5955275
## 63   6.9552407  5.100494  3.6909981  0.0000000  5.5804048  0.8579014 8.4954329
## 64   7.2867980  7.037019  7.8232787  0.0000000  2.9297531  1.8000819 8.3875219
## 65   0.0000000 10.821404  3.4816993  0.0000000  8.0281873  0.3503841 3.1654296
## 66   3.2473351  3.904715  9.2251228  0.3494785  8.4302577  0.6304987 6.8996192
## 67   1.8751510 12.380882  8.8568668  5.7823037  7.8713225  7.7013973 5.7468985
## 68   9.1971992 10.230064  6.5257259  0.3907777  7.8392082  1.6678467 6.9634568
## 69   3.4245594  9.312801  7.7496750  1.6031219  7.7313435  2.7840223 6.8612445
## 70   1.2498700  5.879794  3.4583558  0.0000000  4.9369159  0.7562547 5.8713287
## 71   2.3132459  8.398092  4.8910449  4.3971595 10.6420920  8.8748600 8.8977227
## 72   2.4775996  7.097486  5.4479230  0.0000000  4.9580910  2.9735194 7.9964978
```

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## 73   0.5994130  9.432397  5.8938476  0.0000000  4.7691529  2.2033578 1.3477790
## 74   7.6455295  5.331526  2.1668440  1.7341785  9.4505143  0.3683772 1.7341785
## 75   2.1673900 13.094264  9.7907751  2.8775872  7.3562944  7.9959689 7.5446886
## 76   4.4681988  8.028041  7.5473210  0.0000000  1.7068178  0.4619476 0.8113066
## 77   0.5937840  7.513900  4.3468364  0.0000000  3.1106138  2.3429245 1.6025044
## 78   0.0000000 12.450279 10.1212544  0.0000000  2.7418768  0.4165155 3.0639861
## 79   0.0000000  7.761414  3.9479466  0.0000000  4.1707503  1.3484591 0.0000000
## 80   0.5166203  9.667154  4.7328987  0.0000000  8.1421433  0.4918018 5.6127476
## 81   1.7821989 11.954410  7.3442453  0.0000000  7.0890299  3.1385524 2.7771146
## 82   2.3337958 11.656319  8.5387810  0.0000000  5.3720153  2.3337958 4.8273668
## 83   3.2869255  7.779665  6.5734866  0.0000000  9.3272365  1.8697135 7.4124894
## 84   4.9309218  8.306817  4.3449066  0.0000000  6.3286462  6.6656514 8.2260913
## 85   0.0000000 12.813538  5.6899253  0.0000000  4.3479349  1.0748479 7.9168582
## 86   6.8188429  6.466389  0.2980717  0.0000000  5.6336114  0.5448810 6.4284573
## 87   6.8536177  9.408231  8.4054398  0.4119685  7.2260383  0.7319652 8.7612677
## 88   7.5310640  5.810998  0.9953036  0.0000000  7.2575000  0.5818815 2.7993567
## 89   9.0992544  6.492432  3.1486576  0.0000000  5.9799842  8.3655023 7.7845328
## 90   5.9505221  4.167655  0.3257318 15.3963150  7.2596359  6.8705558 2.1846929
## 91   3.4242100  5.822106  3.9394241  0.4421208  6.0342884  4.1287388 7.4474048
## 92   2.3747891  6.829586  1.9965334  0.9237957 10.0366436  2.6741894 7.4687169
## 93   9.2895648  7.363342  1.7535618  0.0000000  5.9140119  3.1364047 2.6828879
## 94   1.7190958  8.117855  5.2465145  0.0000000  5.9549291  4.9714286 7.0248781
## 95   0.8705028  7.240257  5.3780087  0.0000000  5.7915562  4.9585643 7.3926231
## 96   1.8662354  7.683753  2.6534270  0.0000000  5.3774292  2.0309716 0.9121900
## 97   0.0000000  5.228176  5.6791760  9.4033027  4.0487767  2.7402368 2.1008095
## 98   3.8896390  7.270724  1.9123816  2.8519589  8.1160008  2.0391033 4.7869518
## 99   1.1834548  6.312769  6.9203398  0.0000000  8.4191364  0.0000000 1.9486382
## 100  4.5607333  8.909928  4.9062845  8.2762877  7.6543152  9.0381536 9.9852635
## 101  3.0946246  5.303470  4.6986352  0.8320393  9.3850433  2.8035990 2.1312602
## 102  2.5360529  3.867896  6.8703647  0.0000000  6.8752886  0.4854268 7.9248125
## 103  0.8312287  5.924582  3.4763687  1.0278618  6.3259044  6.7688711 6.7619833
## 104  0.8265993  8.116425  4.3183168  0.0000000  8.4663918  3.5162421 6.6214248
```

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## 105  1.6673472  6.274478  0.0000000  0.5691022  8.8285592  0.7869309 6.1522747
## 106  3.7549944  7.989507  5.6457679  0.9542708  4.7682955  0.3923174 6.7407360
## 107 10.5126352  5.816536  3.9174986  0.7854250  1.2911910  8.0855346 8.1695162
## 108  3.8716465  8.587235  4.3328010  8.7428857  6.1064300  1.1114988 7.1232037
## 109  1.4760706  9.051699  6.4425853  0.0000000  4.7220616  3.6013518 5.4663628
## 110  3.4568061  8.529806  6.6929530  0.0000000  6.0986975  2.8719816 4.1127585
## 111  0.9648052  5.711382  6.5243975  0.3975839  8.6431145  0.9648052 0.9648052
## 112  4.9920297 10.834350  7.5801244  0.0000000  7.9853928  5.1356990 8.7271870
## 113  3.4662747  7.352659  2.9700253  0.0000000  7.2572964  5.6684397 3.8348123
## 114  5.9265593  4.457141  7.2487009  0.0000000  4.3434931  4.1676550 7.0492779
## 115  1.1382247  7.427603  4.4607164  0.0000000  4.5741802  5.5982520 6.7292537
## 116  2.0921059  7.649176  3.2945472  0.4075159  1.8523984  2.2976023 4.7950604
## 117  6.6683858  5.577622  6.0575781  0.0000000  4.3634374  0.3159140 9.0331163
## 118  1.5229597  8.143122  4.6284937  0.0000000 10.2462852  3.0866649 9.0431528
## 119  5.2600972  8.471256  4.0370835  0.0000000  3.1504947  6.6733359 7.2487132
## 120  4.6867134  2.985573  1.5176284  0.0000000  8.1669097  0.3405053 0.6156988
## 121  3.7423620 10.371743  6.6730207  0.0000000  9.0002846  0.9306995 6.7295541
## 122  3.6828317  6.077367  3.7956838  0.0000000  4.9192161  6.3230944 3.3299703
## 123  3.3617543  7.413940  2.5842169  4.1517939  3.8642357  5.7786002 6.3579179
## 124  0.0000000  6.364928  2.6331057  3.0611195  7.1352229  2.1266425 4.0272071
## 125  5.0631966  7.207269  3.1390438  0.0000000  3.1390438  3.0015140 7.9994696
## 126  8.2730552  2.873242  2.8732423  0.0000000  2.8732423  0.5077185 7.8510313
## 127  7.0076272  2.663299  1.8030617  0.0000000  4.5488065  7.7772178 7.6552574
## 128  2.8862965  7.515194  4.7029345 14.8072407  4.6039349  0.3650206 4.4604018
## 129  0.5051796  5.075011  0.5051796  0.0000000 11.5092467  1.4207788 0.0000000
## 130  0.0000000  4.493481  2.8498592  0.4997821  8.8739903  0.0000000 3.5561473
## 131  4.7792440  4.699452  2.0745054  0.0000000  1.9467683  3.5925766 8.2912946
## 132  5.9010624 13.300139  8.4297992  0.0000000  7.5220165  2.6375871 3.8132579
## 133  0.4777809  6.369199  4.9649346  0.0000000  9.7129415  4.1918153 5.6232845
## 134  4.9659782  8.053663  4.2964134  0.3793992  7.6426070  2.6812918 8.2488929
## 135  5.5023624  9.579867  3.9129372  1.5029925  3.1616620  2.2229900 5.7922723
## 136  4.8474809  8.209443  5.1550287  0.0000000  8.4435938  0.5134907 7.7321939
```

```
## 137  2.1703738 11.726774  7.2570182  9.2819268  7.6828668  5.6034483 6.6849702
## 138  0.0000000  7.313578 10.5844066  0.0000000  2.1554902  0.0000000 1.1054769
## 139  0.3775125  5.619105  2.2892148  0.0000000  3.8833276  0.6763577 1.6292400
## 140  5.0078907  6.422951  2.1238317  0.0000000  6.8320077  0.5056877 7.8755165
## 141  0.0000000  6.787913  6.3772209  0.0000000  4.6756579  3.1781569 6.8646752
## 142  7.6785797  6.736733  4.2578630  0.0000000  4.3346612  1.4559650 3.6445947
## 143  0.0000000 12.276117  7.9544709  0.4443490  3.7679514 10.6649600 3.5631093
## 144  2.0544665  6.458718  5.6599445  0.5366498  0.0000000  1.8888114 6.3191591
## 145  0.0000000  9.003522  9.8486459  0.0000000  7.1047434  6.1211750 4.4622814
## 146  8.9941220  9.190454  4.2383207  0.5562087  2.7321389  5.6817107 4.7975785
## 147  7.4967475  5.295760  1.3058538  0.0000000  0.7959331  1.6818990 9.4602798
## 148  0.0000000 12.688653  3.0361340  0.0000000  2.8078495  8.1664870 0.6782522
## 149  9.3270927  5.884175  2.6347791 14.6475198  6.9390902  4.5670586 1.3154503
## 150  0.5465611  8.076818  3.3522359  0.9420077  2.4870232  0.9420077 7.0322563
## 151  7.8402498  8.990782  8.8258712  2.0139267  7.2254465  6.4106549 7.0545902
## 152  3.1626129  6.560888  7.8282184  9.2349819  3.5083019  2.4768483 8.3155952
## 153  1.3426685  9.067116  3.7322692  9.8401524 10.3287530  4.5643538 6.1862529
## 154  1.3756789 11.575406  9.8048746  0.0000000  7.1135349  2.0668814 5.9224143
## 155  1.2392147  6.876252  8.3568798  3.9723159  1.6677559  1.9976898 6.4155762
## 156  3.6388848  9.838527  7.7528483  0.0000000  1.3186928  2.5804591 0.0000000
##      rs_PTCHD1 rs_SYNPO2L    rs_MYT1   rs_PRODH  rs_SHISA9   rs_DEFB1  rs_VIPR2
## 1    0.5144000  4.1463049  4.2144746 10.4593060  3.1921468  7.7581366 5.6744550
## 2    3.1016837  7.4812917  1.0590091  9.4008671  3.5202211  5.6050231 2.7188329
## 3    2.8517191  2.6138145  5.9043275  3.5370599  4.7336743  5.3912659 4.5626637
## 4    1.5931625  7.3251210 11.0093477 11.8793591  1.1442422  0.8535167 2.5160404
## 5    2.1908677  9.2241660  0.8418926  7.1010995  9.5790649  3.6877214 3.7331265
## 6    8.3218533  2.0398403  1.6204457  4.6356906  4.1372986  8.7427672 1.8137709
## 7    7.3313317  0.8248086  0.8248086  7.3688425  4.6161753  8.7189181 3.2601461
## 8    9.3669916  0.4304994  1.7799321  8.3947396  9.9738516  4.2276256 3.8897169
## 9    1.0279325  1.8470749  2.7473874  6.7482908  1.0279325  3.4424658 2.0343918
## 10   1.6026944  8.7234033  5.8690200  1.9455702  8.0718860  2.8300930 1.2392758
## 11   2.3261634  2.4193501  5.1616539  2.9432087  7.8254549  1.7406686 4.2105603
```

```
## 12  5.9052667  1.6888070  1.5125809  6.2871417  1.3118518  5.0225809 5.3087395
## 13  4.4744360  0.9433588  0.5474498  4.9541405  2.3656086  4.8425364 2.3342536
## 14  3.2799318  3.0656929  3.5513807  6.9105276  7.9599399  5.5415272 5.2046885
## 15  0.4407396  6.4682428  5.3953987  4.6403491  6.5585110  2.7477741 3.1595808
## 16  0.9432837  8.1677759  3.4792694  2.3654686  2.3654686  1.2536263 9.0029137
## 17  1.6277469  0.5039593  6.3446084  3.6191313  8.9794609  5.9452963 1.3223897
## 18  6.4603510  5.3473042  6.8899857  3.8443756  0.8186052  1.1013139 4.8706162
## 19  3.8546739  0.6536104  6.3590871  3.8546739  4.8332241  7.7503553 5.4551694
## 20  1.5906260  2.3287216  7.1362242  3.4291473  8.1862212  3.3500304 3.1797499
## 21  1.5935928  1.9354975  0.0000000  5.3126942  7.8520450  0.4891319 0.4891319
## 22  1.1606621  1.1606621  1.9571717  3.3307018  1.9571717  6.3084064 0.0000000
## 23  6.0439438  2.6274901  1.7460117  9.5885702  8.4293297 10.9949107 1.6562218
## 24  5.6052780  1.8428984  0.4537546  4.1994368  0.4537546  6.9159523 1.6992407
## 25  1.3852101  2.8331127  5.5578604  8.9799959  7.5496800  0.9762170 5.5478539
## 26  2.3950628  2.2410775  7.7891182  5.8901572  3.4039357  3.5088850 3.4262648
## 27  5.4956184  3.7219304  1.0538064  7.2849379  7.7150045  4.9767211 4.1330620
## 28  6.7651634  3.0808452  3.7917828  3.8343269  8.3282912  6.2166081 4.8044150
## 29  0.6805044 10.5679861  5.6816348  7.0420861  7.3364914  1.4895943 3.1535784
## 30  4.6523660  5.9951317  1.5147535  8.2886036  7.2880752  7.8630675 6.5222834
## 31  1.5785523 10.0556352  5.6052513  4.7877041  8.8894197  5.8828998 2.3142035
## 32  1.7891450  2.4754481  3.4362418  7.4014786  6.3146331  3.3886993 1.3310172
## 33  5.7678984  3.8889965  2.6584400  7.6186549  7.5078985  6.5461969 5.8234641
## 34  2.8338211  3.0009555  1.4601135  6.4252360  8.0014302  6.9996641 5.7967120
## 35  1.0688084  0.4498519  1.8324040  1.9735011  7.7509843  0.0000000 2.1622100
## 36  5.9778638  2.1447317  0.5137939  7.9280203  3.5476966  5.2721352 4.6771417
## 37  2.4072984 10.0885464  7.2158135  4.2210728 10.0851200  5.8854401 3.9536564
## 38  1.9309644  2.8457510  5.6981323  1.8204036  7.3564775  4.2903064 0.5911049
## 39  1.2117598  1.2117598  2.4295624  3.4712785  9.1109228  2.4295624 2.0238586
## 40  6.9800344  1.9598443  1.1918784  4.5334388  7.4752697  6.0059097 3.1657030
## 41  6.6987922  1.3995539  3.0370659  4.3686915  0.7270927 10.2854330 0.4818156
## 42  7.6184457  1.0865120  1.0865120  3.8185234  7.8678180  5.2509275 3.4356819
## 43  7.5902689  0.9196833  0.0000000  4.4854204  8.7612268 10.4318049 0.5318680
```

```
## 44  1.6725159  2.7280076  1.5236121  5.0795957  7.4047218  3.6511550 3.9355635
## 45  2.6709536  6.8108775  6.4811665  8.2983449  5.1948396  3.8255007 3.9940456
## 46  1.4975868  3.9283229  3.7044404  9.1538431  6.8475047  8.7722080 3.3778872
## 47  2.1128002  2.9914629  3.4159614  3.1472578  7.5485538  2.2102642 5.8345873
## 48  5.3730217  1.7272670  3.1374216  5.3830407  7.9608152  6.1121496 4.1137505
## 49  1.7127718  2.9162855  5.7152784  7.4129432  8.6527754  0.8907969 8.6962665
## 50  3.1782685  1.1942762  4.9817750  7.6899393  3.7267549  3.6912215 5.7025634
## 51  7.4895044  1.6861643  3.9611973  7.1400700  0.7081431  6.0640680 6.0440487
## 52  1.2193389  4.3687614  4.1487308  1.6440408  5.8806145  3.9146411 5.5070525
## 53  1.7211539  0.4093638  6.2630306  9.0034423  6.8844172  4.6970231 9.7991780
## 54  1.0456526  5.9792091  4.2549795  4.3584103  9.2967738  4.6510058 5.7109689
## 55  3.0796000  3.5887566  3.7251085  6.6902215  3.0796000  3.5887566 8.8906911
## 56  5.8968579  1.3935809  1.1508846  1.6013162  6.0195485  7.3225808 0.0000000
## 57  7.6204237  1.8190550  0.7844202  8.6740118  7.3850712  5.6985269 7.0490992
## 58  5.6441735  1.5469562  1.8329710  8.1923086  6.2349094  6.7375502 4.7565056
## 59  4.9283608  1.7467427  4.3737456  9.4102533  8.9284177  4.2226423 3.9097635
## 60  1.2317396  3.5258809  5.3921525  8.0113905  8.0559353  1.6588284 2.0615688
## 61  7.4189371  1.1488690  9.3412855  2.7618171 10.2919557  4.1975195 4.3630659
## 62  1.9880848  3.2637406 10.4240562  2.0921736  9.3222024  3.3502285 3.9734368
## 63  0.6244285  5.2100966  6.9535400  3.3515153  9.5224089  3.7502635 2.7861781
## 64  2.4727737  3.7454632  4.8018209  9.3986924  5.6858224  5.4191107 7.1187439
## 65  6.4436431  2.5041627  1.4056657  3.9858920  3.8273109  3.3710570 1.2741125
## 66  1.9033083  1.5452271  6.4708833  7.4125538  7.9962402  2.6339659 2.6827980
## 67  4.7558116  2.1162317  0.0000000  8.2536244  5.9782277  7.4188089 6.6413423
## 68  3.1838517  7.8873851  4.5288651  4.5092905  9.8251063  4.2031150 5.0263752
## 69  4.6699622  2.0601512  4.2904834  5.7301862  4.0552824  8.2185632 6.9561763
## 70  1.9093507  1.0240359  2.9801899  1.0240359  5.4616661  1.7705331 4.6757708
## 71  1.3470420  0.2875905  6.5005742  7.1624769  1.6805944  1.3470420 4.9143397
## 72  1.7158055  1.0992279  0.8168864  5.6364303  6.8098736  5.8419605 4.2734935
## 73  6.6497261  1.0215508  1.0215508  4.3260627  4.6993684  3.7119354 4.0333966
## 74  0.3683772 10.5491900  2.1668440 10.7078866  2.8873498  0.9050428 0.9250880
## 75  6.0803741  6.6582115  2.3581149  9.0495461  5.0471675  8.0930927 6.8527991
```

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## 76  2.4669403  1.3274574  1.5295711  3.3301998  6.9279687  4.5862243 0.5047729
## 77  3.4832741  1.6025044  0.0000000  5.0698139  2.0197019  7.7776288 4.4811698
## 78  7.1107756  2.8123134  3.5496076  8.6399737  2.8123134  8.7794577 3.9605395
## 79  1.6144272  0.0000000  0.5997939  5.5348336  2.4954905  6.5670343 4.5731382
## 80  8.2423062  2.3397645  3.3127668  6.9878518  1.1496496  6.2736725 0.0000000
## 81  4.3239465  3.5525984  1.3008266  5.7202018  5.3405551  7.1095632 6.6994267
## 82  8.3432030  2.1992169  0.9245560  5.6422626  3.4434475  7.5356891 5.3314043
## 83  5.1284295  1.5151069  6.0567873  8.0447990  9.2380870  3.0760460 4.5342795
## 84  1.7441180  5.3830510  6.0216729  9.1553004  9.2380992  2.0472592 6.8438846
## 85  6.2835848  2.2004102  1.2528395  0.0000000  4.3866040 10.6035430 0.5695883
## 86  0.7556567  5.6859934  8.3196482  1.9082749 10.9408001  0.2980717 0.5448810
## 87  2.3119681  6.4251001  3.7254576  5.6316573  9.1364729  0.0000000 3.0764907
## 88  0.9953036  0.0000000  5.6346978  2.3144645  9.7168820  2.6925388 3.2546696
## 89  1.8010345  2.3621051  1.8010345  2.6743703  8.3545923  5.2581759 6.4532855
## 90  0.0000000  0.3257318  7.8390652  0.8154935  4.1676550  0.3257318 1.1804662
## 91  0.7799741  3.2638157  1.9517370  7.4022498  4.4459915  0.7799741 0.7799741
## 92  1.6291468  2.4556494  3.9956835  4.8927844  7.9525112  1.1350094 4.4106871
## 93  0.4209405  1.8916914  1.6007455  7.0823545  9.6098201  0.7464848 2.2096405
## 94  2.8108955  1.1017173  1.4431823  6.4982237  3.5362643  5.7005202 6.3827883
## 95  2.9309644  1.0734090  0.6343145 10.2473676  3.9917712  0.6343145 1.4333334
## 96  3.9993506  4.6329719  5.9813093 11.0005950  4.6329719  3.2293264 2.3128684
## 97  1.3191555  1.1350094  2.9778294  6.1852779  4.8634429  3.4018216 2.4068632
## 98  2.2633349  4.5090117  2.7067957  4.0182692  7.8971660  2.2633349 6.6065577
## 99  3.9355069  1.6890755  1.9486382  2.8788823  7.8342726  1.5393822 2.9822909
## 100 0.0000000 11.0191169  6.2134542  4.2979104  0.9873936  3.5004834 1.1935825
## 101 1.8483175  4.2238318  0.3335382  7.4681988 10.1536805  1.7401504 3.0698053
## 102 0.8479969  4.5484366  7.7535511  7.3871557  9.0095487  0.0000000 0.5733745
## 103 0.0000000  1.6219464  3.4763687  7.5081038  7.2470645  0.0000000 3.5739925
## 104 0.0000000  0.8265993  5.6582715  9.5216456  8.5873691  3.6106174 8.7813925
## 105 3.2050014 12.8859578  5.2929952  0.5691022  9.3787981  0.0000000 1.3463613
## 106 3.3310172  4.8642951  4.9972879  2.6583029  6.3565629  5.2551381 5.8350550
## 107 1.2911910  6.2459424  5.4252713  3.9174986  0.7854250  1.0603241 8.7512090
```

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## 108 2.2546545  2.2546545  7.9622361  1.8525982  6.0506845  0.6601985 0.8808814
## 109 3.5474005  1.6903724  0.9191494  4.6975014  5.0860109  6.1485478 3.3159574
## 110 1.2207633  6.3250805  7.8236787  6.0488225  7.2163055  2.6605408 5.4827160
## 111 3.0525898  0.0000000  6.8950638 10.2686014  8.6881971  4.3471554 2.7559771
## 112 3.0145517  6.0348144  4.4480287  4.0366704  2.3688801  3.6625473 2.4807563
## 113 4.0249845  2.5422828  3.6157106  2.6385836  6.5833596  5.7243692 3.2727847
## 114 3.7347421  6.5316014  2.5005216  1.4135399  6.7390866  1.5833747 1.8502794
## 115 4.6451483  2.6791986  1.1382247  8.6123672  6.7292537  7.7017791 2.3978030
## 116 2.0921059  2.0921059  3.9714700  2.3903375  6.8319317  0.0000000 3.2781335
## 117 3.1024398 10.2173200  8.3684986  2.6184266  9.2551152  1.1531568 2.3868385
## 118 3.5383395  1.8066953  0.0000000 10.2625153  7.4585354  4.7338424 1.5229597
## 119 0.7529198  1.2451305  2.5351323  9.4920517  4.0370835  4.6228601 8.0716769
## 120 0.8467942  1.3768460  1.6458861  9.4340250  4.7594009  2.8852034 7.7695767
## 121 4.2227273  2.4675403  0.9306995  3.2643863  8.4985325  3.8672145 3.0395771
## 122 1.6275135  7.7932704  3.9979246 10.3686280  8.6766994  2.9938736 7.5989123
## 123 1.2795902  5.3440509  2.9600483  8.6297580  7.8351529  1.2795902 7.5713431
## 124 3.3040145  0.6890307  5.8019424 12.1152283  8.0204083  3.9719941 5.0099428
## 125 1.6792436  2.1388472  6.0849210 10.4206378  5.7296207  4.4999097 0.3922075
## 126 0.0000000  0.5077185  9.6406356  3.4197546 10.9019793  0.8825257 2.9539915
## 127 0.0000000  0.7750927  7.7248208  3.2533237  6.2145911  1.2765562 4.4583426
## 128 4.1217449  1.7237770  7.8446072  0.3650206  8.3752754  2.0588706 1.4057201
## 129 2.4886692  0.5051796  0.0000000  1.4207788  8.0208539  0.5051796 3.4677881
## 130 5.8713287  3.8738526  0.0000000  8.6425355  6.1234117  2.5771025 1.9579889
## 131 0.0000000  0.0000000  0.0000000  9.5571186  0.0000000  3.1459220 8.1712043
## 132 5.5044615  4.4523187  1.4547023  8.7072383  8.1337212  6.3179444 5.8148990
## 133 2.6997071  4.7711197  1.1229377  4.3390162  7.4538690  5.2141598 5.4425853
## 134 3.8005686  1.4878979  5.1776507  8.9536471  8.9404584  4.0303979 5.7701683
## 135 3.4710183  1.1524430  0.6883147  8.2404904  8.1564204  6.5998400 1.4651386
## 136 2.7132339  2.7132339  3.6972067  3.2556065  4.9103633  4.8687460 3.1580946
## 137 2.7975111  3.1215294  7.6580715  9.1124942  3.7284539  2.7229468 8.5044214
## 138 9.5338791  0.8982471  0.3650206  8.9937366  7.1121288  3.2249818 0.0000000
## 139 5.3175392  4.3742257  3.5928038  6.9910184  7.0829942  2.2892148 1.4932887
```

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## 140 0.5056877  2.2564974  3.8927699 10.0357594  0.0000000  1.1759397 0.0000000
## 141 6.5483226  2.2088918  1.3842156  3.1125333  6.1342867  6.7123853 0.0000000
## 142 4.6868423  1.0328061  4.1200118  7.5959683  7.6620338  6.7272684 1.8442651
## 143 8.6408259  1.9579889  2.5080483  4.5898713  1.0579701  5.9446172 1.7118032
## 144 0.5366498  0.9268344  0.0000000  5.8409415  6.4587183  2.9557406 0.0000000
## 145 4.6887958  1.5935450  0.6567252  4.4622814  0.6567252  3.1813411 1.0105650
## 146 1.5268200  1.5268200  6.4826708  1.7449361  7.5122395  2.7321389 1.9038867
## 147 1.3058538  1.6818990  6.4451357  5.1388186  4.7423350  1.3058538 3.5140212
## 148 8.4352039  3.8283574  1.1378314  8.0504233  3.3224474  0.0000000 0.0000000
## 149 0.0000000  1.5165195  2.4505910  3.1401406  0.4564908  0.0000000 7.3451542
## 150 8.0216291  3.4158938  0.0000000  2.8969693  8.0718871  2.8969693 1.4692608
## 151 3.3743162  3.4431027  5.0514156  9.8056228  4.7593370  4.6760360 5.9976627
## 152 7.4020766  0.8720801  2.1114654  8.5636981  8.6088880  0.0000000 2.6538167
## 153 2.7572153  8.1044410 11.0421581  9.3797994  6.1786230  3.9980510 4.8617023
## 154 8.0949132  2.6831574  4.4628769  8.1396572  7.0628060  6.4290719 3.2696765
## 155 6.1092874  2.2660369  4.0922582  2.7474089  9.2940507  1.6677559 4.2733070
## 156 4.3524125  2.8027309  4.0393227  5.1646737  6.1745842  2.9952674 0.5831339
##       rs_SOX2    rs_AR    rs_IYD   rs_PLCH1 rs_SLC27A6    rs_HPX rs_PP14571
## 1   6.0562735  9.782902 0.8928184  3.1228880  6.4728565 11.558061  6.2795493
## 2   0.7843365  9.716652 0.0000000  6.6274959  5.7858879 11.166573  1.0590091
## 3   0.0000000  8.866230 3.2347159  5.0041778  6.4423215  6.914276  3.6252354
## 4   2.6426092  7.883860 0.4889263  2.0797706  6.7856722  6.676108  8.6611817
## 5   0.0000000  8.798103 4.5596876  8.0097463  4.0049957  7.363076  7.6991532
## 6   0.6028369  1.026658 4.0941347  9.8027041  1.6204457  4.605269  0.6028369
## 7   0.0000000  4.342178 2.1605653  9.7085865  4.8655576  6.207278  3.3030501
## 8   1.6259250  1.779932 1.2575538  9.0276506  8.8487916  2.162661  1.0308304
## 9   2.3663642  0.000000 2.6312207  8.0967821  1.3553546  3.219215  0.0000000
## 10  0.0000000  7.403118 0.4930324  0.8598106  4.5235870  6.684450  6.9113632
## 11  0.7390704  5.895981 6.6150396  8.4018885  3.1201694  6.005218  6.9710411
## 12  4.3415233  9.961874 0.8001648  7.3352948  3.8791078  5.006038  0.8001648
## 13  1.9142201  1.914220 0.9433588  7.6891363  3.7507244  2.708894  1.5089864
## 14  0.7400209  7.539055 2.3280897  7.7011650  5.8572470  7.705804  8.3957093
```

```
## 15  3.2593177  7.172710 0.0000000  2.3016754  1.6525094  8.022613  3.3121714
## 16  0.0000000  8.731620 0.9432837  4.0609034  1.9141052  5.852011  6.1338121
## 17  6.5580747  9.001987 0.0000000  5.3326256  8.0645940 12.495145  0.0000000
## 18  0.8186052  9.647583 5.8457434  2.5762077  6.9038529  6.497406  7.0229991
## 19  0.0000000  9.501946 3.6393595  8.4019154  6.8602676  4.491186  6.1362652
## 20  9.9339147  8.333593 5.6230123  6.3883704  3.0827537  8.261113  6.2590012
## 21  0.0000000  9.790631 4.1331772  8.3302698  3.5725259 11.391296  6.9458933
## 22  1.9571717  0.000000 2.2347466  9.0705388  2.3557493  1.404576  0.0000000
## 23  0.0000000  9.635445 4.3437986  6.2543370  1.5278210  5.880597  6.8913742
## 24  0.4537546  3.356200 1.3094673  9.4187438  6.1913139  2.710239  0.4537546
## 25  0.0000000 10.150892 6.0681764  8.6571698  2.5450788  6.149058  8.3530202
## 26  7.1589600  6.473487 6.7659338  8.4525135  5.3739822  4.129885  8.2313551
## 27  0.7802261  9.647982 1.2837440  6.4853302  6.4910947  6.966976  2.8984406
## 28  7.9447917  7.323469 4.5216099  8.7412748  1.9640659  6.709110  9.0014155
## 29  0.0000000 10.060431 6.9883132  2.0048968  2.6835617  5.930030  7.0939267
## 30  1.0803166  9.604666 0.4557546  6.2058441  8.4627710  8.997397  7.6367145
## 31  6.3930455  9.536094 6.9282388  8.4473428  2.8791764  5.430192  6.6825312
## 32  7.3434389  9.035788 5.2012222  6.2159368  3.3395365  4.508074  0.4339209
## 33  0.7727302  9.898210 5.5342422  5.1440708  6.5185934  7.202597  4.3055620
## 34  2.5400521  9.453451 1.8587767  4.2442021  5.4706995  5.619445  6.1056655
## 35  0.0000000 12.135033 9.7769699  9.1276353  0.4498519  9.669579  7.4556026
## 36  1.8345494  8.184987 1.9979427  9.5292138  6.8799385  4.990900  1.1911204
## 37  0.0000000  9.147404 5.3587620  8.9877540  6.1876450  6.310104  7.5299302
## 38  1.7006617  7.864681 4.3709733  8.8100700  1.0875986  5.935462  2.6001746
## 39  2.6472454  8.647886 6.8789864  9.2295420  0.5247658  5.974082  1.8609231
## 40  2.1802752  5.395909 0.7157177  8.1671587  4.8225313  3.011657  1.1918784
## 41  0.0000000  6.171917 4.1195554  9.8649630  4.2494909  3.093543  1.3995539
## 42  0.0000000  7.656437 6.5699877  8.7248648  1.5224073  7.124934  7.9200652
## 43  0.5318680  3.243486 0.9196833  9.3495241  5.7443791  4.301946  4.1289367
## 44  3.8518490  9.385571 1.3576083  3.3310172  4.9249217  5.432652  4.9249217
## 45  2.1428382  8.898843 7.1796374  8.4266598  6.7335889  6.720295  7.3873505
## 46  0.0000000  8.177429 3.3899797  8.0600939  7.0908005  8.551568  8.1199537
```

```
## 47  0.3810618 10.806228 1.3285493  2.6873743  1.7733212  8.089917  4.1396659
## 48  4.7548020  9.377460 6.6861013  9.4194508  7.5801915  6.917451  4.3266452
## 49  1.0969365  9.882723 0.6503050  0.3614315  0.8907969  9.145181  0.6503050
## 50  0.4028313  9.468223 2.3749282  3.1259982  4.2010614  8.085091  6.3027778
## 51  0.7081431  4.178739 2.0595629  9.8328318  7.6931865  2.875210  3.7049383
## 52  0.6147570  9.631134 4.3871971  8.0002694  5.2248661  7.424829  8.5510164
## 53  6.2995506 11.052157 8.3711520 10.2875883  4.1749816  5.511806  5.5826674
## 54  0.7735744  9.199144 4.5671256  8.5117175  4.1143087  9.859645  7.5488435
## 55  0.0000000 10.646798 5.9707938  5.9360867  4.3062258 10.418193  3.4773017
## 56  0.0000000  2.341502 0.4924172  9.7955748  9.8372353  1.944034  2.7432349
## 57  0.4448791 10.038109 2.5098985  8.1304063  7.1299753  5.718458  7.4189624
## 58  2.1775033 10.437837 3.1190241  8.0443586  7.8457296  5.518743  3.7194792
## 59  0.6681191  2.180784 0.3723950  8.1779571  9.5500035  3.012193  3.2540498
## 60  0.3444877  6.787908 7.8638555  9.8604593  2.7935838  5.793909  7.7884221
## 61  3.2043442  6.239635 0.0000000  4.1238814  6.7112402  8.223776  8.1820546
## 62  3.9016489 11.123924 4.0640033  9.1162525  4.7920380  7.620815  7.2538078
## 63  0.6244285  9.354720 4.7401774  1.9923334  3.6291934  5.379209  1.2351143
## 64  0.4994760 10.301573 6.8111499  3.5554603  4.4387453  8.926966  4.1333498
## 65  0.3503841  5.848708 3.3710570  9.8398352  2.5724289  3.026322  4.1734073
## 66  0.0000000  9.311666 5.0352588  2.5005726  3.9565678  7.131608  6.4529413
## 67  0.7373406  8.100745 1.5855875  6.5958990  9.1051223  6.710611  3.6638455
## 68  0.0000000 10.749909 4.8577123  7.1232720  6.0309452  5.938850  5.8247220
## 69  0.9303967  9.618153 0.0000000  5.3524443  7.3216341  5.941623  2.8306813
## 70  0.7562547  9.421973 4.0447875  7.4765137  2.2600257  5.896579  6.4845925
## 71  5.7531071 10.634906 3.1242454  6.8319355  3.1602748  5.680513  7.2019132
## 72  1.5380415  9.198306 4.3786503  9.0620758  3.3950902 12.424679  4.6211786
## 73  0.3305584  5.509480 0.3305584  6.7077484  7.6918740  1.347779  1.9384364
## 74  0.3683772 11.874793 5.2233569  0.9050428  1.1133671  5.681449  5.5443030
## 75  2.8775872  8.296151 3.5205731  7.1066980  8.9558115  9.983152  5.0191948
## 76  9.8810768  8.845212 0.0000000  2.2551683  4.2566257  6.882548  2.8905829
## 77  4.5486401  9.721402 0.0000000  3.4832741  3.3455383  2.342924  0.0000000
## 78  0.0000000  3.912286 0.7392433  9.8833159  3.5077693  4.035175  2.2269400
```

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## 79  4.2510525  8.826843 0.0000000  1.3484591  2.7377084  2.204203  1.0221192
## 80  2.0873610  3.370569 1.7812758  9.4371081  8.3504013  3.807242  1.1496496
## 81  0.9824369  9.430269 1.5614972  5.4248986  7.0256158  7.164568  1.9735745
## 82  0.9245560  8.380615 1.2308793  7.2552524  7.6658021  4.344012  1.6983074
## 83  0.3397075 11.314315 4.7976252  6.0335904  5.2641723  8.309097  7.2101024
## 84  2.8612209 10.422633 6.3002482  4.3815118  2.7536259  6.072931  5.6613050
## 85  0.0000000  6.457140 3.2170446  9.2698768  8.1369803  2.511620  2.0153905
## 86  0.0000000  8.517806 2.4221792  1.1025238  5.4863089  9.404474  8.5596425
## 87  0.0000000  9.233916 2.7966808  5.5627217  2.1059127  5.345407  7.8661656
## 88  0.0000000  7.826744 5.3307341  3.6352552  0.0000000  2.162661  6.4501918
## 89  4.8243605  7.991195 4.6449522  8.6930659  0.0000000  6.702052  3.8330824
## 90  2.2629142 10.375957 7.4762431  9.3966938  0.5912964  9.416616  2.4077062
## 91  4.8017484 10.455708 5.5513499  8.1419176  5.7373758  8.435816  9.0317963
## 92  7.8792757 11.015887 8.4646385  8.8807917  0.9237957  6.963518 10.0922418
## 93  4.9925147 10.080703 5.9928885  6.1865402  4.3443953  4.647176  7.0678527
## 94  5.2355816 11.529997 5.8513368  7.8142223  3.4252042  4.597484  5.3914309
## 95  4.8384073 11.928941 6.6255116  8.8614297  2.9309644  7.727473  3.9665135
## 96  2.1787784 10.875805 7.5061759  2.9287493  5.4949468  9.631933  8.8648634
## 97  0.6763577  5.712469 2.5322421  9.6947952  5.4516463  4.149454  1.4824869
## 98  5.8235532 10.706204 0.7579620  5.8497241  4.4869460 11.447591  8.1106002
## 99  3.0546922  9.335636 7.8282330  8.9536034  3.4814540  7.229229  5.6328963
## 100 0.5765705 10.814716 0.5765705  3.4364550  1.5681294  4.402163  0.0000000
## 101 7.7880723  9.104716 9.9083146 10.1993931  2.5062465 10.819574  7.9225101
## 102 0.0000000  7.893605 4.5728897  3.5109619  5.8227301  5.008989  7.7588894
## 103 0.3330802 10.303914 1.0278618  0.3330802  3.5739925  8.040770  7.7361164
## 104 6.3613174  9.829449 7.5853164  7.7653464  2.9211507  9.863987  7.5997701
## 105 0.3124328 10.024451 1.4290535  1.2933116  0.0000000  3.710437  6.0187566
## 106 1.3576083  9.343160 4.8329963  5.8234768  6.8850459  6.542176  6.0238652
## 107 0.0000000 10.775232 3.3284487  6.8268548  0.7854250  5.965976  5.8975744
## 108 1.1114988  9.262401 5.1973543  5.5318992  3.0451459  5.115191  9.0505858
## 109 0.0000000  7.773743 4.8163181  5.3608418  4.7220616  4.164175  2.0420840
## 110 2.2201132  8.380830 7.2732604  8.3634484  5.0704537  8.224342  9.0960322
```

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## 111 3.0525898  6.059022 5.0872464  9.1901254  2.9963345  7.791130  6.1129232
## 112 0.8742855  9.347909 0.0000000  4.3334738  6.7103601  6.938153  8.0042396
## 113 4.6739804  7.831493 4.4796703  7.6382969  1.1416290  7.442107  7.0006840
## 114 0.9987732  8.695729 4.9518722  7.6510517  1.5833747  5.990102  5.9595685
## 115 0.0000000  8.846833 5.6680766  9.5574670  1.4863025  4.379794  0.6786128
## 116 6.0854671  9.744917 2.9733909  6.7113008  3.5165069  5.179829  1.8523984
## 117 1.1531568 11.214784 0.7944367  7.9355705  3.2208097  7.739642 10.3878025
## 118 2.8572047  8.444116 7.0530309  8.7959513  2.7271581  5.312004  7.6812194
## 119 1.7647283 10.539342 3.4954010  3.4954010  4.5403001  9.615011  3.5385754
## 120 0.8467942 10.990674 4.6101626  7.6016913  1.0459322  8.898383  6.9414092
## 121 7.9512171  8.487647 8.3994108  9.3338564  7.4247550  6.260558  8.1757940
## 122 2.1644645  9.901986 6.5275599  7.2160697  2.5548835  8.479640  6.2324382
## 123 5.6305540  9.809327 4.5537230  6.0278087  2.8923133 10.181139  4.6180448
## 124 0.6890307 11.770078 7.7884221  9.9355592  0.0000000  7.669823  6.5693999
## 125 1.0008654  9.901087 5.4479494  4.3235718  4.7021034  7.213123  7.9594079
## 126 0.5077185  8.340315 7.6596549  8.3290056  1.8199951  6.936408  9.1644406
## 127 6.1653975  8.253049 7.0076272  7.8277790  1.6479591  7.462180  5.9247959
## 128 0.0000000 10.458379 9.2952547  8.1985295  1.8443455  6.999460  7.4667136
## 129 4.9435697 10.694305 6.4283468  9.8084678  2.8659188  8.618659  8.2104722
## 130 0.0000000 11.597396 7.2008927 10.4488057  0.0000000  6.505053  8.4390508
## 131 1.8066128  8.878555 0.0000000  1.4773665  0.0000000 12.634899  0.7771988
## 132 4.0590783 10.512555 3.9816974  4.5890444  5.8905172  8.916631  5.2804479
## 133 6.7255939  8.540777 5.4000255  6.3484945  3.0806236  5.987012  7.6833764
## 134 8.2083865 10.461412 6.9368970  5.9273892  3.7368971  9.304632  8.2993555
## 135 1.3383388 10.604645 3.0056695  1.7847971  3.9419232  9.995154  4.8180734
## 136 1.4383461  9.285208 4.4560899  3.1202856  3.1895241  7.397401  4.7128434
## 137 3.4334803  8.651986 2.8683905  4.0666317  6.2664193  6.450957  5.5612803
## 138 0.3650206  1.592397 0.0000000 10.1643529  4.4794375  5.617216  0.8982471
## 139 9.2846025  9.221677 3.9957830  4.8183904  4.0225720  9.444860  5.1207832
## 140 2.5940230 10.324019 9.4161637  5.5341893  3.2951499  6.258647  8.1323558
## 141 9.1635586  4.507103 2.7303356  9.1203820  3.8765268  1.591153  0.4881036
## 142 3.2277873  8.984655 6.5236404  4.8527080  3.6842689  8.921737  1.9219694
```

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## 143 0.0000000  7.476386 5.4685279  8.9110609  1.9579889  2.680279  1.0579701
## 144 2.3377111 10.075105 4.3486361  4.5836454  1.7016821  5.607582  2.9557406
## 145 1.4486896  1.957060 1.2876496  8.0517054  6.4650782  1.448690  1.4486896
## 146 0.5562087  8.949578 1.5268200  6.8492387  3.4433016  4.126213  3.9175272
## 147 1.6818990  9.260046 2.5323419  2.8594727  1.3058538  8.615726  5.7550077
## 148 0.0000000  2.536525 2.0004327  9.8641434  9.3225044  3.406509  2.5365254
## 149 0.0000000 11.269951 5.6368508  5.2702262  1.3154503 10.371267  2.3488556
## 150 0.0000000  5.938777 1.2521128  8.3019607  4.6674778  3.215849  1.7238206
## 151 2.6004363 10.240129 4.2270171  5.5573182  7.7119553 10.101355  3.4431027
## 152 6.8000314  3.793896 6.8266591  7.1128919  3.5083019 11.091056 10.9361342
## 153 0.0000000 10.439031 6.5886727  9.2474935  4.4675012  6.677962  9.9332013
## 154 6.1006329  5.719036 0.9685700  9.7810119  7.9498384  4.728916  1.9526318
## 155 1.8958842  8.832978 0.8610819  1.0625362  3.4325987  6.255206  5.0960003
## 156 0.0000000  9.001638 4.6672393  1.5813512  0.0000000  4.667239  0.5831339
##       rs_DLX2 rs_SPAG17    rs_PRG4    rs_MMP7    rs_UGT8   rs_NEURL   rs_AFF3
## 1   9.2979895 6.8067945  7.3777519  8.0352181  3.1921468  9.9142477 10.700865
## 2   1.4884122 0.4448791  5.8501618  9.1322367  6.5008944  5.7082893 12.023256
## 3   2.3287790 3.6252354  7.6794928  9.0031443  4.1260560  7.4761078 12.488857
## 4   6.7590519 6.9963526  4.4959062  8.0156448  2.2112926 10.1653498 13.848029
## 5   0.4815056 4.3791912  4.2702598  8.8498126  3.0921567  6.5067892 11.614757
## 6   0.0000000 3.3696200  5.7578767 12.7131057  7.9685591  2.0398403  5.651738
## 7   0.0000000 1.7285301  4.3272850 15.1394537  3.5605071  3.0578661  7.331332
## 8   3.9957197 1.6259250  5.0115806 10.0015218 11.7470689  8.8874412  7.144506
## 9   5.1411957 4.4790688  1.6318028 10.8762756  9.8317001  5.0536327  4.936129
## 10  7.6366514 0.0000000  9.7626063  8.0320215  2.0906163  8.8447033 12.334662
## 11  1.7406686 0.4164074  5.8569558  7.7844477  3.0635547  5.9516321 11.907296
## 12  2.6297063 6.7465157  7.2821766 10.7832477  4.6491498  8.3830091 10.594183
## 13  2.8073137 0.9433588  5.9791977 15.2818105  8.5177654  0.9433588  3.700384
## 14  1.5900990 2.3280897  4.5627919 10.5898519  4.3996633  6.4725138 10.913850
## 15  1.8078083 1.9480027  5.8300829  5.3953987  2.9613826  8.1677016 10.633120
## 16  8.1183208 6.8277949  1.2591821  7.0247064  0.9432837  5.7443576  9.731489
## 17  1.1726155 6.2447501  3.8948566  7.6795744  2.6858953  8.1876084 11.759007
```

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## 18  4.9077896 5.6512067  8.7010156  6.5918036  1.3375969  7.7521177 13.356323
## 19  9.1836465 8.5293298  7.4405378  9.9946052  4.3360905  3.0789001  8.778407
## 20  0.6551686 3.5402381  3.1384377  8.0316025  0.8970080  9.0462018 10.970850
## 21  4.3768460 5.9899746  3.0920383  8.6105443  2.4434740  3.7561053  9.498709
## 22  4.6610541 1.7954345  1.9678695 13.2791561  9.0176386  2.6677105  6.367172
## 23  0.0000000 1.5278210  2.1171631  7.3896210  1.5278210 11.5242088 11.803864
## 24  3.0690663 0.4537546  5.2707121 13.7837537  8.7083876  3.0040879  7.540541
## 25  1.1951586 7.7617141  5.9465110  5.0266938  2.2836551  4.9231777 11.840879
## 26  0.8469546 6.0319201  5.8438934  6.1284171  1.6461627 10.2155262 13.348695
## 27  8.4167811 1.0538064  6.3842001 12.1588419  5.4489967  6.1987574 10.769524
## 28  1.1657512 1.1657512  4.6757934 10.0329165  3.6560616  6.0729890 10.970683
## 29  3.3277879 4.6150572  7.5414955  5.7151274  1.1410403  8.2657627 14.023267
## 30  2.2372884 4.4217484  8.8882254  9.9944096  5.5566348  3.4140137 11.609636
## 31  1.5785523 5.6516028  5.4235277  8.0116393  2.8791764  9.5291287 12.845798
## 32  1.2651368 0.7670615  7.8626212  9.4854057  3.8761928  5.6270552 11.797782
## 33  4.5864765 3.8540854  8.5719562 10.4857013  4.4759928  5.4314124 12.183441
## 34  8.3008595 0.9074291  7.2514805  8.9264493  3.8651963  8.7410715 11.445806
## 35  4.7731893 1.3007680  9.9134374  6.8197308  2.7770304  5.3008303  9.855424
## 36  2.1447317 2.2779550  3.7299008 12.9640350  7.3535835  7.7329617  8.320496
## 37  3.1290522 6.5805239  5.1886937  8.4953734  5.2649717  8.0184044 12.649099
## 38  0.0000000 4.8783428  7.8733260  8.2531147  1.8204036  6.5946247  6.656278
## 39  0.5247658 5.1202690  8.4912959  5.0834049  7.7866107  4.6259309  9.932462
## 40  3.1221923 3.7913140  8.0181278 12.1614347  8.5325503  5.8619851  7.353076
## 41  0.0000000 1.2082675  2.3211488  9.1683367  9.0802601  9.2144214  5.020333
## 42  0.0000000 1.0865120  9.1500417 10.9092350  2.4579619  5.4370513  4.064409
## 43  0.0000000 4.6481720  1.8847151  7.9925311  5.9246083  9.2098737  3.932307
## 44  3.9716447 2.7945198  5.5467155  9.0994604  8.3748804 10.0316415 12.371226
## 45  6.5727730 5.7858853  8.0270965  9.8121757  2.5559143  8.9651491 11.897488
## 46  0.4485838 6.6780029  3.5345721  7.5214434  5.0644087  8.0502018 11.628173
## 47  5.9835249 4.3251489  8.2459120  7.0498420  4.1641990  2.2102642 10.525318
## 48  4.1501128 3.7150807  5.4229326 10.6354083  5.5435485  6.2334260  8.650884
## 49  4.6877438 1.7127718  9.2063121  7.5703574  0.3614315  6.1036592 11.861956
```

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## 50  1.7024802 5.3667034  8.1021358  8.8604833  3.6547907  6.1863698 11.222552
## 51  3.9315507 0.7081431  6.2520125 14.4340644  6.9274509  4.0187321  4.345418
## 52  0.3399355 8.2076655  6.0555015  7.3516221  1.0445340  7.0671988 12.547150
## 53  0.4093638 2.6439024  5.8409239  8.0470950  3.5641952  5.2755956 12.176093
## 54  0.0000000 4.5671256  1.8063653  7.5461073  2.7390488  8.8501487 11.252680
## 55  6.5640672 7.7900806  6.3565347  8.4664362  2.4521473  9.9102534 11.294810
## 56  2.7432349 0.4924172  0.0000000  7.3078392 10.3425151  7.1597240  7.695335
## 57  6.7146508 2.3142035  7.1781609  9.5087539  6.7872196  5.6578200 10.856446
## 58  6.4081565 7.8794846  4.7058729  9.4438621  7.8557400  6.2592461 11.198447
## 59  1.7467427 3.2979104  7.5271908 11.2819858  8.3203344  1.6142387  7.648678
## 60  1.7770725 6.8158060 10.7981145  8.7974508  1.2317396  7.2960848  8.489601
## 61  8.1880893 9.9947067  8.8230774  9.1287071  3.5797112  7.7231633 13.759013
## 62  4.1143087 1.6215244  7.2378448  7.1789755  1.9880848  7.4672086 13.255502
## 63  1.7812338 0.6244285  4.3075524  8.6952735  2.0873271 10.7310933 13.102910
## 64  2.3610384 6.8582123  9.2187228  9.3064917  3.7002510  5.6858224 11.829647
## 65  1.5480913 1.5480913  4.8767723 14.6446497  7.2575481  1.4056657  4.377991
## 66  5.1510632 4.4299507  6.7774947  5.8649265  4.8961265 10.5299110 13.756955
## 67  0.7373406 5.2361520  5.7462725 12.7918535  6.2863526  3.7378598 11.156834
## 68  6.3443190 4.2031150  9.1279920  9.3307899  4.4072372  6.7590586 12.690075
## 69  4.1503322 4.6570740  7.5321338 11.7296862  5.3840809  6.8068409 10.530440
## 70  0.0000000 6.4956520  1.6218057  5.0462597  3.0418562  5.5597702 10.701739
## 71  0.5271704 6.5858579  7.0152377 10.0720389  2.3759013  6.1070852 10.191410
## 72  0.0000000 0.8168864  6.3133601  8.8769914  2.3754287  5.0767899 10.860279
## 73  2.2033578 0.8258670 10.6631130  8.3702497  6.9403195  6.8530238  7.633197
## 74  8.2148164 3.6593195  3.6034424  6.9613733  3.2818466  9.4959725 12.966541
## 75  6.5741878 5.0881374  7.6975744 11.6947794  6.1529682  5.0471675 11.067701
## 76  3.0304244 1.0923428  3.3921800  6.5168756  4.7367564 11.6225074 11.482630
## 77  0.0000000 8.3253306 11.6097801  6.1957688  2.7226409  3.4832741  9.754945
## 78  2.5072619 1.7410139  0.4200781 11.5044634  9.5082747  7.8131116  8.494945
## 79  0.0000000 6.5110600 14.0341510  4.2114639  2.8451086  2.4954905  7.401231
## 80  0.4918018 4.9379893  3.3807433 12.8196996  8.8582459  1.1496496  4.859413
## 81  0.9824369 5.2323691 11.3163783  6.6016371  4.7732843  2.1425115 10.609883
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## 82  1.2308793 5.1159321 10.5474681 11.0139550  7.4456547  2.7734478  9.909121
## 83  2.0654344 2.0654344  6.4738567  7.3124347  3.7805411  2.9329305  9.713099
## 84  5.2308755 8.3911396  5.7653836  9.1976145  2.5108860  3.3417581  9.342748
## 85  0.3523066 3.1285409  2.7698140  8.1566934  5.1751813  7.7227058  4.694674
## 86  0.5448810 6.6290753  1.9196833  0.0000000  0.2980717 10.4365132 13.691151
## 87  0.4119685 1.4072440  8.3235750  6.2544996  1.4072440  8.2180129 10.543107
## 88  3.0792245 1.3163196  3.7626996  7.6631240  7.5142659  6.2099465  3.945458
## 89  2.9309076 5.9799842  5.6474037  7.0337996  6.1067650  4.5461289 11.784326
## 90  2.1846929 7.4741894  1.7202785  5.8130449  0.3257318  8.0930409 13.615420
## 91  1.0535979 2.8268840  9.2823258  6.2192266  2.6731720  7.6464118 10.157687
## 92  0.3774014 5.2846067  7.4166911  8.1567910  1.4824869  6.0288851 10.375531
## 93  1.6007455 0.4209405  5.4468914  5.5361928  6.0081597  5.0378610 12.630269
## 94  4.5094742 3.1270389  8.2094811  9.1286112  3.8546939  9.5324368 11.837186
## 95  0.6343145 3.4145685  3.2226809  7.9675779  1.9110779  5.2159892 11.557988
## 96  0.0000000 6.1066142  7.8369599  9.6399285  1.2159270  3.0099741 12.587777
## 97  0.6763577 2.5322421  1.6361258 13.7717933  9.8074127  8.7556224  8.736531
## 98  5.6257381 0.4281424  4.7079002  7.6415959  1.6197886  7.8439154 12.773559
## 99  3.3969267 2.2670863  7.8248194  8.0777055  1.1834548  7.5461698 12.231752
## 100 4.1855415 0.9873936  2.9021701  5.4988285  0.5765705  8.9025409 12.130799
## 101 3.1798932 6.9207220  3.6847739  8.1066540  2.6326405  6.1854999 12.069715
## 102 1.1375035 0.0000000  5.5425057  8.2162608  3.0356239  9.5860892 13.471802
## 103 2.7472370 7.5486971  2.0470148  6.8780313  0.0000000  8.3780273 11.855015
## 104 0.4716557 3.9363270  5.3444273  7.7210794  3.0614306  4.4517848  7.661699
## 105 1.2933116 5.3194445  3.0535632  5.8045338  0.5691022  8.3173154 13.206123
## 106 1.6725159 1.9308130  2.6568853 10.3969181  3.2385117  9.9080360 12.966697
## 107 8.7449203 7.3334550  4.5847761  7.8837369  2.9771883  6.2251592 11.861821
## 108 0.3675947 7.5974805  5.3010169  7.3062659  3.5167842  9.0879908 12.109549
## 109 0.5315686 3.3088414 12.3196574 11.0472314  4.2341487  6.8404431  9.710917
## 110 2.9361008 5.0269549  3.9876483  8.4107541  4.4783765  6.5259279  7.609386
## 111 2.3573831 5.0462771  8.7189804  6.1456163  3.1589025  5.8044099  7.928980
## 112 0.8742855 4.6289252  4.7701736  9.6727116  4.7229414  6.7993749 12.974427
## 113 1.1416290 0.0000000  4.5859060 10.6769336  3.7511209  3.4662747  9.430837
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## 114 6.2264488 4.6025578  6.9606669  9.4182631  3.1133504  6.8597385 10.067721
## 115 0.0000000 1.1382247  3.4490727  8.6751819  1.4863025  3.5619493  3.486650
## 116 0.0000000 5.2433606  4.3243714  9.6613269  1.7157177  5.2680076  9.460106
## 117 0.9849174 1.3038100  6.7458504  8.6571140  1.5648171 10.4735107 14.202592
## 118 1.5229597 4.6284937  0.7000845 10.4628790  1.5229597  1.8066953  9.340063
## 119 3.1504947 5.7667065  5.9644056 10.1696295  4.0668814  6.6038963 11.171362
## 120 3.6375291 7.7782441  5.3220904  8.5006125  0.8467942  7.3401412 11.857751
## 121 0.5391340 3.8217102  6.3847406 10.3568658  4.4490859  7.4770588 13.169889
## 122 4.7980142 0.4311415  7.6221302  8.4669142  1.9208268  6.7632190 10.951071
## 123 1.4774701 4.2361864  7.4658651  7.3741431  1.8066953  6.4491420 10.166428
## 124 0.9398284 4.7881584  6.5039561  9.0703300  2.5601035  7.6849239  5.916039
## 125 0.0000000 6.2534277  4.7769304  7.2553317  1.5861162  5.9133945 10.096336
## 126 0.0000000 0.5077185  6.0944240  6.3498818  1.9828385 10.0654798 14.252395
## 127 1.8030617 6.6573227  1.9510282  7.7842180  3.1414818  7.5821691 12.023223
## 128 0.6559929 5.9072272  4.9154635  9.6960973  5.7769541  6.9055880 13.359094
## 129 4.4572397 3.0230069  6.1649813  6.2490717  6.0805234  5.5455700 11.311356
## 130 0.0000000 0.4997821  5.1657512  7.7920445  2.5771025  2.5771025 10.137140
## 131 1.6513617 4.6994517  2.5926603  0.7771988  0.0000000  6.1631726 11.724184
## 132 6.1154807 6.0024910  5.9718033 10.5507322  4.4523187  6.5161885 11.720309
## 133 3.8028549 3.5841568  6.4270228  8.6047385  3.8818310  3.8818310  7.370751
## 134 0.6795139 9.0928745  7.4372744  9.2607382  2.8711931  5.1895913  9.868784
## 135 5.9215982 1.3383388  0.3882447  9.0775758  3.4306733  6.2047785 10.724185
## 136 4.3082662 7.4860812  8.4791339  8.8325587  1.6497074  7.8703992 13.036962
## 137 2.7229468 4.1543483  3.9498897  8.9706820  4.4133301  9.5006216 12.334613
## 138 4.0735204 1.7239953  3.3746639  5.4935865  9.2641576  9.1677779  4.750296
## 139 3.7291938 6.0551805  5.9175559 11.8408331  2.6742799  5.0046272  8.971356
## 140 0.5056877 0.0000000  1.8840117  5.1294891  4.8433709  5.8810405  7.870349
## 141 1.3842156 1.1425441  3.2476845 15.0516659  8.5351502  2.2088918  5.967957
## 142 2.9307184 0.4315695  5.4022617 11.2268739  5.3111870  2.1656869  8.773287
## 143 1.6617040 1.6617040  6.7573700 13.0590749  7.0669599  2.4135399  3.375318
## 144 1.4865599 0.0000000  5.5209094 10.9303229  1.2337040  4.4413108  4.179591
## 145 3.8339324 3.4331063  3.0468926 11.5191383 10.0488002  7.8928014  5.816277
```

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## 146 2.3877210 6.1891544  3.0341981  7.9996556  2.6262055  6.6608958 10.716040
## 147 6.6280605 3.2977930  7.7018249  6.9831943  2.2267859  9.6091346 12.265447
## 148 7.4567232 1.4857875  5.7598829 10.9815733  8.2110029  7.3386410  8.531957
## 149 9.7038631 6.7771764  6.8432025  5.6898247  1.9918982  8.1660094  9.244517
## 150 1.5071603 0.0000000  3.0282155  8.4631630  3.7967327  1.9121516  1.723821
## 151 6.6978572 6.0789770  8.8077313  7.9193472  3.6317562  4.2843883 11.862572
## 152 0.0000000 7.7827047  9.4455930  5.1310626  1.4117516  8.4363543  8.905931
## 153 0.0000000 6.8654549  0.8253786  7.9672603  2.0259147  6.8171359  9.005922
## 154 4.1623631 3.5268576  7.2175923 10.8880574  9.4568768  3.4863668  7.252809
## 155 0.6269530 1.0625362  6.9507938  6.8526656  0.6269530 10.3926523 11.045719
## 156 2.8027309 4.4542746  4.0007843  9.6047091  2.8027309  3.6388848  6.579619
##      rs_MS4A8B   rs_APOD rs_TMEM213   rs_TLX1  rs_ZFP57   rs_FOSB    rs_CHGB
## 1   10.3465821 12.848114  5.8785905 1.1923204 1.1923204  8.858305  4.3110526
## 2    0.7843365 10.943454  0.4448791 0.0000000 4.7159318  7.080538  2.5983890
## 3    2.9230351 14.961188  1.0686020 0.4497462 0.7921057  9.590596  1.5002922
## 4    3.4171504 10.200399  1.9350825 2.3317912 0.0000000 12.053903  1.3860936
## 5    4.6760530 10.821485  0.0000000 0.0000000 0.4815056 10.106466  1.1300083
## 6    0.0000000  7.910652  8.3297591 5.2213783 1.8453495 12.566737  3.2170446
## 7    0.0000000 11.007622  4.2862454 6.7317738 8.6471810  6.606048  1.7285301
## 8    0.0000000  8.308755  4.5177355 8.5189191 4.9976718  6.382206  0.4304994
## 9    0.0000000 13.258518  6.5704356 9.7382575 0.0000000  7.189369  0.6035967
## 10   6.6787241 10.198654  3.3165947 0.0000000 1.6026944  8.246547  0.4930324
## 11   1.5885168 17.493464  3.4198355 1.2253983 3.4198355 11.558927  1.4183519
## 12   0.8001648 11.798535  1.6888070 0.8001648 0.0000000 10.937625  4.1739030
## 13   0.0000000  7.749170  0.5474498 9.1607856 9.2233895  8.762774  1.2537473
## 14   2.1214133 13.651232  0.7400209 0.7400209 0.0000000  9.804827  0.0000000
## 15   1.0509544 12.606140  0.0000000 3.9347146 0.0000000 11.831470  1.2804813
## 16   6.7618424  9.021506  0.9432837 0.9432837 0.0000000  5.817012  0.0000000
## 17   5.6888881 11.838727  3.8457811 4.3679860 1.4180280 10.161949  1.1726155
## 18  10.9137996  9.972171  0.4665488 1.1013139 2.6657566 10.745609  1.8768803
## 19   1.4431823 12.130112  3.9909004 8.4428801 3.9107135 13.358802  2.5536063
## 20   1.5906260 12.624793  5.7821674 0.6551686 4.0709817  5.720596  1.5906260
```

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## 21   1.1445685 17.043472  4.7673105 2.4434740 1.1445685  8.062698  1.5935928
## 22   0.0000000  4.684353  1.9571717 6.3743527 2.9240619  5.644188  1.7954345
## 23   3.9631782  6.272027  0.0000000 0.9573203 3.8733309  6.357355  0.0000000
## 24   0.0000000  9.806508  7.5966065 8.9625337 5.8833740  8.825854  1.8428984
## 25   1.3852101 10.155794  0.7179122 0.4031586 1.3852101 10.694334  2.0786781
## 26  10.3686351 12.639645  0.0000000 0.0000000 0.3405053  9.457573  2.1574318
## 27   0.0000000 11.659487  4.2965602 0.0000000 1.9521099  9.463862  1.4820222
## 28   0.0000000  9.741685  0.8710551 1.8019864 5.3935638  7.952055  2.1097283
## 29   5.0286796  9.761058  1.1410403 1.4895943 2.5414405  8.487889  0.6805044
## 30   3.5112403 13.789023  5.4380133 0.0000000 1.9898656 14.014875  7.2673513
## 31   7.3284721  9.399326  0.4826418 1.1322478 1.7587296  9.549926  0.4826418
## 32   4.4397428 13.992642  0.0000000 0.0000000 0.4339209  7.917084  1.9286546
## 33   2.3925372 12.849065  3.5394070 0.4374408 4.5650427 14.039407  2.0662959
## 34   1.8587767 12.235918  0.5238630 0.0000000 0.9074291  9.372857  1.4601135
## 35   7.3365449 17.783059  5.4770912 1.9735011 2.6978850  8.402408  2.3290949
## 36   0.5137939 11.000791  5.4091499 6.7823981 5.6494028 10.589998  4.1787545
## 37   5.4609981 11.835445  4.6745284 0.0000000 1.6564506  8.718178  2.8986340
## 38   0.0000000 10.487514  0.0000000 1.4264795 1.7006617 10.943687  1.0875986
## 39   5.1738510 14.983828  1.2117598 3.0803848 0.9088129  7.936238  1.4620000
## 40   0.0000000  9.338593  0.9733541 2.0742657 2.6177921  9.992005  2.9530231
## 41   0.0000000  4.694947  4.5653839 7.5752208 1.2082675  5.866371  0.7270927
## 42   2.8058290  9.246444  0.8066128 1.3208312 0.0000000  7.379770  2.2465297
## 43   0.0000000  8.250825  1.6911768 3.3733002 7.2063170  7.249226  0.9196833
## 44   8.6498177 12.636992  3.1396496 0.9542708 0.3923174  8.245665  0.3923174
## 45   4.4901786 13.132424  1.5617905 0.9826560 3.5529795 11.442851  2.8766839
## 46   5.1850300 11.199034  1.6728326 0.7903550 1.9700438  7.195028  2.6939887
## 47   0.6822137 10.616757  0.3810618 1.3285493 0.0000000 13.144035  2.6873743
## 48   1.2894804 11.858031  3.9756669 1.7272670 1.1080226  9.801638  1.9592879
## 49   0.0000000 11.176128  0.0000000 3.1655422 2.2331518  8.285097  1.0969365
## 50   4.8266705 12.732672  3.4096896 0.4028313 0.4028313 12.777239  2.3749282
## 51   0.0000000 12.796405  2.0595629 8.5564114 0.0000000  7.218898  1.1810389
## 52   6.4660887 17.027421  0.3399355 0.6147570 4.8920461  9.128546  5.7298872
```

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## 53   1.4009204 13.354956  0.7279640 0.0000000 8.5810213  5.939636  0.9887029
## 54   2.2934882 11.651166  6.2116041 1.4718638 3.4506834  6.147492  0.7735744
## 55   2.5286713 13.624340  1.4796962 0.0000000 5.3240113  6.945351  2.1946544
## 56   0.0000000  6.653554  0.4924172 8.1107558 4.5963150  5.982895  0.0000000
## 57   3.2184557 14.314709  6.5352489 0.0000000 7.3375336 11.959123  4.7161678
## 58   4.0335111 12.610098  3.4919429 0.9715895 1.8329710 11.612839  3.2703794
## 59   0.0000000 11.840349  1.9800253 5.1599036 8.3648337  9.280311  1.1230040
## 60   0.3444877 12.093492  4.7777406 2.0828729 3.7155310  8.600014  1.2317396
## 61   4.6108477 11.011546  3.4247878 0.0000000 4.2446055 10.767413  0.0000000
## 62   2.0921736 10.179127  0.3748447 0.9184626 0.6721085  5.717764  1.1288873
## 63   2.5544415  9.827269  0.3457370 0.3457370 3.4261037  8.662867  0.6244285
## 64   2.4727737 11.535227  0.8698714 0.8698714 5.9207220  9.617364  0.0000000
## 65   0.3503841  8.019043  4.0351048 0.0000000 5.7709506  4.804245  0.3503841
## 66   3.7369295  8.390750  0.6304987 0.6304987 6.3645322  8.315797  1.2450697
## 67   0.7373406 14.020176  4.2739336 0.4153260 3.0008473 11.374189  2.1162317
## 68   1.3534927 11.999120  0.3907777 0.0000000 0.6978628  9.407463  2.9130522
## 69   4.2904834 13.198446  1.2379919 1.3702201 1.4913914 12.198530  2.8306813
## 70   0.7562547  6.479030  1.7705331 0.4270698 0.7562547  6.985946  1.6169693
## 71   0.7326599 11.290196  4.5944530 1.5777309 3.3901036  8.893045 13.0013979
## 72   5.7221873 10.687826  2.0166746 0.0000000 5.0271098  9.959522  2.1464271
## 73   0.0000000 10.134225  3.5395807 7.5817602 5.0301816 11.049484  3.5627187
## 74   0.6614760  8.913170  0.3683772 0.0000000 0.9050428  8.044086  0.0000000
## 75   2.3581149 13.571630  5.5198721 0.0000000 4.1813332 10.625462  2.8138735
## 76   1.0923428  7.937662  1.3274574 2.6515684 0.0000000  6.631141  0.0000000
## 77   0.0000000 13.818180  3.0229537 0.0000000 2.0197019 14.610462  1.6025044
## 78   0.4165155  8.844973  0.4165155 9.0547123 8.9982373  6.590684  1.2257068
## 79   0.0000000 13.734156  1.3484591 1.3484591 4.9732623 12.793597  0.0000000
## 80   0.4918018 12.379627  3.6758385 4.9379893 9.3080730  8.054481  0.0000000
## 81   0.5732776 14.072484  4.3239465 0.0000000 0.9824369 11.908092  2.2937236
## 82   0.0000000 14.779286  6.5329886 0.0000000 5.3243066 13.369515  3.0329119
## 83   2.0654344 10.671727  2.9822178 1.5151069 5.7431298  7.931708  0.3397075
## 84   0.3346827 11.904498  5.3136159 3.0549700 0.3346827  9.819558  0.0000000
```

```
## 85   0.0000000  7.334878  1.2528395 8.3328802 2.5116198  5.884874  0.0000000
## 86   6.9298738  6.977937  2.9362893 0.0000000 2.7020147  3.992324  0.2980717
## 87   4.9265593 10.690596  0.0000000 0.0000000 6.2356428  6.987648  1.4072440
## 88   0.5818815  9.598920  0.0000000 0.0000000 0.5818815 11.105375  0.0000000
## 89   5.7770462  8.901072  5.7101479 1.1650436 2.1086917  6.445219  0.4998841
## 90   6.0576019 15.208205  0.3257318 0.0000000 2.4077062  7.374206 11.5881067
## 91   1.0535979 11.100932  1.0535979 6.7286770 6.1982466  7.399189  0.7799741
## 92   4.9773898 12.517752  0.6763577 0.0000000 2.1008095  6.517433  1.6291468
## 93   5.3806152  7.657724  0.0000000 0.0000000 0.4209405  5.714344  1.0118534
## 94   3.3862039 12.041625  5.7319706 2.9776096 0.3634515  7.736882  1.7190958
## 95   3.6861643 11.104240  0.3517414 0.0000000 0.3517414  5.847967  0.8705028
## 96   0.0000000 10.116381  0.5270703 0.9121900 5.0717412  8.076757  0.5270703
## 97   0.6763577  9.410928  1.6291468 2.8034130 3.6625132  5.031157  5.5562025
## 98   1.9123816  8.962684  1.6197886 0.0000000 2.6283303  5.941808  0.4281424
## 99   6.9760290  9.720170  0.9659874 0.3981314 1.3723392  7.468051  3.2600708
## 100  0.0000000  8.570966  0.0000000 3.2253212 2.6790634  7.129708  0.5765705
## 101  7.8083007 14.006520  8.1835208 0.0000000 4.3019973  4.974029  2.0429595
## 102  1.7655347  6.714246  0.0000000 4.0179219 0.0000000  6.221104  9.6478182
## 103  5.8743617 10.839132  1.7388543 0.0000000 0.3330802  9.120457  2.1298105
## 104  3.8615286 16.049333  5.2672848 1.1111649 4.2318778  5.920227  0.0000000
## 105  3.3488981  8.307439  0.0000000 0.3124328 0.3124328  5.499878  1.2933116
## 106  6.0782618  8.474579  0.3923174 0.0000000 0.9542708  5.400989  0.0000000
## 107  0.4455148  8.524506  0.0000000 0.7854250 0.0000000  7.154506  2.0895998
## 108  1.2933116  7.586632  2.0676043 1.7317915 3.3625400  7.207759  1.4547023
## 109  0.5315686 11.399320  1.4760706 0.0000000 0.9191494  7.924206  1.6903724
## 110  0.7357821  8.773009  0.7357821 2.8719816 3.4124293  5.582140  8.7363424
## 111  5.9373256 13.405869  0.0000000 3.2092506 0.9648052  7.543777  1.9468431
## 112  5.9204053 11.023477  3.9995761 0.0000000 0.0000000  7.605031  1.8070251
## 113  3.4662747 10.326510  2.5422828 0.0000000 3.6622739  6.124276  2.2075181
## 114  0.0000000 10.838377  6.8537736 1.4135399 0.0000000  6.378447  0.0000000
## 115  0.0000000 10.825031  0.0000000 8.8106288 3.7016821  6.679404  1.1382247
## 116  1.9772066 10.133642  1.9772066 0.7248249 7.0956101  7.613556  1.8523984
```

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## 117  7.5771516  9.495226  0.5749250 0.3159140 0.0000000  6.078633  1.8847151
## 118  0.7000845  9.467724  3.7540537 1.5229597 0.7000845  5.561360  0.0000000
## 119  3.6212314 11.675078  2.1459709 3.0346383 3.8440944  6.280593  1.0199154
## 120  0.3405053  8.393922  3.2903654 7.8093919 0.3405053  7.783482  0.0000000
## 121  4.7935370 11.991892  2.6864333 0.0000000 1.4918018  5.718466  2.4675403
## 122  5.8523310 14.561702  1.9208268 0.0000000 0.4311415 10.941649  1.0320303
## 123  4.3415375  9.901044  2.1919416 1.4774701 3.5926962  7.364802  1.4774701
## 124  1.5041119 15.997607  3.9145837 2.0217995 0.0000000  6.170189  1.5041119
## 125  0.2632748  8.082810  0.2632748 2.3798982 4.6909646  6.550151  0.6787029
## 126  6.8010759 10.437814  0.0000000 0.0000000 0.0000000  6.657760  1.6364506
## 127  4.1176867 14.246276  3.3571156 0.0000000 0.0000000  5.220187  0.0000000
## 128  4.1454085  8.750857  1.1053428 1.2865263 0.8980922  7.096728 10.9925249
## 129  1.6307316 15.691782  0.0000000 0.8786861 0.5051796  5.492808  0.8786861
## 130  0.0000000 14.152660  0.0000000 3.3951862 4.9833266  5.241901  1.1647219
## 131  0.0000000  6.599956 10.0374539 0.7771988 3.9664674 13.684047  1.0501186
## 132  6.6843615 14.008565  1.8525982 0.9034240 1.2052048  6.920385  1.4547023
## 133  1.7466137 13.777484  2.0499792 0.0000000 8.2390667  7.172986  2.5138444
## 134  3.2360793 11.456583  3.8005686 1.7682479 2.2958406  5.720746  2.1072861
## 135  4.1795190 14.324149  5.1391543 0.3848235 0.3848235  7.485692  1.1524430
## 136  1.1906781 10.651139  1.1906781 1.4383461 0.8914970  7.875661  0.0000000
## 137  0.4330663 12.002917  1.2633950 7.3373034 2.2784309  8.323405  5.4385224
## 138  0.0000000  9.615579  5.7388840 7.5132325 3.0851357  6.627871  0.6561760
## 139  1.8842462 10.652552  0.0000000 0.9238718 0.9238718  6.337185  1.8842462
## 140  0.0000000  8.193632  0.0000000 0.8793921 2.8673430  6.297665  0.5056877
## 141  2.0774481  9.318042  8.8924976 1.1425441 5.9863973  9.773129  3.6638797
## 142  0.7633266 11.154131  2.0489685 5.2726652 5.1505231  6.206989  1.6285870
## 143  0.7834986  6.966530  4.7912046 8.7798959 4.0451022  5.655621  1.0579701
## 144  0.0000000  7.168171  1.7016821 6.9698447 0.0000000  6.523742  0.0000000
## 145  0.0000000 11.255408  7.4780375 4.1472660 5.3700771  5.141752  1.5935450
## 146  1.9344033 11.216246  1.5268200 0.5562087 7.7979390  6.901259  0.5562087
## 147  7.2081534 10.210836  1.0733404 3.1855336 0.0000000 10.803587  1.3058538
## 148  0.0000000  6.989257  7.5678306 0.0000000 0.6782522  5.797579  3.0361340
```

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## 149  1.0817487 10.920842  3.3121859 7.5732548 0.0000000  7.888578 11.5680823
## 150  1.9121516  6.702911 11.0248388 7.9292306 2.2280183  7.149228  0.9420077
## 151  5.2942053 12.311235  0.5912007 0.0000000 0.5912007 12.783167  0.8153295
## 152  2.6774180 15.380950  0.0000000 1.6209617 0.0000000 11.915598  0.8720801
## 153  0.8221999 16.064073  0.4689482 0.4689482 2.9124583  5.242980  2.4876664
## 154  0.0000000 10.826542  3.8153807 5.3754009 4.1623631  6.546956  4.1878390
## 155  2.4206980  9.561594  0.3472121 0.3472121 0.3472121  6.866191  3.1525404
## 156  0.0000000  8.798743  0.0000000 0.0000000 0.5831339  8.345556  0.5831339
##          rs_HP   rs_FAM3D  rs_RERGL rs_CXADRP3   rs_CHST9 rs_CYP4F11   rs_CD177
## 1    5.9097659  2.4016305 4.1109729  4.5929832  5.5627797  8.3110230  2.8068808
## 2    0.0000000  1.2895984 1.6630713  3.3771237  6.0757915  4.1965520  2.3140294
## 3    3.3937868  1.5002922 4.3752550  0.4497462  3.5818212  8.3251138  3.4908653
## 4    2.7329204  2.0797706 2.3317912  2.8179097  3.3616140  6.7697585  1.1442422
## 5    1.7558276  0.8418926 3.9689478  4.7628272  2.5246655  7.4506364  3.2203454
## 6    3.7493305 13.5777995 5.1174332  0.0000000  8.7392692  4.9337756  2.5028398
## 7    4.3144790  5.4531093 3.7789024  1.5500634  5.4013881  3.8188710  3.1231861
## 8    4.4956696  3.6410026 3.2770028  0.4304994  4.9659228  3.1127335  3.2242873
## 9    0.0000000 10.0790311 0.0000000  1.0279325  2.0416986  2.3663642  1.3553546
## 10   4.2730459  1.1519887 2.4545971  2.7449791  0.4930324  1.9455702  1.3948982
## 11   4.0924527  3.6293566 4.1204681  0.7390704  4.6680567  8.1752062  5.9200956
## 12   6.2312980  1.9873936 4.0176013  2.3440047  4.5612834  5.8691311  2.8680941
## 13   3.2183782  1.2537473 0.0000000  0.9433588  2.3656086  2.3656086  3.3547906
## 14   3.9768493  4.0947259 6.0446870  2.6694577  5.5621386  2.1214133  1.5900990
## 15   0.7778720  1.9480027 1.9480027 11.7056283  5.0512503  7.6047971  1.2804813
## 16   0.0000000  1.2536263 0.0000000  6.0357427  0.0000000  7.7081997  4.1385524
## 17   4.6580686  2.2517191 4.9195403  2.1191901  4.6580686  8.9854230  1.4180280
## 18   7.9544342  1.5405729 6.4351085  0.0000000  5.9204053  4.4084877  4.6248729
## 19   0.3634515  4.3764571 7.6303101  3.1735752  6.2868054  4.6144272  1.9505804
## 20   1.4459385  2.2437300 0.6551686  3.9687635  2.7544600  2.8723757  2.4850146
## 21   2.0802142  0.8537562 1.3864799  0.4891319  2.3322496  7.7118872  5.1744264
## 22   9.5383568  0.0000000 1.6132016  0.4976379  3.1416617  6.0279148  3.4978039
## 23   0.9573203  1.2705887 6.5436444  7.2802493  5.3748447  1.9355352  2.7334411
```

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## 24   4.3377182  4.4147444 2.2314939  0.4537546  5.4553469  0.0000000  3.0690663
## 25   4.3916509  0.7179122 1.1951586  0.4031586  1.7035437  8.2048220  3.4588019
## 26   4.8424610  0.8469546 3.0797877  1.0461418  3.6983407  8.7434638  1.2210728
## 27   3.2093910  5.8407855 5.0410020  3.7606255  7.4240126  7.5943433  7.3718559
## 28   3.5062338  2.1097283 1.8019864  1.4103411  3.8343269  7.6525388  1.4103411
## 29   3.5666812  0.0000000 3.2384812  5.4820996  2.3837734  5.9859762  1.6366826
## 30   3.2546847  4.4465408 5.6342215  1.0803166  7.6474476  7.8971920  3.2546847
## 31   5.2611246  2.1940871 2.1940871  4.6345875  4.1767456  9.4086331  4.0440356
## 32   4.5733139  0.4339209 4.3432799  4.1285574  2.0558551  7.0809348  6.8012402
## 33   5.2686103  5.8140479 8.2489878  3.9563913  6.6051298  6.0327709  3.9230826
## 34   4.5167338  2.1707583 7.2442497  1.4601135  5.6945487  6.9747713  2.3046571
## 35   3.1778859  5.4888941 1.6759965  5.5006013  2.3290949  2.7770304  4.9880257
## 36   3.6495695  6.6162092 5.5736775  1.8345494  7.6182908  2.7138937  2.3998820
## 37   2.1517939  2.5198690 5.1472334  3.4463886  7.6798073  5.5298272  2.2851950
## 38   1.4264795  2.1295138 1.4264795  3.6477405  0.8827604  6.0923935  6.2553270
## 39   5.0455784  6.3833691 0.9088129  0.5247658  1.2117598  5.4302117  3.2890229
## 40   5.9914175  0.9733541 2.2790552  0.0000000  8.3315010  6.2199216  6.1301690
## 41   0.4088205 10.1674934 4.2983577  1.2082675  8.0141935  0.4088205  2.9783055
## 42   7.0975771  9.4455608 1.8567069  1.3208312  1.0865120  3.4246534  6.1581128
## 43   0.9196833  8.1682690 4.6735960  1.2249664  6.6626627  5.9139808  2.7646434
## 44   3.1899194  1.8074374 3.3310172  0.9542708  4.3707920  7.2739075  3.0335287
## 45   6.1254465  1.9739051 5.3753036  3.7225862  4.3929905  6.8961071  5.3753036
## 46   1.4975868  1.4975868 3.8933428  0.0000000  6.0742699  8.1424747  7.4113839
## 47   8.2488972  0.9312292 4.2120479  5.5153845  1.8955741  0.3810618  3.9830027
## 48   2.4149744  5.0089037 3.6501671  2.9878484  8.4087373  4.9959005  2.9343278
## 49   7.0441700  1.9438838 3.7879757  4.6717180  0.8907969  6.1332203  3.6958825
## 50   5.3325146  0.9754835 3.9536284  4.1755725  4.1496252  8.2189957  3.7614342
## 51   3.8387501  8.2934146 0.3971458  0.7081431  7.8755362  0.9639180  0.7081431
## 52   2.5315936  1.3751785 3.1651402  5.6094447  3.9146411  5.6405110  2.8828778
## 53   1.2095158  0.9887029 1.2095158  0.0000000  4.9780492  3.0954519  0.9887029
## 54   1.2744704  1.4718638 0.4380799  1.4718638  4.8941435  7.1837862  4.7302704
## 55   4.9732163  2.4521473 6.0377973  5.9639180  5.2468185  6.5037240  2.9182526
```

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## 56   0.8589358  1.3935809 6.0815292  1.1508846  0.4924172  2.2207943  1.6013162
## 57   6.2572671  6.9477994 8.0657495  1.6632535  7.6902110  6.8874570  1.4885664
## 58   1.6970176  2.7583032 5.2539363  3.1190241  8.2033260  5.5187428  3.2216760
## 59   5.6061076  1.6142387 0.3723950  2.5139960  7.2542388  0.0000000  8.5877055
## 60   1.0557510  0.3444877 1.9879757  0.8552722  3.1844707  7.4057014  1.5300208
## 61   5.8251496  1.6463470 7.6680986  2.0155689  8.8261182  5.5057099  1.7802261
## 62   3.4709663  0.3748447 4.1866115  2.2801546  5.4006472  3.8431899  2.7937503
## 63   0.8579014  1.9923334 3.7209351  0.0000000  3.5312192  6.5486509  2.4863540
## 64   5.7647893  1.1642714 3.8731537  3.6053639  5.3476196  5.8908552  1.6176276
## 65   1.6777112  0.8676593 1.0701145  0.8676593  4.9904240  0.3503841  4.9652533
## 66   4.4481807  1.0678452 2.7560412  1.2450697  1.5452271  6.6069071  1.0678452
## 67   3.0597360  4.6057847 5.0741843  1.0005049  7.7866826  7.0742036  2.2231445
## 68   4.0216130  0.9509909 3.9937196  5.9962170  5.5170048  8.4109054  1.6678467
## 69   3.8666113  2.6341983 8.3232507  5.1372494  7.4873738  8.1774016  1.2379919
## 70   0.0000000  0.0000000 0.0000000  3.2650768  2.3602238  5.8282355  5.9295756
## 71   2.7515708  0.2875905 2.3759013  8.7007379  2.3759013  6.2518989  1.4669664
## 72   5.0101622  1.8740887 4.4806012  1.0992279  4.4557809  2.9018227  4.5525984
## 73   4.5487695  1.6136731 5.4255231  0.0000000  2.7367564  1.4868173  3.9707984
## 74   4.4168870  0.6614760 3.9309738  4.3770474  2.1668440  6.5468266  1.8551127
## 75   5.9080347  7.8186582 7.3478853  3.4800971  8.1650663  7.9833556  2.2658869
## 76   1.3274574  1.0923428 1.3274574  0.4619476  2.8152270  7.0020476  0.0000000
## 77   6.1132858  3.3455383 6.7808521  1.0131406  4.0245768  6.5650853  1.0131406
## 78   0.4165155  6.1142233 0.4165155  0.4165155  2.6678467  4.4429236 10.6211018
## 79  10.4200362  1.3484591 7.8923783  0.0000000  2.0330882  6.7439673  1.6144272
## 80   0.8579014  1.5998414 1.5998414  0.8579014  6.8216515  2.2190601  0.0000000
## 81   7.8040122  3.1385524 8.0469335  3.3603783  5.8959763  1.5614972  0.9824369
## 82   6.9957988  6.8405350 8.4526486  2.4568850  9.1682088  6.2730664  1.4834160
## 83   3.1641266  1.9708905 5.5522879  4.7557101  5.6921900  8.7001588  2.2377167
## 84   5.8753451  0.6061579 3.0549700  6.3564942  2.3722556  7.8486474  5.2308755
## 85   0.0000000  0.6353365 5.2918356  1.8030617  6.8064104  1.8030617  1.0748479
## 86   0.2980717  0.9395275 0.0000000  1.8172549  3.8388409  4.4963026  0.2980717
## 87   3.7957981  0.9937830 4.2858682  2.3119681  0.0000000  7.2699467  9.5143927
```

```
## 88   1.8007032  0.0000000 0.5818815  0.0000000  0.0000000  8.1854419  3.9454579
## 89   0.0000000  3.2144979 0.8704239  0.4998841  6.1154099  6.3749716  0.0000000
## 90   0.0000000  1.4715517 0.3257318  2.7710615  0.8154935  7.5981865  0.8154935
## 91   2.8979955  4.4220580 0.4421208  5.7566390  0.0000000  0.7799741  1.0535979
## 92   4.4151434  3.0315716 0.3774014  4.3947816  1.3191555  3.1817705  4.6043916
## 93   4.2954439  2.7570873 2.0177794  0.7464848  1.7535618  6.8047828  1.0118534
## 94   5.0853949  4.4349884 4.9845438  5.9075108  1.7190958  7.4098525  1.7190958
## 95   5.1046344  0.3517414 1.8010759  5.3293030  4.4941083  2.9309644  1.0734090
## 96   3.4779622  0.0000000 1.2159270  7.7082962  3.6899812  1.8662354  2.1787784
## 97   0.0000000  1.1350094 0.0000000  0.3774014  2.3747891  3.2738441  1.6291468
## 98   4.9246273  1.2522945 2.1555550  5.0044475  2.1555550  5.9090002  2.7067957
## 99   5.2183123  0.3981314 0.3981314  6.4449420  4.2077679  6.7979533  3.2600708
## 100  2.3017340  0.5765705 0.0000000  5.2607671  1.5681294  6.6402984  1.5681294
## 101  5.3129410  4.7553042 4.5937661  3.4091058  1.6232114  6.0391252  1.7401504
## 102  0.8479969  1.3785116 0.0000000  0.4854268  3.4059924  8.0948694  2.5360529
## 103  4.2220549  1.0278618 0.0000000  6.0822172  0.0000000  6.4933095  4.7395403
## 104  2.3934437  2.5915837 0.4716557  8.1482391  3.3066851  6.4848197  2.6812918
## 105  0.5691022  0.9761436 0.0000000  6.6938619  0.3124328  6.8592366  1.9641029
## 106  1.9308130  3.5775376 1.1699891  4.4959637  5.2432844  7.5465241  4.7682955
## 107  5.1592295  2.3161457 0.0000000  4.0494565  1.6648924  7.2013673  5.4612601
## 108  4.7139597  1.5998890 0.3675947  1.8525982  3.1897929  7.1440719  2.8265180
## 109  5.2299609  4.3008778 4.6470900  0.9191494  5.4070128  4.2678953  4.6212079
## 110  1.9978343  0.4143521 0.7357821  4.8216490  1.4132149  5.4234504  4.0847531
## 111  2.8130937  2.0609466 2.0609466  1.3708896  5.8044099  4.3471554  5.7113820
## 112  5.6601471  4.0366704 3.1561053  0.0000000  5.7743443  7.1262574  1.6241945
## 113  8.0853779  1.3831651 1.5900031  3.1109812  1.1416290  5.0162779  4.1609041
## 114  6.8802606  1.2210109 0.9987732  3.6607575  3.3197624  7.8049635  2.9365155
## 115  1.4863025  4.7454579 0.0000000  0.6786128  1.4863025  3.5619493  3.7667860
## 116  2.4774701  0.7248249 0.0000000  4.9247365  4.7950604  5.3853033 12.1875103
## 117  4.7781139  1.4402081 2.5597365  3.6998958  9.1264327  6.6174278  2.0643310
## 118  7.5187397 10.5192268 0.0000000  0.0000000  0.0000000  3.6138852  2.7271581
## 119  7.8228901  2.0297356 2.6963277  1.7647283  3.4049848  5.9051030  1.4398890
```

```
## 120  0.3405053  0.3405053 0.0000000  9.4874287  0.3405053  6.7261623  1.2208252
## 121  5.0907095  1.7073039 4.7456084  0.5391340  6.6074945  0.9306995  2.0606354
## 122  6.7351931  0.0000000 3.1716872  2.5548835  2.6379580  7.1539147  1.2589410
## 123  5.1973936  2.4956952 3.0247452  7.0325285  1.6514536  5.3184723  4.8499843
## 124  7.1034630  3.9435744 1.9087361  2.2243799  2.3159140  4.5638110  2.9512148
## 125  2.5864045  0.8487982 0.8487982  8.7255599  2.3798982  5.5126567  1.8492387
## 126  4.0165944  0.8825257 2.6967728  3.2381907  4.3802377  1.1797658  1.6364506
## 127  0.4390380  0.4390380 0.4390380  1.6479591  1.2765562  4.6946295  4.2583832
## 128  1.8443455  0.6559929 0.8980922  1.2865263  4.5867587  6.2775069  4.2141481
## 129  2.1225402  3.0955869 3.8072828  4.5112909  1.9764736  8.1176878  3.1646737
## 130  5.9312765  5.8299333 1.8006204  0.4997821  3.6542751  3.8325255  9.2825165
## 131  0.4403144  0.0000000 0.0000000  1.9467683  0.0000000  8.5090303  3.7152564
## 132  1.6673018  5.3590502 5.9926619  2.6375871  5.9926619  8.9764447  5.4042322
## 133  4.8517940  1.7466137 3.5361400  2.7843574  3.0806236  5.7444544  5.7231681
## 134  5.6958463  1.4878979 4.5209376  5.2817131  7.1258525  7.1227421  6.7838416
## 135  3.0595629  0.3848235 0.3848235  3.2570257  3.4306733  5.5407650 11.9676874
## 136  3.3793021  1.6497074 2.8900575  8.8107474  4.5112277  8.7490089  2.6159812
## 137  3.6898359  1.7870145 2.3789832  3.2331825  5.2522794  6.2129447  1.7870145
## 138  0.0000000  7.9427086 5.9551803  0.6561760  3.8895612  3.5066146  0.0000000
## 139  5.8831002  0.6763577 1.8842462  3.0834857  7.0637726  2.1981169  3.7928345
## 140  3.0970545  2.1238317 0.0000000  0.5056877  2.4900566  3.2320928  5.1294891
## 141  3.1781569 10.6568955 0.0000000  0.8521587  8.8223822  5.3805979  3.6638797
## 142  7.5157787  1.7827021 2.1656869  1.0328061  1.4559650  7.7036510  3.6842689
## 143  2.0860704  4.1068006 6.9623628  0.4443490  8.8413077  4.0132300  1.2884176
## 144  8.0718828  1.2337040 1.2337040  0.9268344  4.0284631  3.6163342  3.1874352
## 145  2.2471680  1.5935450 1.2876496  0.6567252  2.8761535  0.0000000  2.6953480
## 146  0.5562087  0.9565771 0.5562087  0.0000000  2.1018517  9.2913733  3.6734660
## 147  6.2214402  0.7959331 3.9748505  1.8385888  3.2427549  7.2575755  7.6207491
## 148  4.5366062  1.4857875 0.6782522  0.0000000 10.2175651  0.0000000  3.4859549
## 149  0.8027309  1.0817487 0.4564908  5.7999395  1.3154503  8.4850605  3.5599445
## 150  1.2521128 12.6284874 4.9937378  0.0000000 10.4165127  2.0787123  2.8969693
## 151  4.9005770  2.1843755 7.5262504  4.5255427  6.2757036  7.6034238  0.5912007
```

```
## 152  5.8652334  1.6209617 3.2807188  0.5010060  0.0000000  5.1138713  7.8308517
## 153  0.0000000  0.4689482 1.3426685  1.8829951  4.7405013  0.0000000  1.7243883
## 154  4.6020233  5.0812928 3.9992785  0.3994446  5.4404274  0.7119354  1.8285503
## 155  3.6038340  1.3966527 1.8958842  0.6269530  4.9763774  4.2655719  6.3497050
## 156  0.5831339  0.5831339 0.5831339  0.0000000  2.3176224  6.3255843  6.7293611
##     rs_TBC1D3G  rs_NKX2.2  rs_S100A2 rs_GLYATL1   rs_MMP10   rs_SMOC1
## 1    4.2795753  6.7156477  6.6371001  8.3757172  3.2582325  4.4588938
## 2    0.0000000  0.0000000  6.8242396  4.7356197  5.8231761  1.9594734
## 3    0.4497462  1.0686020  7.8246234  2.7766936  7.2028017  7.6305591
## 4    0.0000000  0.0000000  3.3616140  0.4889263  2.7329204  3.6666884
## 5    3.6426669  0.0000000  6.0696334  7.0545598  4.7200924  3.5961599
## 6    0.0000000  1.0266584  7.9685591  6.1501677  1.3538878 11.5584406
## 7    2.9894660  0.0000000 10.0083222  3.3583541  4.4222061  9.1843656
## 8    2.6359865  0.4304994  7.0605576  4.1163315  3.1127335 10.8867451
## 9    0.0000000  0.0000000 10.8247224  3.4424658  3.6357660  6.5939035
## 10   0.0000000  0.0000000  3.1935037  9.0213665  2.0906163  0.8598106
## 11   7.4395076  2.2265702  2.4193501  0.4164074  3.5073380  9.6419175
## 12   1.9873936  7.1519369  0.8001648  7.2915934  7.3386018  4.9378905
## 13   0.0000000  0.9433588  8.3442404  1.9142201  4.1004058  5.8521737
## 14   5.0239162  0.0000000  7.6682674  6.0000609  5.9383258  4.8982277
## 15   6.7978366  0.0000000  4.6608716  9.0247931  4.0324535  2.4026130
## 16   2.9284272  0.0000000  3.6480857  6.3532668  2.8992723  4.8653992
## 17   0.0000000  0.0000000  9.7264801  7.6883734  5.3622525  1.9732072
## 18   5.8584262  0.0000000  3.1104468  7.9320529  2.2685242  4.0244083
## 19   4.3962212  1.2824991  6.9126726  6.8315201  4.7890510  6.1362652
## 20   0.0000000  0.0000000  2.6916682  4.8943230  1.2851063  3.5754455
## 21   0.0000000  6.5765297  6.8482035  0.0000000  8.6135206  4.4046034
## 22   0.0000000  0.0000000 10.3337577  1.4045762  2.5710214 10.5919166
## 23   0.0000000 10.0427488  2.6274901  4.7494055  2.3889610  1.9355352
## 24   2.9178136  0.0000000  8.8503222  2.7102389  2.5372961 10.0447463
## 25   5.7214301  1.1951586  3.7967016  3.2300493  3.2300493  5.0266938
## 26   0.3405053  0.0000000  5.3173077  0.6158871  4.9206363  2.9366285
```

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## 27   2.4071352  0.4422269  7.2342867  7.6365623  7.9104826  4.0688342
## 28   0.5002922  5.8732374  2.1097283  1.9640659  0.0000000  4.4685768
## 29   2.1093271  0.0000000  3.3704573  6.6459682  3.6727534  2.2067370
## 30   0.8015726  0.0000000  6.2766846  3.5112403  2.9424394  7.4562115
## 31   4.1446909  0.0000000  9.9237501  6.4267512  5.0865503  1.7587296
## 32   2.3814218  0.4339209  4.6357312  3.8412989  5.5854884  4.2925241
## 33   0.0000000  2.3925372  5.4549063  5.2818058  4.8920461  6.0091613
## 34   0.0000000  0.0000000  5.5935181  8.5368409  1.8587767  4.8590253
## 35   5.4288894  8.3418706  2.6141444 10.0899977  0.0000000  5.7853648
## 36   0.0000000  0.5137939  7.4018216  2.9716263  1.8345494  6.6349591
## 37   0.0000000  0.5165195  6.2864284 10.6467733  6.4727721  2.6242647
## 38   0.0000000  3.9398660  3.8859745  8.0582932  1.9309644  4.8076486
## 39   0.0000000  3.7785345  0.9088129  7.0075263  0.5247658  2.1730635
## 40   5.1955641  0.0000000 12.3849953  4.1970004  1.6995072  6.1367697
## 41   0.0000000  0.0000000  6.8580345  1.2082675  0.0000000  8.2498321
## 42   3.0820724  0.0000000  3.7398157  8.8842981  4.3292241  8.4484021
## 43   2.6667566  0.0000000  7.2826576  6.4288425  4.3657345  9.5010101
## 44   0.0000000  0.3923174  6.8502981  4.4347350  7.0641812  3.2385117
## 45   4.2677305  3.0566876  4.1369706  3.9215506  4.3590783  3.6117626
## 46   0.0000000  0.0000000 10.1672942  6.1577107 11.0815732  6.8969100
## 47   0.0000000  1.4925198  2.3874177  7.7624996  3.8072313  4.0103233
## 48   0.0000000  0.6578229  7.3286372 10.3440352  4.9014510  6.8101269
## 49   4.9275836  0.0000000  4.7803416  5.9393324  5.6756438  2.8031237
## 50   0.0000000  0.0000000  5.2371774  4.4122057  4.8429537  3.8283879
## 51   0.0000000  0.0000000 11.3399918  3.3931004  3.5180693  9.1250288
## 52   0.0000000  0.0000000  3.4719158  1.2193389  4.1487308  2.8299510
## 53   0.0000000  7.2317271  3.9787631  5.1478968  2.9801899  4.3242346
## 54   0.0000000  0.0000000  2.2934882  2.8847542  0.4380799  1.6455172
## 55   5.6187261  1.1326426  3.5887566  2.0975097  3.2246886  3.3979125
## 56   0.8589358  0.0000000  9.6872597  2.4529117  3.0571036  8.0893647
## 57   4.6851048  5.3352939  5.4707191  3.7313245  2.2054238  6.8697431
## 58   0.0000000  1.1898562  5.2171376  5.3363191  2.8888309  6.2652681
```

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## 59   2.5095185  8.0459294 10.3731267  0.0000000  2.3569889  8.9170367
## 60   0.0000000  0.0000000  2.7363451  4.8196784  3.5258809  5.3640856
## 61   0.3832757  8.1499523  5.2643262  4.1238814  5.4364251  3.3406050
## 62   0.0000000  0.6721085  3.9851087  6.7760684  5.0202222  3.5823633
## 63   0.0000000  0.3457370  1.5338623  5.6828261  0.8579014  1.6628435
## 64   5.1766260  2.1076544  3.6535875  6.9333921  6.4438901  4.1333498
## 65   0.3503841  0.0000000 10.8787656  0.6320820  3.2089698  9.2241763
## 66   0.0000000  0.0000000  2.5688104  4.5188687  4.3154648  2.1005740
## 67   3.0597360  0.0000000  6.0884109  4.3228439  4.7910066  7.7311445
## 68   3.5001009  0.0000000  7.1893304  6.2880041  4.9765011  5.1634102
## 69   0.0000000  5.5396644  5.4896457  3.7255558  3.2974115  5.3604170
## 70   0.0000000  0.4270698  2.1523457  7.8992741  4.9040890  5.6809882
## 71   0.0000000  0.0000000  5.1459505  1.2161755  6.1525221  7.6322493
## 72   5.7733054  5.7325568  3.9865475  9.8022751  4.8855988  3.5901708
## 73   0.0000000  5.7493787  4.1697006  0.0000000  0.3305584  7.7925014
## 74   5.8522836  0.3683772  3.0481839  4.2504841  3.9031926  2.0702176
## 75   5.6261617  0.0000000  7.6826042  6.2821692  2.5265446  7.4973130
## 76   0.8113066  0.4619476  6.2282261  4.6953257  6.4499443  2.7357171
## 77   0.0000000  0.0000000  7.5179142  0.5937840  0.0000000  7.9026115
## 78   4.2534069  0.7392433  8.2168399  1.4186757  3.8127241 10.1605954
## 79   0.0000000  0.0000000  7.2868313  1.6144272  2.6216651  6.4780706
## 80   4.1419886  0.0000000  6.9313533  1.1496496  3.6292400  8.4239113
## 81   0.0000000  0.0000000  4.9881211  5.4248986  0.9824369  7.8320843
## 82   0.0000000  0.5350576  5.8247755  2.7734478  0.9245560  7.7880782
## 83   0.0000000  2.5954559  5.0380674  4.3861005  3.2471376  2.5306451
## 84   6.3230115  4.3449066  6.7344793  6.6619363  8.0107748  5.8429009
## 85   4.6316747  0.0000000 10.4402273  1.9131479  4.1819612  5.2079436
## 86   0.0000000  0.0000000  0.7556567  7.2147533  2.9789095  0.9395275
## 87   6.1469240  0.0000000  4.1846294  1.9906645  2.9277827  4.1846294
## 88   0.0000000  4.8238716  3.3135216  3.0792245  0.5818815  2.7993567
## 89   3.0796682  4.5203217  4.3255015  7.6362628  5.1275507  2.6743703
## 90   0.5912964  1.0094905  1.4715517  2.1846929  5.1058792  1.1804662
```

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## 91   0.0000000  0.0000000  3.4169613  8.8430693  3.3676926  1.2834477
## 92   0.0000000  1.1350094  2.2891262  2.6741894  4.8485478  3.6961830
## 93   4.8411127  3.8965044  4.4375740  4.5461783  4.5669491  2.5220055
## 94   0.0000000  5.5140938  7.9238254  7.8233762  5.7397266  5.1095444
## 95   0.0000000  0.6343145  4.6608431 10.2115358  6.6847893  2.3621613
## 96   6.0404980  7.1818559  6.0596992  7.3156631  7.1774674  4.1140088
## 97   1.6291468  0.6763577  4.5316435  0.6763577  1.9965334  5.6101951
## 98   0.0000000  0.0000000  5.2729227  4.1644323  5.4991890  3.0455129
## 99   2.9984302  0.0000000  3.1088422  8.1537288  2.0627780  9.7304608
## 100  0.5765705  0.0000000  5.6756409  3.9305481  5.0415628  2.8850081
## 101  0.3335382  2.3677065  2.3677065  6.9843353  0.8320393  2.8563683
## 102  0.8479969  0.0000000  2.2016339  2.8073549  3.1043367  1.3785116
## 103  0.0000000  0.0000000  2.0415584  2.2130050  2.0415584  7.8047596
## 104  2.6812918  7.5320512  6.0267558  9.4580184  6.6986561  2.7657469
## 105  0.0000000  0.0000000  2.2835959  3.0451459  5.5822820  2.5450293
## 106  5.3694909  0.3923174  7.4336973  5.9308485  8.9597522  3.8827506
## 107  3.8825355  0.0000000  2.4173260  7.7615698  6.8129949  1.2911910
## 108  0.0000000  0.0000000  4.4523516  2.8265180  5.4287688  5.4576337
## 109  0.0000000  0.5315686  8.4559453  5.3131406  7.8785077  4.0131496
## 110  3.6218409  6.8258085  7.6337567  5.1671210  6.1469057  5.9279012
## 111  0.3975839  7.1386425  3.5974239  5.1911283  0.3975839  4.5365565
## 112  0.0000000  0.0000000  7.5483734  6.6872203  7.0421245  4.0728261
## 113  5.4992081  3.5676063  7.0496711  8.5643907  6.9310850  3.0422241
## 114  5.8784875  4.1406887  2.4130795  6.9976165  2.3199936  2.1136338
## 115  3.9750523  5.1140088  5.8443003  7.6160489  5.7668548  4.7773987
## 116  0.7248249  0.0000000  4.6146333  7.5596692  6.1129399  4.3860246
## 117  0.3159140  0.0000000  1.5648171  7.4756443  1.8847151  1.9773166
## 118  0.0000000  4.4337674  9.0120739  4.1076795  9.7583636  4.2086031
## 119  0.0000000  0.0000000  6.0161843  6.1334690  4.7929646  4.8961604
## 120  3.6473721  0.0000000  2.9855733  5.5230193  2.1571084  1.2208252
## 121  0.0000000  0.9306995  7.5451382  2.6864333  6.3673483  4.1509495
## 122  6.2434235  1.6275135  3.9003452  4.9841609  4.7238916  2.0477827
```

```
## 123  3.5926962  0.0000000  4.4632497  6.5012305  3.6756353  2.6676197
## 124  4.8936874  6.0619835  1.1534162 11.2750747  1.1534162  5.0899176
## 125  4.5078010  7.2834190  5.6853964  5.7882968  6.5836680  3.7020369
## 126  1.4261037  0.0000000  1.1797658  7.5437688  3.1030779  2.3835246
## 127  0.4390380  0.0000000  1.2765562  6.9465402  0.0000000  2.4914683
## 128  0.0000000  0.0000000  6.4055006  4.4414104  7.7532402  3.1795907
## 129  0.0000000  0.8786861  0.8786861  3.2306027  0.5051796  3.2936648
## 130  5.0388839  1.1647219  1.4091465  2.2404975  0.4997821  5.0747666
## 131  0.0000000  0.0000000  2.5840966  2.5840966  5.4180516  5.5666751
## 132  0.0000000  6.8459203  7.3088741  6.7025620  4.6148983  3.0702519
## 133  0.0000000  3.5841568  3.4350285  5.2443619  6.0047620  4.4468385
## 134  4.6470094  5.2363855  6.8937566  9.7432669  6.9333507  3.8910983
## 135  0.0000000  6.1867283  7.4583664  8.0305060  8.3391245  6.7751757
## 136  6.8772338  1.4383461  4.9508090  4.0348496  6.2606543  3.4932374
## 137  0.0000000  0.0000000 11.2249103  6.8947838 11.3039582  7.8008274
## 138  0.3650206  0.0000000  4.0735204  3.7107569  4.1689789 10.3906972
## 139  3.4019171  6.9739591  3.2739485  7.4467351  6.1674884  1.4825385
## 140  4.1187584  0.5056877  4.2833218  4.7338261  2.5940230  1.9777195
## 141  1.9328171  0.0000000  5.9679571  2.2088918  4.0618194  9.1318156
## 142  0.0000000  6.9429519  7.6768598  6.0335419  6.0714366  5.6684879
## 143  0.0000000  0.0000000  6.3474105  9.3880408  2.4135399  8.7975435
## 144  0.0000000  0.0000000  4.2496046  6.5655180  3.7671781  6.2525178
## 145  2.4885921  0.0000000  9.5489263  4.0501882  5.3395864  9.1607443
## 146  5.7960422  0.0000000  7.2478117  7.9755935  8.3065913  3.5629628
## 147  5.0299034  0.0000000  2.7843783  3.0637963  0.7959331  3.6756805
## 148  4.3368332  0.0000000 10.3679915  1.1378314  4.6786241  9.7124156
## 149  2.7187452  0.0000000  3.9556569  6.2862306  3.4658831  0.0000000
## 150  4.6674778  0.0000000  3.7481070  2.8048796  2.3633393  9.7444100
## 151  0.0000000  0.0000000  5.3490149  7.9595302  4.9127552  4.8380845
## 152  0.5010060  0.5010060  4.4434807  1.8036404  0.5010060  4.2045164
## 153  0.0000000  1.1058122  6.5944187  1.1058122  8.1539137  8.3139478
## 154  6.3897681  0.7119354  8.2420041  3.1658316  6.3065156 10.6124938
```

```
## 155  0.0000000  0.0000000  3.5711671  6.8113130  4.7760039  1.7863036
## 156  2.4550181  4.9947698  4.1648265  5.6951448  4.4866951  7.5376610
##     rs_PCDHA11    rs_RET rs_ANKRD43     rs_WT1   rs_KCNF1   rs_CCL18 rs_CHI3L2
## 1    6.8675481 11.166764  9.4039692  5.9701657  7.9352334  3.5496815  6.394211
## 2    5.2199661  9.390036  6.8470473  5.0188255  2.5096958  2.4151637  8.232453
## 3    6.1304985  9.682090  4.6729062  2.2197106  6.3611911  5.7263762  6.116951
## 4    7.9019077 15.360428  3.5719923  1.5931625  4.0990595  4.4040516  5.369568
## 5    6.7183986  9.921985  7.6908780  5.1645168  8.3036721  3.2203454  6.531715
## 6    5.1917916  4.778855  2.2112303  2.6291701  4.1792085  6.4009853 12.112058
## 7    6.6231953  7.621408  5.1425441  5.7400884  3.3583541  9.5015825 11.409929
## 8    6.2198578  8.245694  4.7024858  4.3556647  6.0296958  9.6854395 12.490507
## 9    0.0000000  4.374539  4.3379465  2.8549133  5.0536327  2.5048492  8.267034
## 10   1.6614760  7.206227  5.8073807  3.4835449  4.7804151  6.9966836  6.488909
## 11   4.1487714 12.061033  9.3317209  3.2777765  4.5075663  3.1746301  5.580097
## 12   3.1850578  9.192629  9.3269141  1.5125809  1.3118518  6.1805955  7.117694
## 13   7.1377320  6.929772  3.9361291  6.1244646  2.2302645  7.8905598  9.613380
## 14   4.0422854  6.210551  6.6369943  6.8192888  4.7262427  3.1767855  7.724212
## 15   6.0321692 12.204211  3.8656714  2.1931409  1.9480027  1.9480027 11.360472
## 16   0.0000000  6.885241  7.2381840  1.5088850  7.3485078  3.9359783 10.035423
## 17   6.6279176  8.400694  7.7541052  3.3501153  5.7120840  5.5282744  2.373119
## 18   2.3571860 10.132888  9.7400215  2.5762077  4.7323940  2.9768952  9.453035
## 19   2.6142622  5.085369  2.4814023  0.3634515  6.2654707  3.4631647  9.319890
## 20   7.3655981 11.557363  3.9950050  4.8943230  6.3277179  6.8646047  3.350030
## 21   3.8242791 11.580564  7.6810100  4.7016988  3.3621332  7.6638854  7.977476
## 22   2.6355687  4.773949  2.4674099  7.2879137  5.5585279  7.5257432  8.739027
## 23   0.5566992  6.437918  3.9631782  3.5057639  6.4765729  4.3437986  3.011317
## 24   1.4624188  3.303167  2.5372961  4.6238376  2.1132337  7.6952039  9.222053
## 25   6.7901139 10.311417  3.0167281  1.9641398  7.1255953  2.5450788 10.146384
## 26   1.9740520  7.625638  4.8290072  0.3405053  0.6158871  5.0067872  4.562609
## 27   5.8814664  9.681768  4.8388711  2.7525131  1.0538064  5.4841059  8.824308
## 28   2.3839669 11.128325  7.8442871  5.8423026  7.0121541 10.1596164  7.157465
## 29   7.4489777 11.873209  5.1438301  1.8922744  9.1277744  3.4913529  7.339179
```

```
## 30   6.1236765  9.604666  6.0925986  4.5644879  4.8324546  7.0378039  8.907618
## 31   2.7716532  7.964224  3.8589060  0.8437427  9.7321600  5.8234055  6.693649
## 32   4.4446273 10.902097  9.2227737  4.8082563 10.1547515  5.4297934  7.841854
## 33   5.7719252  9.452468  8.9193815  1.0445340  3.0770550  3.1933617  8.260699
## 34   4.0366440  8.342320  7.2316964  5.1709786  6.3025658  2.5400521  6.114808
## 35   6.8218786  9.372669  6.7818541  8.0388268  3.2900705  6.9704557  8.488701
## 36   4.1064321  6.609906  3.6979183  4.5387616  5.5865786  9.7793370 11.079327
## 37   7.0213309  8.792892  3.9265498  3.5022669  4.5206988  4.4655436  9.515604
## 38   6.7153649  7.608094  2.9544569  8.1091526  4.5021269  5.7593529  6.926967
## 39   5.6243992  4.600062  7.1390796  4.7950552  2.1730635  8.6159768  7.031916
## 40   6.2066198  4.492859  4.0368813  5.8215980  2.0742657  8.2425196 11.542246
## 41   8.2125197  3.749599  2.2029192  6.9218017  3.2507797  7.2699598 12.189099
## 42   0.8127857  8.412378  3.8563185  7.1479762  3.0858835 10.1041268  5.769740
## 43   7.0043598  5.142781  0.0000000  6.1586884  7.9147032  3.9738317 11.964536
## 44   2.4296963  5.463636  8.6111373  8.5784852  1.1699891  1.6725159  5.119049
## 45   7.6181006 10.540170  4.4585001  1.9739051  6.8418977  6.6589084  7.327238
## 46   7.1266374 11.267015  3.1142504  3.2309408  7.9345165  1.0663992 10.334331
## 47   4.2016495  4.754759  8.9616858  4.9366474  3.4562542  5.2318164  7.442231
## 48   7.3814054 11.949171  8.6755556  4.2410775  9.6021365  9.3667685  8.304504
## 49   6.6296218 12.151733  4.9757677  4.7501348  6.7480855  6.7557088  9.572228
## 50   8.2192920  8.266548 10.8040821  6.7964135  8.9402155  4.0962956  8.568999
## 51   2.9907189  4.474397  4.1009524  4.6845270  3.7733951  7.2096629 11.920294
## 52   7.5480543 10.881695  3.7816115  0.6147570  3.7816115  7.6127918  6.487605
## 53   9.1416795 11.277507  4.9322691  6.3468470  5.2003396  5.2131606  5.187408
## 54   4.0117461  9.577626  5.9546616  6.5646602  6.0734240  5.7320195  7.761905
## 55   4.0447351 10.449291  9.8392460  2.5286713  2.7365832  1.4796962  8.894682
## 56   7.0663346  2.743235  0.4924172  1.6013162  2.7432349  7.8710822 12.375322
## 57   5.5524970 11.085218  8.7080551  3.2184557  3.5651585  6.5849505  8.599391
## 58   7.5389509  8.471546  8.6729323  4.1157824  4.9887756  7.2376010  7.708853
## 59   2.6555808  7.366631  2.8448878  6.1274785  3.8331330  8.7543878 11.592836
## 60   1.3885753  9.099353  5.4377504  0.3444877  6.8996663  5.1723955  4.886979
## 61   8.2026641  9.102588  8.2441930  0.3832757  2.3952822  4.4189388  5.466526
```

```
## 62   7.4384259 11.829448  4.8963300  0.0000000  0.3748447  4.9935929  4.966467
## 63   8.1288404 13.390545  2.2603870  1.9923334  4.0387610  1.3922075  5.321759
## 64   1.8000819  7.761353  8.2472383  7.1547948  6.8426948  6.1312170  9.077078
## 65   0.6294732  2.277538  2.9255248  7.3911267  5.7563508  8.8508879 13.659034
## 66   5.2905387 12.405566  5.0109409 11.3331360  9.3600023  4.2337577  4.448181
## 67   7.0734186  7.821137  4.0597965  5.1574399  3.5858399  6.8506194  9.858942
## 68   4.2806594  6.893465  4.1785394  2.6525783 11.8200707  3.6085609  7.335413
## 69   5.3638334 10.090705  9.3035244  1.7068620  5.7178245  6.6201934  8.396822
## 70   6.0089081  6.841722  4.9847944  2.5419113  5.0612275  4.7647655  3.265077
## 71   8.8755648 10.919801  4.6961497  4.2035066  7.0612794  3.6402623  4.658846
## 72   0.0000000  3.543818  8.8711370  2.2654669  1.8740887  5.1559718  5.841961
## 73   3.6899365  5.936937  2.2818466  7.7061783  2.2033578 10.8641803  8.794275
## 74   1.9175463  9.190289  9.7894427  1.9666889  2.8294843  0.9050428  3.519944
## 75   6.5594046  8.274128  5.8693853  2.7472370  3.8089925 10.1552801  9.199633
## 76   8.6384146  7.039779  4.1685377 10.6163900  5.2897164  6.4056776  5.656456
## 77   2.3458221  7.139760  4.7801316  0.0000000  0.5937840  7.7020348  7.572961
## 78   6.1700733  3.549608  2.3265661  4.4649492  5.5499802  1.0028825 12.718882
## 79   3.1091767  3.995349  4.4681923  0.5997939  3.6252939 12.5749519  9.099144
## 80   7.9958819  5.215411  0.8579014  5.1343072  5.9335679  4.7975422 10.098237
## 81   5.7200677  6.374464  5.8959763  2.5555708  2.8763107  9.4685273  9.048198
## 82   2.5735927  9.497051  4.4662747  0.5350576  4.4366682  7.8026592  8.566386
## 83   5.5275927 10.280654  7.0660580  5.9431149  1.5151069  1.5151069  7.704541
## 84   5.9462770 10.201193  7.2741302  4.0360373  6.9076130  6.7625056  7.242141
## 85   3.9868478  3.592756  1.5540485  5.2918356  3.2170446  4.0436070  9.072756
## 86   6.2829976 12.059609  3.6670519  0.0000000 11.8792681  3.9713688  4.998985
## 87   7.6542028 10.351330  5.7778536  4.5324042  6.1971734  5.1711147  6.137473
## 88   8.1340946 10.286429  2.1626612  3.8981696  2.4517782  7.4583115  7.024148
## 89   6.3605012  7.928816  3.3378110  7.0246510  6.4245006  4.6919417  9.929279
## 90   2.0579008 12.586328  2.8236271  2.7710615  3.1042192  0.5912964  1.333366
## 91   2.8607443  8.811180  7.5695260  6.4497413  4.4220580 10.3056183  3.316696
## 92   7.5196127 10.368042  9.0135999  4.0746168  5.9190921  7.2395470  4.435229
## 93   1.1959775 10.253637  4.4820028  3.3905989  5.9140119  5.5042390  3.343223
```

```
## 94   4.8569807 10.664758  6.9058226  1.4431823  8.1632642  5.8369466  5.268127
## 95   2.1798932  7.477766  4.3452828  6.1910098  8.0420062  3.9917712  4.906390
## 96   7.1218692  8.640939  6.7802904  3.8307624  5.0138463  7.1328359  5.127402
## 97   0.6763577  7.184258  1.1350094  7.5675470  2.3747891  9.9176825 11.972600
## 98   1.0261627  8.723019  8.4195220  2.4573579  5.7233237  3.7108340  5.563851
## 99   6.6838789  7.916272  4.7580153  2.5277710  4.6342506  6.0545099  3.260071
## 100  1.5681294  7.517880  3.2991860  1.5681294  8.2671139  3.0651759 10.896565
## 101  0.0000000 13.383616  8.9802287 10.3234648  0.8320393  7.5545589  6.978396
## 102  8.6904311 12.708006  4.7970130  9.8829487 12.6436308  1.3785116  1.765535
## 103  6.3033059 10.787065  5.0191948  1.8469546  8.9671700  5.9731107  8.176481
## 104  7.6730073 10.329677  7.4578257  9.0212898  5.5904134  3.5642074 10.949537
## 105  1.2659769  7.325099  4.6120812  2.1326755  5.4368448  1.4290535  1.871804
## 106  5.4420179 12.550273  4.6475678  3.1396496  5.5906978  2.8580805  6.078262
## 107  5.1133713  8.260838  6.1754707  3.4764854  3.4288124  2.9093123 10.063123
## 108  1.2933116 11.372706  2.8265180  3.6889636  6.6177554  4.0591130  7.482804
## 109  4.4263453  8.045929  1.2243490  4.7220616  6.0256866 10.2508994  8.375016
## 110  8.4700601 10.457575  5.5414994  4.0847531  5.4009068  5.4456439  5.531157
## 111  3.9029804  7.128865  8.7297587  3.5197306  5.4221724  8.2538536  4.180466
## 112  7.2934450  8.127545  4.2725906  1.8070251  6.4603510  2.6814493  6.947920
## 113  0.9656919 10.906119  6.4235983  4.0249845  2.0761144  9.2017733  6.754302
## 114  1.9530417  9.727787  9.2127301  2.9979066  8.5725127  3.1133504  5.670070
## 115  7.2109070  5.580257  1.7664680  5.5248786  2.9271759  8.8967668  6.440954
## 116  5.2032795  9.171722  6.6656514  6.2918595  6.9005360  6.7113008  6.954683
## 117  8.0784823 11.239387  3.5868728  1.4402081  1.7857598  3.1024398  3.672459
## 118  1.1163648 10.710443  5.4420643  3.9416698  4.7673158 10.8551355  5.218293
## 119  5.4813474 10.388958 10.6391007  5.7111838  5.5932821  5.0972484  8.799876
## 120  0.5490284 11.271067  5.6199030  0.0000000  1.7636240  0.0000000  5.257908
## 121  7.8846498  9.357965  3.0443417  2.7845668  6.9304854  6.7898740  5.415674
## 122  8.3747922 12.571737  5.3096710  6.0472897  5.4656317  2.7165081  8.901393
## 123  7.1053879  7.905563  4.7767409  4.0310069  5.7015352  4.1517939  5.740582
## 124  6.5394721  8.495708  7.9399723  0.0000000  0.3852654  7.1876599  8.416500
## 125  5.5377465  9.735424  8.8947268  3.1390438  9.2271779  8.8720934  5.864649
```

```
## 126  4.8415002 12.943428  4.2261925  0.0000000  0.0000000  7.1740718  4.089896
## 127  0.0000000 11.118129  2.5799283  1.0475384  0.7750927  6.7412485  6.825092
## 128  9.3655976 11.117980  6.2667603  4.1454085  7.7704617  4.7955696  7.920281
## 129  0.5051796  9.254338 11.1977298  1.4207788  3.2936648  1.9764736  1.813935
## 130  0.0000000  8.670653  5.0206000  4.8025448  3.7461515  6.9292395  3.606051
## 131  7.6009848  1.279531  0.7771988  0.0000000  2.4955673  8.4276322  3.791606
## 132  8.2479911  9.069375  9.5331681  6.5897440  4.0590783  1.8525982  6.659731
## 133  5.1225029  7.260554  6.7573553  5.6573542  3.8428783  6.6598932  7.002348
## 134  7.9126553  9.849157  4.6647445  3.8313807  2.2046416  3.7039755  9.676956
## 135  2.7199500  9.919748  7.3570866  6.5536354  5.5873770  3.4710183  9.402233
## 136  7.7115376 10.608713  3.9172981  3.1895241  7.2267156  5.5335166  6.889615
## 137  4.9272233 10.802528  2.9359688  2.9359688  7.4310262  4.4599824  5.211962
## 138  1.7661287  6.610970  4.0486285  0.6561760  4.5520696  4.1457019  9.863133
## 139  4.2977563  7.129957  6.8220864  8.4781176  7.9368582 11.7943361  4.474670
## 140  8.6482738 11.323456  3.4135670  2.4900566  1.6318493  7.9966605  2.378012
## 141  3.0444641  4.846884  5.2795530  5.8009103  2.3293533  6.8293600  8.525726
## 142  5.6189874  8.469884  3.5185729 10.6369569  7.5457012  5.1646174  9.678331
## 143  7.9374003  4.809877  1.2884176  6.5386390  6.8450672  5.0950847  9.388817
## 144  0.0000000 10.309309  4.4110737 10.8659536  9.1411888  5.6208532  6.781800
## 145  0.0000000  4.075079  2.8183598  2.8183598  4.2816315 10.9234712 10.657327
## 146  7.6634898  7.878006  3.5629628  1.5268200  8.9330134  3.7256866  6.592225
## 147  7.1851658 10.598996  9.4834625  1.8385888  9.9620446  4.9796230  9.592034
## 148  0.0000000  4.609365  3.9454017  0.0000000  2.0004327  5.1380649  5.766102
## 149  7.3800004 11.226016  3.9206268 11.6500661  8.4159961  3.7713257  7.064735
## 150  2.6408985  4.441470  5.3107691  1.7238206  2.0787123  3.9334877  7.394069
## 151  3.4621309  9.979265  9.2077326  0.8153295  2.1843755  6.1882268  7.490129
## 152  0.0000000 12.112531  8.1098406  4.3873419  9.3947759  6.2971034  3.280719
## 153  6.3292079 13.331915  5.7342327  2.9842430  4.6984408  1.1058122  9.222668
## 154  3.4867787  7.687227  3.5268576  2.6831574  4.6577772  6.3180981  8.946918
## 155  1.7828698 10.600128  8.3436459  9.2314170  9.5204873  6.0031030  3.503540
## 156  5.2229861  6.154547  4.1241958  9.0580053  9.1757616  4.6386705  7.441714
##       rs_NTNG1 rs_SLC6A15  rs_MKRN3 rs_ZNF385B   rs_CLDN8  rs_FAM83A rs_SHISA2
```

```
##  1    1.4402081  1.4402081 0.5144000  7.4506496  6.7789248  5.4257144  8.727357
##  2    2.5096958  2.6819664 1.6630713  5.1121663  8.6545032  6.3235934  9.464201
##  3    1.5002922  1.6757256 0.7921057  3.4908653  6.7025883  6.6137733 10.255068
##  4    0.0000000  0.4889263 0.8535167  5.7616204  4.5602258  4.3191265  3.755561
##  5    1.5757964  0.8418926 1.5757964  6.7115431  6.6559457  2.8756032 13.040313
##  6    2.7453234  4.5741984 3.8039296  4.2199352  9.0499727  5.3369653  5.681202
##  7    2.7623063  0.0000000 5.1737071  5.4907145  6.5237862  4.5933060  7.355315
##  8    3.8981503  7.6631062 1.0308304  4.4273648  2.8598106  1.2575538  5.674514
##  9    4.3003947  0.6035967 0.0000000  1.6220870  6.9375115  9.7045175  8.630726
## 10    1.3948982  0.0000000 0.0000000  2.8300930  4.9798470  1.7842946 12.310219
## 11    1.4183519  1.2253983 2.7414670  2.3261634  5.0783921  8.9720349  7.615067
## 12    2.4456473  1.0785415 1.3118518  8.0733217  3.9149950  1.0785415  7.102210
## 13    2.2302645  8.8035790 7.4164986  1.9142201  6.4403360  0.0000000  5.984254
## 14    1.8800977  3.3762070 5.0224255  7.0629398  9.0548243  3.4664444  8.706980
## 15   10.8776541  0.4407396 0.7778720  7.2794211  3.4124022  4.6608716  9.399234
## 16    5.8170118  0.5474498 0.0000000 10.8162081  7.1658456  3.2880484 11.891007
## 17    0.0000000  3.3501153 1.9732072  5.2870105  7.1654949  6.0851187 11.540131
## 18    3.2901295  0.4665488 3.1104468  5.0308437  7.8097212  6.3157111  9.359696
## 19   10.7519310  1.1017173 2.4814023 11.0733560  7.8910856  3.1735752 11.926843
## 20    1.4459385  2.2437300 0.8970080  7.6367479  1.4459385 10.2983224 11.020197
## 21    5.1418129  0.0000000 4.4318369  5.6507129  7.2814729  9.9037562 10.668778
## 22    2.6677105  9.0848347 6.5303408  2.2347466  5.7583591  6.9654415  9.498660
## 23    3.0931883  0.0000000 1.2705887  1.9355352  4.7494055  5.7604286  7.038148
## 24    2.8646319  6.0374503 0.0000000  3.3031670  7.5689024  4.5346219  5.035056
## 25   10.3695330  0.4031586 0.0000000 12.0097740  5.4342145  2.4630731  9.920232
## 26    0.3405053  0.3405053 3.7844935  2.4662878  3.2907488  9.8675813  5.953512
## 27    2.5901229  2.8984406 2.1974880  5.2861456 10.0881494  1.4820222 12.653814
## 28    1.9640659  0.0000000 5.5549081  4.9076358  6.6567309  2.5787214 12.450828
## 29    0.3800645  1.4895943 0.3800645  5.0680946  5.9156954  2.6835617  9.822848
## 30    2.4483988  1.3138263 2.3467016  6.7891306  8.7584261  4.8878128  7.699944
## 31    0.4826418  2.7990873 1.9188823  8.8339729  6.0305082  6.2497430 13.253703
## 32    1.4617381  2.0558551 4.8262129  4.1853116  4.3432799  2.8001026  6.740994
```

```
## 33   6.2430445  3.3009730 0.7727302  8.4003488  8.3495511  3.0151942  7.787764
## 34   2.5400521  2.1707583 0.0000000  8.7674019  8.0641365  3.0009555 12.172884
## 35   7.1372279  0.0000000 5.3008303  9.1482490  8.5278433 10.6857793  8.727847
## 36   4.9515552  1.4388251 5.9581444  4.1787545  8.0930557  4.1442667  8.403029
## 37   4.6250542  3.9265498 0.0000000  2.9795864  6.3788809  0.0000000  8.390089
## 38   3.8582596  0.0000000 0.8827604  1.9309644  7.3638877  3.2810454  6.508094
## 39   2.5425057  1.2117598 5.0834049  8.0092979  5.7803993  3.2890229  5.473592
## 40   3.0116566  8.8084320 6.6517750  4.2466589  8.5287920  3.8883634  7.585508
## 41   0.7270927  7.7631951 6.7435931  3.7843260  8.5862678  5.8904783  7.005118
## 42   3.4246534  0.8066128 5.1326920  5.1172088  8.5134288  9.4777469  7.877042
## 43   1.6911768  6.7186986 6.1405680  1.6911768  7.3629976  5.7915901  4.200646
## 44   1.5236121  5.9085031 0.3923174 10.6193009  9.8004059  3.2855058  9.138384
## 45   1.5617905  1.5617905 1.3010608  8.3423970  6.5046188  2.9694913  7.901862
## 46   8.1142681  2.3253864 0.7903550  3.4393173  5.0326122  5.5754787  9.426584
## 47   3.9267585  0.6822137 1.6397415  4.6716387  7.7942820  0.3810618 11.822539
## 48   1.9592879  1.4505910 4.0019193  4.0019193  7.9541085  6.8249066 13.904636
## 49   3.5975073  0.0000000 0.0000000 10.5030016  4.4263386  5.9919163  5.699554
## 50   6.6234045  2.3749282 0.7173858  4.8907288  4.5574162  3.2287110  9.980741
## 51   6.7477083  1.1810389 6.4301933  2.8752099  7.1910138  2.9362139  4.153270
## 52   0.3399355  1.2193389 4.6989630  6.5584498  6.1417352  5.3046133  6.701574
## 53   3.9174222  2.2046103 0.0000000  3.3015438  6.3233917  5.0077830  5.977692
## 54   7.2424243  0.0000000 4.0844470  3.8910205  0.0000000  9.2713232 10.590025
## 55   2.5286713  2.5286713 4.8740297 10.9630619  5.7804518  0.6747318  6.531888
## 56   0.0000000  3.1916732 6.0464387  2.3415019  9.5412920  3.1259651  4.415603
## 57   3.2733816  2.6821687 1.2897755  8.0223134  8.8793961  6.2975748  7.859079
## 58   7.8537431  4.0888794 2.0715224  7.2345358  7.9707381  3.3631290 12.205986
## 59   2.2715751  9.3574713 6.7177079  6.5734851  4.9831213  2.7214820  6.145596
## 60   1.5300208  1.0557510 5.9841769  1.8863941  2.7935838  7.4707589 10.650966
## 61   0.6858953  1.9026911 6.8045363  6.8547176  6.8995382  0.9358369  9.106576
## 62   3.4318369  0.6721085 0.0000000  3.1234344  3.8130526  1.3124328 12.044742
## 63   4.3573901  1.0588014 3.1461990  6.9878029  4.7974955  6.1797379  6.298656
## 64   0.4994760  3.0060287 1.4086575  3.9524081  6.2614123  3.7892911  8.137058
```

```
## 65   2.1039004  7.2857804 6.6978127  4.2793227  3.4088885  4.9266542  5.534737
## 66   1.6746866  0.0000000 0.0000000  8.9996052  5.7224278  7.1842109  8.841379
## 67   2.9394335  3.2738739 1.5855875  7.6615472 10.1103566  4.8082821  8.025174
## 68   3.7486866  2.1445685 0.0000000  6.2764725  6.6737218  4.7781770 10.251574
## 69   7.7752527  4.1503322 2.9622714  7.9883654  8.4510392  3.0828388 10.971232
## 70   7.4397669  1.6169693 2.8483575  4.5900331  5.0158543  8.7879616 10.214688
## 71   0.5271704  1.2161755 0.0000000  5.3855277  2.5489791  6.2351009  7.729910
## 72   1.8740887  1.8740887 0.4655044  3.6786353  6.1198811  1.8740887 12.599596
## 73   2.7367564  7.8305399 5.1290480  4.9117491  0.8258670  0.3305584  6.081105
## 74   3.9582209  1.2953116 0.3683772  1.7341785  4.8099597  1.4569113  6.916920
## 75   2.3581149  2.6773504 0.7092024  7.6646592  8.9922416  5.9967751  7.489689
## 76   1.0923428  0.8113066 0.0000000  9.5052733  5.1586723  6.8308739  2.364937
## 77   2.7226409  5.1339786 0.0000000  5.3831236  3.7791651  3.8317050  5.133979
## 78   2.2269400  4.0643310 3.0639861  2.4197276  8.7449868  2.3265661  6.742693
## 79   2.6216651  3.4321310 0.5997939  5.1924704  3.2090478  2.6216651  4.656885
## 80   2.2190601  6.5611657 5.4071454  1.7812758  8.4015558  4.7975422  5.980731
## 81   4.1760355  0.9824369 0.5732776  5.8107644  7.6266071  3.0563234  9.260478
## 82   3.2527335  3.2527335 1.4834160  5.2064401 10.2003745  2.7734478  6.424040
## 83   6.2603456  3.2869255 0.0000000  7.0887437  6.5613735  1.6432559  9.701647
## 84   3.3784423  0.8345494 5.8029764  3.1849150  6.3928103  4.7745657  8.867456
## 85   1.0748479  5.5606049 6.6875465  3.3403629  4.8271026  9.6975276  7.349634
## 86   0.0000000  0.0000000 1.3819478  6.5393868  6.5464871  4.7137453  8.394356
## 87   2.1059127  2.1059127 4.6698602  8.3199990  4.4255332  1.9906645 11.578453
## 88   2.1626612  0.0000000 0.0000000  2.5771750  1.3163196  5.2762957  4.718926
## 89   0.4998841  0.0000000 1.6185206  1.9630672  5.0211777  2.8503594  4.201093
## 90   1.0094905  0.3257318 4.9009730  3.1868016  4.5417131  8.7468455  3.374678
## 91   3.4645899  0.4421208 0.0000000  6.7383990  5.7178519  7.9056596  8.529785
## 92   3.4420677  0.0000000 6.1370526  7.8402738  0.3774014  6.6042478  7.111248
## 93   8.0160104  7.4801997 0.0000000  3.6847514  5.9301365  5.5361928  5.821958
## 94   2.8108955  3.7663195 4.0420139  8.1414706  6.3439265  5.9280244 10.308720
## 95   0.8705028  0.6343145 0.8705028  3.7467535  7.2163501  2.9309644 11.996103
## 96   0.5270703  0.0000000 1.2159270  2.7511638  4.7791494  1.4667054  9.480755
```

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## 97   0.6763577 11.4883471 6.7476465  3.0315716  5.0045239  2.8034130  3.883230
## 98   1.6197886  1.2522945 5.7327278  1.2522945  5.9336765  5.0947470  6.483153
## 99   0.9659874  0.0000000 6.3525855  0.9659874  0.3981314 10.0190696 12.294244
## 100  1.9810854  0.9873936 2.4387719 10.4166357  6.8757911  2.4387719  6.661459
## 101  0.6042611  0.6042611 5.2843439  5.4986753  1.8483175  9.0554975  3.637309
## 102  0.4854268  4.7333543 0.0000000  6.1977082  4.5728897  1.1375035 10.708222
## 103  7.1395514  0.0000000 0.0000000  6.6091551  0.0000000  4.2616662  9.955952
## 104  9.5664862  0.4716557 0.0000000  4.0417161  2.0334759  7.2968327  8.677339
## 105  0.0000000  0.0000000 0.0000000  0.9761436  0.3124328  4.6403375  8.867919
## 106  2.5078961  2.1498447 0.0000000 11.0917133  6.1812636  8.2866700  7.962647
## 107  1.0603241  0.0000000 0.0000000 10.2700443  6.2181651  2.6841904  9.059588
## 108  1.2933116  6.5389106 4.6487013  2.7662559  3.6889636  7.7236514  7.985548
## 109  3.5474005  4.3008778 1.6903724  3.0998338  6.6551858  2.4475263  6.603248
## 110  2.9361008  0.4143521 5.3070459  2.2201132  1.2207633  7.7273181  6.908033
## 111  1.9468431  0.0000000 0.3975839  2.6765834  7.7597950  2.0609466  8.232707
## 112  1.4147309  3.4590250 0.8742855  2.8575830  7.0958284  3.1561053 10.130120
## 113  2.2075181  0.0000000 5.7133549  4.6041484  3.3572846  7.6841476 10.016783
## 114  1.5833747  0.4144603 0.0000000  4.0274903  6.9976165  2.4130795 12.172420
## 115  0.6786128  0.0000000 0.6786128  5.4275794  8.4632309  3.6335010  7.620459
## 116  1.5647196  0.0000000 3.3417581  3.5965297  5.3395258  2.0921059 11.409215
## 117  1.8847151  1.1531568 0.5749250  4.8036300  6.7545762  4.3110235 10.417802
## 118  2.5842169  2.4255399 5.5990291  4.6284937  4.1076795  9.5779443  7.011730
## 119  8.5259142  1.0199154 0.0000000  6.6538353  5.3961252  2.9086592  5.572659
## 120  0.6156988  0.0000000 0.3405053  5.7891711  7.5098668  0.3405053  4.920231
## 121  3.5697949  2.0606354 6.7171815  3.3308595  7.1256697  7.1942279  6.600775
## 122  1.7816115  0.7626465 0.4311415  6.5966847  3.9979246  4.8856134  7.583984
## 123  8.3929515  1.2795902 6.7463410  3.7917203  6.8570877  1.0501882  6.141584
## 124  9.5489893  0.3852654 4.6542751  5.8019424  7.0742689  2.3159140  4.545023
## 125  1.3795655  0.0000000 1.2640560  2.9649900  2.3798982  3.9464782  8.792891
## 126  3.1030779  0.8825257 7.6199903  2.3835246  5.6539629  2.2619219  3.103078
## 127  0.0000000  1.4742024 4.6746810  3.1984942  5.3641697  6.3017230  6.983502
## 128  1.1053428  5.2853763 0.0000000  6.9055880  2.9834953  7.4454263  6.909048
```

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## 129  1.4207788  0.5051796 4.9630949  7.1272061  6.0351180  6.2250107  8.278293
## 130  1.1647219  0.0000000 0.0000000  5.1607508  9.4727122  4.9450645  5.226031
## 131  0.0000000  0.0000000 0.4403144  3.3616420  0.0000000  3.1459220  8.985017
## 132  2.4202129  4.9353042 2.9124008  7.1276663  8.0556317  2.9934751  9.683535
## 133  4.3107545  0.0000000 4.3667349  4.3667349  7.4343530  9.8025645  9.657209
## 134  1.7682479  1.1396005 0.6795139  3.8005686  5.6095984  5.7851189 10.808764
## 135  7.7086921  1.3383388 3.7255994  7.0725164  3.2570257  4.5621264 11.022705
## 136  0.0000000  1.1906781 0.0000000  2.3992531  5.8861721  6.3003251  6.177878
## 137  1.7870145  1.0359054 0.4330663  3.6093413  5.0073076  6.2859718  6.789127
## 138  2.4872291  0.3650206 0.0000000  1.1054769  5.8725111  1.9558335 11.861189
## 139  2.6742799  0.6763577 5.2735979  6.6693812  7.3835427  3.6962832  5.995568
## 140  2.7818633  0.0000000 5.4944348  4.1187584  6.7042440  6.3356565  4.431014
## 141  3.0437644  0.0000000 6.2224858  3.5691994  8.0415491  5.0707628  7.132284
## 142  1.2598449  4.5646281 5.5660297  3.6842689  6.4099238  7.9143205  6.955166
## 143  2.3124328  1.8174595 8.0635159  7.6573799  9.1893672  9.3008097  8.254513
## 144  5.8295553  0.0000000 1.2337040  3.3235142  0.0000000  1.7016821  5.659945
## 145  1.2876496 10.2091628 0.8990209  5.1766659  6.2740920  4.1705500  6.407451
## 146  0.5562087  1.2696915 0.0000000  8.8978796  3.8247984  2.3877210 12.896288
## 147  1.3058538  0.7959331 0.0000000  1.8385888  4.5288963  3.9748505 10.020476
## 148  1.1378314  2.8078495 5.6842633  1.4857875  7.1503200  3.9454017  4.202183
## 149  6.4609735  0.0000000 0.0000000 10.3993697  6.7171980  4.1190822  5.547826
## 150  0.0000000  0.5465611 3.6456325  0.9420077  9.9404242  1.7238206 11.786683
## 151  1.0092755  1.7132999 0.5912007  9.0704113  7.8145139  1.3330802 11.611008
## 152  0.0000000  0.5010060 2.4768483  3.3989933  0.0000000  2.6774180 12.998633
## 153  4.2517872  1.3426685 5.2862195  8.7813013  7.1374871 10.2158801  6.351432
## 154  7.0420040  7.3990266 6.1725755  3.7138278  6.8115198  1.9526318  5.364271
## 155  1.6677559  0.3472121 0.6269530  5.9341437  3.7275502  0.0000000 11.698425
## 156  3.4545181  0.0000000 1.5813512  9.8909380  6.4703937  1.3186928  9.444788
##       rs_MYEOV    rs_SBSN  rs_ABCC12   rs_NOVA1   rs_SOX11    rs_FUT6  rs_SCRG1
## 1    4.2473959  0.5144000  4.8715776  5.9897498  8.1397191  6.4867063 1.4402081
## 2    3.1016837  0.4448791  5.2139421  6.7535671  7.4577740  2.0875986 1.9594734
## 3    7.7892748  0.7921057  1.0686020  7.2829262  4.6520677  0.7921057 4.4971077
```

```
## 4    6.0695819  0.0000000  2.2112926  4.9473763  5.8449907 10.4467262 1.5931625
## 5    1.3700527  0.4815056  2.6207272  7.2285292  5.8193489  0.8418926 1.1300083
## 6    2.8528179  6.9653537  0.6028369  4.4079101  8.6857594  5.8201253 4.7232800
## 7    5.3748169  4.5933060  0.8248086  5.1737071  7.9441305  2.8420737 7.1315586
## 8    2.5529426  5.1885987  0.0000000  2.9918075  8.5540466  4.4038608 9.4221462
## 9    1.0279325  3.8587966  5.6689304  2.3663642  9.1413653  3.3718237 7.6953021
## 10   3.4835449  1.9455702  0.0000000  7.6774202  5.1714350  0.4930324 0.8598106
## 11   5.1344304  1.0026665  7.4537299  5.9280434  3.6678467  4.8124674 0.7390704
## 12   5.8226460  0.4548076  3.1347959  5.3715693  1.8457911  1.5125809 1.0785415
## 13   6.8740986  5.8171755  0.0000000  3.4794246 10.8488683  2.4893374 5.3301747
## 14   1.8800977  1.2268168  1.2268168  6.5774893  4.9923651  1.5900990 4.2552363
## 15   2.4026130  1.2804813  3.0880228  9.6812541  4.9381023  9.2556716 2.6689133
## 16   0.9432837  0.5474498  0.9432837  8.8329118  6.1804562  0.5474498 0.0000000
## 17   5.8333987  6.5191503  2.7766936  7.5853644  4.5592042  3.4080868 1.6277469
## 18   7.5107001  1.8768803  2.7500490  7.1291212  2.4807563  2.0195596 4.9618178
## 19   5.9347712  0.3634515  2.1500072  6.7025176  4.4911861  6.2273579 2.2402838
## 20   3.0329648  0.3644604  4.7164971  3.6098140  7.1450395  2.7544600 0.0000000
## 21   1.9354975  7.4574244  6.6652563  4.1980619 11.4889303  3.2441868 1.1445685
## 22   8.2908994  4.4047124  0.8668684  1.1606621  7.9160419  3.6475563 3.0002885
## 23   0.5566992  3.5057639  3.6206802  3.3809095 12.5129647  1.9355352 0.0000000
## 24   6.9422072  5.0350564  0.0000000  4.3111034  5.9962757  4.3111034 5.4794537
## 25   3.4588019  0.4031586  4.5784618  4.7438381  4.7263680  7.1088433 0.7179122
## 26   4.4440906  0.3405053  4.6105642 11.8264735  4.9947924  1.7639214 1.3771237
## 27   7.9507787  1.4820222  1.0538064  6.8372230  5.2457999  3.8350347 2.5015156
## 28   3.2157097  1.4103411  0.0000000  8.6203624 10.7990593  2.1097283 1.6194130
## 29   6.7055011  0.9291092  0.6805044  7.0811404  2.9875392  0.9291092 0.9291092
## 30   5.1366221  1.3138263  1.5147535  9.1959693  5.3618596  3.6457823 5.3618596
## 31   5.9400375  6.6022059  0.8437427  4.3271053  5.5078327  3.7776406 1.1322478
## 32   5.1873956  1.9286546  3.7688830  4.7716638  4.8958794  4.5080736 2.5637195
## 33   6.1087921  0.4374408  1.4705108 11.4262512  4.8215010  3.1933617 4.0519202
## 34   1.8587767  0.5238630  0.0000000  9.6736170  5.9711710  1.6731493 1.2100771
## 35   2.9913359  2.9913359  8.4332775  4.5206674  6.5536400  9.0767306 2.7770304
```

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## 36   9.7933144  1.6502131  0.8918080  5.8009905  9.8907929  3.7447101 3.7900317
## 37   4.1873798  1.4446141  0.0000000  8.5377674  4.3484803  2.8128473 2.5198690
## 38   5.8606078  2.3839393  3.0058850  4.3904545  5.5150091  4.1372740 0.6439485
## 39   4.0698912  1.6751836  6.1537304  4.5195608  4.6763069  3.6330708 1.8609231
## 40  10.2905317  9.7589667  0.0000000  5.0907010 10.7138577  7.6046763 1.1918784
## 41   8.4455699  6.6850767  0.0000000  0.7270927  7.8781613  4.9759603 6.5249099
## 42   4.4821126  2.9526504  6.7614449  5.6348778 10.9684134  0.8066128 0.4589069
## 43   0.5318680 11.2614229  0.0000000  3.6543897  7.7894730  3.7531017 2.0429244
## 44   2.5078961  2.8580805  0.9542708 10.9457394  4.2808747  2.8580805 2.3399355
## 45   4.1369706  0.5733745  0.5733745  8.1648727  6.0100100  0.5733745 0.9826560
## 46   6.8104791  1.6728326  2.7730891  4.8255211  5.0164428  3.4870361 3.0521724
## 47   1.7733212  0.0000000  0.0000000  6.4604428  6.7510218  0.3810618 2.2102642
## 48   6.2662824  1.8479168  1.1080226  5.6635126  6.3757241  6.3089597 3.5822067
## 49   4.5366498  0.6503050  1.9438838 10.3945726  6.1273568  3.4169883 1.2772111
## 50   4.3451976  0.0000000  3.2287110  6.0666898  5.8820487  9.1011676 2.2824398
## 51   2.1652366  2.6750481  0.3971458  5.4727932 11.1003667  3.5180693 4.8988855
## 52   2.9339314  0.0000000  4.8527929  5.3238816  5.6405110  9.1902104 2.1550368
## 53   3.2527184  0.9887029  4.9476895  5.4696972 10.4405362  5.7503439 0.4093638
## 54   4.2815425  0.0000000  0.0000000  9.7396534  5.7978975  3.6267312 3.7073150
## 55   3.3138988  0.0000000  4.2165247  7.0399093  3.6240775  7.0101868 3.6585428
## 56   3.3147545 11.5725827  0.0000000  1.7828279  5.2487625  4.4156032 9.9477458
## 57   8.0831485  1.6632535  3.2184557  7.3850712  4.4322379  5.8776019 4.0472068
## 58   6.4720214  0.4008658  0.0000000  6.7375502  4.6636463  2.3685728 4.7348017
## 59   3.8030100  8.0980295  0.0000000  5.5253861 10.3518267  4.2226423 7.1444084
## 60   5.3257929  2.6767413  2.8486380  6.2577178  1.8863941 10.1741004 0.3444877
## 61   3.7525452  0.0000000  0.0000000 13.0685801  4.8427476  0.0000000 3.0538586
## 62   6.3680053  0.0000000  0.3748447  8.9863936  1.3124328  1.1288873 1.9880848
## 63  10.8906457  0.0000000  0.0000000  9.8435194  1.9923334  1.0588014 1.6628435
## 64   3.5037812  0.8698714  0.0000000  6.3445587  4.2633650  0.8698714 0.0000000
## 65  12.0378805 10.2059461  0.3503841  5.3231935  9.3277893  2.1933302 0.8676593
## 66   3.8232602  0.3494785  1.7935214 11.7129327  4.0310158  0.0000000 4.5188687
## 67   5.8506119  0.0000000  0.7373406  8.8126022  3.8082512  1.2229282 6.5192777
```

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## 68   2.7222256  0.6978628  1.1662013  9.9147729  3.2324152  1.1662013 3.5712885
## 69   2.6858953  0.2944296  0.5389354  7.6604481  5.8080555  4.4334202 4.1503322
## 70   5.8965794  0.0000000  4.1324288  4.4146903  5.0004102  1.6169693 1.9093507
## 71   2.9703383  0.5271704  2.3132459  5.2075259  8.7444245  1.6805944 0.9124199
## 72   3.7619873  0.8168864  1.0992279  9.1908045  2.9018227  0.4655044 1.7158055
## 73   5.2608650  4.1063986  0.0000000  5.8812951  4.3805909  0.5994130 6.5221358
## 74   3.8459817  0.6614760  0.3683772  4.9523009  5.7763778  1.2953116 0.6614760
## 75   8.6824374  3.7074696  2.1673900  9.1879018  6.0251839  5.9530883 6.7028598
## 76   2.3649366  0.8113066  0.8113066 10.5752292  4.9455187  0.8113066 0.8113066
## 77   8.9494792  4.4512639  0.0000000 10.2029791  1.0131406  1.8261112 3.1106138
## 78   8.3909084 10.6466262  0.4165155  4.0054180  7.4542096  4.3031670 8.4390035
## 79   5.7435500  3.6252939  0.0000000  9.9134910  1.3484591  0.5997939 1.8388711
## 80   3.9656642  3.7209898  0.0000000  1.9424207 10.2464683  4.5195167 7.5503828
## 81   9.0294620  0.0000000  1.5614972  8.9604897  0.9824369  1.5614972 5.4889905
## 82   9.7691371  0.9245560  0.9245560  9.4735509  4.9158650  6.1138109 3.7626677
## 83   1.9708905  0.0000000  2.5954559  8.9240283  5.0952029  1.0439744 2.0654344
## 84   2.5755060  0.3346827  6.0100301  7.5176332  6.1006413  3.4832096 1.8523984
## 85   1.5540485  8.0295871  0.0000000  3.4539784 11.8182766  3.1734633 0.6353365
## 86   3.3796210  0.0000000  0.5448810 10.9783682  3.9501138  0.2980717 2.0746767
## 87   3.4037585  0.7319652  0.9937830  5.9952403  5.6122935  5.6507617 2.8637204
## 88   4.9451535  2.6925388  0.0000000  6.6911824  3.6352552  4.3130499 1.8007032
## 89   1.1650436  2.5776101  0.0000000  3.3378110  5.7550905  8.4136017 1.1650436
## 90   2.1019862  0.5912964  2.6598104  7.4367115  5.4614794  0.3257318 0.0000000
## 91   3.6816966  1.6559471  6.1480698  5.1896902  5.8129320  4.6451771 0.7799741
## 92   1.7622638  0.0000000  2.8034130  4.5501742  5.9473319  8.4695152 0.6763577
## 93   4.3443953  1.2359721  0.7464848 10.6432301  2.8276361  0.7464848 0.4209405
## 94   5.4012448  1.7190958  3.6721877  6.2328910  5.0483975  1.9505804 2.6879789
## 95   1.6819889  1.6819889  3.1709986  4.7073260  8.2655593  3.7467535 0.6343145
## 96   2.1787784  0.9121900  8.6168340  5.3148778  5.8329558  2.0309716 0.0000000
## 97   4.7397239  3.6961830  0.0000000  4.2884102  9.6260277  3.3177816 7.2048753
## 98   2.1555550  0.0000000  2.4573579  7.2380741  5.0800820  0.7579620 2.0391033
## 99   8.1062698  1.6890755  4.0506410  6.0336653  5.1029856  3.3527444 1.1834548
```

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## 100  6.5063687  3.1474695  2.9779027  6.5218784  2.7856970  2.3017340 2.1502997
## 101  1.7401504  0.6042611  4.0980152 10.8831368  3.2604171  0.3335382 4.4973888
## 102  8.7937659  0.4854268  1.9259994 10.4235362  4.8972404  0.0000000 2.7224660
## 103  2.2916330  0.0000000  5.6687460  9.6867052  4.7254412  0.0000000 0.6035967
## 104  1.5527213  2.1636919  5.7851032  4.5018977  5.9744742  5.0487157 0.4716557
## 105  3.4481345  0.3124328  1.2933116 11.6342894  7.6732688  1.6673472 1.2933116
## 106  7.8693205  0.7004397  0.3923174 10.8622172  7.0775955  0.7004397 0.7004397
## 107  2.2072994  0.7854250  3.9516437  7.9506737  6.3196793  8.8917111 0.4455148
## 108  8.4274038  1.4547023  0.3675947  4.5627492  5.5676458  4.3328010 0.9034240
## 109  3.4330396  4.4257480  0.0000000  7.5924839  2.6658021  1.6903724 1.4760706
## 110  3.6218409  2.1132671  0.9985566  3.7342977  6.5670038  1.2207633 0.9985566
## 111  1.3708896  2.2651668  1.1820566  7.9950571 12.6412329  3.1067168 3.3049782
## 112  7.1476049  0.0000000  0.0000000  7.0283802  5.2187308  2.1151331 0.0000000
## 113  4.7621309  1.7708290  0.0000000  6.3543869  4.8850130  2.7288565 0.0000000
## 114  2.9979066  1.4135399  1.8727106  8.4322329  5.6888070  0.9987732 2.1136338
## 115  5.9461834  6.3798410  2.0010095  4.8691953 10.2662566  4.1550773 0.0000000
## 116  0.9848445  0.0000000  0.0000000  5.0997076  5.5651280  1.9772066 0.0000000
## 117  6.5013770  1.4402081  3.3987745 10.4917758  5.0366660  0.5749250 2.0643310
## 118  4.9239431  2.9764920  2.0436945  5.0380454  5.4829354  6.7606587 1.1694120
## 119  2.6963277  2.3536338  4.9610676  6.7625309  5.0972484  3.0346383 2.2535355
## 120  0.6156988  0.0000000  0.0000000  3.8653943  5.2778397 10.1936270 0.0000000
## 121  4.6705911  0.5391340  0.5391340  6.5104493  4.1872848  1.2383589 1.2383589
## 122  3.8662948  1.7816115  4.1185425  5.5645062  5.7439915  1.0320303 2.3728407
## 123  3.3617543  0.0000000  3.3617543 11.0870353  5.2524649  2.5842169 0.0000000
## 124  3.2117131  2.3159140  7.7293006  4.6006801  8.9787677  0.6890307 0.3852654
## 125  7.0218650  0.4859420  9.0672797  3.6104048  4.7021034  2.6337102 0.2632748
## 126  2.3835246  0.5077185  0.0000000  8.2769846  0.0000000  0.0000000 0.0000000
## 127  3.7492983  0.0000000  2.5799283  6.1653975  3.5446708  0.0000000 1.4742024
## 128  8.3282396  1.7237770  0.0000000  7.0845395  6.0767878  0.3650206 0.0000000
## 129  0.5051796  0.0000000  5.6089216  6.6553633  5.4519298  1.8139351 0.8786861
## 130  3.2769433  1.6181447  5.7322068  4.5709061  5.8814933  3.2769433 0.4997821
## 131  2.8211183  0.4403144  0.0000000  2.8211183  5.7878242  0.4403144 3.0246388
```

```
## 132  1.2052048  1.4547023  4.8288600  8.4297992  3.2787133  2.4202129 6.8294500
## 133  6.4491668  2.3004752  3.9197500  5.5646525  6.2023100  2.1806571 3.5841568
## 134  2.8711931  1.3242346  8.8892116  5.4300042  4.8715923  8.4936653 1.7682479
## 135  2.5586350  1.7847971  4.5049953  6.1121767  6.6664854  1.9074676 3.7585590
## 136  4.2446131  2.2773302  1.6497074 10.9457037  4.3987676  1.6497074 0.8914970
## 137  3.5673386  2.6443409  1.7870145  6.8252132  6.4509572  5.8941726 2.1703738
## 138  1.1054769  7.8717685  0.0000000  1.5923972  7.4385707  2.1554902 9.2722418
## 139  4.6905512  0.6763577  1.1350751  3.4813248  4.2885136  3.6626157 0.3775125
## 140  5.1804861  1.6318493  1.6318493  8.2444447  4.4310145  1.8151245 0.5056877
## 141  3.0437644  2.9715528  0.0000000  4.5573059  5.5513222  9.5657567 1.7720968
## 142  4.1486494  3.9017937  8.1644846  4.3346612  7.8172952  5.7171116 2.7178245
## 143  2.5967205  3.9131766  4.0132300  2.6802793 10.5506246  2.5967205 5.3331088
## 144  3.9037228  1.2337040  0.0000000  4.1432628  7.7422158  4.2496046 0.0000000
## 145  8.3379398  5.7559878  0.0000000  4.4810276  7.6137438  2.3321923 8.6957986
## 146  2.6262055  1.2696915  0.5562087  8.1553323  5.5136455  1.2696915 0.0000000
## 147  3.5452889  1.8385888  5.7049854  7.1192794  3.7564896  5.0128994 0.0000000
## 148  6.4099611  4.5734412  0.0000000  3.2331825  5.4065571  7.2446997 6.3997419
## 149  2.2393980  1.3154503  0.8027309  4.6116681  5.2977894  2.4505910 0.4564908
## 150  1.9121516  0.5465611  0.0000000  4.4414702  5.3921422  3.7481070 1.2521128
## 151  2.1843755  1.0092755  1.1802752  8.5978250  5.0066616  0.5912007 3.7450867
## 152  0.5010060  1.1670367  3.9951046  8.2871167  7.8202900  4.0683355 2.7681420
## 153  5.3003471  2.9124583 10.6571632  5.2862195 10.7173107  2.0259147 1.3426685
## 154  6.5221358  8.5744925  0.0000000  6.5070366 10.1757515  2.7530910 9.5500624
## 155  2.4206980  1.5385382  0.3472121  6.7061907  7.2248854  2.1820248 1.8958842
## 156  2.4550181  0.5831339  3.0827026  4.5183967  7.3912367  1.8035164 0.9973285
##        rs_AK5  rs_TTC36    rs_TOX3   rs_IRX4     rs_CA3  rs_SCNN1G   rs_TPSD1
## 1    7.192084 7.0453938  9.3300326 4.9734597  5.2363816  5.9602731  0.0000000
## 2    8.681404 3.3771237  8.8433015 5.0026620  4.7356197  4.3829024  6.6222159
## 3    5.654857 6.4423215  9.0010858 7.8906011  6.7224155  6.2683970  1.3005338
## 4    4.064685 3.4171504 11.4384707 1.3860936  3.4171504  6.0076082  3.9183862
## 5    6.684012 7.5817316  9.3176025 2.9514572  2.4217484  3.0921567  6.0865545
## 6    3.507592 0.0000000  8.5039577 1.3538878  6.6403201  5.6063771  2.9528367
```

```
## 7    6.436547 0.8248086  6.4106209 3.7789024  3.9823274  6.4870409  0.0000000
## 8    3.680662 0.0000000  5.8148042 7.8957601  4.4088273  6.9101714  0.0000000
## 9    4.808205 0.0000000  5.3938383 8.3972365  2.6312207  2.3663642  1.3553546
## 10   4.922859 4.7804151  8.4315628 0.0000000  3.1935037 10.0727796 11.0294418
## 11   5.253089 8.4259464  9.4259540 8.3643010  4.7599920  4.1204681  4.2780442
## 12   4.847917 1.6888070  2.1162982 4.6058854  7.7807471  9.1252843  3.5992345
## 13   3.978992 0.0000000  0.0000000 5.2272828  2.2708279  7.9210989  1.7257848
## 14   8.860488 5.9848718  5.0224255 5.4338007  4.6512641  6.5048158  7.0629398
## 15   7.084309 8.3990805  9.9817011 1.9480027  4.2989002  2.3016754  2.9613826
## 16   8.376488 7.9099027  9.8400721 1.9141052  0.5474498  5.1911283  8.7394293
## 17   4.899475 4.6094831  7.8925252 4.0416110  1.4180280  9.5875799  6.7213057
## 18   4.408488 5.1597139  9.2170366 0.8186052  6.7860539  6.0086079  0.0000000
## 19  10.128772 7.8468813  9.8043019 5.8655601  4.3702759  6.4611405  3.1735752
## 20   2.872376 6.7068496 10.5172542 3.8870475  0.8970080  4.4768612  0.3644604
## 21   4.376846 6.3382675 10.7249008 2.0802142  0.8537562  2.8184211  4.8094505
## 22   6.191322 0.4976379  0.0000000 9.7387295  3.9268724  5.2189284  0.8668684
## 23   6.002160 0.0000000 10.5193857 8.1967610  3.5643660  2.5131622  0.9573203
## 24   6.154358 0.4537546  3.0690663 1.6860298  3.9959096  6.9975047  4.2281722
## 25   6.250297 6.7640727 10.5746893 3.9550431  3.5410192  2.4630731  0.0000000
## 26   4.353041 6.1447949  8.1793025 2.3950628  4.4960788  5.7756274  3.5422457
## 27   8.065325 6.1041374  9.5360368 4.7455063  3.5558652  6.6437942  0.0000000
## 28   3.875662 1.4103411  7.8520725 5.5675728  3.8072519  4.6221631  0.0000000
## 29   5.690082 7.6321875  9.7834305 1.6366826  2.8657803  3.8030617  5.1314825
## 30   9.359923 6.0446892  9.2329590 5.2951757  5.3604240  8.0726793  0.0000000
## 31   4.176746 7.6894431  5.9306687 1.9188823  2.5280712  5.7507432  7.6006808
## 32   6.087834 5.5535110  8.2319368 1.9286546  2.1727435  2.3814218  5.3575520
## 33  11.034597 5.0699341  8.3635833 5.6608545  5.5510176  6.7355425  6.1087921
## 34   8.124230 7.8092376  8.5334353 5.7187370  5.8339527  5.4989114  4.5708940
## 35   3.177886 5.9047153 10.4003785 7.1887936  5.4165831  1.3007680  6.5924496
## 36   8.042457 3.4380932  6.9161577 4.6412397  3.9974460  5.0848169  1.4388251
## 37   8.316022 6.5343698  8.8903421 3.3882584  2.4072984  6.3410767  2.5198690
## 38   5.955222 7.2458531  9.4267635 0.3576083  0.3576083  7.0996476  0.0000000
```

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## 39   4.966809 4.7950552 10.7127443 0.5247658  3.0803848  3.9521472  3.7316612
## 40   5.702095 0.7157177  4.9776188 4.7382490 10.7669054  3.4952091  2.3714752
## 41   6.260903 1.2082675  8.3284025 0.0000000  4.1416780  6.2731783  0.0000000
## 42   5.148015 3.5219302 10.6863588 0.8066128  3.9983309  0.0000000  4.9171405
## 43   9.371054 1.2249664  1.2249664 0.9196833  5.2087943  8.9355520  1.4767964
## 44   7.036973 3.0875647 10.7280331 5.9673369  5.3969301  7.0404015  1.6725159
## 45   6.772750 6.0316973  8.7514296 4.9434807  6.2403563  8.6981785  7.3095937
## 46   9.232927 5.0164428  8.9315649 7.1061598  2.9193592  5.2277834  1.8290783
## 47   6.460443 5.2887092  7.2550597 2.1128002  6.5081783  3.8977922  7.3623200
## 48   9.405999 3.2729339  9.1321689 7.2293726  3.1840263  9.0049126  1.1080226
## 49   6.516436 8.0588609  9.3102195 1.2772111  3.4538204  7.5703574  5.6014380
## 50   6.515802 5.2494453  8.6487325 6.6560244  4.5963568  3.5790594  5.6144448
## 51   5.377044 0.0000000  9.4354234 4.6845270  4.0068366  7.8219984  0.0000000
## 52   5.469398 4.9551872 10.6906094 1.6440408  4.0364242  6.8250275  0.0000000
## 53   5.802167 0.0000000 10.2260733 7.0507553  0.7279640  7.5192006  0.4093638
## 54   4.786988 5.9792091  9.5863073 1.8004961  0.8803329  8.0456903  5.6830479
## 55   9.570599 6.5955424 11.3900436 4.2843216  3.7067737  4.3062258  0.0000000
## 56   2.652808 0.4924172  0.0000000 0.0000000  7.5608938  7.9656856  1.7828279
## 57   9.067918 5.2692651  9.8368539 6.1365400  7.9477182  6.1803130  1.0590783
## 58  10.077941 6.1528527  9.1874642 6.3067234  4.7106467  7.6433288  6.9617229
## 59   2.844888 0.6681191  0.0000000 6.3573215  3.2979104  8.8037107  0.0000000
## 60   4.496744 6.1246362  7.0304277 1.7770725  0.8552722  5.7071935  4.0093024
## 61   6.862285 3.5043280  9.9912596 2.6261821  7.0784721  8.7557428  4.0462815
## 62   3.123434 3.8431899  9.8766696 3.2184712  3.9851087  7.7908919  3.4709663
## 63   5.030499 4.2790626  8.6561034 2.5544415  2.1764504 10.4072500  5.4344581
## 64  11.139727 6.0160349 10.2622606 5.8500443  4.0227584  5.6386792  5.1432342
## 65   3.516772 0.0000000  0.3503841 6.7503291  5.7072487  4.6704835  0.3503841
## 66   3.547030 3.0224921  9.9450353 4.4299507  4.8420083  6.2075356  0.0000000
## 67  11.015447 4.7735164  9.4672071 7.7691423  7.8760006  7.2520438  6.4046733
## 68   7.720824 6.8744675  6.7255271 4.8105202  3.8008067  7.4190762  6.8474445
## 69   9.915731 4.4633478  8.6721753 5.9783581  5.9079578  6.6977738  5.8539657
## 70   3.315885 3.4583558 10.8827005 0.4270698  3.3158850  4.6307316  1.2498700
```

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## 71   4.114459 5.5709881 10.8251092 4.7679778  6.1695102  6.5825409  0.0000000
## 72   6.352815 8.3310092  7.0934693 2.9735194  5.1840501  3.8407955  0.0000000
## 73   4.727692 0.0000000  0.5994130 0.3305584  1.8076022  4.9602939  4.2885358
## 74   4.250484 7.2475469 12.1166008 1.7341785  3.7118253  8.8947738  4.8685929
## 75  11.333359 6.4434691  7.5149491 7.1297734  6.2115554  7.9577927  1.9475166
## 76   3.708916 4.2566257 11.0565565 3.0304244  2.5622058  8.3944768  0.0000000
## 77   5.047774 2.1903620  2.1903620 2.4809113  8.3429933  2.8298496  3.9313616
## 78   5.486779 0.7392433  1.8786861 6.0354414  5.9695488  9.3786386  6.4263771
## 79   2.621665 3.1263121  2.3571860 1.6144272 11.3587787  2.0330882  5.2907303
## 80   5.682874 0.4918018  7.6085934 0.8579014  4.6289660  8.1442162  1.5998414
## 81   9.095287 3.2901590  6.0841089 4.4897677  6.7131775  4.3586705  4.5808208
## 82  10.727246 3.2527335  6.4464978 6.0662636  7.8999556  6.6980643  2.7734478
## 83   7.268400 6.4342813  7.5311163 5.1501616  3.1477951  4.4222801  3.5709486
## 84   6.608893 5.6761122  9.8970595 3.1428872  6.3840878  4.5356300  0.0000000
## 85   5.924836 0.6353365  0.6353365 5.3997590 10.6698199  8.1169947  4.2037806
## 86   0.544881 6.4626413  8.8329697 0.0000000  3.3258325  8.9264259  0.0000000
## 87   5.144405 7.4054759  8.9446778 0.9937830  3.3174343  6.7514316  5.5926693
## 88   4.663447 2.9918257  0.5818815 6.1506551  1.3163196  0.0000000  4.4505119
## 89  10.796036 5.0026620  7.5464361 6.6553991  1.8010345  7.9699062  1.1650436
## 90   4.525937 8.6029430  9.7788357 0.8154935  2.4749811  8.3340596  2.2629142
## 91   4.942974 6.2737303  9.7615137 7.7485632  2.5309447  0.0000000  0.0000000
## 92   5.792486 6.9391149 10.5654392 0.6763577  1.8841681  3.5565030  0.3774014
## 93   3.758847 3.8965044  8.3089633 6.4552105  3.8389114  4.6856767  5.0229048
## 94   5.858481 2.5536308  9.7753769 4.2299724  3.0527637  4.2077757  5.5409789
## 95   6.756539 3.6861643  7.5347262 2.2825288  0.0000000  3.0797194  4.7670562
## 96   5.232668 0.5270703  4.0385942 5.4664509  0.5270703  3.5878570  0.0000000
## 97   5.044289 1.9965334  4.4938458 7.9542522  3.5718103  9.4880516  1.3191555
## 98   5.989666 6.9462864  9.3571187 1.4476850  2.9838418  6.1596837  1.6197886
## 99   4.393739 4.3717610  9.0501678 0.7098200  0.7098200  7.0226119  4.4784412
## 100  9.985963 8.3968496  9.4321278 2.6790634  0.5765705  4.6761320  6.2696560
## 101  2.042959 7.6016817 10.1739598 1.3564256  1.2018847  2.5062465  2.8563683
## 102  7.037821 3.8678965  9.3133366 5.8328900  0.4854268  5.9212459  3.6088092
```

```
## 103  6.593718 9.5653371  2.2130050 6.9913382  4.5096452  2.1298105  2.3661963
## 104  6.491035 6.6770092 11.0379024 4.3460137  3.1267582  2.7657469  2.1636919
## 105  5.714391 6.7565070 10.6904814 0.7869309  0.7869309  7.1954352  0.0000000
## 106  6.306173 4.8796911  9.3480106 3.5392581  4.3861833 10.5128531  0.7004397
## 107  7.529832 6.4567290  7.7711600 1.0603241  3.6528306  2.4173260  6.9835569
## 108  5.522822 5.1030612  7.6125324 0.6601985  2.0676043  6.8604377  5.6281466
## 109  7.437979 2.8553519  6.3589254 4.7220616  5.1776468  4.8163181  5.2804404
## 110  6.048823 4.5822007  4.4346549 2.5001392  1.9978343  5.6976126  0.0000000
## 111  4.324487 4.3471554  8.5823189 6.7831567  4.8249969  6.5293618  1.9468431
## 112  6.088786 6.0163648  7.0557390 5.7069173  6.8305431  7.9396198  4.3918914
## 113  4.530757 4.7621309  8.6361305 0.8513593  1.3831651  3.6622739  0.0000000
## 114  7.800663 5.1269481  9.2822327 1.4135399  2.5340616  5.5624317  4.6606549
## 115  6.470566 3.9461132  8.2521138 1.7664680  1.4863025  4.3375612  4.1550773
## 116  8.185587 4.2930099  4.3860246 1.5647196  0.7248249 10.0075800  7.3987830
## 117  5.462200 4.9248505  9.8245655 6.8586661  4.3644674  7.4676854  6.3363584
## 118  5.421183 6.5460023 10.1336862 2.0436945  1.5229597  2.0436945  3.5383395
## 119  8.219298 5.3362120  9.4101513 2.8412888  3.0567916  3.6994073  4.8454850
## 120  3.124146 7.1851748 10.9350770 0.0000000  0.0000000  6.5281993  0.0000000
## 121  6.704702 4.2227273  8.3838395 4.7456084  4.4787065  5.4156742  3.9541312
## 122  4.333180 6.5111248  7.1679600 3.9979246  1.8375396  2.3728407  3.7214383
## 123  4.341538 7.0325285 10.5090156 2.3004459  3.6520619  8.4791699  2.9600483
## 124  8.252422 3.5872810 10.2412281 1.3394225  1.9087361  2.8322419  3.4322780
## 125  4.234302 5.0373031 10.1588250 3.7240718  0.8487982  4.5866206  2.3233124
## 126  2.873242 7.8745591  7.8163539 0.8825257  0.8825257  5.0832559  5.9677197
## 127  5.472140 6.7930635  8.8603672 0.0000000  2.7420925  7.5821691  0.0000000
## 128  6.070623 3.6120104  7.7397023 1.9555732  1.9946521  6.8811335  2.5591981
## 129  3.671441 5.8690916  4.2181534 1.1750455  2.7804361  6.6909311  0.0000000
## 130  2.240498 8.3576426  7.7593423 5.9214554  1.4091465  1.9626231  5.6513416
## 131 11.474414 5.5225549  0.0000000 0.4403144  6.0767921  0.7771988  0.0000000
## 132  7.001032 3.8572445  8.7087397 5.3590502  3.8999297  3.8999297  4.3937800
## 133  3.956698 7.7214479  8.0638701 5.7549810  3.2407875  3.8818310  4.7290198
## 134  7.741227 4.4028177 11.1449757 5.2363855  4.6817528  7.6555787  7.7693453
```

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## 135  7.866320 7.5855117  8.8688966 2.4005379  0.0000000  2.4005379  3.5102531
## 136  6.718610 4.3692222  9.8043193 2.8043634  1.8339830  7.1243354  3.9172981
## 137  6.789127 6.1992601  9.0670689 5.1704859  2.2784309  7.6174910  2.5612039
## 138  2.245861 0.0000000  3.6122935 2.0591130  7.0836548  6.7486772  0.3650206
## 139  4.622122 3.2286340  7.9244794 0.0000000  0.6763577  8.3661998  0.3775125
## 140  2.123832 1.4218561  9.6766278 5.8393348  0.5056877  4.6397820  2.1238317
## 141  5.930357 0.0000000  7.7654432 2.4405005  2.8152885  3.6173102  0.0000000
## 142  5.259596 5.7361096  6.2339724 8.8764310  0.7633266  4.0304950  2.2736651
## 143  9.847662 1.8174595  8.1018995 1.6617040 13.2088756  7.5587222  1.8174595
## 144  6.310994 4.1060049  9.9340551 7.6610420  0.5366498  5.2963436  0.0000000
## 145  3.312709 0.3654686  0.3654686 3.0368022  3.8628084  6.4837851  7.6597155
## 146  8.685205 7.3047164  8.2136428 3.1693157  0.0000000  6.7643939  6.5638140
## 147  7.505658 7.7248256  8.9295863 2.6213369  5.9974640  7.7958462  6.6009640
## 148  3.828357 0.0000000  6.9547686 2.0004327  8.2532788  4.5734412  1.1378314
## 149  3.690451 2.8732817 10.2281862 7.1159582  0.4564908  5.2421261  2.7980920
## 150  5.360143 0.0000000  2.7065085 0.9420077  4.9297673  3.8437728  0.0000000
## 151  7.380389 5.6475419  8.1204660 4.9005770  6.5661028  3.8999490  6.9609217
## 152  4.443481 7.2371927 10.7570248 8.4972930  1.4117516  3.9179568  4.6484309
## 153  5.991000 2.4876664  9.8231265 2.1559435  0.4689482  3.1803548  4.1617829
## 154  6.423721 0.9685700  6.2830698 4.3768946  6.4087407  6.4344014  0.0000000
## 155  6.521941 5.5874010  8.1732184 1.5385382  2.7474089  9.8493830  0.0000000
## 156  6.587113 2.6958825  6.8894638 4.9489699  0.7967639  0.0000000  5.2426711
##     rs_TSPAN1 rs_LOC389033  rs_PART1    rs_CRYM  rs_HOXC10   rs_DBC1 rs_SLC6A11
## 1   12.384874    4.5929832 2.7157177  4.4867272 10.8738677 4.3418577  0.5144000
## 2   11.031216    4.8117998 2.2052361  3.8442450  7.3972451 5.2554516  0.7843365
## 3    7.309785    0.0000000 3.7481499  0.4497462  6.5362907 5.0841408  0.0000000
## 4   10.186981    2.7329204 8.3278791  0.4889263  3.1152330 3.2436691  6.5513422
## 5    9.950571    4.5103797 0.8418926  2.9514572  9.3131166 3.0235215  0.8418926
## 6    4.219935    0.0000000 9.1987355  2.5028398 10.3137721 6.0744626  3.6335242
## 7    6.073229    0.0000000 6.5596172  8.5628884  8.5316567 5.2777654  5.5979900
## 8    4.900239    0.0000000 8.5857302  0.7617108  9.4301677 8.0738829  7.6754292
## 9    1.847075    0.0000000 8.7642831  1.3553546 10.3990280 1.0279325  7.8232641
```

```
## 10  10.004611    3.9696478 1.6026944  1.9455702 10.9638594 0.4930324  0.0000000
## 11  10.637989    0.4164074 3.8462325  5.1066833 10.9293671 2.1195554  1.8783330
## 12   9.226944    0.0000000 1.0785415  6.7213986  8.2275669 3.5544292  2.6297063
## 13   5.209399    0.0000000 6.2522472  1.7257848  3.7507244 1.7257848  6.8161901
## 14  10.090300    4.4447664 4.6512641  3.9768493 10.6780715 6.7491105  1.8800977
## 15  10.193729    6.5420104 0.0000000  0.7778720 11.0521442 3.1474207  6.5084318
## 16  11.230307    7.5395349 3.4792694  4.6167576  9.7739317 0.0000000  0.0000000
## 17  10.952269    0.0000000 5.5018977  0.8766446 10.0308747 2.9427960  0.0000000
## 18   7.958869    2.9768952 1.8768803  1.7185260  9.0689999 2.7500490  6.1393917
## 19  12.232274    2.3252137 7.3143621  1.2824991 10.6829491 5.9143540  3.1735752
## 20  11.179022    0.0000000 4.7164971  0.3644604  9.2895634 5.0896126  7.2818827
## 21   9.773436    0.0000000 4.4585657  5.6035937  6.0350674 6.0527180  4.9666796
## 22   6.530341    0.0000000 3.0727061  0.0000000  9.7198286 0.0000000  6.9890220
## 23   8.626126    0.0000000 7.4988133  4.4408260 11.1020131 2.9244990  4.9604839
## 24   5.354688    0.0000000 5.9013303  1.8428984  4.6873071 5.1294809  0.0000000
## 25  10.063611    7.8770098 1.7035437  0.9762170 10.8019491 5.2262773  3.6561874
## 26  13.604681    0.0000000 4.9704948  1.2210728  4.2758265 4.2356198  1.6461627
## 27   9.047061    5.7571460 4.0688342  2.8984406  9.5311492 6.6281860  0.0000000
## 28  11.653989    0.0000000 4.0662012  8.6857201 10.5224291 4.7609661  5.4898576
## 29  13.534843    0.3800645 2.4647728  3.2838329  3.1916574 3.3277879  0.0000000
## 30  10.243745    2.7957877 5.8815398  6.1082212  7.8445325 7.0977267  2.2372884
## 31  11.198949    5.6286132 4.8684201  2.7142675  6.0039575 2.3142035  0.0000000
## 32   9.744568    0.4339209 2.6468999  2.8710156 10.7389959 4.3680070  0.0000000
## 33   9.139235    5.3206868 5.9607503  3.7053034  8.9130345 5.7394836  1.4705108
## 34  10.074219    4.7458773 3.6804819  1.6731493 10.4315342 4.9639457  2.4271502
## 35   8.266734    0.0000000 2.8520588  5.6447331 10.3192421 2.1020198  1.6759965
## 36   7.349805    2.1447317 4.9909004  4.5650731  6.7711421 5.7673953  3.0482187
## 37   9.598852    0.0000000 3.1290522  3.7984964  4.3786503 6.1088485  6.9998986
## 38   9.881703    0.3576083 0.8827604  4.2694147 10.8607832 2.8457510  2.4596677
## 39  10.052353    0.0000000 7.5605247  1.8609231 11.2930126 1.6751836  0.0000000
## 40   5.702095    0.7157177 3.9496190  3.2735905  9.6837868 4.8060662  5.9470489
## 41   2.786115    0.0000000 5.7657098  0.4088205  9.6663714 1.5684700  7.7279545
```

```
## 42  11.098305    0.0000000 5.3733002  9.1527214  9.4822868 2.4579619  3.0858835
## 43   5.314236    0.0000000 8.2842203  4.0142035  9.2579417 3.7531017  4.5138507
## 44   8.980431    0.9542708 4.5353811  1.1699891  9.3058894 5.3355011  0.3923174
## 45  10.552412    5.2878896 1.3010608  4.5812307  9.8277554 5.1359863  1.7824924
## 46  10.226906    4.8801467 2.7730891  2.9873027 10.7661100 8.2943395  3.9624750
## 47   7.026615    0.3810618 1.6397415  3.1956626 10.5624189 3.8977922  0.0000000
## 48  10.995883    0.6578229 3.6829890  4.3876452 10.0916998 6.7299483  4.1963159
## 49  10.557444    3.6958825 1.0969365  1.0969365  9.3173199 1.5816887  0.3614315
## 50  10.757868    4.4969608 0.0000000  3.6174160 10.0724957 4.1496252  0.9754835
## 51   3.435975    0.3971458 7.0566843  1.6861643  8.6930143 3.4775996  0.0000000
## 52  13.027118    2.0662959 0.8455904  0.3399355  3.6350578 2.6584400  4.9551872
## 53  11.944448    0.4093638 4.8849886  6.0220770  9.6720119 3.8202300  6.6166047
## 54   8.740742    1.0456526 0.7735744  2.1851371 10.0318441 6.1256676  5.6629859
## 55  12.812200    5.2007790 1.3166092  9.0324852  9.3217897 3.2699906  0.0000000
## 56   5.423040    0.0000000 6.1326159  0.0000000  8.7241308 1.7828279  6.5192305
## 57  11.560689    1.8190550 6.5408565  5.9719458  8.8469436 7.0652987  2.9750982
## 58  11.352197    5.9951521 5.7595633  2.4554127  9.6309287 7.8315980  4.0335111
## 59   3.461123    0.0000000 7.8126163  1.1230040  8.1557821 0.9134160  7.1140598
## 60  12.158769    0.0000000 1.0557510  3.3840083 10.5559469 2.0828729  1.5300208
## 61   7.374646    3.1057786 5.6350317  0.6858953  8.9042589 8.7008763  0.0000000
## 62  10.042929    0.0000000 5.3490715  1.1288873  9.1270110 3.7822723  3.0216752
## 63   8.360492    0.3457370 0.6244285  1.3922075  6.2886963 5.6598275  0.0000000
## 64  10.905888    7.1506003 2.4727737  3.3365976  7.3057854 5.6266465  3.9524081
## 65   8.900695    0.0000000 3.1654296  2.1039004  7.5413243 2.5041627  5.2416877
## 66   9.347918    5.6612365 4.1692917  0.8656813  4.8557306 0.6304987  1.2450697
## 67   9.598393    2.7377733 5.4272039  3.8082512  9.0688428 8.5517063  1.8751510
## 68   7.847025    4.9034143 1.6678467  2.6525783  4.9765011 4.3200586  2.9130522
## 69  10.787150    4.5908295 5.9416228  3.7500383  8.9719234 7.2201152  1.6031219
## 70  11.490310    0.7562547 6.0089081  0.7562547  9.2448652 0.4270698  2.9157886
## 71  10.255025    2.7515708 0.0000000  6.5040833  7.2339724 2.4935705  6.1116928
## 72  10.348021    7.1134442 4.5986749  1.0992279 10.7828778 2.9018227  0.0000000
## 73   3.897899    0.5994130 1.8380643  1.7302269  8.4057397 3.5627187  6.3506351
```

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## 74  12.272987    4.1594919 1.6022193  1.1133671  4.2057053 0.3683772  0.0000000
## 75  10.241416    6.2644051 7.0933447  6.5203232  7.9392524 8.1490210  3.5599445
## 76  10.037424    6.8164551 1.5295711  0.8113066 10.4308450 2.8905829  0.0000000
## 77   5.640384    0.0000000 2.9296206  1.6025044  3.1106138 3.5475115  0.0000000
## 78   6.013188    0.0000000 6.0573571  3.1750615  8.9753972 2.9436213  7.6423781
## 79   5.715520    0.0000000 2.4954905  3.7410463  3.8989339 0.5997939  0.0000000
## 80   6.497729    0.0000000 6.3689289  3.1240138  8.8378985 0.8579014  7.1657261
## 81   8.144685    1.7821989 5.1944259  2.2937236  6.3829231 7.2032942  2.8763107
## 82   7.959232    0.9245560 6.1044247  2.6754546  4.3755608 7.6237213  2.0507455
## 83   9.838867    7.0342707 2.3166961  4.4748967 10.0142756 4.6064896  2.8289768
## 84  10.074872    0.0000000 1.4996291  2.3722556 10.6231867 3.3784423  4.7184383
## 85   4.922307    0.0000000 1.2528395  1.0748479  8.5260489 8.3304024  5.5435949
## 86   5.970982    3.9501138 2.5406969  0.0000000  1.1025238 0.2980717  0.2980717
## 87  11.322573    4.9575757 0.7319652  4.5929234  5.4796800 1.9906645  0.7319652
## 88   9.477501    0.0000000 0.0000000  0.0000000 10.1780129 2.1626612  0.0000000
## 89  12.261871    0.4998841 0.4998841  0.0000000  9.9487553 1.8010345  3.4513958
## 90  12.300678    1.9208268 3.6613164  0.0000000 10.2558649 1.1804662  0.0000000
## 91  12.058779    2.0796341 1.9517370  5.7079913 10.9221419 0.0000000  1.8114299
## 92  13.563787    1.9965334 7.3599911  6.4792581 10.1870708 1.4824869  0.6763577
## 93  10.930765    0.7464848 2.2409859  0.4209405  9.7263582 0.7464848  0.7464848
## 94  12.781412    4.7890823 3.6721877  4.2945913 10.0103498 2.1500397  3.5362643
## 95   8.431651    3.1709986 4.6919975  7.4822287 10.3859842 4.3452828  0.0000000
## 96  10.674879    0.0000000 5.6800458  4.1140088  9.9162884 2.7511638  0.0000000
## 97   6.363516    0.3774014 5.5190543  0.0000000  4.6736412 0.6763577  6.4984727
## 98  14.404054    3.1614846 6.9052859  1.6197886  8.7887438 1.2522945  0.7579620
## 99  10.565653    0.0000000 2.6786128  0.7098200 10.1454785 1.9486382  0.3981314
## 100 12.267469   10.2350630 1.3067872  1.9810854  3.7314874 3.4364550  0.0000000
## 101 10.817288    2.4386388 4.7272452 10.7042151 10.0234659 0.8320393  0.0000000
## 102  9.979282    4.9541963 2.7224660  0.4854268  0.8479969 4.0179219  2.6322682
## 103 10.976955    1.6219464 4.0741800  0.0000000  1.3552418 0.0000000  5.6687460
## 104 11.656733    0.4716557 5.1146127  7.7446838 11.3731126 2.1636919  0.0000000
## 105 10.202277    7.3466910 0.0000000  2.4839834  2.3535209 0.5691022  0.3124328
```

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## 106  9.792293    2.4263453 2.5078961  2.9189586  7.9680591 3.1396496  0.0000000
## 107  9.114298    9.8449337 6.0471566  1.0603241  1.6648924 1.8207712  6.2111368
## 108  8.128530    1.2933116 2.9935113  2.0676043  3.7524596 1.7317915  3.1431648
## 109  8.886346    0.0000000 2.0420840  3.0228472  6.8121260 5.6439485  1.4760706
## 110 10.645776    3.1673579 3.9359029  7.7937112 10.6580066 2.3196179  3.2198190
## 111  9.428642    0.0000000 8.9886270  6.6842591  9.7521429 0.3975839  8.3481665
## 112 10.872673    4.4480287 3.7544707  1.6241945 10.2043245 4.8740346  1.1696685
## 113 10.645410    0.0000000 4.6041484  0.4875892 10.1230787 1.1416290  2.3279460
## 114 10.033315    4.7525720 0.9987732  3.0567743 11.2240107 1.4135399  5.2706784
## 115  5.233972    0.0000000 3.8887822  2.0010095  9.1857231 4.5373396  6.3051096
## 116  8.835861    2.2976023 0.9848445  2.1985256 10.1593971 4.6146333  0.0000000
## 117  8.631518    0.3159140 2.2240403  1.1531568  3.2946502 7.2575726  4.8036300
## 118 13.552668    0.0000000 8.6930234  6.8096781  8.2885441 4.5915956  0.7000845
## 119 10.575420    3.5804953 2.6179802  7.7830532  9.0516062 4.0370835  2.5351323
## 120 11.156467    0.0000000 5.2778397  0.0000000 10.3832458 0.0000000  2.8852034
## 121 11.400753    0.0000000 4.6183209  2.5811343 11.1860853 5.3042847  1.4918018
## 122  9.334738    2.3728407 0.0000000  1.2589410 10.4776627 2.4667315  1.2589410
## 123  9.949239    3.9665874 2.3004459  4.5091954 11.1898055 2.6676197  1.2795902
## 124  5.753653    0.0000000 7.9754966  6.3914704  8.8207486 6.3103292  7.0840653
## 125  9.277389    1.0008654 0.4859420  6.1144066  9.9071175 2.4868431  0.0000000
## 126 10.733499    0.0000000 0.0000000  0.0000000  4.2897976 0.5077185  0.0000000
## 127 10.245699    0.0000000 4.6131132  0.0000000 10.9867481 0.0000000  2.3972006
## 128  8.828734    0.3650206 0.8980922  1.7237770  4.6542866 1.4474205  7.9491363
## 129 12.017389    0.5051796 6.2570031  1.1750455  9.8010272 1.1750455  3.7634010
## 130  6.768727    0.0000000 5.7545027  9.6362334  9.9360167 5.9507180  1.9626231
## 131 12.408721    0.0000000 0.0000000  0.0000000 11.8188641 0.0000000  0.0000000
## 132  9.659666    5.5587574 7.0774097  1.6673018  9.3690893 4.6403028  2.0167459
## 133  9.073841    0.4777809 1.3620490  1.7466137  9.3521150 2.9400728  7.7506722
## 134 12.328767    3.6004482 2.3816156  1.3242346 10.3461222 3.6702852  6.3130281
## 135 11.197210    0.6883147 1.5029925  2.4817639 10.4826446 3.1616620  0.0000000
## 136 10.591227    1.4383461 2.5116957  3.0475558  6.0900637 3.5469932  2.1441443
## 137 10.913803    1.9264170 3.5240888  4.7120510 11.4792708 5.6842633  3.1215294
```

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## 138  2.983769    0.6561760 7.7915256  0.3650206 11.1886762 6.4867803  7.2191569
## 139  7.847892    1.4825385 3.0834857  5.4810276 10.4653470 0.9238718  0.9238718
## 140 11.557471    0.0000000 2.8673430  3.4693130 11.4908479 0.5056877  0.5056877
## 141  7.277862    0.0000000 6.8395389  1.3842156  9.1276684 4.5071032  2.3293533
## 142  8.109084    1.0328061 3.1161817  2.3740935  9.7658713 2.1656869  4.7253867
## 143  5.320142    0.0000000 6.5989249  6.2344726  9.7416485 7.0862328  4.4540377
## 144  9.269957    1.4865599 1.4865599  4.8989484  9.8929427 1.7016821  1.8888114
## 145  5.950104    0.0000000 5.0059793  0.6567252  7.3690520 0.3654686  8.3558228
## 146 12.432984    3.5629628 0.0000000  2.8308232  8.6619391 3.7256866  1.7449361
## 147 13.308339    4.1937796 0.0000000  9.0223747  9.6111729 0.0000000  4.0082359
## 148  7.528833    0.0000000 7.1007096  0.0000000  3.4065095 2.5365254  2.2020729
## 149 10.569441    4.8161081 8.6783262  1.0817487  1.8501593 0.0000000  1.0817487
## 150  6.664122    1.5071603 7.5687397  0.0000000 10.1117634 6.7592064  5.1885394
## 151  7.103230    6.7013730 7.1111795  4.0618367  6.2277623 6.0681269  6.9312942
## 152 10.529166    0.8720801 0.5010060  8.6527052 11.1940949 7.4439572  0.0000000
## 153  9.158184    0.4689482 4.8787499  7.6627204  9.2420134 6.8511281  7.0355887
## 154  5.610195    1.3756789 7.1561013  5.4297934  6.8638208 6.8519189  8.3404109
## 155  6.807812    3.5035396 1.9976898  2.8047144  9.5135207 6.1921685  1.3966527
## 156  7.801979    4.7227228 0.0000000  2.9952674  9.2707331 2.1657190  0.0000000
##      rs_ACADL rs_CXCL14     rs_MKX   rs_FGF10     rs_NTS   rs_KCNG1  rs_PITX1
## 1   2.4016305 12.824365  4.0376019  2.1463945  0.0000000  3.2582325 10.811269
## 2   1.2895984 11.758863  3.8075095  5.4937946  0.0000000  3.2182387  8.982684
## 3   4.2421528 10.117423  3.9997926  3.7868995  1.6757256  2.7766936  7.181146
## 4   0.8535167  9.383420  3.1152330  1.1442422  0.8535167  0.4889263  8.046792
## 5   1.3700527 12.115824  9.8307801  3.7314114  0.0000000  1.7558276  9.455063
## 6   6.4185880  9.480132  2.8528179  0.0000000  6.8337819  6.6222041  7.622477
## 7   5.3201597 10.458898  2.7623063  0.8248086  1.3463045  2.3901724  7.456979
## 8   4.8833422  6.732863  2.7889989  0.0000000  0.0000000  9.6921259  8.540637
## 9   0.0000000  6.283424  2.8549133  1.6220870  0.6035967  8.8134269  8.934797
## 10  1.3948982 16.811749  2.4545971  4.0428019  0.0000000  0.4930324  2.558023
## 11  3.5491640 10.066891 10.8434501  2.9432087  0.0000000  5.7331211  8.607675
## 12  2.4456473 10.797138  3.1347959  3.3598163  0.0000000  8.4609530  5.384426
```

```
## 13  0.0000000  9.503923  3.9361291  1.2537473  0.5474498  7.5107847  8.682399
## 14  1.5900990 13.134042  2.6694577  2.1214133  0.0000000  4.2036945  9.535833
## 15  0.7778720 10.093023  6.7950539  7.5753698  0.0000000  1.0509544  6.060558
## 16  2.3654686 15.289096  8.8123262  2.3654686  0.0000000  1.9141052  8.495634
## 17  0.8766446  9.059638  3.5174647  0.5039593  6.8260171  4.8994754  8.757744
## 18  3.8055092 11.815955 10.7500937  9.8978991  5.5953336  2.8296872  7.686781
## 19  7.7522736 11.627915  8.3292322  7.6008012  0.0000000  3.3861764  4.680403
## 20  0.0000000  8.158918  1.9538240  0.3644604  0.3644604  4.6519931  8.561396
## 21  0.0000000 12.713465  3.6206568  3.3043650  0.0000000  5.6390758  8.950098
## 22  2.5710214  7.253281  0.0000000  0.0000000  0.0000000  9.9317720  8.917974
## 23  0.5566992  9.290731  1.5278210  0.0000000  0.5566992  6.8150002 11.038517
## 24  0.4537546  7.853445  1.5099998  1.0764907  0.0000000  2.2314939  9.222053
## 25  8.7540834  9.314014  9.4046505  0.9762170  0.0000000  4.0423292  6.465601
## 26  3.0797877  8.928273  2.1574318  0.6158871  0.0000000  1.8728288  7.757516
## 27  3.8708381 14.817861 12.1797382  4.5605193  1.4820222  3.4174340  7.019770
## 28  0.0000000 10.875535  2.4749811  0.5002922  0.5002922  5.0588187  7.968861
## 29  1.4895943  8.990062  2.3837734 11.8553674 15.3787881  0.6805044  4.254095
## 30  4.5416573 12.664352  4.6943732  4.1165477  2.5433969  4.3965226  8.849547
## 31  1.9188823 10.245617  3.1613395  0.4826418  7.1135005  1.7587296  8.998792
## 32  1.6347327 11.119499  4.6559528  2.0558551  2.1727435  1.0374525  9.494557
## 33  5.8499317 12.141526  4.4528458  4.4759928  3.4011253  2.5751429  7.621253
## 34  5.1709786 11.184097 10.5215162  4.0289227  1.4601135  2.7423943  8.633848
## 35  8.3676703  8.629976  3.5821826  3.0562367  0.0000000  6.1769251  9.061991
## 36  1.1911204 11.746484  4.1787545  0.8918080  0.0000000  5.7560225  7.894697
## 37  0.5165195 10.676297  5.1818658  9.6266149  3.7063537  3.0562540  5.633547
## 38  1.7006617  9.291473  4.0170935  0.0000000  0.0000000  3.2386799 10.758135
## 39  1.8609231 10.264809  3.3523772  1.2117598  0.5247658  0.9088129  9.113210
## 40  5.8215980 11.157902  4.9922473  2.4583295  0.0000000  7.5636341  9.198160
## 41  6.1587450  6.472642  4.3686915  0.4088205  2.3021143  7.5196339  9.442141
## 42  2.3561156 12.005989  3.4246534  0.4589069  1.8567069  6.3088523 11.097565
## 43  0.9196833  5.510427  3.8895514  0.9196833  0.0000000  9.3386375  9.734111
## 44  2.0444641  7.948114  2.7280076  2.0444641  0.7004397  3.3310172  9.798888
```

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## 45  5.3921663 13.008880  4.8489183  3.8743248  0.0000000  4.5515160  7.441012
## 46  5.4960916 11.879001  4.9499037  5.7518359  0.0000000  5.4120803  8.301028
## 47  4.7220834 13.289513  5.7921656  5.3961766  0.0000000  1.6397415  8.792013
## 48  2.9343278 11.984671 10.6688166  2.3346255  1.1080226  7.7582092  9.970657
## 49  2.1430342 12.550713  8.2024417  1.0969365  8.0371312  1.7127718  9.986386
## 50  4.0123988 10.908338  3.6547907  3.0154084  1.9630301  3.5396427  9.435714
## 51  0.3971458 10.035022  3.1051081  0.9639180  1.3697736  6.2132287  8.039142
## 52  2.0662959  8.656415  3.0770550  6.6452506  7.3014788  1.2193389  6.210634
## 53  0.4093638  7.199881  0.7279640  0.7279640  0.9887029  6.6214204  9.379672
## 54  0.7735744 11.769800  5.7126288  5.2028682  0.7735744  1.0456526  7.671908
## 55  2.7365832 10.481238  4.0184294  2.9740704  0.6747318  2.7365832 10.472485
## 56  1.3935809  5.309223  1.3935809  0.0000000  0.4924172 11.6040341 10.275432
## 57  5.2960389 12.678270  4.4561753  4.5481407  4.1387981  5.0350432  8.209997
## 58  0.9715895 11.843867  6.6061505  0.7143115  4.5888046  4.6267136  8.485796
## 59  1.3059705  7.698618  3.4611225  0.6681191  0.0000000 10.9086210  8.378941
## 60  0.6223682  7.180135 11.9160769  1.6588284  1.6588284  6.1953673  8.687553
## 61  4.3772904  9.022955  4.8118152  2.4764335  1.1488690  1.9026911  7.331680
## 62  7.6402565 11.660292  4.0640033  2.8541952  0.0000000  0.6721085  2.446442
## 63  0.0000000  9.776500  2.6194600  1.3922075  0.0000000  1.2351143  8.674388
## 64  4.2319392 15.716902  4.0989332  4.1333498  0.0000000  2.8491987  8.822730
## 65  2.1933302  8.184947  4.9135549  2.9768035  2.5041627  7.3258829  7.891236
## 66  1.6746866 10.064683  2.7560412 10.0859389  0.6304987  0.8656813  7.875158
## 67  4.1973071 13.610256  6.5808962  3.8421944  3.4159074  5.8835890  4.059797
## 68  2.5022797 12.009606  6.0171536  3.3689778  0.9509909  4.0489859  7.917395
## 69  2.3437205 12.493568  4.7571139  3.2293726  1.9795864  3.6752966  7.337881
## 70  0.0000000  6.929973  5.8713287  3.2650768  0.0000000  1.2498700  7.619866
## 71  2.3759013 13.556873  3.9388597  3.1602748  0.7326599  1.4669664  4.594453
## 72  2.1464271  8.009348  2.0166746  1.7158055  0.0000000  1.5380415  6.904627
## 73  4.5487695 12.649921  8.5779899  3.6540918  2.6207506  5.5417409  8.197498
## 74  2.0702176 16.623378  2.7063095  0.6614760  0.9050428  0.6614760  8.622974
## 75  5.1279758 13.493448  4.2551381  5.1410117  7.8105209  5.2168622  6.662740
## 76  0.0000000 13.323109  2.3649366  0.0000000  0.0000000  2.5622058  9.345395
```

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## 77  9.4120287 13.904494  5.4349851  6.3204955  4.7256430  0.0000000  5.595513
## 78  1.2257068  7.478779  4.1209242  2.5072619  0.0000000  8.4787955  9.108185
## 79  8.5516191 12.662895  6.1413429  5.3466272  4.3993830  1.6144272  5.811332
## 80  0.0000000  7.623530  3.3705688  0.0000000  0.0000000  9.4303288  8.974649
## 81  8.7246230 12.670830  6.6160606  6.4326622  2.6705911  4.5808208  2.430580
## 82  8.4056648 12.737747  5.6551743  6.4464978  4.3117574  4.8273668  2.865226
## 83  2.9822178 11.109778  4.3676716  4.0813226  5.0026665  2.6574800  7.410240
## 84  3.0089171 10.265646  8.3810064  6.9386504  0.0000000  2.5755060  7.822261
## 85  1.0748479  8.230301  8.3192006  1.2528395  0.0000000  5.4185408  7.705601
## 86  0.2980717 11.160921  6.3413204  6.7992389  0.0000000  0.2980717  2.847095
## 87  3.3579883 10.487405 11.3300005  3.2618617  0.0000000  1.8654438  8.967715
## 88  0.5818815  7.820417  3.1616136  0.0000000  0.5818815  0.0000000  8.821981
## 89  0.0000000  9.040345  6.9685113  1.8010345  0.0000000  5.7770462  8.108403
## 90  0.0000000 14.217202  3.1868016  0.3257318  0.3257318  1.0094905  7.391720
## 91  3.0924781 13.285424  1.6559471  1.6559471  1.8114299  3.7214492 10.620845
## 92  0.0000000 14.141554  2.4556494  1.7622638  0.0000000  4.9497357  9.670648
## 93  1.0118534  7.510005  9.3723286  1.2359721  0.0000000  2.0177794 10.595058
## 94  3.3048761 12.201388  4.2945913  1.7190958  3.2187037  2.8108955  8.308547
## 95  0.0000000  9.384978 11.1921537  1.4095810  0.0000000  2.1087252  8.933261
## 96  0.9121900  9.184260  3.0868517  0.5270703  0.0000000  4.4413108 10.022862
## 97  1.4824869  8.414943  2.7402368  0.3774014  0.0000000  6.5407914  9.019431
## 98  1.2522945 10.585842  9.8815643  2.7067957  0.0000000  2.8519589  9.312342
## 99  1.5393822  7.312345  8.3378672  2.5277710  0.3981314  6.2296764  7.787311
## 100 0.5765705 15.922725  3.0651759  7.9202582  0.0000000  2.1502997  6.104358
## 101 0.0000000  6.966444  1.3564256  6.3737282  1.6232114  0.3335382 10.068539
## 102 0.0000000 12.552621  2.0703893  0.0000000  0.0000000  4.4724878  0.000000
## 103 0.0000000  6.597594  5.9849926  7.5862303  0.0000000  1.3552418  3.371642
## 104 0.0000000  7.656178  2.9211507  0.4716557  0.0000000  7.6997682  8.812539
## 105 0.3124328  6.122542  3.0868007  2.4839834  0.0000000  1.4290535  8.595916
## 106 0.0000000 10.504497  4.3488344  7.6866126  0.0000000  2.7945198  8.183437
## 107 4.4820093 16.753130 10.6157225  5.3758423  0.0000000  2.3161457  4.615764
## 108 0.6601985 11.101516  3.2787431  5.1858983  6.6431072  2.6376334  6.728488
```

```
## 109 3.9312576  9.384427  3.3088414  6.2106110  1.2243490  4.0524072  7.277403
## 110 0.0000000  9.433833  2.9361008  2.5001392  2.1132671  5.8468343  7.502284
## 111 0.3975839 10.084842  2.1666512  0.0000000  0.0000000  7.7597950  9.470535
## 112 2.2475630  9.283796  6.0975876  2.6814493  0.8742855  2.7722024  8.368421
## 113 0.0000000 12.368422  9.8757188  0.0000000  0.0000000  5.0340924  8.962284
## 114 1.5833747 11.784276  5.5522387  4.4127477  0.0000000  6.4013489  7.133752
## 115 4.7127883  7.402217  4.4995398  2.3795932  0.0000000  6.5373846  9.408612
## 116 1.5647196 12.146869  9.9610983  4.8119231  0.0000000  2.1985256  8.565815
## 117 1.5648171 12.755427  2.4985572  7.1621667  0.0000000  4.2380455  0.000000
## 118 0.0000000  9.126127  8.9108669  1.1694120  0.7000845  6.5556137  8.716777
## 119 4.5403001 10.252594  3.2051110  1.6114085  1.2451305  1.2451305 10.793553
## 120 0.3405053 10.541310  5.3642783  7.3542917  0.0000000  2.9855733  8.358092
## 121 3.6758949  9.722260  3.5136676  3.3308595  1.8947596  3.1947017  7.420946
## 122 2.7910013 11.125842  3.6023737  5.0155689  0.7626465  2.0477827  9.722105
## 123 2.5842169 12.508891  4.6388616  1.9468805  0.0000000  2.8923133 10.545994
## 124 2.0217995  8.518767  0.6890307  0.3852654  0.0000000  3.9145837  8.389100
## 125 0.2632748  8.333540  2.4868431  0.8487982  0.6787029  0.0000000  7.779144
## 126 0.0000000  8.384688  1.8199951  4.3205785  0.0000000  4.8071333  7.530664
## 127 0.0000000  8.763338  3.3571156  0.0000000  0.7750927  2.7420925  8.208645
## 128 1.1053428 16.520417  5.4078218  8.0715165  0.0000000  5.6991518  5.565219
## 129 2.2551986  9.041225  4.3125127  0.8786861  0.0000000  0.8786861  6.098291
## 130 7.6326623  8.452751  3.5044679  2.1082233  0.0000000  3.9140191 10.390827
## 131 0.0000000  3.361642  1.0501186  0.0000000  0.0000000  0.7771988  1.651362
## 132 3.5705965 11.384933  8.2204872  3.3420142  0.0000000  3.0702519  9.029077
## 133 1.7466137 11.547637  7.8956765  2.4111008  1.1229377  6.4030598  6.579257
## 134 3.0389804 10.449978  5.9695511  3.3680280  1.1396005  5.3364405  7.731050
## 135 1.5029925 10.793167  4.0255427  5.7019565  0.0000000  0.9390008  7.685312
## 136 0.5134907 13.215129  2.3992531  3.3793021  0.5134907  2.6159812 10.510653
## 137 0.7657893  9.899027  2.3789832  2.4729556  0.7657893  3.7284539  7.337303
## 138 4.9782506 10.102975  1.5923972  0.0000000  0.3650206  6.5006093  7.787790
## 139 0.3775125 11.153984  9.7354533  0.3775125  0.3775125  4.1000946 10.329775
## 140 0.0000000  4.251878  1.4218561  0.0000000  7.9823616  4.1187584  7.425130
```

```
## 141 5.8720506  8.835155  3.4678533  1.7720968  2.9715528  3.2409401  8.697841
## 142 1.4559650  6.273525  5.1785752  2.2736651  0.0000000  9.6972395 10.754598
## 143 0.0000000  8.105682  2.2036710  0.0000000  5.1252130  7.1014694  9.386487
## 144 0.5366498  8.659083  4.1060049  2.8694174  0.0000000  1.4865599 11.400084
## 145 4.3647265  7.086499  2.9317209  0.3654686  2.6296597  6.6168605  7.198331
## 146 0.5562087 14.141020  6.9623929  3.6734660  0.0000000  2.9231682  5.820263
## 147 2.7051596  9.746532  4.1937796  6.2565918  0.0000000  1.3058538  7.540304
## 148 6.9892571  9.319797  4.8684547  0.0000000  1.4857875  6.3043504  8.817560
## 149 0.0000000 16.884301  4.1190822  5.5592593  0.0000000  2.9447648  6.201210
## 150 0.9420077  7.257423  1.2521128  0.0000000  0.0000000  3.4158938  2.078712
## 151 3.1457264 11.231958  6.0182692  6.9432181  2.6004363  4.6902606  5.812642
## 152 0.8720801 10.657821  4.2045164  1.4117516  0.5010060  8.1163304  9.501093
## 153 0.0000000  7.425487  3.1803548  1.3426685  0.0000000  5.9910002  6.443438
## 154 3.7138278  9.243421  4.2854614  1.8285503  1.1864372 10.4824703 10.045516
## 155 1.0625362 14.757755  4.6565536  1.0625362  0.0000000  1.7863036 10.523245
## 156 0.0000000 10.514731  9.1057454  5.1240386  2.4550181  5.5025120  9.576749
##        rs_DOK7  rs_CAPN9 rs_RASAL1 rs_MAGEA1    rs_RHCG    rs_SCGN rs_S100A1
## 1    7.0407073 7.6879376 2.8926047 1.4402081  3.3214231  1.4402081  9.299952
## 2    5.5393201 6.7341216 1.4884122 0.0000000  0.7843365  7.3437205 10.572261
## 3    8.0222840 4.1852719 3.7868995 4.1260560  2.8517191  0.0000000  7.464203
## 4    9.1956815 5.9238029 0.8535167 2.4429966  1.1442422 10.7163845  8.945981
## 5    6.4490793 3.3380678 3.2804070 0.0000000  0.4815056  0.8418926  8.804510
## 6    2.2112303 5.4779525 7.6450827 0.0000000  6.4869219  0.0000000 13.418392
## 7    2.4925711 0.4706150 7.2459386 0.0000000  7.5219914  1.3463045  8.485833
## 8    3.8641069 0.4304994 7.6431679 0.0000000  4.1163315  1.0308304 13.008714
## 9    8.0151128 0.6035967 9.5895586 0.0000000  6.8621997  0.0000000  8.145242
## 10   7.0058592 1.3948982 1.7842946 0.0000000  3.1935037  1.9455702  7.542055
## 11   7.0239229 5.1481084 2.5893800 0.0000000  3.4642500  2.0039620  6.733170
## 12   4.9378905 0.0000000 4.5152646 1.3118518  1.8457911  0.0000000  5.564701
## 13   0.0000000 0.0000000 6.0154686 0.0000000  7.0042733  0.0000000 10.635663
## 14   7.5128226 4.4447664 3.8484777 0.0000000  0.7400209  2.6694577  9.871377
## 15   8.0732531 7.8963251 1.2804813 0.0000000  0.4407396  0.4407396 10.594635
```

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## 16   5.7193039 7.3320742 6.1050851 0.0000000  0.5474498  1.9141052  5.817012
## 17   4.8584784 2.6858953 2.7766936 1.9732072  7.9026422  1.8108132  5.347513
## 18   9.5554170 5.8264595 1.3375969 5.9112817  0.0000000  0.0000000  7.400906
## 19   3.1270059 7.5039235 3.9909004 3.5001647  1.5877010  6.4134435  7.583664
## 20   7.9734006 7.7888593 6.0179731 4.1194973  0.3644604  0.8970080  7.106446
## 21   2.0802142 8.1349027 6.9599915 0.0000000  1.1445685  1.1445685  8.741468
## 22   6.0279148 2.8435618 8.0632575 0.0000000  3.9072080  0.0000000 10.139890
## 23   3.8733309 1.7460117 0.0000000 0.0000000  1.2705887 11.6158020  5.615543
## 24   7.7946186 0.7984238 6.6339862 0.0000000  1.0764907  0.0000000  8.409133
## 25   6.3042701 8.8729460 2.3761514 0.0000000  0.4031586  1.5531147  8.918840
## 26   8.4882511 7.1535743 1.6461627 4.2758265  1.8728288  0.6158871  6.894180
## 27   7.4772556 3.9057841 4.5159836 0.0000000  2.8273313  0.0000000  8.538675
## 28   3.5579247 6.3762991 2.6754998 1.4103411  2.6754998  4.3851825  3.747946
## 29   7.4124657 6.5610313 1.4895943 2.0048968  0.3800645  3.9225594  6.836812
## 30   7.1401406 5.8724200 4.6523660 0.0000000  1.0803166  1.9898656  8.189275
## 31   8.1890684 4.9261228 1.3725621 2.3142035  8.1268578  0.0000000  6.242191
## 32   6.4129593 5.9876870 4.6357312 7.8810332  1.4617381  0.0000000  8.398706
## 33   4.0519202 5.1148709 4.7087666 0.7727302  3.3519251  4.2529227  8.779853
## 34   7.6295227 4.0671052 2.3046571 0.0000000  0.0000000  1.2100771  6.984780
## 35   4.4008385 6.7625362 4.4974846 1.9735011  2.2200203  5.5237344  7.446552
## 36   3.3194734 4.6412397 7.2150748 0.0000000  7.0710515  2.1447317 10.419339
## 37   7.4504937 7.0709056 3.1290522 0.0000000  1.4446141  3.0562540  9.890785
## 38   6.3429298 6.6959632 5.9019192 2.1295138  1.2669364  1.4264795  9.012228
## 39   0.5247658 5.5566225 8.0528522 9.3381674  1.6751836  0.9088129  5.984115
## 40   1.8355199 4.4721368 7.3977183 0.0000000  3.2248738  0.0000000  7.621242
## 41   0.4088205 3.3468293 4.2244262 4.2494909  5.7743707  2.7861154 12.937054
## 42   2.8058290 7.2402113 8.2620784 0.0000000  3.6130719  4.5296773  3.085883
## 43   1.2249664 3.1008263 8.4949995 1.2249664  8.7537957  0.0000000 14.602864
## 44   7.8381343 3.0335287 0.9542708 0.0000000  1.3576083  0.7004397  6.383815
## 45   7.2781855 7.7758091 3.3607576 0.0000000  4.8731488  2.5559143  6.810877
## 46   8.1028292 8.2115559 5.6611624 0.0000000  0.0000000  7.4540212  8.364670
## 47   2.9914629 3.0971725 3.8072313 0.0000000  3.8380542  4.0103233 10.789570
```

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## 48   5.6552660 5.2579309 5.3425334 6.4960341  1.1080226  0.9004128  8.888385
## 49   7.4972108 7.3362146 3.9294975 0.0000000  1.0969365  1.0969365  9.229032
## 50   9.5089729 8.0782298 5.7842579 0.7173858  0.9754835  0.0000000  8.258983
## 51   7.4741610 3.9902560 7.8179526 0.0000000 10.7468198  0.0000000  9.217772
## 52   7.1772212 6.5420909 5.7153690 2.2386035  0.6147570  2.5964104  9.611670
## 53   3.5641952 6.0580480 6.3055474 1.7211539  2.5661089  5.8439763  4.437807
## 54   5.8870817 6.8033226 5.1461827 2.8847542  0.0000000  0.0000000  6.392584
## 55   8.2059178 9.5437640 7.3292061 0.0000000  0.6747318  3.9643432  9.197624
## 56   6.9620608 2.9086976 8.1380977 0.0000000  4.2089776  0.0000000 12.747631
## 57   3.4743062 7.6570311 6.4364217 1.0590783  3.8803035  7.1954372  9.747530
## 58   6.8895015 7.2406597 4.5098668 1.5469562  1.1898562  2.8888309  8.957671
## 59   1.8680941 3.5362892 7.8808985 0.0000000  6.0905465  0.3723950 11.752940
## 60   6.5218470 7.5224654 4.7918557 1.2317396  4.1692355  0.0000000  9.109954
## 61   0.9358369 3.6858729 0.3832757 0.0000000  0.6858953 11.2976732  7.117571
## 62   1.3124328 5.7096077 1.1288873 1.1288873  0.3748447  4.5393760  4.424472
## 63   7.6616064 3.0073390 1.2351143 0.3457370  0.0000000  4.1529703  6.328131
## 64   6.2378792 7.6705196 4.9635990 0.0000000  2.6732398  0.4994760  9.058166
## 65   7.4261373 1.4056657 4.1059127 0.0000000  7.5220346  0.0000000  4.939636
## 66  10.6796486 5.8375295 1.0678452 0.0000000  0.3494785  1.4029404  9.216508
## 67   5.9395463 5.4159783 5.1708584 0.0000000  2.9394335  1.8751510  8.527133
## 68   6.6290826 4.8105202 2.9130522 0.0000000  1.1662013  1.6678467  6.024067
## 69   7.1574197 4.6699622 4.2395126 3.6494890  0.5389354  0.7478600 10.109753
## 70   5.4158263 6.7569379 6.3139061 0.7562547  3.3649506  1.2498700  6.617090
## 71   7.5649474 9.2447116 2.0313246 0.0000000  1.6805944  3.8967562  7.508399
## 72   1.7158055 5.4479230 3.0418212 0.0000000  1.0992279  0.0000000  6.399116
## 73   4.1063986 1.4868173 3.6540918 0.0000000  0.0000000  0.8258670  8.115474
## 74   9.3601788 8.5928591 2.3425832 0.0000000  0.3683772  0.0000000  7.622375
## 75   5.5160750 4.3253576 5.7209898 0.7092024  5.8771995  3.7759355  9.388461
## 76   7.5704204 3.5782625 1.7068178 0.0000000  0.0000000  0.0000000  7.334430
## 77   1.6025044 0.0000000 1.6025044 1.0131406  5.5492009  5.2543295  9.359320
## 78   7.4151392 5.1621254 7.3003663 0.0000000  8.0610433  0.7392433 13.011348
## 79   2.0330882 1.0221192 0.0000000 1.8388711  5.6724253  2.7377084  7.968578
```

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## 80   3.0551783 4.6419332 8.5035777 0.0000000  6.7417649  0.8579014 14.037954
## 81   4.3586705 0.9824369 3.3603783 0.0000000  1.5614972  5.1944259 11.773627
## 82   3.8550927 2.7734478 6.7769778 0.0000000  3.3826258  2.0507455 11.387743
## 83   5.1609081 6.6248393 2.3166961 0.8451086  0.3397075  0.8451086  8.857881
## 84   7.1811552 6.8136311 5.0942065 7.0734079  0.3346827  0.0000000  9.787949
## 85   6.3089742 0.3523066 6.7666455 0.0000000  5.1188705  0.0000000  3.994381
## 86   3.6407597 5.2193699 0.0000000 1.3819478  0.0000000  4.9462723  5.791363
## 87   9.4208064 6.2356428 5.3801649 0.4119685  1.2153058  0.9937830  8.201912
## 88   6.1200699 4.5760081 0.9953036 4.8978551  0.0000000  0.0000000  9.103109
## 89   6.5636386 7.4334636 1.1650436 0.0000000  1.4095267 11.5599113 10.409107
## 90   0.8154935 4.4938587 3.6613164 9.8862279  0.0000000  0.0000000  7.324912
## 91   7.3899660 7.0351202 7.9164050 1.0535979  0.4421208  2.4066999 11.307704
## 92   5.2510108 6.7833349 7.9225951 3.2285417  2.2891262  4.6220167  6.254724
## 93   6.9737593 3.8965044 0.4209405 0.0000000  0.0000000  0.7464848  3.991762
## 94   6.0515787 7.4482320 5.6437725 7.0562768  5.7241728  0.0000000  8.298079
## 95   3.9146315 7.6482814 3.7467535 0.0000000  0.0000000  4.9063904  7.718044
## 96   7.6868444 6.1786429 1.4667054 2.3128684  3.3590010  7.2627911  4.732052
## 97   0.6763577 4.8634429 7.9852289 3.7927408  3.6280270  0.0000000 11.321035
## 98   5.3604661 6.1941343 1.0261627 3.8556110  1.4476850  4.0785244  7.749778
## 99   4.1313425 7.0880992 3.3071516 3.3527444  0.3981314  0.9659874  6.965062
## 100  8.8906428 7.6683206 2.9779027 0.0000000  1.7893537  0.0000000 12.017573
## 101  4.9377634 8.5497158 1.3564256 0.8320393  0.3335382  0.6042611  9.133728
## 102 11.0575857 3.1043367 1.5849625 0.0000000  0.0000000  0.4854268  9.234099
## 103  6.7859507 4.2810750 1.0278618 0.0000000  0.0000000  3.0023425  5.053450
## 104  4.5263130 7.7263585 7.1708454 0.0000000  0.0000000  6.0689223  9.024508
## 105  4.9307704 0.7869309 2.0508499 3.0868007  0.0000000  0.7869309  6.468173
## 106  9.3754235 5.6988158 1.5236121 0.3923174  1.3576083  0.9542708  7.133254
## 107  7.8112199 8.1964575 3.5226333 2.0895998  0.0000000  3.2755286 10.476480
## 108  8.8583295 7.2660350 5.5587911 1.9641029  0.6601985  0.9034240  8.131518
## 109  3.7520528 2.6658021 2.4475263 0.0000000  3.2424806  0.0000000  6.900851
## 110  4.0847531 7.1502672 3.4124293 7.7021879  3.3193289  7.8818090  7.572042
## 111  1.3708896 9.4666587 3.3049782 0.0000000  2.7464633  5.2996952 11.306656
```

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## 112  7.2299733 5.8176079 2.4807563 0.0000000  0.8742855  1.6241945  8.550938
## 113  6.4831709 4.0601771 4.6739804 0.0000000  0.0000000  0.0000000  9.109221
## 114  7.1061389 8.5067194 3.6982185 0.9987732  0.9987732  3.1133504  6.301408
## 115  1.1382247 7.3553670 5.7983357 0.0000000  2.2026998  0.0000000 11.234006
## 116  6.1061201 5.8928864 0.7248249 0.4075159  0.0000000  0.0000000 12.055800
## 117  6.7513017 6.4416843 0.3159140 1.8847151  0.0000000  7.5089879  5.462200
## 118  3.0866649 1.5229597 4.1590236 0.0000000  1.1694120  6.3051716  3.189018
## 119  5.0532678 9.2464713 6.3669639 0.0000000  0.7529198  0.4250295  8.310860
## 120  6.0197197 9.8924331 6.9600344 0.0000000  0.0000000  5.8767355  9.658735
## 121  6.3986770 2.6864333 2.5811343 0.5391340  1.4918018  3.6238201  7.018829
## 122  9.0856238 7.1145700 0.7626465 0.0000000  1.7816115  2.0477827  8.699844
## 123  6.7025163 9.1690250 4.1517939 0.0000000  0.7771988  0.4403144  8.951218
## 124  2.2243799 9.0116508 8.5765883 2.0217995  3.4726177  6.3862005  7.743795
## 125  7.5015689 8.9188024 7.2889722 0.0000000  5.3236187  0.4859420  8.464434
## 126  4.7174516 1.9828385 1.6364506 2.7877041  0.0000000  1.1797658  5.101095
## 127  7.3120552 6.1796245 2.2963693 8.2977582  0.7750927  0.0000000  6.214591
## 128  5.0673677 5.2200203 1.7237770 3.0848637  0.6559929  9.7263198  5.347896
## 129  3.4677881 5.8163872 5.1954697 0.8786861  0.5051796  1.9764736  4.613679
## 130  3.7899900 6.0974823 7.5330010 0.4997821  1.1647219  0.0000000  6.660722
## 131  8.0943707 5.5447852 3.3106600 3.2029505  0.7771988  0.0000000  7.573704
## 132  9.0097164 5.9115334 4.6898023 2.9934751  1.4547023  0.9034240  8.153704
## 133  3.8818310 3.9566979 3.8818310 8.4578265  1.3620490  2.1806571  5.668533
## 134  4.9438698 8.6247713 6.0763068 4.8264214  1.6348720  8.1757421  7.376235
## 135  2.8914386 7.3299300 3.3464605 0.0000000  0.6883147  1.9074676  8.345918
## 136  8.6027827 6.6527045 5.2060493 1.1906781  2.1441443  0.0000000  8.763274
## 137  6.5075727 5.5067733 5.1563926 2.7975111  2.5612039  0.4330663  8.736132
## 138  3.8895612 0.6561760 8.6901227 0.3650206  6.2288071  2.0591130 13.043586
## 139  2.7403232 7.0212265 2.8034957 0.6763577  0.0000000  1.7623488  8.777524
## 140  7.4391585 3.0970545 2.2564974 5.2135067  0.0000000  0.8793921  9.217857
## 141  4.1625484 0.0000000 9.5055047 2.7303356  9.1965992  0.0000000  6.655910
## 142  9.6813980 3.3313613 4.6270289 2.0489685  6.1156347  0.0000000 10.255935
## 143  1.0579701 5.0007257 9.3841526 5.9530394  7.3828427 10.1728870 11.002331
```

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## 144  7.8161830 4.8320647 7.6448946 1.4865599  1.4865599  0.5366498  8.814423
## 145  7.7455479 0.0000000 6.7269592 7.6431679  6.4461239  0.0000000  9.916919
## 146  4.6157870 5.8322242 1.5268200 0.0000000  1.5268200  1.7449361  4.670110
## 147  9.2071200 9.3994597 6.1559232 8.0613809  0.7959331  0.7959331 10.995016
## 148  3.0361340 1.7659590 9.0196107 0.0000000  7.6842710  1.4857875 10.966505
## 149  8.1864292 9.4051970 3.4164479 0.0000000  0.0000000  0.0000000 10.950992
## 150  6.0731540 1.7238206 9.4582862 0.0000000 11.0653287  0.0000000 14.529300
## 151  4.3214014 7.5341566 3.3386383 0.5912007  0.3256167  2.1016837  8.105952
## 152  8.8743725 6.9383128 4.1380362 0.0000000  0.5010060  1.8036404  9.160532
## 153  2.3853482 6.7620458 2.8369340 4.6551171  3.2976903  1.5461166  4.098504
## 154  5.6289135 1.1864372 9.0000135 0.0000000  6.4607639  0.9685700 13.529932
## 155  9.0079002 3.2382519 1.8958842 0.0000000  0.6269530  3.5377558  5.061145
## 156  7.5908176 5.2985190 0.9973285 0.0000000  2.4550181  0.0000000 10.363111
##      rs_CITED1    rs_PLP1   rs_ANO3  rs_NELL2  rs_CAPN13  rs_HAPLN1    rs_NMU
## 1    6.8341360  6.5474375 5.9097659  7.179348  9.7285707  3.0501360 0.5144000
## 2    0.4448791  4.5479125 2.4151637  4.811800  7.9332002  6.0524289 1.8188915
## 3    9.0526800  5.1450660 3.7868995  7.159161  8.5459224  3.2897017 4.2697738
## 4    2.8981890  3.8392743 1.1442422  9.609607  7.9299348  2.7329204 0.0000000
## 5    4.1080309  2.5246655 1.5757964 10.008875  9.6304502  7.5576628 0.4815056
## 6    5.0285250  2.2112303 2.0398403  5.543595  4.4767446  2.6291701 5.2011790
## 7    4.5700743  2.8420737 0.4706150  7.671391  3.9325526  6.5596172 1.3463045
## 8    3.3278454  5.2292880 2.7889989  6.863543  1.6259250  5.9507880 7.0108537
## 9    2.0416986  3.7515923 0.0000000  2.631221  0.6035967  6.8621997 6.4122192
## 10   2.9866112  2.5580227 2.2224027 11.047327  9.6444838  4.3031305 0.4930324
## 11   5.0495349  3.1201694 2.6674380 12.437580  7.7910007  5.6870215 1.8783330
## 12   2.8680941  4.3676646 1.8457911  8.274947  7.8848390  0.0000000 0.0000000
## 13   2.0808623  0.9433588 6.5721348  6.440336  0.9433588  4.6701945 2.7088935
## 14   7.3022871  5.3883514 5.6799895  4.992365  9.1884397  6.4505696 0.0000000
## 15   5.4901914  1.6525094 0.4407396 12.138733 10.1737853  7.1904647 0.4407396
## 16   7.1612024  0.5474498 0.0000000 11.922048  8.0596435  7.2773348 0.0000000
## 17   3.4080868  3.2897312 2.3731192  6.538743  8.8767119  5.2870105 4.0777813
## 18   3.2326915 10.7634618 2.2685242  6.259299  9.1757232  2.2685242 2.4807563
```

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## 19   6.1653552  6.2868054 1.5877010  9.236685  8.3227912  2.2402838 0.0000000
## 20   1.1040682  2.8723757 2.2437300  7.713820 10.8861928  1.5906260 0.6551686
## 21   2.8986921  2.0802142 6.3947182  4.830068 10.4152605  5.9807839 1.5935928
## 22   2.7583245  2.3557493 0.0000000  3.497804  7.8837002  4.6373784 7.9500788
## 23   4.6172573  1.2705887 0.0000000  2.103028  9.0759331 11.9047527 6.1240448
## 24   3.4567667  3.3562002 0.7984238  5.856017  3.0690663  2.9360443 3.2481097
## 25   3.5410192  2.2836551 0.0000000  8.011073 10.8548994  1.7035437 0.4031586
## 26   9.1847541  5.0421890 2.7205411  2.157432  9.5995017  2.0686708 0.0000000
## 27   4.4931862  5.1759477 2.5015156  7.093614  8.5892628  4.7835771 4.3734673
## 28   3.7027351  2.1097283 0.0000000  9.681056  8.5645939  3.1498447 5.1956508
## 29   6.3533886  3.3277879 3.0413481 10.862077  9.0238641  1.6366826 0.0000000
## 30  10.2565073  6.4824982 2.4483988  6.832101  9.0739809  1.6910874 2.8709762
## 31   4.5636402  8.1572949 1.5785523 11.396660  7.7142222  5.1685297 3.5999485
## 32   3.8055504  2.4754481 8.8209068 11.814744 10.0916673  3.6121284 0.0000000
## 33   7.7597411  6.6362882 4.3563410 10.882643  9.2021897  4.0207689 2.3925372
## 34   2.5400521  4.8806268 1.2100771  7.953819  9.9013821  5.4706995 0.0000000
## 35   2.6141444  2.2200203 9.4173593  6.728095  9.2172763  0.4498519 0.0000000
## 36   4.1089342  7.3192169 1.1911204  9.211942  5.5342702  0.8918080 2.5123280
## 37   4.1873798  3.6079102 2.4072984 10.891987 10.4414735  3.9265498 5.1296004
## 38   4.6867918  1.5700743 8.6444962  5.922138  8.9772241  6.1901229 3.3222022
## 39   3.0803848  1.6751836 7.4526498 11.538949  8.7126831  3.0803848 0.0000000
## 40   1.5493242  3.7227939 3.1744544  7.843260  7.1462387  3.1221923 4.4928594
## 41   2.7158934  4.5611856 1.3995539  5.285665  2.3948982  8.8960799 1.2082675
## 42   0.8066128  4.8056330 2.2465297  9.933936  9.9049213  3.9290714 4.5757177
## 43   1.4767964  1.6911768 3.1008263  4.053468  4.1652366  5.0871021 0.5318680
## 44   4.4137362  3.5775376 2.3399355 11.090266  8.9955264  5.5431432 6.5177812
## 45   4.8489183  6.4249137 3.9215506  9.793255  8.6913817  5.1558706 5.7601331
## 46   4.8439587  3.0521724 1.4975868  9.516979 10.7209956  4.1519887 3.2859200
## 47   4.9648468  5.0981458 1.8955741  7.432166  7.4842445  8.3737935 0.0000000
## 48   5.9395581  6.1941225 2.4910578 12.097951  8.4342625  3.6501671 1.9592879
## 49   7.9534276  3.2967364 1.5816887 11.151779 10.2411281  4.1537648 0.3614315
## 50   5.5563834  5.0252282 2.5438175  5.464658 10.2962990  3.5396427 3.4574236
```

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## 51   8.1136500  5.7861389 1.3697736  9.392538  2.8115327  5.6471072 7.9986068
## 52   6.0463666  3.6350578 0.6147570  9.687536  9.7409206  2.5315936 1.0445340
## 53   2.4838545  2.5661089 1.4009204  6.700929 10.6731583  3.0954519 4.1215874
## 54   3.4967435  2.6602669 6.0426969 13.086546  8.0301104  7.5100600 1.6455172
## 55   5.8566596  7.4423447 2.7365832  9.302164  8.8176511  2.0975097 0.0000000
## 56   1.7828279  2.8283269 0.8589358  1.601316  0.0000000  7.3975968 3.3147545
## 57   3.7700361  7.2983421 4.8120361  8.622053  8.7986102  1.2897755 2.0877683
## 58   6.7201225  6.2038981 5.9584622  6.582234  9.7516369  1.5469562 0.0000000
## 59   1.1230040  8.7999026 2.2715751  6.221577  0.0000000  2.5139960 7.7067757
## 60   3.1410240  2.5495952 2.5495952  4.749089  8.8946695  1.5300208 3.3840083
## 61   2.0155689  5.3093145 2.4764335 11.943916 10.5300089  1.9026911 0.0000000
## 62   1.4752406  4.7288674 3.5823633  7.256610  7.4104675  4.4043923 0.6721085
## 63   2.3397075  3.8885777 0.3457370 10.693133  8.3899071  8.0835288 0.0000000
## 64   3.9904557  3.3945004 3.3365976  5.241173 10.7596606  3.5037812 0.8698714
## 65   1.7966393  3.0741971 2.2775385  6.768632  8.8196302  2.9768035 5.4190028
## 66   1.4029404  3.4049440 0.6304987  9.770875  8.1179397  3.3282908 0.6304987
## 67  11.3947097  7.4820835 2.9394335  5.746899  7.5682792  2.9394335 0.0000000
## 68   7.2406750  5.1124333 0.9509909  9.827578  9.6854847  4.4072372 0.0000000
## 69   6.8780068  6.7071838 3.8888309  9.085727  7.7797194  1.9795864 4.9491287
## 70   3.0418562  1.0240359 4.8534069 11.662270  8.9575240  8.7141328 3.5460795
## 71   4.8474959  4.1861360 2.1071187 10.004876  9.0081345  1.5777309 1.7765673
## 72   2.6625018  3.5438175 0.8168864  8.684785  7.8326445  7.6586849 0.0000000
## 73   1.3477790  5.1183930 1.8380643  9.715644  0.5994130  0.8258670 4.3805909
## 74   2.4230403  3.2380378 1.1133671 11.777979  9.0140141  2.5716040 4.3151532
## 75  11.0401266  6.4169140 3.2587300  6.328497  8.2903115  1.5384388 1.1825652
## 76   2.8152270  4.0420489 0.0000000  5.867004 12.4093919  5.4225930 0.0000000
## 77   1.8261112  8.4227330 8.3276191  6.338761  2.6068212  3.4160425 0.0000000
## 78   2.4197276  4.4649492 1.2257068  3.175061  4.8300068  6.3922951 1.5888046
## 79   1.8388711  8.7477432 6.0090358  3.563732  1.0221192  1.6144272 0.0000000
## 80   4.2382901  3.3705688 1.3922625  3.370569  7.0422208  5.1005404 2.6509483
## 81   7.2686599  8.1863594 7.1547219  6.104712  6.6792380  0.5732776 0.0000000
## 82   7.6879621  7.2163132 6.0854714  5.170915  6.2044459  1.2308793 0.0000000
```

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## 83   3.7524061  4.5256555 1.5151069 11.520400  9.6877823  5.1715711 3.4708752
## 84   2.4432353  2.9613455 2.7536259  8.087560 10.0244056  6.7865898 0.0000000
## 85   1.4113178  4.6635154 5.8298064 11.020143  2.7076352  6.7956735 6.2046181
## 86   3.0203066  1.6159812 0.2980717 12.656123 10.2547257  3.7431918 0.0000000
## 87   6.7291340  4.4906022 1.7282688  8.529326  8.3727314  7.0210688 0.0000000
## 88   2.4517782  2.6925388 6.4001536 10.305810 10.8384983  3.5150312 0.5818815
## 89   4.1346235  4.8031185 0.4998841  9.712128  7.7709202  6.1494728 0.0000000
## 90   8.9452267  0.5912964 7.9045859  7.436712  9.6807242  3.2263852 0.0000000
## 91   2.4066999  2.8268840 1.9517370  6.351807  9.0650127  5.8671107 4.8017484
## 92   4.5501742  1.1350094 7.8098337  8.263129  8.0155550  4.7070609 2.1980226
## 93   3.8633042  2.6046881 1.2359721 10.741584  6.7005396  1.6007455 8.0103340
## 94   3.5001902  7.0624758 6.6865804  6.949956  9.1032802  2.4814281 5.1796544
## 95   2.2825288  3.7467535 8.4442844  6.454388  6.1964516  6.1297570 1.0734090
## 96   3.0868517  3.0868517 0.5270703  5.215648  9.2598854  3.0868517 4.2869255
## 97   3.0315716  0.3774014 2.1008095  7.924372  4.6043916  6.9178649 2.5322421
## 98   4.0182692  3.3196324 1.0261627 12.020192  8.1356323  6.2800358 0.0000000
## 99   2.6051624  2.3592963 0.7098200  4.774861  9.5738416  6.2050308 0.3981314
## 100 11.4184404  0.9873936 2.1502997  7.179454  9.0448790  7.3842519 0.0000000
## 101  2.2144668  4.3395507 8.1282707  7.927142 11.2162326  0.6042611 0.3335382
## 102  4.6667566  1.7655347 1.1375035 10.648358  9.7431514  5.5909612 3.1699250
## 103  1.9475166  0.3330802 0.0000000  7.562639 10.6142437  8.2933673 0.0000000
## 104  1.7313570  3.1892553 1.5527213 10.779985 11.1264172  4.8884218 4.6200468
## 105  1.7731946  0.9761436 0.7869309  6.507046  9.9857520  5.1030612 0.0000000
## 106  2.7280076  4.2808747 1.1699891 10.477238  9.6378696  6.0849189 0.0000000
## 107  3.2205931  1.6648924 1.6648924  8.469610  9.9844088  6.3898318 2.7631991
## 108  7.1617214  2.3398215 1.9641029 10.118269  8.8628323  4.5268826 2.8843635
## 109  3.8884997  4.6470900 4.3008778  6.974248  6.9995818  2.5607883 0.0000000
## 110  2.8719816  0.9985566 6.1670829  9.221124 10.1992438  5.0846638 4.5620226
## 111  3.5974239  3.1589025 0.3975839  6.215034  8.0753096  2.9377963 3.4792694
## 112  6.3319649  4.8943813 0.8742855 11.799809  7.4725812  0.5023306 4.6044272
## 113  1.5900031  2.3279460 6.0386249  9.986796  9.6660809  1.3831651 0.0000000
## 114  2.2205157  2.1136338 1.7353055 12.415275  9.9337472  7.0601112 3.5421218
```

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## 115  1.4863025  0.6786128 1.1382247  5.344722  6.9900200  5.4475726 2.9271759
## 116  2.4774701  0.9848445 7.5646518  6.007104  9.9343991  6.4347800 0.7248249
## 117  7.3185799  3.3648946 1.3038100 11.370555 11.0986386  5.5627553 1.3038100
## 118  7.0799231  0.7000845 1.1694120  6.872551  8.0200821  5.2891410 0.0000000
## 119  5.4760284  3.6994073 1.7647283 10.735018 10.5202858  1.7647283 4.0960763
## 120  3.1241461  2.2407417 0.3405053  8.531036  9.9077052  5.0063833 2.4659484
## 121  1.2383589  7.6914581 8.3916462 10.524673  8.3074891  3.8672145 2.2093910
## 122  3.0556122  5.3347899 1.4549655  8.545674 10.8696217  4.8159647 0.7626465
## 123  3.3107764  3.6756353 2.6676197 10.020873  8.6401205  5.4420643 2.8923133
## 124  1.7860526  2.5601035 0.6890307  6.488105  8.2952239  2.1266425 0.6890307
## 125  6.9062015  1.4865599 7.3182292  7.765932  9.8516046  4.8496691 5.1309638
## 126  4.0537109  3.6309645 7.0509794  7.952784  9.2932052  1.4261037 0.0000000
## 127  1.4742024  0.4390380 0.7750927  6.030616  9.3475873  2.2963693 1.8030617
## 128  2.6936765  1.8443455 0.3650206 11.183730 10.0037887  5.5652194 1.8443455
## 129  1.4207788  3.3540713 0.0000000 10.824108  8.0913116  6.5495490 7.2030700
## 130  1.9626231  0.0000000 0.4997821  6.718573  6.9095043  4.0282332 4.8025448
## 131  0.7771988  1.0501186 1.4773665  5.033996 11.4364623  3.1459220 0.0000000
## 132  5.5453754  7.1276663 7.3363325  7.280883  9.7615655  7.0633929 6.4530862
## 133  2.8643149  4.4468385 1.1229377  9.035496  7.8099295  4.3939378 2.0499792
## 134  3.1408932  4.0035932 1.4878979  8.811175  9.2564873  5.4199029 0.0000000
## 135  5.6325300  1.7847971 8.3807394  8.864172 10.5110307  9.1209980 1.3383388
## 136  4.3390661  3.0475558 0.8914970  6.689025 10.5102306  3.6972067 0.0000000
## 137  4.0666317  5.7884691 3.0622772  8.734947 10.6410929  6.3430898 0.0000000
## 138  3.6122935  0.8982471 0.3650206  1.592397  6.0333701  1.9558335 6.4058086
## 139  1.6292400  2.9779210 6.1061787  7.251029  7.1237831  5.2167226 4.7398265
## 140  4.3442249  0.8793921 6.2821840  4.539171  8.8724416  0.8793921 7.3822090
## 141  4.9061931  2.7303356 5.0179664  4.316225  5.3381570  7.5805880 6.3561068
## 142  3.4740076  0.7633266 3.0569650  4.904017 10.1760083  5.2060884 5.9546314
## 143  6.1119369 12.1352927 3.3753175  6.999434  9.0011424  5.0643138 6.6096205
## 144  1.4865599  0.0000000 2.3377111 10.850899  8.7142912  4.9205744 0.0000000
## 145  2.0603587  5.1059713 1.1064153  7.791323  3.8628084  2.8183598 7.8081218
## 146  2.1018517  3.8247984 0.9565771 10.742820  8.9385560  7.2433397 0.0000000
```

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## 147  5.6636776  3.7564896 1.9799156  8.150046  8.7100439  1.5060941 4.0408574
## 148  2.0004327  7.9313119 1.4857875 10.746755  0.6782522  7.1982810 2.6785677
## 149  5.1989223  1.8501593 4.4734752 14.060272  9.7375906  4.0559158 1.5165195
## 150  2.4870232  0.9420077 1.7238206  1.723821  6.6641216  7.6701010 0.0000000
## 151  5.8384098  7.3176252 2.3367975  5.197956  9.9049966  2.4073528 3.6019817
## 152  5.4787098  2.5806038 7.3442755  3.217727  8.1567682  4.4156843 0.0000000
## 153  4.2805778  1.8829951 7.2726261  3.852219 10.5328983  4.5875870 5.9557266
## 154  6.4290719  7.8986510 2.4504063  5.860399  3.9702095  6.7228103 2.7530910
## 155  2.6877102  3.2382519 1.3966527  5.834458  8.8007657  9.2827486 4.0690577
## 156  2.3176224  1.5813512 4.7227228  6.194345  8.9988310  8.0979073 4.6386705
##       rs_EMX1  rs_GPRIN2 rs_C19orf21    rs_CSN3 rs_C2orf82  rs_GABBR2 rs_PLA2G3
## 1   7.6998771  4.9929995  11.5888856  1.4402081  2.1463945  1.1923204 6.8287090
## 2   1.0590091  5.4937946  10.4147628  1.2895984  0.4448791  0.4448791 5.2690294
## 3   1.5002922  2.3287790  10.2346269  0.4497462  1.6757256  2.2197106 1.0686020
## 4   4.3191265  3.3038392   9.5299679  1.9350825  1.3860936  0.0000000 0.4889263
## 5   4.8043324  6.8116149   9.8892087  0.0000000  0.8418926  0.0000000 3.4469046
## 6   0.0000000  7.6262697   1.8453495 18.2317808  4.9580538  7.6928798 0.0000000
## 7   1.5500634  6.3368243   4.9217077  9.9854529  2.2799170  2.2799170 0.4706150
## 8   1.2575538  8.1088313   7.1122362  1.2575538  0.7617108 11.4409216 0.7617108
## 9   0.0000000  9.1519450   5.9247650  4.3003947  2.3663642  4.9114375 5.5619310
## 10  3.6331522  1.9455702  10.2883375  1.1519887  0.0000000  0.0000000 4.0428019
## 11  7.0386820  3.8794117  10.5883789  1.0026665  1.0026665  1.2253983 0.0000000
## 12  4.6703078  4.1134005   9.0923555  0.0000000  2.6297063  2.7136298 0.0000000
## 13  0.5474498  5.9842544   7.3649217  0.5474498  0.0000000  4.9325006 0.9433588
## 14  6.2868386  6.9423257  10.2942666  0.0000000  6.1841970  2.3280897 0.7400209
## 15  7.6153508  9.0829822  10.0740201  1.0509544  0.4407396  0.0000000 6.7430679
## 16  7.7643953  3.7505636  10.8143606  0.0000000  0.5474498  0.5474498 5.4414503
## 17  5.2076274  2.9427960  11.0244054  0.0000000  0.8766446  1.1726155 1.4180280
## 18  3.9191017  2.6657566  10.4942454  0.8186052  0.4665488  2.4807563 3.4498915
## 19  3.7662983  7.3927081   8.0508189  1.4431823  3.7355980  0.0000000 2.4814023
## 20  3.6761884  7.2024706  10.4046147  0.0000000  0.6551686  1.8426169 0.0000000
## 21  3.2441868  0.8537562   9.0313511  0.0000000  0.4891319  0.8537562 0.0000000
```

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## 22  0.4976379  7.3438502   6.0187810  0.8668684  0.0000000  3.9072080 4.1936298
## 23  0.5566992  5.3078256   9.9639991  1.5278210  0.0000000  2.1030276 0.0000000
## 24  0.0000000  7.8465109   3.1312602  3.3562002  3.2481097  6.3951297 1.9843706
## 25  0.4031586  3.7281491  10.4371888  0.0000000  0.7179122  0.4031586 5.4449354
## 26  1.0461418  1.3771237  10.1165848  0.0000000  2.9859375  1.3771237 0.3405053
## 27  0.0000000  5.3635986   9.7086089  0.0000000  2.4071352  0.0000000 4.5159836
## 28  2.5787214  4.3851825   8.0835277  0.0000000  0.0000000  2.6754998 0.8710551
## 29  2.5414405  3.6727534  10.3347325  0.0000000  0.0000000  0.3800645 3.5666812
## 30  0.8015726  6.3960430   8.5482944  3.0105292  4.6090930  1.8481973 3.2546847
## 31  6.7479915  3.3417865  10.6067159  0.0000000  0.0000000  0.0000000 1.7587296
## 32  4.9127840  2.8001026  10.8109239  0.4339209  0.4339209  0.4339209 3.8055504
## 33  5.3206868  7.6055943   5.6302278  2.4867144  1.0445340  1.0445340 4.5650427
## 34  4.5167338  4.5440649  10.1049429  1.8587767  0.5238630  0.0000000 1.8587767
## 35  6.1097178  3.4912374   7.9455474  0.0000000  0.0000000  0.4498519 1.6759965
## 36  0.5137939  7.5039489   4.9515552  0.8918080  4.3994993  7.8337851 5.2067995
## 37  0.8960781  5.0753743  10.6390050  0.0000000  5.4034688  1.4446141 2.4072984
## 38  1.9309644  2.2194009  10.7095209  0.0000000  0.8827604  0.6439485 1.4264795
## 39  0.9088129  3.4712785   7.9127912  0.0000000  1.2117598  0.0000000 6.5068272
## 40  0.4017397  9.7807246   8.9302456  0.0000000  1.1918784  7.4516455 2.1802752
## 41  0.0000000  6.5753502   3.3925647  0.4088205  5.0056919  1.5684700 2.7158934
## 42  0.0000000  8.2514791   8.4683723  0.0000000  0.4589069  2.7264171 0.0000000
## 43  0.5318680 10.2693253   6.3833380  0.0000000  2.0429244  7.8068119 0.0000000
## 44  5.8934132  4.0553866   8.8844737  0.9542708  2.0444641  0.7004397 1.9308130
## 45  4.4901786  5.2513896  10.8273489  0.0000000  0.5733745  1.3010608 0.0000000
## 46  1.4975868  4.8068447  10.3875447  0.0000000  1.4975868  1.2980131 6.8566135
## 47  3.7106026  4.9366474   9.7453644  0.3810618  0.3810618  0.6822137 0.0000000
## 48  4.7235968  7.8975563  10.9157414  0.3661403  5.8118409  4.0779180 4.1264526
## 49  2.9162855  4.3876176   9.7232314  0.0000000  1.2772111  0.0000000 3.9022859
## 50  5.0674150  5.9662136  10.4276044  0.0000000  2.6213838  3.6547907 0.0000000
## 51  0.0000000  7.7600845   6.9312020  2.6016252  4.1273526  5.4727932 0.3971458
## 52  3.4369613  5.1295468  10.0385677  0.0000000  0.3399355  0.0000000 0.8455904
## 53  1.9830209  2.2046103   6.6499861  1.2095158  0.9887029  2.4838545 0.4093638
```

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## 54  6.2519198  6.5095518   9.8469184  0.0000000  1.0456526  0.7735744 3.4030904
## 55  4.0184294  6.1750894   7.5700682  0.0000000  2.1946544  0.0000000 0.3765127
## 56  0.0000000 10.1174423   7.3004111  0.4924172  1.7828279  6.2682491 2.0890574
## 57  1.9596589  7.6257103   7.1484593  9.3267757  6.7919300  2.3142035 4.1089091
## 58  0.7143115  7.0859801   9.8078879  0.7143115  1.5469562  1.6970176 7.4559979
## 59  0.0000000 10.2087332   9.1951687  0.3723950  9.2905235  5.2066706 2.8448878
## 60  0.0000000  1.8863941  11.2540677  0.0000000  0.6223682  1.0557510 6.8054073
## 61  6.8394621  3.5043280   8.5544062  0.0000000  0.9358369  0.0000000 0.9358369
## 62  0.3748447  2.1892236   7.7635736  0.3748447  0.0000000  2.7937503 0.0000000
## 63  2.2603870  2.7985897   9.8829479  0.0000000  2.0873271  0.0000000 0.0000000
## 64  0.4994760  6.0524659   9.8290318  0.0000000  2.3610384  1.8000819 0.4994760
## 65  0.3503841  5.4465474   8.1151462  0.0000000  0.0000000  9.6773905 6.0948547
## 66  3.4049440  1.2450697  10.1999140  0.0000000  0.0000000  0.8656813 0.0000000
## 67  1.0005049  8.1268025   6.4712720  3.1163315  3.9077848  2.2231445 0.0000000
## 68  7.3016782  5.3176441   8.7748770  0.0000000  2.7886857  0.3907777 4.0489859
## 69  5.5326255  7.2157262   7.7420655  3.4245594  5.6082415  0.7478600 0.9303967
## 70  0.4270698  0.4270698   9.7806887  0.0000000  0.0000000  0.4270698 3.0418562
## 71  0.0000000  6.9395416  11.0957085  0.0000000  0.0000000  0.9124199 0.0000000
## 72  2.3754287  3.1694440   9.3072484  0.0000000  1.0992279  0.0000000 0.0000000
## 73  0.3305584  6.9732198   5.7424563  0.0000000  0.3305584  5.5810800 0.0000000
## 74  2.9965334  2.2574029  10.6759237  0.0000000  0.6614760  0.0000000 7.2585500
## 75  1.3714473  7.4613820   8.3106487  4.4563068  7.1589106  0.0000000 3.5205731
## 76  7.4353927  2.5622058  10.0238903  0.0000000  0.4619476  0.0000000 0.0000000
## 77  0.0000000  3.1106138   1.0131406  0.0000000  0.5937840  0.0000000 0.5937840
## 78  2.8794705  9.0610539   8.4841986  0.0000000  6.5082195  8.8975539 1.5888046
## 79  0.0000000  1.3484591   0.5997939  0.0000000  0.0000000  0.0000000 0.0000000
## 80  0.8579014  9.8528932   8.5051919  7.7703342  6.0965929  7.5597319 0.0000000
## 81  0.5732776  6.0944472   4.4580932  0.0000000  1.3008266  1.9735745 2.6705911
## 82  1.2308793  8.0303366   4.6580915  0.0000000  3.8550927  2.3337958 2.0507455
## 83  4.1258742  8.0606646   9.1074020  0.0000000  0.8451086  0.6143800 0.0000000
## 84  3.3784423  5.5770148   9.8823676  0.0000000  1.3598585  1.0316775 5.9982926
## 85  0.8717648 10.7043329   1.5540485  0.0000000  1.2528395  7.6450827 0.0000000
```

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## 86  6.5106297  0.2980717   9.7247055  0.0000000  0.0000000  0.2980717 0.2980717
## 87  2.4922634  6.5826268  10.7713743  0.0000000  0.4119685  0.0000000 0.0000000
## 88  1.5787455  0.0000000   9.5989197  0.0000000  0.0000000  0.0000000 7.2386417
## 89  6.0980700  6.1325419   8.0098588  0.0000000  1.1650436  0.0000000 0.0000000
## 90  0.8154935  1.8209346   8.9847161  0.0000000  0.8154935  0.0000000 6.3451639
## 91  3.5553867  7.0547063  10.4394092  0.0000000  1.6559471  2.1970791 5.1318528
## 92  4.7873698  1.3191555   9.0700761  0.0000000  0.3774014  1.9965334 0.6763577
## 93  5.2960499  8.2539789   8.8016602  0.0000000  1.4298570  0.4209405 0.4209405
## 94  4.9039927  8.4641332   9.0093433  0.0000000  2.0537717  0.0000000 1.2825584
## 95  0.0000000  6.4314959   7.8395307  0.0000000  0.3517414  0.6343145 1.0734090
## 96  0.9121900  3.5878570  11.2856478  0.0000000  0.5270703  0.9121900 0.5270703
## 97  0.0000000  7.2136214   7.2622076  0.0000000  7.1812894  7.2565757 0.9237957
## 98  5.9896658  2.9838418  10.3314672  0.0000000  0.4281424  0.0000000 2.5453754
## 99  3.0546922  0.3981314   9.9051066  0.0000000  0.3981314  0.0000000 0.0000000
## 100 2.4387719  2.3017340  10.7772413  0.0000000  0.5765705  0.0000000 0.0000000
## 101 2.3677065  2.2144668   9.8280292  0.0000000  1.0287813  0.8320393 6.5442334
## 102 3.3504972  1.3785116  11.0913031  0.0000000  0.0000000  6.1085245 4.7970130
## 103 5.1828790  7.1658858  10.0103737  0.0000000  0.0000000  0.0000000 6.6619163
## 104 3.5642074  8.0859477   9.6979173  0.0000000  1.7313570  1.1111649 0.0000000
## 105 0.0000000  0.7869309   9.9694898  0.0000000  0.7869309  0.3124328 0.0000000
## 106 5.6547477  2.5850587  10.8164464  0.0000000  1.1699891  0.9542708 1.5236121
## 107 1.4901080  6.4145178  10.8792135  0.0000000  1.8207712  0.4455148 6.7561813
## 108 5.7023805  2.8843635  10.3859762  0.0000000  0.0000000  1.8525982 1.2933116
## 109 3.0998338  4.5948590   8.0386145  0.9191494  2.0420840  1.2243490 0.9191494
## 110 5.2066471  1.2207633  10.6662996  0.0000000  0.7357821  4.8716860 0.7357821
## 111 1.9468431  6.3502108   8.8965477  0.0000000  1.6874191  2.9963345 4.2054864
## 112 6.2395508  5.3861419   8.8650258  0.5023306  4.6767018  1.4147309 3.4033086
## 113 5.1365893  5.9190874  10.5320582  0.0000000  0.0000000  0.0000000 0.0000000
## 114 4.7165081  8.1422643  10.8776924  0.0000000  1.2210109  0.7360420 0.9987732
## 115 0.0000000  8.3160385   6.3482855  0.0000000  0.0000000  3.0368022 2.3795932
## 116 4.6711688  5.5041882   9.6895419  0.0000000  0.7248249  0.0000000 4.0588187
## 117 1.3038100  2.8318772  10.1873445  0.0000000  0.7944367  0.0000000 0.5749250
```

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## 118 4.6284937  3.5383395   9.7064589  0.0000000  0.0000000  1.5229597 1.1694120
## 119 2.6963277  7.2224761   8.6541333  0.0000000  0.4250295  1.0199154 3.4508945
## 120 1.5176284  6.6286351   9.8729082  0.0000000  0.3405053  0.3405053 5.6735536
## 121 1.4918018  4.8169171  10.4471933  0.0000000  3.0443417  3.3944044 0.0000000
## 122 6.9817260  4.1185425  10.4314710  0.0000000  1.7816115  0.4311415 2.1644645
## 123 5.0956502  5.1546642   9.5903550  0.0000000  0.4403144  0.7771988 3.1460360
## 124 0.3852654  5.6780437   8.2480713  0.6890307  0.3852654  0.0000000 8.3665325
## 125 1.2640560  1.1384213  10.5702573  0.0000000  0.2632748  0.6787029 0.0000000
## 126 1.8199951  2.2619219  10.1151584  0.0000000  0.8825257  0.5077185 4.8915601
## 127 3.9284651  4.0261804   9.8538326  0.0000000  0.0000000  0.0000000 0.0000000
## 128 5.9682037  1.5922059  10.9976119  0.0000000  0.8980922  5.8435618 0.6559929
## 129 0.0000000  5.6212636  10.0761740  0.0000000  0.0000000  0.5051796 0.0000000
## 130 0.0000000  5.4745918  10.1680948  0.0000000  0.0000000  1.6181447 3.3951862
## 131 0.4403144  0.4403144  12.5124685  0.0000000  0.7771988  0.0000000 5.4419382
## 132 3.9413975  7.5185965   5.3893293  1.6673018  5.7691158  1.6673018 0.0000000
## 133 3.5841568  2.1806571   9.1456036  0.8360857  2.4111008  3.0806236 0.4777809
## 134 1.3242346  5.9130569   9.8561975  0.0000000  0.9278206  0.9278206 5.5273081
## 135 5.6676623  2.7010832   9.9261092  0.0000000  0.0000000  0.0000000 5.6676623
## 136 4.4277134  3.8332443  10.9331403  0.0000000  1.1906781  0.0000000 0.0000000
## 137 4.3894291  3.4795022  10.5547340  0.0000000  0.7657893  1.7870145 3.7284539
## 138 0.0000000  8.7199836   6.1314351  0.0000000  2.1554902  6.3508844 0.8982471
## 139 1.3192133  4.1495602   7.7925320  0.0000000  0.0000000  0.0000000 7.0956681
## 140 0.0000000  0.0000000  10.5737322  0.0000000  1.8151245  2.9480401 5.0766275
## 141 2.0774481  2.5437186   6.7452400  2.8152885  0.8521587  0.4881036 6.9563866
## 142 3.8328698  6.0863210   5.6078895  0.0000000  2.0489685  2.9307184 1.6285870
## 143 0.0000000 11.0381538   3.9473015  1.8174595  2.0860704  0.4443490 0.0000000
## 144 4.7131954  7.4128450  10.2666787  0.0000000  0.0000000  1.7016821 0.0000000
## 145 0.8990209  8.1559910   7.1434985  0.3654686  2.2471680  4.4622814 3.0866139
## 146 2.3877210  1.2696915   8.5649291  0.0000000  0.9565771  1.7449361 0.0000000
## 147 4.8006566  4.9796230  10.1855229  0.0000000  0.0000000  0.0000000 0.0000000
## 148 1.4857875  7.1195139   6.9122642  0.0000000  4.4200916  7.9206298 6.7203031
## 149 7.8354965  3.5136802   8.5073665  0.0000000  0.0000000  0.0000000 0.0000000
```

```
## 150 1.9121516  7.6959695   0.5465611  3.8893275  7.1632038  0.9420077 6.7219208
## 151 0.5912007  6.2179790   9.4337440  0.0000000  2.2625835  0.0000000 0.0000000
## 152 3.3989933  0.0000000  11.3035933  0.0000000  0.5010060  2.5806038 0.0000000
## 153 1.1058122  2.6728553  10.2850132  0.0000000  1.1058122  5.6373726 0.0000000
## 154 4.4418619  9.9374993   8.9746251  0.0000000 10.3384912  8.3699227 0.9685700
## 155 6.5473511  3.6975959   8.7414565  0.0000000  0.0000000  2.1820248 0.8610819
## 156 2.9022087  4.5494166   8.9312490  0.0000000  0.9973285  1.3186928 0.0000000
##        rs_CLGN    rs_MYOC   rs_GPR26   rs_VWDE  rs_ACTA1  rs_C4BPA   rs_MAOB
## 1    7.0122636  0.5144000  0.0000000 6.1722275 3.3819616 1.4402081  9.870020
## 2   10.3383450  0.7843365  0.0000000 5.4704816 2.7609448 1.8188915  9.315944
## 3    9.4177359  5.7063012  0.4497462 3.5370599 4.6729062 0.0000000  8.973005
## 4    6.5759537  1.7742494  1.5931625 5.9333578 3.1808798 0.8535167  6.911871
## 5    7.5393434  0.0000000  2.3109217 1.3700527 2.7955384 0.0000000 12.242841
## 6    5.7100763  0.6028369  2.0398403 6.4359769 2.9528367 4.2980864  8.797608
## 7    2.9176418  1.5500634  6.0732290 2.2799170 2.2799170 6.1613758  9.335834
## 8    3.5582431  0.7617108  1.9191112 6.8933901 2.1626612 0.7617108  6.464041
## 9    2.0416986  0.6035967  1.0279325 1.0279325 3.6948356 0.0000000  8.547031
## 10   7.3135814  2.6545272  5.5805284 0.4930324 3.8524683 0.0000000 10.748437
## 11   6.9863495  2.1195554  1.0026665 3.0635547 1.5885168 1.5885168  7.953645
## 12   0.0000000  1.6888070  1.3118518 1.9873936 1.0785415 0.8001648  8.083214
## 13   2.3656086  0.0000000  0.0000000 3.5941305 2.6032881 0.5474498  6.393583
## 14   5.1367779  2.3280897  3.1767855 4.3050074 6.4615842 6.5570960 13.142087
## 15   8.9019409  1.2804813  1.2804813 0.4407396 2.8936340 2.1931409 13.995780
## 16   6.1147252  0.0000000  0.0000000 0.0000000 0.9432837 0.0000000 11.583042
## 17  12.6486161  1.4180280  4.1811423 1.1726155 3.0191681 3.9273276 12.912990
## 18   6.6804017  1.8768803  3.6821912 6.2228857 5.7363343 0.0000000 10.031796
## 19   6.8884535  2.5536063  1.5877010 2.0537369 6.1825314 7.1725645 11.345617
## 20   8.1933213  0.0000000  0.8970080 4.2559539 7.8000651 0.0000000 12.421005
## 21  11.0002973  0.8537562  6.4689009 3.3043650 5.9528554 2.0802142 10.699565
## 22   2.9240619  0.0000000  0.0000000 4.4047124 4.1607831 4.1271793 11.951817
## 23   0.0000000  1.7460117  5.1445848 5.3748447 4.0477652 0.0000000  2.627490
## 24   9.1058844  0.0000000  0.4537546 3.7221818 5.9278491 2.3407901 11.745056
```

```
## 25   9.5777670  0.0000000  2.8969499 1.9641398 5.1232772 0.4031586 11.681773
## 26  10.5006940  0.6158871  0.0000000 1.2210728 1.6461627 1.8728288  7.109749
## 27   6.9752255  1.6563133  1.2837440 4.6456786 3.7983098 3.5558652 12.237673
## 28   4.5727624  0.0000000  0.8710551 1.8019864 2.3631991 0.5002922 12.565661
## 29   7.3551996  0.9291092 12.9600524 5.9012193 2.0048968 0.0000000  8.896458
## 30   8.2782826  5.4130727  1.6910874 7.7555666 3.4634394 6.1912488 11.056704
## 31   2.6241711  0.8437427  4.5143306 0.0000000 3.1613395 3.5999485  9.246333
## 32   9.5099139  0.4339209  2.2808376 1.4617381 1.9286546 0.4339209  9.562410
## 33   8.6472037  4.2529227  1.7989215 5.2282800 2.3925372 2.8118820 11.289209
## 34   9.0883775  1.2100771  1.2100771 6.4178677 7.2484096 2.6447562 12.977758
## 35  10.8097676  1.5005471  1.8324040 3.7872653 3.4435138 4.5434835  9.996460
## 36   4.6412397  3.6979183  5.7445567 6.1441524 0.0000000 2.1447317 10.219034
## 37   6.8356172  0.0000000  3.5022669 4.0441493 1.1962293 6.6377754 10.122927
## 38   6.0254364  0.0000000  0.0000000 4.7333055 4.3108999 0.3576083  5.981152
## 39  10.4861518  0.9088129  0.9088129 1.4620000 1.6751836 0.5247658  7.943970
## 40   7.0054988  2.3714752  1.1918784 5.9470489 2.3714752 0.4017397  7.533943
## 41   1.5684700  0.0000000  1.9814143 6.8742424 1.2082675 1.8564679  5.609888
## 42   6.1197753  2.2465297  1.6991962 0.8066128 1.6991962 5.9726605  7.350271
## 43   3.4340677  0.9196833  5.6578486 0.5318680 2.3255303 1.4767964  7.050070
## 44  10.1676092  0.7004397  0.3923174 2.9773715 3.4999479 1.6725159  9.059457
## 45   7.9018625  6.9540427  0.5733745 4.0963799 4.0116119 2.2940472  9.873509
## 46   7.8087396  0.0000000  3.1737831 5.5419887 7.5413530 2.4267478 12.372915
## 47   5.6166312  1.6397415  0.9312292 2.3015584 3.0971725 0.3810618 11.784225
## 48   7.6831406  0.6578229  3.5469809 4.0530244 6.1360499 6.2499478 10.890058
## 49   9.4600524  0.6503050  1.0969365 0.6503050 1.9438838 0.0000000 10.478161
## 50   7.0558865  3.4574236  3.4991188 2.6213838 7.4950755 1.8386291 10.414045
## 51   4.7874325  0.0000000  0.0000000 9.2496617 5.3548753 0.3971458  8.210966
## 52  10.5585864  3.2481705  1.7617533 0.8455904 3.6350578 2.8828778  9.525363
## 53   7.4423514  0.4093638  0.4093638 7.7030945 1.5698799 0.4093638  7.682502
## 54   8.1788167  1.6455172  5.9042770 1.2744704 4.6510058 1.2744704 14.750531
## 55  10.0116548  0.6747318  0.6747318 3.6585428 0.6747318 1.3166092  8.146438
## 56   2.3415019  0.4924172  0.0000000 5.8869744 7.7885396 1.1508846  6.363995
```

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## 57   8.8389997  3.9493949  9.9031190 5.3735055 1.6632535 5.3860211 11.283675
## 58   9.4385436  0.4008658  0.4008658 7.0127173 2.6147805 2.6147805 11.389367
## 59   5.1115655  0.0000000  0.0000000 7.0124189 6.6431534 0.0000000  7.605699
## 60   7.6127012  1.0557510  0.3444877 3.3840083 4.9000698 0.0000000  7.342375
## 61   7.9672735  1.9026911 10.0988747 6.8810320 0.3832757 0.3832757 12.484928
## 62  11.4208793  0.3748447  4.1388145 3.4709663 2.8541952 0.6721085  7.374804
## 63   9.4189099  1.2351143  8.2873476 1.8906412 2.8536763 2.5544415 11.058312
## 64   1.1642714  3.2133006  0.8698714 2.2398868 3.0060287 5.8500443 11.354411
## 65   2.1933302  0.0000000  0.6320820 7.0062015 1.2476238 0.0000000  4.685974
## 66   8.8073627  1.4029404 13.8827721 7.5220110 0.0000000 0.3494785  8.244579
## 67   6.7151988  2.8081791  1.5855875 6.9316913 3.2738739 6.9705811 11.546087
## 68   7.0336377  4.8883390  6.6911977 3.6085609 8.8370362 4.4894466 10.950992
## 69   8.4806073  2.6858953  2.2778658 5.4302719 4.4780787 5.3840809 11.243313
## 70   8.7958121  0.0000000  1.0240359 5.1338101 7.1241968 0.7562547  3.546080
## 71   6.6601000  2.1071187  1.6805944 2.6538167 5.0909974 0.5271704 12.154573
## 72   9.5361147  3.5901708  1.3352546 4.7286879 6.1588500 0.4655044 13.542833
## 73   4.2499990  1.9384364  1.3477790 3.7119354 7.2323634 0.0000000 10.392630
## 74   8.7443798  0.6614760  0.0000000 0.3683772 1.8551127 0.6614760  6.477881
## 75   6.8959715  6.1847960  1.8236271 6.4798449 2.9386057 6.8450923 12.979695
## 76   9.2529353  0.0000000 12.0091790 4.7367564 9.9476489 0.0000000  8.437515
## 77   2.9296206 10.5993618  2.8298496 1.6025044 1.3377111 3.7246503 12.736900
## 78   1.0028825  0.7392433  3.3271268 6.1418374 8.9295931 0.0000000  8.174016
## 79   2.2042033 11.5579028  2.4954905 0.5997939 0.0000000 2.9450458 11.816452
## 80   2.9828932  0.0000000  5.1508968 8.2030714 5.3651081 0.8579014 10.174763
## 81   4.9200026  8.0335640  2.5555708 4.5207617 1.3008266 2.6705911 11.860237
## 82   3.1831053  8.7461078  2.1992169 6.4088732 2.4568850 6.6980643 11.670499
## 83   8.3127155  1.2186572  2.1541295 3.5383519 1.6432559 3.7237005 12.845264
## 84   9.9494306  1.0316775  1.2050797 1.0316775 6.0840792 1.9531162 12.924316
## 85   2.5116198  0.6353365  1.5540485 6.6875465 6.9488928 0.3523066 12.306870
## 86  11.3719837  1.1025238  4.2225496 0.9395275 1.2490205 0.5448810  6.787301
## 87   5.3686741  5.6316573  7.3597654 3.3579883 4.5730351 0.0000000 10.941268
## 88   1.5787455  0.5818815  0.0000000 6.3216864 1.5787455 0.9953036  4.035615
```

```
## 89   9.2042796  5.4064074  0.4998841 7.4777097 6.5122032 2.4738648  6.661314
## 90  10.0616369  0.0000000  3.0166033 0.0000000 1.4715517 0.0000000  4.062217
## 91   9.0842004  0.7799741  2.8979955 3.2638157 5.7373758 0.0000000  9.349014
## 92   6.7355520  0.0000000  0.3774014 0.0000000 4.2435625 0.3774014  8.314174
## 93   6.8855561  0.4209405  0.0000000 7.2264170 3.6066436 0.0000000  4.270327
## 94   8.2980791  2.1500397  0.3634515 4.1623228 3.0291525 0.3634515  8.008132
## 95   9.4162129  0.0000000  0.8705028 3.4145685 2.0132836 0.0000000  7.245517
## 96   5.9300584  0.0000000  0.9121900 7.3628056 3.9993506 0.0000000  6.768669
## 97   6.4792581  0.0000000  6.3101456 5.9262035 3.9121708 0.0000000  9.745936
## 98   9.9385565  0.7579620  1.4476850 0.0000000 0.4281424 0.7579620  8.678694
## 99   9.8829416  0.0000000  8.8570467 0.0000000 6.4658406 0.0000000  6.730476
## 100  6.6614589  0.0000000  1.5681294 3.2253212 6.8997327 0.0000000  6.851444
## 101  9.8263770  0.0000000 10.7561214 0.0000000 1.2018847 0.3335382 12.495083
## 102  3.7004397  0.0000000  9.5239539 6.5759174 1.1375035 0.0000000 15.874871
## 103  8.7141115  0.0000000  4.4448791 0.0000000 1.2008182 0.0000000  5.887082
## 104 11.6164299  0.0000000  0.0000000 0.4716557 2.1636919 3.6991962  8.729535
## 105  0.7869309  0.0000000  4.9307704 0.0000000 1.5531147 0.0000000  4.748112
## 106  5.5813121  0.3923174  5.8074657 3.0875647 3.1899194 2.5850587 11.385301
## 107  9.1441264  0.4455148  0.4455148 0.4455148 2.6006028 0.4455148  7.792507
## 108  8.9407191  0.9034240 10.4807184 6.9065287 2.0676043 0.3675947  7.555816
## 109  4.7462106  1.8769196  4.5680139 4.9677635 1.4760706 1.8769196  9.559872
## 110  6.9744203  0.0000000  1.2207633 3.6218409 5.0846638 0.0000000  7.727318
## 111  5.1270843  0.7088494  3.7750927 4.0483844 0.3975839 0.3975839 10.339553
## 112 10.3435681  0.0000000  1.4147309 4.3918914 7.2498501 0.0000000  9.304852
## 113 10.0872660  0.0000000  2.0761144 2.8138120 3.5676063 0.0000000  4.824880
## 114  7.8576601  1.4135399  3.3197624 1.4135399 7.9184566 1.5833747 11.416681
## 115  3.4866500  0.6786128  2.8085086 6.8839775 5.9601665 0.0000000  4.499540
## 116  6.2737173  0.0000000  1.7157177 5.9164647 6.1332059 1.3961047 10.049504
## 117  9.6443351  0.5749250  4.6147452 4.6432905 0.3159140 0.3159140 12.342059
## 118  7.3074431  0.0000000  2.7271581 0.7000845 3.6138852 3.8193412 10.762726
## 119 10.7747740  0.4250295  0.0000000 3.4954010 7.0836219 2.1459709 10.499610
## 120  0.0000000  0.0000000  0.0000000 0.3405053 2.3197624 0.0000000  4.529327
```

```
## 121 10.0096954  0.9306995  2.0606354 6.0693821 7.7227399 0.9306995  9.975691
## 122  7.9740101  1.2589410  2.2724114 1.2589410 6.6376334 0.0000000 11.645183
## 123  7.2943809  1.0501882  0.0000000 7.5684168 5.5114364 2.8212204  7.770592
## 124 10.6366809  0.0000000  0.0000000 2.3159140 1.5041119 1.3394225  6.936852
## 125  6.0677957  0.6787029  0.2632748 5.8646492 2.0012978 0.2632748 12.882119
## 126  5.4181528  0.0000000  0.0000000 1.9828385 2.9539915 0.0000000  7.566419
## 127  8.8392378  1.0475384  0.4390380 2.1879261 3.8594428 1.0475384  9.104546
## 128  8.5703460  0.0000000  6.6932486 6.8309436 2.4869717 0.0000000  5.941421
## 129 11.1021695  0.0000000  0.8786861 0.8786861 0.5051796 0.5051796  9.418043
## 130  6.2543465  0.0000000  0.0000000 3.2769433 1.6181447 0.0000000  6.746651
## 131  8.5549311  0.0000000  0.7771988 7.8551775 6.7365886 0.0000000 13.570807
## 132 10.6525462  9.5169750  2.1641426 8.3415735 3.0702519 4.7139267 11.273428
## 133  5.1988202  0.0000000  4.6180683 3.0120501 5.6796265 0.0000000  7.958509
## 134 10.4924691  0.0000000  1.6348720 3.7039755 3.2814164 0.3793992  9.133620
## 135  9.9960177  0.0000000  2.4005379 2.1252874 2.9496843 1.9074676  8.735563
## 136  7.8887329  1.6497074  2.7132339 5.8330621 5.7779246 1.8339830  7.899106
## 137  5.6842633  0.0000000  4.6328208 4.2099991 7.5162736 0.7657893 12.131646
## 138  9.0675957  3.8323837  0.0000000 0.6561760 2.9302642 1.1054769  5.296289
## 139  9.9517341  0.3775125  0.0000000 4.6044924 4.3104201 0.6763577  4.787474
## 140  7.2251072  0.0000000  0.0000000 2.3780121 2.7818633 0.0000000  2.690998
## 141  7.0513993  0.0000000  1.7720968 4.1946229 0.4881036 2.6400424  8.934650
## 142  9.4282383  0.0000000  1.4559650 7.2209896 4.4993995 3.2277873  7.561765
## 143  5.7063289  0.7834986  2.3124328 7.8791194 1.6617040 0.0000000  8.223515
## 144  5.2458493  0.0000000  6.8788835 4.4110737 0.9268344 3.7671781  6.155549
## 145  4.1705500  0.0000000  1.1064153 6.1797161 2.9852089 0.0000000  9.870136
## 146  4.4393638  0.0000000  8.8749365 5.4683813 5.3896322 0.5562087  6.542133
## 147  8.5478203  1.6818990  0.4521737 2.7051596 3.5900750 2.4374941  6.221440
## 148  5.4468186  0.0000000  0.0000000 7.6673309 3.4065095 2.5365254 10.951716
## 149  7.8046067  0.0000000 11.4811575 1.3154503 1.0817487 0.0000000  5.139228
## 150  2.3633393  0.0000000  0.0000000 2.7065085 4.4414702 1.2521128  8.631796
## 151  8.9799702  5.1979558  1.0092755 5.9955456 2.4746437 2.7161569 11.514281
## 152  1.4117516  0.8720801  5.6435388 0.8720801 0.0000000 0.0000000 11.563132
```

```
## 153  7.8946110  0.4689482  1.5461166 6.9122079 3.1178945 0.0000000 11.029490
## 154  4.7632150  0.9685700  5.4822094 6.1597583 7.2826705 3.7138278 11.182076
## 155  6.3205262  0.6269530  7.9484835 4.1375773 6.9447823 0.0000000 11.112676
## 156  6.7428430  0.0000000  0.0000000 8.4082440 4.2428159 2.1657190  8.808393
##        rs_GPX2 rs_SLC15A1    rs_MUC2   rs_CALB2   rs_CHRM1  rs_PCDH10
## 1    4.0376019  0.0000000  2.9735194  5.3966630  7.9327061  1.8360857
## 2    4.3320706  0.7843365  0.0000000  7.7346866  2.5096958  5.6882195
## 3    7.0872443  0.7921057  0.4497462  7.4521984  2.9909912  1.8321204
## 4    4.6087442  0.0000000 16.8518069  4.5353438  5.2825251  0.4889263
## 5    3.8940319  0.4815056  0.0000000  5.5410997  3.4469046  3.2203454
## 6    1.3538878  6.7735019  0.0000000 10.5452129  7.9535446  2.6291701
## 7    4.7871242  0.0000000  0.0000000  9.4539848  5.0615559  0.0000000
## 8    1.4534912 10.6997243  0.7617108  8.6583018  8.8596320  2.8598106
## 9    2.0416986  4.5765282  0.0000000  8.3336035  7.5185454  0.0000000
## 10   3.2563616  0.8598106  3.3165947  6.1920442  0.4930324  1.1519887
## 11   3.7053366  5.0640335  5.1481084  5.6776210  4.8795882  3.9745844
## 12   1.0785415  0.4548076  0.0000000  6.0413941  5.0869281  0.0000000
## 13   2.0808623  0.9433588  0.0000000  7.3281022  4.6961107  0.0000000
## 14   5.0224255  0.0000000  0.0000000  7.4198869  3.7075579  3.2799318
## 15   2.5854914  0.4407396  1.8078083  5.7420979  4.9713458  1.2804813
## 16   1.2536263  0.5474498  0.0000000  4.5614422  2.4892089  4.4742738
## 17   9.0357047  1.4180280  1.1726155  4.5845597  3.7141026 12.0427631
## 18   4.1538297  0.4665488  0.8186052 10.2199867  0.4665488  6.6696193
## 19   3.9646666  0.3634515  0.0000000  5.0731390  3.8258161  1.1017173
## 20   4.9490399  4.2987170  0.6551686  4.3196324  7.6262931  1.9538240
## 21   9.0589058  4.5105822  2.8184211  7.5720150  2.3322496  6.4754578
## 22   0.4976379  1.4045762  0.0000000  9.1759986  6.5109255  1.1606621
## 23   2.2530514  0.0000000  1.2705887  7.2085748  4.8704584  0.0000000
## 24   4.6873071  1.3094673  0.0000000 10.7317441  5.8467816  1.6860298
## 25   2.5450788  2.1848198  3.3259476  3.3716007  3.6188142  0.0000000
## 26   9.8058367  0.0000000  0.0000000  6.4604608  3.4039357  2.4662878
## 27   4.2429073  0.4422269  0.0000000  5.4489967  6.1041374  3.2093910
```

```
## 28   6.9793543  1.1657512  3.6078274  5.0407653  6.0370132  5.1288543
## 29   2.6835617  0.0000000 12.4220144  3.9509443  1.7701525  1.7701525
## 30   6.3703596  1.3138263  0.8015726  5.9438135  4.6523660  1.8481973
## 31   9.3297643  0.4826418  1.9188823  6.0821874  5.4434243  4.2688311
## 32   3.1242123  1.4617381  0.0000000  6.0878341  1.0374525  8.0509941
## 33   5.7957644  0.4374408  1.0445340 10.8181534  5.1867897  4.1982898
## 34   5.4989114  0.5238630  0.0000000  4.2771516  3.4103682  9.3584954
## 35   1.5005471  3.2900705  5.8958770  7.8820726  7.2731177  0.7922723
## 36   4.2453435  3.0482187  0.0000000  6.5452966  7.9254838  0.5137939
## 37   5.1818658  0.8960781  4.9802036  5.2649717  4.8570404  4.1528811
## 38   0.6439485  0.0000000  0.0000000  7.5829135  4.4096761  1.4264795
## 39   8.1913781  0.0000000  1.6751836  5.1562105  8.1563107  1.8609231
## 40   2.0742657  7.5660807  0.0000000  7.9350943  6.0831091  4.3411176
## 41   0.0000000  1.7196216  2.7158934 10.1588361  9.7755680  1.2082675
## 42   5.4739914  6.5470580  1.6991962  6.6952018  8.6820929  1.3208312
## 43   1.6911768  6.9906180  4.4268149 11.8270207  8.4806662  1.4767964
## 44   3.8202811  1.6725159  8.3446856  7.3394055  3.4179605  3.7549944
## 45   3.2167187  1.7824924  0.0000000  8.2689728  2.5559143  9.8377925
## 46   4.1519887  0.7903550  3.9958463  6.6728553  3.5779605  1.8290783
## 47   0.6822137  0.0000000  0.0000000  8.2460270  1.1435240  5.7441557
## 48   7.1899570  3.3154213  0.3661403  7.9235367  6.6616114  2.3346255
## 49   2.6803244  0.3614315  0.0000000  6.9509594  0.0000000  2.7430410
## 50   2.7650255  0.4028313  0.0000000  7.0558865  2.4618428  3.3245802
## 51   1.1810389  5.7694756  0.3971458  5.6920114  5.7694756  3.7733951
## 52   4.7281817  0.8455904  0.6147570  5.4865953  5.1937875  0.8455904
## 53   5.1072736  0.4093638  0.4093638  4.2009516  1.4009204  1.2095158
## 54   6.6789649  4.5232859  1.9403923  5.9710722  4.5671256  6.1183203
## 55   2.7997090  2.0975097  0.6747318  5.1890338  6.3058921  2.7997090
## 56   2.3415019  6.7976901  1.1508846 12.5942473  6.7329502  1.6013162
## 57   4.6759570  1.4885664  1.8190550  7.5963903  7.2478070  5.1124041
## 58   5.8743052  0.0000000  0.4008658  4.4046988  5.3924067  0.7143115
## 59   0.6681191  7.0449580  1.6142387  8.2744192  5.9115502  2.4376272
```

```
## 60   5.5416449  1.0557510  1.6588284  3.7448500  4.7345471  7.5805375
## 61   3.9642600  0.3832757  0.0000000  6.5330602  2.0155689  3.7525452
## 62   4.6286045  0.6721085  0.0000000  5.7891711  2.3656925  7.7477278
## 63   2.8536763  0.0000000  0.0000000  4.5696916  3.0551262  2.9067367
## 64   3.5037812  1.6176276  0.0000000  7.5290307  2.4727737  1.6176276
## 65   1.7966393  3.9858920  0.3503841  6.4796412  0.3503841  1.4056657
## 66   0.8656813  0.3494785 14.6457184  5.1840660  0.0000000  5.9569116
## 67   7.0343775  1.5855875  0.0000000  7.7197755  6.0598419  1.2229282
## 68   5.9891685  0.0000000  1.1662013  6.3824701  3.7149049  2.7222256
## 69   6.3507783  1.3702201  0.5389354  6.3101838  4.7204043  2.7357821
## 70   5.2029153  0.4270698  1.0240359  4.0143553  2.6248495  9.2828672
## 71   2.9291661  0.9124199  2.1071187  9.1896492  4.1861360  1.6805944
## 72   3.9155113  0.0000000  0.0000000  5.7932560  1.3352546  2.9018227
## 73   1.1938979  6.7497836  0.5994130  8.2138586  4.0846596  2.3562847
## 74   1.6022193  0.3683772  4.4556494  5.3105328  1.2953116  2.4230403
## 75   8.8356494  0.7092024  0.3978030  8.0796117  6.3733837  2.4447731
## 76   3.1579007  0.0000000  5.8387426  3.7499633  0.4619476  0.0000000
## 77   6.6769979  1.3377111  0.5937840 12.3362446  2.7226409  1.6025044
## 78   0.0000000  9.0483427  0.4165155 11.2405974  8.3216684  3.0639861
## 79   6.7577767  2.2042033  0.5997939 11.7008017  0.0000000  2.7377084
## 80   1.9424207  4.9757265  0.0000000 11.9266469  5.9899814  3.1240138
## 81   6.8353228  1.9735745  2.1425115 11.4393849  4.2518857  1.9735745
## 82   5.3562882  1.4834160  0.0000000 11.0881400  7.8313864  2.4568850
## 83   7.7603647  1.2186572  0.6143800  4.4400286  2.5954559  6.7259865
## 84   2.8612209  0.3346827  0.3346827  5.8097077  2.8612209  3.7859376
## 85   2.1108643  6.9649542  0.0000000  9.2529695  2.3644043  2.1108643
## 86   4.5817309  0.0000000  0.0000000  2.1511769  0.5448810  2.9789095
## 87   1.2153058  0.4119685  1.4072440  6.2853893  4.8292864  4.7605989
## 88   1.5787455  0.0000000  1.3163196  2.3144645  0.9953036  0.9953036
## 89   2.3621051  3.2144979  0.0000000  5.6399933  1.9630672  0.8704239
## 90  11.2735474  0.3257318  0.0000000  1.5976504  0.5912964  1.1804662
## 91   2.4066999  2.6731720  4.8383720  5.6265676  6.4318770  1.9517370
```

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## 92   6.9426271  4.7234876  0.9237957  5.6364506  4.7873698  2.6049490
## 93   4.1922573  0.0000000  0.0000000  3.4364684  2.8949147  2.3408756
## 94   5.6103162  0.8949923  5.0231932  5.5932910  6.5868983  3.4252042
## 95   2.7052702  0.8705028  0.6343145  5.9673646  7.9928160  1.2512646
## 96   3.9993506  0.0000000  0.9121900  6.1430791  1.6802343  4.0385942
## 97   5.3912487  5.4905477  0.3774014  8.4237643  7.0077718  1.4824869
## 98   3.7108340  0.0000000  0.4281424  6.9259318  1.4476850  1.4476850
## 99   7.9124708  0.0000000  0.9659874  7.1794921  4.3267746  4.4153801
## 100  3.6206099  0.9873936  0.0000000  3.6771135  1.9810854  0.0000000
## 101  9.0016151  5.7424321  4.9977124  1.3564256  7.6933601  0.8320393
## 102  1.3785116  0.4854268  6.1497471  8.0821490  2.5360529  2.6322682
## 103  1.4947740  0.0000000  0.3330802  1.4947740  1.9475166  0.6035967
## 104  2.3934437  4.8884218  3.1267582  7.5015864  5.8151425  1.5527213
## 105  4.1044373  0.0000000  0.5691022  3.4157992  0.9761436  2.8166407
## 106  5.0390287  0.0000000  0.0000000  7.6712106  0.3923174  4.4758437
## 107  3.2755286  0.7854250  1.6648924  5.7501991  1.8207712  1.2911910
## 108  3.0949792  1.2933116  1.9641029  5.7575887  4.2906382  3.0949792
## 109  5.7312267  1.8769196  0.0000000  7.4155677  3.0998338  2.0420840
## 110  6.5871099  0.0000000  0.7357821 10.7713572  5.0560979 13.4150581
## 111  7.0272602  6.5636371  2.0609466  6.8241263  7.2450583  2.6765834
## 112  4.1425360  0.0000000  1.4147309  6.5907652  3.5643660  3.5126567
## 113  5.5863024  0.0000000  1.5900031  3.4128086  0.8513593  1.1416290
## 114  1.2210109  1.8727106  2.3199936  5.0709174  6.3610314  3.1677914
## 115  2.5371718  4.6451483  0.0000000  8.4509036  7.4624082  1.1382247
## 116  1.3961047  0.9848445  0.7248249  5.9319714  1.5647196  3.7791021
## 117  4.1807764  0.5749250  0.0000000  4.1007002  1.1531568  2.7814017
## 118  7.2073394  5.7064753  0.0000000  4.2086031  6.1615028  7.6366333
## 119  2.6179802  1.6114085  1.7647283  5.3843400  4.7009501  2.3536338
## 120  0.6156988  0.0000000  3.2096561  1.0459322  3.7841061  2.7773040
## 121  5.3530798  2.9628451  4.7935370  5.8936146  4.0361077  3.9957016
## 122  1.9208268  0.7626465  1.0320303  6.1285388  2.0477827  3.9979246
## 123  2.1919416  0.7771988  0.0000000  6.3325844  2.1919416  2.5842169
```

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## 124  6.9187178  0.0000000  2.3159140  3.9145837  8.5271704  0.9398284
## 125  3.7240718  1.5861162  1.0008654  4.9371372  0.8487982  4.8892009
## 126  3.7712729  0.0000000  0.0000000  4.6941336  0.0000000  1.6364506
## 127  3.7869518  1.0475384  0.0000000  0.0000000  2.3972006  1.4742024
## 128  4.6209148  0.3650206  1.4474205  5.6830732  0.8980922  2.1552635
## 129 10.8039455  6.9378858  1.1750455  4.1852798  2.1225402  5.3517873
## 130  4.3249330  3.0066930  1.4091465  3.9140191  7.8934805  0.8701871
## 131  1.6513617  0.0000000  2.1918469  0.4403144  1.0501186  9.0457062
## 132  6.7959370  1.6673018  2.1641426  4.5085744  6.6472555  3.4026403
## 133  6.9574770  1.5671073  1.1229377  7.3184795  5.0698482  1.5671073
## 134  4.6647445  2.9293176  2.0028825  6.2054101  3.8005686  2.8711931
## 135  4.0523811  0.3848235  1.5029925  4.5621264  1.3383388  4.3834693
## 136  5.6608887  0.5134907  0.5134907  6.3839444  2.6159812  1.1906781
## 137  6.3305907  0.4330663 14.8353692  8.3011569  5.1132588  7.6019735
## 138  4.3012803  5.4843380  6.0333701 10.6217948  9.2034464  0.3650206
## 139  1.6292400  3.0316775  0.0000000  6.7834422  4.4939483  1.8842462
## 140  5.7633186  0.0000000 14.0999867  1.8151245  9.1448402  4.4026608
## 141  3.8364291  3.7951851  0.0000000  9.5464689  2.2088918  0.0000000
## 142  2.6392785  4.9372314  2.6392785  6.3246288  3.9017937  0.0000000
## 143  1.9579889  3.9473015  0.0000000 10.1083627 10.0501714  1.8174595
## 144  4.9205744  0.0000000  2.7776196  5.3290518  2.8694174  1.8888114
## 145  1.1064153  5.1766659  0.3654686  5.4952123  4.0995477  4.1472660
## 146  3.1693157  0.0000000  5.2539515  7.8191278  1.9344033  6.0216996
## 147  0.7959331  0.4521737  1.3058538  6.2214402  5.8033536  2.4374941
## 148  2.3789832  0.6782522  2.3789832  5.1624477  3.0361340  2.3789832
## 149  5.3248358  0.4564908  6.5723713  2.7187452  4.2935029  1.5165195
## 150  0.9420077  3.9763453  0.0000000  1.2521128  9.5630290  1.2521128
## 151  4.7727619  0.3256167  0.0000000  6.4571362  5.1369665  2.7707022
## 152  5.9354220  0.0000000  1.6209617  3.7938959  8.2462779  1.6209617
## 153 10.3837017  3.2402227  4.2517872  8.8332468  5.3419253  2.4876664
## 154  3.4863668  8.3947465  0.0000000  9.2135016  6.7908880  1.1864372
## 155  2.9641398  2.3454532  0.0000000  6.6564606  1.3966527  2.5603726
```

```
## 156  2.6958825  0.5831339  0.0000000  5.6812047  2.8027309  3.1651241
##      rs_CTNND2  rs_CECR2 rs_SPINK8    rs_LY6K    rs_PEG3    rs_CST2 rs_SERHL2
## 1    9.0038571 4.6433136 3.3214231  7.8196165  8.1972855  7.5263560  7.152578
## 2    8.0059456 1.2895984 4.0469799  3.9491707  8.3141518  2.5096958  7.557201
## 3    8.8797373 5.7559745 0.0000000  6.9445832 12.2334053  3.9322596  8.867722
## 4    8.8279917 1.3860936 0.0000000  2.8179097  5.4095539  7.8936832  8.904353
## 5    9.7056215 5.1960444 4.5596876  3.5961599 11.6495081  6.0949412  8.541931
## 6    4.6356906 3.4402612 4.1372986  8.1268438 10.2780409  1.0266584  6.170049
## 7    4.5464562 1.3463045 0.0000000 10.2297424  5.9523732  4.7253649  4.987375
## 8    7.7588621 4.0572856 0.0000000  9.4503873 13.1643894  2.0460020  4.332443
## 9    1.0279325 2.3663642 0.0000000  4.6076085 10.3049549  3.8587966  4.587173
## 10   9.7020710 0.8598106 1.1519887  4.4978039  7.8553195  4.4448128  6.162317
## 11   8.0033993 6.8465560 6.5495629  7.5262167  7.0947027  5.0926049 12.465307
## 12   5.1333704 2.6297063 1.0785415  3.0076082  6.5888001  7.0904872  7.260369
## 13   2.0808623 2.6032881 0.0000000  2.0808623 14.1470183  1.9142201  3.354791
## 14   7.0844736 2.1214133 4.4447664  8.2977091  6.8985022  7.0038923  8.538504
## 15   4.6811063 0.7778720 4.3929287  4.9040746  6.6326986  2.1931409  7.767620
## 16   7.0749506 0.5474498 4.6959493  1.5088850  5.5544200  7.1934002  9.587804
## 17   8.6522635 6.3371669 3.1607750  5.1578118 12.5880861  4.9971343  8.106863
## 18   9.6646512 7.2498501 0.0000000  5.3741179  8.3897823  5.6291176  7.821069
## 19   4.2945693 1.7190520 2.1500072  2.9775913  7.4502858  5.5230852  8.038702
## 20   7.9298561 7.8093366 2.9279154  3.3901311  8.4169799  3.6098140  7.762541
## 21   3.1813888 8.9907243 6.4084928  2.9747312  7.5608647  3.7985586  7.441200
## 22   0.4976379 2.2347466 0.0000000  1.7954345  0.4976379  0.0000000  4.757130
## 23   1.9355352 1.2705887 4.1276580 10.3522422  7.0327621  3.5643660 10.413294
## 24   7.3279990 0.4537546 0.4537546  9.0170723 12.1811687  3.6812019  3.883709
## 25   5.4234168 2.2836551 3.2300493  7.2861992  6.6984060  6.1878608 10.218377
## 26   9.7136927 7.3871936 2.0686708  5.2881112  5.9657312  4.3149502  7.675642
## 27  11.1303610 1.9521099 3.1523457  5.9702325  8.1220168  8.0806971  8.523174
## 28   7.9640792 1.4103411 6.6507918  8.1628742  4.9662043  0.8710551  7.793385
## 29   7.7858729 8.0547014 0.0000000  2.2067370  9.9515126  3.4913529 10.311321
## 30   8.6531944 5.6124764 2.4483988  7.2498501 11.4066240  3.0105292  7.115229
```

```
## 31   9.2032222 4.1767456 0.0000000  7.9847363 13.9461703  4.9071406  8.515438
## 32   9.5597293 1.0374525 3.4362418  4.7341135  6.2483944  6.0114241 10.798458
## 33   5.5231730 6.5892946 6.8507157  4.3311749  8.3960464  5.1148709  8.611495
## 34   9.8780777 5.4989114 4.6734660  5.0617460 11.1279638  7.5339192  8.346964
## 35   1.0688084 6.7429561 7.3398073  8.0547964  6.8137838  3.4912374  8.519164
## 36   4.6412397 2.3998820 2.7138937  6.1177345  7.6341278  3.4380932  5.883589
## 37   8.4534682 0.8960781 3.5022669  3.5022669  7.7848926  5.9966102  5.723624
## 38   3.0555427 5.1192358 4.7930843  8.8823716  4.8783428  2.9544569  7.669027
## 39   8.8845717 2.0254187 0.0000000 10.5813481  6.2974611  4.9869069  8.827464
## 40   3.9496190 4.0083704 0.0000000  8.6328273  5.1838835  4.5132949  4.459346
## 41   5.5706451 2.2029192 2.3948982 10.8310994  5.3566016  1.5684700  5.612016
## 42   6.3819426 7.8816310 7.4525263  5.2509275  5.1781768  5.6129628  9.878535
## 43   5.2480794 2.5617172 3.1008263  4.3965979  4.9271806  1.6911768  8.416944
## 44   7.5822542 4.1849785 0.0000000  5.2901295 12.9239827  5.5906978  8.597862
## 45   8.1275946 5.5805103 3.0566876  4.5812307  7.4611307  6.0845299  8.089276
## 46   7.2234737 1.8290783 0.7903550  5.5644026  8.7281685  5.4843863  7.299696
## 47   6.6329472 2.6873743 3.1956626  3.2424958 10.4214391  4.3032255  9.085438
## 48   7.7191869 6.5592685 3.5469809 10.3023986  8.4425753  5.8628605  7.118397
## 49   2.1430342 6.4983737 2.5460919  2.5460919  6.2222965 11.0067909  7.333161
## 50   3.8283879 3.1259982 0.0000000  6.5509176  7.0896782  5.9512731  5.021657
## 51   9.1534028 0.9639180 0.0000000  5.3988771  4.2763254  1.6861643  4.594304
## 52   5.6709225 1.6440408 2.9832217  1.5158638  6.3061948  2.5315936  9.466399
## 53   9.7510511 7.1901891 7.7456253  1.7211539  7.2849999  4.8525832  6.791235
## 54   8.2925512 7.9701410 5.4453327  9.9373918 11.2424768  2.1851371  5.483696
## 55   7.5587062 7.5217323 0.3765127  3.4773017  7.5554396  8.2658396  4.887462
## 56   8.9674949 0.0000000 0.0000000  9.8001903 11.8420325  0.0000000  5.776099
## 57   5.1569022 3.6085254 4.5481407  6.3749612  8.9688617  5.2000688  6.937717
## 58   8.4022054 2.3685728 0.0000000  5.9131671  9.8801195  7.2128922  6.848022
## 59   5.4593234 7.1017394 0.0000000  9.0122650  3.5724532  0.0000000  3.976327
## 60   9.3754856 8.0397613 3.3074722  7.7254678  4.8604365  0.0000000  8.982614
## 61   9.3310961 6.8773025 3.1559111  2.8251547 12.3155755  6.9607422  9.174631
## 62  10.3580747 5.2286571 1.1288873  3.3076325  6.2292264  4.2099290  4.769142
```

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## 63   7.7658046 6.2064361 3.7790075  8.6551346  6.0516048  6.2936850  4.775124
## 64   4.7583778 6.0343654 1.4086575  0.8698714  6.5738835  5.3909393  6.320712
## 65   1.5480913 8.7714360 0.0000000  1.7966393  5.2709475  4.1952216  4.139830
## 66  10.3540788 3.6131426 0.0000000  4.7713785 15.3810439  4.3154648  9.309175
## 67   8.2599174 2.5032978 2.0007212  7.6205659 10.2264500  0.4153260  6.755618
## 68  10.4659925 6.1620630 0.6978628  4.2974189 10.7022797  0.3907777  6.172428
## 69   7.7797194 3.1941186 1.8035990  6.1765522  8.4229390  6.1765522  7.044206
## 70   8.8311660 2.1523457 0.4270698  3.5028907  5.4840511  1.6169693  2.367008
## 71   5.7051181 2.1071187 1.4669664  4.3035762  7.0713937  5.4378503  5.586765
## 72   6.4056112 0.8168864 7.4794262  8.1762784  4.7078174  6.1277591  6.148432
## 73   5.4255231 3.4984168 0.0000000  3.1672776  7.1481166  1.8380643  3.320918
## 74   2.5716040 1.2953116 0.0000000  1.6022193  6.8564604  9.0091358  8.907483
## 75   6.8330912 3.2100771 5.0332468  7.9760984  9.7722700  0.3978030  9.829662
## 76   9.4140431 0.0000000 0.0000000  9.9889546  3.6666657  2.4669403  4.967611
## 77   3.7246503 3.0229537 0.0000000  6.9917815  8.3429480  0.0000000  3.911979
## 78   8.4747293 2.6678467 4.9284224 10.7489304  6.2887664  3.8127241  6.128372
## 79   3.8989339 6.0767045 0.0000000  7.4741448  7.9202760  0.0000000  2.993475
## 80   8.4050180 3.0551783 1.5998414  9.7132626 10.9754310  2.8264366  5.703713
## 81   6.2870271 4.0112094 3.6678467  6.8041685  8.9464189  3.6678467  6.320353
## 82   6.0565619 3.8991853 1.2308793  6.0070587  9.5814162  0.5350576  6.686978
## 83   5.0611930 1.8697135 5.3417723  6.3616227  8.2842393  6.8573043  7.634359
## 84   6.9899303 6.6204251 0.6061579  8.0903268  7.2545289  4.5192966  8.392900
## 85   3.3792467 2.7076352 0.0000000  7.8749709  7.9761946  1.2528395  4.592343
## 86  10.7832916 8.6896004 0.2980717  1.7201033 13.9452090 10.4726070  6.741257
## 87   8.5912089 4.3804663 3.6130601  8.6326397 10.0839125  3.5329403  7.654771
## 88   8.0378121 5.8977003 0.0000000  3.3135216  4.6914504  5.2003592  3.756874
## 89   3.9145741 6.4245006 3.0796682  5.5017894  9.9769994  4.1682409  5.241219
## 90  10.5923675 8.3852343 2.1019862  4.0401735  4.4525559  0.5912964  7.718833
## 91   2.4066999 4.0683527 5.4835998  6.5580135  5.0715997  1.4817123  5.215119
## 92   5.9750317 5.9681576 5.3282118  3.2285417  7.0077718  4.0224743 10.299562
## 93   9.3507781 9.8120563 4.0811265  4.0811265  6.8427564  4.5251042  3.194702
## 94   8.5102115 2.3252425 1.5877010  7.6653764  6.9258155  3.2187037  9.617249
```

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## 95   8.8064423 1.2512646 3.5567482  2.7650891  7.1225371  6.4314959  6.240999
## 96   8.7260315 3.4779622 0.0000000  1.2159270  5.5208119  4.9328502  7.440892
## 97   6.1553263 7.5213280 0.0000000  9.7782304  3.8832298  0.0000000  4.414339
## 98   9.4137639 7.0514994 4.9409513  3.5066908  6.2058656  5.6850767 11.321526
## 99   8.1808406 7.2684147 5.3136159  6.0053977  5.8020122  4.3717610  6.701122
## 100  5.6894417 4.9062845 0.5765705  5.7953410  2.8232398  0.5765705  6.626518
## 101  7.7149509 8.7958221 7.0367132  8.6361863 12.3770458  2.2144668 10.513377
## 102  8.3724298 1.1375035 0.8479969  3.2927817 12.8528143  5.6836965  5.317449
## 103  2.3661963 8.0207094 1.0278618  2.9056397  7.1126188  7.1866125 11.129350
## 104  5.5192053 7.6889937 6.4276347  5.8638592  5.1929674  3.7415209  4.376693
## 105  9.5731365 7.8163341 0.9761436  1.4290535  6.1906563  5.4765631  4.259830
## 106 10.1278651 7.0022232 0.3923174  2.0444641 11.2378585  5.5623523  5.339626
## 107  2.5118728 1.9614381 1.8207712  1.8207712  6.6716628  3.3284487  9.216028
## 108 10.2622486 6.1245432 0.3675947  7.8721953  5.7420305  3.4026676  9.359616
## 109  3.4330396 4.7220616 1.2243490  5.3763946  7.2690939  2.4475263  4.668732
## 110  9.4414463 7.4093510 6.6167561  7.1968096  6.4164648  5.9199979  3.746152
## 111  8.6476869 6.5441500 5.3112706  8.7124049  4.6394927  3.5197306  9.362219
## 112 10.5335281 5.3124437 0.0000000  3.1561053  7.6642361  5.1694881  5.860541
## 113  8.6051824 6.3038830 5.6684397  7.4117677  5.0074691  1.3831651  5.437098
## 114  8.2675110 4.0274903 4.9825647  1.2210109  8.3935243  6.9244075  9.445958
## 115  2.6791986 1.1382247 7.5982744  4.7127883  5.7245521  5.1388104  8.702039
## 116  5.4296762 2.2976023 1.9772066  6.9660255  7.2735215  4.5356300  8.682937
## 117  9.4962047 2.0643310 1.5648171  1.6795139 11.5431413  6.6459207 10.268974
## 118  8.5024301 7.3849667 6.4042509  7.0325285  6.5363265  2.7271581 10.281674
## 119  9.3179096 2.1459709 1.9033083  3.3085065  5.9750523  4.3352188  6.584919
## 120  1.0459322 0.3405053 2.8322622  1.3768460  4.8102477 11.8821676  7.002671
## 121  9.5843079 8.1848079 6.2520068  4.4490859  7.7001283  1.2383589  3.603525
## 122  8.4045174 6.7952423 2.9938736  8.5630498  8.9140320  6.7162008  7.220153
## 123  9.4211646 8.2996174 1.8066953  8.0982616  5.6816095  5.7972387  8.922852
## 124  7.5918529 7.6545623 6.1454492  3.0072134  6.9878086  4.2053299 14.291641
## 125  7.6105325 7.1144201 0.8487982  2.8494789  6.8047377  3.2031855  9.629505
## 126  9.6199032 9.8196489 4.8071333  2.8732423  4.1108226  2.2619219  4.739265
```

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## 127  8.5635590 7.6854819 1.0475384  5.5939961  4.6746810  3.7492983  5.007290
## 128  8.1245639 5.6253494 1.9555732  4.9378622  6.0713637  4.7344766  8.416785
## 129  6.6188964 1.1750455 7.4479354  9.4224582  6.7524302  5.2912757 10.960419
## 130  1.9626231 5.3483457 9.0442807  3.3372687  7.9063326  4.3249330 15.036864
## 131  7.9581478 0.0000000 0.0000000  3.4585001  3.3616420  6.2604059  9.187878
## 132  9.5880460 6.0411444 1.8525982  3.4026403 12.6639724  2.7351322  8.483189
## 133  6.3963513 3.5841568 6.8633178  3.6756579  7.7942449  4.6180683 12.090377
## 134  7.9591720 4.2741573 4.7316069  7.2161774  8.1369568  3.1408932  7.469242
## 135  3.4306733 7.0920446 0.3848235  2.7673582  7.2550456  4.7376976  7.647383
## 136  7.7637555 1.6497074 0.5134907  8.1905660  5.7779246  5.6608887  4.655260
## 137  9.6874271 5.6034483 0.0000000  8.4843915  7.9824107  6.9852761  6.318489
## 138  4.8687707 5.9213078 0.8982471  3.9173172  2.8169273  2.9837689  6.287153
## 139  8.0437300 1.3192133 3.5566011  2.6742799  4.0488813  2.6050439  7.072743
## 140  8.8009135 6.6867120 0.8793921  2.5940230  3.5909014  4.0472941  2.781863
## 141  7.3365333 1.3842156 0.0000000  7.2322377  5.1382820  3.5194161  5.720473
## 142  4.7253867 6.8760073 1.7827021  3.0569650 10.1673774  1.6285870  3.914191
## 143  7.7831744 1.6617040 0.0000000  7.6599552  9.8415046  4.2774864  3.245830
## 144  6.5517267 7.0844364 0.0000000  2.5743680 12.0771104  4.1795907  4.887793
## 145  1.9570602 2.2471680 0.3654686  7.2180178  3.7198844  0.3654686  4.696033
## 146  9.9133553 5.8675209 0.0000000  5.1621738  6.3966887  6.9893468  4.743127
## 147  4.4090379 5.9306948 0.0000000  8.2068654  7.8744152  4.6815505  6.818881
## 148  0.0000000 1.1378314 0.0000000  8.3070929  3.4065095  2.3789832  4.682343
## 149  6.1108643 0.8027309 0.0000000  6.3794737  6.1567445  9.1968182  7.067060
## 150  6.5049445 0.5465611 1.7238206 11.7911904  3.7967327  2.7065085  9.267062
## 151  8.2046083 2.4073528 3.9242139  3.9480868  8.0999463  5.8886069 10.678196
## 152  9.4150970 7.1555266 6.1103298  9.7397582  5.2617000  5.1648466 10.203901
## 153  4.8974631 8.2697495 5.0220570  2.2751859  5.8898799  2.9842430 13.469443
## 154 11.1392607 3.7138278 0.0000000 10.3683898  6.7905961  4.7461676  5.521010
## 155  9.2738965 6.4383910 0.3472121  9.4306058 12.4345320  4.7025135  5.284888
## 156  5.8650577 5.2615271 0.5831339  6.6741329 10.5392591  4.9947698  5.342398
##       rs_SEZ6L  rs_TNNI3    rs_EREG rs_ADAMTS15   rs_PAX2  rs_B3GNT3
## 1    3.6999180 3.4400619  2.2796496   7.7723410 4.7845563  3.6015182
```

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## 2    2.7609448 0.7843365  1.8188915   6.5792707 2.5983890  3.7310963
## 3    1.6757256 4.7533746  0.7921057   6.1544779 5.0841408  4.7533746
## 4    4.3191265 1.1442422  0.8535167   8.1071396 0.4889263  5.9709618
## 5    2.1908677 5.7989603  2.5246655   7.1662203 4.6073658  3.9319761
## 6    1.3538878 0.0000000  3.4402612   2.8528179 1.3538878 11.3932814
## 7    1.1090262 0.0000000  3.5125556   3.4116025 0.0000000  5.6207829
## 8    0.0000000 0.0000000  3.5150185   2.7145313 1.9191112  6.4353436
## 9    0.0000000 0.0000000  0.0000000   1.3553546 1.6220870  8.3703082
## 10   1.6026944 0.0000000  0.8598106   4.9983535 0.4930324  2.9104641
## 11   0.7390704 0.0000000  3.0046452   8.3584301 7.6682383  6.7422151
## 12   1.5125809 3.4109923  3.8422950   6.7314983 5.4833676  5.1025742
## 13   0.9433588 0.0000000  3.1450089   3.1450089 0.0000000  4.3163123
## 14   3.1767855 6.5364120  3.4664444   7.1742426 2.5088596  4.7975163
## 15   7.8411945 0.7778720  0.7778720   5.8709984 8.8380454  5.0512503
## 16   2.0807600 5.5160877  0.0000000   7.3237871 5.2271211  3.0675527
## 17   1.8108132 6.7552001  1.1726155   6.2605696 6.7098269  5.3768391
## 18   3.5937004 0.4665488  0.0000000   6.6423073 6.5453769  3.1728555
## 19   3.3048469 6.4327123  8.8810466   6.0945296 2.4054206  8.1252487
## 20   0.3644604 6.6460503  2.0570690   9.6613094 6.8787670  8.4893856
## 21   1.3864799 0.0000000  1.7746711   8.5324989 4.4318369  3.4711614
## 22   0.0000000 7.0350553  3.2074556   3.4978039 0.8668684  9.1780515
## 23   7.8503881 0.0000000  2.7334411   6.2454120 2.1030276  1.2705887
## 24   0.4537546 0.4537546  5.6590312   4.1994368 0.0000000  4.5799223
## 25   1.8397178 0.7179122 10.6830612   8.9964828 4.4353086  7.3979809
## 26   0.8469546 0.6158871  3.6067265   8.3097105 6.9511670  2.8855548
## 27   3.0929347 0.4422269  1.6563133   6.5857167 0.4422269  6.3774309
## 28   0.8710551 1.1657512  1.4103411   5.8732374 5.3648280  3.7479459
## 29   4.4458326 0.6805044  2.0048968   9.2362809 6.7220684  3.7715687
## 30   4.7149269 0.4557546  9.1608181   9.6560592 3.1974094  5.3487671
## 31   1.1322478 0.0000000  3.7776406   8.3645440 1.1322478  5.1525039
## 32   2.6468999 0.4339209  2.8710156   6.6329312 0.4339209  5.5854884
## 33   4.9917849 0.0000000  2.0662959   7.8152520 5.0391823  5.7490166
```

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## 34   3.2201287 1.2100771  0.9074291   8.7067122 3.2863785  4.5167338
## 35   1.0688084 2.9233774  2.6978850   6.7130785 5.3404555  3.7485149
## 36   1.1911204 1.1911204  1.6502131   5.4937594 1.1911204  7.8310773
## 37   3.5022669 5.6705968  8.6973836   8.7196517 1.1962293  6.2704280
## 38   5.6504515 4.2903064  2.9011276   8.7301349 0.0000000  8.2370632
## 39   0.9088129 0.0000000  3.4712785   6.8897023 0.0000000  8.2466052
## 40   2.2790552 0.0000000  2.3714752   4.9021556 0.4017397  8.8063640
## 41   0.0000000 4.8173521  0.4088205   0.4088205 3.7140257  7.4320182
## 42   0.4589069 5.1930226  6.7763106   7.8468474 6.0723845  9.7936496
## 43   0.5318680 6.5776750  0.0000000   1.2249664 0.0000000  8.5267379
## 44   0.3923174 2.4263453  5.2668952   9.5736415 6.0981437  7.0842556
## 45   6.1847226 6.1051333  1.9739051   8.5945258 5.6936682  5.9768562
## 46   1.9700438 5.7222392 10.0113577   8.5557690 2.4267478  7.4267562
## 47   4.3467442 2.1128002  3.2424958   7.5944082 2.8773909  2.5451776
## 48   6.6325038 2.1591448  2.8787646   6.7648583 4.0530244  6.7951942
## 49   9.0994827 0.0000000  1.0969365   7.2087201 4.9089714  2.3981041
## 50   4.7423835 3.2287110  7.3402382   9.0884199 3.8283879  7.7961947
## 51   0.0000000 0.9639180  1.9454953   4.1532703 0.0000000  9.6531720
## 52   2.5964104 0.0000000  1.7617533   5.5936555 4.7568152  2.9832217
## 53   1.2095158 0.4093638  1.9830209   8.5636100 5.0369165  6.3351670
## 54   9.3666662 2.8847542  2.9524454   9.4698764 3.0170845  4.9281666
## 55   5.8787597 0.0000000  0.6747318   9.1239840 2.5286713  4.8592838
## 56   0.0000000 0.0000000  9.4154359   5.3092235 0.0000000  8.9173903
## 57   2.7611576 0.0000000  2.9750982   8.0122563 5.8597634  8.2309624
## 58   3.7194792 3.4502611  7.3914034   8.5201896 2.1775033  5.5287901
## 59   0.3723950 0.3723950  4.8858818   3.3404768 0.3723950  7.9683195
## 60   1.3885753 0.0000000  1.8863941  10.0441449 3.6550426  6.9158698
## 61  10.5009128 0.0000000  1.1488690   9.3540900 5.9999842  2.4764335
## 62   4.2777096 0.0000000  1.1288873   6.2208136 6.8851106  1.3124328
## 63  12.2627234 5.3603116  1.2351143   8.9400187 3.5312192  3.6604267
## 64   2.1076544 0.0000000  4.5448377  10.4772454 4.2941134  4.0636755
## 65   0.6320820 0.0000000  2.1039004   5.3909221 0.0000000  4.3969335
```

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## 66   0.6304987 0.3494785  0.8656813   8.9508994 5.4782147  4.3927914
## 67   3.7013273 0.0000000  6.8547836   7.4272215 3.7013273  5.7197612
## 68   3.1336128 4.7282580  3.6803244   9.0019137 1.5191896  4.5288651
## 69   5.3363619 0.5389354  4.7929074   8.1350310 4.4334202  6.6068479
## 70   2.9157886 5.4389282  1.9093507   4.9205982 4.0143553  4.5481592
## 71   4.7083749 2.2477453  1.4669664   7.6161217 4.9123337  8.7384767
## 72   1.7158055 3.7619873  3.6786353   9.2578491 1.3352546  5.0929770
## 73   1.9384364 0.0000000  3.1253205   6.5931252 0.0000000  6.1868907
## 74   4.1117408 5.6650004  0.0000000  10.6565564 0.3683772  1.7341785
## 75   1.8236271 1.1825652  5.1279758   8.5844255 2.5265446  7.4768912
## 76   1.0923428 1.7068178  3.9393206  10.5184552 0.0000000  3.2176495
## 77   0.5937840 0.0000000  1.8261112   9.1695425 0.0000000  4.1946859
## 78   0.4165155 0.0000000  3.5077693   3.1750615 2.6678467  5.0930742
## 79   3.1263121 0.0000000  2.8451086   8.6894938 0.0000000  3.4321310
## 80   0.0000000 5.1175247  2.4511188   6.9456861 1.5998414  6.4516035
## 81   4.2883659 0.0000000  5.8232500   9.2684896 2.8763107  4.9200026
## 82   1.4834160 0.0000000  6.1138109   8.5317963 1.4834160  8.3551224
## 83   4.4920134 1.2186572  1.9708905   8.3601079 5.6316805  2.3916028
## 84   3.5808811 2.4432353  1.3598585   7.7169875 2.3722556  4.0812459
## 85   0.0000000 0.0000000  1.5540485   7.2244619 0.0000000  7.1364344
## 86   3.0605317 0.5448810  1.2490205   9.4296549 0.2980717  0.2980717
## 87   4.3573901 5.1308609  4.1846294   9.6546774 3.8628679  8.8476296
## 88   0.9953036 0.0000000  0.0000000   9.1173740 7.4785448  5.1406642
## 89   2.9309076 0.4998841  0.8704239   6.1494728 6.7964459  0.8704239
## 90   1.0094905 5.0844980  0.3257318   9.9836523 7.2691444  1.1804662
## 91   1.0535979 6.6224326  9.9220857   9.1347677 2.0796341  8.1271922
## 92   1.1350094 1.4824869  9.6287552   8.7988865 3.5927082  7.4613910
## 93   0.4209405 3.3432230  0.7464848   9.5373318 0.4209405  4.9136171
## 94   1.2825584 0.0000000  2.5536308   8.0461625 5.3310961  5.4493435
## 95   1.0734090 0.6343145  3.2145600   6.4769211 4.0165944  2.8225262
## 96   2.1787784 1.2159270  3.5878570   8.4774280 7.3433501  2.4355486
## 97   0.0000000 0.3774014  3.9683765   4.7557796 1.1350094  7.6320384
```

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## 98   2.3635916 3.2688236  1.0261627  11.5971668 6.3180221  1.9123816
## 99   4.1313425 3.5996272  3.5613017   3.7088494 5.9094995  6.4554292
## 100  2.6790634 7.5484921  0.5765705   9.4884732 2.1502997  3.6771135
## 101  0.3335382 4.8752149  1.0287813  11.0449634 8.5745334  7.2464584
## 102  3.1043367 0.8479969  1.5849625   6.8404632 6.1659119  6.7944159
## 103  2.0415584 0.6035967  0.6035967   7.8814517 9.1431679  0.3330802
## 104  5.5313191 0.0000000  3.9363270   8.0797744 4.8307725  5.3379608
## 105  0.7869309 0.5691022  0.0000000  10.5636859 4.8239735  4.9978118
## 106  6.2361252 2.9189586  1.1699891   7.5098874 1.5236121  3.9426177
## 107  3.9849903 7.2773590  1.4901080   9.1171205 1.4901080  1.6648924
## 108  6.7597298 3.3625400  1.4547023   7.3633122 4.7298246  3.2787431
## 109  2.5607883 0.5315686  2.8553519   7.4996506 1.4760706  6.1843378
## 110  2.4127002 2.2201132  6.7915588   5.0269549 5.7250922  6.7915588
## 111  6.4993197 5.2036045  6.5243975   7.9119773 4.2780591  4.9459026
## 112  1.9693071 6.7499807  2.1151331   9.1032750 5.8699207  5.0293115
## 113  1.1416290 3.4128086  3.7511209   8.5396625 3.2995377  5.4863250
## 114  2.8723954 5.1541700  1.4135399   8.7613687 5.0851314  4.2953998
## 115  0.0000000 0.0000000  1.1382247   2.8085086 2.3795932  6.4208697
## 116  1.8523984 1.7157177  0.4075159   5.3511053 1.3961047  0.9848445
## 117  8.8908242 6.5883609  0.3159140  10.3360094 6.7381301  3.6444908
## 118  3.5383395 0.0000000  4.4337674   6.7184959 5.0380454  6.8176885
## 119  1.7647283 2.6179802  3.1504947   9.4253269 2.2535355  5.9377234
## 120  6.2790422 0.3405053  0.0000000   7.9022063 6.8840447  1.0459322
## 121  2.5811343 4.7697717  2.3442320   9.2385984 5.9790010  4.2573275
## 122  3.5171623 6.3355922  1.2589410   8.8565678 5.7155859  5.4881968
## 123  3.6347559 5.7879496  1.4774701   8.2698976 2.1919416  4.9196928
## 124  2.1266425 4.5259811  2.0217995   9.8443505 1.3394225  4.8197755
## 125  0.2632748 0.0000000  3.4075567   8.4782713 3.5125430  7.2208890
## 126 10.4979639 0.0000000  0.5077185   9.0065777 1.1797658  1.9828385
## 127  5.4836546 2.6632991  0.0000000   7.4504937 1.4742024  4.2037415
## 128  8.8378395 2.2456174  6.3352278   5.8363105 6.5935614  4.6209148
## 129  4.1516316 0.8786861  1.4207788   8.9909832 3.5214654  5.9298951
```

```
## 130  0.8701871 0.0000000  0.0000000   3.9911545 1.9626231  5.8713287
## 131  0.7771988 6.8963917  2.1918469   8.1516204 6.4252461  1.0501186
## 132  2.2978370 0.0000000  1.4547023   9.8882235 4.2024020  6.0880525
## 133  2.1806571 6.6985811  1.3620490   2.4111008 4.0278706  8.8478610
## 134  2.6812918 1.1396005  1.6348720   5.9058370 4.5582554  4.8416360
## 135  2.2229900 0.3848235  2.6316165   6.1437097 2.6316165  3.7907825
## 136  3.8332443 0.5134907  1.8339830   8.1989862 3.1895241  2.8900575
## 137  4.8929495 6.5459220  3.6093413   5.1982702 4.3152474  5.9686576
## 138  0.0000000 0.0000000  0.3650206   2.3308739 0.3650206  8.3793333
## 139  0.9238718 0.3775125  2.4557546   7.3653417 1.1350751  4.2436615
## 140  0.0000000 7.5006491  0.5056877  10.2262838 5.4673121  0.0000000
## 141  0.4881036 0.0000000  3.6173102   2.6400424 0.0000000  9.0388085
## 142  1.6285870 1.0328061  7.7464451   8.2676547 4.4075771  2.7178245
## 143  1.9579889 1.9579889  0.4443490   5.8930175 0.7834986  7.8042782
## 144  1.8888114 3.5062338  1.2337040   7.7482747 0.0000000  7.7146309
## 145  0.3654686 0.0000000  6.7071935   4.2160124 0.0000000  5.1534852
## 146  4.5006045 4.3084992  0.9565771   6.1704339 5.4373942  5.2360563
## 147  2.4374941 1.0733404  0.0000000   8.0251462 6.1334053  3.2427549
## 148  1.4857875 4.9547547  2.2020729   2.6785677 1.4857875  4.0005409
## 149  2.1209491 4.5210256  0.8027309  10.6858236 4.2376784  0.8027309
## 150  0.0000000 0.9420077  0.0000000   3.3522359 0.0000000  9.7019557
## 151  5.9191160 2.7707022  0.5912007   9.3010370 7.2082558  4.0835453
## 152  1.1670367 3.3410606  1.9657289   6.1697767 5.2140859  6.8213722
## 153  0.8221999 5.1367451  0.4689482   4.6104461 6.1862529  6.0755883
## 154  0.7119354 2.8835426  3.2162220   5.2358266 4.0277733  9.7173839
## 155  1.2392147 0.0000000  7.4300502   6.3545103 0.6269530  1.2392147
## 156  2.9022087 0.0000000  1.3186928   7.4984559 4.0393227  0.0000000
##     rs_LOC440905   rs_CD19  rs_RIMS2  rs_ALOX15 rs_ADAMTS19   rs_NTRK3
## 1     10.1397174 4.4867272 1.6516832  1.1923204   1.6516832  6.7789248
## 2      5.8773614 0.7843365 1.0590091  0.0000000   0.4448791  6.1436893
## 3      3.7481499 2.7766936 2.9230351  0.7921057   5.1745902  5.5905990
## 4      7.1018087 1.1442422 1.1442422  0.4889263   5.9802104  4.3191265
```

```
## 5      3.0235215 4.5352443 1.1300083  7.5082844   3.5961599  3.4983913
## 6      5.5909373 7.1505475 5.9099795  3.0463863   2.0398403  5.9708997
## 7      3.0578661 8.2970832 3.8956419  2.2799170   0.4706150  7.2385891
## 8      2.4648251 4.3309456 5.6843026  2.3709454   0.4304994  9.9173854
## 9      3.5741621 1.6220870 0.6035967  1.0279325   0.0000000  8.1131170
## 10     7.1861866 1.3948982 0.0000000  2.6545272   1.3948982  9.2048694
## 11     8.8643053 2.1195554 7.1983782  6.4863668   4.8124674  4.2014065
## 12     7.5502419 8.1841032 3.4109923  8.3941784   1.3118518  4.6911545
## 13     0.0000000 3.5941305 1.2537473  4.5040801   0.0000000  5.4106430
## 14     4.8654289 1.8800977 2.1214133  4.3996633   3.9140957  9.4485731
## 15     6.6990949 0.4407396 0.4407396  4.4411847   6.3904974  4.9211888
## 16     5.5014678 1.9141052 5.0774225  3.7505636   1.2536263  5.6414189
## 17     4.5333889 0.8766446 8.3572137  6.4587183   6.9531453 11.0089766
## 18     6.2302434 2.9768952 1.8768803  2.2685242   6.3832585  7.9938651
## 19     7.4315386 4.6804031 1.1017173  2.4054206   2.4814023  6.1244646
## 20     6.8430982 1.1040682 0.6551686  4.9623963   3.2663218  2.8146119
## 21     0.8537562 1.7746711 2.0802142  3.5725259   6.8582757  2.4434740
## 22     9.5447354 0.8668684 5.9043926  5.4265969   1.7954345  0.0000000
## 23     4.0882603 0.5566992 0.5566992  1.2705887   0.5566992  0.9573203
## 24     6.8201036 5.0350564 0.4537546  0.0000000   4.4395301  8.7695384
## 25     8.7583865 4.7781455 0.0000000  2.6226493   0.4031586  3.5004961
## 26     6.7553056 0.6158871 2.0686708  5.6739634   7.2374213  3.8120977
## 27     5.8852376 3.7606255 3.9399036  0.4422269   2.5015156  7.4240126
## 28     6.9457926 7.9301554 0.5002922  3.1498447   8.0018968  5.6768146
## 29     2.1093271 0.6805044 2.0048968  4.4851949   0.6805044  4.9179854
## 30     7.0780280 1.5147535 4.0533894  6.3960430   3.8076331  7.1776448
## 31     7.2173034 0.4826418 1.5785523  5.2461002   2.0630542  2.1940871
## 32     8.0490840 1.2651368 1.9286546  2.5637195   2.1727435  4.5301519
## 33     3.9230826 4.1415145 4.0207689  3.6247443   4.6890922  7.3127741
## 34     3.6804819 5.1354774 2.1707583  2.5400521   2.7423943  8.1511434
## 35     8.5701236 4.3756303 1.6759965  6.8837112   1.6759965  2.1020198
## 36     6.9364530 9.0949328 4.3398001  6.2288726   0.5137939  5.4236017
```

```
## 37     6.2704280 2.0047890 5.4889231  3.8851155   3.5560492  6.8026172
## 38     6.2500046 0.3576083 1.2669364  7.3314974   0.0000000  5.4515079
## 39     8.1761407 6.9421168 0.9088129  6.8353115   4.9668088  0.9088129
## 40     4.6670917 7.0126916 5.3398144  4.7382490   2.4583295  3.9193115
## 41     4.9759603 1.3995539 3.8182268  3.6401234   0.9876119  4.1464923
## 42     4.8056330 6.1731674 2.4579619  7.4244922   0.0000000  3.3203258
## 43     5.6191136 0.5318680 4.1289367  1.2249664   0.9196833  3.0238408
## 44     5.5906978 1.3576083 9.5285666  6.3729765   5.5334388  5.1190490
## 45     8.1124098 2.2940472 1.5617905  4.7212742   5.2878896  3.9215506
## 46     7.0946562 2.2163928 2.0984869  1.4975868   0.4485838  8.5641346
## 47     4.6370016 5.4269121 1.7733212  4.9648468   1.4925198  5.7277898
## 48     4.3876452 2.8787646 2.5633534  4.9959005   7.2998326  6.7181218
## 49     5.3015730 1.0969365 1.4374408  4.7952163   7.0285227  3.0212132
## 50     5.2616098 2.6949916 3.7614342  3.7614342   0.7173858  6.3604696
## 51     9.1052446 2.0595629 0.0000000  1.5366000   3.7395673  2.1652366
## 52     5.3801822 0.8455904 1.8705423  0.8455904   8.2063683  3.1217780
## 53     5.0934714 1.5698799 0.7279640  9.0621868   6.2753070  3.6795364
## 54     4.8593037 3.7459795 1.0456526  5.3355404   5.9710722  8.5284475
## 55     8.9312679 4.3490680 6.3221102  3.0277910   4.0447351  6.3328225
## 56     2.0890574 0.0000000 2.5563068  2.3415019   0.0000000  3.5332768
## 57     5.1714350 7.3503638 3.1019022  4.7552829   3.3773459  7.7687758
## 58     7.4872419 0.0000000 3.1190241  3.5718345   2.8250325  8.6987432
## 59     0.0000000 2.0838941 9.1108463  2.4376272   0.0000000  1.3059705
## 60     6.7304375 0.0000000 2.6145685  7.7491722   1.7770725  3.4566879
## 61     3.5797112 0.0000000 5.9152149  0.3832757   4.1975195  6.3514040
## 62     1.3124328 1.8759373 2.8541952  0.0000000   6.1381407  4.0118892
## 63     1.9923334 0.0000000 7.1340412  6.4759004   7.7220664  9.3312576
## 64     8.7934329 0.4994760 1.9620677  6.7347462   0.4994760  5.0562107
## 65     5.7341704 4.4341011 3.4088885  1.4056657   2.1039004  5.3231935
## 66     3.0703550 4.8961265 6.7086990  2.8685880   9.4605145  2.6962832
## 67     6.3817731 2.1162317 4.5858819  9.7094700   2.2231445  6.1574541
## 68     5.8482824 5.7516431 2.3344825 10.8451960   1.6678467  6.8119385
```

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## 69     3.7500383 2.9622714 2.9197214  3.9744559   4.4484583  9.1394309
## 70     7.9683840 1.6169693 2.7776406  3.1009776   1.7705331  2.4539389
## 71     4.3819755 1.5777309 7.4164007  8.1861212   7.6370530  4.2709849
## 72     2.7467642 5.9701818 1.3352546  1.3352546   0.4655044  4.7078174
## 73     0.5994130 7.7150470 3.9468993  2.8949729   1.1938979  5.7969351
## 74     7.0621573 0.6614760 1.2953116  1.1133671   4.3770474  2.9429648
## 75     6.5837688 1.1825652 1.3714473  4.3253576   1.8236271  7.3921809
## 76     2.0069084 0.0000000 2.4669403  2.1363555   8.4248961  4.4681988
## 77     2.0197019 0.5937840 2.1903620  2.0197019   1.6025044  7.3298214
## 78     3.9750432 0.4165155 2.5072619  2.3265661   1.0028825  8.4556022
## 79     3.6843363 1.0221192 2.3571860  1.8388711   5.2126666  6.3653303
## 80     1.3922625 0.4918018 1.5998414  3.1897139   0.4918018  3.5810861
## 81     5.4572988 1.3008266 3.2901590  4.4580932   2.5555708  8.0037074
## 82     5.4775608 1.6983074 2.6754546  1.4834160   2.3337958  7.9747662
## 83     9.8401212 1.0439744 3.1641266  6.9123924  10.0337706  6.3616227
## 84     2.4432353 3.0995982 2.2976023  4.9432181   4.1033298  3.8129910
## 85     6.1882921 1.6839210 2.9846987  4.2673335   0.6353365  5.9701036
## 86     6.3736186 0.0000000 0.2980717  0.7556567   5.2972024  1.5037049
## 87     5.8122004 2.3119681 5.2102798  4.2361329   4.6884713  4.6510115
## 88     0.9953036 0.9953036 1.3163196  7.7321634   0.0000000  0.9953036
## 89     5.4064074 0.0000000 7.1727885  4.3549951   4.5203217  1.6185206
## 90     5.9611765 0.3257318 3.8505394  0.5912964   8.5385545  2.9707248
## 91     7.8326565 5.4246030 1.6559471  7.8051667   3.3676926  1.2834477
## 92     9.0052285 1.8841681 0.9237957  2.9778294   4.5501742  3.4812343
## 93     3.9607063 3.5659505 3.8293117  7.7761869   4.1652688  1.4298570
## 94     7.9903599 1.2825584 0.3634515  3.1270389   2.8686275  4.7740491
## 95     1.2512646 0.0000000 1.5521803  3.9408057   0.3517414  4.3839531
## 96     3.2293264 3.0868517 1.4667054  1.4667054   4.9118689  3.3590010
## 97     4.2206008 0.3774014 4.8485478  3.8536863   2.6741894  2.4556494
## 98     4.8914192 0.0000000 1.4476850  2.3635916   2.3635916  5.2069714
## 99     5.4030120 1.1834548 2.3592963  8.9424641   1.9486382  4.2077679
## 100    7.2084997 0.9873936 8.1422174  2.6790634   0.5765705  4.6761320
```

```
## 101    9.1771539 5.0776617 5.3409859  5.0997160   3.9601781  5.2051892
## 102    6.1977082 0.0000000 8.9336907  8.3671963   3.7865964  5.1127001
## 103    3.9341107 1.4947740 0.0000000  1.2008182   8.2423081  0.3330802
## 104    4.4517848 0.0000000 1.3487423  7.7472827   4.9071358  1.5527213
## 105    3.0451459 0.0000000 0.3124328  5.0513982   4.6680454  3.2050014
## 106    4.9396873 0.3923174 3.1396496  1.8074374   7.5939700  6.3784058
## 107    5.6393740 0.0000000 0.0000000  2.3161457   0.7854250  1.8207712
## 108    4.1562267 0.3675947 5.6862120  4.9758090   1.1114988  2.6376334
## 109    2.5607883 3.5474005 5.7432753  2.1902672   0.9191494  5.5093285
## 110    7.1400956 2.7345254 9.2482101  6.4890034   1.2207633  4.3430311
## 111    7.5632687 4.3471554 7.6294863  4.3694735   2.9963345  2.9963345
## 112    1.9693071 2.1151331 4.3334738  1.9693071   2.6814493  7.6625167
## 113    5.7353001 2.2075181 1.3831651  6.6599331   3.6622739  1.5900031
## 114    3.4128628 2.9365155 0.0000000  3.2708578   3.0567743  5.7614076
## 115    6.1056634 7.3970859 1.7664680  7.9740331   0.6786128  2.5371718
## 116    6.0216729 1.3961047 0.7248249  3.2457390   1.9772066  8.6467538
## 117    3.2582023 3.1429852 1.5648171  0.0000000   5.2558519  6.0145227
## 118    7.4063717 4.4748708 1.8066953  1.5229597   5.9298502  2.2472288
## 119    7.0467148 2.0297356 3.0346383  2.7706388   3.0346383  6.0238009
## 120    7.8382043 0.6156988 0.0000000  2.8852034   6.9507518  2.3197624
## 121    6.0198709 1.4918018 6.6074945  3.6238201   8.8957443  6.8924760
## 122    8.3252681 0.4311415 0.4311415  7.6099381   1.6275135  6.7585857
## 123    8.5713951 2.8923133 0.0000000  2.1919416   4.2898197  4.8320191
## 124    0.9398284 4.6717066 1.9087361  3.8849983   3.1632411  1.7860526
## 125    7.4195743 2.3798982 1.3795655  4.4479097   4.5745496  1.7667648
## 126    6.8493713 3.9393676 6.3120879  4.3205785   0.0000000  2.9539915
## 127    6.6419910 4.4814927 0.0000000  6.1937126   2.2963693  0.4390380
## 128    5.2853763 1.2865263 9.9747784  8.4708472   1.8443455  1.9555732
## 129    5.3368939 1.6307316 8.0935280  4.0086213   6.0165476  2.8659188
## 130    1.4091465 4.7143005 0.8701871  2.5771025   0.0000000  2.1082233
## 131    7.0480487 0.7771988 0.0000000  0.4403144   0.0000000  2.7463558
## 132    4.9757769 0.0000000 7.2399288  0.0000000   6.1600670  7.1675235
```

```
## 133    6.0567417 8.3316434 2.6097550  1.3620490   0.0000000  4.6409506
## 134    6.7798979 2.8106282 3.7690841  6.2686908   6.0037686  3.9200551
## 135    5.4120193 0.0000000 1.5029925  2.4817639   4.7864604  6.3578159
## 136    4.8897023 1.8339830 3.5988297  5.3029770   2.8900575  4.4560899
## 137    5.5930220 1.7870145 7.4163154  4.7871503   7.0323433  6.2332304
## 138    5.4371778 1.1054769 2.6282603  3.7728569   5.3684541  4.7958708
## 139    6.9321734 5.4713338 0.9238718  2.6742799   3.2739485  0.3775125
## 140    4.8221183 2.1238317 1.4218561  5.5210570   2.7818633  0.8793921
## 141    1.1425441 7.2514237 2.4405005  3.5194161   4.6058143  3.5691994
## 142    7.6191812 2.9307184 1.6285870  4.2313249   2.3740935  2.5561841
## 143    8.5768596 1.4871261 3.2713809  3.2164549   3.9806469  6.2753498
## 144    6.3592980 0.9268344 4.5836454  3.3870316   0.9268344  0.9268344
## 145    6.9075457 4.8416562 5.6930715  0.8990209   3.7436765  5.6188465
## 146    7.4745812 2.8308232 5.2179403  1.2696915   0.0000000  2.5118981
## 147    1.3058538 2.7843783 0.7959331  6.8877653   4.4581851  3.4513166
## 148    3.8880613 0.0000000 6.7037832  0.6782522   5.9732600  2.5365254
## 149    8.2264213 0.4564908 1.8501593  0.8027309   4.3206291  1.3154503
## 150    5.6118865 0.9420077 2.6009358  0.9420077   8.0368912  7.8849361
## 151    6.7118665 0.8153295 1.0092755  2.8232806   5.9430657  6.0350806
## 152    7.0778529 0.8720801 5.5314626  4.8278495   7.4231689  0.5010060
## 153    6.1862529 0.4689482 6.5771131  5.0220570   1.1058122  2.8369340
## 154    3.6045814 2.1727435 4.9534562  3.2648967   3.6419275  9.2637765
## 155    7.2169902 1.2392147 8.4440131  0.3472121   6.7651342  9.9211971
## 156    4.2043442 0.9973285 2.6958825  3.6388848   0.0000000  3.8529577
##     rs_RNF183    rs_FLT3   rs_IBSP  rs_COL4A6  rs_FIBCD1    rs_CES1 rs_AKR1B15
## 1   6.6183503  8.5391491 3.2582325  6.9385987  1.6516832  8.2635443  0.5144000
## 2   3.8800782 10.5739706 3.9491707  6.3996206  5.8046525  8.3679441  3.8075095
## 3   2.6138145  8.8942287 5.0366967  5.9815239  2.8517191  9.1082411  4.5876830
## 4   0.8535167  9.3517010 4.9846167  3.6201172  1.9350825  6.0695819  0.0000000
## 5   3.6426669  2.7107899 3.4983913  4.4331063  4.1080309  7.8823037  3.1576743
## 6   3.0463863  4.1792085 5.0285250  3.6335242  1.3538878  6.3376308  6.7803258
## 7   2.1605653  6.2590483 4.5464562  4.7871242  3.4629684  6.6343275  2.6778916
```

```
## 8   1.0308304  4.7591665 3.8292305  1.2575538  3.8641069  6.9018058  2.4648251
## 9   3.5741621  2.7473874 4.4790688  3.5098225  1.0279325  2.2131295  3.0485326
## 10  2.5580227  9.1281642 6.4558105  1.6026944  0.4930324  5.9473108  2.4545971
## 11  2.1195554  4.3027139 6.5024277  3.7053366 10.0308955  6.4481824  1.2253983
## 12  1.3118518  7.1743225 1.8457911  5.7249313  1.3118518  6.3605609  0.4548076
## 13  0.9433588  4.1760275 5.8863453  1.2537473  0.5474498  3.0676903  2.2302645
## 14  5.4993963  5.0518767 3.6315816  6.3235232  6.0736896  8.9315217  1.2268168
## 15  6.9490061  1.8078083 7.6695257  9.3722644  5.2807374  4.4172584  0.7778720
## 16  0.9432837  7.9454479 5.5731382 10.1634279  4.3491954  5.0774225  3.4182979
## 17  0.0000000  0.8766446 4.7728252  4.2140082  1.8108132 10.5593227  3.9273276
## 18  2.5762077  7.6488573 2.6657566  5.0641543  1.3375969  8.0046295  0.8186052
## 19  5.2893955  4.8039296 0.3634515  6.8531349  3.7662983  8.0476976  0.6536104
## 20  4.1431567  4.6354062 5.2830513  2.2437300  6.4370363  6.8892983  1.4459385
## 21  1.7746711  2.5467340 4.8300677 10.5444652  5.3126942  9.9858644  1.3864799
## 22  0.0000000  4.0927656 4.2257377  2.4674099  3.7832157  6.4305429  4.3179986
## 23  0.5566992  3.9631782 6.3901225  4.9384975  4.6446696  6.6353307  3.6748674
## 24  4.8807100  4.7281164 4.1701173  4.4878593  1.0764907  5.1446338  5.1596292
## 25  8.7986374  8.1616146 1.1951586  6.2865023  4.5784618  4.4566485  0.0000000
## 26  2.6610427  2.0686708 2.8855548  3.6983407  3.0336344  6.6898429  0.3405053
## 27  2.0800095  9.5670668 5.8042085  7.0316841  2.9662274  9.5170932  1.0538064
## 28  1.6194130  8.9418610 1.8019864  2.3631991  2.7661923  6.8031444  0.0000000
## 29  0.9291092  9.0437715 2.9316641  3.5295086  0.3800645  5.0550742  0.9291092
## 30  4.9235723  6.1838954 1.9898656  8.4688350  1.8481973  7.3051206  2.8709762
## 31  2.4251101  9.4961695 3.7776406  4.3271053  2.1940871 10.8491080  4.2982624
## 32  3.0031524  6.8237583 7.2797127  5.0413218  4.9294928  8.5153541  1.6347327
## 33  5.3078438  5.7865362 3.6655861  6.8770411  1.2731578 10.3375670  3.6247443
## 34  3.6804819  5.1533352 4.2771516  4.7221381  2.6447562  7.0434178  1.4601135
## 35  3.2900705  4.9199073 4.4256137  3.5374328  3.2900705  7.1297085  5.4888941
## 36  4.3699550  6.7135047 1.4388251  4.9909004  1.4388251  5.8229595  2.9716263
## 37  5.3738187 12.4876250 8.1554022  5.8319304  2.6242647  7.2199855  1.1962293
## 38  2.2194009  1.5700743 5.0474162  3.6149925  7.1231281  7.4312761  0.3576083
## 39  0.5247658  4.4343080 2.1730635  2.6472454  2.3069913  7.8995986  1.2117598
```

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## 40  2.1802752  5.8297659 4.7555072  3.8243911  1.9598443  6.9353100  2.6177921
## 41  1.3995539  0.4088205 5.8252794  1.9814143  2.4820996  4.2494909  3.4368814
## 42  3.9641121  5.1172088 8.7701227  1.8567069  2.8810968  7.0205978  0.4589069
## 43  2.3255303  2.3255303 3.3098456  2.1911520  4.1289367  6.7843561  7.1303070
## 44  5.8934132  8.6565371 7.8361627  7.0608083  3.6866014  6.1936357  0.0000000
## 45  1.9739051  5.0746296 2.7774723  4.1369706  3.4917120 10.0808058  3.3607576
## 46  7.8389303  4.6893942 3.7442472  8.6173595  2.6939887  7.8157631  2.0984869
## 47  4.8179711  5.7763383 4.7385139  7.7544433  2.8773909  8.3378511  2.8167840
## 48  4.0779180  3.5469809 4.8003822  7.6167473  6.2984090  9.6423247  2.6979072
## 49  3.6310461  7.9283514 5.6916291  4.2213976  1.5816887  8.4817671  1.5816887
## 50  7.6207990  8.4398047 5.2856353  5.4855492  4.2010614  8.3184167  3.2287110
## 51  1.5366000  2.2637255 4.3677275  3.9902560  2.0595629  6.2735625  0.0000000
## 52  1.7617533  4.8124366 6.2157989  3.5394070  3.2072526  6.4790365  0.6147570
## 53  2.0980826  4.7855087 6.3982649  5.3815983  3.7515923  6.2691828  1.4009204
## 54  2.7390488  4.3332377 2.6602669  3.4030904  2.5769332  5.9127959  1.9403923
## 55  8.1956842  7.7019323 9.2829584  6.0765548  4.0705611  6.9934049  1.7592411
## 56  0.8589358  0.4924172 5.5537383  1.6013162  3.3147545  4.9401151  1.3935809
## 57  5.8325888  7.2131062 1.8190550  7.6414557  4.6345991  7.4873537  1.0590783
## 58  7.1524562  6.5381594 1.5469562 10.0225907  2.9499084  7.1426779  1.5469562
## 59  2.3569889  4.0280298 8.2578583  2.9028454  0.6681191  5.8539483  2.3569889
## 60  1.3885753  4.3518262 4.0332644  3.5592715  9.2710337  5.3354618  0.0000000
## 61  8.4947964  1.7802261 2.3093217  6.1373109  0.6858953  7.6309238  0.3832757
## 62  1.1288873  8.7827797 0.0000000  4.6458054  0.3748447  7.3329361  0.0000000
## 63  1.3922075  4.1083655 6.0850804  5.9271142  3.7209351  5.1563359  0.0000000
## 64  2.8491987 10.0607300 7.1294407  6.6949707  5.2877567  9.9199487  2.1076544
## 65  0.6320820  4.7164642 7.0245934  5.7341704  2.6999735  5.8692076  6.0655465
## 66  3.6131426  6.5362441 5.3189458  3.7662877  0.8656813  6.0313423  0.3494785
## 67  5.2863415  5.4272039 0.0000000  9.1164375  1.2229282  8.7163500  3.4603101
## 68  3.6085609  5.4972707 3.6085609  6.7958734  2.7886857  6.5830181  0.9509909
## 69  5.1185632  6.1810628 1.9795864  7.5790700  2.2088918  7.1179817  0.0000000
## 70  0.4270698  3.3158850 4.9530557  2.6248495  5.2029153  4.9847944  1.0240359
## 71  1.5777309  8.0594510 2.9291661 12.0290142  8.9737387  4.2709849  1.8665915
```

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## 72  2.2654669  5.8704116 3.0418212  3.4463886  3.2292495  7.4483071  0.0000000
## 73  0.0000000  7.8190691 4.9956609  3.6540918  0.5994130  9.2918724  2.2818466
## 74  0.0000000  1.7341785 4.1827797  3.6593195  1.8551127  6.8710526  1.9666889
## 75  5.5060306  6.2097633 1.6880460  8.9456296  2.5265446 11.5595971  2.0616380
## 76  4.3662872  2.3649366 5.4968170  5.2616060  1.8646517  7.3809026  0.0000000
## 77  0.0000000  4.1121413 0.0000000  4.6690211  2.0197019 14.7709854  5.8201534
## 78  0.7392433  0.4165155 7.1142650  2.6678467  5.7870380  6.3980305  7.3095264
## 79  0.0000000  4.6860691 0.0000000  4.4342012  0.0000000 11.4935924  3.5637317
## 80  0.4918018  0.0000000 8.6580879  3.2525519  4.9379893  7.0686547  7.3130435
## 81  3.4273380  5.5800912 0.0000000  7.8656689  3.0563234 13.8988523  4.3586705
## 82  4.9581606  4.0631750 0.0000000  8.2312505  1.8852620 12.6131062  5.0392042
## 83  3.0760460  8.3624375 4.9165244  6.1674924  0.8451086  8.3682441  3.6645284
## 84  1.8523984  5.4187128 5.1376552  6.6280620  3.5808811  7.9000154  2.5108860
## 85  7.8035280  1.9131479 5.2504993 10.8580186  1.2528395  8.3899101  8.3598558
## 86  3.2111212  3.3796210 2.5406969  1.7201033  0.0000000  0.7556567  0.0000000
## 87  2.8637204  4.3339389 5.4028825  3.7957981  7.6810978  8.3884668  2.2126316
## 88  0.5818815  5.3831928 5.4002647  0.0000000  6.9449252  5.6632621  2.3144645
## 89  3.8744035  2.1086917 6.7134827  5.3489299  3.1486576  2.9309076  1.6185206
## 90  1.7136078  8.3019973 1.7136078  4.7864604  1.5976504  3.6023619  0.0000000
## 91  8.2151131  3.0305127 6.1697887  3.8703647  6.8321773  6.1036277  0.0000000
## 92  5.6450993  4.5501742 6.2088001  4.0224743  4.4938458  8.7872153  0.0000000
## 93  2.3408756  2.0177794 7.2198742  2.6828879  0.0000000  5.6766116  0.4209405
## 94  4.6144566  4.7279967 1.4431823  4.5275083  3.9107423  8.1560360  0.3634515
## 95  2.4376272  4.9063904 2.2825288  6.4813861  3.0318186  6.7965030  0.0000000
## 96  3.2293264  9.7731293 6.8645947  4.7557956  3.1598552  6.3599726  0.5270703
## 97  4.6566394  4.0999937 8.6692412  1.4824869  3.1817705  6.9669714  3.1817705
## 98  2.2633349  6.6059447 4.7869518  2.5453754  4.7128489  6.5905077  0.0000000
## 99  0.9659874  4.7062708 8.4548536  3.1088422  6.3803676  7.3991044  1.6890755
## 100 1.5681294  8.0327979 4.6761320  8.0807120  5.9523965  4.9297295  0.5765705
## 101 6.4226602  4.7272452 4.9620446  2.2144668  0.8320393  2.9564284  3.7807090
## 102 1.7655347  1.5849625 5.1618877  0.4854268 10.1464414  1.7655347  0.8479969
## 103 1.2008182  7.9113339 3.5421837  4.3923174  4.3191121  5.4885182  0.0000000
```

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## 104 3.8226282  0.0000000 6.9939268  9.4971483  5.7951851  6.7305299  0.4716557
## 105 1.1433934  8.1517766 7.7053815  4.2024334  2.4839834  4.5238505  1.1433934
## 106 2.7945198  5.9745247 6.2480395  4.3265373  4.8949244  7.1991707  0.9542708
## 107 1.8207712 10.0200357 7.0242255  8.2961398  3.7722552  4.6577257  1.2911910
## 108 2.2546545  8.1089509 2.6376334  3.3212499  3.5529057  6.6514608  1.5998890
## 109 1.4760706  6.9742482 7.7470671  4.9881575  4.5127768  8.7777836  1.2243490
## 110 2.1132671  5.5311569 7.2227456  5.1804184  4.8216490  7.6577222  2.1132671
## 111 4.9158937  6.1584885 2.0609466  2.6765834  4.2542766  5.5251543  3.5974239
## 112 2.1151331 10.4705472 3.4033086  6.0710182  4.4202331  6.5907652  1.1696685
## 113 4.4796703  3.2393828 5.7569165  3.5178300  1.7708290  7.7176031  0.0000000
## 114 3.4128628  2.5005216 3.7703639  2.4130795  6.9900824  7.2550012  0.9987732
## 115 0.0000000  4.8691953 4.9272992  2.5371718  5.2792967  8.6451987  9.2340045
## 116 6.8524496  4.3168336 4.9554105  3.8784899  2.8481973  8.1395780  1.2050797
## 117 1.7857598  4.0799668 9.4809644  3.6159694  7.4796073  6.1746501  0.0000000
## 118 4.7673158  3.9991522 7.9562042  3.0866649 10.2455431 13.1424620  1.1694120
## 119 7.1372699 10.2858355 5.5305109 10.9731936  2.8412888  7.6367537  0.7529198
## 120 1.2208252  1.5176284 3.2096561  2.5986510  2.4659484  4.3713219  2.3197624
## 121 2.5811343  6.5247204 5.4756686  5.8028549  1.4918018  6.9779278  2.6864333
## 122 3.3790941  8.6343326 5.4656317  4.8159647  1.4549655  6.2523494  4.2563842
## 123 2.6676197  6.4550230 3.9332705  3.1460360  3.2579309  6.2402418  1.8066953
## 124 1.3394225  5.1028219 2.2243799  2.2243799  7.1662987  5.5706420  0.3852654
## 125 2.9649900  2.7239298 7.4823110  6.5986496  6.0849210  7.0174131  0.0000000
## 126 0.8825257  8.3061164 3.3617403  2.7877041  0.0000000  2.4956696  0.5077185
## 127 1.8030617  3.7492983 2.8878567  3.0821405  0.7750927  7.2661278  0.0000000
## 128 1.1053428  8.1656412 7.8767686  4.8251750  6.6730405  4.2582174  2.9299992
## 129 0.5051796  1.8139351 4.6136790  4.4572397  8.9002011  5.2757446  1.8139351
## 130 0.0000000  4.4934808 5.3336134  2.6738730 10.3447280  7.3978868  0.0000000
## 131 0.0000000  0.7771988 2.9599370  1.4773665  0.0000000  5.0181935  0.0000000
## 132 5.9627711  7.1410751 1.4547023  8.9218195  1.8525982 10.0330993  0.0000000
## 133 0.8360857  5.9780537 2.4111008  3.0806236  1.9062364  7.8522149  1.9062364
## 134 2.8106282  4.1079389 5.4499971  7.3525326  4.8566919  8.8322736  2.6812918
## 135 4.8942066  7.1737391 7.1490917  4.5806761  4.0255427  9.0158655  1.6507646
```

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## 136 1.8339830  4.6650175 7.9145263  5.4083960  6.1607387  7.5301269  0.0000000
## 137 3.0622772  4.4133301 7.1859438  5.9110612  5.5505406  8.1187376  0.4330663
## 138 1.1054769  1.1054769 4.7808402  3.0851357  0.8982471  4.8254753  3.3112125
## 139 4.0488813  3.8236373 4.4152449  3.0316775  1.3192133  8.6065348  1.9966418
## 140 1.4218561  2.2564974 6.0088118  1.4218561  2.4900566  7.2650318  0.0000000
## 141 1.3842156  3.1125333 5.7799215  3.0437644  3.1125333  6.3202139  3.2409401
## 142 5.2464043  6.2137827 4.9372314  4.5857317  4.0304950  7.7417521  1.6285870
## 143 5.9862494  0.7834986 5.3201417  8.6171695  2.2036710  1.6617040  2.9053124
## 144 6.9277531  1.7016821 6.3828574  0.5366498  7.7722591  4.0284631  1.4865599
## 145 5.0692811  3.9188728 3.3539725  2.4885921  3.3539725  6.1448764  1.1064153
## 146 0.5562087  5.5860651 7.5847295  4.0046542  3.9175272  6.5851744  2.1018517
## 147 1.9799156  8.9997312 5.8864941  3.1855336  7.1495165  5.7451405  1.3058538
## 148 5.4065571  1.1378314 3.7660651  0.0000000  1.7659590  5.9313048  0.0000000
## 149 1.8501593  1.9918982 4.4243040  4.3990754  6.3859090  4.2658569  0.0000000
## 150 2.2280183  0.5465611 6.5832648  2.2280183  2.2280183  5.3438732  2.7065085
## 151 2.2625835  7.6820247 1.8206487  5.8447798  1.0092755  7.2758247  2.1016837
## 152 6.9136841  1.4117516 3.3989933  0.8720801  1.1670367  6.0392525  1.6209617
## 153 3.1803548  0.8221999 8.3669372  6.2604040  9.0262559 10.0883404  3.8522186
## 154 2.0668814  4.0831283 6.5171198  5.3303576  4.2854614  6.6964293  2.2713659
## 155 6.7506226  6.0978678 4.8459366  2.9641398  4.1597099  5.5459838  1.0625362
## 156 6.6528650  1.9959548 8.0225265  3.2430902  6.3165965  8.6474584  3.7498882
##     rs_PCDHA10   rs_GPM6A rs_CXCR2P1  rs_DACH1 rs_C1orf95 rs_TMEM45B     rs_VIT
## 1    6.1064740  5.1228342  4.6183679  8.527472  3.8786175  6.4658814  6.9284864
## 2    4.9904240  1.8188915  0.7843365  8.870273  3.2182387  8.1956060  2.7609448
## 3    5.6585171  3.9997926  1.9732072  7.430948  8.9845116  9.4123245  5.3004459
## 4    3.2151194 11.6046749  3.6666884  9.340074  3.2436691  6.9310767  5.9238029
## 5    7.4954809  2.8756032  0.0000000  7.440800  2.7955384  8.9583619  3.2804070
## 6    6.1317191  2.9528367  6.1182081  4.476745  2.6291701  3.4402612  7.5683111
## 7    5.6797165  3.9325526  7.5159245  4.865558  2.9894660  2.1605653  4.1674222
## 8    2.7175832  0.7617108  7.3491237  3.719260  8.2489959  1.2575538  8.0794576
## 9    0.0000000  0.0000000  1.8470749  1.847075  5.0308834  3.2192150  9.9711521
## 10   0.0000000  0.8598106  1.6026944  9.140715  5.3112270  7.4031177  3.2563616
```

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## 11   7.5517283  1.0026665  6.7734360  7.262653  2.5893800  7.5209706  5.5391650
## 12   3.9014655  3.6427016  9.4702570  9.226944  4.5152646  7.3968745  3.1944338
## 13   5.2987170  1.5089864  7.8478454  2.899427  3.4184463  0.9433588  3.7993567
## 14   5.8718510  3.0656929  2.5088596  8.131809  4.6122581  7.1196643  6.4615842
## 15   4.9489886  9.5587907  0.0000000  9.053211  2.7477741  8.2546583  2.4026130
## 16   9.9217703 10.7685351  1.5088850  8.358345  2.7087611  7.7916930  0.5474498
## 17   8.6884580  1.8108132  2.3731192  7.401393  2.2517191  8.5925819  5.9056036
## 18   3.1256676  4.4084877  1.1013139 10.620679 12.8279282  4.4342012  5.0138954
## 19   4.7611257  7.6303101  1.8394356  5.601800  3.9107135  7.3143621  5.1214382
## 20   7.8492431  1.5906260  6.6252003  9.486221  9.3875310  6.2644051  6.5997760
## 21   4.6766454  1.3864799  5.4654619 10.189558  6.0527180  8.0162250  2.2117287
## 22   2.2245960  0.4976379  4.8786518  1.957172  1.7954345  1.6132016  0.0000000
## 23   0.0000000 14.3010710  3.1706782 10.845277  0.5566992 11.8788320  3.1706782
## 24   3.0980152  1.6860298  6.4990071  4.687307  2.4423862  1.8428984  2.7102389
## 25   4.6877270  8.0659148  2.2836551  3.580435  0.7179122  6.3676052  3.0731004
## 26   3.4108160  1.9740520  2.4662878  9.613790  5.4896328  8.0876723  3.6983407
## 27   8.2986134  4.2429073  2.5901229  8.067255  3.6821687  9.7373868  6.0347968
## 28   2.0746424  1.4103411  6.3906264  8.098877  3.2786836  7.4485607  2.3631991
## 29   5.8586226  2.2067370  1.3258469 11.558458  6.7982670  5.1190241  3.6029082
## 30   8.8576573  4.6090930  2.7164642  9.210517  6.0365473  6.6678637  8.2237479
## 31   3.7888840  1.9188823  2.3142035  8.654994  0.0000000  9.6186202  5.2461002
## 32   3.6412223  5.7544199  4.9127840  9.026111  3.8055504  8.3821121  3.0649518
## 33   6.1418067  6.5945918  1.4705108  9.886380  6.9156500  6.4146007  6.2895173
## 34   4.4384925  4.1759477  0.5238630  9.418802  4.9639457  8.4346649  5.6449176
## 35   1.8442249  4.8666212  2.8520588  8.575669  5.6552459  7.6985831  3.6677446
## 36   7.3373418  2.3998820  8.3377659  6.399402  4.6412397  4.2775236  5.8229595
## 37   9.1334392  8.1684124  4.1528811 11.328812  2.9795864  6.5477074  6.0631383
## 38   5.5703810  1.0875986  4.2694147  5.523857  0.6439485  8.1295844  1.0875986
## 39   8.8723871  4.3436921  4.8399495  8.544884  1.6751836  7.3242508  9.2894357
## 40   3.7416180  4.2220472  6.1628686  4.720787  7.4752697  4.1715191  4.0922497
## 41   4.9286309  1.7196216  1.5684700  4.520573  4.6006860  0.9876119  2.7861154
## 42   2.7910639  1.6991962  4.8809206  5.424522  3.3734255  9.5451135  5.4739914
```

```
## 43   3.7531017  0.5318680  5.9560311  5.087102  1.4767964  2.6667566  2.7646434
## 44   4.3172968  5.4116195  2.6583029  6.532468  3.9129947  4.6831013  4.4758437
## 45   3.6515225  2.7774723  5.1359863  9.143806  2.9694913  7.4651215  6.6449046
## 46   2.5423571  6.1940989  0.4485838  8.925084  4.2100069  5.7518359  6.8010733
## 47   9.1513540  2.4684530  3.1472578 10.125910  4.3032255  9.6973184  4.7054637
## 48   8.8464924  1.7272670  4.0530244  6.961587  4.3057225  8.5948587  6.9311748
## 49   2.5999366  4.1068592  5.3426472  9.718363  2.6147805  5.8916938  2.4739947
## 50   4.6237557  3.2774492  3.5396427  9.603990  9.4537180  8.0149673  4.5173954
## 51   3.4894530  1.3697736  1.3697736  3.256271  4.0466657  1.6861643  2.1652366
## 52   8.8884830  8.3495511  2.8828778 10.339738  4.5596386  7.5384582  4.2728891
## 53   4.1370034  1.2095158  4.6027538 11.229814  1.8580208  5.9625907  5.4589758
## 54   5.4531817  4.4313890  9.2155949  9.163887  4.0539628  8.6633254  4.1435648
## 55   9.5969165  4.9455656  2.9740704 10.177205  4.1208744  6.0046834  5.5054019
## 56   2.9877756  0.0000000  0.4924172  2.652808  2.4529117  2.9848081  3.1916732
## 57   3.9781224  5.6474613  5.6474613  9.787586  8.4208365  6.0526702  7.0496504
## 58   4.5035650  6.4135873  3.2216760  9.039869  4.9293460  7.6176746  7.1229201
## 59   1.4325853  2.5865246  3.5362892  2.784504  5.1834746  3.6077327  8.4716204
## 60   3.3660004  1.3885753  4.9885211  9.255202  3.7448500  9.7143371  2.9016682
## 61   9.0474923  3.3406050  0.0000000 11.259676  4.1733913  6.0604452  6.1057786
## 62  11.4813361  3.4318369  6.0632980 11.352786  8.5318185  7.3592453  5.2286571
## 63   5.4824385  3.6291934  6.4176821 10.908642  2.4863540  7.0091904  3.5646221
## 64   4.9814691  3.0060287  2.1076544 10.850392  3.4501819  4.6673472  4.0989332
## 65   2.6190138  1.6777112  6.2435834  4.173407  0.3503841  2.1933302  1.2476238
## 66   4.1949932  0.0000000  3.5804711  9.440168  8.6820444  7.0111042  3.0703550
## 67   5.2300108  4.3932308  2.5032978  8.488799  5.6543840  8.2152782  8.6484180
## 68   4.9269103  3.1838517  3.6803244  9.611117  5.0729804  9.8305380  6.9307255
## 69   5.8710896  5.6015272  3.1941186  8.876445  7.9492454  6.6883007  6.5346842
## 70   8.8378840  1.7705331  6.7337733  9.065374  1.9093507  8.7480553  2.9157886
## 71   9.3280028  2.1791607  4.3511265 10.673214  7.6497850  7.5582095  2.3759013
## 72   6.0202199  2.0166746  8.0616914  8.053443  2.7467642  7.5660510  3.9155113
## 73   5.8033355  3.9707984  8.3024338  5.949014  4.0625967  3.4651648  5.8364847
## 74   3.7213945  9.1097873  4.5301894  9.943131  3.4828870 11.8256958  2.8294843
```

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## 75   5.9340376  4.4352885  1.5384388  8.800130  5.7888345  6.5401435  7.8084790
## 76   5.4578307  0.0000000  6.5865141  7.722524  2.2551683  6.8260832  3.2176495
## 77   4.9047827  4.1121413  3.7791651  6.662569  5.0026620  3.7246503 10.0184098
## 78   4.9498290  0.0000000  3.7423189  2.943621  7.7936586  1.4186757  4.4649492
## 79   6.3527373  6.3195096  4.5656215  7.218569  5.5665656  1.8388711 10.7016816
## 80   5.4345081  0.0000000  2.5544906  5.083358  0.4918018  3.8485078  6.3474991
## 81   7.6676204  6.8597708  2.5555708  8.540285  6.0419986  6.0841089  9.4190026
## 82   4.7466567  6.1138109  2.4568850  7.825686  6.4240403  5.3562882  8.9770472
## 83   9.5582068  4.0353512  0.8451086 10.698477  9.3188652  8.4946664  4.3861005
## 84   8.8333857  2.3722556  4.2089464 10.213935  4.1676229  8.3163024  3.0549700
## 85   8.6743462  1.2528395  4.5825500  6.549506  4.1372986  5.8576029  0.3523066
## 86   8.2159702  0.2980717  5.0093024 10.041353 10.4832844  8.1282398  0.5448810
## 87   4.6803131  1.5766672  0.4119685  4.184629  3.1588702  9.6960747  4.7780771
## 88   4.0443329  0.9953036  7.5414498  3.849279  1.3163196  0.5818815  5.8237086
## 89   5.4218191  1.8010345  3.3957209 10.221689  1.9630672  4.4122396  0.4998841
## 90   3.7347963  1.8209346  3.6613164 10.660332  0.8154935  6.7968742  3.3024360
## 91   2.1206505  1.2834477  4.7059005  7.195465  2.1970791  8.1673308  3.3676926
## 92   5.3230494  6.9806994  4.0999937  5.845969  4.9910184  6.4350668  6.9496248
## 93   3.7388435  3.0797194  3.4809372  7.918356  2.3408756  5.8894833  2.6828879
## 94   4.7701154  3.0789343  2.9241569  7.761856  7.3143902  5.0231932  7.1725925
## 95   3.9970123  0.8705028  3.9665135  5.834072  2.8777639  8.4759531  3.8331330
## 96   2.3432657  1.2159270  7.2419288 10.168168  1.4667054  9.0940106  2.3128684
## 97   1.5084794  0.3774014  1.8841681  5.317434  2.1008095  2.7402368  7.4638374
## 98   3.4096353  1.0261627  4.8226231  7.709856  3.7108340  5.5951247  4.4869460
## 99   3.3264654  0.0000000  3.9651655  7.244427  6.2235558  7.8241925  4.4577256
## 100  6.5704933  1.3067872  6.3059450  9.331202  7.0517158  9.4280178  1.7893537
## 101  2.5883968  1.3564256  6.9902492  8.976509  8.6455857  2.9564284  7.5743808
## 102  2.6480052  1.1375035  3.4059924  7.598425 11.0764148  8.4437724  0.4854268
## 103 10.0240027  3.0023425  5.6008793 10.117474  7.2445960  8.4114284  1.2008182
## 104  7.3897569  2.0334759  5.5904134 10.250364  8.9497503  8.1965859  4.4770556
## 105  2.1532217  2.3535209  0.7869309  8.258154  1.6673472 11.4518010  4.7086342
## 106  0.8279003  5.9159893  3.8518490  8.817096  5.3794893  5.3902790  2.6583029
```

```
## 107  4.1890655  5.4963761  2.7631991 10.098309  2.9771883  7.9611852  1.0603241
## 108  3.3588604  2.0676043  6.6472900  9.977125  9.1453007  3.9277448  1.1114988
## 109  6.3043468  3.8884997  6.9895012  7.297970  4.3646635  5.4369946  5.4369946
## 110  6.8327723  7.1366897  6.4674702  9.927858  2.4127002  8.9010053  1.7349589
## 111  9.2049917  1.3708896  7.2896215  9.948819  2.5257933  7.5632687  8.0039996
## 112  4.9993777  2.3688801  1.8070251  8.094948  5.3274862  6.9184161  4.4480287
## 113  1.1573025  1.9315318  8.0420166  7.320357  5.5119771  7.1097053  0.4875892
## 114  4.3131370  5.6510861  1.7353055  5.779000  6.3726666  9.5981331  2.6609514
## 115  3.0293999  0.6786128  5.1631968  3.633501  2.8085086  6.7774381  2.2026998
## 116  8.3711711  0.0000000  0.0000000  4.452048  2.5596386  7.6907914  3.4317700
## 117  1.3222743  1.7857598  2.2977197 11.437408 11.7640884  7.8355287  4.9818435
## 118  3.0059568  1.1694120  5.9149926  6.902988  2.0436945  8.7569072  5.5613597
## 119  5.2734488  8.9809804  1.6114085 10.835270  8.5590528  5.8968313  3.9438088
## 120  1.7905218  0.0000000  4.2951279 11.310912  2.3197624  8.0844284  4.5622058
## 121  8.5654053  3.1214796  4.5077312 10.359854  5.4309075  5.2537813  6.7171815
## 122  4.7934902  2.8618363  1.6275135  8.303167  2.7165081  7.5004228  3.6828317
## 123  0.7771988  5.5449088  0.0000000 10.356337  2.3004459  6.6106602  3.5926962
## 124  5.0580567  1.5041119  6.2535809  8.677105  1.9087361 10.3699397  7.0242587
## 125  3.1452536  1.2640560  7.8708560  9.693474  6.2266761  7.3575133  1.6792436
## 126  1.8044253  0.8825257  6.7168044 10.918423  3.1030779  2.3835246  3.3012950
## 127  5.7632947  1.9430586  7.6450402  9.964276  2.1879261  6.0462291  4.9483485
## 128  4.3441539  2.7564896  7.3920297  9.484551  8.9646198  7.1027841  1.5922059
## 129  0.0000000  5.4519298  4.0819020  7.468576  2.6895899  6.7426907  3.3540713
## 130  3.1481369  1.1647219  8.0881909  4.028233  3.2769433 10.9507510  3.5044679
## 131  3.0865460  2.4012755  6.6924663 10.082830  2.3003581 11.3566401  1.8066128
## 132  4.9016682  4.2690556  2.8264773  8.394780  7.5822353  8.3550603  5.8798920
## 133  4.4748708  2.3004752  8.1137995  5.775809  3.4864698  9.2497627  4.4468385
## 134  6.0210444  4.2515525  5.6958463 10.021050  7.7891000  7.7693453  6.2287437
## 135  9.7889385  1.6507646  2.1252874  8.310236  2.7010832  9.2160236  3.3464605
## 136  3.6365086  1.4383461  5.4083960  9.660063  2.2773302  6.3236151  3.7439996
## 137  8.9411010  6.5673857  2.7975111  9.769009  2.7229468  8.0949169  4.6328208
## 138  9.2758517  0.0000000  1.7239953  2.411155  3.3925785  4.0979815  5.9618618
```

```
## 139  2.8875253  2.2892148  6.2205254  3.696283  0.3775125  8.0039445  2.7403232
## 140  5.0560199  5.5600943  6.4715354 11.870716  0.8793921  4.0101890  0.5056877
## 141  3.5107847  0.4881036  3.5691994  8.383405  0.8521587  7.1690702  5.8215980
## 142  1.9792205  2.3740935  5.8711512  7.922637  2.2736651  6.6838929  1.0328061
## 143  9.4802023  2.4135399  5.5373675  2.834125  3.8423956  6.1490683  3.9473015
## 144  3.6405168  0.0000000  1.4865599  4.283374  2.7776196  7.9218159  0.5366498
## 145  1.5229095  3.0866139  3.3539725  2.060359  2.7581752  3.6138145  1.2876496
## 146  5.7515146  1.9344033  6.0830453  8.325753  0.5562087  7.0773990  1.2696915
## 147  8.1470889  1.3058538  5.1833396 10.573783  5.9987123  4.6815505  4.3320276
## 148  0.0000000  0.0000000  2.5365254  4.954755  7.9206298  4.9824095  4.8384980
## 149  9.1154830  3.7314548  4.3206291  9.627851  1.0817487  7.3246333  4.0878447
## 150  3.7059447  1.2521128  4.0977456  8.609852  1.7238206  5.0144446  4.6410893
## 151  3.8310260  4.7860631  1.1802752 10.593848  9.0415833  7.5103077  6.5882184
## 152  0.0000000  0.8720801  1.1670367  8.367296  9.1447462  6.6766539  3.9179568
## 153  3.8655823  2.7572153  2.1559435  8.886902  4.6769387 10.4756804  1.1058122
## 154  4.9905510  1.9526318  1.5429514  5.307301  6.6604880  1.3756789  8.1703322
## 155  3.1770567  7.0930594  3.3957620  8.891194  1.6677559  9.9861252  3.2382519
## 156  6.1957196  0.0000000  3.9018516  6.360988  1.3186928  8.2961132  0.5831339
##        rs_CDSN   rs_CCL28 rs_C8orf85 rs_LOC84740  rs_MAGEA4    rs_ACE2
## 1    7.2337433  5.3670180  7.5886877   3.2608085  0.0000000  2.6184266
## 2    7.5689654  6.0286841  6.2570276   2.4181090  0.0000000  0.4448791
## 3    6.4782810  7.2099485  6.2887904   1.9745293  0.4497462  2.3287790
## 4    4.4842477  6.5637012  6.3661946   2.4451440  0.0000000  0.8535167
## 5    7.3837587  6.6215288  8.3446896   2.3143775  0.0000000  0.4815056
## 6    3.6335242  9.3054751  6.1073970  11.2327941  0.0000000  8.5525972
## 7    4.1041270  6.8949390  9.0833671   7.9993585  0.4706150  6.6675459
## 8    4.6830901  5.2292880 13.5106404   8.5078949  0.0000000  3.2242873
## 9    4.5447697  2.8549133  8.5982152   4.4807434  1.0279325  3.1363883
## 10   5.2661194  5.1046721 10.7735017   1.1519887  0.0000000  1.1519887
## 11   1.5885168 11.9745649 11.2343165   1.4201320  1.0026665  0.7390704
## 12   9.7540368  5.0389409  7.7913824   2.9436963  2.8680941  1.8457911
## 13   4.7711831  8.7302188 10.7479438  11.2734792  0.0000000  0.0000000
```

```
## 14   7.9944745  7.7513914 11.0918554   1.2268168  0.0000000  2.5088596
## 15   6.3212751  4.7593210  9.8923188   7.0690340  0.0000000  0.0000000
## 16   7.9615626  6.5002396  9.9771683   1.2564069  0.0000000  1.2536263
## 17   3.5174647  3.5174647  7.5568202   3.2318317  3.7141026  2.5889724
## 18   5.0967173  3.1728555 13.3675725   2.7565750  0.0000000  1.7185260
## 19   4.6804031  7.3828350  8.5679663   1.7203222  0.0000000  3.1270059
## 20   9.2628148  6.9509209  9.6070482   1.4474734  3.4671360  1.8426169
## 21   6.3310531  6.1461135  8.6631994   1.7763567  3.6206568  7.2512173
## 22   4.2879007  1.1606621 10.8732858   7.8263445  0.0000000  1.7954345
## 23   6.6823893  5.5445441  6.6421485   3.5105442  0.0000000  2.3889610
## 24   6.5048905  5.4794537  9.1010373   8.9766274  3.8008067  6.5048905
## 25   7.7444645  4.2763627  5.6717406   3.1294644  0.0000000  1.3852101
## 26   2.9366285  6.8877080 12.3405995   1.3785671  2.8326268  0.3405053
## 27   6.0268819  8.7078592  8.5757642   1.9561310  0.0000000  2.5015156
## 28   7.6906678  2.6754998  5.8834033   2.1138672  1.4103411  0.0000000
## 29   7.1254062  7.1803936  7.0811404   2.9379093  0.0000000  1.3258469
## 30   6.3703596  8.8964145  6.9009912   2.4503535  0.0000000  3.3628345
## 31   7.9317250  6.7372852  4.9071406   2.8799606  3.9728121  2.7142675
## 32   7.0468850  8.1308187  7.6460056   2.3872522  0.7670615  1.0374525
## 33   5.5989368  8.5165443  6.1597180   3.0183493  0.0000000  3.4947740
## 34   6.1945934  7.3094145  9.7297458   2.4330128  0.0000000  1.2100771
## 35   3.5821826  7.9625774  8.8575497   2.5316435  3.6677446 11.9322376
## 36   4.2453435  8.1636235  8.5795554   8.0647546  8.5050739  5.6977627
## 37   6.5740197  6.8301691  8.2420546   2.4084673  0.0000000  0.5165195
## 38   5.0717541  4.8504794  6.6722825   1.4279815  2.5316435  1.4264795
## 39   2.6472454  6.4354903  8.3968822   2.9248790  0.0000000  2.6472454
## 40   5.7197858 10.3549175 13.1825125  10.3978388  0.0000000  1.6995072
## 41   2.5643050  8.7234302  7.1552605   2.3975839  6.2297475  6.7213672
## 42   2.5531147  5.9640289 10.8606612   2.5558652  0.0000000  5.7894111
## 43  12.2762493  6.9019674 10.3572710   3.3757762 12.9715810  5.6059684
## 44   2.6583029  5.9816792 11.9643407   2.2508706  0.0000000  2.1498447
## 45   7.4123658  5.6799980  9.8958535   6.0333107  0.0000000  2.5559143
```

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## 46   7.6021956  5.8645007  6.2846270   2.9207506  0.0000000  1.4975868
## 47   4.0634598  5.9415641  6.6241316   2.8803721  0.0000000  1.8955741
## 48   6.3246432  8.5036497 10.6544087   2.7011054  0.0000000  4.1264526
## 49   5.0016401  7.0719139  8.7945861   2.7491481  0.0000000  0.3614315
## 50   8.8813260  6.3940082  8.7264849   3.3278311  0.0000000  0.7173858
## 51   4.4948188 12.2225535  7.9896420   5.1808043 10.4073714  4.5543924
## 52   3.2879598 10.7033087  8.7040655   1.3766793  0.0000000  0.0000000
## 53   4.9009199  7.3320930 10.4098947   2.9879757  0.0000000  1.2095158
## 54   6.9262462  6.7424833 11.7186287   2.6635040  0.7735744  0.0000000
## 55   5.1288419 10.2917858  9.2323658   3.0330705  0.9218171  1.1326426
## 56   3.0571036  1.1508846  9.6217197   1.6032168  0.4924172  3.2545185
## 57   7.8387363  9.6786177  7.3049481   3.3788445  0.0000000  3.8803035
## 58   8.7565186  8.8998273  8.5648080   3.6147216  0.0000000  3.0085048
## 59   5.2850396 10.6653163 10.0574637  11.0130122  0.0000000  4.9964927
## 60  10.2537025  8.7780821  9.9227192   1.2367069  0.8552722  1.3885753
## 61   3.9642600  5.8405564  7.0660741   2.2197726  0.0000000  1.7802261
## 62   0.3748447  7.7576520  5.7177641   3.1263782  0.0000000  1.1288873
## 63   2.2603870  4.8926290 12.8287818   1.3951725  0.0000000  0.0000000
## 64   7.3319542  7.8699540  8.1560158   3.3430809  0.4994760  2.1076544
## 65   8.0833304  3.4088885  6.3050622  10.8438549  2.1933302  4.8599348
## 66   6.5823603  3.6451021  7.3701634   3.4798643  0.0000000  0.6304987
## 67   5.2488650  9.1792102  8.3273887   2.0019103  0.0000000  3.6253757
## 68   6.2052752  6.4038267 11.2871664   2.9782872  0.0000000  2.0393139
## 69   5.9202028  9.4527114  9.0953158   3.6274551  0.0000000  2.9622714
## 70   1.6169693  6.3988292  9.8619918   2.9827107  0.0000000  0.7562547
## 71   6.1254321 10.5451216  5.7172679   2.4394370  0.0000000  0.7326599
## 72   4.7492607  6.5707574  7.6532363   2.4825127  0.0000000  1.5380415
## 73   4.1063986  4.2499990 10.7056931   8.2732725  0.0000000  1.8380643
## 74  10.5821376  8.2091555  7.3919524   2.0781999  1.1133671  0.0000000
## 75   6.5645428  9.5351828  8.1538535   2.3634515  1.3714473  3.5982580
## 76  12.4537416  7.1435424  9.9744153   0.8144274  0.0000000  0.4619476
## 77   2.1903620  6.0592320  3.9313616   2.3487140  1.8261112  5.6550369
```

```
## 78   6.2972630  7.8740660  8.9619049   6.2261000  0.0000000  5.7694412
## 79   4.7427177  4.6860691  0.0000000   2.0403314  1.0221192  2.4954905
## 80   3.4261574  5.2619745 10.1553664  11.5618683  1.7812758  4.9569813
## 81   5.7334926  7.2222742  6.6996974   2.2965749  0.0000000  4.7732843
## 82   4.5789870 10.9374002  8.0078610   2.6795139  0.0000000  5.0193639
## 83   4.7976252  6.1833892  8.5761982   3.5083779  0.0000000  1.6432559
## 84   5.8559673  4.8678174 10.1420837   3.2709325  0.0000000  0.8345494
## 85  12.2454849  3.8357220  5.1640944  11.7601557  0.0000000  4.5316934
## 86   2.7520206  5.2370321  7.5894766   0.7556567  0.0000000  2.0746767
## 87   8.3770400  9.3734316 10.9653137   2.8676395  0.0000000  0.4119685
## 88   8.2830045  6.3570892  6.8672491   2.1674543  1.5787455  0.5818815
## 89   4.4940507  6.2470920  7.8166887   9.7882916  0.0000000  0.8704239
## 90   2.2629142  0.5912964  9.0132858   1.4755000  0.0000000  0.5912964
## 91   5.6779930  9.1512371  8.5602526   2.4115618  1.2834477  1.0535979
## 92   4.9072368  6.6349591  8.0631114   2.3805909  0.3774014  0.6763577
## 93   2.8276361  1.0118534 10.9320168   1.4316764  0.0000000  0.4209405
## 94   5.5586289  8.1356026  9.0012992   1.8406445  0.0000000  1.2825584
## 95   5.9673646  8.6306807  3.7467535   2.9341013  0.6343145  2.4376272
## 96   9.3218363  6.8754717  9.6303281   2.5529426  0.0000000  2.5485846
## 97   3.0315716  9.1382718 11.0565616   2.1058122  0.0000000  5.9332823
## 98   4.3712731  6.4887142  7.5407929   2.1611460  0.0000000  0.0000000
## 99   4.3267746  3.9942176  8.6154358   2.3655526  0.3981314  0.7098200
## 100  8.2485889  8.9887804  6.1845084   1.5705601  0.0000000  1.3067872
## 101  9.1881306  3.0946246  3.1798932   2.2193079  0.3335382  1.0287813
## 102  6.5637683  2.4329594  5.7602209   2.6350578  0.0000000  0.0000000
## 103  6.9883893  7.0909032  6.7199446   2.3683772  0.0000000  0.6035967
## 104  5.7544252  7.3074385  8.4150099   1.1137672  1.7313570  6.7462066
## 105  5.7472343  5.2929952  6.5708211   1.7762303  0.0000000  0.9761436
## 106  4.0280121  6.7066079 10.6793728   1.8113066  0.3923174  2.3399355
## 107  6.6970384  2.7631991  7.4544581   4.3741283  0.0000000  1.0603241
## 108  6.8640351  6.8676247 10.9728723   3.1003722  0.6601985  0.9034240
## 109  6.5562163  7.0145718  5.7068234   2.6668247  0.0000000  1.8769196
```

```
## 110  4.9358133  4.8385182 13.2437100   2.1187916  0.0000000  0.0000000
## 111 13.0415228  6.6205644  9.4444946   2.2737247  0.9648052  4.8380189
## 112  7.1728135  7.5289823  7.7572193   2.2513555  0.0000000  1.1696685
## 113  1.3831651  0.0000000  9.2483005   2.9715160  0.8513593  3.4128086
## 114  5.5522387  3.4128628  9.2604793   3.9413599  0.0000000  0.7360420
## 115  6.0544361  9.0153638 12.1547710   2.5401513  0.0000000  4.2492026
## 116  5.5349798  6.3157003  9.5042148   3.7510459  0.0000000  1.8523984
## 117  8.0625335  4.2192073  4.0375843   2.5041627  0.0000000  0.5749250
## 118  7.0799231  8.9201974  2.7271581   2.0502579  3.8193412  6.5651615
## 119  8.6492174  3.8781073  7.6613769   3.6635837  0.0000000  2.1459709
## 120  7.3982050  0.8467942  9.8216348   4.5382774  0.0000000  0.0000000
## 121  2.9628451  6.9358345  5.8375623   2.9661905  0.0000000  1.2383589
## 122  8.7332893  4.4979189 11.5790539   2.9320045  0.0000000  1.0320303
## 123  6.3067981  6.5293759  8.6770720   1.8111011  0.0000000  0.4403144
## 124  2.8929544  7.4676251  5.1779377   2.7753245  2.0217995  4.0803763
## 125  5.3018108  4.7458289 10.4096361   1.2652568  0.4859420  0.4859420
## 126  1.9828385  3.6792661  8.2331647   2.9563541  0.0000000  1.1797658
## 127  2.4914683  4.2313172 13.5343120   1.4760187  1.4742024  1.0475384
## 128  4.8397480  4.8966255 11.1442736   2.9386810  0.0000000  0.0000000
## 129  1.6307316  6.1588136  8.0576485   1.4207788  0.0000000  0.0000000
## 130  3.6060513  9.5935835  0.8701871   2.1137672  7.8706970  3.2139693
## 131  3.2578102  5.5225549  2.1918469   1.4810922  0.0000000  0.7771988
## 132  6.1600670  8.7646713  7.5288330   2.8335581  0.0000000  3.3420142
## 133  4.0278706  6.1474309  7.7997971   0.8393147 13.3296112  5.0357163
## 134  5.8007731  6.0305700  9.1443957   2.8131142  0.6795139  2.8711931
## 135  6.8649413  6.3685309  7.2683240   2.1283264  0.3848235  2.0204844
## 136  6.6465616  5.9573853 10.6796226   0.8914970  0.5134907  0.0000000
## 137  6.2664193  6.0162623 13.0341550   2.7283124  0.4330663  0.4330663
## 138  2.0591130  6.1314351 10.4876216   1.5951694  0.0000000  2.4872291
## 139  6.0289912  4.8486530  8.2660420   3.8266807  1.1350751  1.1350751
## 140  1.8151245  3.6729684  0.0000000   2.6928735  0.0000000  0.0000000
## 141  1.7720968  3.5691994  7.1322838   5.3691209 10.1511065  5.8917497
```

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## 142  7.2377511  5.8625307 10.1937269   7.2434720  0.0000000  3.6842689
## 143  3.9806469  9.4710303  7.9502689   9.9714201 11.7583684  5.8395011
## 144  4.2496046  3.1142671  8.4332608   3.1217449  0.0000000  1.4865599
## 145  6.8292483  8.3995834 11.2728253   3.1427728 10.4837754  2.8761535
## 146  8.4838500  6.0112161 10.6525356   1.5291713  0.0000000  2.7321389
## 147  4.9963571 10.9882353 12.4994150   2.7874534  0.0000000  0.4521737
## 148  3.7660651  5.0880228  9.6262853  10.2222629  0.0000000  5.7661022
## 149  7.1236786  4.9610630  7.8401907   1.5183841  0.0000000  1.3154503
## 150  2.8048796  5.8143992  9.0226885  10.1245351  1.2521128  3.3522359
## 151  9.9890044  7.4860587  6.7394823   1.7177806  0.0000000  1.5973643
## 152  2.4768483  2.8534767  7.4508203   0.8720801  0.0000000  0.0000000
## 153  7.8852675  7.1801379  6.2385557   1.8845198  8.1751558  0.0000000
## 154  4.4418619  7.8792757 11.1743314   2.8910108  0.0000000  2.2713659
## 155  8.3388032  7.4660251  4.8043840   1.7908554  0.0000000  1.5385382
## 156  9.6402652  6.1032039  6.9889959   3.0860874  0.0000000  1.9959548
##     rs_LOC100124692 rs_HS3ST4   rs_PADI3   rs_AMY1A   rs_OXTR rs_DEFB132
## 1         0.0000000 1.6516832  4.6183679  0.5144000  9.080063  5.3213762
## 2         3.5649390 2.8358432  1.2895984  0.0000000  5.505313  2.5096958
## 3         2.1017173 0.0000000  1.5002922  1.5002922  6.335281  4.2968758
## 4         2.0797706 0.8535167  0.4889263  1.7742494  7.223634  0.0000000
## 5         0.0000000 2.3109217  1.3700527  1.5757964  6.382129  3.0921567
## 6         3.9563169 0.0000000  3.8565376  7.4534674  8.217621  0.0000000
## 7         0.8248086 4.3421778  0.0000000  7.1512622  7.289266  0.0000000
## 8         7.0717884 6.2890469  0.0000000  6.9793932  7.376553  0.0000000
## 9         3.8587966 0.0000000  1.0279325  0.0000000  5.973294  0.0000000
## 10        1.9455702 0.0000000  0.0000000  1.1519887  7.955946  2.9866112
## 11        1.2253983 3.0635547  5.7952812  2.5068558  6.990150  4.2780442
## 12        3.0076082 1.3118518  1.3118518  0.8001648  6.906614  4.5612834
## 13        5.4416129 0.9433588  0.0000000  4.7711831  5.559250  0.0000000
## 14        0.7400209 5.0518767  3.1767855  2.8139761 10.267844  2.1214133
## 15        0.4407396 0.0000000  2.5854914  1.6525094  7.022215  2.0757722
## 16        1.9141052 0.0000000  1.2536263  0.5474498  7.151869  6.0357427
```

```
## 17        1.4180280 0.0000000  5.1578118  0.5039593  5.475030  4.6339775
## 18        0.0000000 0.0000000  5.1597139  1.3375969  5.929471  4.7115224
## 19        2.1500072 4.4726827  1.4431823  2.2402838  8.632926  0.3634515
## 20        1.5906260 0.0000000  6.4129085  0.3644604  6.646050  0.0000000
## 21        0.4891319 0.0000000  5.4785803  3.1813888  7.032945  5.8953220
## 22        3.3885753 0.4976379  7.1649481  1.1606621  6.517427  0.0000000
## 23        0.5566992 0.0000000  0.5566992  5.7223349  7.844489  0.5566992
## 24        0.7984238 3.0040879  1.5099998  5.9624680  5.892381  0.0000000
## 25        0.4031586 0.0000000  0.7179122  1.9641398  5.819081  0.4031586
## 26        1.9740520 2.0686708  4.9457809  0.0000000  6.776483  2.0686708
## 27        2.5901229 3.3171593  2.3061164  1.0538064  9.279649  4.6864389
## 28        3.8756621 0.0000000  1.6194130  3.2786836  5.111662  0.5002922
## 29        0.3800645 0.0000000  1.4895943  1.3258469  7.230470  0.9291092
## 30        3.9531442 3.1377658  4.3180854  2.6325242 13.158395  3.6457823
## 31        0.4826418 0.0000000  5.8334923  1.3725621  6.107349  3.1613395
## 32        1.2651368 0.7670615  0.7670615  1.4617381  5.616775  1.2651368
## 33        5.3460385 3.1933617  3.7053034  3.1933617 10.194437  3.8540854
## 34        0.0000000 1.6731493  0.9074291  1.2100771  5.950891  1.8587767
## 35        0.4498519 0.7922723  2.6141444  0.7922723  4.848413  3.6677446
## 36        8.1871056 2.8050241  2.8050241  5.4661018  8.890362  1.6502131
## 37        2.8128473 4.6986463  4.0441493  2.2851950  7.840169  5.0568349
## 38        0.0000000 0.6439485  5.8036223  1.5700743  5.626004  1.4264795
## 39        0.0000000 0.0000000  0.0000000  1.6751836  7.845587  1.8609231
## 40        6.9763602 1.1918784  2.6177921  5.0770421  5.195564  3.5751187
## 41        2.7158934 0.4088205  2.4820996  3.3468293  5.590398  0.0000000
## 42        1.0865120 0.0000000  0.0000000  3.6987963  5.928984  0.4589069
## 43        0.0000000 4.4854204  1.8777442 10.3280471  6.036626  0.0000000
## 44        0.7004397 2.7945198  6.0099406  0.7004397  7.716932  4.1849785
## 45        1.5617905 1.7824924  1.5617905  0.5733745  5.408838  5.5356797
## 46        0.7903550 1.2980131  4.0603414  5.5644026  6.363432  0.0000000
## 47        0.6822137 0.3810618  0.0000000  1.4925198  4.950814  2.1128002
## 48        4.3876452 3.7150807  5.7666270  2.9343278 11.400708  0.9004128
```

```
## 49        0.0000000 0.0000000  1.2772111  2.2331518  6.785804  3.0709388
## 50        3.9233204 1.5521311  1.1942762  0.4028313  7.623158  3.3245802
## 51        0.3971458 0.3971458  2.9362139  9.6029141  5.552875  0.0000000
## 52        1.6440408 0.0000000  0.0000000  0.8455904  6.052155  1.3751785
## 53        1.7211539 1.7211539  4.1749816  1.4009204  8.157324  3.4388384
## 54        0.0000000 0.0000000  2.3942946  0.4380799  7.461520  1.0456526
## 55        3.2246886 2.0975097  1.7592411  0.9218171  6.157119  5.0914798
## 56        0.0000000 0.8589358  3.7667966  5.6620289  4.756885  0.0000000
## 57        6.1365400 6.5239665  2.5098985  4.5256931 11.856900  4.7744497
## 58        4.7520528 4.3377111  2.6883370  3.5718345 10.093252  3.5718345
## 59        8.8338189 0.9134160  6.6346267  6.5002826  7.485195  0.0000000
## 60        0.0000000 0.0000000 10.6107229  1.3885753  7.349550  3.4916992
## 61        3.6513502 1.6463470  0.9358369  3.3406050  7.982978  3.5425181
## 62        1.7543317 0.6721085  0.3748447  0.6721085  7.538017  1.4752406
## 63        0.6244285 0.3457370  1.9923334  1.2351143  4.994186  1.7812338
## 64        0.4994760 2.5764738  0.8698714  0.8698714  7.877588  6.4710574
## 65        2.8171525 2.4325052  0.0000000 10.2305817  7.767471  0.0000000
## 66        0.6304987 0.3494785  0.3494785  0.6304987  6.249715  2.1899510
## 67        4.2488384 5.0306804  2.1162317  3.1707743 11.428100  2.8081791
## 68        2.0393139 2.2426330  0.9509909  2.2426330  8.809295  3.8763991
## 69        3.0437644 4.7079609  2.7840223  4.5355553  9.161278  0.9303967
## 70        3.7069836 0.0000000  1.0240359  1.2498700  5.631713  2.3602238
## 71        6.1747160 0.5271704  3.4784024  0.7326599  5.692868  0.5271704
## 72        0.4655044 1.7158055  0.0000000  1.0992279  6.030257  2.5730109
## 73        2.8441446 0.0000000  0.8258670  3.1253205  5.390520  1.9384364
## 74        0.3683772 0.0000000  0.6614760  1.7341785  4.897037  1.4569113
## 75        3.2100771 5.8456883  3.8412989  3.9038385 12.974526  4.2063541
## 76        0.4619476 1.0923428  1.8646517  0.4619476  6.042465  1.3274574
## 77        2.7226409 2.6068212  3.3455383  2.9296206  6.460533  9.7868951
## 78        7.9025952 0.0000000  0.0000000  3.4202803  6.247291  0.0000000
## 79        0.0000000 0.0000000  2.6216651  1.0221192  3.947947  7.3656007
## 80        8.4642946 0.8579014  1.3922625  7.5597319  7.055498  0.0000000
```

```
## 81       1.7821989 4.4580932  2.1425115  2.2937236 10.968539 10.0022333
## 82       7.1990461 6.9335644  0.5350576  4.9992514 13.080481  7.8651202
## 83       2.2377167 2.3166961  1.7609448  0.6143800  6.545060  5.0380674
## 84       1.0316775 0.0000000  1.7441180  1.2050797  4.979490  3.8912345
## 85       2.8801761 0.0000000  0.8717648  7.5735578 10.769798  0.3523066
## 86       0.2980717 0.0000000  0.0000000  1.1025238  6.741627  5.3304939
## 87       0.4119685 0.0000000  0.7319652  1.5766672  5.552598  2.4049304
## 88       0.0000000 0.0000000  0.5818815  0.0000000  5.057021  2.1626612
## 89       0.0000000 2.7650467  0.0000000  0.4998841  8.864367  6.3964061
## 90       0.5912964 0.0000000  0.3257318  3.9484700  5.453162  6.2035849
## 91       0.0000000 0.4421208  9.2368905  0.0000000  6.133407  1.4817123
## 92       0.6763577 0.0000000  0.0000000  1.6291468  4.848548  1.1350094
## 93       0.4209405 0.0000000  2.1336950  1.4298570  5.961852  0.4209405
## 94       0.6536104 2.7507566  1.7190958  0.0000000  5.851337  1.4431823
## 95       1.5521803 0.0000000  1.8010759  0.0000000  5.902257  2.9822726
## 96       0.0000000 0.9121900  1.6802343  0.5270703  7.190592  6.3906264
## 97       3.4812343 0.0000000  0.3774014  3.2738441  4.173567  0.3774014
## 98       0.4281424 0.0000000  1.0261627  2.1555550  4.840131  3.8896390
## 99       0.0000000 0.3981314  4.9630070  0.7098200  5.193468  0.3981314
## 100      0.0000000 0.0000000  1.3067872  0.9873936  5.260767  5.8820267
## 101      6.0561435 0.8320393  1.9489372  1.3564256  5.368492  0.0000000
## 102      0.8479969 0.0000000  5.8826430  1.5849625  6.482203  0.4854268
## 103      0.0000000 0.0000000  1.7388543  3.3716425  6.109609  3.5096452
## 104      2.4958998 0.0000000  3.6106174  1.5527213  5.647179  2.1636919
## 105      0.9761436 0.0000000  1.1433934  0.0000000  6.296835  3.8620843
## 106      0.9542708 0.3923174  2.1498447  1.1699891  6.205905  2.7280076
## 107      1.0603241 0.0000000  0.7854250  1.0603241  6.640609  6.1462907
## 108      0.3675947 1.1114988  2.8843635  3.0949792  7.155863  1.7317915
## 109      1.2243490 3.3088414  0.0000000  0.9191494  6.294882  1.6903724
## 110      0.9985566 0.0000000  2.8048796  1.4132149  9.935720  3.3193289
## 111      1.3708896 1.5378427  8.2923216  5.6397502  8.511341  2.5257933
## 112      2.5845777 2.4807563  1.8070251  1.1696685  7.671388  1.1696685
```

```
## 113       0.0000000 0.0000000  0.0000000  0.0000000  5.767604  1.5900031
## 114       1.2210109 0.0000000  0.0000000  1.8727106  7.067289  0.4144603
## 115       0.0000000 0.6786128  7.3232656  2.2026998  7.496394  0.0000000
## 116       0.0000000 0.7248249  1.9772066  0.4075159  6.291860  0.9848445
## 117       2.2240403 1.1531568  0.0000000  0.3159140  5.883061  2.5597365
## 118       0.0000000 3.0866649  5.6715425  0.7000845  3.819341  0.0000000
## 119       2.2535355 0.4250295  2.7706388  0.4250295  7.471143  1.9033083
## 120       0.0000000 0.0000000  0.0000000  0.6156988  4.932855  5.3828056
## 121       2.4675403 3.5697949  1.2383589  0.9306995  9.169897  1.4918018
## 122       2.3728407 0.0000000  1.0320303  1.6275135  5.686610  1.9208268
## 123       0.0000000 0.0000000  0.4403144  3.6347559  4.062165  3.2030758
## 124       2.4019854 1.1534162  1.1534162  1.3394225  5.371698  1.1534162
## 125       0.4859420 0.8487982  3.6796715  1.0008654  5.834592  3.0015140
## 126       0.0000000 0.0000000  0.0000000  2.3835246  9.447595  2.2619219
## 127       0.0000000 0.0000000  4.1176867  1.0475384  4.997365  4.7904489
## 128       2.5591981 0.3650206  1.5922059  0.8980922  8.469676  4.6376972
## 129       0.8786861 0.0000000  0.0000000  0.0000000  4.777046  0.0000000
## 130       0.0000000 0.0000000  7.5200450  1.8006204  4.885701  0.0000000
## 131       0.0000000 0.0000000  8.1606454  0.0000000  6.097017  3.5492502
## 132       1.2052048 1.6673018  0.0000000  1.6673018  5.901062  4.5890444
## 133       2.1806571 0.4777809  5.1517979  5.2141598  5.836543  1.1229377
## 134       1.8903299 0.3793992  4.5946321  2.2046416  6.397817  1.8903299
## 135       1.7847971 0.3848235  1.3383388  0.3848235  5.596521  1.6507646
## 136       0.8914970 1.4383461  2.2773302  0.5134907  7.865118  3.4932374
## 137       1.6326405 1.9264170  4.2099991  0.4330663  8.196562  1.2633950
## 138       0.6561760 9.5226276  2.6939441  6.6109702  4.924547  0.0000000
## 139       0.0000000 0.0000000  4.5502789  0.9238718  6.660879  0.9238718
## 140       0.0000000 0.0000000  2.5940230  0.0000000  6.437000  0.5056877
## 141       9.8940342 0.0000000  0.8521587 11.1517489  5.726079  0.0000000
## 142       1.4559650 1.0328061  4.0907857  3.7228704  4.359381  3.4740076
## 143       2.4135399 3.2713809  1.0579701  8.1355923  4.967851  0.0000000
## 144       0.0000000 0.0000000  0.0000000  0.0000000  6.011849  0.0000000
```

```
## 145       3.6802118 0.3654686  0.6567252  4.7824400  6.994912  0.0000000
## 146       0.9565771 0.5562087  1.2696915  0.9565771  5.968508  4.0463252
## 147       0.4521737 2.2267859  4.5288963  1.0733404  5.424986  4.7423350
## 148       8.3581276 0.0000000  0.0000000  9.7868461  5.524126  0.0000000
## 149       2.2393980 0.0000000  0.0000000  0.0000000  5.700190  3.6904506
## 150       7.0821512 9.4891286  3.6977738 11.6446806  3.796733  0.0000000
## 151       3.7175832 2.2625835  3.1038501  1.3330802  8.419382  5.1160528
## 152       0.0000000 0.0000000  1.4117516  1.1670367  9.191594  1.8036404
## 153       0.4689482 2.9842430 10.7938991  0.4689482  8.682270  6.7310855
## 154       3.1136172 6.0249136  1.1864372  3.9992785  7.811243  0.7119354
## 155       0.3472121 0.8610819  2.5603726  0.6269530  6.438391  0.6269530
## 156       1.5813512 1.3186928  0.9973285  0.9973285  6.659989  2.1657190
##      rs_DPYSL5 pp_X14.3.3.beta pp_X14.3.3.epsilon pp_X14.3.3.zeta   pp_X4E.BP1
## 1    0.0000000    -0.065364828      -0.1736984765    -0.190751879  0.390806800
## 2    0.0000000    -0.029615457      -0.1575234880    -0.283581270  0.022243037
## 3    0.0000000     0.140562960       0.1927014580     0.211418232  0.134012919
## 4    0.0000000    -0.008031433      -0.1386421477    -0.122891406 -0.032011397
## 5    0.0000000     0.029801771       0.0532547775     0.312538834  0.702952903
## 6    3.6925946    -0.083869417       0.0213071785    -0.239253452 -0.193087518
## 7    2.6778916     0.366998485       0.2859408400    -0.471547732 -0.557513548
## 8    8.5433288    -0.085165132       0.0971634635     0.076269356  0.652106816
## 9    4.8082048     0.058627119       0.1596407085     0.007516144  0.580616487
## 10   0.0000000    -0.023017674      -0.0598711262     0.382441218 -0.063893307
## 11   3.7775039     0.001800327      -0.0103905320     1.102905103 -0.356291808
## 12   0.0000000     0.057123241      -0.0236040780     0.140542393 -0.465512398
## 13   0.0000000    -0.177906496      -0.1978709775     0.158512725  0.547805838
## 14   0.0000000     0.048006850       0.2300781345     0.381946028  0.487110787
## 15   1.0509544    -0.116435332       0.2063566605    -0.216609941 -0.099411460
## 16   0.0000000    -0.177390517       0.0436724675    -0.148750174  0.163996359
## 17   6.1460055    -0.063113589       0.0116494620     0.288678271  0.262219739
## 18   5.1127252     0.050218698       0.0286758530     0.522090676  0.196194895
## 19   0.3634515     0.057868093       0.0252581150    -0.168646089  0.318629632
```

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## 20   6.6460503   -0.027398111    0.0179961075    0.080508619 -0.050110612
## 21   1.1445685   -0.139176652   -0.0734750960    0.238142381  0.375598145
## 22   1.4045762    0.012686576    0.3612923360    0.473127909  0.596906205
## 23   3.8733309    0.078041838   -0.0373806865    0.284039988  1.296887350
## 24   0.7984238    0.052488558    0.0832811660   -0.120331905  0.822612786
## 25   0.0000000   -0.010700612   -0.2618738720    0.029019424 -0.167078253
## 26   1.8728288   -0.031770872    0.0401066895    0.942819011  0.147254213
## 27   0.0000000   -0.114176079    0.0166437695   -0.213679363 -0.032120371
## 28   5.7453046    0.026439702   -0.0134283835    0.147376019 -0.240867494
## 29   0.0000000    0.516463017    0.5206709405   -0.350128172 -0.496861704
## 30   0.4557546    0.228613150    0.3343396200   -0.382222375  0.780850744
## 31   0.4826418    0.288835083    0.6495658115    0.365045750 -0.399402614
## 32   0.0000000   -0.141031684    0.0395789845    0.182330562 -0.224902477
## 33   0.7727302    0.195497210    0.3413364240    0.043455877  1.055683034
## 34   0.0000000    0.218442021    0.1912448940    0.103082094  0.167224882
## 35   0.0000000    0.012394058    0.0718581440   -0.088780148  0.130107719
## 36   1.6502131    0.125498976    0.1551537370    0.388321427  0.041248149
## 37   1.4446141   -0.134496030    0.0296558305    0.026783002 -0.133999347
## 38   4.2903064   -0.057380600   -0.0907220050    0.495723588  1.452962636
## 39   0.0000000   -0.033255466   -0.0802375800    0.341651518  1.475227414
## 40   6.1433383    0.557060074   -0.2348932215    0.011255148 -0.170886652
## 41   0.9876119   -0.268162061   -0.1803333780   -0.028466892 -0.113686103
## 42   3.6130719   -0.193715960   -0.2164320445    0.700147196 -0.181976901
## 43   3.9323069   -0.105390723   -0.0843594070    0.035950933  0.617320381
## 44   0.0000000    0.549822636    0.4111127285   -0.215572815  0.577258494
## 45   0.0000000    0.323994517    0.4226742920    0.561690517 -0.405860090
## 46   0.7903550   -0.091412938   -0.0143374905   -0.183200701 -0.104157754
## 47   0.3810618    0.088189908    0.1553539040    0.328617424  0.230796735
## 48   4.2844993   -0.011621245    0.0937779250    0.674443604  0.156670976
## 49   0.0000000    0.683495078    0.4036778600   -0.979517264 -0.802813967
## 50   0.4028313   -0.120303602   -0.0908660455   -0.289474897 -0.377580545
## 51   2.9362139   -0.156587962    0.0528218515   -0.087223858  0.388492157
```

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## 52   0.0000000    0.861035692     0.6275151420   -0.691894984 -0.788145263
## 53   2.8549133   -0.108569839    -0.1219290510   -0.001364580  0.593861971
## 54   1.9403923   -0.112246721    -0.1337523490    0.950596681  1.614173306
## 55   0.0000000   -0.121470093     0.0768994660    0.358217414 -0.370738925
## 56   1.7828279    0.079755435     0.0848777525    0.081666999 -0.128473189
## 57   0.4448791    0.504802324     0.3202433565   -0.334140476  0.593157796
## 58   0.0000000   -0.198425535     0.0861117235    0.098404262  0.377351689
## 59  10.1411127    0.000609804     0.0200053740    0.485471457  1.502962633
## 60   7.0887607    0.264437111     0.4359768225    0.939675476 -0.143807046
## 61   0.0000000    0.139704252     0.0505440245    0.391691320  0.662640647
## 62   0.0000000   -0.022449238     0.1138140305    0.432829613 -0.444152651
## 63   0.0000000   -0.245507205     0.1197323350    0.923718581  0.624466780
## 64   0.0000000    0.711200203     0.3294094840   -0.172241248 -0.356124553
## 65   0.8676593    0.156496931     0.1170806902   -0.094827445 -0.456494614
## 66   0.0000000   -0.019899906    -0.2990868943    0.294963322  0.718547952
## 67   0.0000000    0.325473535    -0.0722757720   -0.197400018  0.066082226
## 68   0.3907777    1.109364009     0.3082437587    0.623918363 -0.804101240
## 69   0.0000000   -0.184229613     0.2204609570    0.313373356 -0.050120981
## 70   0.4270698   -0.275680473     0.0592063927    0.106843267 -0.059465145
## 71   2.8430995   -0.131556079     0.1451195128   -0.158677295 -0.123257621
## 72   0.0000000   -0.048670376     0.0759565195    1.314811142  0.523973343
## 73   6.0974760   -0.406136504    -0.1358927722    0.250172181  0.360429705
## 74   0.0000000   -0.075860019    -0.1172443090    0.225687222 -0.413244815
## 75   1.3714473   -0.168444760    -0.0111872545   -0.310812774 -0.087404750
## 76   0.0000000   -0.107811100    -0.4024612940    0.105342953  0.306211428
## 77   0.0000000    0.326397045     0.4612118155    0.292229797  1.079006690
## 78   3.5496076   -0.234470098     0.0768014230    0.059357039  0.079036507
## 79   1.3484591   -0.041600598     0.0355251295   -0.399620866 -0.395875868
## 80   1.3922625    0.191356211     0.1083440075    0.460200237 -0.292421039
## 81   0.0000000   -0.372726131     0.2285038560   -0.355995522 -0.234087298
## 82   0.5350576    0.401016351     0.0085320320    0.069526325 -0.082419263
## 83   0.8451086   -0.098256870     0.2869428075    0.114702078 -0.314467159
```

```
## 84   0.0000000  -0.096880711  -0.1384395773   0.063585341 -0.164539268
## 85   1.5540485  -0.444453535  -0.2456271198   0.455157390  0.031744129
## 86   0.9395275   0.486626206   0.3312883415  -0.080954738 -0.371566339
## 87   0.0000000   0.486772175   0.2950467467   0.675435256  0.307698344
## 88   0.0000000   0.050909820  -0.0980912080  -0.467192023 -0.609010047
## 89   0.0000000  -0.033465279  -0.0408213640   0.692328126 -0.280656293
## 90   0.0000000  -0.283451415  -0.1193891892   0.160414324 -0.184822381
## 91   0.7799741  -0.009722068  -0.2540785005   0.426690467 -0.507299491
## 92   0.0000000   0.045121386  -0.1920443285  -0.096486131 -0.329340697
## 93   0.0000000   0.164189171  -0.0164897235   0.507007806 -0.162753129
## 94   0.0000000   0.445624110   0.3711342652  -0.385896808 -0.733187910
## 95   0.0000000   0.032831163   0.0380769570   0.011990001 -0.346176153
## 96   0.0000000  -0.226219801  -0.1606813190   0.083472777 -0.443085104
## 97   2.2891262  -0.070114329   0.0467468562   1.173959038  1.162913021
## 98   1.2522945   0.004337476  -0.1819825195   0.787150034 -1.221512647
## 99   4.1572701  -0.231420896  -0.3873346600   0.570244575  0.961505811
## 100  0.0000000  -0.265935587  -0.4196807020   0.087370101 -0.605281190
## 101  0.0000000  -0.007116531  -0.0520469038  -0.403355723  0.745832161
## 102  7.1189411  -0.249358038  -0.0138889427  -0.057493263  1.078870849
## 103  0.0000000  -0.180732437  -0.2629781965  -0.525973846 -0.543444679
## 104  0.0000000   0.164727808   0.0472601680  -0.520491538 -0.112101093
## 105  0.0000000   0.045734461  -0.1641890945  -0.336520133 -0.085944384
## 106  0.3923174  -0.167735698  -0.0652785068   0.497323261  0.616777104
## 107  0.0000000  -0.243389447  -0.2825158220  -0.434798536 -0.283494886
## 108  1.1114988  -0.122144895   0.0226777025   0.010509744  0.519889255
## 109  0.9191494   0.216861726  -0.0025708540   0.174822293 -0.108135998
## 110  4.5208057  -0.057484872  -0.2901999910   0.212500810 -0.395278107
## 111  9.8366631  -0.156406518  -0.2900714115  -0.273565839 -0.042556694
## 112  1.4147309  -0.060757890  -0.0771622925  -0.329062519 -0.429026475
## 113  0.0000000  -0.015529744  -0.0141103725   0.911130042 -0.344643217
## 114  0.0000000  -0.114680005  -0.1029926445   0.406604445  0.128778908
## 115  1.1382247   0.123437707  -0.0258199620  -0.005254677 -0.350793479
```

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## 116  1.2050797   -0.213281343     -0.0227077482   -0.355349338 -0.106424698
## 117  0.0000000   -0.068558405     -0.0039273687    0.010532757  0.365353588
## 118  0.0000000   -0.120596261     -0.3025577760    0.021702139  0.238108028
## 119  1.2451305    0.666835801     0.2737830360   -0.645180681 -0.677162129
## 120  0.0000000   -0.000465865     0.1403891880   -0.124438091  0.197196155
## 121  1.8947596   -0.062167138     0.0004113013    0.329334606  0.523055487
## 122  0.7626465    0.039621400     0.0650627575   -0.067282014 -0.549092625
## 123  0.7771988   -0.173469674     -0.1934799405   -0.138470760 -0.009049232
## 124  1.1534162    0.039851272     -0.1569672150   -0.327100377  0.095559879
## 125  0.4859420   -0.178056339     -0.3934077590   -0.105546669  0.336783078
## 126  0.0000000    0.141420044     -0.1125459335   -0.113886283 -0.321895634
## 127  3.2533237   -0.158530473     -0.3451401190    0.420167668  0.067776540
## 128  5.8435618   -0.168050223     -0.0949447255    0.034202045  0.528452719
## 129  0.0000000   -0.174990614     -0.2483815975    0.747041005 -0.206654110
## 130  1.6181447    0.084597718     -0.1901790295   -0.262411277  0.868422400
## 131  0.0000000   -0.126376751     -0.0413319925   -0.329191743 -0.249691307
## 132  0.9034240    0.133122243     -0.0772184330   -0.750742404 -0.177549449
## 133  0.0000000    0.033406611     -0.1492027055    0.217025027 -0.213804348
## 134  0.3793992    0.572564116     -0.4761010507    0.133999168 -0.735619409
## 135  0.0000000   -0.279993995     0.1180058597   -0.355159164  0.004405971
## 136  1.4383461    0.080501607     0.0560019562    0.411432803 -0.319760852
## 137  6.5405047   -0.010525416     0.0008208757    0.329951020  0.341353540
## 138 10.3981045   -0.039681604     -0.0530790370    0.513229858 -0.098157232
## 139  0.0000000    0.031944402     0.0575354190    0.504786735 -0.211048150
## 140  0.0000000    0.401306497     0.1655749307    0.109777062  0.694310241
## 141  0.0000000    0.030407174     0.0464603615    0.242469654 -0.086307613
## 142  1.2598449   -0.038999275     0.0252991488   -0.494570474 -0.226642753
## 143  8.0200799   -0.174115452     0.1019004873   -0.080153750  0.778161763
## 144  2.7776196   -0.216944155     -0.1006376415    0.069352970 -0.150523426
## 145  2.2471680   -0.184441137     -0.0280624790    0.018440839  0.062257264
## 146  1.2696915   -0.081136848     -0.0091856310   -0.267886120  0.293392390
## 147  0.0000000   -0.105753864     0.0068391545   -0.460982402  0.121163165
```

```
## 148 11.0468825     0.025887715       0.0995526955    -0.187896187  0.421223366
## 149  0.0000000     0.074830462       0.0827263240    -0.346155151  0.084846289
## 150  0.0000000    -0.087294065       0.0812394292     0.055148932  0.959960542
## 151  0.0000000     0.201237411       0.1173577340    -0.072526605 -0.535539467
## 152  0.0000000     0.021036734       0.0357483170     0.467912023 -0.196163856
## 153  6.6340080     0.041687304       0.0331105745    -0.312980967 -0.162884875
## 154 10.3554512     0.213983826       0.1221879383     0.072424086  0.234348164
## 155  6.2806798     0.040017369      -0.1134091737     0.075352864  0.404774851
## 156  0.0000000     0.229552206       0.2296735365     0.396690117  0.910539864
##     pp_X4E.BP1.pS65 pp_X4E.BP1.pT37.T46 pp_X4E.BP1.pT70    pp_X53BP1
## 1      3.564318e-02         0.193453647    -0.170578989  0.283253217
## 2     -9.212511e-02        -0.056990416     0.245442371 -0.172923996
## 3     -2.334827e-01        -1.092606831    -0.287758359 -0.290588632
## 4     -2.576116e-02        -0.455216473    -0.144672372  0.500916835
## 5     -2.672917e-02         0.638111185     0.064882149 -0.488971914
## 6      1.959246e-01         0.626700451     0.081578670 -0.034458414
## 7     -4.136079e-02        -0.527894280    -0.063247067 -0.689197582
## 8     -1.301032e-01        -0.246840038     0.150460630 -0.201753695
## 9      7.903776e-02        -0.186441505     0.179718889  0.640919273
## 10    -3.482532e-01        -1.024340150    -0.088446263  0.373650236
## 11    -1.941599e-01        -0.492591866    -0.147187390 -0.140318796
## 12    -9.761982e-02        -0.099335145    -0.117391210 -0.044766520
## 13     1.660177e-01         0.055547897     0.052718251  0.194304250
## 14    -2.303702e-01        -0.560701132    -0.052381665 -0.514728291
## 15    -4.717038e-03        -0.321369575    -0.023175133  0.706377522
## 16    -1.937984e-01        -0.485325800    -0.111944781  0.064387366
## 17    -4.566206e-02        -0.460078912    -0.092801587 -0.809174288
## 18    -1.086091e-01         0.097974840     0.070045801  0.737476608
## 19    -2.592924e-01        -0.342000537    -0.078101033  0.911865347
## 20     1.043748e-01         0.164375643     0.501732131  0.649230397
## 21     6.458730e-04        -0.374864172     0.172363863  0.203363336
## 22    -2.712746e-03        -0.750055113     0.103117484 -0.448234132
```

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## 23     4.627634e-01         1.453470642     0.530850523  0.433522623
## 24    -1.460366e-01        -0.966315956    -0.284872724 -0.571101707
## 25    -1.571444e-01        -0.357666111    -0.022158975  0.612070079
## 26    -8.088221e-02         0.506830673     0.152906341 -0.538021358
## 27    -2.150501e-01         0.150872980    -0.203684854  0.027892299
## 28     1.653982e-01        -0.197164292     0.006882967 -0.256040855
## 29     1.548275e-01         0.593567433     0.080396245 -0.566572938
## 30     1.713827e-01         1.028192504     0.379564126 -0.176851405
## 31    -2.156478e-01         0.617017556    -0.088583173 -0.455260398
## 32    -3.604628e-01         0.096641395    -0.013865693  0.064225215
## 33     3.709346e-01         1.486793924     0.637108688  0.114142355
## 34    -3.647011e-01         0.122030145    -0.161930068 -0.368286337
## 35    -5.224956e-02         0.202693000     0.187734525 -0.051623529
## 36    -2.547169e-01         0.344549359     0.031380086 -0.790712522
## 37    -2.780263e-01        -1.138762172    -0.452920528  0.159774840
## 38     1.811608e-01         0.587971598     0.586384157 -0.109157569
## 39     1.852498e-01         0.497971667     0.646247249 -0.140360082
## 40    -4.797469e-02        -0.473788002    -0.080831447 -0.343292398
## 41     3.695253e-01         0.555299613    -0.065578911 -0.444329082
## 42     5.356635e-01         0.335405995     0.008722495  0.044174740
## 43     1.556107e-01         0.172186533    -0.047037407  0.233521396
## 44     1.956515e-01         0.765066250     0.172956976 -0.052632601
## 45    -4.340713e-02        -0.035281477     0.040433779 -0.007959175
## 46    -1.677261e-01        -0.549225330    -0.221437671  0.591873279
## 47    -3.523544e-01        -0.099817456    -0.276450833  0.246986915
## 48    -1.591302e-01        -0.599084111    -0.067969522 -0.105245991
## 49     6.042160e-02        -0.202725123     0.362049632 -0.672867018
## 50    -2.664605e-01        -0.092990509    -0.032139163  0.769824192
## 51     1.898500e-01         0.510797351     0.176481253  0.294511362
## 52     3.241423e-02        -0.546561436     0.124489791 -0.897252492
## 53     1.443048e-01         0.817770579     0.260482992  0.481152604
## 54     5.729490e-01         1.994620953     0.891371059  0.851153523
```

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## 55    -2.571915e-01         0.087203649    -0.088815080  0.812536054
## 56     1.810844e-01         0.824125846    -0.083915727 -0.254549827
## 57     3.475830e-01         1.077597083     0.343414242 -0.310046734
## 58    -9.932332e-02        -0.277801007    -0.275232672  0.541961787
## 59     3.068605e-01         1.306883962     0.535457837 -0.222159790
## 60    -2.679320e-01        -1.229858608     0.062331731  0.104319578
## 61    -5.512375e-02         0.914799676    -0.010828694  0.875599073
## 62     5.118894e-01        -0.983884247    -0.230668859  0.396772650
## 63    -2.236489e-01        -0.372539666     0.035007663  0.130185086
## 64     1.772689e-01        -0.293769126    -0.068730732 -0.782814843
## 65     1.683066e-01        -0.122391710     0.064403776 -1.057373540
## 66     2.208721e-01         0.914253311     0.294665730  0.920947573
## 67     7.585945e-02         0.069311253    -0.349820583 -0.710449368
## 68    -5.222020e-01        -0.472684936     0.328660275 -1.509957240
## 69    -4.653946e-01        -0.405732490     0.023264813 -0.154764308
## 70    -3.340964e-01        -0.553469093     0.009212465  0.135178638
## 71    -3.984889e-01        -0.246210111     0.117460322 -0.073489479
## 72    -2.874154e-01        -0.286913307     0.315799974 -0.206530762
## 73     2.725723e-01         0.774445261     0.176268792  0.036653103
## 74    -4.976535e-01         0.090303096    -0.184985169 -0.269635925
## 75     3.800515e-01         0.387280147     0.090750337  0.632726521
## 76     3.216182e-01         0.770464248     0.306596327 -0.300930854
## 77     5.578938e-01         1.773786184     0.588919385 -0.475688065
## 78     9.840035e-02         0.835275682     0.063085260 -0.174231294
## 79    -2.329920e-01         0.153538959    -0.223584369  0.507881915
## 80    -1.916976e-02        -0.481623162    -0.330580543 -0.427952220
## 81    -8.293891e-01        -0.872877720    -1.066349395 -0.089333997
## 82    -4.971448e-01        -0.164031592    -0.084955757 -0.707954127
## 83    -1.836670e-01         0.433417451    -0.162679970 -0.200370968
## 84    -4.589565e-01         0.115231905    -0.111065407 -0.215642778
## 85     6.771415e-01         1.073717972     0.236583293 -0.162772671
## 86    -1.228913e-01         0.127516401    -0.129886213 -1.031886250
```

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## 87     1.741060e-01         1.053278348    -0.228733478 -0.550886485
## 88     1.619536e-02         0.502381798     0.054204779  0.125647156
## 89    -1.484845e-01         0.846101905     0.109833081 -0.083439423
## 90     2.158360e-01        -0.012778576     0.116275162 -0.338879920
## 91     5.165000e-02         0.330305664    -0.060131487  0.004221343
## 92     8.064186e-02         0.505198797    -0.012003178 -0.699998027
## 93    -9.311369e-02         0.425827510    -0.092655539 -0.707417962
## 94    -1.386842e-01         0.185103445    -0.340191092 -1.369698709
## 95    -6.190442e-02         0.291911327    -0.253826163 -0.010847570
## 96    -1.262894e-01         0.306667083    -0.114413108  0.029846854
## 97     8.378640e-02         1.111039649     0.002710727 -0.348132083
## 98    -4.970530e-01        -0.240627316    -0.634789471 -0.133980884
## 99     2.650994e-01         0.609961057     0.347735075 -0.345911815
## 100   -1.929350e-01         0.153305440    -0.006461118  0.377138929
## 101    5.252288e-01         1.244441884     0.363212041 -0.234694912
## 102    5.395504e-01         1.373274044     0.252017941  0.829778617
## 103    1.236147e-01         0.137188686    -0.292715084  0.193350342
## 104   -5.122680e-02         0.273894005     0.052949990 -0.370541666
## 105   -2.094653e-01         0.383441511    -0.068432819  0.021291449
## 106    1.563548e-01         0.942628608     0.140766023 -0.193301502
## 107   -8.364510e-02         0.326009844    -0.163819318  0.713654432
## 108    1.130436e-01         0.655914151     0.309409432  0.014414830
## 109   -1.386014e-01         0.706964949    -0.008805118 -0.375714661
## 110    5.511740e-04         0.376223755    -0.001218587  0.127333065
## 111    4.752864e-01         0.893039075     0.214073058 -0.177544678
## 112   -1.168607e-01         0.368357915     0.011050086 -0.108289139
## 113    4.996725e-02         0.415854058    -0.081288736 -0.553567089
## 114   -4.098186e-01         0.264871497    -0.202163152  0.271064498
## 115    1.942022e-01         0.616971703    -0.131745509 -0.554126086
## 116   -1.461983e-01         0.484744637    -0.158097981  0.145839757
## 117    2.548995e-01         1.477984689    -0.152147761  0.609333241
## 118    3.038008e-01         0.995320064     0.255823562 -0.037259385
```

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## 119   -1.537146e-03         0.153971548    -0.072197154 -0.710511567
## 120    1.244825e-01         0.023374138    -0.009264647  0.630673730
## 121    1.725820e-01         0.865006806     0.065222712 -0.244167854
## 122   -4.056945e-01         0.366166827    -0.261874878  0.373456864
## 123    2.711502e-03         0.458241344    -0.099805743 -0.015689174
## 124    3.066016e-01         0.787431559     0.267996128 -0.127736218
## 125    2.067715e-01        -0.002421398     0.240757337  0.438769782
## 126    9.483988e-02         0.496809717    -0.002273236 -0.064039794
## 127    7.997526e-02         0.213871216     0.209426811 -0.066978069
## 128    2.535911e-01         0.915115290     0.335233176  0.524279660
## 129   -3.870280e-02         0.543090380     0.000000000 -0.921011313
## 130    6.988763e-01         1.546324328     0.598882845 -0.533105317
## 131    1.877761e-01         0.292936035     0.029381577 -0.435884355
## 132   -6.116523e-02         0.408378996     0.009008504 -0.304205644
## 133   -3.321873e-02         0.257281682     0.110756662 -1.152005979
## 134   -2.391658e-01         0.151693996    -0.431704158 -0.340410513
## 135   -2.447125e-05         0.336069329     0.068099954 -0.714121933
## 136   -2.233926e-01        -1.053691389    -0.313183748  0.177357317
## 137   -5.982913e-02        -1.137457468    -0.129026625  0.542608296
## 138    5.707575e-01         0.012900053     0.250861246 -0.084032847
## 139   -1.804510e-01        -1.288585881     0.051842383  0.137526512
## 140   -3.204449e-01        -1.384062189     0.074036045  0.021468910
## 141    2.968195e-01        -0.024958990     0.147343706 -0.370691844
## 142    1.849127e-01        -0.095425537    -0.015444256 -0.261002571
## 143    7.095601e-01         1.423660184     0.311428743  0.023281560
## 144    4.244003e-01         0.145522786     0.039770817  0.198219371
## 145    1.850421e-01         0.663379695    -0.012996563 -0.454837175
## 146   -1.467495e-01        -0.627128394     0.035599375  0.774309869
## 147   -1.161001e-01        -0.013947439     0.171299813  0.931627316
## 148   -8.893614e-02        -0.614652336     0.014603699  0.876297610
## 149   -9.583889e-02        -1.058615293    -0.163387256 -0.155830822
## 150    3.674349e-01         0.654367157     0.353477508 -0.513648314
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## 151    3.145024e-01        -0.251750939    -0.415976721  0.269124786
## 152   -3.549963e-02        -0.063735796     0.022142988  0.620393446
## 153   -1.676941e-02         0.468107306     0.088562272 -0.038492782
## 154    2.366228e-01         0.931865571    -0.116370078 -0.369157589
## 155    4.367761e-01         0.896461288    -0.026304408 -0.192437185
## 156    1.578140e-01         0.965063462     0.392364905 -0.308661067
##         pp_A.Raf pp_A.Raf.pS299  pp_ACC.pS79    pp_ACVRL1      pp_ADAR1
## 1    0.023942643   -0.220959465  0.643560255 -0.195641959 -6.495332e-02
## 2   -0.158132601    0.273482715  1.569646670  0.023644325 -5.405857e-01
## 3   -0.114878622   -0.216302482  0.246972125 -0.006019124 -4.313089e-01
## 4   -0.305537329   -0.164503849  1.499390548 -0.124894341  8.008348e-02
## 5   -0.079593369    0.320486534 -1.173423349  0.246159139 -3.343114e-01
## 6   -0.372735416    0.227125124  0.021236075  0.413238451 -2.050406e-02
## 7   -0.199601293   -0.030499588 -0.942137273  0.569494409 -5.649587e-01
## 8   -0.065740554    0.172449755 -0.359981449  0.025485821  2.035049e-01
## 9    0.159639296    0.084118452 -0.317628334  0.060604905  1.463457e-01
## 10   0.108410147    0.095994195 -0.330028827 -0.129556683 -1.286561e-01
## 11   0.268143666   -0.095387834  1.035682575 -0.005700844  2.539985e-01
## 12   0.088338331   -0.091901167  0.110863527  0.001980942  2.494531e-01
## 13  -0.040935739    0.031995501 -0.086305127 -0.379173436  6.522532e-01
## 14  -0.283947656    0.043724863 -0.777567296  0.069505038 -6.081576e-01
## 15   0.063119517    0.018234902  0.608192920 -0.050361720  3.377301e-01
## 16  -0.256948657    0.401100335  1.047186724 -0.185912478  6.758956e-02
## 17  -0.280114796   -0.160582465  1.245394367 -0.103118778  2.513959e-01
## 18   0.247252469   -0.047106207  0.755996759  0.087658187 -3.020607e-01
## 19   0.288252075   -0.303760156 -0.531338352 -0.084279197 -2.245883e-01
## 20  -0.417609200    0.143798200  0.855316428 -0.048335537  4.371509e-01
## 21  -0.138375941    0.704304301  1.033976716 -0.012536737  5.096311e-01
## 22  -0.182815217    0.118411852 -0.331689594  0.054804733 -3.952663e-01
## 23   0.167364376    0.068163166 -0.516310550 -0.156935235 -2.738065e-02
## 24  -0.036392700    0.074312507 -0.506733920  0.260794649 -1.941523e-01
## 25  -0.016205918    0.024006897 -0.181494773 -0.014909515  8.932916e-02
```

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## 26  -0.125626434   -0.016072491  0.450101268  0.174434031 -7.679797e-02
## 27  -0.551834234    0.309585622  1.256724904 -0.213038985 -1.895761e-01
## 28  -0.078553683   -0.241217067  0.276371468 -0.044100969 -1.563366e-01
## 29  -0.644768405   -0.024617977 -0.758000837  0.218632628 -8.042490e-01
## 30  -0.451108312   -0.004833136  0.220622745  0.023613016 -4.482108e-01
## 31  -0.638636786   -0.195158704 -0.509102758  0.255297329 -9.721227e-01
## 32  -0.084233127    0.203364056  0.064496672  0.346765583 -2.039251e+00
## 33  -0.578298382   -0.051907241 -0.287971015  0.011961229 -1.550707e+00
## 34  -0.505596965   -0.115120161 -0.051337533  0.090425827 -6.841093e-01
## 35  -0.057950669    0.553106495  1.289190531  0.214920621 -1.905216e-01
## 36   0.188060983    0.178563200 -1.534350358  0.182602409  6.184321e-02
## 37   0.524018687   -0.039484507  0.304462379  0.276377578 -4.041617e-01
## 38  -0.135755122    0.297102266  0.299041745  0.131764226  1.313179e-01
## 39  -0.132997828    0.294069994  0.260283740  0.151699713  2.690123e-01
## 40   0.772525519   -0.104387202 -0.692974166  0.278829602  3.272488e-01
## 41   0.069262755    0.335702022  0.813936751 -0.355549463 -4.337480e-02
## 42   0.044919752    0.309062180  1.746159835 -0.149939002 -4.454936e-01
## 43  -0.263459016    0.344155836  0.610904491 -0.160113613  8.227328e-02
## 44  -0.669343297   -0.358589667  0.184837048  0.183315958 -6.720912e-01
## 45  -0.604827363    0.041789917 -0.040298132  0.455376870 -6.797154e-01
## 46  -0.373524504   -0.200207445  0.169741422 -0.127123179  2.568162e-02
## 47   0.595793408   -0.299117124 -0.009275706  0.291773956 -4.807321e-01
## 48   0.065731803   -0.173931534 -0.400862577 -0.093364077  4.326388e-01
## 49  -0.783904404   -0.065722316 -0.614469838  0.146765455 -6.283239e-01
## 50   0.479204968    0.109553580 -0.604535438 -0.155883212  8.958349e-01
## 51   0.169787970    0.380199734  0.976109192 -0.202146200 -7.679400e-02
## 52  -0.966977293   -0.116947187 -1.041672374  0.433836960 -8.055667e-01
## 53  -0.165888095   -0.104850530  0.378109802  0.261949781  7.914299e-01
## 54  -0.258736301   -0.048549656  1.258823286  0.013786674  2.231029e-01
## 55   0.185807895   -0.303064791  0.666199247  0.814954581 -6.345155e-01
## 56  -0.237997723   -0.001963222  0.517940691 -0.070280088 -3.120629e-01
## 57  -0.380044351    0.000000000 -0.107691725  0.424428609 -5.257522e-01
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## 58  -0.385086220   -0.304417337  0.085655154  0.190554119 -9.272637e-01
## 59  -0.076305027   -0.491116021  0.111218684  0.536458474  4.187959e-01
## 60   0.126385782   -0.328350353  0.319824390  0.170350883 -1.991594e-01
## 61   0.073043191   -0.063606016  1.063048767 -0.115537172 -5.543481e-01
## 62   0.204556131   -0.227137054  0.946122653 -0.285873216  6.723346e-01
## 63   0.110242038   -0.228065773 -0.003374868 -0.058516552  1.836021e-01
## 64  -0.873352352    0.267395685 -0.881773714  0.397439853 -1.088421e+00
## 65  -0.218895791   -0.124040577 -1.324959611  0.294568798 -6.377461e-01
## 66  -0.170339851   -0.562211069  1.005223724 -0.255028283 -5.833482e-01
## 67  -0.398184176   -0.047627676 -0.376949629  0.164251209 -7.897727e-01
## 68  -0.041150108    0.053620743 -0.342252573  1.322282028 -8.785480e-01
## 69   0.135939685    0.563953170 -0.919103614  0.030953394 -2.502417e-01
## 70   0.093995450    0.272627755 -0.677398452 -0.144715542  4.602374e-01
## 71  -0.057354775   -0.010696101 -1.097706342 -0.021989243  2.718444e-01
## 72   0.031663527    0.379839078  0.491215030  0.042749774  3.333859e-02
## 73  -0.297865819    0.015908121 -0.231681539 -0.179999690  8.740659e-01
## 74   0.066666179    0.080401409  0.723810143  0.180789289 -1.441749e-01
## 75  -0.299511548    0.627324926  0.341468954  0.052692618  6.091341e-01
## 76  -0.095348420   -0.057830486 -0.726476019 -0.025772398  1.257947e-01
## 77  -0.095278536   -0.233740244 -0.390991215  0.207486384 -7.938790e-01
## 78  -0.126782489    0.464656358 -0.171487062 -0.347342408  3.726623e-01
## 79   0.257559961    0.097186395  0.087325017  0.032281925  2.433462e-02
## 80  -0.269430898   -0.038173780  0.191849142  0.134191093 -4.895266e-02
## 81  -0.266322086    0.283375225 -0.015704309  0.188168027 -1.947547e-01
## 82  -0.393641737    0.270632174  1.070309071  0.206707229  9.132096e-02
## 83   0.004425437   -0.079643059 -0.685381174 -0.010491846 -3.681697e-01
## 84  -0.008500078    0.912100341  0.144744488 -0.049436545 -6.119468e-02
## 85  -0.368924280    0.215152865 -0.082088051 -0.079321725  6.415171e-01
## 86  -0.222860031    0.075017338 -0.284142163  0.352018079 -1.802018e-01
## 87  -0.257839431   -0.031570469 -0.070717008  0.132211424 -1.097674e+00
## 88  -0.051661161    0.476603530  0.172357836  0.047780778  3.078093e-01
## 89   0.122926686    0.502191404  0.235661177  0.078969191  2.430860e-01
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## 90   0.200501820    0.102479521  2.430672640 -0.156032117  3.123314e-02
## 91  -0.225574900    0.129705037 -0.293908459 -0.080052532 -2.987090e-01
## 92  -0.153243780    0.242062954 -0.477647282  0.000596358 -4.438800e-01
## 93   0.007554018   -0.191287625 -0.299258109 -0.165414554 -3.242822e-01
## 94  -0.279278693   -0.002196964 -0.242691603  0.315079373 -9.459906e-01
## 95   0.122946473   -0.077330335  0.124571072 -0.160447857  3.579936e-02
## 96  -0.101474217    0.095091068  1.422907073 -0.199857079  1.769844e-01
## 97   0.035825440    0.518743288 -0.351853142  0.207288970  1.040528e-02
## 98   0.866682315   -0.026797848 -0.327976520  0.460785679 -7.538479e-02
## 99   0.023014539   -0.013836195  0.870657180 -0.406622378 -3.074518e-01
## 100  0.298854454    0.202657779  2.531846315 -0.405196273  4.227722e-01
## 101  0.193399739    0.078906066  1.391890321 -0.170015700  5.786966e-02
## 102 -0.028386853   -0.309308568 -0.551046259 -0.190372048 -1.645610e-01
## 103 -0.016199517    0.377674889  0.385359177 -0.030718259  4.393282e-01
## 104 -0.355850159    0.092045183 -0.854140441 -0.137043476 -4.252070e-01
## 105 -0.236533362    0.105772340  0.903570483  0.107636854 -3.109520e-01
## 106 -0.343371892   -0.224424192  0.892353227 -0.202013315  2.138275e-05
## 107  0.031221912    0.156480779  1.112589114 -0.181652672  9.132097e-02
## 108 -0.067493247    0.098668263  0.417500569  0.344859370  3.781365e-01
## 109 -0.012786011   -0.082487630  0.505000111  0.448634737 -4.809750e-01
## 110  0.329265411    0.105959093  0.991959518 -0.173009019  2.806272e-01
## 111 -0.289652259    0.209805717  0.543618434 -0.223294471 -7.215263e-02
## 112  0.084608943    0.000000000 -0.368277650 -0.059047449 -4.345410e-01
## 113  0.802130287    0.777082707  0.095015116  0.142232910  1.396434e-01
## 114 -0.018479016    0.123259380 -0.329287683  0.408687185 -2.866910e-01
## 115 -0.052977746    0.102004498 -0.464780026  0.179488757  5.710885e-02
## 116  0.145050271   -0.027233072 -0.058946848 -0.140132977 -7.062891e-02
## 117 -0.208345803   -0.390222812 -0.185167285 -0.124838868 -3.638907e-01
## 118  0.271310328    0.512974708  1.511311548 -0.200600276 -2.333073e-01
## 119 -0.714217637   -0.046644749 -1.092750500  0.055534392 -5.785649e-01
## 120  0.693939476    0.404486982  0.918719766 -0.071570981  5.062910e-01
## 121  0.179793406    0.071787401  0.562216421 -0.099813028  2.965804e-01
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## 122  0.151601976    0.321339367 -0.626482349 -0.057654818 -2.285668e-01
## 123  0.185153661    0.195661246  0.848526995  0.132762007  2.053387e-01
## 124  0.137243773    0.178671274  1.343624613 -0.033811758 -3.948896e-01
## 125  0.101621556    0.761444974  0.150830410 -0.283825326  6.038492e-01
## 126 -0.107643131    0.107179335 -0.538991022 -0.030431549 -3.757319e-01
## 127 -0.090992906    0.074646989  1.464004690 -0.130390983  1.772171e-01
## 128  0.124603951    0.380146087  1.600938085 -0.234705266  4.421566e-01
## 129  0.212363852    0.291955604  1.590268929  0.348774511 -2.681700e-01
## 130 -0.088210350    1.027857583  1.526187901  0.456004308 -2.672918e-02
## 131 -0.305646068    0.094660876  0.331308549 -0.160634620  1.976603e-01
## 132 -0.189772907    0.137350972 -0.006970351  0.107096022 -5.355041e-01
## 133 -0.176300560    0.165933667 -0.303780086 -0.037493618 -4.100180e-01
## 134  0.607895277   -0.101983922 -0.307350512  0.772844936 -2.304692e-01
## 135 -0.037919044    0.202542165 -0.369344578 -0.106398119 -4.461957e-01
## 136  0.245873637   -0.189805685  0.616181368 -0.024765494 -9.762896e-02
## 137  0.207031658    0.138239079 -0.917660715 -0.021432025  4.789846e-01
## 138  0.038285094    0.194499494  0.459956142  0.034904236  5.298340e-01
## 139  0.505110700   -0.052415347 -0.858785097 -0.023544995  8.510470e-01
## 140 -0.086020278   -0.005976899  0.107244985  0.017630920  8.805156e-02
## 141 -0.219241938   -0.203084468  0.043395591  0.140409879 -2.480981e-01
## 142  1.518510294    0.089637408  1.150783776  0.086673005  2.066823e-01
## 143 -0.326593085   -0.143348967  0.679673525 -0.215269153  2.516684e-01
## 144 -0.229880411   -0.313420820  0.929138071 -0.120532397  7.763591e-02
## 145 -0.057570985   -0.113217810 -0.413702421  0.084989228 -2.423102e-01
## 146  0.057166550   -0.044119737 -0.737458359  0.045533435  3.734404e-01
## 147 -0.099145469    0.267278254  0.084717543 -0.080197295  5.130614e-01
## 148  0.049208443    0.067249711 -0.343054251  0.052064812  7.857731e-03
## 149  0.158670716    0.061094047 -0.450629530  0.104086313  4.262432e-01
## 150 -0.243374363    0.343578434  0.088894072  0.033056625 -6.526825e-02
## 151 -0.213965027   -0.194559110 -0.111496596  0.207219306 -4.158984e-01
## 152 -0.125429946   -0.091030807  1.751814734 -0.080312406  4.083586e-01
## 153  0.111947590    0.955482207  1.868451607 -0.080251233  2.644992e-01
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## 154 -0.293031931   -0.091089345 -0.752876586  0.222514590 -2.652754e-01
## 155 -0.284198758   -0.278262036 -0.554484578 -0.221871223 -1.840598e-01
## 156  0.232781564   -0.343386531 -0.409697568  0.271958962 -1.194810e-01
##     pp_AMPK.alpha pp_AMPK.pT172        pp_AR     pp_ARID1A      pp_ASNS
## 1    2.089816e-01  -0.168801156  1.498185962 -1.821448e-01 -0.422909192
## 2    3.718942e-01   0.175476706  0.185586276 -3.835951e-01 -0.033450831
## 3   -1.476233e-01  -0.302998014  0.015973373  6.401294e-02  0.342652124
## 4    7.345668e-01   0.957409786  0.014933936 -9.504817e-02 -0.004865362
## 5    7.282012e-02  -0.534109942 -0.051988751 -1.721019e-02 -0.258941206
## 6   -1.351655e-01   0.732167989 -1.444304852 -2.002313e-01  0.400733899
## 7   -3.098835e-01  -0.451279932 -0.378514631  6.945440e-02  0.279215129
## 8   -3.408942e-01  -0.216213356 -1.432035631  2.789937e-03  1.329061089
## 9   -1.116083e-01   0.072488590 -1.294564550  1.293396e-01  0.753665589
## 10   3.258091e-01   0.511850760  0.719072083  3.274373e-01 -0.721126423
## 11  -3.924206e-01  -0.661523856 -0.774929578  2.549717e-01  0.085820187
## 12  -2.345555e-01   0.171688732  0.383217286  7.976577e-02  0.567034968
## 13  -8.748660e-02   0.239603152 -1.351956219  1.033779e-01 -0.070700742
## 14   5.897338e-02  -0.352472236 -0.654732236 -3.498592e-01 -0.549623697
## 15   4.477777e-01   1.179086452  1.278860386  3.153226e-01 -0.419790789
## 16   1.807413e-01   0.656633300  1.008194546 -2.586000e-01 -0.458877186
## 17   2.205831e-01   0.799588936  0.291198874  6.944248e-02 -0.430124688
## 18   6.243114e-01   0.716938857  0.959258930 -4.147851e-01 -0.610713733
## 19   2.584248e-01   1.109164455  1.357682287 -1.297873e-01 -0.635912345
## 20  -2.475131e-01   0.103353155  0.229122604 -7.224914e-02  0.049769808
## 21   2.046315e-01   0.869190253  0.961984158 -2.881092e-01  0.321701707
## 22  -2.972832e-01  -1.210482805 -1.246325824 -2.330904e-01  0.596579189
## 23  -6.431419e-01  -0.356889291  0.654438035  3.048589e-02  0.577046554
## 24  -1.291193e-01   0.257512272 -1.150987649 -8.159265e-02  1.338632766
## 25   1.446610e-01   0.507805248  0.553402674  1.038763e-01 -0.048980643
## 26   3.706146e-01   0.290316823 -1.150576819  4.521915e-01 -0.969426552
## 27   1.542389e-01   0.371118534  1.090184745 -1.364335e-01 -0.438923259
## 28  -2.562639e-01   0.060294135 -0.119098051  4.489416e-01  1.088452326
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## 29  -1.172001e-01  -0.360741623 -0.048600826 -1.304269e-01 -0.531880568
## 30   1.347080e-01   0.488114686  0.321005492 -4.301943e-02 -0.492982816
## 31  -3.274506e-01  -0.561691957  0.655278431 -2.940887e-01 -0.502240157
## 32  -4.918785e-02   0.191841424 -0.821704449 -1.480452e-01  0.082773976
## 33   9.946145e-02   0.771393691  0.543691644 -2.185584e-02 -0.570336114
## 34   7.021886e-02   0.612592292  0.219523703 -1.250442e-01 -0.794095225
## 35   8.424121e-02   0.297414533  1.841357067 -9.938234e-02  0.123755103
## 36  -3.120395e-01  -0.817430954 -1.412539363  1.445419e-02  0.753098013
## 37   1.744951e-01   1.198740867  0.148688233  8.070546e-02 -0.654054913
## 38   1.124360e-01   0.237518759  0.449345549  1.371252e-01  0.879331930
## 39   1.708446e-01   0.433102771  0.513895546  1.252346e-01  0.836764721
## 40   0.000000e+00   0.393794309 -1.296618424  3.257339e-01  0.577860102
## 41  -1.300754e-01  -0.293179470 -0.995662202 -5.318943e-01  1.030748856
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## 44   0.000000e+00   0.210350235  0.358958679  3.433483e-02 -0.306371660
## 45   9.247470e-02   0.471794797  0.100078917 -1.099571e-01 -0.733542148
## 46   1.075661e-01   0.568409644  0.094131374  1.510647e-01 -0.432685547
## 47   4.994789e-01   0.981913939  0.454174028  4.634495e-02 -0.913913645
## 48  -2.896244e-03   0.301354425 -0.185242311 -2.142700e-01 -0.384741792
## 49  -2.324553e-01  -0.999476468  0.089638013  2.392235e-03 -0.175824102
## 50   3.891275e-01   0.254056024  0.466536972  8.880449e-02 -0.505482956
## 51   1.645592e-01   0.900093622 -1.359441462 -1.180579e-01  0.202343499
## 52  -1.005382e-01  -0.803129965  0.179471500  1.215175e-02 -0.034407358
## 53  -4.568644e-01  -0.332235640  0.585331915  7.496487e-02  2.075064204
## 54  -6.587861e-01  -0.570806141  0.178626160 -7.906014e-02  0.607992757
## 55   6.337940e-02   0.858305989  1.179397444 -2.151910e-01 -0.198605699
## 56  -2.456770e-01   0.138293275 -1.266326827 -4.595118e-01  1.323738652
## 57  -1.237691e-01   0.036027834  0.369402212  4.308158e-02 -0.358163988
## 58   3.912041e-01   1.036942358  0.152577973 -1.431663e-01 -0.462190785
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## 61  -2.412450e-01   0.401338635 -0.474217329 -1.321967e-01  0.047304297
## 62   5.346371e-01   0.624316182  0.990286722 -1.133399e-01  0.563165035
## 63   3.436220e-02  -0.376046528  0.133859823 -1.914427e-01 -0.037367811
## 64  -3.651027e-01  -0.676918107 -0.667512449  1.153175e-01 -0.088098625
## 65  -2.492960e-01  -0.550009089 -1.312584907 -1.939386e-01 -0.235392198
## 66   5.607910e-01   0.781577506  0.002559053 -1.790037e-01  0.726782930
## 67   3.050948e-02   0.270010329 -0.356324920 -3.410411e-01 -0.387153101
## 68  -5.489325e-01  -0.402807496 -1.618916585 -4.901250e-01 -0.335697617
## 69   4.006953e-01   0.887377221  1.143553366 -3.999690e-02 -0.321327316
## 70   2.578445e-01   0.268342382  0.454504456  7.971283e-03  0.077293574
## 71   2.067051e-01  -0.046382155  0.601929709 -3.150238e-01  0.017129326
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## 73  -1.414637e-01   0.198494497 -1.960600121 -1.764940e-01  1.345882086
## 74   8.054998e-02  -0.285508297  1.877259726  2.679942e-02 -0.400089064
## 75  -5.946199e-02  -1.071052979 -1.480773225 -2.342395e-01  1.122032405
## 76  -8.483589e-01  -0.910971702  0.365591197  4.284770e-02 -0.459814748
## 77   9.513219e-03   0.224645140 -0.705197970  1.336586e-01 -0.340096422
## 78  -1.702536e-02   0.000000000 -1.161998775 -6.490509e-02  0.357989162
## 79   3.511636e-01   0.877084888  0.825825497  4.687885e-02 -0.141531868
## 80  -3.268030e-01  -0.106491493 -1.109144582 -1.044260e-02  0.739852366
## 81   1.937189e+00  -0.866569146 -0.540912006 -2.013775e-01  0.941113582
## 82   9.759946e-01   0.483259763  0.067755609 -8.576602e-01  0.284830884
## 83   1.209213e-02   0.013238531  0.472808283  6.997896e-02 -0.814949400
## 84  -3.019374e-03  -0.150313140 -0.193291542 -1.339073e-03 -0.606617570
## 85  -2.273631e-03  -0.189415829 -1.724995527  6.294662e-02  1.331528936
## 86   0.000000e+00  -0.211298399 -0.720084761 -3.774170e-01 -0.270242494
## 87  -3.427290e-01  -0.599365412 -0.546760342 -3.138294e-01 -0.334918811
## 88  -1.569731e-01  -0.296783124 -0.723963852  7.596516e-02  0.438913987
## 89   2.795041e-01   0.958892056 -0.325725762 -5.361738e-02  0.336310468
## 90   5.976158e-01   0.536634887  1.177552816  2.751246e-01  0.150089714
## 91  -1.554842e-01   0.137338312  0.619322404 -1.284444e-01  0.183683268
## 92  -2.703851e-03   0.094790765  0.317581210 -2.394637e-01 -0.194125809
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## 93  -1.007509e-01  -0.276447518  0.195901646 -2.794002e-01 -0.456521719
## 94  -5.816144e-01  -0.964610032 -0.131187866  2.779031e-01 -0.322331913
## 95   2.614815e-02   0.346779699  0.706441476 -5.476815e-02 -0.009095819
## 96  -9.347142e-02  -0.132229627  0.583551632  1.739186e-01 -0.218427967
## 97  -6.685479e-01  -0.964313621 -1.565084370  1.018333e-01  0.871361538
## 98   5.754210e-02   0.014037099  0.481760978 -3.594066e-01 -0.601271272
## 99   1.624484e-01   0.759346463  0.264858430  7.200461e-02 -0.106256032
## 100  5.260701e-01   0.332812057  2.454007061  5.984726e-02 -0.167455188
## 101  1.834946e-01   0.562113683  0.122672515 -6.911412e-03  0.062924284
## 102  2.503449e-01   0.142478099 -0.241824909  2.785639e-01 -0.232382187
## 103  4.377682e-01   0.699016099  0.697271548  5.196247e-02 -0.678790331
## 104  3.031595e-02   0.131520483 -0.084135855 -8.830475e-02 -0.123649405
## 105  1.836854e-02  -0.239861794  0.786299558  8.281489e-02 -0.459180867
## 106  6.817470e-02  -0.134133465  0.536537479 -2.138275e-05 -0.593329164
## 107  5.372726e-01   0.543711576  1.786976350  1.024525e-01 -0.174350244
## 108 -2.956816e-01   0.086267729  0.006943417  2.658683e-01  0.111473743
## 109 -3.522239e-01  -0.255042477  0.249362014 -3.205933e-01 -0.071770530
## 110 -1.530832e-01  -0.063529037  0.437833782 -1.461101e-02  0.412811647
## 111 -2.942670e-02   0.297701167 -0.793199563 -1.599894e-01  1.027303269
## 112  2.356829e-01   0.003629640  0.221322790  1.843118e-01 -0.291650562
## 113  2.446382e-03  -0.008522808 -0.723970630  1.428769e-01  0.231753349
## 114  2.906624e-02   0.087795611  0.012408890  1.915423e-01 -0.138790600
## 115 -3.734680e-01  -0.549854855  0.296329012  1.424283e-01  0.721478119
## 116  1.045280e-03  -0.126808105  0.114878167  1.546248e-01 -0.333891279
## 117  1.628075e-05   0.115821354  0.645438273  1.524045e-01 -0.381001349
## 118  2.343629e-01   0.465887923 -0.389210872 -2.535245e-01  0.935317151
## 119 -3.027642e-01  -0.554911352  0.000000000  1.581083e-01 -0.239233248
## 120  3.281295e-01   0.647024139  1.368361829  4.551628e-02 -0.812295178
## 121 -4.113013e-04  -0.232880075 -0.561147028 -7.929577e-03 -0.171060742
## 122  3.557413e-02  -0.171947188  0.091243655 -1.871271e-01 -0.256803569
## 123 -3.580311e-01  -0.587345525  1.681876858 -2.025640e-02  0.061914460
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## 125  2.123542e-01   0.657874068  0.858292473 -2.317139e-01  0.347651422
## 126 -1.997198e-01  -0.592263589 -0.302050575  1.294317e-01 -0.291270604
## 127 -1.999565e-01   0.092812729  0.497241871 -2.000863e-01  0.883753713
## 128  1.136910e-01   0.476329346  0.263107602 -1.230717e-02  0.182372009
## 129  7.872841e-02   0.248013420  1.288044460 -2.004098e-01 -0.510407750
## 130 -5.189509e-02  -0.241788740  1.788096445 -3.146541e-01  0.541680580
## 131  2.626377e-02   0.720886486 -0.439922755 -7.048993e-01  0.995377510
## 132  2.822362e-01  -0.122327923  0.871858595  1.096283e-01  0.094287755
## 133  1.117998e-02  -0.562459731 -0.513478036 -4.307749e-03  0.110889914
## 134 -3.877989e-01  -0.020249579  0.421343442 -3.038724e-01  0.233512917
## 135  9.061251e-02  -0.160227649  0.352638954  2.703377e-02 -0.317487941
## 136 -1.226214e-01   0.342261335 -0.049631631  1.391887e-02 -0.296822569
## 137 -4.711941e-02   0.130975739  0.012267255  2.797454e-01  0.825768872
## 138  2.644592e-01  -0.007163303 -1.506705939  6.939952e-02  0.825802768
## 139 -3.100149e-01  -0.213143842  1.153398918  2.599046e-01  0.278223008
## 140 -1.440645e-01  -0.858577857  0.867837689 -2.253395e-01  2.004145723
## 141  4.250355e-02  -1.984725838 -1.447057481  3.218676e-02  0.332435079
## 142 -8.131481e-02  -0.058636385  0.081915068 -8.907161e-02  0.240203147
## 143 -6.969661e-02   0.026703295  0.683903965 -1.059092e-01  1.050112079
## 144 -3.949540e-01  -0.565967873  1.776970128 -3.388893e-02 -0.404943589
## 145 -3.932199e-01  -0.462908254 -1.535487873  6.111939e-02  0.183429418
## 146 -2.984499e-01   0.393549087  0.873585216  3.103543e-01  0.644913525
## 147  1.984221e-01   0.607369146  1.108801105  3.320153e-01  0.127532397
## 148  2.061545e-01   0.118763714 -1.304859604  4.736255e-01  0.614249746
## 149  3.351089e-01  -0.290492797  1.355711626  1.606150e-01 -0.165063646
## 150  2.289952e-01  -0.839713950 -1.044017097 -1.675145e-01  0.939616564
## 151  4.212720e-02   0.166614919  0.888159003  6.133861e-02 -0.294541679
## 152 -2.904464e-01  -0.280218333 -0.618088715  1.926723e-01 -0.727518532
## 153 -4.049136e-03  -0.641559818  1.486695470 -2.421699e-01  0.410667798
## 154 -2.273382e-01  -0.921631704 -0.875807755  8.426671e-02 -0.140495105
## 155 -2.936487e-01  -0.382323935  1.045125410  2.106249e-01 -0.089679734
## 156 -1.453563e-01   0.272313629  0.329036021 -2.531978e-01 -0.340641213
```

```
##           pp_ATM pp_Acetyl.a.Tubulin.Lys40      pp_Akt pp_Akt.pT308
## 1    0.724812736               0.455939966  0.12486607  0.205667024
## 2    0.057178658              -0.443507977  0.33335477  0.540817054
## 3    0.173950736               0.620510544 -0.02309007  0.070288819
## 4   -0.126133837               1.208426153  0.20706285 -0.396688666
## 5   -0.479475924               0.279885750 -0.01190758  0.507993827
## 6    0.152396794               1.052556407  1.06646142  0.714002673
## 7    0.211668989              -0.118908317 -0.61385144  0.350174951
## 8    0.230259356               1.005283401 -0.01140321  0.297098142
## 9   -0.521245189               0.906347122 -0.31509398 -0.431486225
## 10  -0.116185806               0.231749672  0.34486038 -0.440041781
## 11   0.669523064              -0.802404866 -0.05084351 -0.000632794
## 12   1.299413266              -1.361642863 -0.16131012  0.125428907
## 13   0.299721925               0.063097194 -0.10018224 -0.471206731
## 14  -0.355329698              -1.423586985 -0.09160963  0.312535809
## 15   0.940005740              -0.249660911  0.60240008 -0.599911579
## 16   0.414639216               1.491449615  0.23013340  1.816037921
## 17  -0.221641888               0.835743359 -0.02908487 -0.387895824
## 18  -0.835486775               0.809146183 -0.44945637 -0.044729049
## 19   0.800366713               0.551393132  0.17988948 -0.421634061
## 20   0.187017599               0.134525351  0.35455769 -0.271123116
## 21   0.160779322               1.097066440  0.39362196 -0.188035118
## 22  -0.499105721               0.518106009 -1.04443623  0.696866136
## 23   0.418135281              -0.068869334  0.55437896  0.313693536
## 24  -0.191119213               1.232460421 -0.44123031 -0.325584778
## 25   0.735673420               0.732568018  0.32644149  0.016795827
## 26  -0.756266498               0.542378488 -0.69286565 -0.172983900
## 27   0.571119747              -0.419423733  0.56103094  0.373851280
## 28   0.471004944              -0.501800227 -0.29138287  0.878442144
## 29  -0.447373718              -1.737221342 -0.56296065  0.563836213
## 30  -0.223248592               0.982590592 -0.12738132  0.163799586
## 31  -0.564903552              -1.958272926 -0.72001953  0.312451292
```

```
## 32   0.121686131             -3.297306873 -0.22584705  0.186881964
## 33  -0.035897068             -1.029402619  0.23831548  0.629079283
## 34   0.586924870             -1.925780022 -0.06420319 -0.353977899
## 35  -0.157378482              0.041784406  0.06155879  0.095466024
## 36   0.410994660             -2.973185949 -0.59964027  0.146224770
## 37   0.004435498              0.956192088  1.12948504 -0.407145345
## 38   0.261702698              0.723227550 -0.07567443 -0.409203537
## 39   0.360022455              1.024241077 -0.08580820 -0.301262863
## 40   0.751764962              0.013837349  0.02716297  0.284754707
## 41   0.312769144              0.004896448  0.76644948  1.657102894
## 42   0.256192033              0.780965186  0.95362559 -0.284496794
## 43  -0.066715000              0.102150397 -0.41776215  1.502896346
## 44  -0.059676600             -2.542540593 -0.42544997  0.124453457
## 45  -0.254323701             -0.845852607 -0.18356337  0.305255066
## 46   0.270071132              1.890188784  0.37582807 -0.108810104
## 47   0.565065269              0.153284105  0.08886236  0.414655106
## 48  -0.469656336              0.324224344  0.11512207 -0.381049408
## 49  -0.535816461             -1.410459276 -0.76589965  0.414008754
## 50   0.069946150              0.196810929  0.09388429  0.772721866
## 51  -0.174845419              0.660854434  0.64706722  0.783630658
## 52  -0.299278029             -0.802590176 -1.22734038  0.678469422
## 53  -0.086368197             -1.774410693  0.77365617  0.122094066
## 54  -0.175769877             -0.994775859  0.30747711 -0.064096584
## 55   0.451966908              0.509472136  0.43458221  0.263902480
## 56  -0.137267266              1.341657825 -0.34380592 -0.453806584
## 57   0.025231395             -1.578761093 -0.24426262  0.462351454
## 58   0.269734509              0.166872465  0.22725029 -0.037267705
## 59   0.068368971              0.653509510 -0.29449614 -0.382091890
## 60  -0.397476983              1.151852718  0.25561457 -0.622343727
## 61  -0.628697766              0.397194188 -0.38615063 -0.019619037
## 62   0.137510277              0.886085530  1.22235394 -0.137948634
## 63  -0.284602908             -0.451958867 -0.20704826 -0.541242336
```

```
## 64  -1.656723576            -0.270860190 -0.91866247  0.141947595
## 65   0.253929914            -2.239770444 -1.03277119 -0.162309355
## 66  -0.117993744             1.209380197  0.31929179  0.074213529
## 67   0.507527443             0.292234748 -0.34645594  0.442663789
## 68  -0.743989158            -2.647529761 -1.75119945  0.433039430
## 69  -0.071822331             0.206035857 -0.38715273 -0.185557658
## 70   0.233267593            -0.350862301  0.64681968 -0.348379957
## 71   0.097697568            -0.377116183  0.87782274 -0.890603332
## 72  -0.479615476            -1.287556494 -0.56900680 -0.864585553
## 73  -0.144758082            -0.154646092 -0.06173251 -0.676872882
## 74   0.782707680             1.252650648 -0.09447020 -0.308267466
## 75   0.255797033             1.373150322 -0.22711445  0.492129863
## 76  -0.051377971             0.547874484 -0.19695244  0.754647363
## 77  -0.307901869            -0.255588542 -0.24419512  0.198299345
## 78   0.117788028             0.850858539  0.23975175  0.238933540
## 79   0.211096767             0.482839721  0.34900179  2.033000346
## 80  -1.225446862             0.581771139 -0.33409410  0.457497928
## 81  -0.931578984             0.957011542 -0.01857384  0.721781214
## 82  -0.518471628             0.300728844 -0.18655322  0.096461280
## 83  -0.180132805             1.216418926 -0.35564850  0.217945747
## 84   0.351292801             0.821509909  0.16335327  0.215838731
## 85  -0.603682547             0.221166955  0.23923401  0.528219080
## 86  -0.716191695            -1.581583241 -1.16763741 -0.127737253
## 87  -0.395783874            -0.280379190 -0.52702236  1.216502511
## 88  -0.018249998            -0.784478085  0.47087065  0.424441955
## 89   0.176816960            -0.314127571  0.09557990  0.187800973
## 90  -1.054606191            -0.124611368 -0.48793281 -0.269386987
## 91   0.412326876             0.536292720  0.49220893  0.787414240
## 92  -0.223290797            -1.160656565  0.40834120  0.305413241
## 93  -0.482473669            -0.249909092 -0.35901733  0.006483035
## 94  -1.901113770            -1.953391812 -1.09342152  0.739528646
## 95   0.455545288             0.102168477 -0.24941367  0.452139360
```

```
## 96   0.006151340              0.438235714  0.15492373  0.127776958
## 97  -0.684259404             -1.156944184 -1.18787109 -0.121343153
## 98  -0.849472182             -2.213343074 -0.60601540 -0.282577888
## 99  -0.341739793              0.945936177 -0.42060264 -0.426750489
## 100  0.184539942              0.804707745  0.31593443  0.370756636
## 101  0.378048376             -1.188508930  0.09267426  0.200616262
## 102  0.397088555              0.322131828  0.04579286 -0.244619231
## 103  0.251452316              0.182333064 -0.11367952  1.435732377
## 104 -0.480837660              0.201304407  0.63676241  0.219699798
## 105 -0.253682562             -1.142427804  0.01343720 -0.155039776
## 106  0.037180225              0.447103746 -0.12559541 -0.243296695
## 107  0.341598181              1.198336121  0.30266137  1.292428459
## 108  0.146247004             -1.503337397 -0.08592252 -0.143931355
## 109 -0.015621599             -1.312264035 -0.53358739 -0.188671600
## 110 -0.429970509             -0.716717413  0.09178682  0.105303463
## 111  0.602198408              0.404632944  0.61488216  1.515234785
## 112 -0.216255085             -0.861818040 -0.63078405  0.600245273
## 113 -0.535923708             -1.874463227 -0.38865659 -0.182934271
## 114 -0.040476653              0.000000000  0.26013669 -0.251872547
## 115  0.629795777             -1.247357068 -0.34593587  0.729365133
## 116  0.195499224              0.079692345  0.33853252  0.669209906
## 117  0.010252381             -0.196920440  0.23810001  0.883718923
## 118  0.969485223             -0.800816243  0.21863752  1.979103672
## 119 -0.393138999             -2.017129777 -0.79175609  0.389829010
## 120 -0.820569277             -0.545243985 -0.48257951  0.702470926
## 121  0.319789509             -0.410613365 -0.03230857  0.209068265
## 122 -0.073007552              0.758954558  0.05594028  1.531723472
## 123  0.342029267              0.973920877  0.30416535  1.075871511
## 124  0.255483523             -0.529535463  0.36577769  1.074404844
## 125 -0.249785019             -0.522475471  0.69419979 -0.566503875
## 126 -0.165027683             -1.364030102 -0.37443819  0.192561123
## 127  0.037909475              0.698347011 -0.22006508 -0.342766542
```

```
## 128  0.131202644              -0.818776438 -0.16543590  0.190730977
## 129  0.730814978              -0.827438589  0.01773129 -0.102518582
## 130  0.219786462              -1.168916754  0.38009988  1.524328689
## 131  0.859123594              -1.654495228  0.51116560  0.372471956
## 132 -1.195535412              -1.072805342  0.10315745  0.375566912
## 133  0.998687764              -0.895008899 -0.14934448  0.589721227
## 134  0.057929516               0.869907878 -0.43949807  2.335684909
## 135 -0.434800375               1.121556979 -0.09841985  0.011259265
## 136 -0.964468352              -0.132934572  0.09811457 -0.017566297
## 137 -0.069323779               1.027653704  0.37695970 -0.847679961
## 138  0.727960433               0.999866171 -0.43436986  1.214796663
## 139  0.042497493               0.185842763 -0.30685609 -0.625773689
## 140 -0.054749102               0.426246415  0.56033472 -0.565360474
## 141 -0.450217716               1.099689989 -0.23567835  2.018447872
## 142  0.259527706              -0.084754701  0.24236790 -0.014748601
## 143  0.189915635               1.696286868  0.19961447  2.132020382
## 144  0.007574783              -0.153221902  0.85871226  0.034159202
## 145 -0.018582475               1.076622195 -0.25390003  1.030782764
## 146  0.708178480               1.360315230  0.22851462 -0.537004168
## 147  1.143484940               0.170811430  0.45033697 -0.190057792
## 148 -0.544267852               2.197295075 -0.04754014 -0.220604332
## 149  0.290803826               1.044653537 -0.01888664 -0.005533160
## 150  0.053459498               1.269555436  0.24632703  1.675624381
## 151 -0.419445829               0.329578341 -0.19264163  0.054914351
## 152  0.120206573               0.966504856  0.35819322 -0.172180139
## 153 -1.018219458              -0.628788530  0.54283040  0.988870215
## 154 -0.844463718               0.214920873 -0.58883442  0.373822385
## 155  0.463918636              -0.013213071  0.06361469  0.306990666
## 156  0.074503200              -0.560014811 -0.47762335 -0.322432622
##     pp_Annexin.1 pp_Annexin.VII       pp_Axl     pp_B.Raf pp_B.Raf.pS445
## 1     0.22295913  -0.1088613040  0.070757092  0.041259628    0.050811331
## 2     0.57880099  -0.1070257475  0.430389293 -0.177926314   -0.141694395
```

```
## 3    -0.00344909  -0.0186729105 -0.075654817  0.391711781    0.004091609
## 4    -0.73158182   0.0444827108 -0.372151734  0.500152640    0.022313940
## 5     0.98580647   0.1760223930  0.209662437  0.128357474    0.203457013
## 6     0.57537532  -0.2975836640  0.034520571 -0.072281218   -0.301628684
## 7     0.69527148  -0.0039337785  0.286966253 -0.678962466   -0.367780169
## 8     0.13309384  -0.2273163810 -0.162144460 -0.061977209   -0.054035935
## 9    -0.07220973   0.1009435030 -0.013584225 -0.560643148   -0.138008001
## 10    0.34531487   0.0726024722  0.173297952  0.786525322    0.442780167
## 11   -0.25335598   0.0775192625 -0.162717705 -0.325216666    0.039520969
## 12    0.42211552  -0.1409225215  0.652605067 -0.011134762    0.201000777
## 13    0.83256104  -0.2688492800  0.275097970  0.108305086   -0.149124735
## 14    0.73942890   0.0844113640 -0.106643962 -0.003837840   -0.103682513
## 15   -0.50035555   0.0883983920 -0.389419537  0.248698669   -0.156208369
## 16    0.59319336   0.0068638480 -0.188790439  0.153321243   -0.244343599
## 17   -0.78884904  -0.0838646765 -0.027850806  0.468588704    0.310788373
## 18   -0.59857912  -0.1759988525 -0.343152589  0.836721265    0.504484023
## 19    0.17066002   0.0845090465 -0.068524614 -0.105892160   -0.029870316
## 20   -0.27667309  -0.0091583310  0.058434465  0.368254254   -0.211685190
## 21    0.16009200  -0.2582915985  0.015566539 -0.135843104   -0.320875839
## 22    1.54619895  -0.0611314095 -0.563090681  0.122674777    0.307443376
## 23   -0.92260492  -0.2924891360 -0.294113535 -0.838996102   -0.178064091
## 24    0.52691759  -0.1263484195 -0.024769487  0.661120928    0.050516447
## 25    0.07231232  -0.0159578085 -0.099766603  0.043168398   -0.160952960
## 26   -0.41886855  -0.1460666970 -0.541879882  1.469976719    1.428726609
## 27    0.71544870  -0.0446701100 -0.021819013 -0.353867270   -0.433283011
## 28   -0.37426671  -0.0685228490 -0.153597464  0.090260508   -0.079117069
## 29    1.09225324   0.2059621020  0.000000000 -0.568598898   -0.403113099
## 30    0.62426516   0.1440439575  0.008343326 -0.234722895   -0.153525463
## 31    0.89419651   0.4358113350 -0.528205350 -0.346078540    0.489513670
## 32    0.50566535   0.0445308230  0.077422849 -0.510738003   -0.151753933
## 33    0.95458372   0.5996037655 -0.180031042 -0.735382191   -0.504712314
## 34    0.83609431   0.1367880695  0.027077166 -0.348435518   -0.050643055
```

```
## 35    0.22156453   0.0885101105 -0.073223405 -0.383206794   -0.214195464
## 36    0.71129682   0.1191536465 -0.015743726 -0.527081375    0.158743179
## 37   -0.01869971   0.0981002440  0.090614149 -0.033467583    0.285814489
## 38    0.25778766  -0.0300706945  0.016248314  0.002570181   -0.162490843
## 39    0.26419926  -0.0787523545 -0.107005559  0.180378473   -0.225104066
## 40    0.19682726  -0.0227975720  0.258843104 -0.251423336   -0.146246266
## 41    0.90615143  -0.3921646685  0.107018723  0.149595065    0.106318779
## 42    0.59313166  -0.1581420920  0.210335940  0.046607368   -0.384421181
## 43    0.23102271  -0.0040109665  0.045856449  0.396914001    0.133232116
## 44    0.49523626   0.1913602920  0.237689033 -0.605362876   -0.476535101
## 45    1.50676366   0.8265392625 -0.139736929 -0.682619481   -0.157542503
## 46    0.10702570  -0.0512751560 -0.183397490  0.053951970   -0.331332466
## 47    0.58472676   0.4174579025  0.013807280 -0.307886875    0.464511522
## 48    0.44937053   0.4536516655  0.122377519 -0.488389030   -0.387124974
## 49   -0.09551665  -0.0554055965 -0.152169149 -0.843689062   -1.051773857
## 50    0.30864151  -0.0505391420  0.050654531  0.023357953    0.254389205
## 51   -0.35661720  -0.4289843040 -0.242488830 -0.172908444    0.696308880
## 52    0.83357246   0.0513737755 -0.105629944 -0.726495002   -0.835263535
## 53   -0.16044818   0.0170210215  0.147672666  0.652300448    0.414403782
## 54   -0.36794900  -0.0155168505 -0.242603958  2.815251009    1.573773223
## 55    0.46045317   0.4460125845  0.202773489 -0.250773199    0.006341142
## 56    0.69226947  -0.2643661400 -0.053275382 -0.327543221   -0.193621946
## 57    0.39620750   0.3249438720 -0.125318594 -0.503621097   -0.419973955
## 58    0.63256890   0.3623893550  0.182832250 -0.501758376   -0.505761072
## 59    0.52603118   0.0098822655  0.184762312 -0.546390767   -0.171032770
## 60    0.26444999   0.3627932220 -0.227382516 -0.538170466   -0.649893799
## 61    0.38407235   0.1129912840 -0.219129315  0.909741631    0.732871644
## 62   -0.26427853   0.6755359690  0.024667588  0.466934173    0.619080753
## 63   -0.30021030   0.0629159235  0.047463463  1.195420406    0.341378318
## 64    1.08802717  -0.0107281405  0.387248043 -1.152991844   -1.716142788
## 65    0.82313160   0.1239328028  0.072322559 -0.550136252   -0.130073376
## 66   -0.14238688  -0.2671375898 -0.576706781  1.199131870    0.447370432
```

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## 67    0.89513326  -0.0526806155  0.318757921 -0.202755972   -0.607724070
## 68    1.46530329   0.6434241592 -0.303623045 -0.975778152    0.020613633
## 69    0.24397224  -0.0156456705  0.015490264 -0.180372160    0.218931250
## 70    0.01388323  -0.1798119588  0.157220531  0.437036422    0.018200475
## 71   -0.23265862  -0.2231163968  0.280442813 -1.185802535   -0.301856681
## 72   -0.10563301  -0.3832178260 -0.141876801  0.141057481    0.514549144
## 73    0.66554157  -0.5500618637  0.388249861  0.745043176   -0.016402368
## 74   -0.39739089  -0.0084296105 -0.091188951 -0.444753821   -0.206228453
## 75   -0.38818139  -0.2597506230 -0.472663147  0.653662480    0.113415357
## 76   -0.66289700  -0.0115346235 -0.277316577  1.615074107    0.448177039
## 77    0.19546378   0.2309878860 -0.643105622  0.303826580    0.734455108
## 78    0.67303420  -0.5092604645  0.075847804 -0.149406225   -0.330074977
## 79    0.08624646   0.0794648610  0.049820068  0.386701850    0.184315943
## 80    0.35178877  -0.2878189080 -0.278730308  0.031221307   -0.247693284
## 81    0.54744459   0.1643293440 -0.236726412 -0.452286782   -0.342686842
## 82    0.99686656  -0.0325831350 -0.003778914 -0.697048469   -0.747166151
## 83    0.61688942  -0.1239567400  0.129025813 -0.458603216   -0.097374285
## 84    0.02077391  -0.0277876747 -0.025012068 -0.474813766   -0.289574314
## 85    0.54112757  -0.3185312272  0.087717076  0.518235147   -0.038977662
## 86   -0.40110867   0.1304424900 -0.476354725  0.846921867    0.649278937
## 87    0.76327679   0.0010100943  0.198046313 -0.353717140   -0.354591401
## 88   -0.67293420  -0.1935881255 -0.098135353 -0.194262859    0.260681443
## 89   -0.99564936   0.0118150745 -0.339077103  1.613400255    1.111114488
## 90   -1.14593770   0.1753688113 -0.421261105  1.463598045    0.577086109
## 91    0.59751552  -0.1722189920  0.638845931 -0.168295474   -0.362965355
## 92    0.79761013  -0.1292682390  0.195824993 -0.432220174   -0.449374799
## 93    1.02327269  -0.1261671090  0.085992622 -0.168216336   -0.201651586
## 94    0.91199718   0.0941157248 -0.082991255 -1.264455661   -0.777709799
## 95    0.65601408   0.0656013925  0.334537792 -0.067011587    0.079340712
## 96    0.23223996  -0.1027937505  0.347757172 -0.231518432   -0.339560739
## 97    0.03935769   0.2916584597 -0.459123204 -0.471804139    0.293399603
## 98   -0.08052042   0.4163666590 -0.464870844  0.092256484    1.173068609
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## 99    0.07771591  -0.3096010375  0.066687448  0.727844432   -0.093741069
## 100  -0.81834961  -0.3058931515 -0.322430023  0.627514156    0.301648796
## 101  -0.67742837   0.1334086868 -0.417668316  0.561568684    0.510835075
## 102  -0.37593367  -0.0006083182  0.022630816  1.023660053    0.384371374
## 103  -1.62724326  -0.0625771970 -0.655599628  0.296381756   -0.373143362
## 104   0.75569284  -0.2264966175  0.227676380 -0.168730705   -0.409047620
## 105  -0.56275818  -0.0791088950  0.067582248  0.528304040    0.324349194
## 106   0.16198880  -0.1207874722  0.118152600  0.527357300   -0.095221207
## 107   0.02513160  -0.0161983565  0.323304553 -0.059382261   -0.255871195
## 108  -0.02323907   0.1187755730  0.285477219  0.731115392    0.342488590
## 109   0.74792918   0.1037330505  0.455323833 -0.485643352    0.059273569
## 110  -0.28672555  -0.1872613375  0.140871169 -0.288455860    0.339246068
## 111   0.23702473  -0.2731047270  0.247218115  0.097270684   -0.188952781
## 112   0.36841418   0.0602404910  0.119988906 -0.109973224    0.326573473
## 113   0.59714801   0.2921818770  0.230602190 -0.511851908   -0.057573529
## 114  -0.19428127   0.1322977200  0.229750233  0.146176427    0.347417356
## 115   0.22219841  -0.1601180455 -0.021812812 -0.196328792   -0.218023128
## 116   0.91406488   0.2770896593  0.390079412  0.148756721    0.201895668
## 117  -0.51273929  -0.1512973653 -0.095895247  1.286098557    0.738492510
## 118  -0.21088268  -0.0179847525 -0.001411776 -0.464456428   -0.097761732
## 119   0.14394809   0.0804833005 -0.351604772 -0.665116701   -0.862716695
## 120  -0.58442160   0.3338800485 -0.016093390  0.132608001   -0.164142121
## 121   0.06675216  -0.0022658462  0.413390193  0.093996838    0.804360645
## 122   0.83022850   0.2790675490 -0.230681486  0.296299370    0.352954186
## 123  -1.03194768   0.0690644230  0.024644990  0.032222981    0.091526314
## 124  -0.43197086  -0.1970182925  0.092200745 -0.341402671   -0.289138562
## 125   0.08516565  -0.1866383525  0.017310091 -0.084436738   -0.405014991
## 126   0.36005601  -0.2116296610 -0.127438015  0.841998237    0.763664248
## 127  -0.13222832   0.0213485915 -0.183684525  0.838698082    0.137993301
## 128  -0.04422198  -0.3838153690  0.123873216  0.631065856    0.159778564
## 129   0.01070462   0.1244108870  0.502881634 -0.679278455   -0.357154873
## 130   0.08252179   0.2422096430  0.255274654 -0.695608870   -0.504646799
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## 131  -0.67077026  -0.1199170140 -0.124487653  1.263352559    0.568638040
## 132  -0.03275970   0.0386422395 -0.033509381 -0.668722182   -0.521952044
## 133   0.48026009   0.1390562050  0.198327988 -0.181854885   -0.269816547
## 134   0.35339658   0.2321371957  0.593537142  0.188020627    0.238039722
## 135   0.73766801  -0.2638275848  0.141039007  0.169964277   -0.152907181
## 136   0.59483402   0.2614661207  0.576337125 -0.412649468   -0.471669512
## 137   0.10512583   0.0140413743 -0.039239574  0.986269625    0.216730872
## 138  -0.44344930  -0.1696449275 -0.457037376  0.267524506   -0.071205589
## 139   0.17306307  -0.2347823235 -0.042172033  0.357416322   -0.324194744
## 140   0.12207479  -0.1593157158  0.258081771 -0.132194790   -0.094473462
## 141   0.61623946  -0.1545367080 -0.169892335  0.337512101   -0.088046484
## 142   0.38873302  -0.1851752937  0.235340096 -0.203084410   -0.289973052
## 143   0.98480315  -0.3144465332 -0.179989685  0.169274149    0.014765412
## 144  -0.16660690   0.0421864800  0.198319257 -0.141250560   -0.261125243
## 145   1.06684745  -0.1033930295  0.180173147  0.041276958    0.192230126
## 146  -0.43754864   0.0718979265  0.012335121  0.655452408   -0.066946759
## 147  -0.29392946  -0.0932911750  0.036986775  0.039852952   -0.122285929
## 148   0.16958089   0.1068157900 -0.166579470  0.592519049   -0.330023854
## 149   0.18225617   0.0432080775 -0.039193322  0.090709136   -0.548530328
## 150  -0.08472811   0.0184769157 -0.307788620  0.096147352   -0.362882236
## 151   0.53118818   0.1009078705  0.083832672 -0.250731777   -0.001106596
## 152  -0.25040259   0.0517384055 -0.103762488 -0.355421881   -0.225735233
## 153  -0.29765261   0.1168715140 -0.036369835 -0.548923376    0.045922740
## 154   0.96359294  -0.3546322363  0.135798701 -0.442345910   -0.449718713
## 155  -0.12979997  -0.0780455893  0.390670353 -0.086350980   -0.096774806
## 156   0.73666784   0.2821373350  0.215486446 -0.420402394    0.293826055
##          pp_BRCA2      pp_BRD4  pp_Bad.pS112       pp_Bak   pp_Bap1.c.4
## 1    0.0858726615  0.020922660  0.1756733795 -0.092454236 -0.0368640225
## 2   -0.3926060960 -0.729901365  0.4416012970  0.045153205 -0.3974712500
## 3    0.0681328220 -0.223589982  0.1874331000 -0.375450823  0.1334120940
## 4   -0.0003669697 -0.435366623  0.2936501333  0.141044693  0.0282031832
## 5   -0.0604999775 -0.195526222  0.2272794545 -0.137936375 -0.3163360745
```

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## 6   -0.0368781645  0.300811935  0.2556542115 -0.052472320  0.3382257315
## 7    0.0565784670 -0.244445201 -0.0487763540  0.051272095 -0.2139015800
## 8    0.1854597395  0.220058207  0.2678471885  0.591652839  0.3935635095
## 9    0.3748124745  0.929955712  0.0725984565  0.737767530  0.5413215285
## 10   0.1307028188  0.570058399  0.1440668978  0.364282863  0.2529343888
## 11   0.1710913380 -0.013187418  0.3780754220  0.153738089  0.2592759580
## 12  -0.1971267530  0.370966927  0.2084083560  0.123545774  0.0642076900
## 13  -0.2709267585  0.170935183  0.1361188305 -0.181418127  0.2196433735
## 14   0.0112746945 -0.761283313  0.0594988795  0.194116173 -0.4922042595
## 15   0.1083683535  0.721447568  0.0468131175 -0.102177738  0.2761965055
## 16  -0.1459658485 -0.416733597  0.7194906135  0.165147485 -0.1233331595
## 17   0.0852362460  0.338618172  0.1688763840  0.026368323  0.1258656160
## 18  -0.0856735190  0.321619486  0.5820146410 -0.141200636  0.0686552690
## 19  -0.0154841240  0.275162179 -0.2126197980 -0.090305509 -0.0016427100
## 20  -0.0486166215 -0.129324584  0.3450429405  0.034198510  0.3075029335
## 21  -0.2624429110  0.028231371  0.2421576240 -0.018555038 -0.0763579260
## 22   0.1661019950  0.211582225 -0.0290002930  0.143566213  0.3239658450
## 23  -0.0524205635  0.282140600 -0.0811506865  0.399636451 -0.1009204865
## 24   0.1660819120  0.519797285 -0.1960135400  0.094917595 -0.0524633220
## 25  -0.2990829910  0.129056392 -0.1142737450 -0.083590476 -0.0297820850
## 26  -0.1834396075 -0.457478539  0.4593462795 -0.191314726  0.0564276235
## 27  -0.2189509955  0.560769919  0.5360436335  0.060824108 -0.1814240745
## 28  -0.0776418655  0.408383438 -0.2514310015 -0.153982794  0.3761176405
## 29   0.1095354085 -0.891636023 -0.0176850125  0.620735584 -0.3847622655
## 30  -0.1031975910 -0.529982983 -0.2279317730  0.376602577 -0.3028230380
## 31   0.0837947505 -0.409216602  0.4508353375  0.644756072 -0.6282429895
## 32  -0.4880049395  0.010544195  0.3280286775  0.191743423  0.0379289355
## 33  -0.1806126800 -0.645462787  0.0851420190  0.620609588 -0.2392399140
## 34  -0.2592803340 -0.048245206  0.0406848260  0.282579013 -0.3384929770
## 35  -0.1128860080 -0.198996293  0.3200508120 -0.044917289 -0.0530484030
## 36  -0.0004541820 -0.283752567  0.3023657690  0.140799937  0.1721477710
## 37  -0.2300345895  0.367204465 -0.8681623995 -0.051454862  0.1069468265
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## 38  -0.1766367600  0.013346534  0.0209312940 -0.164548659  0.2339519590
## 39  -0.1602195520  0.246714806  0.0556691630 -0.136795288  0.2786122210
## 40  -0.3864940175  1.125041701 -0.5056309145 -0.066110278  0.3270359165
## 41   0.0162298970  0.455574990  0.1637560910 -0.294511194  0.3143781670
## 42   0.0509536155 -0.181922500  0.1524694875 -0.018495825  0.1609185165
## 43  -0.2222754410  0.157723615  0.2569269940 -0.032671144  0.1060872210
## 44   0.1256214065 -0.361728524 -0.1955081085  0.728904068 -0.1510555685
## 45  -0.1470597680 -0.250843869 -0.8133595450  0.921843192  0.0000000000
## 46  -0.1368686535  0.390789294 -0.0678765045  0.303536586  0.2405527325
## 47   0.0259741210  0.001039710 -0.3236502940  0.282567895 -0.2943949340
## 48  -0.1787026010 -0.745484872 -0.5792870180  0.219846409  0.3426141260
## 49   0.2310434780 -0.982397401 -0.0359724690  0.656282487 -0.6059209790
## 50  -0.1500349655  0.279553982  0.7709364005 -0.151729021 -0.0185789525
## 51  -0.1547702195  0.127747572  0.6459205145 -0.149235782 -1.0819886255
## 52   0.3987637710 -1.203438141 -1.1431987250  1.002464310 -0.8792611510
## 53  -0.2920181460 -0.163394736 -0.0220657890 -0.032715999 -0.0667984990
## 54  -0.0547355360  0.458619712  0.1965329240  0.004520021  0.0260198650
## 55  -0.4490703920  0.489383104 -1.2899325070  0.334323866 -0.0886234120
## 56  -0.0306201205  0.042576471  0.3467521765 -0.007388206  0.1833025545
## 57   0.1540237645 -0.781537634 -0.8655436505  0.940528823 -0.1798297545
## 58  -0.4254074455 -0.035613735 -0.4224246695  0.390343379 -0.0681355125
## 59  -0.2046204710  0.798571863 -0.3021567910  0.205994650  0.3205199460
## 60  -0.2434423295 -0.559886786 -1.3595304815  0.393315399  0.2208597355
## 61   0.0921784315  0.039083211  0.0730214925 -0.226531567 -0.0012605765
## 62   0.2132658585 -0.547730417 -0.1134472485 -0.091648610  0.0927533335
## 63  -0.4473709570  0.143605288 -0.2133326650  0.164886612  0.1410501250
## 64  -0.1924296680 -0.681598634 -0.0545349820  0.024686108 -0.7591876730
## 65  -0.2019553887 -0.296839985 -0.0716302128  0.307673279 -0.4374281353
## 66  -0.2348988812  0.098833831  0.3329265667 -0.389560064 -0.4108033062
## 67  -0.3093606990 -0.344768569  0.1971088870 -0.319717030 -0.4387215240
## 68   0.0617797157 -1.393643661  0.2706795887 -0.044790207 -0.3036919858
## 69   0.0181193850 -0.154357471  0.3174153500  0.297572713 -0.1660088075
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## 70  -0.0346355243 -0.124788330 -0.0983040732  0.097585076  0.0693140042
## 71  -0.0849479232 -0.650728891 -0.4080476443  0.359486300 -0.2949839538
## 72   0.1209837865  0.172228027 -0.1734671175 -0.074309911 -0.0162875950
## 73   0.1224377758  0.180215429 -0.0369674772  0.160358588  0.0273270092
## 74  -0.4524302030  0.025552426  0.5758574350  0.135889497 -0.0317463830
## 75  -0.2752624245  0.847754432  0.3898723165 -0.126264852  0.0625654525
## 76  -0.1778690290 -0.018638771  0.1243280140 -0.264548874  0.2622985920
## 77   0.0307383545 -0.577493906 -0.8844952035  0.535678312  0.0582411825
## 78  -0.0858342650  0.287865574  0.1524388180 -0.211260352  0.2837970220
## 79   0.0049459065 -0.219787502 -0.0003839525 -0.246959494 -0.0660244215
## 80  -0.0855829855 -0.432641805  0.1029685545  0.121951354 -0.3488218835
## 81   0.2764403570 -0.888319235 -0.2544750780  0.035338351  1.3727074455
## 82   0.0000000000 -1.472421170 -0.3433472960  0.201680631  0.7164247475
## 83  -0.3046527615 -0.127705278 -0.2499817465  0.462201178 -0.2795674160
## 84  -0.5348531252 -0.756142600 -0.0212915013  0.278500390 -0.3703735388
## 85   0.2316886492  0.077648128  0.4290558293 -0.055493994 -0.1671444753
## 86   0.0978902405 -0.927939883 -0.6476808125  0.249414986 -0.3612376725
## 87  -0.4712078392 -1.083683831  0.1684050137 -0.088156588 -0.5248168682
## 88  -0.2386565090  0.063500788  0.1476219430 -0.033414459  0.0753256400
## 89  -0.3098352630  0.061436238  0.3596243630 -0.215606489  0.2715658060
## 90   0.0978280408 -0.121535994  0.2786687837  0.384341648  0.1369350907
## 91  -0.3004384515  0.089335060 -0.0231675595  0.129268459  0.0271588875
## 92  -0.1139419555 -0.296414951  0.0403370575  0.331625618 -0.2841581665
## 93  -0.0641518985 -0.177362327 -0.4255652495  0.372019637 -0.0680920475
## 94  -0.1688204347 -1.925381789 -0.3355227658  0.900573312 -0.7977352208
## 95   0.1196667900 -0.114961166 -0.1750793450 -0.152859229 -0.0196407510
## 96  -0.3400940280 -0.212485194  0.6450959580 -0.088612175  0.1629494480
## 97   0.0566562722 -0.487714962 -0.2831762637 -0.311404123  0.0585746702
## 98   0.2013521725 -0.169101914  0.2218563345  0.176841329  0.0187166645
## 99  -0.3399099270 -0.163534573 -0.2076545040 -0.334956986 -0.0516681870
## 100 -0.3651942500  0.140419600  0.6466012520 -0.275466894 -0.1669004240
## 101  0.0473909153  0.167983609 -0.2213939777  0.138582819  0.2231532193
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## 103 -0.4421277775  0.127531737  1.0345357755 -0.242975065  0.0467424035
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## 112 -0.0133569715  0.008516926  0.1224460025 -0.144428219  0.1013612195
## 113 -0.0392727865 -0.186707753  0.1457961595 -0.039817430  0.1598251945
## 114 -0.3171016505  0.802462074 -0.1381826605 -0.066585261  0.0613900095
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## 118 -0.3362827240 -0.325561944  0.3241625050 -0.240450913  0.1186713600
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## 120  0.0921704650  0.023776592 -0.0431945150  0.332714320  0.0828966980
## 121  0.0218849483 -0.547242528 -0.1245991918  0.072948356 -0.0060549807
## 122 -0.0778587245 -0.003957547  0.4273073895 -0.079536211  0.0637876845
## 123 -0.3227491565 -0.005201911 -0.4328761095 -0.319799950  0.5669047365
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## 125 -0.3293071950  0.291611650 -0.2441898680 -0.080745872  0.1915396530
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## 128 -0.3801977075  0.051866542  0.3425176845 -0.115570658  0.2074117585
## 129 -0.5701268315  0.071416840  0.1403472995 -0.140824543  0.3286914845
## 130 -0.2503009305 -0.372672347 -0.0928635735 -0.152382014 -0.4414103085
## 131 -0.3069817055  0.289218135 -0.1033427145 -0.209776296  0.2186503705
## 132 -0.5120276550 -0.999488678 -0.6525461890  0.395651139 -0.2582912240
## 133 -0.3478258535  0.052739267  0.1754908495  0.139647994 -0.1841433965
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## 135 -0.5594856683 -0.158990377 -0.2927879473  0.149471020 -0.3304915498
## 136  0.1051846943 -0.053373317  0.0089944322 -0.360202405  0.0771483323
## 137  0.3798772317  0.328799194 -0.3084179173  0.232626805  0.5727722758
## 138  0.2026456410  0.479570548  0.1732139580  0.595490885  0.3592443560
## 139  0.1737706340  0.643551680 -0.4238882880  0.333571689  0.3169268640
## 140  0.0205635517 -0.472715412 -0.3411561343  0.454581038 -0.3704852902
## 141  0.1886005715  0.257386173  0.0820896805  0.314002453  0.0546863025
## 142  0.0364724738 -0.044578361  0.3562416087  0.299219311 -0.0319313722
## 143  0.3116984533 -0.143245889  0.1990708033  0.468314873  0.2282751503
## 144 -0.0520578255 -0.345038886  0.0360813655  0.519843325  0.0767468655
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## 148  0.1520595355  0.636407829  0.0124727515  0.330686314  0.4452745445
## 149  0.3617863710  0.128950488 -0.1876623270  0.104130574  0.2140657970
## 150 -0.0306189287  0.073353508 -0.0710751388  0.341942300 -0.0428382478
## 151  0.1081359200  0.019472880 -0.0653926030 -0.190001982 -0.2246638530
## 152  0.2246933960  0.072560104  0.2537646180  0.024830260  0.2178179040
## 153 -0.0178192575 -0.024908034 -0.0776520045 -0.162867534  0.0220318365
## 154  0.1648180902  0.146931483 -0.0913099048  0.057953054 -0.2104371218
## 155  0.3048235552  0.125488020 -0.0798084268  0.554015763 -0.0002140207
## 156  0.1269210515 -0.122469416 -0.4670565745  0.341791148 -0.1094280985
##           pp_Bax    pp_Bcl.2     pp_Bcl.xL    pp_Bcl2A1    pp_Beclin
## 1   -0.048076601  0.60676428 -0.0109514540 -0.131265272 -0.080541592
## 2   -0.092339836  0.39385995 -0.2670807125  0.320442646 -0.145822801
## 3   -0.039872907  1.33129561  0.0365867395 -0.054743674  0.066244538
## 4   -0.594359719  1.31552303  0.1751595237 -0.097739328  0.605909400
## 5    0.138918705  0.19093396 -0.2262232100  0.269219520  0.005157979
## 6   -0.174797370 -0.89113447 -0.3320525370 -0.331152006  0.013469582
## 7    0.109607363  0.19506418  0.0093965035  0.645032538  0.146858206
## 8   -0.264062264 -0.44065217 -0.1805985910 -0.143808532  0.083838143
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## 9   -0.115671276 -0.19308843 -0.0537553670 -0.065556743  0.146217247
## 10  -0.035056548  1.29490971 -0.2802168147 -0.226858752  0.012568627
## 11   0.225815343  0.43546069 -0.0278531085 -0.250892301 -0.043265004
## 12   0.154576487  0.87068830 -0.2177261515  0.030917777  0.077841933
## 13   0.120240075 -0.90250370 -0.0697445840  0.037890398  0.010678233
## 14   0.443090141  0.34332698  0.0898514490  0.169499933 -0.109456065
## 15  -0.074151068  2.33620212 -0.0513588320 -0.352051172 -0.033066540
## 16   0.366064548  1.01433074  0.0798541970 -0.178247546  0.031143108
## 17   0.352170368  1.24435604  0.2734783005 -0.144224147 -0.099383777
## 18  -0.062528141  1.24157747  0.2216218755  0.007587790 -0.206566483
## 19   0.219895567  1.62093391  0.2002528105 -0.086203610 -0.036779804
## 20  -0.001744333  1.37662903  0.0438990670 -0.437417120 -0.007292773
## 21  -0.127243086 -1.24932559 -0.1317297105 -0.376395351 -0.253591617
## 22   0.651413058 -1.09147324  0.3401273235 -0.050767721 -0.291993266
## 23  -0.605338226  0.54901281 -0.1725732010  0.039463911 -0.113215922
## 24   0.122539583 -0.66086393 -0.1262045605  0.109718658  0.047923103
## 25  -0.116363167  1.04561821 -0.1260259165  0.159764159 -0.000587463
## 26  -0.209603751  0.83062302  0.1113874630 -0.257303384 -0.240091040
## 27   0.073069532 -0.15552027  0.0134135560 -0.324467967  0.149782322
## 28  -0.041858811  1.08421447 -0.0721256790  0.021731225  0.022756247
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## 35  -0.021615150 -0.58835998 -0.1173335995 -0.128341856  0.043139034
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## 39  -0.139277778 -0.67688942  0.0845062745 -0.190508048 -0.142333963
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## 41   0.282760083 -1.37081310 -0.0420717855 -0.203356399 -0.059470219
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## 53   0.180268409 -0.95457194 -0.2450171145  0.281605229 -0.202091514
## 54   0.627619974 -0.72646023  0.1082887755 -0.445058379 -0.012984165
## 55   0.583199742  1.29622894 -0.0219702905  0.863292796 -1.490367995
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## 82  -0.842260594  0.26826194 -0.8203838180  1.121354580  0.672516627
## 83  -0.278416414  0.82470350 -0.1922527440  0.156383219  0.049922405
## 84  -0.149378880  0.29505274 -0.0823109928  0.163415352  0.055893462
## 85   0.232316562 -1.88817444 -0.0774073222 -0.195889956 -0.109691214
## 86   0.087296232  0.48556537 -0.0739405670  0.117914277  0.249245646
## 87   0.460979450  0.73099246  0.2439841752  0.288589139  0.078209272
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## 89  -0.183152669 -0.58748143 -0.0452348905  0.158501066  0.000000000
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## 91  -0.337364257 -1.02134308 -0.1835661200  0.151644971 -0.126130842
## 92  -0.072952463 -0.50465144 -0.1604740200  0.121873398  0.065360068
## 93  -0.023184906  0.47451955 -0.1261264080  0.455319030  0.083426633
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## 117  0.050173775  1.20427076 -0.2473525733 -0.024724960 -0.021946845
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## 148 -0.070485945  0.80780463 -0.1277042690  0.024677530  0.005634030
## 149  0.180876088  0.66858007 -0.1651528005  0.285058686  0.178626875
## 150 -0.079010828 -0.95958342 -0.1762363312  0.001890077 -0.047861559
## 151  0.114826269  0.57903871 -0.1688220785  0.143859730  0.191502214
## 152 -0.284352871 -0.35673331 -0.1651487355 -0.213874357  0.045850913
## 153 -0.539302117 -0.57913563 -0.3904663490 -0.128852745  0.146906190
## 154 -0.165360378 -0.64703431 -0.0795608822  0.457378610 -0.017823420
## 155 -0.016063687  1.41190829 -0.1843237712 -0.111647819 -0.080884229
## 156  0.353574797  1.30530546  0.0714883550  0.566503017 -0.084278434
##           pp_Bim      pp_C.Raf pp_C.Raf.pS338       pp_CD20      pp_CD26
## 1    0.400727499 -0.1104808230    0.084132130 -0.2467133325 -0.102900107
## 2   -0.516197117  0.0100579005    0.002412613 -0.2000314240 -0.088393388
## 3    0.749386916  0.0168176895   -0.055886303 -0.0099375380 -0.084586588
## 4    1.443654399  0.0641296887    0.111585501  0.0738131713 -0.001563837
## 5   -0.195101586  0.0446839170    0.241797941 -0.2184306115  0.044818709
## 6   -0.499151864 -0.2179819140   -0.303761688 -0.0381430345 -0.122703791
## 7    0.000828026  0.1833142575    0.363328523  0.1717443650 -0.374180464
## 8    0.069284391  0.3502169890    0.008595455  0.0778742585 -0.259702475
## 9   -0.349317649 -0.1128667100    0.046247701  0.2894587025 -0.174160877
## 10   1.080512363  0.0897167253    0.014397070 -0.0370399923 -0.117686313
## 11   0.036572666  0.0004456495   -0.118314329 -0.0707195330 -0.140010689
```

```
## 12  -0.139188256  0.0007088125   -0.176039755  0.2490665580 -0.069521822
## 13   0.182797272  0.1346976920   -0.167272182 -0.1529466665 -0.185330016
## 14  -0.098344366 -0.3640394730    0.095299376 -0.1064565205  0.018307503
## 15   0.774554935  0.0843156220   -0.267045395 -0.0610965795  0.010919554
## 16   0.017033461  0.1354182910    0.001029643 -0.2232638955 -0.180005085
## 17   1.221607114  0.5326094465    0.034946519 -0.1882520200 -0.175187447
## 18  -0.182525705  0.0142744555   -0.229357777 -0.0643584050 -0.165006828
## 19   0.675487738  0.1141724735   -0.007983529 -0.2195250260 -0.057848442
## 20   0.694261006 -0.1534831380   -0.210967095 -0.0807096215 -0.200718149
## 21  -0.277977253 -0.2328377785   -0.168372098 -0.1442601830 -0.254010584
## 22   0.661901866 -0.6119554075    0.180818320  0.0600657850 -0.300530138
## 23  -0.315850915  0.3640391050   -0.067787038 -0.1311835985  0.008883047
## 24  -0.737396123 -0.0020577305    0.048215451 -0.1836357790  0.019331219
## 25   0.097755364  0.0936724305   -0.049013471 -0.2192680490 -0.133775660
## 26   0.473499069 -0.2916365080   -0.256432245  0.0303457955  0.029131280
## 27  -0.282803892 -0.1476339550    0.000000000  0.0366776505 -0.191512907
## 28   0.338485278  0.1939710250   -0.186569662  0.1659240895 -0.134460824
## 29  -0.260538153 -0.4894346920    0.490646099  0.6360872415 -0.206394515
## 30   0.031644283 -0.2849333785    0.250581155  0.4697143930 -0.253516435
## 31   0.053829029 -0.7062579960    0.025231241  0.6394825915  0.221161721
## 32  -0.152637080  0.1131094560   -0.324953068 -0.0002098455 -0.170932327
## 33   0.271279154  0.0079175675    0.171934374  0.7422548820 -0.145804168
## 34  -0.007930175 -0.1786284475    0.127058865  0.4167949360 -0.049484416
## 35  -0.397134482  0.0892012695   -0.053640972  0.1065315290 -0.044255841
## 36   0.186353448 -0.3971131515    0.062779201  0.2457149280 -0.102492557
## 37  -0.050496424  0.2817089600   -0.262928357 -0.0721895255 -0.042960975
## 38   0.200066586  0.2895543205   -0.297522776 -0.0133177540 -0.021246118
## 39   0.207494626  0.3340171665   -0.190821909 -0.1207263690 -0.023186605
## 40   0.133479178  0.0081200990   -0.159505661 -0.0311795885  0.044839247
## 41  -0.726577548 -0.0061103585    0.088881375 -0.2485397180 -0.226430641
## 42  -0.845289974 -0.0024906330   -0.026481625 -0.1133426235 -0.156600074
## 43  -0.513636943  0.0854345535   -0.047869831 -0.1156881300 -0.252911831
```

```
## 44   0.096136886 -0.2022749680    0.446898287  0.6101563385 -0.592028172
## 45  -0.119705536 -0.2607704495    0.359394359  1.2606721230  0.146359012
## 46   0.953417903  0.2400749630   -0.067371724 -0.0594639925 -0.294722231
## 47   0.106889390  0.0880494275   -0.390014853  0.1298382400 -0.312132129
## 48   0.434390572  0.4513099235   -0.208432017  0.1172057480  0.099251051
## 49  -0.157523692 -0.5397676975    0.579454469  0.5252401010 -0.427642116
## 50  -0.263555981  0.1098980090   -0.099464634 -0.3057861845  0.035722578
## 51  -0.483116579  0.0025401290    0.043424128 -0.2406775335 -0.164886222
## 52   0.068448620 -0.8991116445    0.667551732  0.7585750690 -0.425407691
## 53   0.065779669 -0.0925677335   -0.191970034  0.0337775820  0.100088162
## 54  -0.380519083  0.1093784935    0.089751147 -0.0753871500 -0.007840818
## 55   0.642728730  0.1862060595   -0.337741324  0.1768958650 -0.231406240
## 56  -0.564380403 -0.1741736710    0.022658604  0.0903985895 -0.120810548
## 57  -0.119063428 -0.5180754650    0.347799763  0.7292617935 -0.201052115
## 58   0.077746742  0.1033177980   -0.302339411  0.3648935225  0.007181615
## 59   0.321107729  0.2495171215   -0.296324513  0.1088233630  0.166698520
## 60   0.032998218  0.3499710830   -0.148135231  0.3710638585  0.075858094
## 61   1.640376669 -0.1360963660    0.015547009  0.1636459215  0.186411734
## 62   0.473636169  0.1883531760   -0.049229372  0.0831393655  0.278365904
## 63   1.444947089  0.0164076925   -0.087355075  0.0600406880 -0.175166186
## 64  -0.263195125  0.1678020935    0.426384785  0.6960883310  0.273564971
## 65  -0.317803035  0.1913314728    0.077269146  0.6933892087  0.107002882
## 66  -0.103105252  0.1358288472    0.009080881 -0.1884199582  0.341411551
## 67  -0.274541597 -0.0240302685    0.117386455  0.2438737730  0.385348058
## 68  -0.673737163  0.0591419912    0.317389658  0.4087542033  0.813310084
## 69   0.309480180  0.1225088755    0.335535871 -0.0299679205  0.165412856
## 70   0.266140887  0.3641310473   -0.252650885 -0.2189610047 -0.302887580
## 71  -0.325166243 -0.0659652657   -0.055336991  0.3599973612 -0.091277228
## 72  -0.148204192  0.0378937840   -0.014659378 -0.0016247850 -0.098705703
## 73  -0.456115523  0.2806598042   -0.016803312 -0.1886620697 -0.184838139
## 74   0.572819355 -0.0693758065   -0.068175234  0.0839073690 -0.075739629
## 75  -0.251966374 -0.2443618240   -0.165611066 -0.0865304605 -0.237956913
```

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## 76   1.448632350  0.6046226275    0.185633527 -0.2876641120 -0.028400326
## 77   0.555502337 -0.0042718980    0.164761641  0.5849863805 -0.545839817
## 78  -0.388237868  0.1668155975    0.102989695 -0.2243717180 -0.389696525
## 79  -0.120576271  0.1885661280    0.041272229 -0.0515332675 -0.011017465
## 80  -0.367085086 -0.1164428940    0.232932502  0.1623621045  0.432921083
## 81  -0.875412698 -1.0538325785   -0.703936941 -0.5148203780 -0.603295155
## 82  -0.463421311 -0.2310166375   -0.269150268  0.0217777470  0.507927379
## 83  -0.092408533 -0.1402540260    0.212858908  0.3697784070  0.263205851
## 84  -0.202612175 -0.1262554958   -0.062402909  0.3086487473  0.111887428
## 85  -0.401205321  0.1319681028    0.106624287 -0.2120876772  0.079932338
## 86   0.524227507 -0.4324680060    0.326187123  0.2241034875 -0.077973544
## 87   0.663402540 -0.2224905658    0.043443615  0.2380935557  0.533226768
## 88  -0.405164975  0.4582715995    0.230977457 -0.1719223730 -0.133492803
## 89  -0.164844133  0.2214607125    0.103644053 -0.0596602910 -0.109349583
## 90   0.781825253 -0.1438998057    0.125633876  0.0135978568 -0.162129986
## 91  -0.466494054  0.1908691790    0.108648953 -0.0436256145 -0.294664368
## 92  -0.797768669 -0.1452066450    0.210312220  0.1064208095 -0.163091669
## 93  -0.003235943 -0.0854537950    0.240483779 -0.1341061075 -0.190371472
## 94  -0.293748746 -0.2510205382    0.208733694  0.7820356162  0.226203642
## 95  -0.156279231 -0.0374212105   -0.136389038  0.1926385180  0.112498106
## 96  -0.253972778  0.0747215035   -0.054590046  0.0073986150 -0.185760389
## 97   0.931133045 -0.3398819623    0.604367244 -0.3168016377 -0.156106430
## 98   0.922105182  0.0709881590   -0.051382921 -0.0301112985  0.172115771
## 99  -0.316458960  0.2055869105   -0.183300955 -0.2498703450 -0.210207584
## 100 -0.104785703 -0.0084730485   -0.009077925 -0.5699060200 -0.047023910
## 101  0.035982766 -0.0913168873   -0.155779969 -0.1556999417 -0.327521286
## 102 -0.429623216  0.0874650417    0.087747825 -0.1693717427 -0.371288039
## 103  0.936115663  0.0839863900    0.000000000 -0.1643618135 -0.150154214
## 104 -0.634797865 -0.2078212365    0.237666568 -0.0035400820 -0.021486673
## 105  0.953512416  0.2058115350   -0.089458219  0.0526321555  0.055516977
## 106  0.903429655 -0.0704124772    0.006874944 -0.1330762728 -0.225105838
## 107 -0.827596581  0.1503043845    0.092568211 -0.2924341570 -0.083507212
```

```
## 108  0.282807091  0.0807626640   -0.219821278  0.1005456925  0.132020112
## 109  0.106091827  0.0082847895    0.107855539  0.2657439230  0.046518600
## 110 -0.474150519 -0.0008663495    0.167158229 -0.4605117890 -0.120437303
## 111 -0.361115423  0.3770507510    0.129004671 -0.3229467655 -0.269118221
## 112  0.121462516 -0.1324394580    0.102932265  0.0928299425  0.079244071
## 113  0.112411399 -0.2926175100    0.151170511  0.0327831965 -0.100318899
## 114  0.276742553  0.0382019190   -0.128283229  0.1988053505 -0.091609568
## 115 -0.098261224  0.0407310085    0.320264587 -0.0835927210 -0.247456118
## 116  0.176367422 -0.0571891608    0.083001261 -0.2443843863 -0.080508238
## 117  0.563308925  0.0738570218    0.050957270 -0.1371008918 -0.351178436
## 118 -0.498463879  0.3708534145   -0.050245812 -0.1164007510  0.000000000
## 119  0.128410846 -0.8908173325    0.646998677  1.0586230370 -0.506933953
## 120  0.452860934  0.1332624685   -0.051712794 -0.1072863380 -0.091040523
## 121  0.134823073  0.2995989808    0.240736660 -0.2045389458 -0.055098358
## 122 -0.494663062  0.0143962710   -0.142094674  0.8490087495  0.013156822
## 123  0.456831019  0.2258431980   -0.035973103 -0.2804186195  0.266771745
## 124 -0.152615399 -0.0293921285    0.115870456 -0.1885825270 -0.034610147
## 125 -0.305996420  0.3109556665   -0.155572648 -0.2798520210 -0.132164632
## 126  0.251818767 -0.0006839200    0.346190843  0.0545430275 -0.096517747
## 127  0.089004981  0.4760324195   -0.120742730 -0.2401448150 -0.140558529
## 128 -1.170633554  0.2256326050    0.028301111 -0.2430039065 -0.223707713
## 129 -0.040101002  0.2246706300   -0.305286460  0.0891294275 -0.014727093
## 130 -0.622243432  0.2691164600   -0.102770381  0.1586487575  0.063928458
## 131 -0.169127945  0.2562276410   -0.026107297 -0.2772848335 -0.033422460
## 132  0.067961284 -0.0841483145    0.096687588  0.2314509890  0.034306486
## 133 -0.361795088 -0.0454192860    0.089663397  0.0253705605 -0.268656289
## 134  0.278668713 -0.0933309093    0.006500928 -0.2348704262  0.530546635
## 135 -0.075876272 -0.0030505257    0.057491752  0.0026148753 -0.066754704
## 136  0.637178697  0.2642157677   -0.225951082  0.0833406202  0.305972299
## 137  1.207072142  0.1966241582   -0.093255348 -0.1755310362 -0.052295412
## 138  0.069829455 -0.0452587115   -0.132246838  0.0835562490 -0.265575966
## 139  0.870947517  0.0799417695   -0.000884582 -0.0201260280 -0.071171475
```

```
## 140 -0.068383170  0.0999503123    0.003661686  0.0545541278 -0.143315676
## 141  0.275452286 -0.0242401980   -0.047602553 -0.0781147995 -0.157135833
## 142 -0.181685884  0.1166959522   -0.024252324 -0.1004751702 -0.226449343
## 143 -0.104110490  0.0233753337    0.177398813 -0.0413650708 -0.217449624
## 144  0.402826321  0.0301734630    0.041543993 -0.0119131495 -0.172097308
## 145 -0.543587823 -0.1331520325    0.024909813 -0.1576965050 -0.080245762
## 146  1.097248558  0.1649893645   -0.104494051  0.1197951250 -0.099781495
## 147  0.165127511  0.0033393540   -0.109225562 -0.1480717225 -0.273412033
## 148  0.729170868  0.0054342960   -0.100405165  0.0127512585 -0.160238244
## 149  0.004468900 -0.0214392765   -0.007717739 -0.1234902510 -0.124445837
## 150 -0.487174117 -0.0396595003   -0.106983882 -0.0079382687  0.523650005
## 151 -0.310275115 -0.1166267765    0.001533455  0.1595689380  0.127170814
## 152 -0.124340537 -0.0900120095   -0.142201121 -0.0212143510 -0.165384766
## 153 -1.016428043 -0.2039208860    0.008176506 -0.2470995845 -0.064009542
## 154 -0.709107931 -0.0080984262    0.297782705  0.0652337893 -0.091896445
## 155  0.860343530 -0.1360693383    0.089730274  0.0258181412 -0.282934329
## 156  0.378993859 -0.1257259290   -0.247490474  0.3093888505  0.192217944
##          pp_CD49b      pp_CDK1      pp_COG3  pp_Caspase.3
## 1   -0.0002175045 -0.070356752  0.104321491 -0.0994929530
## 2    0.1384957545  0.202679681  0.031154087 -0.2278589920
## 3    0.4777961260 -0.283907967 -0.097603485 -0.4266904715
## 4   -0.3696545087 -0.392437622  0.163207507 -0.1963267512
## 5   -0.2010816635 -0.266107779 -0.099378715  0.0558613420
## 6    0.3636887130 -0.309278438 -0.271787950 -0.0025346125
## 7    0.2213695330  0.346929915 -0.763838395  0.1612640125
## 8   -0.0892078885  0.354033997 -0.225949605  0.2364645830
## 9   -0.2022098575  0.399338539  0.196886970  0.3735585720
## 10  -0.3016762383 -0.346694435  0.006425423  0.0933322703
## 11   0.3361904290 -0.207716578 -0.046782706  0.1223852765
## 12  -0.0994270155  0.431185193 -0.027401420  0.0508103990
## 13  -0.4565945950  0.251376624 -0.437633229  0.2073051365
## 14   0.0083958910 -0.293757180 -0.434575871 -0.0848143805
```

```
## 15  -0.0075038840 -0.269128464  0.124707258 -0.1716178075
## 16  -0.2470246460 -0.443605751 -0.191340943 -0.3852171315
## 17  -0.2054256435 -0.051581128  0.037465850 -0.1346460220
## 18  -0.2362847905 -0.238905057  0.070554821 -0.4572532740
## 19   0.1059757155 -0.121464090 -0.006195504 -0.0624434600
## 20   0.7041300080  0.044552414 -0.134814816 -0.1055781405
## 21  -0.0837611975 -0.005210356 -0.017959770 -0.0532853790
## 22   0.1655267695  0.440491654 -0.700867505  0.0199553220
## 23   0.1585636020  0.099763994  0.120426783  0.0217257345
## 24   0.0051386980  0.116055932 -0.495419243  0.1369571675
## 25  -0.0285188115 -0.021673882  0.040333130 -0.0928629390
## 26  -0.1331465550 -0.127318636  0.289236321 -0.1014604205
## 27  -0.0537341440 -0.345740891 -0.003336339 -0.3655208085
## 28  -0.2905871680  0.140647896  0.293036483  0.0822333375
## 29   0.4755324490 -0.121064533 -0.985578713 -0.4839169955
## 30   0.3321863925  0.095670606 -0.220831652 -0.2146570480
## 31   0.3542129510 -0.139695543 -1.287102382 -1.1479304325
## 32  -0.2390251820 -0.627981940 -0.193043495 -1.6345495305
## 33   0.2216760435 -0.006812244 -1.636560836 -2.1687338010
## 34   0.1471272875 -0.470829141 -0.658123529 -0.4531083180
## 35   0.0745175875 -0.172870606  0.318846603 -0.1742141240
## 36  -0.0467876965  0.332251402 -0.426586105  0.2063332870
## 37  -0.0675095330 -0.807757377  0.000000000 -0.0302821875
## 38  -0.0424566945 -0.097718535 -0.010819153 -0.0618955080
## 39  -0.1153541845  0.011810682 -0.026763165 -0.0601348100
## 40  -0.4066249350  0.458044770 -0.148315742  0.2098023985
## 41  -0.2793473705 -0.122131965 -0.211817625 -0.0995390650
## 42  -0.3250007880 -0.202180094  0.109614626 -0.0962931735
## 43  -0.1935810715  0.116876090 -0.411165601 -0.0608319960
## 44   0.3435687440 -0.026667734 -0.951485588 -0.9371250115
## 45  -0.1132657015 -0.802900587 -1.497218697 -1.7435544340
## 46   0.3553310100  0.149695865 -0.031500599 -0.1439791245
```

```
## 47  -0.2662928125 -0.184972886 -0.636390427 -2.4346422790
## 48   0.2412246875 -0.393479015 -0.908836719 -0.8901816560
## 49   0.1664647885  0.427225304 -0.705448910 -0.3117020530
## 50  -0.1456818900 -0.328446273  0.091322156  0.0357514285
## 51  -0.1717767610  0.195607696  0.084945149  0.2254538305
## 52   0.4779762715  0.455464365 -1.512594449 -0.7515128080
## 53  -0.1939812755 -0.074102222  0.221777575  0.2374854110
## 54   0.0024776205 -0.112449091 -0.080148448 -0.0811805780
## 55  -0.3243048415 -0.969031866 -0.345619817 -2.3022246920
## 56  -0.0906900680 -0.169688942  0.048043500 -0.0082653335
## 57   0.0205898110  0.019667007 -0.978964684 -1.1393120855
## 58  -0.0676485910 -0.382611337 -1.407384669 -1.5027530715
## 59  -0.4114204495  0.348923514 -0.655114740  0.4219361310
## 60   0.3670597880 -0.112128599  0.056572547 -0.7522765215
## 61  -0.1814132275 -0.455210463 -0.651910088 -0.7974823490
## 62  -0.4605390595 -0.089704076 -0.130295158 -0.2318159730
## 63   0.0094842800 -0.268316435 -0.248098038  0.1354469085
## 64   0.0327269100  0.646931239 -1.464299135 -0.4532185395
## 65  -0.2326081537  0.111126011 -1.241416984 -0.3558251298
## 66   0.3701774468 -0.042614283 -0.154264285 -0.5476144478
## 67  -0.0042162140  0.037016927 -0.553139631 -0.3510596605
## 68  -0.5923843202  0.002770379 -1.584433872 -0.5108211582
## 69   0.2191726800  0.233708203 -0.460774052 -0.0665061270
## 70   0.5531117967  0.356574959  0.370665903  0.0935260858
## 71   0.2876192598 -0.094227961 -0.460538669  0.1071412408
## 72  -0.5116674955 -0.097299069 -0.221836998  0.1760726585
## 73  -0.6137160432  0.394929158 -0.315905886  0.0458117578
## 74  -0.1401519775 -0.455266369  0.114250416 -0.2435493140
## 75   0.9138820890  0.275902649 -0.072409346 -0.1153735295
## 76   0.1555612955 -0.363512543 -0.116217936  0.1425330610
## 77   0.0556987040 -0.351308858 -0.924422055 -1.6532532255
## 78  -0.2338194435  0.103866547 -0.230824600 -0.3457152350
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## 79   0.2598516210 -0.351861070  0.192407844 -0.1144367245
## 80   1.0383460285  0.345867386 -0.432679042  0.4021990740
## 81   0.0040408375  1.814857659 -0.346707286  0.0384160605
## 82  -0.5220621405  0.966621134 -0.825079200 -0.6178666375
## 83   0.0306610665  0.089866363 -0.211189121 -0.1608454885
## 84  -0.4363856783  0.134252490  0.422331415 -0.1122011702
## 85  -0.0429549208  0.262043094 -0.464549710  0.0394397553
## 86   0.2279924460 -0.314126585 -0.175146108  0.1345777055
## 87   0.2815043757 -0.157235991 -0.963343274 -1.1613120828
## 88   0.0545761475  0.202794454 -0.006153310 -0.0385975010
## 89   0.7110713405 -0.126212219  0.655499902 -0.1921519350
## 90  -0.2380450273  0.009306456  0.445328414  0.1107302043
## 91  -0.2645933030 -0.171169634  0.107448941 -0.1082009545
## 92  -0.0977736300 -0.180173572 -0.247141300 -0.2701087165
## 93   0.3251157350  0.455828650 -0.638384001 -0.0980501215
## 94  -0.1232535017  0.069411740 -1.646950095 -0.2227479632
## 95   0.0491192150 -0.262842970 -0.229556715 -0.2674788155
## 96  -0.0248862795  0.105255894 -0.047014791 -0.2817759390
## 97   0.0969687252  0.486714326 -0.943437502  0.3877758017
## 98  -0.2974000600 -0.400884313 -0.485393186 -0.2859327285
## 99  -0.5497296645  0.103463495 -0.024330371 -0.0519315530
## 100 -0.0170112775 -0.080622304  0.152209132 -0.1023616870
## 101 -0.0076572398 -0.202786407  0.081083509  0.1171845508
## 102 -0.0510218697 -0.105274155 -0.139213039 -0.0649478542
## 103 -0.6011406650 -0.290171574  0.036417615 -0.2552067115
## 104  0.1523505255 -0.020028926 -0.218238992 -0.2479220150
## 105 -0.2798981190 -0.126517727 -0.165906317 -0.2160595125
## 106  0.1671709112  0.003395020 -0.220154749  0.0319089227
## 107 -0.0682792465 -0.233276968  0.158671028 -0.0974651390
## 108 -0.1715117650 -0.113731488  0.283491719 -0.0331890635
## 109 -0.0937474995 -0.590868587 -0.177973558 -0.7888559020
## 110 -0.2519088565  0.178056640  0.372348982  0.1235951630
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## 111 -0.1268494050  0.072974000 -0.138614475 -0.2199801575
## 112  0.2050492670  0.235118082 -0.256260591 -0.0305977425
## 113 -0.0638456130  0.083745960 -0.318960084  0.0856275715
## 114 -0.0792098190 -0.582127553  0.096004810 -0.0177464995
## 115 -0.3722901180  0.435568636 -0.118904710  0.0072901865
## 116 -0.0640522653  0.132951083 -0.134911399 -0.1433046297
## 117  0.0729280783 -0.127753770 -0.008264946 -0.1779497443
## 118 -0.1290570155  0.114680801 -0.004748101  0.2171493120
## 119  0.5508169165  0.107935559 -1.517116760  0.0815005800
## 120  0.2522134310 -0.274430336  0.937464804  0.1163646205
## 121  0.1782042692 -0.088231903  0.155264318  0.0435612798
## 122  0.1634549930  0.404388547 -0.449088373 -1.5608055275
## 123 -0.2971518280 -0.166298425  0.544183378  0.3633614835
## 124 -0.2534650395  0.280803442  0.014064695 -0.0536566410
## 125  0.2755935635  0.075719103  0.040701512 -0.0217475360
## 126  0.1898046790 -0.077774008 -0.292723474 -0.0692737875
## 127  0.0267305965  0.044559489 -0.138658089 -0.0266488390
## 128 -0.1327670720 -0.224145357  0.259673125 -0.3172338965
## 129 -0.2525944840  0.063848421 -0.111655745 -0.3033982195
## 130 -0.2599987720  0.064111519  0.135263976  0.0003725475
## 131  0.1519801770 -0.029785670  0.428803534 -0.1524635075
## 132 -0.0057029065  0.381237958 -0.003537941  0.2746883930
## 133 -0.2950783930 -0.010981283  0.289865297 -0.2159744175
## 134 -0.8757548407 -0.104307853  0.726710615 -0.0652196887
## 135  0.1587103958  0.024714057 -0.138382141 -0.0932046642
## 136 -0.1551363508 -0.200413643  0.082415695 -0.2797350933
## 137  0.4426125687 -0.130202259  0.023864286  0.1223353562
## 138  0.0009436310  0.096473785 -0.380510054  0.2509906775
## 139 -0.3193816400  0.091107214 -0.046050557  0.1217156795
## 140 -0.0423717022 -0.061676354  0.349517487  0.1753689502
## 141  0.4988276185 -0.081336817 -0.265230320  0.1676555390
## 142 -0.1196387913 -0.064254614  0.168061197  0.0959496612
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## 143  0.6383707162  0.119945780 -0.158344146  0.1544032177
## 144 -0.3793651505 -0.085644334  0.016934359  0.0927784130
## 145 -0.0912229300  0.203375313 -0.547536294  0.2009343215
## 146  0.1596397625 -0.109631882  0.039400652  0.0219305260
## 147  0.1467731500 -0.268196337  0.153560532 -0.2006554875
## 148 -0.0348149855  0.107043078 -0.185103076  0.2658592640
## 149  0.1512371550 -0.099113542  0.227613653  0.1298223385
## 150  0.4411926032  0.103864027  0.255316346  0.0137920347
## 151  0.1704478990 -0.069593289 -0.638311333 -0.3061008525
## 152  0.0262854450 -0.216466207  0.647142587  0.1825832805
## 153  0.0014491685  0.017478364  0.566606825  0.1052678080
## 154 -0.1635940187  0.391825800 -0.392207011  0.0014146388
## 155 -0.2840028808  0.177210401 -0.384556182  0.0046956007
## 156  0.0211332750 -0.414292791 -0.729078522 -0.3987176625
##     pp_Caspase.7.cleavedD198  pp_Caspase.8       pp_Chk1 pp_Chk1.pS296
## 1               -0.198391286 -0.0468808410 -0.1332622815  -0.151880202
## 2               -0.429186822 -0.0352752830  0.0570498095  -0.238308639
## 3               -0.157181717 -0.2174411795 -0.1842867500  -0.352920969
## 4               -0.346562340  0.2737548887  0.1313050433  -0.005763171
## 5               -0.089501556  0.0421104610  0.0713190855  -0.024216761
## 6               -0.012743689 -0.2882700645 -0.1389805210   0.291673806
## 7                0.788234155  0.2354902995  0.5785332940   0.366988872
## 8                1.415228203 -0.2561861160 -0.1024161335  -0.073147307
## 9               -0.152611141  0.1425970220  0.0283476895   0.156145676
## 10              -0.124265442 -0.1287225378 -0.2303104173   0.007136731
## 11              -0.154859805  0.0937069455 -0.2368135410  -0.149622167
## 12               0.848052668  0.1023036280  0.0977518605   0.151581771
## 13               1.122425549 -0.1742424535 -0.0441653680   0.115435435
## 14              -0.202555785 -0.0794644525  0.0565745020  -0.196858197
## 15              -0.469842826  0.0528262975 -0.2410964620  -0.154885936
## 16              -0.794076861  0.0233440435 -0.2452121480  -0.378417160
## 17              -0.684339105 -0.2982184510  0.0334740175  -0.072197936
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## 18  -1.103394916 -0.2503021500 -0.1098550685  -0.428471373
## 19  -0.353531707 -0.0975843820 -0.1178803755  -0.046557829
## 20  -0.078440446  0.0806280415 -0.0681876350  -0.070993797
## 21  -0.412046784  0.0675480020 -0.1545923785  -0.266533656
## 22   2.881180566  0.1749120090  0.8299998325   0.103718325
## 23  -0.060908018  0.1471071855  0.1907043840   0.072611201
## 24   1.259251757  0.1248617265  0.2083916100   0.195462829
## 25  -0.132658182 -0.1192841610  0.0256838045  -0.098091229
## 26  -0.736714169 -0.1721822975 -0.0507286720   0.067302463
## 27  -0.439598508 -0.0591509315 -0.1539828720  -0.383926673
## 28   1.203894165 -0.0381634925  0.0989415480  -0.026954224
## 29   0.097012866  0.5424171445  0.4050939420  -0.323262038
## 30  -0.307164420  0.5054147730  0.1201056425  -0.423183606
## 31  -0.225501438  0.7290452875  0.2795271600  -0.367599215
## 32  -0.211093481  0.2260449085 -0.1058335120  -1.167878123
## 33  -0.097390980  0.6107070990  0.0029089725  -1.486334272
## 34  -0.235239691  0.2500307240  0.0943517045  -0.362876076
## 35  -0.599880379  0.2600309370 -0.1415258125  -0.154540854
## 36   1.768902302  0.4929638130  0.1966020425   0.103007694
## 37  -0.654120235 -0.0051404705 -0.2099579480  -0.874881103
## 38  -0.192005852  0.0093135680  0.0314732705  -0.159418100
## 39  -0.140567231  0.0238556960 -0.0007753595  -0.138029138
## 40   0.589953963  0.1574828625 -0.0250499140   0.208632149
## 41   0.290757291 -0.1697890080  0.1357861445  -0.014206059
## 42   0.246849244 -0.0561294905 -0.0646276600  -0.069522004
## 43   0.014725248 -0.1843329910 -0.1068432505  -0.168176506
## 44   0.212518138  0.4258218965  0.3722656730  -0.672604543
## 45   0.264152416  0.8090786700  0.1676043615  -1.047273741
## 46  -0.364860434 -0.1023339055 -0.1768252050  -0.284229175
## 47  -0.615288557  0.1874207550 -0.1971756415  -1.503944659
## 48  -0.138683754 -0.0442500080  0.0628925485  -1.017267289
## 49   0.343858542  0.4078714160  0.5689305745  -0.048712974
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## 50             -0.612188263  0.1296875435 -0.1085582110   0.097541864
## 51             -0.242611551  0.3326658215  0.0980388020   0.292060792
## 52              0.348693791  0.4129720580  0.8278592315  -0.440735108
## 53             -0.322949882  0.0873954910  0.0406607815  -0.014629217
## 54              1.224075032 -0.2003124500 -0.1455909465  -0.094177991
## 55             -0.440796788  0.4146954210 -0.3490860235  -1.639553691
## 56             -0.207197294 -0.1551933995  0.1059732710  -0.000567137
## 57              0.106621311  0.5135735995  0.3411198600  -0.572232247
## 58             -0.369595289  0.2563453475 -0.0655252540  -1.169116630
## 59              0.002716759 -0.1978671600  0.0136804765  -0.147311956
## 60              0.351945840  0.2062051035 -0.0271211050  -0.790206385
## 61             -0.320079698  0.0255622790 -0.0040410175  -0.289042242
## 62              0.267128874 -0.1436020000 -0.0269324045  -0.098704140
## 63              0.017825423 -0.2699102245 -0.2501109260  -0.101338820
## 64              0.492165297  0.7836803135  0.6117003310   0.474982739
## 65              0.382040526  0.4257591163  0.2584351168   0.109062332
## 66              0.091140717 -0.0901968747 -0.0947628943  -0.225064706
## 67              0.159478011  0.4246168015  0.2301709600   0.423111720
## 68              0.619198383  0.2776701348  0.3456539303   0.567116527
## 69              0.209851506  0.2143620290  0.0687005335   0.128777632
## 70              0.354503605 -0.3228415893 -0.0926112418  -0.027483245
## 71             -0.189592149  0.5801882708  0.0965848023   0.029063802
## 72              1.893122951  0.1454781275  0.0587209000   0.137594088
## 73              0.780415900 -0.0907116073  0.1271385172   0.004429393
## 74             -0.606331234  0.0965960450 -0.0458007565  -0.412016359
## 75             -0.308812117 -0.2159772565  0.0313898550   0.260572296
## 76             -0.261691784  0.0000000000 -0.0036730155   0.088836220
## 77             -0.603158523  0.1519465935  0.2217884190  -1.336698201
## 78             -0.487320314 -0.2159062850 -0.0231974845  -0.193593683
## 79             -0.927669233  0.1050859755 -0.0126620710  -0.094504676
## 80              0.317482979  0.1615905860  0.3465704555   0.348333334
## 81             -0.735383012 -0.0845795835  1.7213779310  -2.047098475
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## 82              -0.113598420 -0.3541491365  1.0650952330  -0.388761792
## 83              -0.821430869  0.3765221755  0.2066027090   0.198991253
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## 85              -0.732828161 -0.0999009707 -0.0166506093   0.028852658
## 86              -0.144546212 -0.2655408245  0.1932110580   0.199111759
## 87               0.278479821 -0.0014311797  0.0654204128  -0.402571205
## 88               0.596354416  0.1233842520  0.1955109525   0.039054627
## 89              -0.404874402  0.1358641980 -0.0951601985  -0.308119680
## 90              -0.573694315 -0.3139762588 -0.2015352693  -0.133664260
## 91              -0.014773741  0.0377139415 -0.1170426680  -0.254259919
## 92              -0.542416721  0.3086236785 -0.0100665870  -0.314172686
## 93              -0.323116687  0.1283112465  0.3036813560   0.288732335
## 94               0.144636195  0.1793111187  0.3724024783  -0.113213384
## 95              -0.013871850  0.0231562695 -0.0946631980  -0.106310838
## 96              -0.015115278 -0.1092455030 -0.2481786055  -0.115431554
## 97               1.160470657 -0.0965856582  0.6900965823   0.146404890
## 98               0.342705109  0.1395425385 -0.0971990340  -0.585645118
## 99              -0.599089884 -0.3837766860 -0.0248198575   0.229398905
## 100             -0.250774853 -0.2211636290 -0.0743781725   0.095457251
## 101              1.119821317 -0.0751845242 -0.2293514027  -0.207411148
## 102             -0.599336725 -0.2731334472 -0.1177746948  -0.258218796
## 103             -1.072067757 -0.0387527965 -0.2198772140  -0.370855073
## 104             -0.285359660  0.3006708130  0.1060886705  -0.108608347
## 105             -0.589233273  0.1151841735 -0.1211619120  -0.086053973
## 106             -0.289937017 -0.1935805912 -0.0278808967  -0.091422942
## 107             -1.001399208  0.0090057750 -0.1781701875  -0.197533205
## 108              0.129635919 -0.1136604805 -0.2967228970   0.109354721
## 109             -0.029424456  0.2043308400  0.1980217235  -0.769359980
## 110             -0.118037285 -0.3142881970  0.1279090495   0.355391693
## 111              0.317959687 -0.1593725875  0.0150208110   0.077267836
## 112             -0.691326266  0.0394901705 -0.0086985000   0.157422199
## 113              0.498127427  0.2229226135  0.3502965800   0.022238102
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## 114 -0.540574937 -0.2566338385 -0.1665076950  -0.822748944
## 115  0.515455351  0.0032439345  0.1173258280   0.081171717
## 116 -0.571190196 -0.1766516978 -0.1602440833   0.048827522
## 117 -0.323674479 -0.1955518982  0.0385872843  -0.023883875
## 118  1.488371487 -0.1169481180  0.0544652055   0.085918314
## 119  0.242476458  0.3935426870  0.5776900275  -0.236047527
## 120 -0.564721086 -0.1127745125 -0.0872027830  -0.111823317
## 121 -0.029590014 -0.1880699792 -0.1183446988  -0.034815014
## 122  0.041219261  0.3496851105 -0.0301727440  -0.816362118
## 123 -0.804568114 -0.2436170975 -0.1338171950  -0.047158910
## 124  0.185480981  0.1400276260  0.1692196865   0.191340329
## 125 -0.327474457 -0.1405649560 -0.0817132805  -0.052185371
## 126  0.415419998  0.0015693125  0.2848479790   0.013983614
## 127  0.305926699 -0.2422664390 -0.0546914625   0.055716946
## 128 -0.566970900 -0.0119967185 -0.1919017170  -0.210621023
## 129 -0.297686744  0.1371952595 -0.1511629450   0.008878858
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## 131  1.053911411  0.5119163505 -0.0519089330   0.036949515
## 132 -0.447360279  0.4239448620 -0.0037792725   0.024730575
## 133  0.395623304  0.2180590555 -0.1376557160  -0.243139060
## 134 -0.114875351 -0.0004923317 -0.2316317462   0.267807892
## 135 -0.856055437  0.3673221888  0.0801442232   0.187571394
## 136  0.302300585  0.1046710477 -0.1936959747  -0.079613052
## 137 -0.374382446 -0.2008649168 -0.1155925232   0.020395771
## 138 -0.068454509 -0.1716963125 -0.0503402480  -0.120094902
## 139  0.832383617 -0.0826842355 -0.1853167370  -0.029227352
## 140  0.533636030  0.0946545353 -0.2399107263  -0.010781843
## 141  0.830124969  0.1604030450 -0.0815208115   0.029158323
## 142  0.623496258 -0.1682541107 -0.1038799783  -0.042941899
## 143 -0.645438859 -0.3109554212 -0.0280534838  -0.014642345
## 144  1.236496957 -0.1514226630 -0.1780965255  -0.048726604
## 145  1.002363097  0.0421526215  0.1124927650   0.055909895
```

```
## 146              0.153276667 -0.1060343280 -0.0780872735  -0.240632995
## 147             -0.178297047 -0.0945695895 -0.0148827650  -0.209565937
## 148             -0.156151392 -0.0685427720 -0.0236251035   0.069536018
## 149             -0.251103864 -0.0095982015  0.0755094570   0.054757681
## 150             -0.271523065 -0.0847536682 -0.0966041117  -0.239805872
## 151             -0.213688070  0.2376370895  0.1434612590  -0.128297542
## 152             -0.299630138 -0.0253474325 -0.1242344760  -0.061596051
## 153             -0.351516833  0.1245711880 -0.0922959505  -0.078251956
## 154              0.065163538  0.1987726117  0.3019123093   0.228896190
## 155             -0.275648398 -0.2587745902 -0.1278596748  -0.128666396
## 156             -0.004891453 -0.0026847525  0.1246168740  -0.434682727
##     pp_Chk1.pS345      pp_Chk2 pp_Claudin.7 pp_Cyclin.B1 pp_Cyclin.D1
## 1    -0.091457253  0.209273644  0.051992851  -0.77449022 -0.325200972
## 2    -0.088462104  0.002242690 -0.388512573  -1.59308810 -0.336132692
## 3    -0.078618232 -0.226142019 -0.019056993   0.57558773  0.150512180
## 4    -0.012208115  0.485344883  0.417098932  -0.41268474  0.258777409
## 5    -0.218551183 -0.205670586 -0.253554126  -1.22986630  0.011939553
## 6    -0.212797239  0.639857488  1.531718914   0.19195035 -1.120358689
## 7     0.067588532 -0.352205984 -0.407416051  -0.78024565  0.180734668
## 8     0.351357939  0.668822961 -0.672216616   1.33872861 -0.231923909
## 9     0.051320052  0.515685119 -0.592373494   1.53795458 -0.036989500
## 10   -0.193609714 -0.302765395 -0.154781221  -0.27689447 -0.074018784
## 11    0.043775564 -0.186386011  0.279637939   0.39920959 -0.054665516
## 12   -0.097083281  0.396240760 -0.649281013  -0.30158442 -0.276854141
## 13   -0.084281625 -0.035235395  1.727871654   1.35016791 -0.331963396
## 14    0.143565411 -0.750356270  0.166156670  -1.64653011  0.258445910
## 15   -0.166040783  0.255274552  0.936473963  -0.25088296 -0.114883676
## 16    0.001756154  0.087104920 -0.098624223  -0.40023268 -0.196849841
## 17    0.235985948  0.694396344  0.615553612  -0.42004751  0.741411895
## 18   -0.163820242  0.170236085 -0.619660638  -0.62394213  0.406356175
## 19    0.017963756  0.254337927  1.004408986  -2.23710460  0.049516008
## 20    0.080789030  0.054843959 -0.469475441   0.73777415 -0.414202485
```

```
## 21   -0.015578984  0.345097599 -1.003318346   0.44567882 -0.468586004
## 22    0.246749647  0.437737634  0.134177624   1.67415235 -0.317996844
## 23    0.090679044  0.206010157 -0.501347814   0.44056752 -0.138855160
## 24   -0.008156444  0.513662684 -0.045504747   1.37793266  0.126565110
## 25   -0.099753394  0.163184230  0.976220868  -0.46507474 -0.360068226
## 26   -0.104875012  0.063535705  0.949251385   0.35733989  0.336714160
## 27   -0.109255650  0.017788257 -0.799196155  -0.68104444 -0.150424517
## 28   -0.066718456  0.417391338 -0.320529717   0.30722071 -0.295250828
## 29    0.270845258 -0.874967373 -0.344825971  -1.32510719  0.849149170
## 30    0.037065956 -0.621789560 -0.255290306  -1.39503452  0.424170259
## 31   -0.323621517 -0.339160368 -0.394626186  -0.39207766  0.871057575
## 32   -0.642971384 -0.383001355 -0.425515319  -0.80642365 -0.008583142
## 33   -0.222813319 -0.542585612 -0.426382891  -1.15365685  1.028844563
## 34   -0.037041295 -0.236515910 -1.000315990  -1.79498804  0.098749576
## 35   -0.112361943 -0.050809000 -0.290628830  -0.95065004 -0.103931224
## 36   -0.033693633  0.087876078 -0.196851166   0.87745822 -0.370051034
## 37   -0.397157793 -0.644949394  0.055337604  -1.34012959  0.085192209
## 38   -0.158269310 -0.001519011  0.106194007   0.85183286 -0.434877770
## 39   -0.122675882  0.040707305  0.144450741   0.76748969 -0.307223407
## 40   -0.219513597  0.193257753  0.198486723   0.53970949 -0.542411972
## 41   -0.046364148  0.245773869  0.197967615   0.13668339 -0.566316956
## 42   -0.089987180 -0.077681624  0.493814197  -0.19458232 -0.579612118
## 43    0.018822516  0.717939605  0.310221677   1.16860265 -0.591289048
## 44    0.135589168 -0.515226951 -0.272474854  -0.75676063  0.902325980
## 45   -0.220490900 -0.650385957 -0.472323273  -0.72847748  1.063465368
## 46   -0.026859432  0.541790995  1.418290545   0.78321172 -0.141844547
## 47   -0.445135304 -0.541018301  1.211882282  -1.41956533  0.191097346
## 48   -0.316311823 -0.263784799 -0.034334336   0.05263363  0.308000014
## 49    0.487557071 -0.709778582 -0.988728667  -0.84364266  0.956975890
## 50    0.024184803 -0.227961513 -0.573787866  -1.25262040 -0.170649168
## 51    0.039479188  0.368055230  0.365461461   1.80108569 -0.379925929
## 52    0.532914116 -0.894564759 -0.672812549  -1.17941690  1.143305828
```

```
## 53  -0.344481149 -0.031106023 -0.320141427  0.87871838 -0.485227762
## 54  -0.104879520  0.369500073  0.365820085  0.91207373  0.025614155
## 55  -0.609039347  0.039302831  0.134679753 -1.28714774  0.147972768
## 56  -0.038494203  0.031696917  0.459567899  0.18011960 -0.278318261
## 57   0.313620266 -0.535838246 -0.876285268 -0.77589749  1.251456325
## 58  -0.449863483  0.338056056 -1.210506422 -0.29260715 -0.115631331
## 59  -0.456356441  0.337468607  0.211036667  1.88163669 -0.841244233
## 60  -0.206500373 -0.144933861  0.547915627  0.73608095  0.917742803
## 61  -0.381489521  0.392364649  0.296176027 -0.81586360  0.152664430
## 62   0.128055141 -0.201146968 -0.205527026  0.79590507  0.492930962
## 63   0.056843463  0.651301594  0.370037464  0.19148917  0.201802187
## 64  -0.156610146 -0.580549696 -0.593961681 -0.85013981  0.557620930
## 65   0.078356473 -0.479973690 -1.811618274 -0.51890446  0.247511856
## 66   0.121280702  0.265282956  1.179153758 -0.07234625  0.380771939
## 67  -0.173954330 -0.526775882 -0.285263315 -1.11414609 -0.071401719
## 68   0.017161105 -0.605741825 -1.781654968 -0.94351592  0.448440891
## 69   0.143634501  0.139875608 -0.348400070  0.87224237 -0.102845330
## 70   0.103843184 -0.130153497  0.443581238  1.74297689 -0.210083732
## 71  -0.174859757  0.476119511  1.318588626  0.10053132 -0.106020305
## 72  -0.007010976  0.272967428 -0.092772583  0.97115336 -0.142353881
## 73   0.221831177  0.054124359 -0.419872480  2.32504971  0.099511695
## 74  -0.132773840  0.324862452 -0.251470906 -0.75298197 -0.147582487
## 75  -0.143077905  0.380834927  0.926611624  1.69693357 -0.811172350
## 76  -0.103172599  0.694358064  0.143257104  0.87251325  0.052482148
## 77  -0.100112251 -0.651668981 -0.758468096 -1.54624798  1.000393494
## 78   0.061390973 -0.212941269  0.086082061  0.11772118  0.145732337
## 79  -0.113050342 -0.402388305  0.859027924 -1.12670848  0.165775921
## 80   0.001321182  0.761372215  1.820602333  0.18339463  0.806594163
## 81   0.834157084  1.281381851 -0.565272696  1.31132751 -0.690579093
## 82   0.177874386  0.625099153 -0.836960455  0.65504481 -0.355736196
## 83  -0.052400891 -0.696001669 -0.124032868 -1.09143862  0.155365951
## 84  -0.202416129 -0.360720755 -0.186675631 -0.46832830  0.246078709
```

```
## 85   -0.018129508  0.793584639 -1.990365153   2.23866002  0.100523285
## 86    0.139377894 -0.621200810  1.249872467  -1.34981658  0.068593839
## 87   -0.545086469 -0.163349255  1.180441576  -0.75896128  0.282921491
## 88   -0.114366777  0.113663973  0.105422047  -0.05474231  0.229299402
## 89    0.043512307  0.206758477  0.774624991  -0.50497432  0.108719583
## 90    0.307300981  0.367821243  1.856277712   0.36861770  0.031962150
## 91   -0.189654308 -0.244081520 -0.457974840   0.56254185 -0.186620916
## 92    0.024438545 -0.912668639 -1.067241400  -1.46589136  0.257266939
## 93    0.188048905  0.681395149  0.442577239   0.92558043  1.073785999
## 94   -0.347757728 -0.601482928 -0.798693146  -0.67902993  0.461633966
## 95   -0.210665114  0.152570830 -0.487881928  -0.27340996 -0.017469952
## 96   -0.182902518 -0.534207094 -0.533745850   0.30667371  0.075235884
## 97    0.165686836  0.290483525  1.869407286   2.03095689 -0.199111784
## 98   -0.504955175  0.366047332  0.331699038   0.09002317  0.563265041
## 99   -0.139585581 -0.351140582  0.046600880   0.95679305  1.170020486
## 100   0.007701777  0.190566485  1.190097056   0.46790836 -0.280352657
## 101   0.089119898  0.520174470  0.716562297   0.22880241 -0.054676786
## 102  -0.017564921 -0.017350308  2.128599931   0.55804769  0.946067739
## 103   0.110301210  0.144181318  2.211332268  -1.65236351 -0.214261843
## 104   0.077319338 -0.574509932 -0.427825337   0.37820615  0.547920338
## 105  -0.381226164 -0.111503456  0.412283466  -0.23399885  0.362196972
## 106   0.100918355  0.111968761  0.165379402   0.06091649  0.346610137
## 107  -0.181628050 -0.073764840  1.074693848  -1.16868210 -0.399674649
## 108  -0.181728630 -0.081796400 -0.606615544   0.16793973  0.471486001
## 109  -0.429486945 -0.152626900 -0.822565118  -1.36372868  0.211559371
## 110  -0.047774215 -0.540862106  0.710786248   0.22047835  0.312913695
## 111   0.036337762 -0.215515742 -0.496794246   0.49204925 -0.397063617
## 112  -0.145430326 -1.280363807  0.034472922   0.05496119  0.451653355
## 113  -0.011330045 -0.196562001 -0.295015719   0.61773570  0.224186633
## 114  -0.373750070 -0.461643472  0.755587480  -1.28120951 -0.122385866
## 115  -0.008127844  0.313055605  0.458460540   0.44181274 -0.052289198
## 116  -0.118584466 -0.239670263 -0.309730570  -0.07772867  0.132454520
```

```
## 117  -0.144455434  0.110807452  1.619198725  -0.19891462  0.324446902
## 118  -0.112872104  0.701701965  0.894688789   1.01318327 -0.507647129
## 119   0.671020832 -0.651632860 -0.321724749  -0.89627120  1.429412002
## 120  -0.030071654  0.156292682  0.929644574  -0.70050026 -0.256289219
## 121  -0.118626822 -0.166019183 -0.311301031  -1.11021053  0.060629159
## 122  -0.634059828 -0.279283502 -0.366159222  -0.23715846  0.014211528
## 123  -0.411677740  0.430829224  0.088086980  -0.47084991 -0.011327536
## 124  -0.033796027 -0.199458549 -0.229596068   0.27321393  0.225149891
## 125  -0.221434967  0.121684170  0.703293760   1.42816122  0.156635697
## 126   0.074930075 -0.455381496  0.366381179  -1.16909883  0.751750190
## 127  -0.153276795  0.548968481  0.908650876   0.85889025  0.194466494
## 128  -0.247945544 -0.377185053 -0.065616331   0.38820663  0.176236748
## 129  -0.351869882 -0.021838541  0.451919660   0.89914959 -0.627423555
## 130  -0.025091464  0.185570444  0.410751955   0.69627065 -0.336820021
## 131  -0.132944282  0.355677674  0.709098221  -0.16821595 -0.710909148
## 132   0.028695856 -0.195654236  0.115809193   0.25601903  0.209842673
## 133  -0.067037395 -0.443299230 -0.590719799   0.10785242 -0.299016955
## 134  -0.310354066 -0.161455579 -1.311170247  -0.30171858 -0.438134747
## 135  -0.060936624 -0.438699694 -1.056905313  -0.30787028  0.294596500
## 136  -0.278302373 -0.069352373 -0.408265544  -0.12453033 -0.023652781
## 137  -0.147595259  0.028802747  1.051962552   0.41973158 -0.101808073
## 138   0.001755589  0.268508581 -0.358246914   0.90434340 -0.196797717
## 139  -0.294616327  0.409367629  0.009049941   2.30567305  0.081499472
## 140  -0.172766208  0.479278837  0.348825071   1.07657188  0.103981706
## 141  -0.073722122  0.360704910  1.501505698   0.48641838 -0.094036487
## 142   0.008841347 -0.054103725 -0.144288964   0.65929059 -0.139813559
## 143   0.224872180  0.866777505  0.473399714   1.64788794 -0.299872885
## 144  -0.031329913  0.445466551  0.548967841   0.21245967 -0.221250962
## 145   0.105648906  0.310375668 -0.024942674   1.77471659  0.008061577
## 146  -0.189798859  0.079495827  0.165989786   0.61563675 -0.234152444
## 147  -0.105842525  0.127092742  0.814394727   0.14767873 -0.305328473
## 148  -0.096434898  0.984519156 -0.622621068   1.56107832 -0.208308466
```

```
## 149  -0.032318338 -0.027600383 -0.389050527  -1.00336458  0.212658670
## 150   0.019933090  0.305436090  0.482133269  -0.12362380 -0.052285192
## 151  -0.266107321 -0.258054010  0.175756380  -0.36109218  0.050060371
## 152  -0.003930558  0.823035747  0.584979187  -0.58577005 -0.227915188
## 153  -0.013717690  0.293456871  0.271292117   0.02353242 -0.008037327
## 154  -0.004363358 -0.264657778 -0.501127759  -0.24834836  0.491096811
## 155  -0.071944309  0.215920628  0.785652181   0.59899238 -0.207077142
## 156  -0.201040858  0.324993912 -0.370330730  -0.83920649  0.290590074
##     pp_Cyclin.E1  pp_Cyclin.E2      pp_DJ.1     pp_DUSP4       pp_Dvl3
## 1   -0.099972441 -0.3137521145  0.074835968 -0.274594240 -0.2082918265
## 2   -0.097777615 -0.2255617045  0.112622606  0.531081733  0.5539318365
## 3    0.340738005 -0.1888916860  0.455983934 -0.099097289 -0.2285395040
## 4   -0.354344736 -0.1191727928  0.613174769  0.737802227 -0.0536833887
## 5   -0.207756549 -0.3734365005  0.299679931  0.044554192  0.0029002595
## 6    1.152240079 -0.0688107170 -0.527750083  0.276557702  0.1063408000
## 7   -0.072292264 -0.2039749700 -0.123440059 -0.216312142 -0.2874860070
## 8    1.127923941  0.3431618595 -0.196607428 -0.116720063  0.1980790395
## 9    1.099472559  0.4529018475 -0.273126784  0.047443689  0.3662751445
## 10  -0.145915018  0.2671406567 -0.020813500 -0.043311256  0.3968199218
## 11   0.555767170  0.2305507550  0.314359613  0.348307336 -0.2221916750
## 12   0.399670191  0.0225001095 -0.091616840 -0.001374249 -0.3297625795
## 13   1.510123194 -0.0434237810 -0.075141517 -0.254728581  0.1312239920
## 14  -0.159640738 -0.0993743770  0.807181349 -0.388029086  0.1186987860
## 15  -0.376785719  0.0271615840  0.823888259  0.519653727  0.0104888630
## 16  -0.092818289 -0.1301160810  0.242121968 -0.415963020  0.3941467130
## 17   0.447669480  0.0249348915  0.409739939  0.129556764 -0.0551340055
## 18   0.148471016  0.0092485415  0.559245771 -0.724035429  0.1588516665
## 19  -0.185775373 -0.3065800065  0.681613658  1.096203012  0.1464086355
## 20   1.099288357  0.0956824000 -0.432627256 -0.300296291  0.0000000000
## 21   0.605858451 -0.0017001655 -0.404454270  0.209511839 -0.0199088855
## 22   2.380635805  0.2818507805  0.409729774  0.348492478  0.1310048335
## 23  -0.265353069  0.0897929480  0.425806971  1.088322848 -0.0706810880
```

```
## 24   0.254896473  0.0160545270 -0.392196513 -0.397135910 -0.0442121350
## 25  -0.284838761 -0.1241940665 -0.003522286 -0.030097359 -0.0267129635
## 26  -0.169115637  0.1242275570  0.346506066 -0.395063468 -0.0350941950
## 27  -0.377251796 -0.1260837660  0.036589738 -0.277680675  0.0417744930
## 28  -0.277815509  0.2019187040 -0.264700504  0.535900356 -0.0370897270
## 29  -0.378336126  0.3474741190  0.094854157  1.073424765 -0.6851832100
## 30  -0.351984460  0.0820152225  0.187145816  1.051851432 -0.3397698865
## 31   0.014760942  0.2855831190  0.523814803 -1.810031131 -1.1848843980
## 32  -0.117737995  0.1266563860 -0.039452663 -2.496489291  0.2581876120
## 33  -0.035205584  0.1830657005  0.959207577 -1.042483648 -0.5882719945
## 34  -0.454587866 -0.0251882065  0.276488988 -0.329105076 -0.1202803295
## 35  -0.307592747  0.1520519885 -0.367540290 -0.107583896  0.0147742635
## 36   1.374423107  0.0740908125 -0.073482591 -0.299798238 -0.3617207475
## 37  -0.034819086  0.0394089160  0.036670092  0.157967004  0.4345544740
## 38   0.198569806  0.3153024405  0.101763503 -0.086119327  0.1458103175
## 39   0.202971672  0.2405526605  0.187773441 -0.077983185  0.1385169575
## 40   1.395943064  0.2605332040 -0.287100105 -0.391606860  0.1625448330
## 41   0.509416994 -0.0802119495 -0.542723590 -0.502673839 -0.1983126875
## 42  -0.471022160  0.2040714310 -0.144227579  0.548065790  0.0772019340
## 43   1.139526349  0.1443226345  0.204567265 -0.142468825  0.3066508275
## 44  -0.156180220  0.2707668660  0.414658416 -1.182351053 -0.3629770500
## 45   0.001696330  0.7882252885  0.275140487 -1.172828991 -0.4756721065
## 46  -0.242561723 -0.0343198600  0.029062790  0.333822149  0.0580134500
## 47  -0.035801062  0.2486182275  0.687590792  0.381170628  0.0007055285
## 48  -0.167069462  0.3255968655  0.022684327 -2.264570336  0.3435975845
## 49  -0.294630179  0.2909979555 -0.415780571 -0.619010510 -0.8079919775
## 50  -0.342850180 -0.2399728350  0.448336008  0.784290460  0.1377642370
## 51   0.980915175 -0.1819141150 -0.220663165 -0.526454646  0.4961205670
## 52  -0.170218118  0.1920829805 -0.098729192 -0.964954613 -0.8195915655
## 53   0.282503860  0.3455810625 -0.431926135  0.027307575  0.2880738625
## 54  -0.077821036  0.1650471145 -0.406318183 -0.347017372  0.1504762775
## 55  -0.517814222  0.1980601585  0.116692523 -1.731499249  0.0361011105
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## 56  -0.128164414 -0.0635093800 -0.555687426 -0.497643267  0.0227736230
## 57  -0.079440601  0.2701297440 -0.028597203 -0.226381523 -0.5431854620
## 58  -0.208805822  0.0268325560  0.425849798 -1.199320444  0.3154987910
## 59   2.201579691  0.6585009575 -0.392685779 -1.496175967  0.5403042145
## 60   0.269799595  0.4755388010  0.395255964 -1.807080943 -0.4958307220
## 61  -0.030162688 -0.5848264435  0.703068537 -0.215935983 -0.3821562865
## 62  -0.438004371  0.6030622615 -0.089069957 -0.769355541 -0.1915038315
## 63   0.155779747  0.2376602960 -0.048863326 -0.683894433  0.0491575450
## 64  -0.121663141 -0.2348127120 -0.093197424 -0.748796540 -0.3984509510
## 65   0.359733026 -0.0476447807  0.132677411 -1.114343214 -0.4549419997
## 66  -0.359243992 -0.0901067332  0.059662537  0.838014360  0.0957904397
## 67  -0.136790865 -0.3647506720 -0.194426083 -0.887385189 -0.5119145540
## 68   0.443635063  0.1211017577  0.534248552 -0.491854927 -0.6789996493
## 69   0.149323632 -0.1032120340  0.805883396  0.437182018 -0.2266811350
## 70  -0.046279987  0.2445612317 -0.115184478 -0.597634938  0.6363511567
## 71   0.273144549  0.3218948178 -0.107931897 -0.168208190 -0.0014129112
## 72  -0.063205113  0.0669906235  0.494551588 -0.233318812 -0.4988757775
## 73   1.445806565 -0.1260925313 -0.494124503 -0.797833886  0.2437398477
## 74  -0.186648666  0.0547507745  0.422032646 -0.596415673 -0.0601793175
## 75   1.291059476  0.2023008880 -0.363028114  1.346388510  0.0152182170
## 76  -0.481655911  0.0887593905 -0.047162459  0.146022992 -0.1102187885
## 77   0.095559485  0.2347306700  0.530344462 -2.117001473 -0.4620646480
## 78   0.003880179 -0.3628869265 -0.321708355 -0.516559387  0.4926745445
## 79  -0.153608120 -0.2389672590  0.512969381  0.477204723  0.0855301540
## 80   0.613924495 -0.1660781005 -0.557158522 -1.273730049  0.0072461845
## 81   1.069996778 -0.2038673165  0.067255869  0.354880187  0.5892324315
## 82   0.413714079 -0.5053161395  0.293895433  0.094938985 -0.0670502665
## 83  -0.380801821 -0.0274838295  0.471192760  0.427454716 -0.5630747825
## 84  -0.169071691  0.1860630688 -0.198838828 -0.419660504  0.1269988918
## 85   1.491326169 -0.2956452868 -0.310635425 -0.704839542  0.9145491892
## 86   0.005877598  0.1627195720  0.403920035 -0.233122311 -0.6601524410
## 87  -0.107106152 -0.5223918893  0.983048591 -1.158099521 -0.4049205013
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## 88   0.449311888 -0.1327109855 -0.205862337 -0.322621435  0.0977228705
## 89   0.378500375  0.0792036365 -0.430778057 -0.620592074 -0.0509901145
## 90  -0.207328608  0.3265632447  0.983449842 -0.546814379  0.0326484358
## 91  -0.184282830  0.0000000000 -0.426247792 -0.400309818  0.2513114640
## 92  -0.279442927 -0.0758147940 -0.356471282 -0.228082501  0.1719792290
## 93  -0.577639461  0.0769369940  0.041873968  0.763258594 -0.1763795580
## 94  -0.120528445  0.6372140093  0.065312447 -0.423510690 -0.5272176917
## 95  -0.062287147 -0.2147967610  0.061931670  0.343328719 -0.0798180440
## 96  -0.204199568  0.1356381305 -0.190099395  0.278408373  0.0433354065
## 97   1.645594615 -0.1223850357  0.256624204  0.197424614 -0.4040258788
## 98   0.113908531  0.3215043180  0.539060004 -0.968406839 -0.6661866820
## 99  -0.339303362  0.4848696935 -0.176242196  0.040423223  0.1424313955
## 100 -0.100769000 -0.3862116035  0.285871478 -0.428792564 -0.0483343535
## 101  0.081942494 -0.0441563948 -0.251161663  1.198986394 -0.2503544577
## 102 -0.042767326  0.2034647183  0.149291872  2.203027661  0.0582028933
## 103 -0.378494746 -0.2228499810  0.832229126  0.075289978 -0.1394041700
## 104 -0.336781777 -0.0550146025 -0.073734901 -0.112505621  0.3946287365
## 105  0.008705578  0.0224070140  0.234081031  0.561408933  0.1082928020
## 106 -0.094562683  0.0908567932 -0.044749587 -0.365393553  0.2726592313
## 107 -0.263990879 -0.1911207035  0.234408117  1.102031898  0.3638361555
## 108 -0.096808893  0.0395622650  0.060410527  0.135877827 -0.0111988200
## 109 -0.158423776  0.2283403405  0.015420331 -2.143023777 -0.2567491105
## 110 -0.186852514  0.1064332115 -0.355789807 -0.293595844 -0.1625775275
## 111  1.341671751  0.4468584230 -0.317129128  0.133347706  0.4169315000
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## 114 -0.264662896  0.1017726950 -0.123631712 -0.521854738 -0.2066742880
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## 116 -0.342940201 -0.4408793743  0.173259108  0.211635543  0.2710092237
## 117 -0.386461946 -0.2045275098  0.177268124  0.688536518 -0.1029390837
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## 120 -0.223322595 -0.0410738380  0.318175451  2.364139000  0.3466271780
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## 127  0.391494974  0.1806528965 -0.395978324 -0.352634915  0.0907212795
## 128 -0.108245312 -0.0938616770 -0.191021368  1.506005043  0.3417744890
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## 131 -0.301670893 -0.0547723450  0.609322456 -0.355278924 -0.0534063430
## 132 -0.528853241  0.2333041855  0.507196033 -0.075355312 -0.1228827265
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## 134 -0.378822965 -0.4346760678  0.715735104 -0.824959212  0.0049463292
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## 143  0.452753627  0.2031437312 -0.294776615 -0.523168745  0.8834118533
## 144 -0.236319559  0.4387893175 -0.153894000  0.052311538  0.1338579055
## 145  1.320427383  0.0577622520 -0.310004992 -0.222934104  0.1093948550
## 146 -0.117943395  0.2089834745  0.033382018 -0.334612256  0.1373745405
## 147 -0.080219705 -0.0873328870  0.318016870  1.422516613 -0.1439621030
## 148  0.849793349  0.1481521015  0.029020368 -0.632329245  0.3599776235
## 149 -0.199070660 -0.2523318370 -0.077017766  1.146827555  0.3274852100
## 150  0.087905837  0.1177106263  1.043541855  0.428968285  0.1845684253
## 151 -0.294786872 -0.3353470820  0.566356792  0.682640025 -0.3088164500
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## 152 -0.203463101  0.1931126940 -0.341282227  0.725214130 -0.0384312060
## 153  0.055996678 -0.2191071435 -0.015583860  1.053728739 -0.1475396535
## 154  0.704282931 -0.1675898377 -0.533547791 -0.432279078  0.2713233872
## 155  0.476897607  0.5156330932 -0.179561368  0.658783300  0.3311624062
## 156 -0.001527233  0.1151542930 -0.056813533 -1.420115654 -0.4544364920
##     pp_E.Cadherin      pp_EGFR pp_EGFR.pY1068 pp_EGFR.pY1173      pp_ENY2
## 1     0.876640842 -0.085786143    0.329729918   -0.135189011  0.073839232
## 2     0.016042680  0.180898420    0.482519474   -0.080713464  0.074404721
## 3     0.267871280  0.032070346   -0.367908750   -0.057835994  0.105535339
## 4     0.615576660 -0.167163239   -0.350691099    0.174299985 -0.154929902
## 5    -0.127904277 -0.033477049   -0.022660595   -0.051685906 -0.071565154
## 6     0.153213152  0.810242431    0.456201780   -0.386087489  0.262547158
## 7    -0.029406947  0.642963241    0.397769908    0.407450990 -0.672765514
## 8     0.244630217 -0.051840728    0.019377104   -0.060858971  0.153065349
## 9    -0.560525635  0.029083403   -0.007226871    0.061347062  0.063823791
## 10    0.232857508 -0.243015422   -0.334130173   -0.037998138 -0.037524227
## 11    0.896989313 -0.327178331   -0.032917866   -0.136439665  0.476444019
## 12   -0.975455919  0.076829314    0.044215650   -0.109430688 -0.034573887
## 13    0.000000000 -0.026876666   -0.501175361   -0.170802097 -0.103727681
## 14   -0.345162415 -0.036391190   -0.039297473    0.161283732  0.010731786
## 15    1.129466080 -0.111085720   -0.488565215   -0.188928372  0.074703676
## 16    0.310023179 -0.293153907   -0.332979446   -0.065857809 -0.247497913
## 17    1.463831564 -0.161011385    0.185169720    0.129930988  0.619705176
## 18    1.125031011 -0.166816909    0.008842008   -0.051421144 -0.343106030
## 19    0.752343471 -0.115257969   -0.065770964    0.239494416  0.214387258
## 20    0.594345229 -0.264990147   -0.271760875   -0.188542896  0.125398272
## 21   -0.483299623 -0.140783167    1.210045371   -0.188350759  0.266762377
## 22   -0.329517840  0.266166988   -0.275858892    0.060589685  0.760805006
## 23   -0.120269204  2.837596774    2.709002313    0.530282055  0.125329780
## 24   -0.412198168  0.338815425   -0.018536024    0.081407027 -0.120724834
## 25    0.479585033 -0.064038385    0.248207018   -0.117482585 -0.279000442
## 26    1.398786901 -0.247671050   -0.050567426   -0.162009715  0.738838788
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## 27    0.055986478 -0.222892613    0.089691254   -0.103088952  0.259399693
## 28   -0.277954894  1.943765979    1.774123513    0.030613212  0.521056633
## 29   -0.254799036  0.698383125    0.757454863    0.695940070 -0.749132509
## 30   -0.408741747  0.058522531    0.253536415    0.328988140 -0.478946612
## 31   -0.333466036  0.257338819    0.131700544    0.127477441  0.314304835
## 32   -0.565572356  0.000000000    0.297604590   -0.196118920 -0.976907930
## 33   -1.206011587  0.423003678    0.101699191    0.723512359 -0.719259211
## 34   -2.282226705  0.291528004    0.185862357    0.213820983 -0.151051012
## 35    0.529155608 -0.094703352    1.629784571    0.031361890  0.316893637
## 36   -0.464013269  0.234913258    0.242923044   -0.085051086  0.259417419
## 37   -0.067070396 -0.173746612   -0.537832204   -0.121878423 -0.890330024
## 38    0.402148556 -0.056839709   -0.374730282   -0.148611393  0.101997623
## 39    0.361986468 -0.103422018   -0.305583552   -0.089454905  0.169455357
## 40   -0.694128873  0.323196495   -0.266131699   -0.163888817 -0.467840747
## 41    0.110729713 -0.119748243   -0.153826502   -0.202281254  0.187264741
## 42    0.221989171 -0.274892372    3.562739227   -0.152875301  0.407289087
## 43    0.029043837  0.340960092   -0.329574799   -0.137437252  0.373873172
## 44   -0.277163073  0.242867911    0.212598697    0.785203119 -0.413006622
## 45   -2.116952426  0.553666792    0.065622162    0.560920516 -0.686787204
## 46    0.676432022 -0.134455951    0.240479388   -0.075380890 -0.045747717
## 47   -3.159136484  0.053359760    0.101318918    0.311191357 -1.031913602
## 48    0.158925066  0.455331480   -0.019113941    0.427577192 -0.172700992
## 49   -1.179779644  0.607586747    0.020470374    0.784678954 -1.227914790
## 50   -3.005924859 -0.198903736   -0.310037367   -0.036529337 -0.619777003
## 51    0.110370493  0.833088603    0.104981315   -0.016003515  0.207149164
## 52   -0.635878758  0.894471309    0.062865809    1.145276058 -1.264945375
## 53    0.210086621  0.175176921    2.576394338   -0.279686539  0.068639923
## 54    0.227728910 -0.387240372   -0.169651762   -0.198622077  0.607942074
## 55    0.841823299  0.017174385   -0.268354817    0.201931871 -0.817367314
## 56    0.065918897  0.114693886    0.558521243    0.031762179 -0.244406652
## 57   -1.842376036  0.364076295    1.074302612    0.828470372 -1.285939410
## 58   -2.776085294  0.040617965    0.069911881    0.109346833 -1.488679293
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## 59   -0.096562884  0.409767006   -0.469514860   -0.208284769  0.125941867
## 60    0.938556198  0.123929043   -0.298472635    0.498876918  0.137068158
## 61   -2.121374419  0.133439941   -0.096581509    0.153691333  0.188071342
## 62    0.447777928  0.098276731   -0.403101761   -0.005027102  0.438281438
## 63   -0.605066683 -0.152674301   -0.199595407   -0.117377448  0.150453119
## 64   -0.597683672  0.515534662    0.202276401    0.885725700 -0.787951534
## 65   -1.638831973  0.482158623    0.830268507    0.355742538 -0.744253396
## 66    1.446100074  0.107611425   -0.670167393   -0.125093557 -0.229239584
## 67   -0.162579384  0.537224058    0.279859807    2.023959378 -0.914585020
## 68   -4.192838867  0.514564752    0.551785087    0.789207600 -0.875294643
## 69   -2.165727713  0.038395784   -0.291402925    0.088272730  0.115565145
## 70    0.536023333 -0.002052548   -0.426389046   -0.087232443  0.655973581
## 71    0.968564164 -0.002193960   -0.439795031    0.213011181  0.486588091
## 72   -2.964878871 -0.261199633   -0.293659446    0.063592299  0.793038402
## 73   -0.522370018  0.689883558    0.671052799    0.004393483  0.184964931
## 74    0.114652685  0.058538688    0.348313763    0.022499066 -0.371354194
## 75    0.000000000  0.706673998    0.354345666   -0.174444564  0.142215657
## 76    0.246603628 -0.305644994   -0.167805367   -0.306816425  0.108205569
## 77    0.252768870  0.255598801    0.145909767    0.587898622 -0.514987138
## 78   -0.220973309  0.096137651    0.826624304    0.001852579  0.046632028
## 79    0.356171066 -0.055190506    0.275440171   -0.061117226 -0.348046113
## 80    0.072493766  0.584127512    0.302681025    0.125787785 -0.834160342
## 81    0.564935692  0.190536379    0.180931396   -1.035128036 -0.050897944
## 82    0.122290459  0.340489492    0.150903875   -0.598457265 -0.076547298
## 83   -0.499220122  0.095534815    0.810155052    0.704038561 -0.253944520
## 84   -0.449961457 -0.165267761    0.150725593    0.093676366 -0.338418384
## 85    0.104549743  0.274009480   -0.097258551   -0.223175228  0.012760627
## 86    0.650734037 -0.037201472    0.381186678    0.185640956 -0.148941062
## 87    0.525507855  0.268529681    0.712857530    0.222197882  0.418119350
## 88   -0.020719420  0.013779588   -0.043423888   -0.115080217  0.151688215
## 89    0.940703448 -0.046063768   -0.127515958   -0.091359875  0.085491305
## 90    0.672575312 -0.459080127   -0.192214087   -0.138059361  0.226477147
```

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## 91   -0.436010839 -0.020996084   -0.080621471   -0.154669104  0.386811652
## 92   -0.835727529  0.083342345    0.958310859    0.161884215 -0.159123191
## 93   -0.549481906 -0.085129214    0.159660115    0.276650385  0.096572092
## 94   -1.482898254  0.367852519    0.547550706    0.448087492 -0.706194624
## 95   -2.431018533  0.047212811    0.197981701    0.068914677  0.024658941
## 96   -0.002182366 -0.215590190    4.944464781   -0.327881714 -0.212832029
## 97   -0.533041385 -0.241680915    0.257371239   -0.238003626  1.138298992
## 98    0.400082805 -0.250276900    0.917327599   -0.340725497 -0.195566068
## 99    2.009857064 -0.353272141   -0.195669488   -0.210229206  0.256526787
## 100   0.875112905 -0.333774617   -0.512511062   -0.149691748 -0.077977951
## 101   0.667511635 -0.480161875    0.069390319   -0.222240172  0.217854945
## 102   0.892536986 -0.331225679   -0.200243818   -0.106386007 -0.005620757
## 103   1.222592953 -0.284327119    0.280938650   -0.300545418 -0.069863045
## 104  -0.711121614  0.140265981    0.356339543    0.261337978 -0.544974897
## 105   0.855662222 -0.210279996    0.287745537   -0.218687127 -0.090023386
## 106   0.134616804 -0.168175571   -0.122749853    0.037609470  0.250613719
## 107   0.335328627 -0.268379313    0.183415747   -0.112312840 -0.213031805
## 108  -0.321908455 -0.200675071    0.183045467   -0.239898570 -0.434531762
## 109  -0.962957431  0.446951579   -0.216627420    0.295611621 -0.657869791
## 110   0.724744105  0.107932337    4.272989152   -0.071165108  0.516901264
## 111  -0.327310837 -0.044785484   -0.085849033   -0.016262221  0.074326431
## 112   0.145193673  0.272981450    0.549563178    0.074390709 -0.102865232
## 113   0.021699201  0.030864383   -0.098742793   -0.076057068  0.603086818
## 114   0.216321035 -0.007877975    0.363809806   -0.165104244 -0.095030564
## 115  -0.226394734  0.328791438    2.055110868    0.077446970 -0.206845630
## 116  -2.024946847 -0.336860183    0.355425602   -0.253083678 -0.333192523
## 117   1.003603303 -0.250711026    0.004807044    0.007569953  0.107337868
## 118   0.443200859 -0.108111925   -0.403291497   -0.141971908  0.030775182
## 119  -1.344813702  0.497231665    0.183074554    0.915840967 -1.010370631
## 120   1.147016297 -0.265421558   -0.033720360    0.007301913 -0.064161566
## 121   1.014049618 -0.188172726    0.247440239   -0.099805652  0.089669752
## 122  -0.339495506  0.162369528    0.653257581   -0.257022225 -0.519967942
```

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## 123   0.586467508 -0.187828278   -0.208118117   -0.196013645 -0.473031449
## 124  -2.118617541  0.146801743    2.501468679    0.243938074 -0.012296977
## 125  -0.419228877  0.113280699    1.624664905   -0.174889501  0.404631341
## 126  -0.181252447  0.209041716    0.211721140    0.297554329 -0.316683958
## 127   0.392508586 -0.279375096   -0.260594398   -0.212532151  0.663715467
## 128  -0.259365787 -0.225586052    0.894258119   -0.207932649 -0.142828132
## 129  -3.741649655  0.051108546    0.341297560   -0.197825598 -0.048671739
## 130  -3.028302415 -0.009724769    0.184312522   -0.220609683  0.009542700
## 131  -3.458903898 -0.169697753    0.338592051   -0.128501409  0.026372730
## 132  -2.451570289  0.219923352    0.519047828    0.144777793 -0.407937719
## 133  -0.691330986  0.121027603    1.648768022   -0.084221818 -0.096587139
## 134  -0.183091754  0.083498928    1.145202044   -0.073371397 -0.724133691
## 135  -0.104350170  0.087253779    0.068253373    0.321663942 -0.370548544
## 136  -0.307481029 -0.063344621   -0.024857726   -0.168311739  0.075531679
## 137   0.439622749 -0.123337223   -0.103691237   -0.075342094  0.555447105
## 138   0.107663632  0.087270588   -0.082178262   -0.014690211  0.972489530
## 139   0.283711301 -0.162117602   -0.286065780   -0.010142666  0.538450618
## 140   0.346098396 -0.059503054   -0.315263713    0.088886546  0.412715948
## 141   1.065879541  0.844862073    0.210807088   -0.040858436  0.286176193
## 142  -0.343827227 -0.232581810   -0.171832950   -0.069762014 -0.291715490
## 143   0.564329340  0.028985395    0.071978617    0.106621978  0.346754429
## 144  -0.122846485 -0.287544088   -0.206262122    0.184698280  0.280617823
## 145  -0.098893734 -0.083409526   -0.140072658    0.042152966  0.285931488
## 146  -0.066972660 -0.201371542   -0.524142274   -0.132490873  0.403328650
## 147   0.699405257 -0.331216183   -0.421434148   -0.149555416  0.148893782
## 148  -0.251679726  0.430722483   -0.053874907    0.084796686 -0.052978252
## 149   0.299521231 -0.063090297   -0.004468900    0.076857819 -0.071825196
## 150   0.892498963  0.470443334    0.183531791    0.028886669  0.041791275
## 151  -1.224570194  0.055452978    0.193284870    0.170589602 -0.122928313
## 152   0.519366817 -0.145772794    1.015865468   -0.052042303  0.622335825
## 153   0.464022524 -0.281923868    2.507253236   -0.200470528  0.379196898
## 154  -0.796338493  0.107628376   -0.009535185    0.259995239 -0.225248839
```

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## 155   0.377911103 -0.210854248   -0.123598215    0.054070199  0.375433068
## 156  -0.687073621  0.218205091   -0.326312267    0.384723943 -0.487943366
##          pp_EPPK1 pp_ER.alpha.pS118      pp_ERCC1     pp_ERCC5      pp_ERK2
## 1    6.278663e-01      -0.069964306 -0.2234606040 -0.008217473 -0.053461296
## 2    1.088254e+00      -0.415933842 -0.0391844505 -0.096913166  0.177452482
## 3    1.312675e+00       0.591029315 -0.1256849835 -0.298836747  0.344380598
## 4    7.611068e-02       1.198189975  0.3156214458 -0.224407203  0.459020659
## 5    2.297116e+00      -0.511966240 -0.0683817260  0.103777539  0.003335467
## 6    1.046179e+00      -0.253405286  0.0321984400 -0.290146625  0.168519600
## 7   -1.208263e+00      -0.384777591  0.0824790775 -0.791139171 -0.313369551
## 8    4.431523e-01      -0.165616279 -0.0531877230  0.250749430 -0.032335328
## 9   -2.970970e+00      -0.009769749  0.1373393470 -0.213346681 -0.082900319
## 10   1.409293e+00      -0.061656454 -0.1367620117  0.148456910 -0.064253875
## 11   5.619162e-01       0.802754390 -0.1115746575  0.208734030 -0.152344088
## 12  -1.539333e+00      -0.485138998 -0.0820433195  0.076788641  0.212991628
## 13  -2.188868e+00      -0.293458011  0.1310078450 -0.283917841  0.165198705
## 14   1.197101e+00      -0.291303159  0.1065337730 -0.195690335  0.322540253
## 15  -5.801327e-01       0.430265084  0.0956994100  0.041721628 -0.031556445
## 16   2.882476e+00       1.228594866 -0.0494849010 -0.425503974  0.549772925
## 17  -5.350136e-01      -0.195991102  0.1788279885 -0.260792150  0.954703444
## 18  -2.450157e-01       0.383311008  0.0299850655  0.051995832  0.388344411
## 19   2.286709e+00       0.138088674  0.0159112825 -0.075312675  0.529629046
## 20   2.400945e+00       1.936906371 -0.1773684060 -0.103995255 -0.300954098
## 21   8.696692e-01      -0.303396084  0.0654906435 -0.286198208  0.551054208
## 22  -9.237024e-01      -0.258369097  0.0300671255 -0.091346224 -1.209877759
## 23   1.471015e-01      -0.409726014  0.0349716750 -0.343015165 -0.489186887
## 24   8.868758e-02      -0.596842488  0.0540420315 -0.275040261  0.031040749
## 25   6.311201e-01       0.256333674 -0.0529434895 -0.265088442  0.085600493
## 26  -8.635771e-01       0.868699574 -0.0178741580  0.066058016 -0.111562428
## 27   5.515438e-01       0.468964358  0.1048080350 -0.069899977  1.080621501
## 28  -7.291724e-01      -0.387140071 -0.0100026360  0.009989041  0.244447659
## 29  -6.985944e-01      -0.139110143  0.1627615330 -0.131195417 -0.407341595
```

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## 30  -1.510878e-01      -0.336879845  0.2940098625  0.133280568  0.223799098
## 31  -1.135641e+00      -0.514891396 -0.1936547660  0.364052190 -0.605139816
## 32   4.238500e-01      -0.008781783 -0.5899108590  0.090957731  0.464336781
## 33  -1.281879e+00      -0.334034699 -0.5072756025 -0.607121029  0.058671398
## 34  -1.278645e+00      -0.329974168 -0.0190709855  0.007225675  0.423927336
## 35   2.592738e+00       0.257556660 -0.1214042895 -0.014543438  0.561221679
## 36  -2.881281e+00      -0.720962990 -0.3446516055  0.293508974 -1.091622892
## 37   1.530257e+00       0.289429895  0.0307944650  0.291035068  0.393562779
## 38   1.699296e-01      -0.107561005 -0.1580873765 -0.318464666 -0.116366421
## 39   1.798478e+00      -0.076136240 -0.1811119635 -0.303416563  0.299784226
## 40  -2.650713e+00      -0.715190124  0.2598453710  0.074284584  0.272496985
## 41   2.074444e+00      -0.315211678  0.2043065045 -0.229855738  0.573001183
## 42  -7.174137e-01      -0.226683097  0.1424711780 -0.277535144  0.561442868
## 43   8.819225e-01      -0.046229361  0.0948880995 -0.167862615 -0.076993960
## 44  -1.277798e+00      -0.090252210 -0.0857514550 -0.324590820 -0.474494640
## 45  -1.370414e+00      -0.168547499 -0.1129606965 -0.567873254 -0.059839791
## 46   3.216105e+00       0.656403961  0.0101434400 -0.262873046  0.207102647
## 47   1.349251e+00      -0.531512425 -0.3725773885  0.079466524  0.315525228
## 48   1.265577e+00      -0.443209242 -0.5021780705 -0.615261940 -0.371981984
## 49  -1.493004e+00       0.122658934  0.1007273045 -0.366077469 -0.919594208
## 50   8.203637e-02       2.080550614 -0.0419687550  0.116615618 -0.119064123
## 51  -1.433171e+00      -0.061677328  0.2093367670 -0.273230433  0.000000000
## 52  -2.156818e+00       0.080745020  0.1717235695 -0.688797915 -0.472635311
## 53   1.046877e+00       0.045861456 -0.2800325725  0.030162986 -0.247797604
## 54   2.010970e+00       0.671140303  0.1119157905 -0.185206115  0.326777794
## 55  -1.454176e+00       0.694486356 -0.4327948915  0.819879581  0.872709538
## 56  -5.436040e-01      -0.229798840 -0.0320999360 -0.174125075  0.185917697
## 57  -2.002178e+00      -0.100048890 -0.0748486840 -0.202365298 -0.501224219
## 58   1.187338e+00      -0.234897991 -0.6332197440 -0.592563141  0.302600920
## 59   1.268643e-01      -0.493446449 -0.3301219805  0.192940122  0.265994252
## 60   1.989102e+00      -0.287802259 -0.2858634500 -1.363159704 -0.470660121
## 61  -6.458006e-01      -0.279678474  0.1726129070 -0.361954286 -0.075194389
```

```
## 62  -1.911524e+00       1.044770471  0.3138092740 -0.348529273  0.115829342
## 63   4.479557e-01       0.228128555  0.1698906625 -0.085643879  0.384606889
## 64  -1.275637e+00      -0.328011716  0.8328632255 -0.902476719 -0.535938227
## 65  -2.051013e+00      -0.721847245  0.1319558248  0.068347853 -0.108682611
## 66   3.860749e-01       0.590835545  0.2179993413  0.126159931  0.460289215
## 67  -8.245716e-01      -0.815698014  0.3778381275 -0.548461189  0.752391489
## 68  -3.183803e+00      -0.767654738 -0.0888566577 -0.374498558 -0.404235246
## 69   9.553184e-02      -0.335580602 -0.2361937795  0.196363164  0.001255258
## 70  -4.818625e-05       0.291210107 -0.0878839418 -0.232997686 -0.031537253
## 71   3.913834e-01       0.003711898  0.3486502062  0.048417110 -0.037680113
## 72   4.463677e-01      -0.320627866 -0.0454013960  0.013331507 -0.412335177
## 73   1.421079e-01      -0.793232100 -0.1560630608 -0.322198491  0.111749014
## 74  -7.191171e-01       1.032915680 -0.0903015985  0.111085325  0.470686163
## 75   4.034219e-01      -0.679487750  0.0052573270 -0.028683263 -0.444732897
## 76  -5.669777e-01       1.462937566 -0.0971442055 -0.165688168 -0.243706530
## 77  -1.607709e+00      -0.263037999 -0.0456585480 -0.296369700 -0.289977708
## 78  -9.502001e-01      -0.305297736  0.0015251425 -0.127452233 -0.207184586
## 79  -3.557819e-01       0.142414722  0.1078975630  0.047147279 -0.480891683
## 80  -8.919344e-01      -0.547586207  0.1028923070 -0.391532465 -0.436982869
## 81   9.815058e-01      -0.480242750  0.3251022490  0.702557172 -0.404361537
## 82   4.740712e-01      -0.343101901 -0.1706195690  0.046274474 -0.185845446
## 83  -1.771793e-01      -0.308651593  0.1278866190  0.229663344 -0.148049452
## 84   1.245430e+00       0.753576218  0.1542879443  0.094422208 -0.053848587
## 85   1.466587e+00      -0.784371867 -0.3212054422 -0.258324297  0.184147375
## 86  -2.085214e+00      -0.278481478  0.1697759600  0.146514478 -0.321463538
## 87  -1.068344e+00      -0.352918779 -0.0446406878  0.479366860 -0.401825363
## 88   1.384981e+00       0.797189172 -0.1308279235  0.182680790 -0.563225828
## 89  -1.046293e+00       1.268172153 -0.0594546815  0.099628517 -0.454760365
## 90  -1.197728e+00       0.696367345  0.0178348413  0.156653028 -0.171298129
## 91   1.363489e+00      -0.340337615  0.0979953220 -0.069207264 -0.056280395
## 92  -7.874710e-01      -0.505953645  0.1679959070 -0.070433599  0.156976970
## 93  -6.323446e-01      -0.045855948  0.0867262140 -0.192045714  0.371825909
```

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## 94  -2.332747e+00      -0.075165434  0.2142399658 -0.344454875 -1.248098709
## 95   6.799393e-01      -0.496550975  0.0724743115  0.060912068 -0.180945043
## 96   1.195959e+00      -0.252676018 -0.0376100905  0.057498552  0.561590047
## 97  -1.089738e+00      -0.586592753 -0.1960332972  0.346514023 -1.041355689
## 98  -8.765972e-01      -0.243560964 -0.2938545110  0.353907121 -0.158489237
## 99   2.791639e-01       0.132924088 -0.0034812435 -0.213213297  0.178847669
## 100 -1.244025e-01       0.891333957 -0.0691904525 -0.144813003  0.450435633
## 101 -1.195017e+00      -0.294125783 -0.1002320893  0.219546650 -0.162727635
## 102  3.348631e-01       1.262661802 -0.1521214043  0.217279983 -0.125725369
## 103 -5.161505e-01       2.243143890  0.1702478530  0.091057474  0.470395958
## 104 -2.682369e-01      -0.434602416  0.2440079935 -0.040192245  0.153952200
## 105  4.442544e-03       0.305662106 -0.3542135270 -0.135032665 -0.499759438
## 106  2.076303e+00       1.160359718 -0.1559646192 -0.074457937 -0.217232854
## 107  1.579613e+00       0.610439720  0.0005737345  0.010899881  0.198395832
## 108 -6.353303e-01       0.032958795 -0.3777550290 -0.052644504 -0.520849324
## 109 -4.998683e-01       0.157595679 -0.5061625655  0.047430057 -0.279183103
## 110 -1.272399e+00      -0.616559510 -0.0423889215  0.090987569 -0.162571688
## 111 -1.751069e+00      -0.319658472 -0.0077924230 -0.130462091  0.574800564
## 112 -1.037238e+00      -0.392093937  0.1340367560  0.009227593 -0.709421342
## 113 -5.579417e-01      -0.683498006  0.0009553770  0.069622931 -0.591876846
## 114  1.003188e+00       0.530218860 -0.0608502760  0.321345225  0.511730100
## 115  8.945212e-01      -0.482021198 -0.2601013915  0.218527016 -0.411853220
## 116  1.090006e+00      -0.095709242 -0.2018091318  0.130363004 -0.125966952
## 117 -2.824320e-01       0.109781786 -0.2625741632  0.219354686 -0.001836080
## 118 -3.290952e-01      -0.582015196  0.0876939045 -0.039805261  0.829552511
## 119 -2.008048e+00       0.198570225  0.1223687145 -0.301212660 -1.251786266
## 120 -4.862853e-01       0.866857460 -0.0328531505 -0.039476038  0.271317553
## 121 -4.255977e-01      -0.163490054 -0.1023164822  0.362700929 -0.013737138
## 122  2.381507e+00       0.743943956  0.0382937540 -0.154805634 -0.126286647
## 123  1.154172e+00       0.973465586 -0.1124476980  0.419936957 -0.376238381
## 124 -2.655329e+00      -0.413296899 -0.0478177805 -0.183317041  0.398428883
## 125 -1.552338e+00      -0.048169946  0.1609709075 -0.224446412  0.494644929
```

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## 126 -1.062381e+00       0.064133972  0.3609773950 -0.274645237 -0.092246478
## 127 -2.000617e-01       1.128721143  0.0874344975 -0.076019530  0.053292654
## 128  1.569916e+00      -0.021681430 -0.0741752760 -0.074728893 -0.328959481
## 129  8.930807e-02       0.138117149 -0.3164420520  0.217972571  0.103948728
## 130  7.756769e-01      -0.387901703 -0.0427885760 -0.060135634  0.373686102
## 131  1.079761e+00      -0.131905824  0.0380198110  0.331921639  0.530376727
## 132 -2.094205e+00       0.544302041  0.1786215615 -0.010885080 -1.519911256
## 133  2.657357e-01      -0.514984008 -0.0635141290 -0.055042538  0.247054389
## 134  1.185046e+00      -0.299772345 -0.3048790263  0.716498676  0.432656382
## 135  4.195543e-01      -0.230362420 -0.0352337277 -0.092491394  0.035195141
## 136 -1.707828e+00      -0.158335081 -0.0275584822 -0.607139069 -0.195617452
## 137  3.274767e-01       0.031813117 -0.0991655688 -0.299566337 -0.263979610
## 138 -2.611457e-01      -0.067552892 -0.0433800905  0.412140481 -0.244955011
## 139  1.860726e+00      -0.050090117 -0.0532204685 -0.577625003 -0.148183506
## 140 -6.110782e-01       0.129298967 -0.0736629547 -0.201397904 -0.022060506
## 141  1.044564e+00      -0.360005833 -0.0913841280 -0.533452163  0.303345523
## 142  1.918296e+00       0.941042838 -0.1806047457  0.057334322 -0.024816597
## 143  1.128056e+00      -0.232009524 -0.0966144562  0.036466341 -0.047075776
## 144  2.457385e+00       0.449482439 -0.1710704590  0.074062861 -0.163807084
## 145 -3.921762e-01      -0.451986421 -0.0999653835  0.153877845 -0.129063373
## 146  4.838882e-01       0.255321346  0.0755076425 -0.009099424 -0.250486993
## 147  1.428274e+00       1.103106849 -0.0484563570 -0.106406775 -0.123736151
## 148 -1.260335e+00      -0.288803947 -0.0614678420  0.026818196 -0.194736905
## 149  1.013496e-02       0.421081084 -0.0197100395 -0.311391502  0.420408014
## 150  3.169926e+00      -0.049634658 -0.0776371982 -0.617412846 -0.106718673
## 151 -8.404580e-01      -0.127748362  0.0401320525  0.132381210 -0.093742666
## 152  5.357445e-01       0.257820603  0.0141514835  0.347756950 -0.060970852
## 153  1.356472e+00      -0.453959349 -0.1087629670  0.122719823  0.021311173
## 154 -9.883083e-01      -0.557235622  0.0229570628  0.340722728 -0.395831500
## 155  3.173254e-01       0.631907189 -0.1492583333  0.188129084 -0.321617733
## 156 -8.797825e-02      -0.346119577 -0.1651459010 -0.093041118 -0.367513537
##          pp_ETS.1      pp_FASN     pp_FOXO3a pp_FOXO3a.pS318.S321
```

```
## 1   -0.1018343075 -0.179540412  0.0890420675          0.035052137
## 2    0.0000000000  3.154880810  0.1387315235          0.190608728
## 3   -0.1294244570  0.563108541  0.1319674670          0.011983835
## 4    0.3434239263  0.665402864 -0.0506539727          0.141994057
## 5   -0.2171221645 -0.840050141  0.1148775435          0.124483022
## 6   -0.0611405365 -0.041260926 -0.1529314950          0.200132897
## 7    0.0707256460 -1.074664709  0.2272504240          0.231114853
## 8   -0.0051830905 -1.150178576  0.1381218695          0.233532321
## 9   -0.1440872475 -1.043001403 -0.1721167945          0.025307089
## 10  -0.4423743163 -0.175641668  0.4772486898          0.016817542
## 11  -0.2536195160  2.669421659 -0.0298832900          0.054564603
## 12   0.4203651060 -0.506210290  0.0389248105         -0.008395840
## 13   0.0190224585 -1.756615554 -0.1849120710          0.231299744
## 14  -0.0686116555  0.055953452  0.1233155990          0.307105213
## 15  -0.0333431985 -0.253756428  0.2620606940         -0.054029042
## 16  -0.2028898455  0.708114394  0.1136584270          0.061632790
## 17  -0.1555812120 -0.427513076  0.1754723445         -0.129137434
## 18   0.0561503920  0.007490382 -0.2746004335         -0.149073680
## 19  -0.2705200100 -0.173652751  0.1611640235          0.068549949
## 20   0.0376969265  1.412011590  0.2179879910         -0.069289110
## 21  -0.0116183580  2.135351754  0.1360308285          0.147966894
## 22   0.1221935360 -0.427700079  0.2396636125          0.027875556
## 23  -0.2596321295 -0.671270404  0.1926031770         -0.194039092
## 24   0.0794823300 -0.722974713  0.0683434770         -0.220542081
## 25   0.0000000000  1.536398697 -0.0852639945          0.094000463
## 26   0.0220335935  0.127796929 -0.1115264920          0.000000000
## 27   0.0463475095  2.632352183 -0.1775915180          0.187689930
## 28   0.1848885065  0.090071758  0.3028035300         -0.247917523
## 29   0.5396284565 -1.023171739  0.3645747850         -0.074909448
## 30   0.3864034020 -0.584317889  0.0569125855         -0.140140141
## 31   0.5716284795 -0.679480730  0.2185635280         -0.115896881
## 32   0.2739902905 -0.492692905 -0.2952238100          0.099909483
```

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## 33   0.4998319630 -0.254629388  0.4040699245         -0.038842120
## 34   0.3998889330  0.929615998  0.1599323825         -0.021586499
## 35   0.0673332760  1.803522497  0.3517382685          0.059346104
## 36   0.4022734240 -1.868000448  0.2207520165         -0.183366935
## 37   0.0084116775  0.552225572 -0.1296821230         -0.204104618
## 38  -0.0034678180  1.234146058  0.0106042795          0.051826811
## 39   0.0219501130  1.551968417  0.0823612685          0.096422077
## 40   0.4947688015 -1.680879785 -0.1731134490          0.084949050
## 41  -0.1495090140  0.883539150 -0.0785583935          0.443897653
## 42   0.0130545105  3.095940391 -0.2786787750          0.067647800
## 43   0.0452098120 -0.130690812  0.0314148435          0.082063461
## 44   0.4403092465  1.093600166  0.4227426620          0.149572604
## 45   0.6874913430 -0.174101010  0.5014322785          0.125859520
## 46  -0.1253859315  2.320207428  0.1364673390          0.015693395
## 47   0.0897093200 -0.425389884  0.1050429295          0.178017879
## 48   0.1253362300 -0.254895987  0.0941018955          0.112055615
## 49   0.4528903100 -0.476331805  0.4798476125          0.010034550
## 50  -0.2597428345 -1.008604104  0.0019509280          0.131513594
## 51  -0.2989301615 -0.729018941  0.2096474820          0.209552663
## 52   0.4244493570 -2.095600509  0.8836209945          0.445675767
## 53   0.0885027390  0.731269146  0.0521521855         -0.132020879
## 54  -0.1239185740  1.623884537  0.0318619985          0.060497256
## 55  -0.0879970650 -0.428277845 -0.0780469385          0.007120711
## 56   0.1691952755 -1.366620998 -0.0240431130          0.406578004
## 57   0.5190810405 -0.796237524  0.4964903070         -0.073211800
## 58   0.3885965485 -0.765622851  0.1546939200          0.161608364
## 59   0.2700820760 -1.058921136 -0.2226236965          0.119084147
## 60   0.1835350105  2.288816148  0.2340692520         -0.247276242
## 61   0.1253697235 -0.562716679 -0.2275416175          0.067236315
## 62   0.8415090435  2.266871993  0.0887098795         -0.063910448
## 63   0.8813959960 -0.024050162 -0.2498992120         -0.075195638
## 64   1.1862950010 -2.288213248  0.1648732800          0.305096384
```

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## 65   0.7573210287 -2.715878300  0.1152859407          0.207059314
## 66   0.9250084217  0.471728928 -0.5561719843          0.835011290
## 67   0.7128976730 -0.589700351 -0.1253463030         -0.072325118
## 68   0.4814434862 -1.147097281  0.0533111863          0.467147142
## 69  -0.1011558245 -0.624224863 -0.0879339615          0.168889885
## 70  -0.2824223658  0.319004350 -0.1012380778          0.047883351
## 71   0.6028234083 -0.472780302 -0.0092372047         -0.002716084
## 72  -0.0812440160  1.784696629  0.1155324070         -0.209044012
## 73  -0.4070240247 -2.002560171 -0.1990957728          0.098339604
## 74   0.2422972100  0.411073195 -0.1753993955         -0.061000463
## 75   0.0007853065 -0.073799049 -0.3450464010         -0.143396071
## 76  -0.1046292220 -0.109001372 -0.1308381325          0.057900494
## 77   0.1229606035 -1.145285914  0.2695155390         -0.063650102
## 78  -0.1326002430 -0.972622386 -0.0227343735         -0.086051105
## 79  -0.0906508955 -0.211374119 -0.0062769270         -0.000562295
## 80   0.6492534185 -0.321761373 -0.0686610555         -0.083658047
## 81  -0.5036496160  0.162271077  1.2421368920          0.030166678
## 82   0.5816482830  0.983593526  0.5858541940         -0.412555277
## 83   0.2254393920 -1.372304988  0.0675424310         -0.082960526
## 84   0.4320692912  0.123999910 -0.1640131067          0.150831840
## 85  -0.2885131752 -1.945953156 -0.2132763112          0.179553314
## 86   0.3451401855 -0.959961494  0.1085503020         -0.179404047
## 87  -0.3448398313  0.858971543  0.1274564777         -0.147958662
## 88   0.0855377950 -0.431419004 -0.0046899695         -0.180589841
## 89  -0.0285208540 -0.740352188 -0.2609777215         -0.364852330
## 90  -0.2248031602  2.282277877 -0.1343076873          0.119923776
## 91   0.0155068105  0.681502681 -0.2006068080          0.161024404
## 92   0.2048783875  0.018754754  0.0452593370          0.120182816
## 93  -0.0166008265  0.249558640  0.1054641720          0.077598301
## 94   0.8094814133  0.062538309  0.1024353453          0.020517341
## 95   0.0604893920 -0.487996351  0.0923559740         -0.012261764
## 96   0.0977754130  0.327197326 -0.0018973595         -0.105465022
```

```
## 97   0.1491890173 -0.076498005  0.2491631952          0.065928576
## 98  -0.2971939475  3.017950501 -0.8796643700         -0.094692007
## 99  -0.1843421730  0.446929863 -0.6148952205          0.095358670
## 100 -0.2991469780  0.703740384 -0.4263791495         -0.075564730
## 101 -0.2456185448  0.193430789  0.0073128592         -0.146344053
## 102 -0.5209916758 -0.836721583 -0.2433664788         -0.164307020
## 103 -0.2077797945  0.007727884 -0.0740024160         -0.068960454
## 104  0.0913654750 -0.700246388  0.1044616565          0.217765362
## 105  0.1183156705  1.097740900 -0.5029549500         -0.301309613
## 106 -0.4542923287 -0.419026635  0.0297862832         -0.106042219
## 107 -0.0417109290  1.385634787 -0.1563944245          0.045158012
## 108  0.1247344765  0.133298922 -0.1585270190         -0.265187247
## 109  0.3882246140 -0.396689725 -0.0323394885         -0.057848138
## 110 -0.2538007800  1.098741731 -0.2775948145         -0.138135873
## 111 -0.1353441185 -0.347729723  0.3636945890          0.181411209
## 112  0.0861456635  1.100666706 -0.2129859100         -0.268736960
## 113  0.2706927545  1.587279252 -0.1433186820         -0.129593387
## 114  0.1427744465 -0.891231622 -0.4250889480         -0.085956133
## 115 -0.0090378340  0.433314368  0.1457451200         -0.049202796
## 116 -0.3357739993  0.252933041  0.0379211188          0.087703820
## 117 -0.4391260958 -0.510663527  0.0777029483         -0.251566566
## 118  0.0639708990  0.345684659 -0.1262158745          0.362746998
## 119  1.0929470890 -0.911849687  0.7341577955         -0.134589061
## 120 -0.3221648880 -0.298515564  0.2810230690          0.050359165
## 121 -0.1664875897  2.680130159 -0.1668611477         -0.146844318
## 122  0.3269331455  0.843675557 -0.2816716050         -0.077067894
## 123 -0.0883196665  1.799571037 -0.2488393920         -0.330680814
## 124  0.0219471240  1.789172822  0.2003483345         -0.006755180
## 125 -0.0046358860  1.271354057  0.0848288935         -0.034881167
## 126  0.1510594595 -0.295052392  0.0124687000         -0.163959290
## 127 -0.0315287720  1.846302674 -0.3255382255         -0.087025338
## 128 -0.0388752315  1.301856652 -0.3788828210         -0.123691534
```

```
## 129  0.1966617845  2.301918339 -0.5892546760         -0.280023294
## 130  0.2312215605  2.472059389 -0.4070196410         -0.259325781
## 131  0.1032126805 -1.033427291 -0.0734924530         -0.375904289
## 132  0.1976692420 -0.817106894 -0.1095031225         -0.164893519
## 133  0.2467244325  2.214206527 -0.0827140090          0.039130490
## 134  0.4263569207 -0.674021150 -0.1035409123         -0.122887161
## 135 -0.1426400398  0.058148312  0.0057645843          0.091566190
## 136  0.0146147723 -1.439900792  0.0409302402          0.021140694
## 137 -0.4506854682 -0.220813231  0.0834593137         -0.168692979
## 138 -0.2045634490 -0.246112098  0.3067616580         -0.063660462
## 139 -0.3159424380 -0.222464246  0.3143739060         -0.341501047
## 140 -0.0371493332  0.565211489  0.2406447948         -0.288539147
## 141 -0.3140999075  0.926459800 -0.0047132165          0.091755150
## 142 -0.2653023293  1.764518925 -0.1610145132          0.114446538
## 143 -0.4485065918 -1.463168623  0.5208681072         -0.074496152
## 144 -0.2162681605  1.261451959 -0.1162900165         -0.162679102
## 145  0.1111168310 -0.061540082  0.1391469200         -0.087195349
## 146  0.0730988920 -0.407306475 -0.0482602205         -0.125323353
## 147 -0.1105276255  0.707784225 -0.2528451230         -0.088362233
## 148 -0.3485921085 -1.492753433  0.0009534085         -0.140998546
## 149 -0.4035816740 -1.361990361  0.1673510890         -0.098507206
## 150 -0.5370372008  0.604875291  0.0809121133         -0.080909073
## 151 -0.0362957040 -0.600001788  0.0769019690          0.122164286
## 152 -0.2345211730  1.654624059  0.1712166090          0.157740951
## 153 -0.5043408105  2.445513004 -0.0053072345         -0.030970241
## 154  0.0065613862 -1.975563294 -0.0021019867         -0.093079262
## 155 -0.1736333388 -0.754675667  0.2514003942         -0.095176797
## 156  0.4104187295 -0.778213370  0.0193915020          0.035891938
##     pp_Fibronectin       pp_G6PD      pp_GAB2    pp_GAPDH    pp_GATA3
## 1     -0.478830174 -0.2584838485  0.199596415 -0.26267390  0.59167036
## 2     -0.049203693  0.4718726890 -0.260102064 -0.34515082 -0.36517982
## 3      0.034416321  0.6407918400  2.275934360  0.24299811  0.32297094
```

```
## 4     -0.266141148 -0.2590427997  2.248916733 -0.35876799  1.48067725
## 5      1.505340947 -0.1183213165 -0.259795414  0.06920744 -0.24540392
## 6      0.128559827  0.5185524585 -0.159649809  2.43379044 -1.20984414
## 7     -0.221364853 -0.0481159020 -0.369528848 -1.45091542 -1.47221038
## 8     -0.321513840 -0.0964920555  0.124939800  1.47095775 -1.97894466
## 9      0.663718431 -0.1082372685  0.257689671  0.64746192 -2.03266172
## 10     0.754776443 -0.2190215052  0.761223209  0.13491180  1.82609758
## 11    -0.915595151 -0.0035498410 -0.550295248  0.19118829  0.52798292
## 12    -0.438626660 -0.1063765520  0.805308997 -0.36464764 -0.04911975
## 13    -0.411642927 -0.3831445545  0.312380483 -0.02603605 -1.79718735
## 14     1.559723185  0.0224025275 -0.723368910  0.60557557 -0.09561179
## 15    -1.293058041  0.0841259845 -0.429412947  0.11865299  1.82292056
## 16     1.178092630  0.2422048325 -0.277314328  0.58328828  0.52503130
## 17     0.734483863 -0.1328446640 -0.193641830 -0.45375673  1.75300877
## 18    -0.258033491 -0.1032048250  1.185625259 -0.02719960  0.68086532
## 19    -1.710951063 -0.3595443940  0.333521532 -0.24086168  1.88802086
## 20     0.355636516  0.1676067205  0.547966067 -0.19808824  0.26172762
## 21    -0.295363298  0.1844467710 -0.125644912  0.06761439 -0.38701486
## 22     0.166099791  0.4628585500 -0.803206606  2.09091507 -1.63951845
## 23     0.434538113  0.2876776535  0.233824839 -0.21614835  0.53075385
## 24     1.727764871  0.1146340490  0.208590714  0.83820320 -1.69212677
## 25    -1.014639985 -0.2110591950  0.298690753 -0.48620390  1.99842713
## 26    -2.897794580  0.1152111135  0.432981043 -0.44867718  0.74318618
## 27    -0.762436062  0.3470118755 -0.012965221  0.22187904  0.23296198
## 28    -0.261795508  0.1623315905  3.863266453 -0.48590498  1.22704425
## 29    -0.408077448  0.4581198615 -0.167919057 -1.07527051 -0.50539396
## 30     0.216063402  0.1339346020  0.143729394 -0.54221316 -0.14169667
## 31     0.268160232  0.2579541355  0.010035317 -0.88087589 -0.32916495
## 32     1.090462317  0.3416677875 -0.169658086  0.33734155  0.32741729
## 33    -0.599061818  0.4321415440  0.147708407 -0.07646428  0.18373031
## 34    -0.176036289  0.2307009490  0.056146696 -0.82764677 -0.21446516
## 35     1.142989389  0.4146749670  0.433029825 -0.05678146 -0.10322461
```

```
## 36    -0.945230116  0.1924006680 -0.071194069  0.20284249 -0.80331451
## 37     1.587150422 -0.1762337335 -0.377714653  0.32567654  1.38393585
## 38     0.019753052  0.9122595190  0.169105304  0.72707550  0.58787480
## 39     0.061106052  0.8562600480  0.176263627  0.74939439  0.71924733
## 40     0.041678140 -0.3163566755  0.262899934 -0.31692796 -1.60219860
## 41    -1.119319793 -0.3213718440  0.509386012  1.24158238 -0.48528488
## 42    -0.272840404  0.1830567525 -0.069006137  0.59628479 -0.58356562
## 43     1.064887445  0.1258955280  0.202971556  0.19921534 -0.44582309
## 44     0.171157181  0.2773998635 -0.082041187 -1.12192718 -0.27495623
## 45     1.618581179 -0.0509044440  0.420718535 -0.21816424 -0.04208742
## 46    -0.791108192  0.0873242965  0.905711982 -0.20765395  1.88666022
## 47     1.495247252 -0.8756161850 -0.479817242  0.97350601  0.63579605
## 48     1.373977705 -0.2677979130 -0.315524135  0.22546504  0.58333596
## 49     0.349195943  0.2944893870 -0.412301485 -1.50925998 -0.51365386
## 50     0.245283050 -0.3518776595  0.634021113  0.53522763  1.12147037
## 51     0.882724636 -0.3708694695  0.257515655  1.85856835 -1.90172485
## 52    -0.753183917 -0.2416126050 -0.427303418 -0.69461317 -0.97285500
## 53    -0.448310087 -0.1211290970 -0.511567638 -0.21176510  0.27245891
## 54    -0.233332502  0.0492701560  0.370064099  1.56841976  0.75476406
## 55    -0.266374041 -0.8563991930  0.248319296  0.04014997  1.15889460
## 56    -0.464341928 -0.0863624485  0.578087842  0.27190780 -1.86696671
## 57    -0.234906987  0.7675141785 -0.030435803 -0.89238766  0.02357907
## 58     0.053477849  0.0661283615  0.332176890 -0.05807745  0.47867042
## 59    -0.165713564 -0.2685978960 -0.033460021 -0.08545580 -1.97708576
## 60     0.797514328  0.6183680205 -0.511787355  0.21063279  0.65082366
## 61    -0.094472159 -0.0807258415  0.198330548 -0.77870169  1.29871548
## 62    -0.281012347  0.0767704635 -0.446011204  1.75288727  1.08100622
## 63    -0.502108934  0.4240876910  0.857033386  1.40376229  0.78726124
## 64     0.725013335  0.0112874790  0.053392236 -1.39734080 -0.74920406
## 65     0.713807019 -0.1802959182 -0.162330081 -1.51832702 -1.94338806
## 66    -0.783457294  0.3808976218 -0.002559053  1.45507535  0.43872313
## 67     0.304539013  0.3195200620  0.181744937 -0.94547168 -1.29547653
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## 68     0.546500523  0.7219272073 -0.176848003 -1.23910820 -2.80056831
## 69    -0.566467219 -0.1849005865 -0.258189287  0.44690412  0.43637309
## 70    -0.166883165 -0.3470023628 -0.301160716  0.14042228  0.80511655
## 71     1.860906648  0.0264872753 -0.151091484 -0.25421674  0.17905371
## 72    -0.070573257  0.0973638370  0.201317353  0.86776440  0.54567340
## 73     0.831656935 -0.5016817007  0.703854226  1.10830322 -2.57235035
## 74    -0.642094912  0.0786293120  0.721227056 -0.73689130  1.11041263
## 75     1.139557888 -0.0002646025 -0.281013263  3.40350810 -1.39840515
## 76     0.316503051  0.1471277160  0.603310874  0.49799272  0.63013214
## 77    -0.585879156 -0.5866816115 -0.404459481 -0.65028487  0.47763128
## 78     1.357390183 -0.5553882980  0.213378193 -0.78081051 -1.58894041
## 79    -0.222267385 -0.3516681805 -0.014147651  0.43835375  0.38644865
## 80     1.703266032 -0.3195892305  0.484741396  1.03523913 -1.98325261
## 81    -1.494083857  0.6703136720  0.300611822  2.08654659 -0.31950158
## 82     0.008641099  0.0140309740 -0.020833777  1.43026389  0.07141867
## 83     0.479567344  0.0798311510  1.006734063 -0.68576384 -0.26570925
## 84     1.818550783  0.1072846453  1.822093924 -0.03079885 -0.25223693
## 85     0.815212179 -0.4213537132  0.333261721  0.43419910 -1.02860478
## 86     0.365489770  0.3902819305  0.242767711 -0.52578134  1.14543767
## 87     1.060081785  0.0011099877  0.258607683  0.19927073 -0.79565458
## 88    -0.254911320  0.0645693180 -0.104692037 -0.71259538  2.03960854
## 89     0.280633441  0.0806905650  1.261588763 -0.02493521  2.27831082
## 90    -0.865175355  0.1674857348  0.160111550  0.71008270  0.32562369
## 91     0.087893641  0.1543662805  0.342446380  0.26708677  0.44110276
## 92    -0.587976382  0.2293540825  0.102913528 -0.54051965 -0.56663328
## 93     1.104183933 -0.4598776525  2.970657068 -0.59478653  1.53913557
## 94     3.778012304  1.2209502243 -0.703897739 -1.48109538 -1.07656984
## 95     0.681334759 -0.1678156770 -0.158139014 -0.51377920 -0.01828438
## 96    -0.013942217  0.2497783450  0.058448611  0.12975289  0.72798972
## 97    -0.131863986 -0.1102654258 -0.772699371  0.52669311 -2.09119603
## 98     0.914972805 -0.0770231005 -0.734232085  0.01628406 -0.13447171
## 99    -1.035428009 -0.0348049080  0.030535759  0.26086632  0.35153833
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## 100    0.001595748 -0.0375676050  1.197847390  0.38552286  1.53843963
## 101   -1.255163439  0.2460991613 -0.697800583  0.50667798 -0.21377995
## 102   -0.373767255 -0.0528776968  0.132516796  0.81437710  1.21319598
## 103   -1.724221900  0.3004079145  0.821937910 -0.04434936  2.39026436
## 104    1.131305824  0.0483856340 -0.128430528 -0.04039357 -0.20729887
## 105    0.615982823  0.1102789465 -0.174760387 -0.93078787  0.82560258
## 106    0.639072533 -0.2934306608  1.617883571 -0.23950632  0.80039465
## 107    0.078974512 -0.0675096620 -0.024267541  0.14428283  0.74216044
## 108   -1.016453460  0.3706566425 -0.291497893  0.47117884  1.48256511
## 109    0.783352263  0.2569080510 -0.019832456  0.09287825 -0.11928262
## 110   -0.336482800  1.1191912890 -0.567493914  0.44359410  1.99190564
## 111   -0.902996344  0.0638569225  0.075933575 -0.67647911 -0.73900470
## 112    0.501953950 -0.2585613075 -0.393828336 -0.01984413  0.84156512
## 113    1.040782883  0.6525941025 -0.122843253  0.72975428 -0.59264876
## 114    0.356980645  0.1607100195 -0.165197182 -0.10628025  0.81775845
## 115   -0.406234868 -0.0571112020  0.062502261 -0.90058967 -1.87216287
## 116    0.380558307 -0.3256484882 -0.031339838 -0.47901131  0.69841981
## 117    0.402249307 -0.4930612038 -0.213129562 -1.21192261  1.74798374
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## 119    2.343347439  0.5067363450 -0.305630897 -1.00820981 -0.36717490
## 120   -0.978391228 -0.1731567730  0.069699891  0.33275982  0.78391852
## 121    0.794433880 -0.0886354787 -0.036372343  0.78019962  0.09766432
## 122   -0.996453143  0.2323095745  0.230435536 -0.51942608  0.35773878
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## 124   -0.963621164  0.2585414600 -0.082297089 -0.77488394 -0.66908194
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## 126   -1.140293155 -0.0847883335 -0.449479244 -1.14851541  1.44950638
## 127   -0.725805232 -0.1588074830  0.188139802  0.46116714  1.11063303
## 128   -0.161984985  0.1558982795  0.135886586  0.76690771  1.25053533
## 129   -0.042822956  0.2022231915 -0.386818029  1.31748001  0.68598784
## 130   -0.699294857  1.0849254865 -0.337074830  0.28546465 -0.68749020
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## 132   -3.170168183  0.5464421220 -0.093298606  0.20245072  0.46428490
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## 134   -0.447271620  0.3694432098 -0.248551099  0.06038851 -0.36706214
## 135    0.785135827 -0.2644760327  0.096670731  0.82286205  0.11224601
## 136    0.753491589  0.0662788942  0.097398468 -0.38551407  0.56579261
## 137   -0.023632484  0.4142577267 -0.293053440 -0.34178040  0.98534323
## 138   -0.744991264  0.0687414530  0.948998650 -0.38552231 -2.35860110
## 139    0.344303921  0.0071121280  0.092372780  0.06995774  0.81917275
## 140    0.137957752  0.2061901057 -0.030296998 -0.23213473  0.41905467
## 141    0.273723477  0.2055563635 -0.472674115  0.51192105 -1.80590177
## 142    0.598571883  0.3203000417 -0.082021504  0.13668092  0.76135949
## 143    0.003408527 -0.1614200798  2.000311245  1.18425635 -0.51008058
## 144    0.599958550  0.9085665575  0.922743185  1.33489481  0.67668760
## 145    0.279007311 -0.1608188830 -0.057128854  1.56115208 -2.07735789
## 146    0.669206860 -0.0343251820 -0.058855498 -0.43795148  2.93839559
## 147    1.024556192 -0.0982029385 -0.076510634  0.56726510  2.00398620
## 148   -0.102810363  0.0857048615  0.287502704 -0.22677532 -2.09394525
## 149    1.059335036 -0.1187628240 -0.093037717 -0.11442897  1.12260480
## 150   -0.033582296  0.0133010993  0.377722614  0.38160363 -0.89607522
## 151   -0.084564948 -0.2311852240 -0.331522314 -0.74657993  0.76807875
## 152   -0.237850892  0.0922306260 -0.423769017  0.32128825  0.37776890
## 153    0.532746254  0.5232002265  0.109720842 -0.14644945  0.10191222
## 154    1.912367942 -0.3681969828  0.169914565 -0.29823935 -2.02099388
## 155    0.584678506 -0.2975471367  0.180409577 -0.46464435  1.27108742
## 156    2.283599110 -0.6166770055 -0.161266199 -0.30838193  0.46858845
##         pp_GATA6    pp_GCN5L2 pp_GSK3.alpha.beta  pp_GSK3.pS9      pp_HER3
## 1    0.006048605  0.321710530        0.006442482  0.424136337  0.317018417
## 2   -0.114966779 -0.276549241        0.061233152  0.827643750 -0.152397743
## 3   -0.080606272 -0.331814128        0.023683938  0.063500522  0.268828271
## 4   -0.217306142  0.025408511       -0.053730361  0.587356083  0.523995809
## 5    0.098802411 -0.337730867        0.069661444  0.311334999 -0.357739004
## 6    0.188483821  0.645173175        0.936712458 -0.102843675  0.037543662
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## 7    0.289768572 -0.482245306       -0.461734700 -0.524039791 -0.380234748
## 8    0.292118148  0.102858305       -0.060355949  0.185490714  0.036059559
## 9    0.123122473  0.757312446       -0.039868048 -0.500395649 -0.628000316
## 10  -0.116228128  0.306286675        0.208497453 -0.274712429  0.822625348
## 11   0.083477710  0.450598265        0.005090361  0.233196711  0.417441848
## 12   0.076874272  0.118179189       -0.069935504  0.161569714 -0.367533395
## 13   0.356503897  0.290216655        0.838953942  0.179485053  0.332796039
## 14   0.003006438 -1.081073144        0.197089882  0.293055681 -0.156546155
## 15  -0.109552997  0.723683697        0.167102007 -0.010631577  0.242347659
## 16  -0.365064489 -0.470489749        0.407433920  0.926285713 -0.197207330
## 17  -0.122093636 -0.066114875        0.560967265  0.302833657 -0.344550625
## 18  -0.380373810  0.389429463        0.026588994  1.041200074  0.428257032
## 19   0.049937703  0.106555120        0.120232170 -0.631041054 -0.510284449
## 20  -0.135916478  0.393802384        0.295057784  1.250183632  0.061588522
## 21  -0.082780566  0.122909366        0.337785709  0.391706472  0.295382039
## 22  -0.244704838  0.196061570       -0.084229663 -0.509840026 -0.342244531
## 23   0.083396469  0.160308437       -0.227379926 -0.117450650 -0.230700979
## 24   0.045144427 -0.285894452       -0.076633736 -0.445604661 -0.803527336
## 25  -0.046007497  0.217122371        0.026415008  1.022663347 -0.423563884
## 26   0.009463353  0.129251256        0.417742879  1.973630791  0.120695984
## 27  -0.257275380 -0.194040394       -0.006034747  0.500886628  0.729063789
## 28   0.121815363  0.236402239        0.206858166  0.823700457 -0.087126471
## 29  -0.130803564 -0.908445416       -1.196884647 -0.277372511  1.043297588
## 30  -0.155717089 -0.171490548       -0.634419564 -0.207547451  0.794244306
## 31  -0.126245109 -0.555379706       -0.481391774 -0.343010514  0.717054743
## 32  -1.219906665 -0.070635613        0.116469349  0.639793138  0.089325646
## 33  -1.952385773 -0.924596990       -0.394885415  0.393746854  0.765573751
## 34  -0.243443310 -0.076108541       -0.366739852 -0.185119542  0.347571239
## 35  -0.109423450 -0.063016279        0.312341456  0.890979735 -0.010744471
## 36  -0.121501047 -0.209321608       -0.322274373 -0.442749449 -0.476833502
## 37  -1.578711149  0.028751835        0.309795669 -0.970866936  0.357501733
## 38   0.058662484  0.152955203        0.177577343 -0.116833663 -0.138202253
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## 39  -0.017210017  0.118768589        0.421366667 -0.301094182 -0.089038350
## 40   0.029246054  0.240698099        0.698600532 -0.585183301 -0.003459188
## 41  -0.333706869  0.222659948        0.738864001  1.343253792  0.172503721
## 42  -0.102660726 -0.158953921        0.506930809  0.516479285  0.002900474
## 43  -0.139755208  0.397942811        0.439902647  1.479650808 -0.247285959
## 44  -0.298228463 -0.552416333       -0.693731566 -0.332345326  0.200064338
## 45  -0.605932021 -0.793201754       -0.249049970  0.373094282  1.494966609
## 46  -0.202447715  0.589528750       -0.094336434  0.404160305 -0.226755483
## 47  -2.279243238 -0.456612207       -0.137897786  0.346656980 -0.049356756
## 48  -1.368525667 -0.020919774        0.002325683 -0.125306306 -0.147537395
## 49   0.128239816 -0.995509902       -1.331164421 -0.313261244  0.317655227
## 50   0.092571390  0.084404706        0.003491997  0.805462351 -0.374381701
## 51  -0.182533879  0.165141085        0.652266430  0.446915538 -0.186881714
## 52   0.166627782 -1.181342866       -1.258688940 -1.133660062  0.842414048
## 53  -0.173191279 -0.205685738        0.280339862  0.848456277 -0.116386257
## 54  -0.245293993  0.308304406        0.517101209 -0.101398482  0.155579022
## 55  -2.411627285 -0.303771894        0.063189089  0.784618153 -0.201550680
## 56   0.129793116 -0.229978609       -0.335088948  0.335590259  0.349994240
## 57  -0.199079626 -1.125829860       -0.867186859 -0.139098214  0.573877390
## 58  -1.266237664 -0.645313835       -0.170154857  0.286523517  0.105501214
## 59  -0.609532677  0.690187784        0.311379286 -0.051052050 -0.132267545
## 60  -0.753077999 -0.186720610       -0.098859222 -1.586817199  0.075167055
## 61   0.289671959  0.383858160       -0.016066146  0.045255988 -0.202807897
## 62  -0.091478266  0.374981634        0.521389308 -0.007117318  0.144618344
## 63  -0.289729381 -0.075904871        0.441588802 -0.668540105  0.865159384
## 64   0.115310880 -1.470008204       -0.821458839 -0.483013912 -0.675406947
## 65   0.216056984 -0.802721384       -0.541765817 -0.448785778 -0.965343552
## 66  -0.108016645 -0.133838433        0.144857619  0.606307103  0.841706695
## 67   0.133176094 -0.639111517       -0.374604214  0.062769466 -0.729335384
## 68   0.850789950 -1.176117085       -0.645764775 -0.852296854 -0.825536023
## 69  -0.038730560  0.041813177        0.213635901 -0.095473064 -0.346252805
## 70  -0.295805845  0.644641818        0.460020797  0.058921508  1.470621283
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## 71   0.014652628 -0.281369683        0.262939771 -0.928384832 -0.677056296
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## 73   0.251194743  0.042613498        0.113715647 -0.004754104 -0.524018593
## 74  -0.834307183 -0.000259624       -0.258775480  0.728047961  0.228628235
## 75  -0.240334968  0.380738813        0.041514384  0.436406423  0.061732994
## 76  -0.102079815  0.086919714        0.755676375  1.701981500 -0.166914837
## 77  -0.448871048 -0.460500890       -0.460982567  0.244098881  0.396174191
## 78  -0.137043112  0.285617624        0.127067714  0.429127944 -0.285424393
## 79  -0.001038186 -0.013492597        0.340684859  0.994811859 -0.014393734
## 80   0.030630545 -0.420861924       -0.142389794  0.135046854 -0.086653470
## 81  -0.306337752  0.045305193       -0.248945254  0.965676814  0.758922543
## 82   0.319085672 -0.128109707       -0.779264404  0.309394116  0.870615450
## 83   0.151313291 -0.430585541       -0.193941014 -0.025842450  0.033388003
## 84  -0.013582298 -0.432393909       -0.218578119  0.557880750  0.149816600
## 85   0.074684258 -0.058931369        0.538321982  0.687710794 -0.067395764
## 86   0.119011482  0.084593047       -0.724719759  0.207085873  0.324195893
## 87   1.244921571 -1.341780444       -0.172170699  0.062563905  0.333662924
## 88  -0.075576717  0.066472115        0.126612897  0.487716026 -0.103890398
## 89  -0.222878367 -0.199021878        0.218250054  1.226433194 -0.025300578
## 90  -0.220279859  0.358664054        0.250286498  1.380018087  1.169225244
## 91  -0.348338066 -0.239951897        0.107161286  0.756860457  0.378397800
## 92  -0.282033882 -0.722307957       -0.128592517  0.522285128  0.528331163
## 93   0.103814933 -0.692903023       -0.457559712  0.207353621  0.059653580
## 94   1.230645077 -1.473438415       -0.619704480 -0.758694352  0.794810032
## 95  -0.022266108  0.029493007        0.055884293 -0.232662414 -0.342240516
## 96  -0.129189976 -0.401363174        0.140179349  0.870973289  0.184256673
## 97   0.147740261  0.634662824       -0.481603183 -0.188234106 -0.736232578
## 98  -1.910191047  0.051456425        0.039700832  0.710464106 -0.222716124
## 99  -0.292046416  0.229471796        0.487373214  1.243647371  0.110094356
## 100 -0.206138593  0.000000000        0.329245621  0.766145128 -0.455270667
## 101  0.319116513  0.576387054        0.217545673  0.739947403  0.186208521
## 102 -0.204210838  0.346373612        0.006953444  0.945945530  0.776742980
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## 103 -0.431155344 -0.379037566        0.409938741  1.521947936  0.449788207
## 104 -0.207227117 -0.886562782       -0.367091634  0.093472227  0.228250092
## 105  0.070905411  0.341672700        0.016613463  0.775999057  0.372454179
## 106 -0.039540424  0.283053433       -0.026410798  0.799921922  0.848918594
## 107 -0.180501008  0.143292952       -0.007718981  1.126279227 -0.267355037
## 108  0.173027093  0.172544124       -0.357239580  0.293165613 -0.045184959
## 109 -0.233174332 -0.587957551       -0.712012480  0.537243790  0.003866614
## 110  0.119017931 -0.448110640        0.348368185  0.925209730 -0.317587823
## 111 -0.286164376  0.024461955        0.113353180  1.129527287 -0.279123499
## 112 -0.034468604 -0.046883933       -0.192683332 -0.010196092  0.510910257
## 113 -0.070819985 -0.089186684        0.159176491  0.171613469 -0.157197988
## 114 -1.096496262  0.185384812       -0.018409496  0.749202545  0.610980747
## 115  0.191959004 -0.379889278       -0.133093038  0.460905962 -0.281801607
## 116 -0.069318776  0.117539658        0.055592368  0.653132006 -0.025538486
## 117 -0.052740071  0.216919936       -0.060482868  0.885689912  0.821470967
## 118 -0.067429289 -0.539303762        0.172454752  0.672532053 -0.379935070
## 119 -0.144056047 -1.063209727       -1.178734161 -0.575060451  0.591097034
## 120  0.302179186 -0.205045379        0.420803176  0.969027350  0.697987237
## 121 -0.023089378 -0.022722736        0.328192541  0.448409185 -0.197889974
## 122 -0.171063872 -0.387439932       -0.242913246  1.116323866  1.166137163
## 123 -0.060760001  0.129623481        0.244504456  1.028041444  0.017244631
## 124  0.058276930 -0.061333755       -0.077858533  0.738263021  0.028298242
## 125 -0.141419951 -0.330226239        0.554664989 -0.225679587 -0.079592465
## 126  0.005538703 -0.123810038       -0.166638323  0.263647915  1.578628788
## 127 -0.249730982  0.397028269        0.404064406 -0.119599523 -0.097823780
## 128 -0.190800041  0.224161729        0.260240920  1.155203745 -0.181671359
## 129 -1.167331979  0.304038566        0.158185823  1.173474010  0.115326513
## 130  0.114335780 -0.300123812        0.177736496  1.127235267 -0.037623284
## 131 -0.147970175 -0.289321744        0.135558436 -0.252883643  0.010384796
## 132  0.028696245 -0.253785691       -0.977131936  0.390592379  0.292593901
## 133 -0.242855979 -0.573860683        0.586939845  0.154465808  0.228121339
## 134  0.480963320 -0.534817092       -0.127013703  1.416242417  0.011751116
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## 135  0.005579777 -0.617957175       -0.347105337  0.185961752  0.248714571
## 136  0.705595506 -0.135825190        0.236655915 -0.166413107 -0.371717389
## 137 -0.132343822  0.467143466        0.245525418 -0.807821090  0.431364899
## 138  0.530542853  0.536461949        0.593579845  1.255610194  0.660886452
## 139  0.033419905  0.315833105        0.418409551 -1.024549981  0.846981662
## 140 -0.100409254  0.354110272        0.749138924 -0.790866819  0.133476637
## 141  0.336527718 -0.313790342        0.439601969  0.314099085 -0.310411970
## 142 -0.052309810 -0.516231473        0.177327337  0.365416008 -0.617072157
## 143 -0.111120299  0.575071544        0.185213953  0.977791786 -0.562913471
## 144  0.012988927 -0.278795623       -0.041927169  0.378854419  0.246367942
## 145 -0.041650895  0.276762172        0.050835721  0.563114021 -0.812268621
## 146 -0.090922680  0.440711421        0.222473780 -1.049717502  0.602837848
## 147 -0.311965914  0.534224618        0.143871727  0.080436198  0.100818990
## 148  0.133790885  0.533831923        0.257657099 -0.481469685 -0.066155595
## 149  0.303732722 -0.020254318       -0.086839721 -0.254425028  0.899699250
## 150  0.436694565 -1.108176338        0.819646110  1.654987031  0.867900051
## 151  0.038940217 -0.172298705       -0.111587112  0.102180588 -0.241431973
## 152  0.332264461  0.671484346        0.096567357 -0.067254851  0.520900822
## 153  0.197425375 -0.482725660        0.384058369  1.635959043 -0.100627381
## 154  0.145984330 -0.329039762       -0.214982241  0.479091217 -0.915377729
## 155 -0.211244757 -0.022842702        0.007002887  1.009827994  0.622284647
## 156  0.169205926 -0.347155826       -0.606114404 -0.911879452  0.313802656
##     pp_HER3.pY1289    pp_HSP70 pp_Heregulin pp_IGF1R.pY1135.Y1136    pp_IGFBP2
## 1      0.145925916  0.80619241 -0.149171381          -0.073898690 -0.164287581
## 2      0.301291824 -0.33229304  0.006104715          -0.184683977  0.261354994
## 3     -0.230391946  0.63149407 -0.071118046           0.033526462 -0.327197536
## 4     -0.151235632 -0.12905185 -0.158664287          -0.134258623  1.827944410
## 5     -0.039213616 -0.14757811 -0.146547897           0.238107059 -0.701328915
## 6     -0.073100825 -1.50911143  0.261899516          -0.137680584 -0.800952927
## 7      0.563742158  2.16009356  0.179103944           0.490711915 -0.537540580
## 8      0.005707929 -0.53122812  0.155514155          -0.116804873 -0.610510232
## 9      0.323940005 -0.64350612  0.220545231           0.096193562 -0.090558142
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## 10   0.009921002 -0.65441843 -0.022890021        -0.067039197  1.127685450
## 11   0.013313700 -1.30561471 -0.006649565        -0.083546605  0.226139471
## 12  -0.049842014  1.16811541 -0.128678941         0.000000000  1.133954537
## 13  -0.379263504  0.62490856 -0.328191825        -0.102257867 -1.917861146
## 14  -0.036026783  0.48078119  0.007393880        -0.057713828  0.568898667
## 15  -0.231218248 -0.76894001  0.077067758        -0.237093461  2.081295020
## 16  -0.345357301 -1.18141284 -0.198999272        -0.273025964  0.379271509
## 17  -0.047682949 -0.95988792 -0.073975985        -0.087635668  1.074794249
## 18  -0.391818084 -0.10279695 -0.037472310        -0.085039508  1.123361775
## 19  -0.078760857  0.39229653 -0.070215658         0.070314436  0.370097289
## 20  -0.113171101 -0.49215927  0.026231201        -0.205656511  0.539913923
## 21   0.083193909 -1.02824487 -0.088825924        -0.298666588  1.070130946
## 22  -0.003370653  0.09628637  0.270692775        -0.046145369 -1.362459024
## 23   0.237047818  1.73041932 -0.053003657         0.004557246  3.867210615
## 24   0.064787058  0.71175311  0.156841427         0.147111556 -0.702049820
## 25   0.291647401  0.59000688 -0.105013717        -0.059184031 -0.054535743
## 26  -0.010216035 -0.62531029  0.054550787        -0.070034899  2.515054591
## 27  -0.039501110  0.35033995 -0.019206046        -0.290132921 -0.091262331
## 28  -0.024720385  0.64951729 -0.050941256        -0.200202581 -0.409522339
## 29   0.638258709  3.03612916  0.325354666         0.336719865 -0.063238828
## 30  -0.300793685  1.51654325  0.232961250        -0.017632618  0.393907743
## 31   0.595308829  2.69649061  0.584584620         0.209310976  0.544833602
## 32   0.260037207  0.06843926  0.107159998        -0.311179508 -0.700785665
## 33   0.070789989  0.00000000  0.311137665        -0.514715345  0.370046385
## 34   0.405193337  1.28208252 -0.044923760         0.019259517 -0.554299493
## 35   0.416339846  0.54175910  0.003858611        -0.077370989  0.359777924
## 36   0.140095326  0.63892895  0.097739212         0.072612680 -1.553648875
## 37  -0.084005578 -0.22574138 -0.012508934        -0.021058505 -0.929262933
## 38  -0.223387535 -1.05381079  0.096425893        -0.184047030  1.661053938
## 39  -0.184496014 -0.90749627  0.111208539        -0.163723579  1.677834523
## 40  -0.250137576 -0.70058216 -0.015889914         0.078082175 -1.467394065
## 41  -0.285403248 -0.95865719 -0.138198861        -0.310982610 -0.646929312
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## 42   0.489495626 -0.41795936 -0.011221933        -0.225491343  1.217751610
## 43  -0.314800958  0.95165469 -0.084533696        -0.240811494 -0.652185853
## 44   0.476968380  2.20070566  0.192176047         0.202555740  0.763907698
## 45   0.693664470  1.27762349  0.312224361        -0.115746715  0.234875402
## 46  -0.181271021 -0.73430506  0.000000000        -0.130655806  0.347769237
## 47   0.851738555  0.44362858 -0.049997732        -0.164861252 -0.435178727
## 48   0.031532545 -0.64434011  0.135194262         0.011633460  0.802159295
## 49   0.533188414  2.20346841  0.244385344         0.301742158  0.224075016
## 50  -0.154155805 -0.43524588 -0.243259144         0.091542112  0.341691068
## 51  -0.266555317  0.08281117 -0.162378080         0.026918220  0.822175433
## 52   0.819574094  2.35786152  0.363083661         0.744018600 -0.362400705
## 53   0.731099472 -0.62654110  0.076378982         0.089697034  0.666754015
## 54  -0.008755704 -0.31425234 -0.016098038        -0.109466002  1.728143220
## 55   0.560639777  0.34512736  0.398983637        -0.137789462  0.815139816
## 56  -0.019873384  0.63147611 -0.037825327        -0.072588626  1.303089263
## 57   0.566964815  1.75296289  0.517395291         0.424498681  0.864262013
## 58   0.075414611  0.59002783 -0.007625691        -0.234013985  1.156987613
## 59  -0.213040036 -0.77698558  0.287800006         0.092022109  0.844336564
## 60   0.183132402 -0.11558695  0.186397281        -0.041856955  0.790915110
## 61  -0.192102465  0.56560428 -0.137556247         0.027982059  0.325660582
## 62   0.039675125  0.61852437 -0.238189622        -0.250942528 -0.293393478
## 63  -0.114897005 -0.22301659  0.032099705        -0.125867733 -0.908910822
## 64   0.251441768  2.92741820  0.140771085         0.741490924  0.589062927
## 65   0.366479556  1.73255966  0.070261235         0.200698137 -0.631375617
## 66  -0.168300176  0.16304941 -0.389865641        -0.378957470  0.548049153
## 67  -0.153886256  0.35767305 -0.146845926         0.112414383 -1.003253321
## 68   0.460307477  2.11166481  0.662332242         0.939742006 -0.582775802
## 69   0.140038678  0.14011419 -0.106924314         0.054186065  0.522487602
## 70  -0.254402648 -0.63553590 -0.057195919        -0.304610609  1.184809439
## 71  -0.078310127  0.93104995  0.081310659        -0.031643273  1.376280014
## 72   0.018741580 -0.31065916 -0.050705054        -0.042518437  1.030863435
## 73  -0.061669193 -0.21808010  0.119970406        -0.154028252  0.474358908
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## 74    -0.037836163 -0.07319760  0.077562466         -0.028318248 -0.182459438
## 75    -0.091113241 -0.32251903  0.046498055         -0.181233013 -0.863470995
## 76    -0.283677739 -0.61318232 -0.094785729         -0.151738549  1.537094102
## 77     0.431143979  1.99447113  0.121725743          0.789742331  0.753370731
## 78    -0.191526398  0.37854100 -0.222210807         -0.217560766 -0.783740575
## 79     0.058368574 -1.02460471 -0.174078210         -0.011579326  0.522236478
## 80     0.010972962  0.62814551 -0.003711411          0.258135391  1.149032695
## 81    -0.657429934 -1.34989793  0.671204776         -0.865862644  0.272934487
## 82    -0.600433167  0.32751761  0.195033872         -0.856216656 -0.383348211
## 83     0.266764330  0.50522674  0.119546210          0.245436825  0.252140162
## 84     0.018829127 -0.79777856 -0.121765967          0.107421018  0.007647831
## 85     0.075122687 -0.68779937 -0.135413825         -0.123808001 -0.718341493
## 86     0.430269905  0.40883320  0.518633134          0.299421471  0.287684875
## 87    -0.088120029 -0.02347219 -0.030115563          0.171153385  1.689010930
## 88     0.066302660  0.29600175 -0.021918818          0.062993046 -0.779341799
## 89    -0.087322813 -0.01168050  0.120922983         -0.179818039 -0.624657951
## 90    -0.026093221 -1.38335991 -0.113671770         -0.019104009  2.571000142
## 91    -0.032630326  0.83015715  0.198401319         -0.205223670  1.222756348
## 92     0.349881345  0.79482829  0.000000000         -0.138240093  0.530655441
## 93     0.331592000  0.58280319 -0.264160063          0.259424991  1.242314523
## 94     0.226654822  1.67040150  0.554153963          0.689047232 -0.389475483
## 95     0.085651988  0.76514721 -0.161982035          0.085324269 -0.285929335
## 96     1.306586299 -0.85623991 -0.013733515         -0.240659905 -0.371309013
## 97     0.076818553 -0.66253270 -0.033346982          0.152947849  0.351381139
## 98     0.133333983 -0.63677491 -0.018224098          0.275334128  0.771638357
## 99    -0.200877545 -1.66988953 -0.277517056         -0.178970912  0.110947332
## 100   -0.217052307 -0.83328855 -0.354766704         -0.211139481  0.314406665
## 101   -0.079241068 -0.75654897 -0.065399854         -0.064940365  2.117031393
## 102    0.038016138 -0.46764990 -0.196531412         -0.207021406  1.943744018
## 103   -0.148107224 -1.82683837 -0.076725512         -0.304018171  0.994432678
## 104    0.268223369  1.05736778  0.168850528         -0.051168286  0.855430826
## 105    0.017916282 -0.12285250  0.091452438          0.219631030  0.539124986
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## 106  -0.044571957 -0.17593659 -0.088992297        -0.052248052  0.363171160
## 107   0.071258747 -1.92464963  0.018034334        -0.132569319  0.462184063
## 108  -0.011497624 -1.48459042  0.171979801         0.921819404  0.183463100
## 109   0.346307289  1.29954447  0.384077997         0.198237025 -0.037361696
## 110   0.849272681  0.21469972 -0.259514488        -0.049678005  1.533409648
## 111  -0.153744647 -0.56385847  0.094934837        -0.322920891  0.810246360
## 112   0.165121777  0.06424190 -0.027865028         0.100317347  0.245129734
## 113   0.041766908  0.75618982 -0.004081735         0.211084600  0.986246028
## 114   0.127441967 -0.97765685  0.177136421        -0.087142585  1.476488482
## 115   0.386896476  0.84291184 -0.129442968         0.115112303 -0.979944282
## 116  -0.190127021 -0.52839465 -0.116829868         0.162880702 -0.049537852
## 117  -0.006291774  0.91246993 -0.193708703         0.077514919  0.241270790
## 118  -0.129558832 -0.09984313 -0.207041130        -0.076432468  0.885656281
## 119   0.669916510  2.67593595  0.257913744         0.174230485  0.301596547
## 120  -0.041878604 -0.76973932 -0.068102536         0.000465865  0.830781395
## 121  -0.042388975 -0.24393889 -0.098303952         0.041160519 -0.523768889
## 122  -0.136496148  0.82942546  0.142515209        -0.413173765 -0.218734034
## 123  -0.181081266 -1.15135147 -0.076000039         0.119379879 -0.996383301
## 124   1.329251236  2.72400161 -0.154718559         0.107043937 -0.100167959
## 125   0.213850299 -1.20633275 -0.016423226        -0.268313589  2.394948250
## 126   0.228466335  1.90133498 -0.016881997         0.087466686 -0.555632163
## 127  -0.207420449 -0.74925434 -0.134618189        -0.169484428 -0.686702252
## 128   1.105564126 -0.01038686  2.610556676        -0.193356395  2.404526447
## 129   0.037281126 -1.12158906  0.076440077        -0.031872680  0.774883654
## 130   0.006930177 -0.76818185  0.249025244        -0.058231464 -1.253864437
## 131   0.064761127 -0.29866422 -0.026168346        -0.140411239 -1.115657081
## 132   0.494927529  0.24666602  0.432210245        -0.108857653  0.603608808
## 133   0.724977646  0.42784927 -0.018676505        -0.218361717 -1.665278318
## 134  -0.039766055 -0.45872298  0.046034354         0.328353104  0.600006252
## 135   0.109823241  1.40956601  0.085221913         0.089880425  0.344373971
## 136  -0.254044751 -0.01831315 -0.090008653         0.170402726 -0.151540614
## 137   0.121288208 -0.42717600 -0.041641202        -0.008949781  0.670294605
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## 138   -0.007500519 -0.78473868  0.017532709          -0.161068053 -0.988795055
## 139   -0.086669976  0.07480407  0.111025015           0.000203578  0.546749191
## 140    0.013005051 -0.47218364 -0.103564823          -0.033406816  0.816829884
## 141    0.062610130  0.70214801 -0.009775305           0.061732932 -0.954740451
## 142    0.188046704 -0.85674369 -0.157260659          -0.049354993 -1.022083939
## 143    0.040891396 -0.74773882 -0.167365188          -0.132450072  0.851383253
## 144    0.036269238 -0.55508899 -0.103640591          -0.097827026  2.078556222
## 145   -0.034178772  0.31758575 -0.008696584           0.043592170  0.845247182
## 146   -0.259062206 -0.32731596  0.124402099          -0.158813289  0.435288019
## 147   -0.372357579 -0.14842655 -0.025840321          -0.327529686 -0.317461068
## 148    0.132867888  0.16843992  0.224095827           0.046134014 -0.457862954
## 149    0.087341975  0.31062541  0.135933741           0.240810225  0.988567523
## 150    0.085029523  0.28523614  0.625251253          -0.068267545 -0.968512070
## 151   -0.155149792  0.99209093 -0.089489612           0.176948881  0.211561057
## 152    0.037326634 -0.69165608  0.086619640          -0.007264501  0.683203835
## 153    0.105013578 -0.53480819  0.071785244           0.050520109  0.928547757
## 154    0.116316249  1.94577494  0.112520317           0.280811118 -0.212360108
## 155   -0.072628312 -0.07762471  0.049231905          -0.137965474  0.049886827
## 156    0.396957228  1.93173363  0.034156502           0.370313799  0.584367661
##         pp_INPP4B    pp_IRF.1      pp_IRS1      pp_JAB1      pp_JNK2
## 1    7.040547e-01 -0.26192974  0.311026949 -0.127944300  0.085391049
## 2    8.241566e-01 -0.02283736  0.247076996  0.019367781  0.211994964
## 3    1.289282e+00 -0.22080521  0.630498800 -0.111733339  0.118496150
## 4    5.606222e-01 -0.06811162  0.082628859 -0.171915577  0.221314795
## 5    7.549021e-01 -0.13564827 -0.227727001  0.102018778 -0.108874111
## 6   -7.430863e-01 -0.41038129 -0.362712614  0.263104125  0.027153111
## 7   -8.575171e-01  0.06829855  0.257881150  0.201714742 -0.362824594
## 8   -1.619963e+00 -0.03188128 -0.266653845  0.056173584 -0.019572848
## 9   -1.483196e+00 -0.11833429 -0.081950105 -0.080930791 -0.504284021
## 10   7.834664e-01 -0.25240362  0.336622270 -0.105403123  0.050955664
## 11   2.765969e-01 -0.06128240 -0.293447682  0.066406587 -0.449039089
## 12   1.674694e-01  0.06562384 -0.032639703 -0.007426466 -0.068786146
```

```
## 13   2.157443e-01  0.56506022  0.148738214 -0.205048769 -0.526409475
## 14   9.199271e-01 -0.30495470  0.022942957  0.085335142  0.364467040
## 15   1.341779e+00 -0.30364616 -0.085863581  0.185903181  0.638478934
## 16   3.070108e-01 -0.13708601  0.191904703 -0.126258909  0.386884697
## 17   1.274662e+00 -0.38842486  0.168149616  0.073766178 -0.252600430
## 18   2.324407e+00 -0.04192519  0.414855539 -0.067016991  0.004143122
## 19   6.664606e-02 -0.13296404  0.113196185  0.068794847  0.437231790
## 20   4.993304e-01 -0.21313134 -0.317552636  0.043618370  0.136769051
## 21  -3.028745e-01 -0.30117700 -0.367133930 -0.048792254 -0.282838965
## 22  -1.021360e+00 -0.35442695 -0.273811682 -0.007907225 -0.628704977
## 23  -5.534243e-01 -0.26817923 -0.215304450  0.108835591 -0.143591350
## 24  -1.586408e+00 -0.32086828 -0.164439790 -0.000951774 -0.358047467
## 25  -2.929871e-01 -0.07160127  0.043367388  0.076339329  0.221015742
## 26   8.698080e-02 -0.07039104  0.387550325  0.164668770  0.376561087
## 27   1.344713e+00 -0.21481117  0.053748939 -0.151237846  0.237632209
## 28  -6.032095e-01  0.15485859 -0.117914157 -0.091597812  0.136800447
## 29   3.085392e-01 -0.38005638  0.224614524  0.362397011 -0.139860159
## 30   8.568857e-01 -0.04197643  0.139515520  0.154034291 -0.110500112
## 31   1.898407e-01 -0.06757927  0.000000000  0.219584139 -0.217950512
## 32  -3.758263e-01  0.06655355 -0.271346921 -0.311120292  0.250619451
## 33   1.370780e-01 -0.24409905 -0.023531982  0.045767828  0.397657384
## 34   6.598684e-01 -0.26989644 -0.034703152  0.211317278 -0.111009896
## 35  -1.281107e-01 -0.10811644 -0.240000785  0.157698982 -0.095072101
## 36  -1.259050e+00  0.20936104 -0.236088904  0.191889626 -0.223960015
## 37   1.183626e+00  0.43204979 -0.026397632 -0.357019064  0.723773218
## 38  -9.120897e-02 -0.15188322 -0.218484369  0.232622788  0.322305642
## 39  -4.049629e-02 -0.19632223 -0.149129611  0.192564723  0.313757748
## 40   4.344786e-01  0.61957769 -0.139182831 -0.087866172 -0.203303780
## 41  -3.659084e-01 -0.12036749 -0.138759900 -0.238940079 -0.455187473
## 42  -4.682961e-01 -0.24166690 -0.140903499 -0.131547654 -0.004032415
## 43  -8.492595e-01 -0.27421439 -0.455250840 -0.169674531 -0.524750514
## 44  -9.445421e-03 -0.51620644  0.318405432  0.172947849 -0.015425571
```

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## 45  -4.570520e-02 -0.36766995  0.178431648  0.257346972  0.337702098
## 46  -3.425697e-01 -0.36728895  0.314684145 -0.012687132  0.273586320
## 47  -3.005024e-02  0.21390738 -0.080831705 -0.460942968  0.694300902
## 48   2.537523e-01  0.07272702  0.154149466 -0.138928221  0.452096406
## 49   1.367757e-01  0.02553266  0.800611067  0.028134609 -0.443007139
## 50   1.649271e+00  0.19818749  0.495950053  0.002507588  0.380334733
## 51  -7.261161e-01 -0.26004129 -0.275022824 -0.079571123 -0.021386570
## 52   2.774260e-01 -0.17147928  0.809634445  0.203344358 -0.303346777
## 53  -3.518476e-02  0.12528037 -0.201659347 -0.074826719  0.664141217
## 54   1.200208e+00 -0.31952591  0.258205101  0.047790181 -0.305348057
## 55  -3.063667e-01  0.47278797 -0.252313440 -0.305603693  0.708438505
## 56  -3.076341e-01  0.01901415 -0.099125767 -0.127064092 -0.508337225
## 57  -2.906227e-01 -0.18263679  0.286760915  0.438036266 -0.234956946
## 58   1.289573e-01 -0.13922413 -0.040781794 -0.294415850  0.495511624
## 59  -8.488360e-01  0.44075461 -0.117370400 -0.118566712 -0.412845562
## 60  -5.496610e-01 -0.50459555 -0.059065509  0.194321088  0.167866351
## 61  -6.131322e-01 -0.27000477  0.578188851  0.349756173 -0.089001282
## 62   1.308547e+00 -0.10924451 -0.421007417  0.001302869  0.574346362
## 63   1.110503e+00 -0.03864710  0.452588687  0.372952732  0.631538330
## 64  -4.036072e-01  0.13644397  0.242419481  0.328946310 -0.512385307
## 65  -1.209842e+00  0.02163785 -0.111378082 -0.209417833 -0.397197402
## 66   2.183145e+00  0.05267813  0.264234556 -0.142958716  0.705293979
## 67  -6.383293e-01 -0.38647673 -0.011611082 -0.021736614 -0.285323967
## 68  -2.371037e+00 -0.22649560  0.066338572  0.497782788 -0.577779830
## 69   7.119921e-01 -0.09988997 -0.273355837 -0.089236169  0.326390947
## 70   1.999968e+00  0.16015523  0.263513477 -0.180499839  0.039309320
## 71  -3.021121e-01  0.06644655  0.052859874 -0.099381948  0.570349023
## 72   9.827258e-01 -0.17341196 -0.074950138  0.061116087 -0.187037960
## 73  -1.781352e+00  0.07473293  0.565277167 -0.250365161 -0.025749928
## 74   1.309950e+00 -0.00916601  0.057450146 -0.058398311  0.456762799
## 75  -2.854229e-02 -0.28170315 -0.503612398  0.043396636 -0.590574263
## 76   3.411408e-01 -0.13980438  0.590785662  0.024049368  0.187206001
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## 77   6.703922e-01 -0.43665301  0.484212136 -0.297177738  0.167191131
## 78  -7.210607e-01 -0.29088349 -0.149216987 -0.451341025 -0.147872368
## 79   1.105353e-01 -0.05167912  0.299582438  0.103646876  0.611748243
## 80  -9.196160e-01  0.18208157 -0.156216850 -0.156372033 -0.522523741
## 81  -2.221856e-01  1.45019889 -0.309984078  1.627354785  0.030778734
## 82  -1.271414e-01  0.14816320  0.006303248  0.971072087 -0.037355672
## 83   1.078551e+00 -0.01537218 -0.010525520 -0.056970166 -0.376497404
## 84   1.429146e+00  0.24941656  0.232895508 -0.141425952 -0.299246386
## 85  -2.010334e+00 -0.08270880 -0.083855697 -0.451475058 -0.607794732
## 86   3.009173e-01 -0.45755441 -0.063176034  0.522629312 -0.405638208
## 87   1.854703e-01 -0.08612598  0.007481828  0.302776501  0.077522359
## 88  -2.314138e-01 -0.15984558 -0.060578329  0.097500459 -0.358970061
## 89   7.792604e-01 -0.07124093 -0.178755923  0.143519239  0.147052589
## 90  -9.843677e-01  0.04598224  0.020219952 -0.225041595 -0.010274628
## 91   3.130852e-01  0.06737050  0.009063601 -0.311968203 -0.211249170
## 92  -2.283297e-02 -0.08008939 -0.119545822 -0.088676913 -0.004502701
## 93   5.439385e-01  0.00000000  0.234937787 -0.200122938 -0.057516242
## 94  -8.787522e-01  0.03697823  0.108761314  0.154499091 -0.084303155
## 95   6.373150e-01 -0.07844426 -0.172502811 -0.045449481  0.389324485
## 96   5.292854e-01 -0.04995969 -0.048121765 -0.155451439  0.312079010
## 97  -1.873695e+00 -0.26419501 -0.143434241  0.205595703 -1.033965198
## 98  -2.427598e-01  0.30109066 -0.235944561 -0.223212640  0.067274369
## 99   1.690728e+00 -0.31536375 -0.168550657 -0.215923679  0.027716521
## 100  9.911018e-01 -0.16662797  0.942305904 -0.159328886  0.914075065
## 101 -7.895421e-02 -0.04954480  0.222292619  0.237895158 -0.178683129
## 102  1.640676e+00 -0.33386742  0.310207753 -0.057721407  0.351116249
## 103  1.957106e+00 -0.20709119  0.095268242  0.004124561  0.632550904
## 104  3.631578e-01 -0.09696113  0.144246035 -0.059231639 -0.110203319
## 105  9.916091e-01 -0.30535287 -0.092915094  0.052210641  0.034649396
## 106  1.376659e+00  0.05771287  1.069373045 -0.251728928  0.225990939
## 107  1.294531e+00 -0.16693144  0.248797174  0.076517146  0.348787935
## 108 -7.161652e-02  0.03972242  0.264054310  0.304366298  0.075584625
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## 109 -2.090206e-01  0.04452911  0.047826458  0.217833125 -0.136590048
## 110  2.987922e-01 -0.02197920  0.034736809 -0.106888458 -0.014540414
## 111 -6.546958e-01 -0.12317645  0.088068876 -0.192453366 -0.078879555
## 112  8.234501e-01 -0.02375820 -0.275500451 -0.008803172 -0.036334318
## 113 -6.669570e-01  0.03502452 -0.281649544  0.198792650 -0.310277055
## 114  4.560005e-01  0.14011284 -0.374636564  0.021383802  0.163980465
## 115 -1.659845e+00  0.24257633 -0.129306585 -0.116700808 -0.111337554
## 116  3.804429e-01  0.08814255  0.233173691 -0.146173207  0.099047225
## 117  1.096849e+00 -0.23207484  0.407817160 -0.021245732  0.111119345
## 118 -4.638902e-01  0.09239865 -0.050606877 -0.151518219 -0.311966274
## 119  4.152983e-02 -0.41559361  0.543365803 -0.024617076 -0.356449860
## 120  5.854760e-01 -0.11155948 -0.253061293  0.240139109  0.532193831
## 121  8.795807e-01 -0.04324340 -0.177271910  0.012372797 -0.268196111
## 122  1.070070e+00  0.16709860  0.020874297 -0.033179390  0.181168660
## 123  5.679539e-01  0.06072235  0.033704384 -0.157778125  0.118346135
## 124 -3.786871e-01  0.07109291  0.117549167 -0.054141878  0.178020442
## 125  7.433789e-01 -0.15049635 -0.027822999 -0.119973352  0.277333251
## 126  7.138328e-01 -0.15743038  0.075702098 -0.019192536 -0.428436869
## 127  7.255731e-01 -0.01212178 -0.207198874  0.040877304  0.149356923
## 128  3.429360e-01 -0.22107334  0.316297721 -0.007517272  0.477935562
## 129 -6.798964e-01  0.20147105 -0.625453697 -0.048970708 -0.222173195
## 130 -1.326840e-01 -0.03174736 -0.425551524  0.435852160  0.092132008
## 131 -4.027595e-01  0.43015316  1.244649223  0.168111296  0.109663589
## 132  4.221106e-01  0.34872597 -0.009595934  0.065500472  0.259581306
## 133 -7.212689e-01  0.05101909 -0.044185435 -0.080204702 -0.053592737
## 134  4.201415e-01  0.63960691 -0.233339417  0.169436360 -0.074041276
## 135  2.447125e-05  0.19145993  0.358223831 -0.242329871 -0.373445608
## 136  6.256794e-01 -0.14389544  0.196895539  0.064371862  0.266484683
## 137  1.488655e-01 -0.38362952  0.976660456 -0.084644993 -0.292806813
## 138 -1.703067e+00 -0.22988655 -0.231951134  0.047477497 -0.539662018
## 139  1.423456e+00 -0.03319530 -0.105202911  0.004610269  0.252339176
## 140 -7.526550e-03 -0.12705464 -0.421817424  0.043795697 -0.282599676
```

```
## 141 -2.715376e-01 -0.25821276 -0.207590377 -0.189638636 -0.783178038
## 142 -6.536867e-02 -0.00769344  0.953784898 -0.061930454  0.175730534
## 143 -1.896392e+00 -0.27036546 -0.331303704 -0.276968739 -0.331030089
## 144  8.321997e-02  0.26498888  0.511385267 -0.299150927  0.204057624
## 145 -1.817571e+00  0.09534605 -0.412353940 -0.043471604 -0.410888981
## 146  1.232349e+00  0.08861297  0.070625811 -0.138375498  0.361589899
## 147  1.613225e-01 -0.36643366 -0.005270273 -0.094181459  0.563575162
## 148 -1.537102e+00  0.07525710 -0.080281958 -0.040520511 -0.664455743
## 149  3.759052e-01 -0.08607920  0.169477999  0.160067606  0.186219652
## 150 -1.526897e+00 -0.39905778  0.092515392  0.090234704 -0.606737138
## 151  1.801344e+00 -0.18406847  0.194892274  0.161570172  0.239405381
## 152  8.301248e-01 -0.10464135  0.052874398  0.334084635 -0.233094787
## 153  4.548734e-02 -0.20721818 -0.168880167  0.196019119 -0.232319762
## 154 -1.577097e+00  0.05678093  0.143937816 -0.024743621 -0.553862724
## 155  1.268906e-02 -0.21612366  0.411146494 -0.279650433 -0.394299246
## 156  3.474983e-01  0.15688727  0.212114840  0.237986602 -0.121019230
##     pp_JNK.pT183.pY185      pp_Jak2      pp_Ku80      pp_LKB1       pp_Lck
## 1          0.548009750 -0.194927903  0.051690530  0.046822101  0.374366586
## 2          1.139814446 -0.203246792  0.166933971  0.096056980  0.122563381
## 3         -0.226154396 -0.491614997 -0.410859547  0.007246645  0.489625201
## 4          0.279224790 -0.240451187 -0.095967300  0.059274377 -0.259001654
## 5          0.648012891 -0.472430512 -0.544869378  0.065317632  0.301121844
## 6         -0.421245476  0.171790758  0.423272561  0.038885940  0.242629951
## 7          0.165344656 -0.262750518 -0.758841649  0.346640181  0.894477354
## 8         -0.083015121  0.130534454 -0.146546855 -0.126555123  0.172639278
## 9         -0.323066864  0.144983783 -0.077208520 -0.046632246 -0.291280722
## 10        -0.057127234  0.069790844 -0.402619485 -0.139728794 -0.204196536
## 11        -0.112660609  0.098377892 -0.008556379 -0.075489944  0.286320197
## 12        -0.142818510  0.637014830  0.394422979  0.046404358  1.712487993
## 13         0.066128516  0.291289564  0.464090481 -0.020695967  0.077563825
## 14         0.419698361 -0.598083805 -0.872252266  0.235286265 -0.132656214
## 15         0.725746155 -0.016134956  0.431044921  0.370087493 -0.137941005
```

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## 16        0.226225603 -0.402117947  0.201793225  0.060198942 -0.157813775
## 17       -0.277771553 -0.278121923  0.283240066  0.248600102 -0.302734689
## 18       -0.269718656 -0.171434881 -0.153740789  0.086107985 -0.594153785
## 19       -0.203730000  0.059649354  0.364518308  0.055871534  0.065980433
## 20        0.269095155  0.064763211  0.031151823 -0.282671738  0.367916051
## 21       -0.354448673 -0.111584373  0.731168093  0.000000000  0.020088955
## 22       -0.350365359  0.199450120 -0.567600477 -0.228852491  0.421002270
## 23       -0.019202657 -0.303702751  0.922202279  0.053975493 -0.342177750
## 24       -0.218449478 -0.330155254 -0.539673599  0.035286176  0.260776952
## 25       -0.064175216  0.182783940  0.534723032  0.057615776  0.430604608
## 26        0.063872157  0.778748161  0.132103896 -0.255160406 -0.878389568
## 27        0.625265456 -0.123060421  0.246147590 -0.160054998 -0.169569425
## 28       -0.033131792  0.292687244  0.063025950  0.059482982  0.893691105
## 29        0.676285916 -0.486888728 -0.469461783  0.108548826  0.442936143
## 30        0.289944035 -0.080375839 -0.163473263 -0.024781715 -0.109802714
## 31        0.670542636 -0.645517242 -0.805561935 -0.344287526  0.473095789
## 32        0.309468443 -0.345148277 -0.557512874 -0.280705378  0.321090859
## 33        0.368059543 -1.134731494 -0.147395455 -0.197233339  0.835361180
## 34        0.734658604  0.042045654 -0.122878679 -0.029667869  0.734339846
## 35        0.541110680 -0.280734606  0.218738732 -0.046424783 -0.018321155
## 36        0.423382837  0.503344360 -0.738744058 -0.325593040  1.349011694
## 37       -0.440327875  0.098987365  0.258727701  0.012598168  0.137462826
## 38       -0.154087271  0.004550988  0.090135321 -0.096129113 -0.132840485
## 39       -0.259042002 -0.008521982  0.121173820 -0.095368826 -0.107989612
## 40       -0.485258433  0.639422604 -0.310095664 -0.173193851  1.162372734
## 41       -0.027914669 -0.099426784  0.788767614  0.091400442 -0.014723578
## 42        0.366702305 -0.090578276  0.510418678 -0.081705128  0.119313365
## 43       -0.259268785  0.200350155  0.412829648 -0.012345998  0.377106000
## 44        0.418777610 -0.694708726 -0.247023213  0.177244166  0.752591909
## 45        0.832928669 -1.243205510 -0.638816723 -0.500147315  0.844534104
## 46        0.107526733 -0.156528025  0.594573608 -0.050378881  0.558504552
## 47        0.612911634 -0.757424866 -0.246918541 -0.291714859  0.709702997
```

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## 48       -0.340589672 -0.563233132 -0.129693359 -0.115076738  0.010078409
## 49        0.431583245 -0.748500059 -0.577421202 -0.075056132  0.329168587
## 50       -0.091104985 -0.084356694 -0.146766068  0.144701496 -0.321006719
## 51       -0.298923571 -0.062148014  0.144823264 -0.298617972 -0.445245518
## 52        0.473421139 -0.848971325 -0.820469139  0.157864613  0.511415531
## 53       -0.064162635  0.133329336  0.268673453 -0.291369718  0.073153881
## 54       -0.225457970  0.119666695  0.160389806 -0.138213356  0.268934691
## 55       -0.636857714 -0.456666945  0.501061249 -0.226979532  0.535728268
## 56       -0.489628646 -0.012659205  0.240259993 -0.180596212  0.386151973
## 57        0.328711700 -0.462682127 -0.485273561  0.017257692  0.922446546
## 58        0.399215640 -0.325146187  0.139938181 -0.086951776  0.408842730
## 59       -0.637231378  0.285362004  0.159071784 -0.090777246  0.566753833
## 60       -0.403488333 -0.547603404 -0.094474611 -0.247133860 -0.002258990
## 61       -0.137245130 -0.500678481 -0.025686851  0.035238769 -0.321557992
## 62        0.061550350 -0.106916788  0.368575632 -0.131502630 -0.074298988
## 63        0.213618518 -0.043052744 -0.077034422 -0.312144834  0.090855138
## 64        0.125753954 -0.697369539 -1.345034575  0.548154547  0.432647870
## 65        0.210997642 -0.198452715 -0.610017128  0.155473126  1.099927675
## 66       -0.081163458 -0.270776842  0.493850720 -0.158328483 -0.093609647
## 67       -0.064468461 -0.509911313 -0.624829342  0.628811521  0.842045138
## 68       -0.027835335 -0.078643952 -0.963874087  0.431291400  0.564009545
## 69        0.960420640  0.050709166 -0.130613979  0.127934290  0.533140878
## 70       -0.278259080  0.226470693  0.273421135 -0.080866385 -0.042198622
## 71        0.125623374  0.235354389  0.039050905  0.194489135  0.323547087
## 72        0.002958559  0.089930493  0.200189272 -0.077232327  0.570944960
## 73       -0.141565911  0.168127905 -0.003981533 -0.118060334  0.170452506
## 74        0.966192896 -0.297816863  0.244387699 -0.075971058 -0.339509638
## 75        0.183043155 -0.088143541 -0.336703413 -0.531667143 -0.259865744
## 76        0.605736992  0.107722316 -0.005935419  0.139055850 -0.072569866
## 77       -0.105925250 -0.961547908  0.000000000 -0.026493798 -0.102557657
## 78        0.490990887 -0.141542322  0.097061301 -0.146709043  0.052106452
## 79       -0.000774125 -0.008132969 -0.213798739  0.194910939 -0.183226779
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## 80       -0.133601349 -0.578621989 -0.625142171  0.071473560 -0.009688624
## 81       -0.290246175 -0.013267316 -0.899226602 -1.046891190 -0.128488294
## 82       -0.808401202 -0.595431856 -1.021252747 -0.197461961 -0.863156540
## 83        0.564787666 -0.165857980 -0.261147686  0.314270877 -0.162095494
## 84        0.033973930  0.113796664 -0.204107512  0.081104140 -0.058186435
## 85        0.500594048 -0.101406584  0.151239925 -0.144722773 -0.581382497
## 86        0.049685732 -0.428042876 -0.836894804 -0.060187322 -0.048794574
## 87       -0.293796232 -1.055498073 -1.806400824  0.132259894  0.219553899
## 88        0.074731391  0.132768405 -0.151926466 -0.190545898 -0.023901034
## 89        1.023521587 -0.080825009 -0.400899485 -0.133403757 -0.355624736
## 90       -0.278823419 -0.035853014 -0.650377730 -0.105837761 -0.870176931
## 91       -0.179102417 -0.016156336  0.086942661 -0.096595680 -0.010682447
## 92       -0.228711645 -0.329007361 -0.268111849  0.001821851  0.390160843
## 93        0.001603920 -0.548685626 -0.188356095 -0.138813161  0.177451658
## 94        0.161422633  0.090528152 -1.843933374  0.048038184  0.098682705
## 95       -0.147780894 -0.199429899 -0.346953210  0.047400598  0.571617282
## 96        1.172832470 -0.006544294 -0.387574093 -0.125315449  0.194285759
## 97       -0.221780519 -0.192947472 -0.542224176 -0.176490408  0.117350715
## 98        0.193608488  0.022024566 -0.222102505 -0.345411028  0.277263586
## 99       -0.288741741  0.020668294 -0.187658047 -0.100800810 -0.435549463
## 100       0.411628396  0.139699318  0.202429600  0.066328591 -0.344478652
## 101      -0.256903420 -0.010006908 -0.285785614 -0.338779297  0.021630002
## 102      -0.456214044  0.081777725 -0.007461119 -0.111563454 -0.398369453
## 103       1.434043729 -0.228545947  0.248809761  0.144419921 -0.749883659
## 104      -0.058514452 -0.929741719 -0.221104859  0.232400433 -0.297852418
## 105       0.444490892 -0.199394980 -0.375397406 -0.269203303 -0.882076190
## 106      -0.019002178 -0.052836111 -0.135543792 -0.185471667 -0.517732183
## 107      -0.111051074  0.187683729  0.353811875  0.085494844 -0.404637762
## 108       0.111096762  0.350443097 -0.332442999 -0.177697148  0.286617367
## 109       0.056345485  0.114008630 -0.491455977 -0.311902584  0.366114752
## 110      -0.048979986 -0.051772352 -0.010714447 -0.062351974 -0.665671819
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## 112        0.189720436  0.182732581 -0.452571852 -0.140474089 -0.012597398
## 113       -0.128164722 -0.001376764 -0.633719421 -0.173446063  0.714605676
## 114       -0.226300430  0.101744641 -0.147792462 -0.245198548 -0.347482528
## 115        0.042997605 -0.029478133 -0.036719489  0.005366352  0.638082776
## 116        0.310173069 -0.195223775 -0.481367325 -0.241497210 -0.152820338
## 117        0.205699400 -0.376507763 -0.112337713 -0.075315820 -0.281410052
## 118       -0.327260807  0.442468627  0.313404364 -0.046672442  0.773234834
## 119        0.746009346 -0.058229745 -1.061346670 -0.080897684  0.569191591
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## 121       -0.237484800 -0.166271899 -0.153695377 -0.088078783 -0.199486509
## 122        0.705936567 -0.862995991 -0.452108510 -0.092884899 -0.565596015
## 123        0.017624104  0.264272117  0.497135936 -0.221212940 -0.864861753
## 124        0.105676407  0.136580621  0.103101082 -0.121510098  0.088631009
## 125       -0.093648137 -0.085011994  0.307093143 -0.049754298 -0.422602207
## 126        0.030613877 -0.110150086 -0.155898925  0.198989960  0.488417988
## 127       -0.240107771  0.049953883  0.363462167 -0.213192383 -0.018703798
## 128        0.283929649 -0.077459512  0.246639119  0.020519405 -0.270456437
## 129       -0.440634110 -0.058171545 -0.095931409 -0.373757454 -0.093015073
## 130        0.408312453  0.239316007  0.271409002 -0.228987261  0.389386355
## 131        0.142287633  0.204180960  0.125449909 -0.144107877  0.302439519
## 132        0.066023613 -0.038018298 -0.084779136  0.095857300 -0.102118051
## 133        0.119141824  0.165019868 -0.107635308 -0.099529190  1.041048997
## 134       -0.019326783  0.342107846 -0.045615002  0.098214400  0.220881097
## 135       -0.248443201 -0.192647166 -0.218525272  0.154167143 -0.368695372
## 136       -0.322740584 -0.151847852 -0.505281996  0.001852537  0.550646776
## 137       -0.209885920  0.084601459  0.252763194  0.087889838 -0.194020177
## 138       -0.188792383 -0.060978703 -0.041150554 -0.174853365 -0.239508013
## 139       -0.242074304 -0.019937502 -0.269625485 -0.107597760 -0.146984480
## 140       -0.417879783  0.109126695 -0.078740055 -0.049672168  0.255340320
## 141       -0.299875647 -0.070907950  0.674857655 -0.074364314  0.804183770
## 142       -0.160830234  0.004601174 -0.173689628 -0.269959591 -0.072776188
## 143       -0.292088503  0.065360960 -0.283578658 -0.178933648 -0.486597364
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## 144       -0.158200887 -0.045767789 -0.166800098 -0.014566395 -0.025478125
## 145       -0.109617285 -0.007791104  0.003591257 -0.080083860  0.288116539
## 146       -0.621655732  0.143115954  0.405670123 -0.040958191  0.026877871
## 147       -0.190592531  0.000000000  0.226801790  0.037189681  0.150349593
## 148       -0.206120573  0.078408056 -0.076684041 -0.010991795 -0.297592506
## 149        0.378406067 -0.176030144 -0.361307201  0.136459734 -0.373299223
## 150       -0.129242279 -0.214173639  0.369345788 -0.036633590 -0.069249770
## 151        0.051102436 -0.624395779 -0.408309201  0.048485418 -0.089295115
## 152       -0.266081405 -0.131384143  0.130376155 -0.123339586 -0.253997231
## 153        0.194830617 -0.265903733  0.130787031 -0.010519202 -0.475093767
## 154        0.092547265 -0.456488777 -0.205855434  0.144138273 -0.419094996
## 155        0.215410805 -0.071181014 -0.141008351 -0.334243296 -0.343215628
## 156       -0.503756128 -0.058352214 -0.193046877 -0.196063526  0.350147771
##     pp_MAPK.pT202.Y204      pp_MEK1 pp_MEK1.pS217.S221      pp_MIG.6
## 1          0.253328405 -0.167328738      -0.0620358540 -0.0924846350
## 2          1.096263663  0.335460806       0.2237888330 -0.0612733040
## 3         -0.465990211  0.408592356      -0.0439939385  0.1071789585
## 4          0.503550284  0.372550141       0.0003669698 -0.1022445333
## 5          1.663434967  0.301977359       1.0556545880  0.0464075450
## 6         -1.494315258  0.049634658      -0.1316010245 -0.2544778105
## 7         -0.211954162 -0.008557181       0.1075475865 -0.0613571565
## 8         -0.148635373 -0.320948604      -0.0303082700 -0.0585876320
## 9         -0.383037311  0.003223693      -0.1565389580  0.4879672310
## 10         0.234948167 -0.187395605       0.1765036262 -0.2134548628
## 11        -0.480699849 -0.444858243      -0.0842282985 -0.1121201925
## 12        -0.939119198  0.423819035       0.0547183430 -0.0417799240
## 13         1.191859627 -0.145711020       0.3065636355  0.0531686135
## 14         1.821543695  0.743433034      -0.1046062085  0.0125126145
## 15        -0.616566712 -0.104797071      -0.2213519335 -0.0698644935
## 16         1.861604969  0.166948451       0.6940131555 -0.1209532765
## 17        -0.266517911 -0.514957917       0.2252471990  0.4428290650
## 18        -0.556505312  0.247579722      -0.0444985440  0.2702600710
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## 19        -0.529790306  0.274631790      -0.1981991450  0.0776736740
## 20        -0.702084820 -0.017025473      -0.1229509355 -0.0475501305
## 21         0.104863014 -0.474364991       0.1743758320  0.0020248640
## 22        -1.836834616 -1.071568430      -0.5577443070  0.3601693660
## 23        -0.996262382  0.332593515      -0.0066122725  0.2892757055
## 24        -0.340318044  0.546250972       0.2067435785  0.4249977125
## 25         0.018557217  0.145199413       0.1755109410 -0.1632660560
## 26        -1.123736961 -0.595192138      -0.0830334285 -0.0377536445
## 27         2.138058960  0.047552834       0.3699233195 -0.1002763225
## 28        -1.822635962 -0.054593629      -0.1229337925  0.0019809565
## 29         0.679758684  0.019330873      -0.4816806845 -0.0430853105
## 30        -0.316109597 -0.180375592      -0.2916485250  0.0546353580
## 31         1.305930328  0.516432262      -0.0213380215  0.1778169205
## 32         1.464777911  0.446640275       0.0578204115  0.0987417095
## 33         0.554798972  0.593922248      -0.1126549660  0.1247716090
## 34         0.437081199  0.217615929      -0.2764862110  0.3583288970
## 35         0.267190478 -0.309827272      -0.0228389370 -0.1158113410
## 36         0.275429867  0.434712793      -0.1129626570  0.0143006850
## 37        -0.946218243  1.111469436       0.0262620995  0.1773140465
## 38        -0.564845082  0.320011916      -0.2474230750 -0.0755404540
## 39        -0.710363034  0.267568426      -0.1517479020 -0.0999175100
## 40        -0.587784233  0.447425815       0.1095922165  0.1169241045
## 41         1.109303647 -0.234803632       0.6496794390 -0.1785899000
## 42         0.915384590  0.130802970       0.2934818555  0.0707398515
## 43        -0.005464094 -0.076186771       0.1673367630  0.1530287520
## 44        -1.141908544  0.309684827      -0.4203098615  0.0886445035
## 45         1.047314870  0.631221948       0.2215897440  0.4036902760
## 46        -0.776354056 -0.069967191      -0.1397784015 -0.0097093335
## 47         0.652176058  0.548917802       0.2818221650  0.2292225320
## 48        -0.267041836  0.312277346      -0.2650292410  0.0935620120
## 49         0.551516591 -0.253318121      -0.2746652920  0.0411784630
## 50         1.765875851  0.031769926       0.5217389425  0.0171817095
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## 51         0.926094433  0.312540776       0.4517147135  0.0634893505
## 52         0.265322800  0.077101530      -0.2498056110  0.1259929250
## 53        -1.168844638  0.001228067      -0.0357198150  0.0271935940
## 54        -0.875814899  0.248257677       0.2348600520 -0.0284265800
## 55        -0.185846474  0.603056232      -0.0129007060  0.3042615250
## 56         0.121267865  0.242962399       0.2057843785  0.2209176365
## 57        -0.701301589  0.110168929      -0.1786522765  0.2338916865
## 58        -0.436809783  0.331800831      -0.0911759425  0.3654624375
## 59        -0.185095157 -0.016631018      -0.0972618240  0.2389522550
## 60        -2.049945082  0.751785332      -0.3494474155  0.1007050465
## 61        -0.023827016  0.178412673       0.1263798530 -0.1084695300
## 62        -0.277567310  0.099374757      -0.1579477990 -0.0391583010
## 63        -0.170177848  0.458180197      -0.4736607575  0.1639733075
## 64         0.017743506  0.240316920       0.5419967605 -0.1420615915
## 65         0.338384745  0.369219465       0.1827334912 -0.0595942828
## 66        -0.658350901  0.141089595      -0.3112875648 -0.1189442147
## 67         0.084045720  0.072857704      -0.0166364695 -0.2360954565
## 68         0.838370992  0.084970983       1.1918065527  0.0028514148
## 69        -0.442000505 -0.184227886       0.0865384450  0.0188737010
## 70        -0.063335535 -0.322447353       0.0300067138 -0.2168488132
## 71         0.258632732  0.215282517      -0.6174713683  0.0298051068
## 72        -0.650266030  0.078475978      -0.3369564505  0.0673114285
## 73        -0.443781311  0.320354041      -0.2621131043  0.0578820657
## 74         1.231059321  0.209351355       0.0061260370  0.3676573840
## 75         1.262625459  0.445672268       0.4431464675  0.2599541895
## 76        -0.280282700  0.234276007       0.1704368660  0.0295827880
## 77         0.408570675  1.055501870      -0.0201623805  0.1297163705
## 78         1.372439397  0.400128629       0.1260747200  0.1684347460
## 79         0.893417317  0.130968970       0.1069000615 -0.0349004995
## 80        -0.371906344  0.145605227      -0.2269186310  0.7659364710
## 81         0.476116002  0.031007704      -0.7663786260  0.0000000000
## 82         0.064019333  1.102074055      -0.0783396470 -0.2539721540
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## 83         0.199511792 -0.221588908      -0.1527118195  0.4492786505
## 84        -0.462044887  0.001339073      -0.0379185082 -0.0601883913
## 85         0.423597512  0.066470201       0.1076400043 -0.2055888888
## 86         0.028007484  0.244690446      -0.4931748315  0.5501442255
## 87         1.476555338  0.593811177       0.5174674633 -0.3413020628
## 88         0.271013017 -0.021343154       0.0760461080  0.0726157680
## 89         1.135182216 -0.390846755       0.4127425390  0.1370349230
## 90        -0.241690091 -0.141550651      -0.1983188458  0.0308335113
## 91         0.817110199  0.730900966       0.4181424925 -0.1880310285
## 92         1.906032297  0.318203598       0.5481595255 -0.0640015825
## 93         0.862326204  0.731972985      -0.0959607225 -0.1909812045
## 94         1.450204379  0.130746183       0.9974344228  0.0288240437
## 95         0.785279000  0.195196938       0.1938151085 -0.1554867095
## 96         1.493039313  0.223807816       0.2929561040 -0.1626959730
## 97         0.456844634  0.149992645       0.4009185838 -0.1792163432
## 98         1.457109351  0.579761352       0.0106807645  0.0030026975
## 99         0.963765509  0.242602260       0.3806791410 -0.2325233390
## 100        1.023498689  0.420491726       0.6330998330  0.0069739880
## 101       -0.449125311 -0.296339041      -0.3138524073 -0.2144119312
## 102        0.349373347  0.120922515       0.1856292677 -0.0594127782
## 103        1.119690827 -0.201981793       0.4316865855  0.1746545955
## 104        1.604231236  0.466839611       0.4860983290  0.1598493110
## 105        0.646722827  0.345963121      -0.0708897235  0.1552932505
## 106        0.807802659  0.088109507       0.2327115587 -0.0148304003
## 107        1.811503966  0.031249661       0.4367824200 -0.1276802510
## 108        0.543994418 -0.028284328      -0.1541908605 -0.0659933785
## 109        1.157444062  0.446479909       0.0611381270  0.2573983390
## 110        0.733367382  0.396880740       0.4183613680 -0.2399394270
## 111        1.378167411  0.107685678       0.4706977835  0.0131787075
## 112        1.639760124 -0.086404000       0.1681536555 -0.0956212265
## 113        1.103141043  0.356120743       0.0731306085 -0.0850533295
## 114        1.819628157  0.074263494       0.1594373115 -0.1289459765
```

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## 115        0.795841131  0.089018418       0.4549593435  0.0044867365
## 116        1.491377617  0.286017519       0.5675931472 -0.2558359788
## 117        1.133281112  0.093647821       0.1540755457  0.1180778778
## 118        0.027055710  1.322150306       0.4371431660 -0.1550529370
## 119        1.549175661 -0.006272130      -0.1874678570  0.0867327350
## 120        0.473384439  0.063763039       0.2043043245 -0.0088948305
## 121        1.188699664  0.198654873       0.5183408238 -0.0163008932
## 122        1.530634921  0.182487469       0.3116460575 -0.2884307385
## 123        0.467168372 -0.361609808       0.1360206015 -0.1500023535
## 124        0.322424978  0.406312505      -0.0774201180  0.0797996180
## 125        0.624061705  0.189053552       0.3918174430 -0.1215594220
## 126        0.540562617  0.064237113      -0.1048691105 -0.0569715325
## 127       -0.711022353  0.552529428      -0.1299261100 -0.1193483960
## 128        0.939399056  0.457730302       0.5144033625  0.0333087975
## 129        1.472816255 -0.280061737       0.1367339025 -0.0586526835
## 130        0.801791690  0.265282705       0.2284405895 -0.1846692405
## 131       -0.344373060  0.770002012       0.1280442675  0.1218688505
## 132       -0.973909720  0.213049381       0.1054533720 -0.0650181820
## 133        1.101698628  0.674832268       0.4237195145 -0.1497606775
## 134        0.582156116  0.481557182       0.2876083173 -0.3047356728
## 135        0.437392403 -0.011686387       0.2426063087  0.1525604407
## 136        0.185833237  0.266132356       0.4756255477 -0.1079874462
## 137       -1.248104245 -0.411115268      -0.5067989038  0.0776875443
## 138       -0.482694831 -0.821231325      -0.1432296045 -0.0008990645
## 139       -0.155314012 -0.137859315      -0.1025664555 -0.1168187235
## 140       -1.367344117 -0.242104193      -0.4562799028  0.0743845092
## 141       -1.232953872  0.001247581      -0.4723313090 -0.0410942610
## 142        0.746019905  0.006018272       0.2783116602 -0.0899939837
## 143        0.825142457 -0.288879353       0.4244823798 -0.1452444872
## 144        0.721221014  0.223836643       0.3793499210 -0.1170323310
## 145        0.727939819  0.069714382       0.3508648515  0.1622205555
## 146       -2.128417743 -0.321972315      -0.2548759460  0.2073146070
```

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## 147        0.520698825 -0.101644255       0.1313164415 -0.1461739915
## 148       -1.141691960 -0.142269984      -0.3492031960  0.6164890450
## 149        0.018723113 -0.098228133       0.0641481295  0.0341141425
## 150       -1.012009467 -0.488663358      -0.4295303792  0.3426812428
## 151        0.596846469  0.008116064       0.2972192515 -0.2229584575
## 152       -0.400027629 -0.877015833      -0.1864476615 -0.1874520755
## 153        0.707964327 -0.354581522       0.2154778190 -0.0870753870
## 154        0.935021922  0.120359039       0.1836873428  0.1611922018
## 155        1.025781270 -0.082355844       0.3050248608 -0.0588177633
## 156        0.626024145  0.340979309      -0.2428648445  0.1319735585
##         pp_MSH2    pp_MYH11 pp_Myosin.IIa.pS1943 pp_N.Cadherin     pp_N.Ras
## 1    0.14814202  0.90676409          0.066699246  -0.150459562 -0.104715055
## 2   -0.38021388  0.19732799         -0.333478932   0.097271214 -0.015812458
## 3    0.10331223  2.39676028         -0.101550794  -0.171183429  0.063927350
## 4    0.16248021  0.51812130          0.112627360   0.383543653 -0.015334011
## 5   -0.35684869 -0.12112145          0.213559959  -0.050781723  0.030089005
## 6    1.21326500  0.52191042         -0.691492018  -0.250821181  0.259363054
## 7   -0.15259215  2.00432043         -0.194076452   0.911308681  0.455045407
## 8    1.20741594 -0.67090123          0.246286001  -0.237702771  0.184460641
## 9    1.23103540 -0.08588978          0.194538568   0.034600777  0.268059111
## 10   0.13323483 -1.21922987          0.376328067  -0.387714442  0.195792596
## 11   0.29673169 -0.84030418         -0.158558529  -0.474266588  0.120441434
## 12   0.04976858  0.82082289         -0.042830986   0.092746652 -0.094074459
## 13   0.44666843 -1.60622230         -0.021704193  -0.175282718 -0.247288836
## 14  -0.53036382 -0.82294091          0.135133955   0.075122667  0.077071042
## 15   0.05975767  1.30473719          0.224799566  -0.207051866 -0.027979309
## 16  -0.26931376 -2.58671510         -0.089848901  -0.428405101 -0.244650989
## 17   0.18588161 -2.08639433         -1.533838771   0.047902691  0.107163529
## 18  -0.33344905  3.24492714         -0.702690572  -0.187555746 -0.082331849
## 19   0.16290313  1.65715488         -0.593150015  -0.045245746 -0.044002426
## 20   0.07794073 -1.45694608          0.123682265  -0.219693069  0.109749175
## 21   0.29722391  0.77884473          0.478471090  -0.170738829 -0.170031503
```

```
## 22  -0.02814267 -1.77139561          0.289255135   0.127235572  0.136320954
## 23   0.32383984 -0.31118795         -0.286271140   0.122121196 -0.035950211
## 24   0.14841560 -0.68047600          0.286648996   0.145957360  0.252328522
## 25   0.06835247 -0.13340722         -0.169113891   0.051036225 -0.125776280
## 26   0.11425658 -0.55944019         -0.798635769  -0.184890431 -0.002812322
## 27  -0.15370950  3.37349851          0.564342187  -0.095628347 -0.156995763
## 28  -0.19092881 -2.40732820         -0.030997563   0.023406014 -0.057814208
## 29  -0.70651677  3.95324461         -0.198714002   0.624258284  0.559129790
## 30  -0.55451963  1.68458921          0.286113338   0.223925115  0.185447203
## 31  -0.53950017  2.06242457         -0.275137617   0.460795348  0.128174271
## 32  -0.61495230  1.27471962         -0.226209441   0.071593618 -0.192070029
## 33  -0.59734691  2.69055556         -1.039145748   0.357314620 -0.112088866
## 34  -0.56970267  2.29340179         -0.407721206   0.202216726  0.121757321
## 35  -0.60509302  3.33996747          0.150477068  -0.050654701  0.076645678
## 36  -0.06411106 -0.56075654          0.018925859   0.153572603  0.177683433
## 37  -0.01301941 -1.53944982         -0.340870809  -0.132303224 -0.017741449
## 38  -0.05673120 -0.57735275          0.502705951  -0.094453697 -0.006429313
## 39  -0.04172027 -0.71331252          0.422535955  -0.113862794  0.074532872
## 40   0.37215868 -0.61880367         -0.287702023   0.044983531  0.025627929
## 41   0.63164650 -0.31737100          0.414259618  -0.335531510 -0.263134203
## 42  -0.02334664 -1.54762757          1.021309438  -0.165894924 -0.041842802
## 43   0.69149368 -0.19294697          0.120310528  -0.259058405 -0.023275966
## 44  -0.69364041  4.51554318         -0.800706303   0.620603398  0.619256865
## 45  -0.61499157  1.18805074         -0.170019391   0.598878992  0.391518780
## 46   0.06364623  2.38144887          0.276452976  -0.128293981  0.029779830
## 47  -0.16684373  0.74569435         -0.659722082   0.081267959 -0.032234190
## 48  -0.11500662  2.48275583         -0.356092947   0.018251820  0.039995243
## 49  -0.85912126  1.04761788         -0.647555240   1.052102111  0.440577489
## 50   0.12433165 -1.41471777         -0.468973799  -0.295223638 -0.226923973
## 51   0.74061291  0.28814808          0.428429949  -0.103404183 -0.203785026
## 52  -0.54237064  4.67011982         -0.898683221   1.121234784  0.682872855
## 53  -0.20353309 -1.77715290          0.269989093  -0.007530196  0.030029598
```

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## 54  -0.09668195 -1.15933530        -0.270708815  -0.176333941 -0.019734624
## 55  -0.33414324  2.16696676        -0.811266737   0.042883521 -0.218264465
## 56   0.40472066  0.44650246         0.453592393  -0.059917950  0.045506693
## 57  -0.60237886  3.57281236        -1.012595897   0.700956305  0.678304878
## 58  -0.56188720  4.16858788        -0.269537920   0.049509221 -0.004407734
## 59   0.35880643 -0.67444203        -0.239938700   0.117752197  0.178910210
## 60  -0.14047575  0.49211456        -0.800082246   0.188398123  0.248400425
## 61   0.21935804  0.98654593        -0.101791114  -0.205856538  0.059517623
## 62   0.20418382  1.07385133        -0.045625728   0.472045269 -0.259350133
## 63   0.30656755  0.21537178         0.149737827   0.015080258 -0.159252026
## 64  -0.53296621  1.92476721        -0.618911057   0.792072956  0.686066040
## 65  -0.19121690  5.31855450        -0.103524086   0.535822761  0.243691001
## 66  -0.24798150  0.54632973        -0.118048919   0.308036947 -0.621760975
## 67  -0.46624045  2.38557086        -0.233984544   0.107056405  0.127136871
## 68  -0.44455068  2.21643081        -0.932213175   0.531363044  1.114250651
## 69   0.31091449  0.32716765        -0.321329701   0.066157101 -0.156953131
## 70   0.47674847  0.14517596        -0.240567689  -0.023028961 -0.282671937
## 71   0.01913346 -0.78569509        -0.694008626   0.356769917 -0.037459167
## 72   0.21399292  2.53398141        -0.081743624  -0.057646235  0.062483036
## 73   0.47762091  0.55938005         0.471967895  -0.190417128 -0.312676803
## 74  -0.52728630 -0.70238504         0.004459698  -0.052976468  0.051835336
## 75   0.67467839  1.13615029         0.070067721  -0.287538507  0.012809485
## 76   0.52100570 -1.12983849        -0.127356600  -0.343009888 -0.092512755
## 77  -0.40214691  2.28308464        -0.893970824   0.421544368  0.405952588
## 78  -0.18032840 -0.17079428         0.385546860  -0.143959153 -0.186461041
## 79  -0.09404397  1.85888948        -0.452203193  -0.177433347 -0.110415006
## 80  -0.02385862  1.27900122         0.130858701   0.390056227 -0.018058770
## 81   1.80038469 -0.79587496         0.298126174  -0.860395614 -0.208526811
## 82   1.14410199  0.30598066        -0.358156524   0.151588130  0.604527871
## 83   0.03866563  2.82993735        -0.089602304  -0.003673077  0.043835808
## 84  -0.27155840  1.76989944        -0.038086406   0.102141185 -0.121357456
## 85   0.32677955  3.82043750         0.887207877  -0.109203698 -0.256854595
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## 86  -0.50786428  3.04245661        -0.058717816   0.322619734  0.404337249
## 87  -0.57576659  1.23748899        -0.518477146   0.040180564  0.289232738
## 88   0.15124757 -0.37699998        -0.221428737   0.165476934 -0.038745893
## 89  -0.33297533  1.74459855        -0.423593758  -0.090343103  0.022364024
## 90   0.19031258 -1.34138258        -0.047060739  -0.469921311 -0.001602845
## 91  -0.09587826 -2.06225054         0.741741746  -0.056804124 -0.035005192
## 92  -0.64801444  1.29265083         0.470350784   0.016385702  0.027002329
## 93  -0.30056823  1.76190317        -0.304733274   0.235247840 -0.001185824
## 94  -0.60623533  0.67489826        -0.400206426   0.586908802  0.514005002
## 95  -0.21187506  1.79719026         0.080827174  -0.238073148  0.031745552
## 96  -0.45905746  3.17681536         0.544038690   0.004004190 -0.289323771
## 97  -0.12095067 -0.99695818         0.206603249  -0.440342129 -0.064802800
## 98  -0.08346852  2.87853439         0.005664304  -0.196969352  0.220261780
## 99   0.22070027  1.96106054         0.334405392  -0.378450709 -0.249442559
## 100  0.24990154 -1.78548707        -0.249794658  -0.376009328 -0.290871793
## 101  0.62255803  0.26631035        -0.106128640  -0.455118605  0.136621151
## 102  0.34547153 -1.32986224         0.127672211  -0.392327011 -0.061382568
## 103 -0.20275519 -0.85204863         0.096281890  -0.466134840 -0.262751438
## 104 -0.67090314  0.19006186         0.194640580   0.134815660  0.105910180
## 105 -0.15057227  0.75082810        -0.403431675  -0.196154772 -0.072255617
## 106  0.27428349  0.19400513         0.268843788  -0.347068207 -0.043673648
## 107 -0.27710205 -2.08300246         0.406697564  -0.330086981 -0.235023990
## 108 -0.17605681 -1.34231979         0.175666959  -0.243487019  0.174717696
## 109 -0.56995478  3.42917234        -0.327440102   0.394600109  0.045947352
## 110  0.16911498 -2.52809789         0.376353090  -0.003934738 -0.104580189
## 111  0.53720253 -1.80590645         0.243788794  -0.111750741 -0.133681890
## 112 -0.08664784  3.49055165         0.186613344   0.023775350  0.033860643
## 113  0.15994656 -1.37637783         0.827686738   0.090071348  0.020523084
## 114 -0.47228775  0.67716637         0.365368261  -0.240797965  0.047146597
## 115 -0.11506743  0.08512738         0.013880424   0.503798492  0.028962933
## 116 -0.10487506  1.77596131         0.060630371  -0.448925802 -0.057754664
## 117  0.06608946 -0.53378374         0.027876209  -0.098575292  0.031116806
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## 118  0.15139401 -1.65185789          0.205547618   0.030372558 -0.222808692
## 119 -0.54635452  1.75040886         -0.266493559   1.018067139  0.213012690
## 120  0.17187368 -1.36079390          0.060630824  -0.284857635  0.080377107
## 121 -0.19720450  0.07285856          0.352771527  -0.286349335  0.074373162
## 122 -0.70585323  3.71341481         -0.375743204  -0.036051055 -0.057227411
## 123  0.12274454 -1.81466289         -0.415853827  -0.288649543 -0.150262822
## 124 -0.13319684 -0.02746484         -0.450365790   0.279244951  0.060456531
## 125 -0.14460580 -2.03291410          0.354366426  -0.209794475 -0.171498243
## 126 -0.47297692  2.02605239         -0.253750349   0.317969161  0.014579722
## 127  0.03430201 -0.74104251         -0.122536105  -0.106277275 -0.115287543
## 128 -0.16868320 -2.06676703          0.511661686  -0.256430416 -0.203515051
## 129  0.18672231 -1.91367184         -0.519872292  -0.255349200 -0.074317521
## 130 -0.20205043 -0.68620905          0.404914976  -0.132880771  0.202814950
## 131  0.08173391 -2.55017158          0.400768680  -0.243153210 -0.054341348
## 132 -0.09526429  3.34079507         -1.763433698   0.068859432 -0.028966814
## 133 -0.38363181 -2.02857946          0.137692002   0.112826090 -0.105401792
## 134 -0.21422584  1.65779803          0.623198263  -0.048850428  0.326120586
## 135 -0.21833377  2.97745043          0.357984993   0.250171270 -0.178359078
## 136 -0.04824827  2.61351008         -0.026959556  -0.269050841  0.099949256
## 137  0.24628009  0.23113172         -0.013721615  -0.293227518  0.155729357
## 138  0.85853162  0.26523562          0.113348282  -0.414844995  0.102974120
## 139  0.35940214 -1.45809723          0.118112838   0.469188114  0.093231682
## 140  0.37849308  0.58998304          0.309227213  -0.237537084  0.097178895
## 141  0.14885131 -1.36166298          0.661919213  -0.057102774  0.089300209
## 142  0.16213572 -1.32023648          0.455925536  -0.277677354  0.038114014
## 143  0.58035533 -0.97105354          0.306753610  -0.250423172  0.062141350
## 144  0.20725980 -0.94182074          0.302843245  -0.297526095 -0.065013397
## 145  0.49878191 -1.12861892          0.262980163  -0.269792178  0.010182719
## 146  0.40092349 -1.07500488          0.357742273  -0.181059922  0.127015574
## 147  0.57941961 -1.44336505         -0.083519492   0.275884735 -0.070189643
## 148  0.69214050 -1.38665672          0.172310790   0.199276178  0.206279676
## 149  0.05110306 -0.47285375         -0.090108246   0.122170505  0.279496136
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## 150 -0.23082725 -0.35874666          0.122662195  -0.116081663  0.253906722
## 151 -0.16674817  2.62424372         -0.340292541   0.016917990  0.204660779
## 152  0.12300717 -0.39378256          0.149627972  -0.218878046  0.176786599
## 153 -0.26017299 -0.68686090          0.437645017  -0.313729017  0.041076705
## 154  0.17950880  0.01906826          0.355982526   0.455450244  0.224773814
## 155  0.75021530  0.84443409          0.105272393  -0.203297644  0.004903288
## 156 -0.27896861  1.65758969          0.213506190   0.292762929  0.197540156
##     pp_NDRG1.pT346 pp_NF.kB.p65.pS536       pp_NF2     pp_Notch1 pp_P.Cadherin
## 1      0.065492119        0.344083343 -0.151701398 -0.2019376580  -0.156142042
## 2      0.093086234        0.371319004  0.118286065 -0.0542531685  -0.021193046
## 3     -0.134895621        0.412485237 -0.514781820  0.1116407705   0.068744239
## 4     -0.182324601        0.128321773  0.138725423 -0.3006760223  -0.167802915
## 5      1.040896471        0.742852986 -0.266841605 -0.0080470960  -0.053983832
## 6      1.843754646        0.448980594  0.747301007  0.1706158400   0.170209379
## 7      0.437337360       -0.594626518 -0.413193003  0.4577277665   0.318825258
## 8      0.862651775        0.945579432 -0.386379056  0.4029832240   0.003278686
## 9     -0.010048473       -0.310188060  0.077420638  0.1437371870  -0.007610825
## 10    -0.508928760        0.614719842 -0.267095421 -0.1679242938  -0.086113798
## 11     0.241164444        0.332901980 -0.140816940  0.0117906665  -0.098569170
## 12     0.023319776        0.163109525 -0.010702084 -0.0628501795  -0.184092556
## 13    -0.589721140        0.003931612  0.037778979  0.5435200250  -0.250479722
## 14     0.470787106       -0.779900870 -0.147001878  0.0290426840   0.093191907
## 15    -0.158456846        0.011604299  0.458595627 -0.0192952120  -0.101645842
## 16    -0.579623697        0.956108536 -0.164957433 -0.1340132040   0.038762887
## 17     1.209130065       -0.705407095  0.784145495 -0.0452106325  -0.552429738
## 18     0.913969223       -0.217188034 -0.037050922 -0.1352714875  -0.482420146
## 19    -0.060645007       -0.161149715  0.109486114  0.0584228725  -0.118570430
## 20    -0.361344084        0.621006685 -0.271040946 -0.0745767950   0.031821614
## 21    -0.083816315        0.345620610  0.087084988  0.0065212665   0.041910447
## 22     0.422487931       -1.103575799  0.145753720  0.1151245405   1.501118090
## 23     0.012387743        0.063281314  0.116412693 -0.2325749490   0.186356385
## 24    -0.145585667        0.492501281 -0.146377606  0.2586475715   0.192786705
```

```
## 25    -0.261908874       -0.419073058  0.196846072  0.0933374875  -0.131274407
## 26     4.576286446       -0.027777821  0.028293293 -0.3671960420  -0.563464485
## 27     0.198010362        0.247532777  0.135845919 -0.4127935200  -0.302172098
## 28    -0.815564943        0.377227690  0.058555807  0.0000000000  -0.017027043
## 29     1.323782723       -0.390481596 -0.388617414  0.3299534590  -0.322659983
## 30     0.558722247       -0.535438173 -0.139883679 -0.0219044625  -0.285281049
## 31     1.978311541       -0.189520075 -0.211088655  0.0271919970  -0.106955088
## 32     0.119145965        0.570859072 -0.187010748  0.0768202370   0.003215565
## 33     1.225205149        0.106203227 -0.222196808  0.0170658185   0.268551671
## 34     1.119465675       -0.594336183 -0.135983348  0.0868560015  -0.409472049
## 35     0.005399144       -0.174255753 -0.115323672 -0.0866634385   0.233028049
## 36     0.169842779       -0.255804451 -0.210871838  0.1427062305   0.358572793
## 37    -1.213212243        0.005513157  0.015479954 -0.0005090010  -0.348147599
## 38    -0.460877097        0.186669981 -0.446318202 -0.0217265305  -0.077742831
## 39    -0.481864151        0.247339722 -0.395649253 -0.0085878475   0.039412807
## 40    -0.379353465        0.277726738 -0.178288214  0.5578611900   0.049363277
## 41     2.149144964        0.321612063  0.275086155  0.3358978215   0.546371651
## 42     0.786979436        1.015320510  0.440265821 -0.0580178350  -0.041984716
## 43     1.610426337        0.253112041  0.034950641  0.0053443725   0.478617699
## 44     0.443853023       -0.561128220 -0.151526812  0.3395411650   0.172785714
## 45     1.144502067       -0.429457006 -0.117867607  0.1058012315   0.263373904
## 46    -0.478030789        0.431174590  0.344732471  0.0857710350  -0.157780619
## 47     0.870166652        0.059503113 -0.047528883 -0.2207541315   0.126138333
## 48     0.744603060        0.144277790 -0.234657767  0.4557995545   0.089311934
## 49     0.268619103       -0.504605696 -0.488360699  0.6000249925  -0.406575046
## 50    -0.944177722        0.129434853 -0.200844951 -0.1164231820  -0.233862317
## 51     0.365382871       -0.545908303 -0.153486214 -0.1868106480   1.003653016
## 52     0.761780605       -0.619460517 -0.650626639  0.5496531115  -0.176226987
## 53    -0.539116941        0.236303367 -0.240187295  0.0281186975  -0.136434101
## 54     0.613024911        0.152637095  0.034054586 -0.0803322035  -0.459199024
## 55     0.539298383        0.188867387  0.489097709 -0.4825597635   0.101455458
## 56     3.282248238        0.489932006 -0.020029354  0.4689941510   0.591440594
```

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## 57     0.604567389       -0.067446568 -0.153530267  0.5492936170  -0.016189741
## 58     0.442470327        0.273693734  0.375653132 -0.1715303350  -0.047145689
## 59     0.067587074        0.095909224 -0.158086312  0.5603975425   0.142122445
## 60    -0.856940957       -0.681027717  0.060908983  0.1132169420  -0.013144065
## 61     0.580460420       -0.500564469 -0.189797479 -0.0968843540  -0.017740297
## 62    -0.233318675       -0.312461051  0.536907672 -0.3240833100  -0.415481141
## 63    -0.685528988       -1.502475416  0.991410238 -0.2474925675  -0.225093355
## 64     0.760816192       -0.235379576 -0.239015334  0.3791375945   0.617539055
## 65     0.142526989        0.035838133 -0.321047632  0.4383207727   0.718422025
## 66     0.155965641        0.490023479  0.814012502 -0.3779555638  -0.597234658
## 67     1.277019800       -0.091839479 -0.221961243  0.0051985705  -0.033576557
## 68     0.877786236       -0.504331346 -0.465980618  0.6406441493   1.473261723
## 69    -0.456137249       -0.245279086 -0.257153623  0.0003446885  -0.005998144
## 70    -0.796187894        0.439264141  0.112112504  0.1047895662  -0.156148479
## 71    -0.961092256       -1.983655846  0.276958468  0.0364571233  -0.190584416
## 72    -0.557700119       -1.318307713 -0.040303360 -0.0965014440  -0.308502486
## 73     0.053931072        1.289316956 -0.197773936  0.6340168363  -0.117817733
## 74    -0.104986066       -0.161408869  0.604107997  0.1085664665  -0.806113192
## 75     3.752681857        0.566822906 -0.108227414  0.0592795640   0.301355914
## 76     1.338340363        0.789808023 -0.105310745 -0.0607260815  -0.021837323
## 77     0.945904410       -0.095106166 -0.144490779  0.2901108810  -0.069479980
## 78     0.638185872        0.309051650  0.076783303  0.2398429835   0.538216961
## 79     0.468631252        0.364695388 -0.074541243 -0.1169533880   0.000000000
## 80     2.406469432        0.020021120  0.006498690  0.4729332500   0.148568742
## 81     1.395124049       -0.104859217  0.142867226  0.4517002845  -0.860794192
## 82     0.738841350        0.089029463 -0.391161231  0.1746780545  -0.489226050
## 83     0.599912662       -0.598037564 -0.428165796 -0.0325560900  -0.329075693
## 84    -0.092061896       -0.237388639 -0.410584235  0.0330385102  -0.190886994
## 85     2.607996347        1.105335619  0.090030114 -0.0264485913   0.092228669
## 86     1.087816669       -0.640014870 -0.144563768 -0.0042777150  -0.839372235
## 87     0.196139681       -0.517598638 -0.639846748  0.4104325002   0.245283314
## 88    -0.321202224        0.211738044 -0.039709098  0.0433016755   0.112067390
```

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## 89    -0.196126205        0.692693191 -0.108404240 -0.1871266965  -0.331783477
## 90     1.555732375        0.972673727  0.226300188 -0.0973537617  -0.247018720
## 91     1.630146258       -0.043995930 -0.075782211  0.0394194490  -0.189082612
## 92     0.545244750       -0.115180680 -0.023690280  0.0492863450  -0.080363658
## 93     0.483762849        0.165779576 -0.174231594  0.2027635100  -0.351162952
## 94     0.740309299       -0.212932123 -0.806740632  0.3191536757   0.273879907
## 95     0.423468960       -0.131331464 -0.169254356  0.0044231935   0.111248816
## 96     0.549880971        1.343047574 -0.159862100  0.1029939655  -0.015200243
## 97     3.385307634        1.282467077 -0.280832340  0.1291974197   0.112415400
## 98     0.697278302       -0.242445870  0.161494007 -0.0672438520  -0.187146691
## 99     1.397608266        0.345822632 -0.268675377 -0.2602290705  -0.208282202
## 100   -0.980198124        0.233435458  0.194586301  0.0692430875  -0.441090003
## 101    0.165645031        0.485134338 -0.061864977 -0.3572620973  -0.069374995
## 102    0.091100062        0.406788289 -0.032337325  0.1051479777  -0.252592127
## 103   -0.673205107        0.507094571  0.796020181 -0.2584026110  -0.152800018
## 104    0.706768202        0.199494646 -0.087552987  0.1064270655  -0.190215597
## 105    0.313294425        0.472976622 -0.185658915 -0.1564519170  -0.779766787
## 106    0.905150142        0.911509009 -0.182933344 -0.0087617122  -0.263831126
## 107   -0.129612666        0.138289678  0.326806478 -0.1311007165  -0.455972537
## 108    0.122346353        0.132276049 -0.212971315  0.0890067620  -0.047337302
## 109    0.617359085       -0.060690563 -0.231522970  0.1707056225  -0.241522748
## 110   -0.373829396        0.156562305 -0.229925392  0.0051567815  -0.183377568
## 111    0.640435905        0.895950579  0.119332294  0.1035787350   0.105303603
## 112    0.437858338       -0.188151681 -0.229272940 -0.0308243200   0.007244394
## 113    1.090765476       -0.465811882 -0.029399272 -0.1660879300  -0.131609248
## 114   -0.089270225        0.253020787  0.342343274  0.0289235730  -0.231843608
## 115    0.618978498        0.457988154 -0.237497516  0.4557181345  -0.064589790
## 116    0.453927071        0.529537208 -0.593312919 -0.2754152667  -0.187492046
## 117    0.333730210        0.789162343  0.080325517  0.0299176418  -0.210748733
## 118    0.491826254        0.146936625  0.064376499 -0.0528719395   0.342873482
## 119    0.381711445       -0.144767203 -0.465802681  0.5628480485  -0.245269767
## 120   -0.500833550        0.911824711  0.233786526 -0.2056986995  -0.141608587
```

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## 121    0.876710361        0.091322989 -0.211370806 -0.2772094972   0.005024992
## 122    1.109670584       -0.017753118 -0.402615173 -0.3752460930  -0.157741207
## 123   -0.369835594       -0.009052348 -0.260119795 -0.1120858100  -0.342067891
## 124    0.262974901        0.429739588  0.053431812  0.2804107435   0.535932365
## 125   -0.879778871        0.502607440  0.528562865 -0.0225691875  -0.062585491
## 126    0.282707949       -0.112381478  0.073743380  0.1859110380  -0.413683159
## 127   -0.426304295       -0.045502231  0.210484800 -0.2287677835  -0.270416129
## 128   -0.110230027       -0.016612126 -0.179047745 -0.3928200370  -0.483248717
## 129    0.904875411        0.478913496 -0.099912466 -0.1109763100  -0.434999792
## 130    0.934498373        0.054164628  0.029727781 -0.0693437930   0.156757281
## 131   -0.262339011        0.435808791  0.255475748  0.1173832850   0.353534504
## 132    0.208738382       -0.332125430 -0.011520515 -0.0718389215   0.177818004
## 133    0.201285649        0.326501003  0.036771076  0.2885965520   0.143971093
## 134    0.995265532        0.231580752 -0.084616328  0.1287157127   0.831872105
## 135    1.387373073        0.106122297 -0.163021237  0.3619446873  -0.429616344
## 136   -0.263920515        0.800470939 -0.312907269  0.1049605308  -0.014050670
## 137   -0.210839711        0.025412656 -0.124699744  0.0683058603  -0.086716695
## 138    0.625321594        0.548299416  0.134897808  0.0605974975   0.103384601
## 139   -0.181203575       -0.572322417  0.223442148 -0.0138978845  -0.104989038
## 140   -0.842699230       -1.063777610 -0.239419223  0.1689170332   0.144660385
## 141   -0.264643087       -0.406078685  0.433430158  0.2928889660  -0.046045936
## 142   -0.255339645        0.864017833  0.001200822 -0.1477497067   0.034860369
## 143    1.415670374        0.369737339 -0.065498978 -0.0422297602  -0.042666256
## 144    0.555511896        1.461729626  0.093952213 -0.0837382480  -0.223576302
## 145    1.134415692        0.413724608  0.059918772  0.3245770905  -0.003500178
## 146   -1.075145606       -0.166643812  0.192587323 -0.0769237005  -0.028645878
## 147   -0.121477942        0.407384161 -0.004896541 -0.0462126180  -0.140290756
## 148   -0.174299280       -0.628272786 -0.268531975  0.2468213900   0.081779656
## 149   -0.576873383       -0.082569344 -0.404638434  0.1848461165  -0.046850940
## 150    1.543307741        0.128665351  0.297237204  0.7210421348  -0.031686778
## 151    0.105893487        0.236546665 -0.256564605  0.0300297795   0.195659187
## 152   -0.173788443        0.145628869 -0.154557734  0.1965845585   0.142846455
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## 153    0.223612450        0.520234892 -0.324642236 -0.1310880340  -0.001449168
## 154    2.153732585       -0.348987323 -0.464101664  0.1667163098   0.124779079
## 155    0.642746288        0.554339722 -0.188537446 -0.2185001213  -0.273745403
## 156    0.373546545       -0.578173285 -0.351816530  0.0858922700   0.149110782
##          pp_PAI.1    pp_PARP1 pp_PARP.cleaved       pp_PCNA     pp_PDCD4
## 1   -0.3784502550  0.05193760    -0.073556520 -0.1763160220  0.545427032
## 2   -0.4280574920 -1.17510577    -0.252850085 -0.1001415460  0.081291564
## 3    1.0890950735 -0.07870963    -0.452546128  0.1834398395 -0.351412271
## 4    0.4379381057 -0.01174822    -0.046733044 -0.2083068553 -0.621905752
## 5    1.0825357930 -0.34477200     0.094212567 -0.1742236180  0.702707722
## 6    0.4092204065  1.13234942     0.253649436 -0.1022555275  1.011081252
## 7   -0.1064052185 -0.78669137     0.209376705 -0.0551004365  0.107422853
## 8   -0.1836811860  0.67357964     0.383514607  0.1760851850 -0.086956946
## 9    0.4267296970  0.66055500     0.782682162  0.3404863500 -0.240434382
## 10  -0.1596047818  0.15719222     0.078401563 -0.0365133797  0.235333366
## 11  -0.5461254035  0.30736934     0.066852593  0.0994754325  1.552395139
## 12   0.6458845400  0.50316708     0.050288895  0.5465376160  0.679501211
## 13  -0.0490812195  0.23379666     0.051057229 -0.2735012645  0.893260628
## 14   2.0642845515 -1.47506212    -0.018255388 -0.0664669865 -0.620943604
## 15  -0.2741960585  1.58882527     0.360368529 -0.0700853265  0.840392720
## 16  -0.0398310035 -1.39019455    -0.290703548  0.0684408805  1.080181690
## 17  -0.4627231830 -0.85685563    -0.163750386  0.3875025620  0.000000000
## 18  -0.4597378710  0.41701528    -0.092493080 -0.0415300380 -0.670155026
## 19  -0.3524914990  0.43579270     0.134742994 -0.1281410840 -0.269098688
## 20  -0.3983281275 -0.41744146    -0.035009910 -0.1689227945 -0.128045603
## 21  -0.7027101460  0.22098118    -0.045502715 -0.0288740880 -0.273072291
## 22   0.0584284240  0.92725053    -0.007033065  0.8022045710 -0.032430819
## 23  -0.2250532865 -0.01586613     0.022435132  0.1233235975  3.150131541
## 24   1.5528966225  0.58334718     0.405769084  0.2432591775 -0.788182257
## 25  -0.8124387390  0.82324009     0.129780068 -0.2553981030  2.153206968
## 26  -0.6535417625 -0.10841565    -0.217070043  0.0578864045 -0.364715305
## 27   0.9134315165 -0.36509427    -0.041005520 -0.0784321865  1.293409004
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## 28  -0.5080952945  0.28271367     0.046727370  0.0595016865  0.302402357
## 29  -0.1847531065 -1.61144649     0.645562683  0.2957559275  0.749764444
## 30  -0.0420438270 -0.76447390     0.772848746  0.0051409720  0.007164296
## 31   1.0498785545 -1.52834291     0.559109797  0.3860373675 -1.464713018
## 32   0.3703449145 -1.54759320    -0.658132656  0.2845392175 -0.757178474
## 33   0.0166073480 -1.57103211    -0.356282106  0.2011892820 -1.464750079
## 34  -0.4382840630 -0.99678052     0.180948465 -0.0350161910  0.782989087
## 35   0.1126429920 -0.95844312    -0.042910841 -0.0805309140 -0.289127552
## 36  -0.3701915840  0.65753531     0.126423087  0.0285199990  1.441597403
## 37  -0.3931632055 -1.79443469    -0.105007337 -0.0472126375 -1.704983491
## 38   0.2404348310  0.49409781    -0.026585692  0.3953986820 -0.110400581
## 39   0.2736909300  0.50584706     0.000000000  0.3897317200 -0.085504146
## 40  -0.3291770065  1.18222521     0.315219896 -0.1484440075  0.341268811
## 41  -0.3981141950  0.77044940     0.022029123  0.1406912250  0.645213550
## 42   0.2815072685 -0.41195801    -0.198648788 -0.3696352995  0.051157038
## 43   0.8029892490 -0.13832131    -0.015113722  0.1675861990  0.652481957
## 44   0.2662697425 -0.51614444     0.514360680  0.2848703035  0.223384334
## 45  -0.0973139300 -1.83651588    -0.248130165  0.6906495740 -2.256929729
## 46  -0.6476990505  0.81619172     0.113859726 -0.1755146495  1.754841212
## 47   1.4434649820 -1.39428208    -0.553870844  0.0000000000 -2.948017574
## 48  -0.2065621910 -0.63235590    -0.429879790  0.3367922770 -2.518018813
## 49   0.3216027290 -1.73405697     0.348509022  0.2311734400  0.386938450
## 50  -0.0009800285  1.37523302     0.229770156 -0.1542189515  3.519544209
## 51  -0.1208692975 -0.02472374    -0.139060830 -0.0572650855 -0.314517257
## 52  -0.3846456400 -1.79607366     0.588113149  0.3982128280 -1.336441548
## 53  -0.4027974260 -1.05778285    -0.243348055  0.4844900840 -1.308138063
## 54  -0.1882241550  0.26431500    -0.051197325  0.2430818040  0.944904411
## 55  -0.8682788130 -1.19467912    -0.509838591  0.2680946710 -2.815599987
## 56   1.2851154485 -0.21033109    -0.128176978 -0.2608979295  0.600343369
## 57   0.0059994435 -1.06098231     0.402004598  0.2600645025 -2.108073398
## 58   0.1137631385 -1.09083861    -0.040261940  0.0302021115 -0.810039914
## 59  -0.8262139210 -0.21943489     0.000000000  0.4186395830 -1.236713292
```

```
## 60   0.7007792755 -0.29831703    -0.240015177  0.4569151975 -3.372735785
## 61   0.3286697020 -0.13093501    -0.517254608 -0.0711748790 -0.037237658
## 62  -0.3526580700  0.10666771    -0.249589342  0.8862859150 -0.776064645
## 63  -0.3411821315  0.29299134    -0.009913310  0.6185559415 -0.194909021
## 64   0.6594899405 -1.10202900     0.468292569 -0.1575328665 -0.442689146
## 65   0.1616534132 -0.93987091    -0.127894936 -0.4701475307  0.142532513
## 66  -0.7380926817 -0.06247048    -0.780818577 -0.1871116677 -0.578209778
## 67   0.2290607595 -0.78923178     0.252834970 -0.4894014495 -0.442434155
## 68   0.5138384277 -0.94814487     0.028933313 -0.2470844622 -0.089649173
## 69   0.0521763670  0.09184561    -0.178319093  0.3707046340  0.947515935
## 70  -0.4238565042  0.27011877    -0.088588912  0.2154815737 -0.308421622
## 71   0.1527090848  0.21750250     0.001412911  0.1812441328  0.229917778
## 72   0.0145811465  0.40232973     0.146477552  0.2971648525  1.025787014
## 73   0.3410884878  0.30506471     0.060076989  0.0091126407 -0.632928384
## 74  -0.3792412430 -1.10686087    -0.215288407  0.0000000000  0.601826301
## 75   0.1248624845  0.48698730    -0.063664364  0.3385117205  1.011235228
## 76   0.5584819280  0.31927807    -0.067081987 -0.0514828080  1.177904963
## 77   0.6246118255 -0.90220939    -0.084388610 -0.0487916835 -2.870133372
## 78   0.1300908650 -0.46105229    -0.135810440 -0.3361708280  1.162276303
## 79  -0.2910113175  0.04881987    -0.011740680  0.0547084765  0.945235824
## 80   2.8043001160 -0.07336778     0.032690781 -0.1447685470 -1.133760295
## 81   0.9144683355  1.30689152     0.309988645  0.8933579915 -0.877526206
## 82   0.2581856375  0.65060883    -0.340499874  0.2370752935 -0.206315488
## 83  -0.1840004885 -0.49214080     0.023981658 -0.3236907945  0.678574926
## 84   1.9854867497 -0.40735075    -0.079033890 -0.2602408813  0.087650554
## 85   1.2096001602  0.26152351    -0.233030478  0.0549680763 -0.525836042
## 86   0.8186554895 -0.43597645     0.193825759  0.2382123545 -1.149492048
## 87   0.2792898832 -0.85603329    -0.485123964  0.0333102952  0.206751854
## 88  -0.5099522910  0.04648891    -0.023971655 -0.0783867750  0.042587690
## 89   0.0398493100 -0.09834927    -0.134727745 -0.1313746000  3.236453171
## 90  -0.6786851038  0.33821437     0.088375088  0.2175602523 -0.393983919
## 91   0.7391589555 -0.37697649    -0.057331400 -0.2752458705  0.704652687
```

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## 92   1.2681685905 -0.97052874     0.055154810  0.0198424495 -0.900592048
## 93   0.1348783295 -0.39328348     0.263039527  0.1296544595 -0.739377494
## 94   0.1298331058 -0.94237860     0.656539942 -0.1520359112 -0.649950118
## 95   0.0592983885 -0.04667506    -0.060980017 -0.1259383665  0.276349369
## 96   0.4654307630 -0.49631120    -0.350769592 -0.2254161930 -0.195231919
## 97   0.1299456468  0.48244682     0.100180426  0.4496380307  0.579613558
## 98  -0.0887237665 -0.82562286    -0.208119722  0.2146838855  0.117713340
## 99   0.7203698700  0.20752085    -0.136515043  0.0843115250 -0.167869251
## 100 -0.4868370360  0.33204803    -0.107188075 -0.0757209030  0.896943336
## 101 -0.4847141652  0.50544962     0.426092433  0.3964931087 -0.345881093
## 102  0.0221024208  0.12409465    -0.081638265 -0.1842675353  0.995705048
## 103 -0.3698793115 -0.08541263    -0.108354354 -0.3042945605  1.588450537
## 104  1.5876738510 -1.66209598     0.250178035  0.0171356690 -1.165551518
## 105  0.3583145285 -0.46229405    -0.156343867  0.2996602125 -1.462621973
## 106 -0.0039831982  0.06474668     0.061542716  0.1738919418  0.430713462
## 107 -0.8524453290  0.40156909    -0.074132508 -0.3658447530  0.510643894
## 108 -0.5929374185 -0.20163363    -0.189709392  0.0875208855 -1.019943615
## 109  0.2452509410 -1.58596267    -0.368226597  0.2392490290  0.002453206
## 110  0.1655659350 -0.07262070    -0.027850191 -0.1398700320 -0.562066299
## 111 -0.0197189435  0.97736981     0.163952258  0.0416491755  0.606510953
## 112  0.1212273745 -0.23729705     0.202258117 -0.0992760775  0.270354728
## 113  2.5100734265  0.66641286     0.046791501  0.2295077155  0.069420187
## 114  0.0603098545  0.13047642    -0.183912582 -0.0579857905  2.065609998
## 115 -0.1654949665  0.01680303    -0.037450534 -0.1223019915  0.355458437
## 116  0.6188119912 -0.17424113    -0.011833234 -0.0413731317  1.297427506
## 117 -0.2906864612 -0.19117886    -0.104939786 -0.0112549142  0.703998428
## 118  0.0172948380 -0.11544314    -0.253840023 -0.1981561590  0.370232279
## 119  0.5487402870 -0.74242907     0.442866550  0.4624605330 -0.642473518
## 120 -0.5864957985  0.03378612     0.226231961 -0.0278564335  0.339097052
## 121  0.4267582697  0.02140825     0.073458113 -0.2598716803 -0.195604600
## 122 -0.3343681715 -0.61056716    -0.099626265 -0.1465278905  1.242494174
## 123 -0.7653555715  0.28902703    -0.037079804  0.3091458735  1.041612712
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## 124 -0.8541451730 -0.28182688    -0.047385667  0.0000000000 -1.169564492
## 125 -0.2557833260  0.48845168     0.091341057  0.2525549710 -0.540716548
## 126  0.0801095255 -0.84996908     0.133350056 -0.0695273725  0.273903713
## 127  0.6295925130  0.03350787    -0.199128232  0.0957505520 -0.234497057
## 128  0.6300526755 -0.33229222    -0.279108325 -0.2367447895 -0.164029298
## 129 -0.4152975535 -0.78696176    -0.489674259  0.7838615355  0.141567415
## 130 -0.6104830115 -0.25880358    -0.063486838  0.0786692535 -0.024577884
## 131 -0.2920533615  0.63165671     0.267883822  0.2721227835 -0.344423137
## 132 -0.6176106930 -0.16590071     0.328279414  0.1344922160  0.758199911
## 133 -0.4487226395  0.05739250     0.038155234 -0.0221728145 -0.110537669
## 134 -0.2465640048 -0.24104534    -0.406355827 -0.4097609648 -0.027081085
## 135  0.4956564988 -0.61926320     0.113116747 -0.2488458783 -0.259907950
## 136  0.2336286697 -0.06094008    -0.200219534  0.0978138968 -0.571676445
## 137  0.3992188453  0.29083285     0.150366738  0.4216911493 -0.307941969
## 138 -0.4988910025  0.54099361     0.351886688  0.5377849505  0.801280274
## 139  0.1103495735  0.42070997     0.379053759  0.4291756065 -1.348842778
## 140  0.3509721993  0.33100239     0.209620261  0.1979984392 -1.326856635
## 141 -0.4439045640  0.41534918     0.054998074  0.1181208130 -0.251184166
## 142 -0.2734340117 -0.01841834     0.087879958  0.0105909643 -0.582021120
## 143 -0.4908437063  0.41311531     0.152554945  0.3088975087  0.674450261
## 144 -0.3902906310  0.12508526    -0.033460892  0.2608280040  0.354484376
## 145  1.0254356385  0.47589100     0.001442802  0.2504002305  1.048244031
## 146 -0.4831974990 -0.14032069    -0.015468617 -0.0583842700 -0.576928568
## 147 -0.6988229365  0.91753973     0.098053179 -0.0390326595  1.338552144
## 148  0.3710665240  0.44629453     0.377008470  0.1622026100  0.032638638
## 149  0.6737342615  0.10500695     0.153463062 -0.0850416635 -0.677666281
## 150  0.3001517297 -0.03031761     0.073316331  0.0379628348  0.407358105
## 151 -0.2619293045 -0.33321681     0.100019844 -0.2461953245  0.204113848
## 152 -0.5363510565  0.17316312     0.169601898 -0.0279570905  0.946313803
## 153  0.2279887360 -0.02458501     0.161626323 -0.0048627150 -1.110316634
## 154  1.5086788888 -0.26044608     0.238449037 -0.2997524963  0.461161246
## 155 -0.1554610292  0.16869349     0.061188262  0.0002140207  1.290539464
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## 156  0.9328594995  0.74805182     0.217436696  0.1548740755 -2.213978969
##          pp_PDK1 pp_PDK1.pS241     pp_PEA15 pp_PEA15.pS116 pp_PI3K.p110.alpha
## 1   -0.073717985   0.043974623 -0.106972959   -0.138167463       0.1474327870
## 2   -0.026898502  -0.111387103  0.284931659    0.013886576       0.1869805220
## 3    0.334506826   0.395030620  0.357500510   -0.025773093       0.2529036775
## 4    0.171502080   0.164453999  0.933673120    0.082815584      -0.1597834083
## 5    0.197561096   0.259287971  0.375866822   -0.093266344      -0.0350432310
## 6   -0.295321923  -0.521944112 -0.462555763    0.089166342       3.1274801175
## 7    0.012165616  -0.421037791 -0.297897270    0.515486251      -0.0243185195
## 8    0.004830304  -0.021978115 -0.236123811   -0.202027385       0.1179072200
## 9   -0.285044067  -0.557662469 -0.269286416    0.014540104       0.0183505490
## 10   0.261849790   0.503262178 -0.002083921   -0.381420485       0.2498180752
## 11   0.188393540   0.308971834 -0.119928279   -0.190400897      -0.0069707955
## 12  -0.071276108  -0.149009251 -0.248569178   -0.015008847       0.0239922430
## 13  -0.552159000  -0.297723113  0.047179412   -0.321299907      -0.0247331785
## 14   0.262307613   0.457675659  0.417739309   -0.073830365      -0.2408451745
## 15   0.282260134   0.355285907  0.212275322    0.032469399      -0.0554970105
## 16   0.010822712   0.279307258  0.747819664   -0.021393164       0.1347291065
## 17   0.483896038   0.817414349  1.116968289    0.159800026       0.2733812130
## 18   0.287272043   0.300318572  0.312811206   -0.059685695       0.1754817850
## 19  -0.028328545   0.084512010  0.293468683   -0.208093454       0.1237653410
## 20  -0.342661157   0.091206032 -0.168049625    0.043686695       0.0917044345
## 21   0.018468638   0.214539626  0.242795856    0.080107515      -0.2650403660
## 22   0.077766613  -0.202717619  0.306655291    0.138370761       0.1246684460
## 23  -0.131645453  -0.142473346 -0.744467070   -0.071459396      -0.5666546975
## 24  -0.239301587  -0.573297240 -0.083185781   -0.039451966      -0.0050770875
## 25   0.082120381   0.335625579  0.148475915   -0.042280953      -0.2607034930
## 26   0.144973952   0.195252075 -0.153782727    0.101124671       0.3624192745
## 27  -0.332473105  -0.064112632  0.221318586   -0.078747282      -0.0503769525
## 28   0.106683833   0.109271311 -0.355905116    0.021255184      -0.0576590615
## 29   0.013485923  -0.491674318 -0.168203863    0.633246425      -0.3308856145
## 30  -0.155021185  -0.184066032 -0.125171121    0.377891703      -0.1984057630
```

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## 31   0.609774548   0.308732083  0.284379428   0.567904590  -0.1691420805
## 32   0.265561200   0.216040628  0.109054513   0.124325644   0.1296907505
## 33   0.054550843   0.123105429  0.665396437   0.273495003   0.1322280990
## 34  -0.169705081  -0.160185893  0.155093216   0.258637585  -0.1668012300
## 35   0.121633994   0.344702577  0.467866324   0.231774677  -0.1967713880
## 36   0.251946191  -0.238637993  0.075140378   0.243680625  -0.3699030470
## 37   0.396011477   0.899222129  0.176664819  -0.308743585   0.3064143565
## 38  -0.019307557  -0.002778138  0.037519538   0.037559502   0.1526802780
## 39  -0.155013439  -0.080162103 -0.028767905   0.000191844   0.0851171060
## 40  -0.296058987  -0.258352001 -0.256435265  -0.120894251   0.4537609025
## 41  -0.271967296  -0.058332380 -0.058215006  -0.187529568   0.0262930660
## 42  -0.162676316   0.048606828  0.353666393  -0.003014363  -0.1670907205
## 43  -0.087993500   0.179403518 -0.156230115   0.038988465   0.0271197090
## 44   0.077208146  -0.441097515  0.243986246   0.595974787  -0.1997997755
## 45   0.418519244  -0.142983950  0.592569454   0.681089813  -0.5632896030
## 46   0.001797558   0.190965197  0.036399020  -0.153570567  -0.1332647055
## 47   0.160911464   0.094827520  0.548145952  -0.514353663   0.0267160040
## 48   0.507235064   0.170838270  0.494957347   0.089710667  -0.0266786330
## 49  -0.129297258  -0.705937350 -0.231535279   0.648753029  -0.3913309340
## 50   0.002494133   0.280730220  0.263583299  -0.301696756   0.0537163195
## 51  -0.215046477   0.321168471 -0.123665014  -0.385559129  -0.0684467105
## 52  -0.200343426  -0.756092001 -0.205653780   0.335733339  -0.3301184520
## 53  -0.071375713   0.073075279 -0.299594148   0.263661877  -0.0281585830
## 54   0.266223314   0.625164900 -0.252526225  -0.043608365  -0.2837734880
## 55   0.320798819   0.123666143  0.506485880  -0.113311473   0.3285291830
## 56  -0.440526635  -0.306900224 -0.018177359   0.028154050  -0.2125139995
## 57   0.293789105  -0.518719817  0.164596775   0.594881642  -0.2982637445
## 58   0.087668878   0.074369373  0.377877527   0.076950153   0.0802284315
## 59  -0.165616975  -0.533682402 -0.232942078   0.161614529   0.0624201280
## 60   0.567049878   0.488746849 -0.098319217   0.242826102   0.1335059225
## 61   0.175273615  -0.064638363  0.218177262   0.174986705   0.3792158660
## 62   0.169721132   0.275143967  0.066399404   0.409812153   0.2962028480
```

```
## 63   0.153099839   0.084392963  0.228214309   0.094414525   0.3302440695
## 64  -0.025618181  -0.752358998  0.187262420   1.226359850  -0.3243169475
## 65  -0.355220793  -0.538160936  0.234679417  -0.053219320  -0.0998905902
## 66   0.128029686   0.135796562  0.015144644   0.393511878  -0.0199242888
## 67  -0.104330461  -0.243773420  0.029390130   0.012579969  -0.3362521535
## 68   0.084079706  -0.283725561  0.598050031   0.252010713   0.1023061142
## 69   0.009504792   0.140378300  0.559494397  -0.184064853  -0.0003446885
## 70  -0.070874744   0.214190481  0.324295228   0.135218531   0.2680970202
## 71  -0.143560565  -0.070731820  0.158897991   0.567688952  -0.1823798758
## 72   0.032670095   0.322580873  0.169861103  -0.113433406   0.1645565940
## 73  -0.477179750  -0.294610221  0.095806094  -0.161404548  -0.1948680288
## 74  -0.131590004  -0.125290301  0.206275054   0.127695186   0.4148714840
## 75  -0.506505201  -0.504745042 -0.445912655  -0.066513049  -0.1031949695
## 76  -0.217602168  -0.323738639 -0.521693420  -0.140553817   0.1253980710
## 77   0.307295616   0.217855908  0.158241155  -0.002610754  -0.0061678525
## 78  -0.578433176  -0.493578572  0.127578879   0.003703222  -0.0773240600
## 79   0.056327146   0.370608647 -0.003948321  -0.188202991  -0.0121754065
## 80  -0.374760788  -0.879310427 -0.383027405   0.058113160  -0.3553419600
## 81  -0.357064454  -0.166136413 -0.672128369  -1.033146529  -0.1978179870
## 82  -0.246090947  -0.297120135  0.145158381  -0.443744513  -0.1475398870
## 83  -0.358399615  -0.296945423  0.180249700  -0.225136322  -0.1345805980
## 84   0.090687790   0.220817151  0.051765062  -0.063572202  -0.2551593268
## 85  -0.276224311   0.055913687  0.172285804   0.182225242  -0.2697006813
## 86   0.221417303  -0.210015514 -0.101001703   0.271927572  -0.2108979205
## 87   0.155010638  -0.172853868  0.330731898   0.029951119   0.2189733282
## 88   0.000892932   0.143019998 -0.596602176   0.207785885   0.1250651700
## 89  -0.040881491   0.156131174 -0.474108876   0.045825322   0.2129339060
## 90   0.322808542   0.376542360 -0.129142080  -0.207856054   0.3810172453
## 91  -0.080441203   0.133813308 -0.257673876   0.210459449  -0.0203740195
## 92   0.013479880  -0.199695472 -0.146252503   0.180939474  -0.0110309575
## 93  -0.281266430  -0.352854314  0.243573667  -0.003228921   0.0045001585
## 94   0.438345510  -0.904809608 -0.059711185   0.345868863  -0.0424626213
```

```
## 95  -0.002308906  -0.004414414  0.213464834    0.008368850      -0.0252721595
## 96  -0.115732031  -0.019772266  0.119917560    0.036701794       0.0394055380
## 97  -0.042920492  -0.513267174  0.400812759   -0.154195162      -0.0770548533
## 98   0.328858378   0.431637474  0.124931692   -0.534303139       0.0194807915
## 99  -0.108195853   0.167773618 -0.229316262   -0.121787328       0.0668539580
## 100 -0.078248713   0.500514624  0.179275731   -0.449693106      -0.1301815460
## 101  0.061500995   0.073729303 -0.349068071   -0.270033055       0.4198623268
## 102  0.198278345   0.306217639 -0.267512442   -0.302292960       0.2316488627
## 103  0.164080519   0.258925992 -0.256292022   -0.002575814      -0.1086899265
## 104 -0.336138505  -0.269457116  0.216070866    0.191574770      -0.2446342740
## 105  0.322727100   0.241510334 -0.242041340    0.014463649       0.3104144665
## 106  0.197709798   0.307228646 -0.029063495   -0.208251692       0.2579127058
## 107  0.012103256   0.143014866  0.295366558   -0.088582928      -0.1027030780
## 108  0.044774918  -0.007447988  0.020676855    0.063499818      -0.1098850265
## 109  0.395631093   0.107186747  0.033859184    0.369620431      -0.1251456480
## 110 -0.186576463   0.086610042 -0.363589942   -0.158913685      -0.2741925830
## 111 -0.226123995  -0.073181851 -0.103447598   -0.163841772       0.0314085875
## 112  0.087025634  -0.140511397 -0.223899981   -0.114136013       0.0177511075
## 113  0.008328633  -0.304917380 -0.146109477    0.130055519      -0.0670354075
## 114  0.126379207   0.309898751 -0.055125931    0.113163237      -0.1262014695
## 115 -0.232331548  -0.420172288 -0.109217945    0.113620512       0.0041650815
## 116  0.141318972   0.130936500  0.493091990   -0.284414517       0.0263824402
## 117  0.489736341   0.763747710  0.372787539   -0.008863258      -0.0370535042
## 118 -0.116890441   0.219871279 -0.246930870   -0.177510748      -0.2657368080
## 119 -0.005133824  -0.686457217 -0.132886147    0.867436803      -0.4246447930
## 120  0.705363106   0.883984459  0.475504176   -0.209709584      -0.1357251945
## 121  0.121848852   0.330960395  0.054657169   -0.137614479       0.1606894437
## 122  0.219189540   0.125922365 -0.404628673    0.219847315       0.1093907325
## 123 -0.108965921  -0.097993574 -0.426694687   -0.296601010       0.5563762525
## 124 -0.091112866  -0.087214278  0.005706635   -0.170780258      -0.3368575660
## 125  0.068908389   0.240557885 -0.060458684    0.090180682      -0.0890419840
## 126 -0.174274524  -0.158507614 -0.360698986    0.147308280       0.1353466075
```

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## 127 -0.182388821  -0.156167837 -0.234104956    0.050441184       0.1640193820
## 128 -0.328385461  -0.107079034 -0.194163853   -0.066955349      -0.1221642665
## 129  0.218762676  -0.108388260  0.092146855    0.063853953      -0.0676496795
## 130 -0.091046071  -0.132805664 -0.207371149    0.034868644       0.0382947645
## 131 -0.230323238  -0.380716536 -0.292502058   -0.058697442       0.2792496855
## 132 -0.058430489  -0.269270681 -0.026942792    0.126992213       0.0000000000
## 133  0.125525041   0.310046562 -0.047912368    0.139631944      -0.0965154895
## 134  0.247599003   0.150603724  0.240517094    0.135903006      -0.1784594352
## 135 -0.315812649  -0.258599795  0.161506917   -0.371148122      -0.2055970927
## 136  0.324198044   0.305814168  0.023389909   -0.003859681       0.4478708137
## 137 -0.003321510  -0.095104963 -0.149613645   -0.236340400       0.1562635703
## 138 -0.129048441  -0.200478104 -0.101463960   -0.249248971       0.3713010855
## 139  0.112465045   0.214759633  0.120932403   -0.303843813       0.2765988845
## 140 -0.001387266   0.223841226  0.183633249   -0.193664583       0.0927834413
## 141 -0.144937280  -0.367923944 -0.118653306   -0.100820591       0.0966956530
## 142 -0.046727559  -0.009034351 -0.112475635   -0.155452275       0.2084956652
## 143 -0.117698690  -0.039968849 -0.198018803   -0.239931389       0.0217414388
## 144 -0.056494009  -0.008310173 -0.148929885   -0.158011093       0.0912496140
## 145 -0.167445501  -0.249855630  0.091081378   -0.105412903       0.0197097805
## 146  0.073625438   0.205561517 -0.184512562    0.021093441       0.3411290510
## 147  0.061760179   0.219097695  0.059716972   -0.031704188       0.0757807365
## 148 -0.114513485  -0.314432037 -0.324037636   -0.226229738       0.2127448490
## 149  0.284905734   0.222722113  0.158646777    0.007619255       0.0359321505
## 150  0.078076617   0.061830745 -0.416983174   -0.065674628       0.0271792897
## 151  0.026312761  -0.128075890  0.422876244    0.136377632       0.1242780815
## 152  0.229801019   0.437948084 -0.128436810   -0.144075413      -0.0125821635
## 153  0.039123142   0.154258407  0.261451231   -0.318421615      -0.1238488880
## 154 -0.306461443  -0.875714310 -0.315492846    0.068602418      -0.1269966852
## 155 -0.126262383  -0.091836617 -0.149043700    0.129623592       0.1874483838
## 156  0.143380388  -0.123263488  0.163900118    0.039183339       0.1297321015
##      pp_PI3K.p85 pp_PKC.alpha pp_PKC.delta.pS664 pp_PKC.pan.BetaII.pS660
## 1    0.177184668  0.178935539       0.2063637985              0.22640719
```

```
## 2   -0.101884873  0.117645553       0.1061929660              0.28535544
## 3   -0.060435538 -0.046022415      -0.1545435840             -0.22794268
## 4    0.086420081 -0.361559806       0.1285447762              0.11669040
## 5    0.162585209  0.492212276       0.0311767005              0.11723726
## 6    1.404303577 -0.082718705      -0.1768673325             -0.28303039
## 7    0.052326640  0.403588476       0.1597447640             -0.37741094
## 8   -0.123712445  0.405597977       0.0342998645              0.35247706
## 9   -0.387533531 -0.105993034      -0.1030509685             -0.62701626
## 10   0.050941666  0.162004308      -0.1925302513              0.02766363
## 11   0.189496399 -0.081863308      -0.0515320680              0.06003786
## 12   0.903506862  0.189109774       0.2241826490              0.94704331
## 13   0.283637184  0.348718346      -0.2383516135              0.13843117
## 14  -0.359992464  0.130803473      -0.1620365435             -0.22475683
## 15   0.490355610 -0.112117129      -0.1301109375             -0.02967500
## 16   0.112111342  0.139601081       0.1154776525              0.74921908
## 17  -0.471260466 -0.226358525       0.0223679880             -0.30818747
## 18   0.093907829  0.191576581      -0.1259112710              1.34881153
## 19  -0.098461128 -0.012274307       0.0575140010             -0.06815914
## 20   0.151057343 -0.269063157       0.0366039855              0.24132158
## 21  -0.297365694  0.033468304       0.0395877200              0.22099022
## 22  -0.146319172 -0.257124158      -0.2135272010             -0.85719242
## 23  -0.589718511 -0.166928749      -0.0733581335              0.27506457
## 24  -0.121429714  0.298429040      -0.0962238400             -0.44134821
## 25   0.046650301 -0.132535307       0.0700304320              0.58035960
## 26   0.099248752 -0.102348614       0.0667029045              0.30852382
## 27  -0.218029321  0.252051029       0.0427607935              0.41964779
## 28   0.018121519 -0.000013844       0.2013510685              0.09613837
## 29  -0.260905263  0.278259466       0.1673752265             -0.05835895
## 30  -0.072020896 -0.004741937       0.1246800440             -0.20613144
## 31   0.065750819  0.075590530      -0.2281209255             -0.37890297
## 32   0.656838827 -0.009086955      -0.3588611545              0.27819433
## 33   0.225932135  0.240265034      -0.4826800700             -0.12581312
```

```
## 34   0.013820011  0.073688091       0.1752518060              0.21297700
## 35  -0.029053404 -0.063940490       0.2126617430              0.30284364
## 36   0.144539026 -0.284317920      -0.0797306490              0.07162890
## 37   0.066782210  0.348194293       0.1919856575              0.59900980
## 38  -0.049327156 -0.147960271       0.0069519080             -0.34582022
## 39  -0.023924946 -0.230039000      -0.0100422070             -0.37006789
## 40   0.698373414 -0.002784136       0.3172026105              0.50173081
## 41   0.040225745  0.403765877      -0.1677793050              0.68817654
## 42  -0.144173976  0.297716640      -0.0752429115              0.44194069
## 43   0.071423590 -0.227773206      -0.0454734840              0.51734764
## 44   0.036946476  0.142370075      -0.1714136815             -0.09237721
## 45   0.316876128  0.561406451      -0.3356325670              0.21558151
## 46  -0.114102458 -0.139014927      -0.0207042825             -0.07790049
## 47   0.371732694  0.195696627      -0.2909109700              0.39455843
## 48   0.185006771  0.060612327       0.1343798660              0.14648478
## 49  -0.448170056  0.075890637       0.2050788970             -0.24261459
## 50   0.271651076  0.003527823       0.0569332515              0.74619230
## 51  -0.452862528  0.278272350       0.0721102385              0.62486390
## 52  -0.514834079  0.678784412       0.1107671050             -0.63948903
## 53  -0.207752052 -0.291877710       0.0748976300              0.43008874
## 54  -0.133700940 -0.126651418       0.0669712340              0.19875443
## 55   0.532081977  0.375676307      -0.0650651310              0.20086629
## 56  -0.144103187  0.377037699      -0.0251087365              0.67148815
## 57  -0.090089477  0.104380371      -0.1101899005             -0.12133911
## 58   0.217081901  0.172172516      -0.1694838405             -0.02590377
## 59  -0.141678395  0.195221205      -0.0893132150              0.05131268
## 60  -0.062819793  0.008247647      -0.2440307145             -0.65114029
## 61  -0.391291402  0.056081387       0.1106417045             -0.01671941
## 62  -0.191773272 -0.001302870      -0.0063782125              0.27496710
## 63   0.791703274  0.334810413      -0.0381158280             -0.07389098
## 64  -0.105562667  0.059571542       0.1212342650             -0.87821185
## 65   0.094331184  0.403964928      -0.0820582127             -0.10549126
```

```
## 66   0.133861523 -0.295272525      -0.1625617283              0.41221595
## 67   0.455434881  0.627684865       0.1403359490              0.43401822
## 68  -0.002770379 -0.153483374      -0.5874010542             -0.04287698
## 69   0.580466753  0.177141008      -0.0757677510             -0.37383435
## 70  -0.008085289  0.149398106      -0.0107453252              0.20603008
## 71   0.085694158  0.008545701       0.0456626068             -0.48758277
## 72   0.281625936 -0.212149655      -0.0483041365             -0.57715697
## 73  -0.418836242  0.452631289      -0.0118076423              0.05150390
## 74   0.187190459 -0.133323518      -0.0019315010              0.18758976
## 75  -0.080133074 -0.012361931      -0.1360639365              0.47660145
## 76   0.298878458 -0.243576463      -0.2574517990              0.22664041
## 77  -0.179857072  0.384395441      -0.4041999865             -0.24144125
## 78  -0.275551896  0.297648974      -0.1781689190              0.06970355
## 79   0.496877892  0.024780577      -0.1353690465             -0.14450255
## 80  -0.347627805  0.807875254       0.1253628995              0.06981129
## 81  -0.901124366  1.102658686       0.2208355345              0.73519456
## 82  -0.368232962  0.446375988      -0.4354471635              0.07891186
## 83   0.099812030  0.362899464       0.0110528025             -0.31058396
## 84  -0.078320987  0.247335343       0.1708498978             -0.22486245
## 85  -0.207484370 -0.090272216      -0.2274083917              0.49936767
## 86  -0.666825681 -0.068894001       0.0597876515             -0.73288750
## 87  -0.175963837 -0.362543591      -0.3186391953             -0.50189688
## 88  -0.361494755 -0.070137346       0.0175435670             -0.05285859
## 89   0.456161277 -0.167149922      -0.0637781890             -0.04808535
## 90  -0.255594247 -0.170869417       0.6044921307              1.31068477
## 91  -0.081232244  0.128880470       0.0564393555              0.17808299
## 92   0.070521526  0.088506207      -0.0204811465              0.26452842
## 93  -0.288216535 -0.004595118       0.0588069035             -0.28423022
## 94  -0.771849657 -0.229274672       0.3238438893             -1.01715330
## 95  -0.016971430  0.132407764      -0.1331945090             -0.45170560
## 96   0.144501897 -0.059212347       0.0000000000              0.64690322
## 97  -0.121468142 -0.761651024      -0.3001337427             -0.74949890
```

```
## 98   0.245609327  0.029024208      -0.4283362335              0.46914469
## 99  -0.130933774 -0.047708751      -0.0163281490              0.23318233
## 100  0.404372612 -0.364355243      -0.1156280550              1.70248082
## 101 -0.226712878 -0.420049804      -0.0847273938              0.05836727
## 102 -0.013817778 -0.193750625      -0.1540725958              0.65161973
## 103  0.389004737 -0.222369381       0.0226424185              0.76565729
## 104 -0.348590526  0.033547092       0.0147289220             -0.21544537
## 105 -0.350098311 -0.230969102      -0.1545642935             -0.03144812
## 106  0.133317707 -0.095899809      -0.1823833747             -0.19616241
## 107  0.000000000 -0.034540930      -0.0252040790              0.59625853
## 108 -0.002042637 -0.254867416      -0.1616727285              0.35087210
## 109  0.264098418  0.084275211      -0.3989705120              0.04681617
## 110 -0.461980350 -0.117591069       0.6045388900              1.37859714
## 111  0.089328842 -0.004009423       0.0866264045              0.61040551
## 112  0.041091575  0.124685585      -0.1351642915             -0.02046804
## 113  0.026251122 -0.265868307      -0.0317908645             -0.35220636
## 114 -0.154305315 -0.061118698      -0.2192364455             -0.21343853
## 115 -0.035050147 -0.047773267       0.0232370770              0.33605174
## 116 -0.061428085  0.415088901       0.0475748528              0.01963209
## 117 -0.397797014 -0.365611101      -0.0501424087              0.26325798
## 118  0.129948329 -0.141001303       0.0063280970              0.49117666
## 119 -0.113970796  0.385501221       0.4825172000             -0.45648469
## 120  0.217685495 -0.290728601       0.1497739360              0.23565143
## 121 -0.251582970  0.089849109      -0.1185582438              0.08581818
## 122  0.773842006  0.231938413       0.0003333625              0.22748603
## 123  0.094869841 -0.181071001       0.1700654455              0.57672276
## 124 -0.153456845 -0.003204551      -0.0865980490             -0.22442344
## 125 -0.179837546 -0.052820780       0.0441678890              0.31957480
## 126 -0.372961716  0.524009220      -0.0126790335             -0.23754988
## 127  0.192201394 -0.044195716       0.0000000000              0.03919656
## 128 -0.154430738 -0.201610198       0.3164225435              1.01458320
## 129  0.062168119 -0.175302030      -0.1190559405              0.38498147
```

```
## 130  0.154026969 -0.121343646      -0.0515804295              0.06813880
## 131  0.087446688 -0.270356129      -0.0551512485             -0.02463529
## 132 -0.177282441 -0.445654322       0.2475504280             -0.24669215
## 133  0.062287748  0.010254934       0.1110162285              0.43278835
## 134 -0.123344039 -0.129718067      -0.3496357608              0.61241447
## 135 -0.136300607  0.374811471       0.0698093428             -0.23694102
## 136  0.378360945  0.020740075      -0.1033840938             -0.13475492
## 137 -0.141789845 -0.022612728       0.0873541658             -0.11782216
## 138 -0.064786312 -0.128989573      -0.0988728680             -0.16487052
## 139 -0.017725009 -0.040797997      -0.0989431210             -0.36613780
## 140  0.072730064 -0.195966850      -0.1480770142             -0.36811459
## 141  0.126705300 -0.306514591      -0.0299817105             -0.18619951
## 142  0.020220525  0.488705361      -0.0773310552              0.24676182
## 143 -0.194037673  0.015317939      -0.0893092688              0.11336810
## 144 -0.350266850 -0.233896650      -0.0049413835              0.66286579
## 145 -0.185985440 -0.108671289      -0.1386361400             -0.34141079
## 146  0.078247733  0.080113490      -0.0556276830              0.11795458
## 147  0.524217805 -0.036289715      -0.2204265565              0.25542303
## 148 -0.335092591 -0.007596986      -0.0969497395             -0.54348769
## 149 -0.353996761 -0.071746568       0.1158601320             -0.31762832
## 150  0.224521195 -0.463724626      -0.1927660207             -0.34261050
## 151 -0.212767572  0.152384756      -0.1074048750             -0.34450931
## 152 -0.462376299 -0.211059689       0.1655680300              0.40160784
## 153 -0.692542168 -0.296810935       0.0387234675              0.17885030
## 154 -0.542376374  0.140282453       0.0015161973             -0.41305982
## 155 -0.385351305 -0.112931604      -0.0667623618              0.22117556
## 156 -0.191618238  0.287446624      -0.3955206645             -0.42547758
##            pp_PR pp_PRAS40.pT246     pp_PRDX1     pp_PREX1      pp_PTEN
## 1    0.104916180     0.024662789 -0.187698797  0.809358198  0.112429782
## 2    3.849083919     0.102569143 -0.153136361 -0.384720340  0.636044502
## 3    0.086957528     0.014400609  0.545213734  1.781130177 -0.213253690
## 4    0.447187269     0.068360038  0.219991255  2.327026746  0.591263559
```

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## 5    0.154232042     0.020323164  0.019834189  0.140413549 -0.061045538
## 6    0.025386408     0.313502157  0.105111159 -0.675360271  1.135312367
## 7    0.199732586     0.006402324  0.061544385 -0.456145872 -0.154205023
## 8   -0.045477667     0.119583544  0.172209476 -0.305836889 -0.254948793
## 9    0.057530483     0.152725271 -0.173733486 -1.023491501  0.563826109
## 10  -0.095145062    -0.145454204 -0.078249690  0.862195403  0.150408356
## 11   0.051418829     0.250257682  0.243788469  1.243981372 -0.078699574
## 12  -0.263080407     0.068463448 -0.311964438  0.260812014 -0.124171215
## 13  -0.987307675    -0.038606051 -0.171569102 -0.003173035  0.277949194
## 14   2.708687470    -0.070895885  0.026959225 -0.597696897  0.000000000
## 15   4.850192601    -0.310019422 -0.018401469 -0.066916019  0.096879125
## 16   4.765937826     0.309035763 -0.268186896  0.104269055  0.067884377
## 17  -0.791592764    -0.229914669 -0.240691443  1.103762917 -0.366001030
## 18   1.105315845    -0.108024777  0.338743843  2.033990750  0.007718615
## 19   4.978249465    -0.259514113  0.060933192  0.848637918  0.201700421
## 20   2.045416032     0.125526309  0.053847716  1.451138666  0.174682111
## 21  -0.879295162    -0.057679161 -0.260686140 -0.371237896  0.144034823
## 22  -1.034955836    -0.316459176  0.879988386 -0.628195124  0.040239909
## 23  -0.963291952    -0.079217946 -0.410802767 -0.576973903  0.627840940
## 24  -0.083344110    -0.183379442  0.089344856 -0.587885635 -0.191439030
## 25   5.411550594     0.250926936 -0.101863464  1.362998317  0.111349855
## 26   0.695128351     0.387300423  0.069016590  0.413548713  0.069451432
## 27   3.655512364     0.170466449 -0.137243593  1.159544265  0.251028700
## 28  -1.006369040     0.199531914  0.094080194 -0.344740906  0.547889910
## 29   0.113665114     0.116669973 -0.105541199 -0.725221099 -0.617983861
## 30   2.151081900    -0.465727351 -0.199017342  1.013681192 -0.433364719
## 31   2.782556174    -0.190141824  0.399449591  0.565839885 -1.019018127
## 32   3.317021754     0.295735871  0.276330409 -0.759662231  0.057679726
## 33   1.294632517    -0.142908876  0.015461724 -0.251576483  0.280219883
## 34   3.322589728    -0.278845375 -0.221544804  0.356821239  0.043752350
## 35  -0.861039380    -0.032858906 -0.083630777 -0.026260396 -0.126739021
## 36  -0.753289291     0.009936806  0.489730407  0.000000000  0.281093194
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## 37   2.056699753    -0.378336580  0.249185908 -0.244384450  0.414173496
## 38   1.226214842    -0.248146564  0.475976599  0.618268803 -0.223873312
## 39   1.336506736    -0.247350596  0.437190262  0.676255398 -0.125781563
## 40  -0.288717658    -0.119322907  0.012726647 -0.314787003  0.298860053
## 41  -1.346078857     0.407557524 -0.111657029 -0.571576135 -0.287915331
## 42  -1.044014659     0.071159672 -0.227949915 -0.171587620  0.342893310
## 43  -1.181221373     0.372000712  0.285629916 -0.257918792 -0.565169855
## 44   2.778158464    -0.258544791 -0.393472592 -0.225467309  0.219857115
## 45   1.623433004    -0.363503160 -0.200744196 -0.566452139 -0.450925641
## 46   5.219721104     0.060200972 -0.177223703  0.690756211  0.277228363
## 47   3.229556381    -0.183828802 -0.219634663 -0.740842219 -0.189653659
## 48   0.129034139    -0.575586273  0.000692888  0.020188017  0.499489095
## 49   2.201522601     0.319612114 -0.250995827  0.138848699 -0.189037984
## 50   4.858737450     0.185410391 -0.706838688  1.188898272  0.492802966
## 51  -1.268197986     0.295104360 -0.455313601 -0.337078781 -0.515422526
## 52   0.497649664     0.199092731 -0.411405666 -0.693627560 -1.158147561
## 53  -0.662756566     0.121191283 -0.296077112  0.290972807  0.076781892
## 54   1.627265107     0.005923203  0.049738501  0.262984872  0.188275068
## 55   3.529609073    -0.406937859  0.057649868  0.094885459  0.582930084
## 56  -1.140558080     0.123617036 -0.105986397 -0.434630929 -0.110103305
## 57  -0.191934823    -0.065755757 -0.140797293 -0.553128381 -0.404240276
## 58   3.972579137    -0.519279810  0.106403552  0.304092123  0.808194381
## 59  -1.193825094    -0.066580186 -0.152945122 -0.799359368 -0.293697606
## 60  -0.489905698    -0.751753009  0.058989286  0.002576650  0.186096799
## 61   0.051919690    -0.146120622 -0.434547569  0.050882419 -0.197475660
## 62  -0.064399659    -0.192217371 -0.042124154 -0.959975626  0.774767905
## 63   0.739572756    -0.340808303  0.375788560  0.333373735  0.351385589
## 64   0.428967368     0.002008240  0.122766658 -0.981020507 -0.563435675
## 65  -1.370070218     0.184660576 -0.213624713 -0.670541166  0.102663775
## 66   0.054190010    -0.077372442 -0.228296851  1.594644612  0.858225154
## 67   0.140239835    -0.093990935  0.406107049  0.260590566 -0.619460320
## 68  -1.553055942     0.244747668  0.699725213 -0.771354866 -0.216353848
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## 69   2.831642949    -0.101304622  0.156687731  0.194509020  0.363047524
## 70   1.545418777    -0.126825669 -0.128289886 -0.203916095 -0.019331614
## 71   0.255531158    -0.274734637 -0.369468243  0.050131452  0.370178824
## 72  -1.839210112    -0.314732277  0.092711594  0.106539018  0.105601704
## 73  -1.781788412    -0.107161933 -0.261144113 -0.855718484 -0.226594955
## 74   4.958739904     0.101027753  0.220916346  0.726176999  0.182566136
## 75  -0.439008265     0.320298096  0.003899886 -1.059548386 -0.121185113
## 76   4.848716387     0.320132217  0.028324878  1.161624410 -0.296438044
## 77   0.053077559    -0.066792631 -0.543103395  0.126708484 -0.028614060
## 78  -1.094997788     0.164681160 -0.345067111 -0.577161285  0.541831691
## 79   4.458424641     0.459377500 -0.082936268  0.044293537 -0.362445330
## 80  -0.008943078     0.116353392  0.659717618 -1.762539432 -1.009047236
## 81  -0.304649582    -0.421216219  1.355397153  0.737014370  1.147826280
## 82   0.071420710    -0.155093359  0.699114455  0.080731672  0.491543583
## 83   0.309438129     0.014135993  0.091020694 -0.378649493 -0.060019511
## 84   3.281783602     0.295423210  0.326036647  0.098942729  0.071556170
## 85  -2.119101878     0.341751065 -0.236262136 -1.138814770 -0.028268237
## 86  -0.486753257    -0.238702436  0.209171480  0.287106745 -1.512916973
## 87   0.299634721     0.170379507  0.427538232  0.202232331 -0.297960940
## 88  -0.896222801     0.251367452  0.671945616  2.225559781  0.512541630
## 89  -0.734659559     0.339559239  0.136351394  1.828503575  0.295768765
## 90   0.039285528     0.194274471  1.158076908  0.807506536  0.604127252
## 91  -0.410658656     0.405786400 -0.182266663  0.012257814  0.219538877
## 92  -0.746942210     0.041576155 -0.004601811 -0.445327649  0.263352070
## 93   2.369987835    -0.173390310  0.023156262  0.467493002 -0.017538052
## 94   0.533910329     0.079034019  0.003188820 -0.870428915 -0.608618116
## 95   0.589918631    -0.119349044 -0.272416695  1.101179758 -0.023826620
## 96  -1.014007918     0.224791267 -0.194241057  0.113939070  0.455974708
## 97  -0.160071668     0.260118116  1.090870038 -0.581947322  0.055325920
## 98   0.362977080    -0.355523302  0.270967030  0.926697963 -0.435508220
## 99   0.330465386     0.064330729 -0.006200948  1.119485618  0.560440379
## 100  5.079082219     0.282071658 -0.122025156  1.731782719  0.396955363
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## 101 -0.159056591     0.199094580 -0.311498197  0.484929569 -0.273238025
## 102  0.083183841     0.169111441 -0.027452615  0.954666629  0.309721605
## 103  3.098254960     0.548021676 -0.153369921  1.217479028  0.563648530
## 104 -0.811172542    -0.202461763 -0.343053631 -0.543465927  0.449403461
## 105 -0.748907072    -0.019630772  0.079177374  2.904370190  0.581310880
## 106  1.033947105     0.050780680 -0.086035129  0.867989005  0.467814678
## 107  4.421557067     0.409269598 -0.164240610  1.404081326 -0.066853425
## 108  1.752287877    -0.111867669  0.095739008  1.663267336  0.078232908
## 109  2.146657815    -0.057490048  0.000000000  0.230908079  0.102182511
## 110 -1.032514391     0.220634182 -0.514523346 -0.601895950  0.139129971
## 111 -0.964450371     0.397419218 -0.099621331 -0.211200753  0.684684268
## 112  3.076008959     0.041317664  0.296854212  1.676673934 -0.096072249
## 113 -0.037153755     0.061912754  0.362509128  0.427661018  0.355101256
## 114  1.925736639    -0.019575338  0.294318631 -0.600473812 -0.029485098
## 115 -0.127076468     0.430850504 -0.108644106 -0.361960644  0.057697016
## 116 -0.028199332     0.167197330 -0.388958844  0.125923509  0.502352132
## 117 -0.147048665     0.336009663 -0.442862732 -0.225171368  0.078863300
## 118 -0.643147523     0.461000287  0.168318155  0.614894537 -0.021032023
## 119  1.461117108     0.152591388 -0.460873077 -0.295368889 -0.919120034
## 120  0.505519912     0.233428209 -0.111762312  0.726434240  0.941360456
## 121 -0.228096723    -0.019813359  0.488779030  0.212935526  0.432457008
## 122  5.670228961     0.070521564 -0.596397690  0.979526462  0.121500829
## 123  5.793065388     0.391940323  0.119471246  0.271098075  0.352908303
## 124 -0.843164067     0.437862739  0.178209468 -0.480237260  0.533005822
## 125 -1.089420030    -0.259564587 -0.090597177 -0.680534690  0.584040925
## 126 -0.096660357     0.042223973 -0.317249828  0.445307538 -0.442778590
## 127  1.757911456    -0.045018847  0.384534672  0.120622486  0.084621258
## 128  0.470899640     0.169286324 -0.051662486  0.644005211  0.550861338
## 129 -1.088584654     0.159562172  0.522467517 -0.614785585  0.143125023
## 130  0.154747817     0.488786723  0.179760821 -0.093616293 -0.072000782
## 131 -0.876206680     0.133357674  0.393323682  0.626977022 -0.559553512
## 132  3.515247143    -0.010793233  0.203632886 -0.308553793  0.436125076
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## 133 -0.888421434     0.379165080  0.260122858  0.399629754  0.119127959
## 134 -1.891310199     0.734600888  0.590095281 -0.260710735 -0.129590302
## 135  2.899309641    -0.027194570 -0.317351802 -0.119616181 -0.107826569
## 136  0.163729034    -0.060871334  0.087627881  0.447256041  0.484179949
## 137  0.022787808    -0.162897822 -0.221682831  0.442683558  0.277842842
## 138 -0.005032369     0.150277321  0.195841864 -0.684143983 -0.746014569
## 139  0.656958024    -0.306562903 -0.063004715  1.590499914  0.175683535
## 140  0.028542151    -0.343218097  0.222491009  0.162553575 -0.233546021
## 141  0.013767423     0.114936713  0.195272682 -1.115342699 -0.951497829
## 142 -0.218114423     0.141896511 -0.103000631  1.133401315  0.080027387
## 143 -0.211745891     0.762963604 -0.499274746 -0.795483016 -0.823688435
## 144 -0.182887111     0.001829024  0.155440973  0.592505440  0.092711535
## 145 -0.168723835     0.408755996  0.339835149 -0.601216997 -0.307913903
## 146  2.563451774    -0.386696260  0.095784935  1.908197562  0.636111391
## 147  4.107513464    -0.012015678 -0.048949978 -0.056846775  0.573398332
## 148  0.009617099    -0.108562975  0.165361526 -0.777904000  0.689421716
## 149  0.642937616     0.019360636 -0.099749746 -0.146618821  0.338777400
## 150  0.017600560     0.179105493 -0.229335072 -1.439252539 -0.291277347
## 151 -0.028624697    -0.071023954 -0.218680203  0.450189130 -0.195789197
## 152  0.034859215    -0.051422040 -0.059394192  0.210287240 -0.012235348
## 153 -0.175472469     0.298551774 -0.496064491 -0.740833817  0.055629067
## 154  0.055784364     0.099441152 -0.411191503 -1.226166052 -0.255723847
## 155  0.164485033     0.486433574 -0.340003277  1.728689220  0.340231734
## 156  3.605931969    -0.606515386 -0.411565984  0.007277155 -0.394023109
##      pp_Paxillin    pp_RBM15     pp_Rab25      pp_Rad50     pp_Rad51
## 1   -0.085389194 -0.41676467  0.118606637  0.1320710255 -0.297700378
## 2    0.387892525 -0.30922656 -0.114978780 -0.0819352475 -0.064930661
## 3   -0.081101518 -0.42236282 -0.498535120  0.0470971740  0.047691994
## 4   -0.227980257  0.09261598  0.494328239 -0.3052089307 -0.264379591
## 5   -0.362513875 -0.75224728 -0.533809955  0.0516878295 -0.267241138
## 6   -0.334677809  2.23718744  1.111266648 -0.4496536730  0.014822929
## 7   -0.140634951 -0.97096934 -0.379678434 -0.0356091890  0.225398785
```

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## 8   -0.282216151  0.51266101  0.326956836 -0.1532302975  0.336106675
## 9    0.165095252  1.03688919 -0.026708631 -0.3692848655  0.233275242
## 10   0.029383685  0.20140120  0.192438339 -0.0177632992 -0.159691532
## 11  -0.457744557  0.58779518 -0.235500051  0.4821845540 -0.038456623
## 12   0.183397775 -0.06114515 -0.615907044  0.1008447735  0.022100557
## 13  -0.134415526  0.41647485  0.679145974 -0.1918093340  0.097533748
## 14  -0.010583469 -1.59881449 -0.323606218  0.0001094570  0.000978352
## 15  -0.107178609  0.19190550  1.098078787  0.4611668500 -0.172254447
## 16   0.412610663  0.12379597 -0.016364082  0.2330664710 -0.129185973
## 17  -0.078363768  0.28909102  0.204486244  0.2035607835  0.028701815
## 18   0.102439572 -0.41196761 -0.137061738 -0.0885286005  0.022390317
## 19   0.177397540 -0.05457573  0.661431752  0.4094807435 -0.109270855
## 20   0.313916684  0.62083720  0.218538989  0.3187541740  0.205346260
## 21   0.184483141  0.10005789 -0.342036357 -0.1139247235 -0.052171782
## 22  -0.551237905  0.05196228  0.036499954 -0.4301160845  0.265724415
## 23   0.039650893  0.01297759  0.220143545  0.1478103180  0.137841765
## 24   0.042582402 -0.24117086 -0.468800031 -0.1233750540  0.045651603
## 25   0.033559608  0.10490823  0.760936365  0.1280670725 -0.210697442
## 26   0.346869382 -0.47748443  0.171330613 -0.2760280100 -0.017426964
## 27   0.230774026  0.20085295 -0.183860201  0.1136899550 -0.137761776
## 28  -0.028135757  0.38653284 -0.498275613 -0.1834466720  0.080009228
## 29  -0.339967473 -1.73000543 -0.552865686  0.2124161690  0.380594886
## 30  -0.200389429 -1.25252486 -0.087603166  0.1327148145  0.214724477
## 31  -0.735355504 -1.65797766 -0.829709114  0.4677222290  0.395876025
## 32   0.220477911 -0.63988269 -0.241231770  0.0435287070 -0.300508456
## 33  -0.053486368 -1.60595805 -0.267085458  0.0319941205 -0.110573555
## 34  -0.075638600 -1.01542818 -0.285757217  0.1027272615  0.037401645
## 35   0.042992087  0.04115132  0.008833869  0.2243980005 -0.022736755
## 36  -1.110605722  0.03029313 -0.290171976 -0.1567474695 -0.056106202
## 37   0.601826014  0.39986778 -0.149929501  0.0065956870 -0.043396292
## 38   0.129131878  0.19951569  0.508639115  0.2981051135 -0.031037338
## 39   0.186850247  0.24467902  0.493817773  0.2621032285  0.054267009
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## 40  -0.082761574  0.47632382  0.318499677  0.2638328910  0.021459946
## 41  -0.243271768  0.99607940  0.795431556 -0.0687158055 -0.222423092
## 42   0.404428215  0.09999943 -0.492654669 -0.2327692700  0.000000000
## 43  -0.127897357  1.08598958  0.091096311  0.0637223965  0.129243010
## 44  -0.232916560 -0.65151969 -0.436659147  0.0021950020  0.437925104
## 45   0.017794641 -1.02171280 -0.178989311  0.0815220035  0.410724082
## 46   0.321189706  0.54840130  1.129907470  0.2035413240 -0.007280597
## 47   0.235671384 -0.64438737 -0.046396979  0.3227321255 -0.126406060
## 48   0.883614300 -1.65885733  0.766079503 -0.0258844945  0.016484982
## 49  -0.198610575 -1.34047233 -0.589407602  0.2374914345  0.686954558
## 50   0.110470913  0.00000000  0.891934723  0.1346201790 -0.166548764
## 51   0.163730361  0.63008336 -0.054714255 -0.0765985080 -0.027012166
## 52  -0.214689118 -1.78746849 -0.897138065  0.5618158095  0.767165411
## 53   0.647376047  0.29378495 -0.183122630  0.0548270935  0.101038165
## 54   0.024277394  0.38681824 -0.331866914 -0.1088434085  0.014285940
## 55   0.131374988  0.23858772 -0.041420848  0.2979382305  0.024463671
## 56   0.162718328  0.38957445 -0.023594049 -0.1535199620  0.030442685
## 57   0.113878680 -1.22520914 -0.146161295  0.0245356010  0.570487575
## 58   0.560046284 -0.55323811  0.085021865  0.0000000000 -0.098615474
## 59  -0.025553076  0.39795715  0.214959610 -0.0934976665  0.290376531
## 60   0.589442872 -0.27998477  0.419179334 -0.1486451360  0.237279019
## 61   0.077384648 -0.96335116  0.102451957 -0.1233849625 -0.290511550
## 62   0.180331855  0.12126738  0.070200636  0.1485727045  0.206589037
## 63   0.062688498  0.01877011  0.575425193  0.1482361040  0.398431598
## 64   0.497186122 -1.94255282 -0.811835222 -0.0015739470  0.571554113
## 65   0.044904480 -1.26637744 -0.982186421 -0.0101810777  0.133284636
## 66  -0.068583827 -0.10135805 -0.949148125  0.3650134468 -0.034773298
## 67   0.131177811 -1.77457788 -0.362653377 -0.2955689860 -0.049655965
## 68   0.257713285 -1.74538502 -0.151789293 -0.3741063003  0.186265347
## 69  -0.295284119 -1.21929553  0.311808012  0.2500585940  0.019195171
## 70  -0.079882817  0.73662271 -0.033105001 -0.0540824023  0.233185590
## 71  -0.425504601 -0.27743125  0.686559412 -0.3144686092  0.369835572
```

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## 72  -0.601411087 -0.62700917  0.104877525  0.2475938865  0.052128543
## 73   0.342717038  0.55470637 -0.906859819 -0.1464499842 -0.031568452
## 74   0.311887066 -0.16081110 -0.404844996  0.4171356725  0.078184158
## 75   0.250104911  0.92202396  0.293635648  0.0132846850 -0.101589518
## 76   0.379951710  0.41161931  0.137744535 -0.2005214675 -0.295215548
## 77  -0.066728532 -1.67138422 -0.333826150  0.3313361360  0.178327357
## 78   0.329295881  0.38698889  0.409648866 -0.2014239525 -0.069498378
## 79   0.112351751 -0.51982711  0.519298835 -0.0099833960 -0.228820925
## 80   0.222922554  0.01801380  0.940271051 -0.4837265815  0.004114025
## 81   0.509382756  0.88848951  0.261149621  0.6388523430  0.240080926
## 82  -0.146899941  0.23220681 -0.395133077 -0.0174303550  0.551444587
## 83  -0.150004886 -0.91684310 -0.008519220 -0.0204187715  0.021453085
## 84   0.203429305  0.33982434 -0.358617514 -0.1791743772  0.043881059
## 85   0.571302213  0.67815034  0.748204920 -0.0997767167 -0.108342575
## 86  -0.888621518 -1.33755868 -0.364698427  0.0264140530  0.384451932
## 87   0.395793977 -1.84772169 -0.606561445 -0.3132440822 -0.416504730
## 88  -0.190051134  0.68298694  0.184081268  0.0008705695  0.027713939
## 89   0.356706152  0.07335595  0.688473867  0.3788853445 -0.151610046
## 90   0.118888579  0.25592685 -0.035965101 -0.3007771292 -0.035144688
## 91   0.521230344  1.08053992 -0.433098227  0.0403353570 -0.027797274
## 92   0.413815478  0.57641231 -0.887864482 -0.1740289650  0.050367401
## 93   0.002991777 -0.02247905 -0.481189208 -0.1788564280  0.119633402
## 94  -0.452485148 -2.38974828 -0.621178154 -0.4482191107  0.192154124
## 95   0.215791152 -0.81614807  0.008249092  0.5131442430 -0.081710360
## 96   0.677202086  0.34830689 -0.499077673 -0.2693059975 -0.235985631
## 97  -1.130382090  0.38860108 -0.662673247 -0.6237017277  0.265857653
## 98  -0.608740929 -1.27337334 -0.131764318  0.2918450210  0.000000000
## 99   0.474183449  0.51963293 -0.462312272 -0.1921685505  0.024343678
## 100  0.370179953  0.12675128  0.115236574  0.0154758245 -0.084439765
## 101 -0.380010890 -0.28169483  0.365558324  0.1814168862  0.049771116
## 102 -0.014984042  0.20315076 -0.036155624 -0.0409233038  0.020335123
## 103 -0.006260567  0.16160462  0.662547535  0.0823158480 -0.319810044
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## 104  0.511316257  0.08475632 -0.317086553 -0.0722322015  0.234873654
## 105 -0.069973636 -0.01036117 -0.375810316 -0.0931370490 -0.006535084
## 106  0.103667942  0.22137949 -0.767656238  0.7607619633 -0.007964431
## 107  0.212162901  0.54585223  0.951701768 -0.2049097175 -0.259714636
## 108  0.028123453 -0.50558618 -0.257321174 -0.2037294970 -0.197780350
## 109  0.004194163 -0.86311545 -0.400505681  0.2151041265  0.148263051
## 110  0.416120359  0.22670985  0.057177117 -0.1712552535  0.098888677
## 111  0.235663085  0.56345502 -0.247924954 -0.1163954630 -0.132276480
## 112  0.094042048 -1.11292042 -0.326720655  0.0788259920  0.015816173
## 113 -0.191836378 -0.12625972  0.136258418 -0.3623468820  0.017899731
## 114  0.104091508  0.62825399 -0.257704942  0.2262142440 -0.249003467
## 115 -0.370878386 -0.03983783 -0.392585949 -0.2338273950 -0.011924789
## 116  0.160832718 -0.01346438  0.411876650  0.0551147478 -0.385261308
## 117 -0.441929406 -0.29518457 -0.508535158 -0.0352339787 -0.169830595
## 118 -0.034843673  0.05376221 -0.323768534 -0.1172132315  0.117783383
## 119 -0.747687044 -1.98077622 -0.632781923  0.2470559385  0.568840323
## 120  0.504500334  0.04258119  1.018156207  0.4028125670 -0.159864857
## 121  0.089803262 -0.16540016  0.452559098  0.1798128213 -0.205165883
## 122  0.237287936 -1.08286670 -0.258855325  0.2498947240 -0.295904903
## 123  0.462308221  0.59144084  0.842070263  0.8187489920 -0.105294607
## 124 -0.089180451 -0.28573220 -0.170089678 -0.0423962505  0.066781600
## 125  1.015993732  1.13118452  0.493122911  0.0573594255  0.073119379
## 126 -0.158391652 -1.04734592 -0.093104874  0.0203011480  0.217631120
## 127  1.141509706  0.42625168  0.050708802 -0.1404369815 -0.145791291
## 128  0.213711139  0.51990224  0.300320522 -0.0883603450 -0.062906843
## 129  0.096427055  0.15669892  0.153340846  0.1714054610  0.037629396
## 130  0.285618868 -0.27580893  0.467195961 -0.1781688830 -0.014423931
## 131  0.271503764  1.40441777  0.030178885 -0.0235978520 -0.039643729
## 132  0.086022227 -0.52767575  0.489753121 -0.1632148375  0.164414643
## 133  0.066106540  0.60655533 -0.778955283  0.0748489460 -0.143589754
## 134  0.529798208  0.22266762  0.187828330 -0.3521921097 -0.301255481
## 135  0.081642437 -0.36451942 -0.487229172 -0.0401579193  0.046867533
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## 136  0.317544220 -0.23645958  0.153144917 -0.0897230788 -0.103046327
## 137  0.177237094  0.10963750  0.597385598 -0.1701569422  0.107754420
## 138  0.052024438  0.79644855  0.421338887  0.1989001710  0.019999841
## 139  0.496183003  0.26279070 -0.038390705  0.1261534310  0.101540363
## 140 -0.053152947 -0.16032734  0.933596744  0.1911770957  0.120321451
## 141 -0.032010057  0.28693862  0.696733646 -0.3166504255  0.073574249
## 142  0.255890402  0.08744424  0.197672566 -0.0964668312 -0.034648104
## 143 -0.005062408  0.76697253  0.068656565  0.1440491443  0.129041212
## 144 -0.176664198  0.20884592 -0.194169266 -0.0632621265  0.118146486
## 145 -0.207061387  0.27641543 -0.102212040  0.0479738180  0.332834187
## 146  0.154542943  0.98147121  0.174271413  0.6139589645 -0.049905270
## 147  0.130864588  0.43344372  1.012617684  0.0870106960 -0.171358239
## 148  0.065318937  0.19252791 -0.603283473 -0.2500622805  0.206243335
## 149 -0.137146379  0.09029968  0.349524241  0.6248871790 -0.080697072
## 150 -0.418339308  0.61601078  0.659940772 -0.2885606387 -0.001890077
## 151 -0.239471673 -1.39939711  0.618904339 -0.0745389460 -0.137996336
## 152 -0.063853327 -0.03457459  0.273129670  0.0807476150  0.099342406
## 153 -0.074300586 -0.26110202  0.316144770 -0.3921427305 -0.031091660
## 154  0.219857950  0.12903439 -0.891954528 -0.0729973337  0.033316812
## 155  0.234346553  0.76282807 -0.463736673  0.2155305332 -0.196772063
## 156 -0.319328469 -0.67494552  0.089738940  0.0816396260  0.001150837
##        pp_Raptor         pp_Rb pp_Rb.pS807.S811    pp_Rictor pp_Rictor.pT1135
## 1    0.283316230  0.0023495765      0.335146631  0.195325267      0.185633726
## 2    0.061041294 -0.0396013090      0.386021212 -0.213307026     -0.073387754
## 3    0.268390253 -0.1383311520     -0.313389172  0.609247557      0.050473828
## 4    0.634199553  0.3807892092      0.245451996  0.434065091      0.493546510
## 5    0.056193773 -0.0813559765     -0.103411269 -0.316077110     -0.031402715
## 6    0.510163317 -0.5866389805     -0.706196685  0.018772402     -0.421715124
## 7   -0.224414658  0.5145481750     -0.521933049  0.432280152      0.418429528
## 8   -0.064475186 -0.2632749865     -0.460245778 -0.049304882     -0.149828163
## 9    0.287838099  0.0414665605     -0.648135941  0.060932757     -0.116439086
## 10   0.221974550 -0.1781468273     -0.451683908  0.026338145     -0.171045896
```

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## 11   0.342872195 -0.1722522510      0.134743979 -0.303101487      0.440401698
## 12  -0.232801795  0.0669377560     -0.071302411 -0.216524488      0.038450087
## 13   0.024257725 -0.2131186365     -0.079972799 -0.081168033     -0.093282196
## 14   0.397609298  0.1404331115     -0.805600384 -0.899187358      0.052993292
## 15   0.416962094 -0.1702996785      0.329320939 -0.057609530     -0.278415480
## 16   0.394521770 -0.1364258615      0.736754432  0.065849401      0.135812810
## 17   0.946638426  0.0387270680     -0.348759633 -0.251166862      0.080103078
## 18   0.554560930  0.0967975360      0.338708310  0.111155822      0.200306735
## 19  -0.312345298 -0.0094777670     -0.487748067 -0.151876932     -0.086256914
## 20   0.432821470 -0.0928974625      0.457514427  0.059669499     -0.020834801
## 21   0.497880844 -0.2108201420      0.380195911 -0.033523385     -0.193069109
## 22  -0.447333187 -0.0057136720     -0.002521382 -0.638083427     -0.100830669
## 23  -0.398392062  0.1215491975      0.247068384 -0.224622631      0.111587732
## 24  -0.439405232  0.1551209550     -0.956548625 -0.529735794     -0.012704677
## 25   0.256067636 -0.1993996700      0.157310699  0.036679312      0.120237584
## 26   0.396205329 -0.2567840625     -0.452789891 -0.535298244      0.384181469
## 27   0.548178864  0.0184367995      0.023218321  0.526996898      0.076493711
## 28   0.035661173 -0.0306291815      0.886207845  0.215823568      0.119083919
## 29  -0.462464384  0.8737007505     -0.309934088  0.814087402      0.604170755
## 30  -0.032343198  0.6736951600      0.411453548 -0.128522769      0.259516424
## 31  -0.153311236  0.7453861195      0.021810863 -0.234334557      0.046737256
## 32   0.233590540 -0.0322577135      0.145063362 -0.093847211     -0.549572109
## 33  -0.343380279  0.8111880400     -0.068203275 -0.451726996      0.014772313
## 34  -0.037303027  0.3957394690     -0.513925153 -0.001074102      0.242222184
## 35  -0.100700814  0.1766274690      0.589737262  0.184528814     -0.055377857
## 36  -0.427651115 -0.1212440070     -0.518813170 -0.588238055     -0.113803501
## 37   0.466564959  0.1259704865     -0.223960604  0.371835168     -0.471811553
## 38   0.038887426 -0.2140081010     -0.346161567  0.081490466     -0.176838818
## 39   0.243145169 -0.1563615310     -0.327913672  0.059118932     -0.231666761
## 40  -0.288284357  0.1353156905     -0.191376956 -0.185288486     -0.372630729
## 41   0.627034416 -0.1921898080      0.739442125  0.000365500      0.343562789
## 42  -0.176479830 -0.1940109405      0.367239257  0.521331974      0.363641055
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## 43  -0.318545889 -0.0687116360     -0.180848196 -0.177645711      0.124050771
## 44  -0.397167700  0.9443529805      0.049721405  1.398840561      0.298843521
## 45   0.254577586  1.2258066700     -0.355279348  0.057761361      0.204576402
## 46   0.360989995 -0.0932646995      0.112097354  0.471076275      0.071986862
## 47  -0.048165870  0.3897207710      0.211573983 -0.130302632     -0.253594728
## 48  -0.659004677  0.5155719670     -0.557799207  0.396719680     -0.167410503
## 49  -0.291922392  0.9028574850     -0.155329499 -0.347874504      0.611594920
## 50   0.283261571 -0.0248117665      1.544647020  0.214744560     -0.013928797
## 51  -0.005065752 -0.2148003235     -0.155647296  0.063986624     -0.127509889
## 52  -0.375946288  1.2991124160     -1.183117012  1.604299517      0.901434953
## 53  -0.133127294 -0.0479270370      0.688080902  0.276377527     -0.017218275
## 54   0.175042949 -0.1952974710      0.234853461 -0.344738397     -0.259359072
## 55   0.000000000  0.5085677000     -0.395445575  0.262593634     -0.432593492
## 56  -0.194633363  0.2023655595      1.069518788  0.235314041      0.282774982
## 57  -0.140741242  1.0827511315     -0.532298813  0.647710027      0.483423000
## 58   0.017332329  0.3599212765      0.154410051  0.511723169     -0.445886760
## 59   0.015077926 -0.1832878920      0.561706681 -0.234336543     -0.389928045
## 60  -0.209879734  0.5536916285     -0.591887182 -0.014537052     -0.291690775
## 61   0.227383512  0.1991862015      0.297365447  0.006659338      0.227875667
## 62   0.488478978  0.2158404615      0.176936032 -0.045779825     -0.055589106
## 63   0.301409735  0.0308821010      0.185580215  0.109723993     -0.299981856
## 64  -0.156808440  1.2295686480     -0.457540805 -0.514448508      0.753077469
## 65  -0.410488339  0.2513965978     -0.775968692  2.690417939      0.322867090
## 66   0.689774754  0.1336102208      1.333990683 -0.288467846      0.060946610
## 67   0.022974600  0.5155473720     -0.775576719  0.258905486      0.334463530
## 68  -0.174239374  0.2826284782     -1.041476364 -0.094476260      0.625172211
## 69  -0.172163330 -0.0655947615      0.375879203 -0.496406054      0.006612040
## 70   0.120511959  0.2146731042     -0.115366931  0.249851606     -0.254198354
## 71   0.042945232  0.2079204062     -0.237909929 -0.785815550     -0.184166452
## 72   0.158957816 -0.0479785880     -0.794439395  0.462327594     -0.232540513
## 73  -0.495013462  0.0062338722      0.200478208  0.271679387     -0.093802533
## 74   0.445135762  0.2366701440      0.497230102  0.317200994      0.153623672
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## 75   0.364519415 -0.3367727685      1.202251812 -0.008994810     -0.048798309
## 76   0.488788864 -0.2499385520      0.733961154  0.142920085      0.382344541
## 77  -0.419341077  0.7409909285     -0.310821085  0.206592655      0.189415776
## 78   0.061015073  0.0884175540      1.002600888  0.190055737      0.392480589
## 79  -0.003839957 -0.0285096765      0.695662268 -0.302020283      0.089355465
## 80  -0.120845070  0.2920357985     -0.354465664  0.066605686      0.285468611
## 81  -0.760906236 -0.2472433535      1.270364668 -0.086060662     -1.533863387
## 82  -0.467713840 -0.1291253125      0.614081970 -0.705452232      0.124607648
## 83   0.179022629  0.1573606820      0.479694557  0.790777413      0.261823586
## 84  -0.171323572 -0.0433109618     -0.116390218  0.274958332      0.281040686
## 85  -0.372092104 -0.2628222472      0.714133461  1.172915807      0.199672390
## 86   0.504422745  0.3908473025     -0.527638231  0.114746755      0.283820935
## 87  -0.242609577 -0.0594072463     -0.636326737 -0.335182886      0.060660490
## 88   0.000000000  0.0171117460      0.673426244 -0.118125453     -0.115862547
## 89   0.124664807  0.0187199530      0.460157818  0.178183297      0.091130931
## 90   0.353706386 -0.1640573332      0.664541285  0.632583009      0.677611043
## 91  -0.149940937 -0.0004570665      0.225266149  0.257854971      0.023315709
## 92  -0.088900054  0.2017771365     -0.541016244 -0.189357144      0.113507711
## 93  -0.208371957  0.3566779905      0.556166198 -0.254463494      0.112215307
## 94  -0.294689838  0.7005873323     -0.745274037 -0.720092530      0.221543340
## 95  -0.069394788  0.1219410440     -0.553795093  0.104738222      0.035847248
## 96   0.373599934 -0.3530157970      0.909005368  0.628085899      0.183675338
## 97  -0.534478202 -0.1853883797      0.757932706 -0.778407966     -0.107310693
## 98   0.091317967 -0.0800447905     -0.072975657 -0.095279489      0.211135765
## 99   0.080771197 -0.1973607710      0.923235698  0.331833876      0.375575605
## 100  0.306340566 -0.1393055250      0.789345629  0.210634173     -0.019197919
## 101  0.314275040 -0.2079026707      1.069972447 -0.302834126     -0.169726790
## 102  0.053453794 -0.0596335708      2.254022647  0.370238784      0.382295599
## 103  0.509490245 -0.1133407615      1.073814186  0.558696621      0.086540962
## 104 -0.379078052  0.4179632640      0.115330344 -0.016064732      0.030539045
## 105  0.685591698 -0.0568711485      0.755770051  0.199381006     -0.289304989
## 106  0.117422466 -0.1242783647      0.510687114  0.337524837      0.306209490
```

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## 107  0.342170107 -0.1389060690      0.831595791  0.668091629      0.030756409
## 108  0.583282645 -0.2262040025      0.802920065  0.083380134     -0.101989602
## 109 -0.619217591  0.4518827380     -0.293691739  0.183586714     -0.097364501
## 110  0.034723770 -0.0588549110      1.015775547  0.080985791      0.077969397
## 111  0.413536797 -0.0777325155      1.114018354  0.135266818      0.159459046
## 112 -0.222082610  0.3129540115     -0.280228263  0.510447084     -0.022663483
## 113 -0.205832377 -0.0451100145      0.246580934 -0.697878664     -0.063398072
## 114  0.561630268  0.0048596515      0.599150658  0.050696940      0.040206705
## 115 -0.285974222  0.0771912820      0.940688044 -0.235849655      0.107029228
## 116 -0.086605372 -0.1751006723      0.397722987  0.313641521     -0.012175231
## 117  0.086819123  0.0841288523      0.642191117 -0.525784421      0.230461351
## 118 -0.306737452 -0.1552824900      0.674131008 -0.024198870      0.074726857
## 119 -0.192350993  1.0636750130     -0.622123009 -0.524551810      0.772292698
## 120  0.078845361 -0.1173278070      0.458389665  0.107709071     -0.092260474
## 121  0.248225454 -0.0931544847      0.074608733  0.060645266      0.121485488
## 122  0.055579883  0.0937823075      1.413608551  0.794723639      0.328694706
## 123 -0.104553026  0.0454953195      0.777141508  0.599230034      0.056821054
## 124 -0.327460645  0.2175697730     -0.041676194 -0.282003364     -0.103568906
## 125  0.113649507 -0.1396611090      0.790999607  0.700803922     -0.134625248
## 126 -0.112792803  0.6552383635      0.095620138 -0.234593930      0.035514412
## 127 -0.145817652 -0.2014867440      0.327676976  0.229341321     -0.233044013
## 128  0.787808299 -0.1455778245      1.309412696  1.040953589      0.089553537
## 129  0.542620539 -0.1768286615     -0.196486010 -0.318225620     -0.077466025
## 130  0.113307062 -0.0971439275      0.398335965 -0.254688380     -0.068672317
## 131 -0.140342414 -0.0454377195      0.290286020  0.385930430     -0.173574606
## 132 -0.359118023  0.1772742770      0.037087706  1.350067736      0.053468105
## 133 -0.081120060 -0.1117292095     -0.416783195 -0.107447457     -0.174112765
## 134  0.133531586 -0.3813716133      0.226829442 -0.030539906      0.124325176
## 135 -0.388719554 -0.0342494647      0.119176588  0.286648737      0.041663952
## 136  0.321923779 -0.2219873157     -0.336481700  0.882313319     -0.185677352
## 137 -0.178585320 -0.0707526902     -0.479824134  0.112971926     -0.292048449
## 138  0.239640986 -0.2234883610      0.749965453 -0.161245763     -0.116694301
```

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## 139  0.177867396 -0.0834219470     -1.155533617  0.317114962     -0.161204991
## 140  0.121571032 -0.0151445323     -1.243938482  0.244616680     -0.147290472
## 141 -0.232949270  0.0626524735     -0.670072471  0.021091011     -0.056237395
## 142  0.390130846 -0.2115406713      0.568537396  0.204534096     -0.038153978
## 143 -0.208001951 -0.1314602667      1.082274177  0.118082696      0.212355444
## 144 -0.234335811 -0.1210299085      0.446104191  0.094649353     -0.041819257
## 145 -0.390967796 -0.0778539510      1.331821808 -0.620638628     -0.066656547
## 146  0.541790020  0.1176039850     -0.636893682  0.674147905     -0.171807669
## 147  0.264906370 -0.0975983615      0.517866339  0.047773867      0.062716225
## 148 -0.168074978 -0.0047213545     -0.577587428  0.503303891     -0.103273292
## 149 -0.247882461  0.1524054400     -0.272067628  0.461125623      0.017837552
## 150  0.346535653  0.0317076342      0.125122227  0.036857982      0.034523333
## 151 -0.125452056  0.2369813620     -0.089987766  0.541571746      0.166839577
## 152  0.145572437  0.0065174080      0.550821033 -0.170477519     -0.084814027
## 153 -0.087845722 -0.1021732015      0.681136411 -0.328324371     -0.001733081
## 154  0.154114283  0.3518837452     -0.575419417  0.013843090      0.386017529
## 155  0.106034969 -0.3455841398      0.240808879 -0.020710668      0.104111583
## 156 -0.178784853  0.5140958825     -0.327993593 -0.022479513     -0.018540799
##             pp_S6 pp_S6.pS235.S236        pp_SCD      pp_SETD2       pp_SF2
## 1   -0.341249183    -0.5866931440 -0.2646233725 -0.1182618720 -0.060414833
## 2   -0.483816692    -0.1652933955 -0.2476711040 -0.0592630245 -0.093825209
## 3   -0.394180234    -0.3894903205 -0.1912805700  0.2367413845  0.002676048
## 4   -0.025119984    -0.4982784403 -0.0754372028  0.0407104977 -0.090468838
## 5   -0.590388500     0.5601167780 -0.1680255905 -0.0178806250 -0.117905861
## 6    0.751292061     0.3523461640  0.0393159675  0.0032509290 -0.184008005
## 7   -0.346051935    -0.3494104635  0.0317788010  0.3065440915 -0.064444961
## 8    0.362820019    -0.1412511120  0.0264975915  0.0384362410  0.109711766
## 9    0.543481257    -0.0056525160  0.1830268495  0.1597345570  0.369172729
## 10   0.400371491     0.2491974252  0.0895566067  0.0385780673  0.110218676
## 11   0.300630352    -0.1269371995  0.1933736280 -0.0004456495  0.367237873
## 12   0.086311065     1.4637120715  0.3172977770 -0.0559150285 -0.199648124
## 13   0.157415675     0.8882963290 -0.1181381005 -0.1488197690 -0.401706241
```

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## 14  -0.523182212    -0.4965021170  0.2656455965  0.2043851380  0.028239766
## 15  -0.004391380     0.2569525350  0.2755275815  0.0000000000  0.081537672
## 16  -0.389519633    -0.0194234160  0.1708068805 -0.1774372210 -0.089938690
## 17  -0.782860099    -0.8951697665  0.1454013380  0.0857004735  0.287294842
## 18  -0.254126945     0.0660941735 -2.0471327210 -0.1907127775 -0.092340466
## 19  -0.740577691    -0.8811633465  0.0362265500  0.1736191575 -0.124101042
## 20  -0.146048115    -0.2363426710  0.9522959755 -0.0815510490  0.053707699
## 21  -0.242903340    -0.2490718495  0.9670400620 -0.1357407915 -0.178704906
## 22   0.748115389     0.4622202825  0.5961549320  0.0911077305  0.116565151
## 23  -0.144542807     0.5392930150 -1.6745635295  0.0667155620 -0.070234969
## 24   0.182524987    -1.1478563315  0.0026616110  0.0689492345  0.084157797
## 25   0.037699500    -0.5994635205 -0.2633269220  0.0646202835 -0.173391937
## 26   0.263213748     0.7866964940 -0.4050572725 -0.1648406660  0.032203178
## 27  -0.411325440    -0.0828365140  0.3586971745 -0.1334106490 -0.165239974
## 28   0.251305126    -0.0006059280  0.4066556765 -0.0839447430  0.062023690
## 29  -0.328181049     1.9309956920 -0.8772094735  0.5552562400  0.149610615
## 30  -0.711965629    -1.0415694975 -0.3371571470  0.2775653115  0.133915420
## 31  -1.076914302     1.0250893880 -4.6852755075  0.2057908150 -0.017838000
## 32   0.082117471     0.9061840190 -5.9152833635 -0.6347795820 -0.104730504
## 33  -1.247909216     0.4078561735 -3.8069814540 -0.3864968635 -0.232732031
## 34  -1.335252067    -0.6460673695 -0.3986397410  0.0526405905 -0.052672796
## 35  -0.571834241    -0.2087204915  0.2512996900 -0.1943384995  0.042885432
## 36   0.464842606     1.4893342045 -1.5854544940  0.1759846605  0.031741099
## 37   0.254339474    -0.1138354500 -5.1745853285 -0.3558957650 -0.100182732
## 38   0.158317040     0.5627468625  0.4107819460 -0.0823786495  0.164524835
## 39   0.198481138     0.5216065335  0.4597764470 -0.0723771125  0.139892708
## 40   0.272830761     0.4727653420 -0.1142263995  0.0519254580 -0.014918817
## 41   0.555625144     1.0349132835  0.0256885500 -0.1604650565  0.043151529
## 42   0.152298199     0.6155201710  1.1963346045 -0.1223131090  0.112030549
## 43   0.302334237     0.7499049335 -0.0186479370 -0.0378300305 -0.052451106
## 44  -0.744303247     0.0509524300 -2.9557152255  0.2755912760 -0.142343421
## 45  -0.719776491    -0.3545427215 -4.0202638170 -0.2265645865  0.288449852
```

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## 46  -0.025142702    -0.8868623050  0.3104148305 -0.0164219600 -0.138125568
## 47  -0.378399488     0.4371223765 -5.0936070620 -0.4514567565 -0.254242908
## 48  -0.415783181    -0.0658450065 -3.3585533610  0.1027363015 -0.399888984
## 49  -1.328323780    -0.0803750015 -0.5174161980  0.6413845725  0.084406527
## 50  -0.606328835     0.5719456470 -0.4807924545 -0.1379351820 -0.103912515
## 51   0.368114152     0.6432565730 -0.4532504605 -0.1848521800 -0.337615482
## 52  -1.295510955    -0.8054821385 -1.5763904080  0.9481079605 -0.038386993
## 53   0.111025772     0.2405105165 -1.6845246880 -0.2242253575 -0.083308715
## 54   0.145355303     1.1192265825  1.2536101000 -0.1800140455 -0.110022060
## 55  -0.403928583    -0.9132129795 -4.9611894750 -1.3347108935 -0.116882603
## 56   0.000000000     1.1446675630 -0.2428784525 -0.0524228550 -0.088978637
## 57  -0.629416927     0.3535822440 -1.5263770015  0.5367661160  0.049754998
## 58  -0.134476786     0.1003447690 -1.8985992645 -0.3242938560 -0.371792157
## 59   0.455807423     0.8204903515 -5.7790333870 -0.3298405325 -0.357899352
## 60   0.028537582     0.1705863640 -1.0037199005  0.0678133160 -0.267985248
## 61  -0.881979056     0.3791121970 -0.2638921115  0.1724109910 -0.027221846
## 62  -0.442794334    -0.9969860570  0.5697049335 -0.1879314440 -0.048639374
## 63  -0.036135037    -0.4014200025  0.1590916410 -0.0212878925  0.062972199
## 64  -1.891931141    -0.9876739405  0.0015739470  0.6156530745 -0.212660145
## 65  -0.171423902     1.1198695927 -0.0589669568  0.2686875763 -0.080474739
## 66  -1.021819504    -0.8034494427 -0.1922116973 -0.2878096598 -0.271411381
## 67   0.004216214     0.2681396235 -0.1954708650  0.6353703745 -0.346056372
## 68  -1.705639870     0.3865186642  0.5083399967  0.6447859978  0.385723037
## 69  -0.636858221    -1.6027690995 -0.2115475690  0.0760356580 -0.110109573
## 70   0.439887559    -0.3619987857 -0.2525285562 -0.0934876673 -0.132649538
## 71   0.643949429    -0.3971519937 -0.0966925232  0.2895515598 -0.049723977
## 72   0.760270144     0.8189668050  0.0179156255  0.1654225975  0.156842900
## 73   0.257167213    -1.1694180977 -0.3002505433 -0.0894381273 -0.194027027
## 74  -0.234541749     0.3418839115 -2.8999952460 -0.1408370265  0.058982201
## 75  -0.172696234     0.8797894830 -0.3116926275 -0.2038915620 -0.025183728
## 76   0.094306282     1.7094132555 -0.0084389020 -0.2534565585 -0.010023179
## 77  -1.070883432    -0.9523882570 -3.4314057895  0.2318551330 -0.027593971
```

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## 78  -0.378597927     0.0737573335 -0.0832613190 -0.0025636375 -0.171116413
## 79  -0.767074179    -0.8028038750  0.1249822485 -0.0983253270 -0.095640982
## 80  -0.650712180    -1.0322198380 -0.2715865145  0.1231611130 -0.306859138
## 81   0.869573967     1.4770048675  0.7366484855  0.8652164510  1.342168940
## 82   0.213291269     0.8207221695  0.5203439445  0.3083800430  0.685886242
## 83  -0.107965891     0.0025900530 -0.0491283815  0.1168650955  0.127549892
## 84  -0.270586698    -0.0672135808 -0.0462016612  0.1418636987 -0.027460296
## 85   0.704535750     0.6014428567 -0.3261577817 -0.1126710917 -0.257916507
## 86  -0.718976001    -0.5988626030 -1.7783492675  1.4143213330  0.177865124
## 87  -1.062879833    -0.6455108717  0.4921489627  0.1669798433 -0.060428577
## 88   0.101781794     0.7379735505  0.1128653270 -0.0855026375 -0.029772037
## 89   0.188481990     1.1453462915  0.2252800740  0.0687184695  0.114855992
## 90   0.616304472     0.2909012603  1.5957036957 -0.0477425877  0.191699868
## 91   0.167151468     1.3057073880 -0.0656801535 -0.0789102670  0.016085630
## 92  -0.166202459     0.9236274960 -0.3732761465  0.0416996570  0.153144974
## 93  -1.359227074    -1.3195432940 -0.2868563375  0.1681469940  0.078328707
## 94  -1.367526443     0.0998490587  0.3574500333  0.4773952658 -0.150335048
## 95  -0.231591819     0.2029762695 -0.2534631390 -0.0393213825 -0.092038779
## 96  -0.041228520     1.2584253715  0.2466884840 -0.2699952365 -0.039884933
## 97   0.535453750     0.2868435058  0.0470439352 -0.0509709903  0.192642507
## 98  -0.833078970     0.3182272260 -5.5328137835 -0.3581811750  0.238886458
## 99   0.262843234     0.0640764155  0.0000000000 -0.3117815085 -0.086941853
## 100 -0.083026131     0.3668151125  1.2454289930 -0.1635759105 -0.246298332
## 101  0.319210318     0.2515112347  0.3504474053 -0.1022412463  0.340629297
## 102  0.523354584     1.0144948477  0.0006083182 -0.3015131912  0.332099023
## 103 -0.108570164    -0.1695050890  0.3093359385 -0.1813218790  0.127725280
## 104 -1.113437608    -0.9840878345 -0.2647724370  0.1182198795  0.325915952
## 105  0.042048955    -0.1582866470  1.2538785325 -0.0139512820  0.003694622
## 106  0.116732531    -0.3796074712  0.0527468362 -0.1184827662  0.169402771
## 107 -0.137445837    -0.4197970075  0.1677925320 -0.2477567305 -0.047766688
## 108 -0.264676601    -0.0774596330 -0.2130189585 -0.2644217520 -0.147952410
## 109 -0.364123912     0.4070801365 -5.7717982090  0.1914431935 -0.074668308
```

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## 110  0.053687071     0.5891616565  0.9743499880 -0.0553279155 -0.135324116
## 111 -0.104869161     0.5372215530 -0.0158010425 -0.0913880470 -0.072829082
## 112 -0.073556994     0.6711145770 -0.4755704375  0.1029452450 -0.077873487
## 113 -0.070124668     0.8089950290  0.6751736035 -0.0755712310  0.066178952
## 114  0.158732548     0.3945804910 -3.8813499225 -0.3741121600  0.045166110
## 115  0.109452158     0.7986553375  0.0032903220  0.0061704135 -0.003243935
## 116 -0.186514994     0.3578026543 -0.1853502862 -0.0983293437 -0.116199807
## 117 -0.620635778     0.3980813628 -0.1546061817 -0.0796029712  0.049861557
## 118  0.423076483     1.4098901845  0.1694392110 -0.0351249045 -0.104664013
## 119 -1.443177853    -0.2721786955  1.0276326210  0.5775208805  0.289991131
## 120  0.235714937    -0.6726977155  0.0640695510 -0.0685403455  0.352158729
## 121 -0.055760142     0.3132767317  0.3484601232 -0.0981333642  0.172128528
## 122 -0.374357795     1.0991942340 -1.3785913895 -0.0494028700  0.162359259
## 123  0.268623149    -0.2223661880 -1.8403088225 -0.2767950030 -0.076777627
## 124 -0.101775530     0.1773055945  0.1989874620  0.1017688335 -0.095665491
## 125  0.472571222     0.3973957165  0.5421053910 -0.2349014415  0.025444778
## 126 -0.635434938    -0.3446170560 -0.3063646065  0.1908654510 -0.119183297
## 127  0.054790881     0.8627557535  0.7348472040 -0.1827423045 -0.097766787
## 128 -0.033412798     0.7876101270  0.0476504595 -0.1816543190  0.096363434
## 129  0.052184952     0.3240692360 -3.9818266065 -0.4638358220  0.108533353
## 130  0.289437475     1.0750769600  0.4764745315 -0.0449827490  0.174850979
## 131  0.121503538    -0.4804401140  0.6908261205 -0.0862142800  0.125171737
## 132 -0.207124153    -0.5504423615 -0.1948330230  0.0068290355  0.200011685
## 133  0.242241832     1.6047525610  0.1764897705  0.1416068550  0.004240476
## 134 -1.092678377    -0.2173459313  0.2835376372 -0.0637704127  0.329718489
## 135 -0.473860362    -1.5001620738 -0.1421653452  0.0888022768  0.043672066
## 136 -0.443933679    -0.5941587493 -0.1653246607  0.1183304817 -0.056485012
## 137  0.794010409    -0.3879299637  0.1218745518  0.2123994983  0.181309367
## 138  0.546081796     0.0008990645  0.0401452400  0.0318500215  0.268821042
## 139  0.463722908    -0.1054772515  0.2395537350 -0.0041215845  0.353688467
## 140  0.850021802    -0.0663805298  0.5097948918  0.1161461363  0.189941239
## 141  0.347433363     0.3706542720 -0.0309957085 -0.0105226400  0.125131954
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## 142  0.613337780     0.8008439483  0.2656595138 -0.1445191658  0.148155263
## 143  1.176275900     0.3236505598 -0.1339671608 -0.1109203273  0.152552731
## 144  0.819451416     0.7948025630  0.9961046905 -0.1377001090  0.105584845
## 145  0.367101507     0.6789154525  0.0345085570 -0.1048386495  0.070250423
## 146  0.300539577    -0.4529478685 -0.0083870320 -0.0907244055  0.161584305
## 147  0.151972043     1.1489092180 -0.1436507795 -0.0906396810  0.063562932
## 148  0.685220321    -0.2460725610  0.0998028835  0.1288020620  0.116963309
## 149 -0.228334816    -0.3724127295  0.0865267540  0.1643245945  0.262313305
## 150  0.225099332    -0.5502357703  0.1084896973  0.0100753487  0.132359991
## 151 -0.800367941    -0.4926716845 -0.3491986000  0.0787907885 -0.087062533
## 152  0.210473565     0.2330289655  0.6083373510  0.0283774365  0.420987532
## 153  0.339649816     1.0663241890  0.6884449405  0.1969187530  0.151093944
## 154 -0.739232769    -0.3929304693 -0.0014146388  0.1543947978 -0.058062503
## 155  0.190940916     0.2101436577  0.0403883212 -0.0542612502  0.239602067
## 156 -0.255141394    -0.1483775900 -3.1839602185  0.0740292900 -0.272004496
##     pp_SHP.2.pY542     pp_SLC1A5 pp_STAT3.pY705 pp_STAT5.alpha pp_Shc.pY317
## 1      0.344446558 -0.2184633225    0.493888088    0.442167619  0.103690182
## 2      0.210220930 -0.4542298860    0.102849677    1.426873610  0.389932524
## 3     -0.399697733  0.0157218510   -0.330343904   -0.423654062 -0.108136405
## 4     -0.389739232 -0.5847258307   -0.205186850    0.053010327 -0.261496561
## 5      0.281263243 -0.4846572495    0.219283879   -0.197657424  0.051997170
## 6     -0.067088756  1.0362602595    0.058915168    0.113394993  0.146630654
## 7     -0.011713024 -1.0816256720    0.181667781    0.049955898  0.245238693
## 8      0.071543638 -0.0478547555   -0.264210893   -0.052351677  0.084007710
## 9     -0.191833921 -0.0389430005   -0.009781143    0.110293651 -0.150026165
## 10    -0.157489537 -0.2273715213   -0.105475144    0.074235676 -0.207702807
## 11    -0.209535726  0.0562460020   -0.251292959    0.071314263  0.032236084
## 12    -0.004940779 -0.1982115170    0.384035572    1.142294917 -0.104652364
## 13    -0.216010226  0.3286963045    0.236006981    0.587540826 -0.122131699
## 14     0.047076467 -0.2829002425   -0.491073898   -0.973152461  0.035596506
## 15    -0.369328590  0.3692417795    0.077234289    0.580720772  0.081331466
## 16    -0.450219322 -0.5896380005   -0.149159539    0.742856773 -0.078348883
```

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## 17   -0.195023994  0.2548998880  -0.100075178   0.672067369 -0.061227555
## 18   -0.296654213  0.2448172250   0.114631635   1.383920899 -0.354504887
## 19    0.001892905 -0.5441956600   0.887833773   0.090592373  0.040384972
## 20   -0.225355828  0.1508462195  -0.433494459   0.531651469 -0.249384259
## 21   -0.021992554 -0.0782159480   0.175452607   0.575599982  0.134096750
## 22   -0.547294790  0.4406567300   0.119467210  -1.465524363 -0.440106080
## 23    0.550683238 -0.8934092045  -0.380235553  -0.782040570  0.632055537
## 24   -0.120344916  0.8265054810  -0.648920461  -0.187216104 -0.104656646
## 25    0.120259942 -0.5756124090   0.101437676   1.506103722  0.272212522
## 26    0.028672391  0.7214814355  -0.279704114  -0.180608824 -0.030981322
## 27   -0.040044427 -0.4584853335  -0.019072521   0.788128710  0.008109001
## 28   -0.162156956 -0.3289388815  -0.019139357   1.039689511  0.166986021
## 29    0.581955805 -0.7337217965   0.784597917  -0.278671801  0.504654085
## 30   -0.085218853 -0.1323579220   0.238909361  -0.284767868  0.065973458
## 31    0.390539407 -0.7260115965   0.191072781  -0.981445427 -0.471830605
## 32   -0.485361000 -0.1543105175   0.264496012   0.349248196 -1.094211342
## 33   -0.219891178 -0.7016940660   1.083795275   0.192590965  0.416719693
## 34    0.078374736 -0.5274432710   0.017273578   0.243685788 -0.034111542
## 35    0.095450418 -0.1116616110   0.078261582   0.294627556  0.202437676
## 36    0.161462862  0.3584433730  -0.107970330  -0.510717087 -0.002559986
## 37   -0.786104114  0.1366800545  -0.126294823   0.795876514 -0.570394472
## 38   -0.318152757  0.6711689500  -0.159043868  -0.062431650 -0.181875532
## 39   -0.313419432  0.6349073590  -0.093277500  -0.005584665 -0.107935592
## 40   -0.143753626  0.0004924935   0.023532729   1.201206020 -0.083557593
## 41   -0.169649352  0.3364923020   0.133661908   1.782835992  0.314130906
## 42    0.143144751  0.3588282225  -0.247791238   0.683293541  0.475165171
## 43   -0.360021665  0.7493931030   0.000000000   1.693964043 -0.035676119
## 44   -0.306081362 -0.8775550755  -0.334940742   0.116822561 -0.116341721
## 45   -0.537942377 -1.0252660010   0.554163974  -0.315321763  0.484246469
## 46    0.030081692  0.0861339235   0.674106992   2.113860352  0.258599292
## 47   -0.830996202 -0.9882465150  -0.115559925   0.852001393 -1.632020757
## 48   -0.239852939 -0.2505067360   0.423717870   0.138676595  0.482469892
```

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## 49   -0.475638416 -1.4318320960   0.011946606  -0.240649988  0.605516675
## 50   -0.068256384 -0.1862760395   0.256226342   0.455609070 -0.031941600
## 51   -0.187373639  0.1240170655   0.099259889  -0.346928817 -0.323097746
## 52    0.041485621 -1.7370755020   0.763989396  -0.698559451  0.555000274
## 53    0.879299090  0.8275727910  -0.107903531   0.060854797  1.396145979
## 54   -0.305635889  0.9986757620  -0.269057399   0.869122150 -0.182553108
## 55   -1.058181492  0.4080742400  -0.050472289   0.772001882 -1.499603170
## 56   -0.031579727  0.1014266585   0.405420367   0.394546986 -0.064787569
## 57    0.064032722 -1.3539025835   0.008764066   0.029958110  0.149069475
## 58   -0.665665127 -1.8793505335   0.723029003   0.628966034 -1.573369645
## 59   -0.239758888  0.1533877860  -0.058396215   1.149585537 -0.177133503
## 60   -1.043442794  0.5757417715   0.020433983  -0.042622013 -2.056738967
## 61   -0.312245261 -1.1698035485   1.119286624  -0.250360906  0.143782421
## 62   -0.579342230  0.5549335145  -0.542116114   0.344705211 -0.304605996
## 63   -0.066010923 -0.0088959060   0.133716999   0.183881853 -0.068043781
## 64   -0.555073978 -1.0743797580  -0.176337104  -0.378084189  0.105703357
## 65    0.260895091 -1.1826273158   0.586238739  -0.605960903  0.284229892
## 66   -0.741033577  0.3052975278   0.310306713   0.536856441 -0.616310753
## 67    0.095348774 -0.6845305900   0.715867940   0.692615523 -0.055188948
## 68    0.469208057 -1.0031283152   0.557433777  -1.147376570  0.043410187
## 69   -0.474280210 -0.2470727460  -0.089570447  -0.756902837 -0.189661634
## 70   -0.437253673  0.9716691137  -0.450408609   0.430433822 -0.093948203
## 71   -0.281335986  0.9246921397  -0.300519799  -0.512962480 -0.112028764
## 72   -0.155270463 -0.7925761515   0.765844527  -0.393596515 -0.136872599
## 73    0.134544156  0.3430882168  -0.060366089   0.803792248 -0.071104682
## 74    0.087753714  0.4760088530  -0.248277063   0.311858945 -0.095700071
## 75    0.232174415  0.2557358205   0.233287524   0.913218649  0.187156085
## 76    0.041908551  0.4653671570  -0.424540940  -0.115144412 -0.282865780
## 77   -0.135487088 -1.3787859785   0.392256893   0.003198737 -0.535248791
## 78    0.238365143 -0.0745003930  -0.083052892   1.105302464  0.269708457
## 79    0.404709467 -0.2881006015   0.102125820   0.275901619  0.100330527
## 80   -0.083366736  0.4772748555   0.202271954   0.908646531 -0.087097365
```

```
## 81     0.019861383  0.1662299286   -0.512389796   -0.571810913  0.471129299
## 82    -0.379607388 -0.0043231694    0.212549267    0.689317812  0.207550454
## 83     0.210344824 -0.6619562575    0.085104343   -0.185150712  0.059807625
## 84    -0.004417101 -0.3835291163   -0.012781215    0.303490323  0.082397615
## 85    -0.211630770  0.7431728352   -0.370592589    1.069895705  0.002273631
## 86     0.143895984 -0.1979639765   -0.242398052   -0.145518447  0.241366188
## 87     0.783165630  0.2201897748    0.390575988   -0.001010094  0.394216181
## 88     0.015119325 -0.0860603860   -0.152976191   -0.001504831  0.165798902
## 89    -0.131997347 -0.3442156950   -0.070201671    0.050059424  0.181121461
## 90    -0.366286214  0.7502312528   -0.296983738    0.001602845 -0.063702135
## 91     0.172891866  0.4169975505    0.104543686    0.217253588 -0.459124601
## 92     0.362299359 -0.1067087415    0.453723090    0.016488884  0.114637334
## 93     0.685409652  0.3621476895   -0.045189343   -0.224801502  0.003827247
## 94     1.120525812 -0.7511685858    0.845121175   -1.176425635  0.350925613
## 95     0.324918998 -0.3662800610    0.764865439   -0.004780322  0.064065530
## 96     0.650841646 -0.5059271270    0.148197897    0.328208933  1.071867789
## 97     0.558110128  0.4849211912    0.352781339   -2.026769620  0.447764686
## 98     0.197840412  0.3274938445    0.067287720   -0.697940419 -0.241988993
## 99     0.048530098  0.7209350800    0.505999993    0.920996337 -0.143821881
## 100   -0.181910626 -0.1289784510   -0.560114094    0.894725102  0.022311309
## 101   -0.002243682  0.7878665742   -0.075196605   -0.166931185  0.089068043
## 102   -0.058337026  0.3480803862   -0.447224438    0.919118371 -0.284713147
## 103    0.170539478  0.2892770595   -0.211938606    0.782831833  0.367709975
## 104    0.545609956 -0.1214917200    0.019632266   -0.350796257  0.260749942
## 105    0.318285982  0.6465955305    0.127320579   -0.337214426  0.191757367
## 106    0.224688255 -0.1855214098   -0.379132014   -0.445008983 -0.213514949
## 107    0.439507890 -0.1361245480   -0.165532824    1.426485733  0.236262900
## 108    0.338092248  0.0905511835   -0.286115607    0.900505770 -0.166730426
## 109   -0.016360771 -0.2521173670    0.008115928    0.705476729 -0.015024001
## 110    0.975318980  0.3642826100   -0.164829237   -0.471429216  0.758263581
## 111    0.000000000 -0.4419967065   -0.053912328    0.604335160  0.090676232
## 112    0.940349824  0.1377020375    0.872818587   -0.370216416  0.357954271
```

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## 113  -0.187153549  0.1755001095   0.078700600  -0.971321284 -0.303692302
## 114   0.327533440  0.2457483655  -0.187600736   0.727295541  0.170303628
## 115   0.438871617  0.1672947500  -0.119492348  -0.076224175  0.216993852
## 116   0.620064294 -0.5730354202   0.257733245  -0.123941410  0.091937206
## 117   0.194403739  0.1457158963  -0.273292576  -0.106033880 -0.124349457
## 118  -0.123936679  0.7666657650  -0.079269983   0.796418683 -0.394502463
## 119  -0.129006099 -1.0790439170  -0.054674560  -1.546710813  0.515563539
## 120  -0.046427053 -0.1664860830  -0.321615539   0.287740658  0.045394515
## 121   0.443486429  0.3790837652   0.057944826  -0.538990619  0.039365530
## 122   0.632962453 -0.1797030995   0.714789370   0.224801876  0.000000000
## 123   0.251344094  0.5175138395   0.028265835  -0.356957011 -0.034885854
## 124   0.445562067 -0.2891776650  -0.080031531   0.510408210  0.443915192
## 125   0.087838390  0.4689120840  -0.256512654  -0.076887254  0.246749423
## 126   0.507624076 -0.7976334855   0.052782033  -0.169004397  0.170634739
## 127  -0.151150737  0.1797378500  -0.399398764   0.605017702 -0.207013810
## 128   0.314556361  0.5223420545   0.027116524   1.838575365  0.604412873
## 129   0.339163405  0.8320396075  -0.054779740   0.494123345  0.193150807
## 130   0.124157746  0.8212078655  -0.173741595   0.289973983 -0.247516378
## 131   0.016732031 -0.2363537105   0.353753806   1.220805523  0.194686646
## 132   0.522242649  0.0300373530   0.656128857   0.153346946  0.272431324
## 133  -0.006767712  0.6417973105  -0.084838759   0.713661020 -0.165822597
## 134   0.309641985 -0.5422207357  -0.250049756   0.366257901 -0.032941382
## 135   0.033918727 -0.3440957582   0.025238036  -0.199541383 -0.099762360
## 136   0.146178639 -0.1424808677  -0.008730717   0.560331169  0.112550064
## 137  -0.322740746  0.5548459138   0.199560398  -0.495613698 -0.114929715
## 138  -0.189183787 -0.1347849570  -0.650830071   0.864370051  0.054653745
## 139  -0.443548787  0.3797223660  -0.288575484   0.021544927 -0.047102389
## 140  -0.268299108  1.4114025528  -0.944657082   0.077724816 -0.124992151
## 141   0.366205656 -0.1548334635   0.146886995  -0.808058361 -0.124271363
## 142   0.018307781  0.6490768437  -0.048740110   0.111944658 -0.107925168
## 143   0.155189001  0.2966012873  -0.774537756   0.031987616 -0.034111602
## 144  -0.050873068  0.4799730215   0.339981409  -0.306734931 -0.123780335
```

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## 145    0.019961313 -0.0659471920   -0.218525029   -0.679330887 -0.155533611
## 146   -0.424013812  0.4561455000   -0.206332830    0.759897794 -0.419474907
## 147   -0.502097720  0.4173453645   -0.290399876    0.760334955  0.025690980
## 148   -0.228889792 -0.0152651485   -0.250247909    0.022864632 -0.022058230
## 149   -0.005290367  0.3528084350    0.425082437   -0.547197569  0.107861444
## 150    0.008365801  1.0849084893   -1.029010475   -0.636445123  0.038789208
## 151    0.432383078 -0.4938035530    0.893565142   -0.585050338  0.233123845
## 152    0.086348546  0.8069809090    0.257615519   -0.495971023  0.190120715
## 153    0.792083642 -0.2671194585   -0.368092584   -0.886981312  0.832997264
## 154    0.038597575  0.1264579913    0.122003222   -0.963429146 -0.041284562
## 155    0.058036292  0.0344469202   -0.236507372   -0.489054409 -0.153890035
## 156    0.193807749  0.0882289405    0.124246488   -0.288095901 -2.103101118
##          pp_Smac      pp_Smad1     pp_Smad3      pp_Smad4     pp_Snail
## 1   -0.112601177 -0.0982216240 -0.118470537 -8.358560e-02 -0.242821359
## 2   -0.073883098  0.2120206850 -0.043888374 -9.805324e-02 -0.120880097
## 3   -0.237433829  0.0047138275 -0.014652558  6.907104e-02 -0.290072566
## 4   -0.349016802  0.0351512258  0.237369064 -9.829108e-04  0.221373466
## 5    0.317193095 -0.1380649020 -0.329230695 -2.900260e-03 -0.040498038
## 6   -0.077257872  0.3681804815 -0.398338798 -1.957356e-01 -0.038276717
## 7   -0.341248946 -0.1985590735 -0.177018985  2.183534e-01  0.048926676
## 8    0.173939504 -0.0925439850  0.089098654  2.322619e-01 -0.092689551
## 9    0.228386726 -0.0141211930  0.479673029  1.547309e-01  0.241847050
## 10   0.597378942  0.2121943923  0.251547327  1.303850e-01 -0.060584415
## 11   0.328223153  0.0896633775  0.051339584 -2.387907e-02  0.066409813
## 12  -0.345012834 -0.1403684500  0.035843500 -7.071063e-02 -0.110390248
## 13  -0.143401688 -0.1096257285 -0.220995841 -1.900060e-02  1.002502890
## 14   0.762036304  0.0617685415 -0.204876481 -7.087142e-02  0.121720136
## 15   0.297155249  0.2507352435  0.325668990  2.060125e-01 -0.129830283
## 16   0.137857992 -0.0238819785 -0.182208166 -1.404214e-01 -0.110645630
## 17   0.361856880 -0.0397440200  0.101043756 -5.506652e-02 -0.142558154
## 18   0.805360610  0.1329003260  0.256183074 -6.137570e-02 -0.247754069
## 19   0.401370088  0.0862127480 -0.121153962  1.328583e-01  0.019048374
```

```
## 20   0.371896733 -0.1381172045  0.238496906 -2.202991e-01  0.205126879
## 21   0.385061058  0.1994916980 -0.175395267 -2.029270e-01  0.135351625
## 22   0.231903517 -0.2422422250 -0.156475617  2.261513e-01  0.607050276
## 23   0.224512158  0.1290191155 -0.331372626 -1.038883e-01 -0.159574776
## 24  -0.297941167  0.0856327355 -0.186213571  1.770834e-01  0.291148586
## 25  -0.067386394 -0.0126660310 -0.145650646 -8.783618e-02 -0.224231918
## 26   0.622685558 -0.4333059645  0.165107117  5.509448e-03 -0.325827142
## 27   0.103139104  0.0143930715 -0.089941513 -9.666593e-02 -0.035124527
## 28  -0.447774059  0.2037667015 -0.011044981 -9.804639e-02 -0.169147137
## 29  -0.495477305  0.1719848935  0.136994404  5.183517e-01  0.496556867
## 30  -0.076042814  0.0880071840  0.048885838  2.082913e-01  0.776804157
## 31   0.670249862  0.0897303925  0.048870605  4.196865e-01  0.448007854
## 32   0.016828483 -0.1617350335  0.272634604 -1.138239e-01 -0.835108290
## 33   0.217306172 -0.0439648850  0.164437059  5.995777e-01 -0.172226860
## 34  -0.323671997  0.2252237480 -0.010197115  1.356822e-01  0.161596758
## 35  -0.550374528 -0.1273137140 -0.301850872  3.854564e-02 -0.026508282
## 36  -0.071402285 -0.1872839130 -0.044437703 -5.066451e-02  0.094935766
## 37   0.267516136  0.0870098765  0.247390971 -5.113006e-02 -0.081672808
## 38  -0.020552602  0.4944672970  0.027117389 -1.594938e-01 -0.204189537
## 39  -0.047962420  0.4761034490  0.088756753 -1.134804e-01 -0.129583056
## 40  -0.119950090 -0.3967708655 -0.126808490 -5.300830e-03  0.342939846
## 41  -0.575318980 -0.0964583960 -0.459391442 -1.572699e-01  0.198740345
## 42  -0.011459458 -0.4068369175 -0.373063427 -1.669395e-01 -0.053978007
## 43  -0.256560540 -0.0703322740 -0.304555154  8.211647e-02  0.470494864
## 44  -0.189687135  0.2862336015  0.069517095  6.260389e-01  0.254843307
## 45   0.076401750  0.4078743890  0.183199680  6.569896e-01 -0.340991134
## 46  -0.100672899  0.1684029875 -0.212884804 -1.518979e-02 -0.420183471
## 47   0.033747443 -0.1608569640  0.265240395  2.513612e-01 -0.509137122
## 48  -0.002752992  0.1881688890  0.050539378  2.408630e-01 -0.219616588
## 49  -1.281775735  0.1664764120  0.038242174  3.593330e-01  0.401472222
## 50  -0.368818960 -0.1079644475  0.068474161 -1.061494e-01 -0.149231149
## 51  -0.426831450 -0.0949316665 -0.164061989 -1.421688e-01 -0.045561048
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## 52  -1.221159370  0.2934467830  0.127487191  8.387732e-01  0.519030299
## 53  -0.177076659  0.9049194370  0.000000000 -1.523628e-01 -0.111113614
## 54   0.336482200 -0.2141867840 -0.060799890 -2.181061e-01 -0.132839466
## 55  -0.070117820 -0.3268279640  0.418829079  5.557875e-01 -1.057255741
## 56  -0.192405324 -0.1768813735 -0.260222395 -5.565505e-02  0.035824917
## 57  -0.095185854 -0.0276082625  0.167171355  5.445756e-01  0.342153678
## 58  -0.161036004  0.2637005505  0.070929885  1.898106e-01 -0.287179533
## 59  -0.407724647  0.0974919530 -0.082963475 -2.306407e-02  0.134657374
## 60   0.000000000  0.3327612775  0.079055709  2.679985e-01 -0.498287285
## 61  -0.080403108  0.0499829800 -0.016456007  4.661059e-02 -0.019302883
## 62   1.381813062  0.0261329020  0.737937982 -1.410492e-01 -0.375186470
## 63   0.687572531  0.3082267715  0.411885212 -9.242500e-02 -0.188495165
## 64  -0.512569282 -0.3022039415  0.067212569  3.855248e-01  0.636071202
## 65  -0.414455402 -0.1041570217  0.052504503  8.252864e-02  0.177263519
## 66   0.604124307 -0.1146888258  0.340694016 -4.316326e-01 -0.491734996
## 67   0.155318132 -0.1510244825 -0.035301950  3.455657e-01  0.497343235
## 68  -0.492858740 -0.8141640602  0.206791796  2.369427e-01  0.826599774
## 69   0.130002818  0.0825116920 -0.265691482 -2.873335e-03 -0.205180093
## 70   0.793377415  0.2620247897  0.068747016 -1.477204e-01 -0.101045028
## 71   0.375757327  0.2996599927  0.689848990  1.556013e-01  0.266279431
## 72   0.857542956  0.3431461485  0.178651965 -7.730750e-02 -0.135381705
## 73  -0.212848501 -0.1000935413 -0.285862150 -1.367349e-01  0.317574935
## 74  -0.322190667  0.3817370320  0.343849901  4.269635e-02 -0.166417674
## 75  -0.233208641  0.1115156115 -0.189709910 -1.067378e-01  0.059150495
## 76   0.020437846 -0.1990827700  0.264857242 -1.339794e-01 -0.186096463
## 77   0.113124550  0.1698652695  0.658925594  4.295646e-01  0.101421873
## 78   0.018696428 -0.1908557460  0.080584800 -1.623474e-01  0.092461306
## 79   0.332766359 -0.0162697035 -0.070173260 -7.440593e-02 -0.075963967
## 80  -0.698571523 -0.1248316850  0.035029839 -1.206720e-01  0.343558578
## 81  -0.171867330 -0.6478991085 -1.200366467  5.313968e-01  0.566000770
## 82  -0.580233266 -0.6697965275 -0.343946127  2.250721e-01 -0.090281928
## 83  -0.217937659 -0.0883629435 -0.075484201  2.473302e-01  0.151856807
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## 84  -0.176662121  0.1135713008  0.824343283  2.869009e-01  0.310791389
## 85  -0.554312001  0.3813488362 -0.273919491 -1.305605e-01  0.101444393
## 86  -0.169874765 -0.1215911455  0.106540949  5.895272e-01  0.203561565
## 87   0.643968123 -0.3263441898 -0.144997181 -1.362684e-01 -0.040531445
## 88  -0.009474015  0.0592424440  0.017464129 -2.044023e-01 -0.009277012
## 89   0.215106579 -0.0266703430 -0.129078855 -1.032137e-01 -0.089789273
## 90   0.569292092  0.0325974913  0.168902724 -6.278854e-03 -0.049123898
## 91  -0.151867287 -0.0727151475 -0.320665912 -1.062624e-01 -0.065207277
## 92  -0.180522439  0.1761475755 -0.160529015 -1.689127e-02  0.303662167
## 93  -0.118128549 -0.0014188135 -0.039456895  1.732619e-01  0.286706202
## 94  -0.519890479 -0.1274683092  1.795668100  7.556274e-01  1.349486247
## 95   0.273962213  0.3570004985 -0.139134827  3.175846e-02  0.129276718
## 96   0.093384611  0.1569469740 -0.101691959 -2.683763e-01 -0.178471528
## 97   0.882608154  0.1164068728 -0.563988890  1.107339e-01  0.406719252
## 98   0.975044408  0.1170747495  0.374871589 -2.539675e-01 -0.350106520
## 99   0.201712174 -0.5503787050  0.297442566 -2.850160e-01 -0.200182912
## 100  0.479694287 -0.0425869240 -0.077850110 -3.112870e-01 -0.257365316
## 101  0.812436026 -0.2432180713  0.063401487 -3.031376e-02 -0.076145701
## 102  0.219140615  0.4166986648  0.075578906  5.500812e-03  0.023559138
## 103  0.096511672  0.0097761595  0.094744373 -1.245352e-01 -0.134171429
## 104 -0.389728717  0.1414394640 -0.258084596  1.603081e-01  0.419639808
## 105  0.056058370  0.1571349285  0.334923348 -7.361664e-02 -0.004493584
## 106  0.156043849  0.2143416838  0.277091390  7.557180e-02 -0.038490182
## 107  0.029368786  0.1177073920 -0.172698236 -2.010673e-01 -0.181157151
## 108  0.151748859  0.0001723915 -0.020410788 -2.445338e-01 -0.199904627
## 109  0.120890440 -0.0210565380  0.129603972  7.201718e-02 -0.369494624
## 110  0.572267942 -0.0489302220 -0.057683626 -1.740288e-01 -0.186336608
## 111 -0.260181278 -0.0181723985  0.006325505 -1.205559e-01 -0.202266501
## 112  0.019878178  0.1390295205  0.061311990 -4.143493e-02  0.145616632
## 113  0.584109179 -0.0257188335 -0.072066693 -1.370916e-01  0.114910675
## 114  0.263100370  0.5659334785 -0.078830815 -8.136835e-02 -0.324477319
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## 116 -0.054565809  0.2078711223 -0.302216501  7.769202e-02  0.002242098
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## 118 -0.057305811 -0.1786277070 -0.355050827 -2.464580e-01 -0.123971211
## 119 -0.492284477  0.3593660090  1.305490172  1.076602e+00  0.915447582
## 120  0.221941566  0.3115124085  0.056602765  5.116562e-02 -0.095392992
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## 122 -0.764852125  0.3724845995 -0.046672280 -1.219669e-01  0.193854141
## 123  0.539452832 -0.1867687575  0.137816583 -1.052192e-01 -0.273697141
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## 127  0.423385662 -0.2240021790  0.515658766 -1.857736e-01 -0.099408944
## 128 -0.120752858 -0.2852108715  0.051270193 -2.257465e-01 -0.003628494
## 129 -0.003497347  0.2463682765  0.060215307 -1.117053e-01 -0.576061074
## 130  0.407372144  0.1021909585 -0.238619938 -2.806541e-01 -0.124432216
## 131 -0.427927876 -0.0949461845  0.779996918 -2.700304e-01 -0.098745888
## 132 -0.224869573  0.3733320150  0.451729587  9.689147e-01  0.384909047
## 133 -0.332647901  0.0813579925 -0.098163557 -5.745294e-02  0.154341689
## 134 -0.261413725 -0.5430927448 -0.052198559 -3.590259e-02  0.093902836
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## 136  0.045362625 -0.1794978593 -0.054681722 -5.301914e-02 -0.223533827
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## 142 -0.186113431 -0.0160489917  0.334835458  1.306248e-02  0.206476274
## 143  0.323474997  0.0591664927  0.151997115  1.639253e-01 -0.257017999
## 144 -0.190850463  0.0630733510  0.302615709 -2.381764e-02  0.040735176
## 145 -0.410752340 -0.2015519575 -0.149515471  1.928982e-01 -0.049561949
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## 148 -0.063310800  0.1794767570  0.164046967  1.963427e-01  0.286384747
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## 150 -0.395923313 -0.3206845032  0.112642492  8.817645e-02 -0.076218392
## 151 -0.304084054  0.1999133715 -0.194896906  1.510059e-02 -0.028895518
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## 154 -0.466038691 -0.1475254933 -0.059376614  4.679194e-02  0.224217017
## 155  0.274768861  0.1707404378  0.184543406  7.942004e-02 -0.122248184
## 156 -0.433130937  0.0585917315  0.027468702  2.701943e-01 -0.019868900
##           pp_Src pp_Src.pY416 pp_Src.pY527       pp_Syk        pp_TAZ
## 1    0.189605754  0.457513991  0.526353830 -0.308786817  0.0060723185
## 2   -0.072627443  0.106521460  0.693547898 -0.151781456 -0.0487640330
## 3    0.707021371  0.128196993 -0.457486226 -0.410492460 -0.0553432950
## 4   -0.385280306 -0.277376720 -0.120921126 -0.474652775 -0.1108681308
## 5    0.136017138  0.080657646  0.633551017 -0.214652529  0.2132603025
## 6   -0.557020929 -0.249414891 -0.401705591  1.945283805 -0.1325950975
## 7    0.069651213  0.074560084  0.449034795 -0.174339560  0.3289456730
## 8    0.355592589  0.045590572  0.487798461  1.309883965 -0.0592524485
## 9    0.270833465 -0.151864831 -0.358810537 -0.211818046  0.6944602665
## 10  -0.063906363 -0.293912485 -0.538278861  0.142302582  0.1905095107
## 11  -0.153985479  0.060269258 -0.534530220  0.231122998 -0.1293337020
## 12   0.360042358  0.312387028  0.368483326  1.432303333 -0.1439625690
## 13   0.201484534 -0.192330679  0.008038521  0.170695822  0.0829969615
## 14   0.094562038  0.079643873  0.471194222 -0.626921632  0.1233287815
## 15  -0.269279935 -0.481806740 -0.519226065 -0.285289699  0.0041723225
## 16  -0.027667680 -0.204146503 -0.137220342  0.342916431 -0.1462175605
## 17  -0.011079511 -0.311506620 -0.025116820 -0.658210165 -0.0228000540
## 18   0.647901114 -0.900738870  0.264356170  0.250469555 -0.0610258730
## 19  -0.169055933  0.034949121  0.177341186  0.170824777 -0.1180867410
## 20   0.199754554 -0.160224755  0.084898127  0.515920132 -0.1322169385
## 21   0.102899646 -0.033127481  0.127221327  0.058175615  0.0995854980
## 22   0.800372059 -0.029977867 -0.488114406  0.591072239  0.6018393680
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## 23   0.237973484  0.109722430 -0.191511855  1.076504445 -0.1847451065
## 24   0.784081491 -0.098325696  0.072313558  0.305010575  0.1470854060
## 25  -0.253533049  0.123818568  0.341088848  0.565837596 -0.1898135080
## 26   0.296888176 -0.300730769 -0.010966177 -0.487823451 -0.2334926185
## 27  -0.593204710 -0.059708725 -0.139383088 -0.075849263  0.1094999105
## 28   0.097884517 -0.211318949 -0.835246713  0.954920870 -0.1659921415
## 29   0.097720729  0.180795776  0.633626703 -0.480350955  0.4865572665
## 30   0.027486760 -0.161275702  0.243578434 -0.567958189  0.3543414080
## 31   0.463380541 -0.220589409  0.863991967 -1.222574482  0.5800685765
## 32   0.111982759 -0.939781975  0.368764967  0.217846408 -0.1395491725
## 33   0.090118506 -0.548304713  1.162221189 -0.197229496  0.3387236870
## 34  -0.020632706 -0.157571990  0.302479591  0.313505315  0.2756800450
## 35   0.330552067  0.277614144  0.438529316  0.648425559  0.0453034220
## 36   0.146779353  0.680596665  0.251832114  1.495975398  0.0900429780
## 37  -0.223215672 -0.537659312 -1.064267718  0.595868388 -0.0316745915
## 38  -0.109880591 -0.257753769 -0.530437216  0.142457058  0.0966740150
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## 40  -0.154342023  0.295601874 -0.096636318  1.389454002  0.1094271795
## 41  -0.105103560 -0.202093716 -0.042917865  1.307200096  0.0560492120
## 42  -0.121735892  0.077342540  0.323884759  0.993336347 -0.0529642845
## 43  -0.006269202 -0.121709937  0.104263681  0.638000335  0.0700842620
## 44   0.152026920 -0.120629792  0.583044856 -0.140638408  0.5953172455
## 45   0.326337714 -1.693432396  1.073857441 -0.896085644  0.6095115760
## 46  -0.404186706  0.158058861 -0.370572472  0.631868795  0.1764039945
## 47   0.243269196 -0.966181697  0.888777477 -0.021118304  0.2273396570
## 48   0.416426660 -0.335834708  0.163900646 -0.306494757  0.2499868710
## 49   0.021167310  0.239677374  0.049381849 -1.007157121  0.6078083280
## 50   0.029672833 -0.094066630 -0.138600498 -0.330027093 -0.1251407045
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## 58   0.118463572 -0.551025688  0.470167863  0.274670735  0.4144838675
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## 60   0.711249494 -0.633663896 -0.512435752 -0.105393391  0.4054237745
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## 63  -0.488272037 -0.190871207 -0.820283013  0.266580078 -0.3040207150
## 64  -0.613459115  0.285647102 -0.178226195 -0.602730350  0.5112032750
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## 68   0.387487246  0.096569717  1.076391313  0.005457202  0.5610306622
## 69  -0.034651815 -0.190058641  0.460424220 -0.731985218 -0.0416596985
## 70   0.535051064  0.061375166 -0.039250677  0.382765790 -0.0852124977
## 71   0.108945208 -0.266859739  0.475647869  0.098791442  0.0161151783
## 72   0.071037142 -0.319406544 -0.406776067  0.006056028  0.0611071210
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## 74  -0.336870304 -0.219176464 -0.022327113 -0.062767047  0.0338499470
## 75  -0.740855591  0.335243030  1.244984940  0.347704244  0.1733278875
## 76  -0.035964289  0.036728130  0.030502234  0.351618671 -0.2206880890
## 77   0.480663583 -0.654265739  0.924835688 -0.645131403  0.4466230435
## 78   0.122261071  0.174209675  1.015608129  0.201184341  0.1379598890
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## 80   0.542109981  0.146855048  0.482421227 -0.835696020  0.0515172285
## 81  -0.621488876  1.434136443  0.076611340 -0.247112726 -0.4354997230
## 82  -0.071712111  0.777853745  0.712708666 -0.668225906  0.0379517180
## 83  -0.076393773  0.000329875  0.227892714 -0.720661582  0.1724872150
## 84  -0.047935534 -0.123961835  0.050070322 -0.142315522  0.2379471053
## 85  -0.135635222 -0.166735798  0.007214022  2.074115742 -0.2289450602
## 86   0.020337668  0.005814175  0.424439521 -0.523860813  0.4728781615
```

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## 87  -0.107006193  0.565275222  1.014095676 -0.398819327  0.0811526347
## 88  -0.099318996  0.059162177  0.053230084  0.532051777 -0.4143985530
## 89  -0.213623183 -0.013255933 -0.258977073 -0.556841821  0.0630222740
## 90  -0.281103249 -0.312224537 -0.108178644 -0.574233873 -0.3655176453
## 91  -0.203357924  0.069604958  0.353160566  0.972435324  0.0086330265
## 92   0.065986381  0.269774073  0.710138299  0.609628780  0.2260368445
## 93   0.334793670  0.610261267  0.852540213  0.543913825  0.1668381015
## 94  -0.237926523 -0.059800021  0.839660056 -1.386478780  0.1500392162
## 95  -0.213738296 -0.035643148  0.703587546  0.453002905 -0.0884972760
## 96  -0.543646582  0.640996673  0.343961672  0.891268671 -0.0761563470
## 97   0.187672522  1.561261717  1.006147845  0.560342640  0.4190726663
## 98   0.325990517 -0.054560106  0.833211559 -0.584322700  0.0216094515
## 99   0.439579845  0.085354053  0.617925111  0.192741656 -0.2821514930
## 100 -0.015324278 -0.208348062  0.185185146  0.494671490 -0.5178658490
## 101  0.620815952 -0.062457980  0.035561510 -0.114434324 -0.3746088337
## 102  0.381245632 -0.140585778  0.255730142  0.568498839 -0.4126525007
## 103  0.146894262  0.546305583  0.116674780 -0.177116531 -0.3071079465
## 104 -0.258976149  0.221515154  0.522648120 -0.324779225  0.0699926150
## 105  0.000000000 -0.060294350  0.375986634  0.258824213 -0.1716184385
## 106  0.409203313 -0.042611817  0.660840802 -0.139552079 -0.0858177577
## 107 -0.242085093  0.027725933  0.360820831  0.337203235 -0.2253938470
## 108  0.135235747 -0.202729372  0.419431855  0.199981998 -0.0543171615
## 109  0.126812402 -0.167788671  0.667187806  0.569601055  0.1374566370
## 110 -0.165879510  0.548343725  0.804866504  0.067717086 -0.3579729680
## 111  0.162322050  0.094078034  0.617913965  0.827872660 -0.0525930375
## 112 -0.058434783  0.142955678  0.727871942 -0.383582333 -0.2138747045
## 113  0.003683369  0.268192769  0.620880414  1.011906254  0.0554757945
## 114 -0.203333891 -0.240152434  0.243512292  0.772619462  0.0039797255
## 115  0.047015789  0.866138954  0.628250617  0.953067512  0.0365531980
## 116 -0.447703794  0.308114774  0.829130352  0.310269372  0.1096954818
## 117 -0.413010271  0.013774224  0.133725786 -0.291664964 -0.2328069258
## 118 -0.516827227  0.265866283  0.170280172  1.031421638 -0.3614545980
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## 119  0.034673928  0.376881357  0.493657530 -0.767042727  0.7875496070
## 120 -0.410745264 -0.185979507 -0.490751426 -0.302854495 -0.2406413870
## 121  0.441781715  0.214858109  0.693513033 -0.453968447 -0.1856341498
## 122 -0.476999224 -0.591802648  0.704932756 -0.224371798 -0.8556995885
## 123 -0.703626143 -0.067634046  0.139532604 -0.427493179 -0.3140575135
## 124 -0.066356638  0.396275706  0.707426504  0.238738690 -0.1873651970
## 125  0.231519554  0.000000000  0.179932062  0.678209582 -0.1572068980
## 126  0.185980261  0.267011371  0.653957180 -0.590868484 -0.1239776115
## 127  0.121918771  0.041770476  0.073825929  1.092835715 -0.3161248730
## 128 -0.123597078  0.202322762  0.448427539  0.833345500 -0.3333678785
## 129 -0.446425637  0.238404940  0.688890503  0.729314901  0.0047362725
## 130 -0.527286266  0.183516712  0.281829141  0.471664129  0.0248210995
## 131 -0.119773118  0.097551329  0.031944292  0.397337154 -0.2626620975
## 132 -0.405773889  0.327108415  0.434395790  0.007366590  0.0218860770
## 133 -0.052244315  0.388531138  0.426327706  0.970009032 -0.0942032005
## 134 -0.208319415 -0.141228535  0.257197169  0.634909748 -0.0830961163
## 135 -0.084061040  0.056913725  0.211257713 -0.768448935  0.1007211263
## 136  0.092805096 -0.050458328  0.443305464  0.628237942  0.0135161292
## 137  0.332436116 -0.372125431 -0.585965996 -0.787674549 -0.0962715912
## 138  0.419114567 -0.233459431 -0.189573556  0.919410525 -0.1686778260
## 139  0.599600851 -0.339065387 -1.082533114  0.367322635 -0.0956613100
## 140  0.186295859 -0.306576903 -1.091117401  0.739145956 -0.2074999922
## 141  0.798693692  0.281372254 -0.927038662 -0.285031679  0.0652869885
## 142  0.494347043 -0.014248704  0.648357151  0.372199379 -0.0889815402
## 143 -0.191523090 -0.201945814  0.453501368  0.767958813  0.0326473593
## 144 -0.186963602  0.151847654  0.308115424  0.595590342 -0.0002156725
## 145  0.569539207  0.260108619  1.163890492  0.994801425 -0.0103705150
## 146 -0.130391276 -0.376615334 -1.073427848  1.301480987 -0.0289513990
## 147 -0.285689752 -0.487289878 -1.025457716  0.303389272 -0.1592062655
## 148  0.204702220 -0.250056834 -0.723773509 -0.279161617  0.1835533595
## 149 -0.013515040 -0.037862860 -0.718027931 -0.114814939  0.0055724430
## 150  0.367303773  0.229133745 -0.202762216 -0.325197194 -0.1477615328
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## 151  0.148131297 -0.270484652  0.570105350 -0.445553192  0.0312024060
## 152 -0.040948985 -0.031842054 -0.466748683 -0.349753989 -0.0721587370
## 153 -0.105561029  0.564615849  0.505911776 -1.088581336 -0.2239871435
## 154 -0.144062465 -0.021482720  0.404906527 -0.236488672  0.6642558832
## 155 -0.032971134 -0.220436379  0.173546718 -0.934857012  0.0163553713
## 156  0.483235298 -0.689980417  0.324617841 -0.104117310  0.3825860335
##           pp_TFRC     pp_TIGAR      pp_TSC1 pp_Transglutaminase    pp_Tuberin
## 1   -0.4307426175  0.309510447  0.131346041        -0.168065952  0.1006900705
## 2    0.0448824475 -0.053722030  0.117277324        -0.232627840  0.0049787340
## 3   -0.7218984620 -0.208661455  0.178693930         0.317788688 -0.3978098930
## 4   -0.6234892507  0.016195968  0.235663221        -0.300143070  0.3897562582
## 5   -0.2693176685  0.106097005  0.166391774        -0.058436425 -0.3745036695
## 6    0.0369483990 -0.170343782  0.554249448         0.624692077  0.1752520215
## 7   -1.1412791060  0.094038314 -0.000828026        -0.175905337 -0.5498000890
## 8    2.4453056585  0.115061556 -0.002789937         0.124145758 -0.0559556595
## 9   -0.1770104635 -0.101357034  0.224979134        -0.043576188  0.0070991355
## 10  -0.7577586122  0.028343188  0.322128073        -0.147574586  0.1991662938
## 11  -0.0970973740 -0.066710635  0.151019871        -0.106401582  0.1635060500
## 12   0.0495824505  0.084940812 -0.269953537        -0.086342059 -0.0979314580
## 13   0.1279811270  0.043323604  0.047073162         0.346370085  0.2348494545
## 14   0.1542551920 -0.022931110  0.480224404        -0.243918865 -0.4437866975
## 15   0.6253733780  0.038419843 -0.936245187         0.263910655  0.1144388055
## 16   0.3759320910  0.010097461  0.213129345        -0.211913964  0.0786097785
## 17   0.1956458815 -0.113635070 -0.299026574         0.013611508  0.2334691780
## 18   0.1599116615 -0.264105820 -0.463423185        -0.260095609  0.1319935680
## 19   0.0683366115 -0.172694920 -0.757716760         0.351921553  0.2338337960
## 20   0.2267992620 -0.143007260 -0.233853458        -0.012801297  0.4621023805
## 21   0.1493120055  0.032384280  0.887589580         0.285163394  0.0725725740
## 22  -0.3809274355  0.241311546  2.512826852         0.715062967 -1.0417983940
## 23  -0.8804368460 -0.199029963 -0.462939810        -0.087102688 -0.1576386745
## 24   0.4533785990  0.176157884  0.027179976         0.115444508 -0.5625766850
## 25   0.2270587595 -0.164663132 -0.517283485         0.477055585  0.5093881760
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## 26   0.5568721260 -0.415548249  0.358229291        -0.337282317  0.6975813465
## 27   0.3395390660  0.017881825  0.158708645         0.175113315 -0.0000730355
## 28   0.2333019070  0.029228648  0.305314282        -0.136049828  0.1218291415
## 29  -0.0869736400  0.297151612 -1.050750529        -0.033789820 -0.7923765255
## 30   0.0600238615  0.251418975  0.072571759         0.059922683 -0.1998426930
## 31  -0.3025305860  0.328187181 -0.346085470        -0.404890890 -0.8116115415
## 32   0.2148559470 -0.123753893  0.672399812        -0.247209839  0.3647353655
## 33  -0.2696131175 -0.243173444 -1.662242256        -0.367269176 -0.0526716250
## 34   0.1011478325  0.049800640  0.514073760         0.143741247 -0.2135634190
## 35  -0.0263022805 -0.049411216  0.538162213         0.114349801  0.2210165500
## 36  -0.2948780185  0.281895579  0.096661356        -0.211468142 -1.0538087840
## 37   0.0099956370 -0.207762615 -1.050391213         0.144604622  0.6470240365
## 38  -0.0989335945  0.033364779  1.236735616        -0.102222429  0.0866571930
## 39   0.2088758105 -0.058993016  1.440505956        -0.008356363  0.1292858420
## 40  -0.1073969190 -0.111728332 -0.475810155        -0.034077545 -0.0986583825
## 41   0.3504950985  0.162560946  0.692775966         0.467160403  0.1091568390
## 42  -0.0169157130  0.269274570  0.499912776         0.202845161  0.5098369375
## 43   0.2204768905 -0.009198973 -0.236918177         0.113529065  0.0814467110
## 44  -0.0665084680  0.345957896 -0.799360459        -0.169968097 -0.5054610985
## 45  -0.0377930905  0.786046991 -0.732900139        -0.238416869 -0.2703293050
## 46   0.4721752300 -0.007820892 -0.025240420        -0.001651138  0.6193622485
## 47  -0.1920461345 -0.069917902 -0.014866597        -0.200281307  0.2297794740
## 48   0.2954156605 -0.271978016 -0.555938078        -0.463423519  0.4478870050
## 49  -0.5002462525  0.346160419 -1.377205352         0.397408551 -0.6665263220
## 50   0.2698409250 -0.097831141 -0.860462510        -0.112446688  0.4671980735
## 51  -0.0304938380  0.183432093  1.771464150         0.013543989  0.3081961855
## 52  -0.4753836765  0.617232890 -1.552616501         0.000270969 -0.6214791800
## 53  -0.0891634295  0.071400392  0.009215652        -0.080458762  0.2959031480
## 54  -0.0991180305 -0.035679212  0.882888282        -0.034575610  0.5500499550
## 55   0.1278660675 -0.051386804 -1.318500272        -0.222850584  0.7383984900
## 56   0.1180506130  0.156270381  0.287642905         0.200644619  0.0972561795
## 57  -0.3244002750  0.385389145 -0.930567023        -0.363774871 -0.3455945435
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## 58  -0.1307426970 -0.073396347 -0.387475717       -0.064882673  0.3896698385
## 59   0.1963721085  0.041191058  1.147792643       -0.218647005 -0.0331075950
## 60   0.0201409820 -0.128958359  0.652274576       -0.561948587  0.2414144805
## 61  -0.6514790665 -0.225387738 -0.052522421       -0.147116848  0.1072724765
## 62   0.9671708295  0.079532195 -0.229223229        0.073819752  0.1297784815
## 63   1.3388071930 -0.080240188 -0.532660159        0.599455898  0.2833965460
## 64  -0.3407591090  0.324598022 -0.606011000        0.191800024 -0.7351677470
## 65  -0.3594012022  0.260309472  0.050793094        0.215432560 -0.9238428042
## 66   1.1848340598 -0.054497726 -0.135137658       -0.239204027  0.3628550087
## 67   1.2912056620  0.330427305  0.226800917        0.223776524  0.0577809170
## 68   0.5167659962  0.811186001 -0.189351068        0.025041920 -1.6340595788
## 69   0.3978829205  0.212331155  0.007950716       -0.109216934 -0.7576825375
## 70   0.6305396103 -0.107301210  0.069951930        0.254209809  0.6352601233
## 71   1.4495609792  0.303191927 -0.304702074        0.366245154 -0.6138308228
## 72   1.0907614710  0.002330588 -0.562644370        0.101498845 -0.6183030250
## 73   0.1665724503  0.084878469  0.329448237        0.164385112  0.5502781182
## 74   0.2029894215 -0.093789554 -1.603330826       -0.221655148  0.3683700050
## 75   0.1797797610  0.000936715  1.390900822        0.152110501 -0.2384992915
## 76   0.0001316065 -0.378824428  1.545513528        0.175986551  0.2765214380
## 77  -0.3703366510  0.115234967 -1.073148527       -0.273512900  0.1269579965
## 78  -0.3492507695 -0.009070382 -0.067950146       -0.021162640  0.1962070900
## 79   0.0737486100 -0.097691895  0.440505466        0.061055244  0.1729337055
## 80   1.3884227935  0.132947867 -0.281608859       -0.071103872 -0.5443044135
## 81   1.5196588415 -0.707568912 -1.087271288        0.397375263 -0.3535597305
## 82   0.8633761435 -0.372415255 -0.286316617       -0.134702143 -0.4732425055
## 83  -0.6031210510  0.211390082 -0.072854891       -0.048860268 -0.3644891290
## 84   1.2221455832  0.201536919 -0.011648007        0.400038682  0.6284352802
## 85  -0.2557314582  0.090872600  0.365160690        0.237092413  0.1740858888
## 86  -0.3058882080  0.033302747 -0.961494645       -0.011995070 -0.5786785735
## 87  -0.4011790043 -0.103724226 -0.165993269       -0.173396515 -0.7685878953
## 88  -0.2343337975 -0.156675659 -0.370502394       -0.119754376  0.1401789520
## 89   0.7479048455 -0.142070602 -0.528290542       -0.095994190  0.6461807010
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## 90  -0.2308631942 -0.197796793 -0.266067714       -0.237646803  0.3110599688
## 91   0.1288222990  0.072507918  1.612727785        0.174888522  0.4038004535
## 92   0.1369781890  0.136003470 -0.243456014        0.227616178 -0.0585685355
## 93  -0.5232377080 -0.034347196  0.759766353       -0.374232891 -0.3724586595
## 94  -1.1275357768  0.017098667 -0.759109687        0.172352975 -1.5529676357
## 95  -0.1618829960  0.034163412  0.253858802        0.002469702 -0.2702255100
## 96   0.4974626495  0.034424158 -0.042131869        0.182710607  0.1643570190
## 97   1.9733721862 -0.300981413 -0.524314641       -0.147256106 -0.6948747248
## 98   0.0104898560  0.021940894 -0.316222962       -0.345104845 -0.3242111905
## 99   0.1918965655 -0.139917505 -0.001671570        0.562760247  0.6041502870
## 100  0.4941112405 -0.251105264 -0.957166458        0.265683234  0.3712251940
## 101  0.8348450032 -0.092376806  0.187554749       -0.211872202  0.2382488963
## 102 -0.9434357518  0.044064597  0.098290848       -0.242342512  0.3010708953
## 103  0.5718734080 -0.232763795 -1.039472391       -0.184241823  0.4238961775
## 104 -0.0958829535  0.024664384 -0.527284067       -0.140910508  0.0585030030
## 105  0.3305755450 -0.301262159 -0.067013003       -0.401677244  0.4919733635
## 106 -0.9139298568 -0.119042531  0.186884453        0.224509970  0.2132765032
## 107  0.3155749985 -0.201736323  0.159837795       -0.235442450  0.4550574790
## 108  0.0286603470 -0.099070121 -0.621626088       -0.369300118  0.1064187835
## 109 -0.3930421095 -0.026149958 -0.559909791       -0.039706626 -0.1983145850
## 110 -0.1281170355 -0.227870101  0.258921200        0.091234928  0.6633299550
## 111 -0.1710377100 -0.236458666  0.378712936       -0.008068048  0.5238756935
## 112  0.0814692970 -0.064705998 -0.744900184       -0.096779186 -0.4256103755
## 113  0.0000000000  0.094441688  0.902866382        0.148310852 -0.7263202735
## 114  0.3503834760  0.057570750 -0.015508766       -0.052438756  0.2570409055
## 115 -0.3306178230 -0.020676783 -0.167083390       -0.106013167  0.0624500620
## 116 -0.6279271033 -0.202114343 -0.001045280       -0.189195148  0.0714719288
## 117 -1.1775552827 -0.177776437 -0.075852556       -0.326377916  0.1053880763
## 118  0.0191862765 -0.025611192  0.426176072        0.626937690  0.1619083930
## 119 -0.4490597705  0.767847467 -0.988139099        0.417218875 -1.2610849860
## 120 -0.7865359700 -0.117272900 -0.016971620       -0.036306873  0.6926574160
## 121  0.4001834033 -0.104781313  0.306454641        0.450901372  0.3737922973
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## 122  0.1625109230  0.096012830 -0.579446292       -0.205244126 -0.2128056205
## 123 -0.3722961150 -0.175777969  0.463259822       -0.270221037  0.1146366705
## 124 -0.3791800605 -0.088211354 -0.801697673       -0.495398225  0.1884466220
## 125 -0.0499569905  0.144997168  0.709164569        0.581312481  0.6057883670
## 126 -0.3881213170  0.035644381 -1.338168811       -0.250058768 -0.1589718605
## 127  0.3308925845 -0.052317629  0.533146741        0.298759342  0.5912187960
## 128  0.6462750730  0.060379518  0.821752821        0.011286433  0.8441823675
## 129  0.5507295850 -0.112086097  0.558828167       -0.016614572  0.4895679765
## 130 -0.0508077200  0.087507238  1.347692776        0.073349033  0.0016305065
## 131  0.3222466030 -0.016014574 -0.559933836        0.700708511  0.2777914255
## 132 -0.5645116695 -0.205186246 -0.677672891        0.103398880 -0.1080536250
## 133  0.2074387400  0.122872032 -0.055160778        0.051408810  0.1820392025
## 134  0.1368334567  0.273596863  0.062291712       -0.475287483 -0.0301779793
## 135  0.0650173853 -0.023076051  0.027252384       -0.015168163 -0.2457593848
## 136 -0.2374147048  0.025645540  0.352367778        0.033071787  0.0088040982
## 137 -0.3536576793  0.051100070  0.349733610        0.166492041  0.2490524447
## 138 -0.2825164740 -0.108410787  0.166964270        0.071577445 -0.0748904910
## 139  0.8841711430 -0.196719245  0.197588774       -0.036081616  0.4409929510
## 140  0.1074985337  0.162246874  0.262390412        0.336419626  0.1247573648
## 141  0.8703568255  0.747603406  0.161444920        0.183594676 -0.8576702085
## 142 -0.0725001822  0.070210697  0.067417615        0.317441680  0.1478682357
## 143 -0.5386474918  0.255350977  0.037452448       -0.097283783 -0.1014592177
## 144  2.2869242225 -0.023062999 -0.210036472        0.361980976  0.0963241215
## 145  0.3999329690  0.013237311  0.145529607        0.262175757 -0.5386186120
## 146  0.3350532715  0.064681104 -0.480969301       -0.118176506  0.5548605970
## 147  0.2174184530  0.250990326 -0.068667956       -0.085463164  0.4755010375
## 148  0.2865350485 -0.031225335  0.528697410        0.018663148 -0.6447051395
## 149 -0.1960526590  0.075789398  0.059389854       -0.101886285 -0.0578108960
## 150  1.0463868362 -0.112038814 -0.199589566       -0.046436181 -0.4587572078
## 151 -1.2863375790 -0.071444371  0.058728247       -0.114373450 -0.4485368440
## 152  0.0569091220 -0.102992491  0.423309389        0.128422021  0.4626324460
## 153 -0.1763901575 -0.188390522 -0.243995818       -0.044810455  0.3082805205
```

```
## 154 -0.4717623018  0.056667168 -0.014937191        -0.078390629 -0.3077259988
## 155 -0.9348269327 -0.353224085  0.199183126        -0.008277653  0.0105645603
## 156 -0.1543095070 -0.076438421  0.797395346         0.207502141 -0.5480384945
##     pp_Tuberin.pT1462     pp_VEGFR2      pp_XRCC1        pp_YAP pp_YAP.pS127
## 1         0.304857188 -0.1165835560  0.1861941685  0.034034085  0.429606757
## 2         0.212137338 -0.6993725420 -0.0038012210  0.028424271  0.699927648
## 3         0.275979249  0.8656579605 -0.3040952570  0.371283757  1.255105834
## 4         0.158413221  0.4869089827  0.6333223452 -0.247045445 -0.346866892
## 5         0.086854521  0.5689174400 -0.2220831545  0.312480525  0.778481107
## 6         0.093756664 -0.7495680935 -0.1382367915 -0.318888424  0.461961970
## 7         0.161929601 -0.8709355525 -0.1730298920  0.274676048  0.105087684
## 8         0.194134816 -0.5567771360 -0.2198836505 -0.011968769 -0.301077677
## 9        -0.104136946  0.0670485270  0.2478248525  0.146624571  0.001922457
## 10       -0.167744091  0.6355476832  0.1195805857  0.088415841 -0.025249284
## 11        0.814041230  0.2682369305  0.3496274270  0.012493092  0.028568544
## 12        0.065588135 -1.1645923630 -0.0707694010  0.006384109 -0.166025921
## 13       -0.130334232  0.8823544705 -0.1738749965  0.019582474  0.112876878
## 14       -0.205491249  0.8188401305 -0.0454206065  0.637810545  0.642825799
## 15       -0.187993338  0.2267894095  0.2911409155  0.134050664  0.058288855
## 16        0.433605996  0.2161672715  0.1273565375  0.292359579  0.528503271
## 17        0.051797865 -0.7676130160  0.3939315120 -0.070832360 -0.006799063
## 18        0.367742113  0.8134318550  0.1756043180 -0.228960194 -0.141928234
## 19       -0.433434985  0.6777113490  0.0926839650  0.249953844  0.067962710
## 20        0.602027303 -0.1887813955 -0.1074878395  0.038536290  0.332093470
## 21        0.012318193 -0.6723516180 -0.0435431250 -0.058813593  0.230441734
## 22       -0.135406501 -0.6312494870  0.2061281430  0.928110409  1.872101962
## 23       -0.031399979 -1.2667135385 -0.2365103815 -0.166756462 -0.569739060
## 24       -0.269848187 -0.0428949585 -0.0679934060  0.363124319  0.028545694
## 25        0.570067868  0.4548442120  0.0193648570 -0.385941690  0.229897506
## 26        1.377329836  0.2268530685  0.3566526695 -0.204987401 -0.096760488
## 27        0.188933919  0.3915402395  0.1123147085  0.038237356  1.063479659
## 28        0.373009890 -1.1483832605  0.0706986225 -0.204496922 -1.091270739
```

```
## 29        0.435888410  0.1148764125 -0.0389555335  0.389591457  0.427158807
## 30        0.285713028  0.4566999220 -0.2289519380  0.251028105  0.458355470
## 31        0.347070210  0.5789288315 -0.1531610615  0.341013411  0.617648813
## 32        0.231147765  0.3160572965 -0.0169666365 -0.303763666  0.099725011
## 33        0.298015385 -0.4225211340 -0.0215251980  0.126933835  0.242993376
## 34        0.000000000 -0.6380901050 -0.1076339740  0.357272890  0.511529941
## 35        0.362334936 -0.3685906560 -0.1270619100  0.035681902  0.276900280
## 36       -0.102600432 -0.9963199400  0.1917472750 -0.145786866 -0.410089188
## 37       -0.414178004  0.8778069985  0.1442809105  0.093136368 -0.406822282
## 38        0.045143228 -0.0008043800  0.1364111650  0.075099221  0.589957903
## 39       -0.051756796  0.5527964790  0.1866645840  0.072053826  0.777389086
## 40       -0.300397815  0.1198994445  0.5325284745  0.346274210 -0.873312262
## 41        0.242924406  0.8353018820 -0.1620338990  0.023409220  0.580266577
## 42        0.185114230  0.2995559955 -0.1024905015 -0.067561108 -0.222826590
## 43        0.445152726 -0.7030523050  0.2819203960 -0.169997917  0.018220758
## 44        0.032049424 -0.6543574805  0.1703652745  0.443285307  0.317246224
## 45        0.560000611 -0.2847626570  0.0346001140  0.340018851  1.003357084
## 46        0.455049771  0.0063979235  0.2183735605 -0.082352553 -0.147409063
## 47        0.236029411 -0.1115691550  0.1006242060  0.313190283  0.802314844
## 48       -0.030254397 -0.3900865130  0.1400637590 -0.015494575 -0.035797412
## 49        0.000000000 -0.4167970120  0.1395407830  0.549899003 -0.218247181
## 50        0.320098689 -0.4567179705 -0.0294946045  0.380853259  0.769063708
## 51        0.036166638  0.6083591035 -0.0354453385  0.204720008  0.859284916
## 52        0.087239224 -0.6588718540  0.1514228330  0.955148745  0.399040756
## 53        0.395608118 -0.5817980180  0.0504256020 -0.070936956  0.021155624
## 54        0.234442075  0.3644236460  0.0590717620 -0.172040355 -0.364547950
## 55        0.349720291  0.8203218140  0.1465695750 -0.287116127  0.007383673
## 56        0.064351186  0.3320732685 -0.3212708775  0.269510323  0.837454503
## 57        0.484332257 -0.6303734545  0.0001545225  0.366560023 -0.006286360
## 58        0.180658967 -0.7285554165  0.0167606185 -0.287323155  0.306395640
## 59       -0.315284829 -0.0671553310  0.2274797110 -0.039737508 -0.698706042
## 60       -0.335534530 -0.7433288725  0.1079807855 -0.157944793 -0.636788537
```

```
## 61        0.360500302  0.2806262550 -0.0142328195 -0.093684627 -0.281873506
## 62        0.108586471 -0.2197377260 -0.1246012755 -0.374363022 -0.501771037
## 63       -0.175273964  0.2301668445 -0.0336846820 -0.412680858 -1.045644209
## 64        0.451973437 -0.7386011405 -0.4473446300  0.568964129  0.598850046
## 65       -0.149419935 -0.4495056197 -0.1487908343  0.577074682  0.437702806
## 66        0.314315904  1.0161229243 -0.0992237372  0.015330287  0.603161155
## 67        0.398410997 -0.2498968705 -0.6614539240  0.588914191  0.272970677
## 68        0.697533717 -0.5837863933 -0.2678362117  1.071987243  0.338126077
## 69       -0.087976642 -0.2067947650  0.0674236995  0.236880531  0.410080933
## 70       -0.343608591 -0.1275110282  0.1392682533 -0.276036212  0.232945007
## 71       -0.481822268 -0.7661543503  0.1165367612 -0.103968550 -0.150839325
## 72       -0.449642627  0.7010712655  0.1307679970 -0.060314448  0.242831412
## 73       -0.605409451  0.4259891857  0.0504308282 -0.040394145 -0.043099281
## 74        0.615037945  1.4624720270  0.2303094550  0.154819900  0.100613269
## 75        0.472327428  0.5118959015 -0.1384857665 -0.214360982  0.011345526
## 76        0.702043630  1.9206811440 -0.0733350820 -0.534724818 -0.269045341
## 77        0.366106312  0.0435387755  0.1705812745  0.313740261  0.224597451
## 78       -0.003533214 -0.2702892040  0.1257380870  0.328603523  0.941060419
## 79        0.516876111  0.5950290415 -0.0014409005  0.298889003  0.687531025
## 80        0.201734269  0.4171607390 -0.0931250195  0.015894884  0.013922435
## 81        1.008974700 -1.1976091530  0.1638222500 -1.001382366 -0.964880526
## 82        0.352692002 -0.7844359130  0.2045620920  0.084841961  0.082125119
## 83       -0.000329875 -0.0717424825 -0.1111879570  0.328204351 -0.003502613
## 84        0.797609179 -0.2389974883 -0.1213736498  0.275535279  0.539690646
## 85       -0.152151281  0.0789175313 -0.1919463413 -0.098434335  0.964516520
## 86        0.466460184  0.6439649355  0.2035720325  0.146735651 -0.873161421
## 87        0.052598753  0.2649447752 -0.6405071452  0.501933465  0.816016839
## 88        0.157746148  0.4514229250 -0.0070232900 -0.453104622 -0.627588909
## 89        1.092714653  0.9691809980  0.0324542600 -0.065292933  0.516427951
## 90        0.748820893  1.0000210973  0.0607810528 -0.606326644 -1.034978588
## 91        0.704008853  0.5241272755 -0.0334527155 -0.015525342  0.614113379
## 92        0.154436141  0.4287297225 -0.0897937925 -0.133152331  0.341564226
```

```
## 93        0.236113617  0.3090092625 -0.1146376775 -0.042325299 -0.443582542
## 94        0.056854555 -1.0714424682 -0.3947274738  0.281859154  0.362408507
## 95       -0.003460347  0.0681280185 -0.0190347450  0.187404291  0.748064933
## 96        0.477701195 -0.4963419480 -0.3501968690  0.156267941  0.789971342
## 97        0.213550437  0.1818711658 -0.1741849767  0.387177638  0.418565599
## 98        0.562210579  2.0462367245  0.0610226585 -0.020095408 -0.447726012
## 99        0.762601756  0.3159269130  0.0675793750 -0.376165185 -0.041848613
## 100       0.448330494  0.7184986830  0.0026001520 -0.374503498  0.605079996
## 101       0.332096941  0.4649205718  0.5452624993 -0.233939579 -0.156229294
## 102       0.583850531  0.5007370267  0.3168003643 -0.304523354 -0.826573619
## 103       0.991872574  0.9056650505 -0.0542128055 -0.059470571  0.897203409
## 104       0.117675511 -0.0091775060 -0.2523601700  0.071978408  0.345268356
## 105       0.565939430  1.3467764795  0.0360711385 -0.224134073 -0.593005483
## 106       0.703643025  0.7555491347  0.0625118882  0.048328429 -0.002242576
## 107       0.653332841  0.1228860740  0.0923157180 -0.475013919 -0.001052436
## 108       0.284169269 -0.0843049865  0.0047872995 -0.330892362 -0.601040802
## 109       0.336650454  0.4304768130  0.1537985580 -0.349643094 -0.091567022
## 110       0.366337854  0.4290260040  0.1113207190 -0.430906352 -0.844531702
## 111       0.733877986 -0.0195447225 -0.0667343765 -0.486905825 -0.061220271
## 112       0.162894678  0.1072600245  0.0976995825 -0.137077823  0.172942605
## 113       0.188759250 -0.0068612115  0.1400640945 -0.018562824  0.048914325
## 114       0.315423838  1.1843335615 -0.0505959925 -0.080007474  0.187878803
## 115       0.351408870 -0.2247552435 -0.1078812140  0.069035998 -0.153445984
## 116       0.347886726  0.2289280613 -0.3019167963  0.055452985  0.068584792
## 117       0.571857577  0.5443625027  0.2103531262 -0.448573514 -1.049427852
## 118       0.557242784 -0.6689407440 -0.0947424610 -0.421178365  0.380711246
## 119       0.392795613 -1.1027997160  0.1271894940  0.675454183  0.219836187
## 120       0.559619975  0.5058507275  0.1033541290  0.043991958  0.196256581
## 121       0.283682073 -0.0447929042  0.1699797533  0.104341337  0.263493073
## 122       0.945974362  0.6670318655 -0.1109980615  0.681813055  0.327836919
## 123       0.534292477  1.0945885285  0.5749480055 -0.306531210  0.140463642
## 124       0.369832370 -0.4588447370 -0.1030821790 -0.350004392 -0.247900333
```

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## 125      -0.184111268 -0.2101501610  0.0265033600 -0.612382858 -0.180246977
## 126       0.071286628  1.1011656605  0.0194902395 -0.255925629 -0.676943557
## 127      -0.068193143  0.2617971430  0.1438971190 -0.395114332 -0.979860694
## 128       0.732184535  0.1744508245  0.1403741335 -0.331538455 -0.517272765
## 129       1.071697257 -0.3114796645  0.2042584665 -0.495522369 -0.159596759
## 130       0.514333607 -0.1431270755 -0.0423404445 -0.339390853  0.000000000
## 131       0.138616663  0.6666576255  0.2403420625  0.055624143  0.307671598
## 132       0.416676418 -1.9203694210  0.3870713940 -0.211949624 -0.347133711
## 133       0.342649741 -0.6864917195  0.0391357685 -0.066849597 -0.364991937
## 134       1.137997263 -1.0913956168 -0.3280598982  0.112238513  0.261937893
## 135       0.027138616  0.4281303277 -0.2709316138  0.284611168  0.326263269
## 136      -0.034962010 -0.0771867992  0.4801351242  0.120453906 -0.004250071
## 137      -0.122518774 -0.0405932257  0.1276713597 -0.179288217 -0.587121976
## 138       0.283851621 -0.4784166505  0.2712629360 -0.161184465 -0.192525522
## 139      -0.359000689  0.5141475635  0.0740429550  0.017925508 -0.502880814
## 140      -0.304087853 -0.5315439328  0.3789450038 -0.220212790 -0.054782388
## 141      -0.201649883  0.0411576860 -0.2778554805  0.545681469  1.032685628
## 142       0.224255692  0.0717775353 -0.3142999332  0.047188018  0.389131471
## 143       0.619823166 -0.2871655632 -0.3269969517  0.150809307  0.738227378
## 144       0.334483798  0.2140508890 -0.3906301655 -0.033213761  0.196637994
## 145       0.133092759  0.4069905465 -0.0885458900  0.087359966  0.195849061
## 146      -0.244268663  0.4613261960  0.2439974220  0.020268427 -0.573970837
## 147       0.051808150 -0.0000592455  0.1799894795  0.070940726 -0.001822077
## 148      -0.221197821  0.4045613500  0.0199835765  0.037379989 -0.611605512
## 149      -0.123793922  0.1516006775  0.0988698410  0.247230053  0.226888178
## 150       0.193412780 -0.2882224163 -0.0729730647  0.217011572  0.609473631
## 151      -0.035673604 -0.0945537005  0.0109123260  0.252556660  0.376195583
## 152       0.066387928  0.4048036095 -0.1235105610 -0.112141598 -0.105718556
## 153       0.668400370  0.0734633440 -0.2517116635 -0.302097389 -0.564498357
## 154       0.162674461  0.1876560077 -0.0647559027  0.381509843  0.232857786
## 155       0.381966321  0.3395882937 -0.0142956638  0.087160058  0.405734652
## 156      -0.036563665 -0.5227697705  0.0517823795  0.398458571  0.363679831
```

```
##           pp_YB.1 pp_YB.1.pS102     pp_c.Abl pp_c.Jun.pS73     pp_c.Kit
## 1   -0.3118676030  -0.026892803 -0.157971429   0.089281242  0.797100265
## 2   -0.0624877100   0.123237384  0.018522040   0.403642730  0.706402702
## 3   -0.0164871805  -0.217156864 -0.337285027  -0.258973429  0.223547999
## 4    0.0613122848  -0.024251721 -0.249833227  -0.037998422 -0.209257604
## 5   -0.2026657200   0.326595782  0.079468180   0.291006775  1.063076117
## 6   -0.0853099825   0.094324854 -0.209441600   0.104892990  1.246453715
## 7   -0.3341954915   0.266538586  0.084942729   0.139356231  2.117220493
## 8   -0.1671307070  -0.015559006 -0.101529900   0.132949850  1.234882873
## 9    0.3923135270  -0.099383209 -0.088220513  -0.021185077  0.040928784
## 10   0.0524193982   0.010978953  0.002083921  -0.104163818 -0.140516309
## 11  -0.2833948445  -0.225629670 -0.034839880  -0.151599404 -0.157211761
## 12  -0.1911076630  -0.148616698 -0.028110830  -0.031184669  0.008200576
## 13   0.6116658755   0.140300599  0.204585152   0.289074300  1.761822984
## 14   0.1170631745   0.543215753  0.055529850   0.067960661 -0.435548889
## 15  -0.0134061015  -0.347180477 -0.126434471   0.172335642 -0.369682399
## 16  -0.0403394995   0.765036590 -0.123189559   0.104607994 -0.152981948
## 17  -0.3580174630  -0.596954539 -0.055229092  -0.033862126 -0.232583917
## 18   0.1698240780  -0.175947326 -0.044863648   0.155323625 -0.366327976
## 19  -0.2224589700  -0.227126254  0.150639117   0.233386963  0.024230018
## 20   0.0283933445   0.010348942 -0.184969523   0.134238667 -0.559961752
## 21   0.0874560200  -0.046727380 -0.235285456  -0.224325593 -0.051438081
## 22  -0.3622336950   0.506762277 -0.273747750  -0.359007069  1.493104394
## 23  -0.0547983195  -0.131295842  0.038125983   0.063361133  0.621118719
## 24  -0.1572150545  -0.043299824  0.000951774  -0.083467407  0.350988224
## 25  -0.3431925020  -0.182535516 -0.084016375   0.361510054 -0.481463846
## 26   0.3490669635  -0.427299393  0.073663679  -0.170691044 -0.209905852
## 27   0.3425019985   0.548060769 -0.397840631   0.401960121 -0.018720552
## 28   0.2633338635  -0.079463007 -0.051919740   0.058257712 -0.033958833
## 29   0.3444159175   0.473783943  0.017033927   0.529597615  1.652766506
## 30  -0.0191827720  -0.278316670 -0.104079709   0.292586911  0.645826410
## 31  -0.3233533795   0.279681119 -0.061044294   0.037345508  0.418777130
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## 32  -0.1198097535   0.391834336 -0.181745421   0.018441094 -0.064599182
## 33  -0.4705062410   0.360448329 -0.102719383   0.113781893  1.335909393
## 34  -0.0392267180   0.170036344 -0.173062373   0.074541486  0.894982500
## 35   0.0000000000   0.032255921 -0.071232738   0.046746412  0.054685151
## 36  -0.6271883770   0.384846013 -0.054362795   0.134098288  1.897872682
## 37   0.4520299545  -0.409808564  0.287245916   0.004393015 -0.431984753
## 38   0.0330720340  -0.194821819 -0.093307185  -0.247647653 -0.248862628
## 39   0.0347914920  -0.178067156 -0.132441890  -0.192175034 -0.220889732
## 40   0.1119975025   0.144939921  0.059058581   0.302906650  1.469386094
## 41   0.5310091450   0.131887364 -0.172955192   0.240901066  1.735619173
## 42  -0.0663240715   0.154895673  0.063996176   0.565474167  0.368895851
## 43  -0.1804923220   0.227840270 -0.319042932  -0.006656705  0.183550207
## 44  -0.5108911655  -0.049547746  0.009036055   0.341252575  1.010907098
## 45   0.9343609230   0.124551792 -0.388447752  -0.369895056  1.058406493
## 46  -0.3172046725  -0.350080543 -0.302751326   0.138828146  0.515563963
## 47  -0.4647422610   0.085020886  0.364318743   0.181030022  0.763980102
## 48  -0.5640743080  -0.151628415  0.282273018   0.029789081  1.117096654
## 49  -0.2783881220  -0.046353729 -0.120440185   0.488507850  0.725153359
## 50  -0.0784535415   0.622082361  0.270186512   0.342372432 -0.335549053
## 51  -0.0982188595   0.009561980  0.017993934  -0.128315316  0.284862214
## 52   0.1026667070  -0.403690706  0.059026265   0.628875374  1.844250782
## 53  -0.0637603360  -0.367332086  0.165409134  -0.118465361 -0.578713052
## 54   0.1982884450  -0.413595539 -0.315863920  -0.163446657 -0.574374522
## 55  -0.5635486010  -0.245828769  0.710417540  -0.434484991  0.602759929
## 56   0.0938416405   0.164189132 -0.088615722   0.150149644  0.214896528
## 57  -0.4584831325  -0.042679173  0.014176539   0.231879769  1.000850077
## 58  -0.1958875485  -0.063635931  0.017063256   0.184736536  0.869973244
## 59   0.0697303360   0.414437552  0.432288676   0.650016343  0.816600685
## 60  -0.5431261555  -1.028468369 -0.174581542  -0.308050536  0.040530113
## 61   0.0966362130  -0.035900217 -0.173402324  -0.088130099  0.165508014
## 62   0.2250359020   0.007900242  0.086181380  -0.430784279  0.712639875
## 63   0.1566850155  -0.115349053 -0.003415576  -0.162823627 -0.214512498
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## 64   0.8931530325   0.572334184  0.093741046   0.416934239  0.844920757
## 65   0.6538983188   0.183520938 -0.063938043  -0.041030750  0.557624143
## 66   0.2819277633   0.102223764 -0.087325765  -0.495796736 -0.067056591
## 67   0.2060243275   0.059835769  0.064989730  -0.006637086  1.480064005
## 68  -0.6251104948   0.333398293  0.385359825  -0.215397009  1.335144721
## 69  -0.6131385925  -0.322979297  0.173682679  -0.103460773  0.894352938
## 70   0.3996324243  -0.402754266 -0.162897828  -0.099072996 -0.909001610
## 71   0.8966910762  -0.343217948 -0.145165526  -0.229299277 -1.251120945
## 72  -0.3606013620  -0.435647150 -0.069452656  -0.011210275 -0.518231887
## 73   0.3413813283  -0.227892934 -0.218545943   0.088548974 -0.549040823
## 74  -0.0843665100   0.213497194 -0.023657972   0.276911201 -0.173088010
## 75  -0.0095243025   0.974576564 -0.280137042   0.199586146  3.075982320
## 76  -0.1324042990   0.132565768 -0.156661723   0.073313136 -0.528234351
## 77  -0.1137062095  -0.258902826 -0.021961776  -0.085269320  0.463108639
## 78   0.3408659740   0.488619115 -0.320374110   0.587464666  1.510716462
## 79   0.1079819765   0.644258623  0.049830155  -0.061702625  0.567812771
## 80   0.2968143560   0.113091867 -0.095066154  -0.021069785 -0.213198249
## 81  -0.1977512675  -0.546717260 -1.077717394   0.475198193 -0.713506626
## 82  -0.0563253465  -0.173282738 -1.117599388   0.644478014 -0.025101847
## 83   0.1122870090  -0.024681933  0.291982503  -0.011433234  2.683435370
## 84   0.1232778153  -0.209625562  0.086315983  -0.007268536 -0.460138928
## 85   0.2664908867   0.362494750 -0.222299740   0.475774064 -0.826745780
## 86  -0.3498727395  -0.149588020  0.043499936  -0.082751371  0.089610550
## 87   0.6193778802  -0.037001472 -0.789671173  -0.268830719  0.297999073
## 88  -0.2400230560   0.133255274 -0.415899529   0.240849507 -0.584500568
## 89  -0.0957461900   0.277484664 -0.315578180   0.290818767 -0.401858878
## 90   0.0285468183  -0.083482938 -0.135834551  -0.100017939 -0.525562458
## 91   0.3546603095   0.235166434 -0.023948073  -0.036578923 -0.580460825
## 92   0.0742363205   0.281751019 -0.124293755  -0.037267307 -0.079106038
## 93  -0.3193540805  -0.138006937  0.091092844   0.182958107  0.138289036
## 94   0.5021535338   0.043251724 -0.366774172   0.025897517  0.799246857
## 95   0.3957000205  -0.086449926 -0.092647069  -0.169129604  0.115266709
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## 96   0.0947768740   0.468309507 -0.134645723  -0.003589933 -0.587851270
## 97  -0.2206726042   0.120536973  0.128880219  -0.097983077  0.031733457
## 98  -0.1576081255   0.291297648  0.505634136  -0.320189944  0.871289187
## 99   0.1762718500   0.103212843 -0.058534524  -0.064469229 -0.757292556
## 100 -0.1693047140   0.219101828  0.026781963   0.257045242 -0.536992052
## 101 -0.1374553713  -0.114811338 -0.137016791  -0.102672788 -0.588671013
## 102 -0.0574286902   0.217053914 -0.076111444  -0.110521273 -0.623937283
## 103  0.0493491685   0.275811373 -0.195206143   0.269150192 -0.674976649
## 104  0.0000000000   0.265868889  0.025133294   0.034665123 -0.310557299
## 105 -0.0143997995   0.156852827 -0.002401697   0.542977014 -0.509354216
## 106 -0.0399163842  -0.018907508  0.034278639   0.035030641 -0.124469928
## 107  0.0146542660   0.332567114 -0.077750933   0.361082136 -0.452669507
## 108 -0.3364618175   0.005138829 -0.083774250   0.123749183  0.110026815
## 109 -0.2475850900   0.093820957  0.091534643  -0.091236299  0.013640824
## 110  0.0293191410  -0.025013987  0.211016774   0.163521959 -0.534803990
## 111 -0.2266027165   0.722146536  0.035054759   0.289420776 -0.452975189
## 112  0.1736984625   0.296969263  0.153458815   0.039403005  1.110527017
## 113 -0.1927420575   0.047238153 -0.140882353   0.119871379 -0.408707991
## 114  0.2876096785   0.474055728 -0.053292724  -0.254593882 -0.247635146
## 115 -0.0279353315   0.119255655 -0.152508969   0.321849644 -0.024791083
## 116 -0.1366961918   0.086696147  0.087970139   0.450416654  0.107720809
## 117 -0.2838593672   0.171996614 -0.116611958   0.113213196 -0.302385150
## 118  0.1778067930   0.142108967  0.338096725  -0.102629618 -0.550485288
## 119 -0.3107058690   0.439919408 -0.074392518   0.194376296  1.225647907
## 120 -0.0993619105  -0.116105769  0.049276920  -0.020054505 -0.403389138
## 121 -0.0037841482  -0.104871666  0.017870726  -0.120346587 -0.256852411
## 122  0.2807252945   0.630295400 -0.826472339   0.575198742  0.533917233
## 123 -0.0755362805   0.200606461  0.194212692   0.040015534 -0.085597253
## 124 -0.2699140060   0.040302767  0.171517516   0.068950150 -0.417648113
## 125  0.1085794900   0.053407715 -0.111942589   0.017789587 -0.792524393
## 126  0.4562719385  -0.045842259  0.124883276   0.012608128  0.470879273
## 127  0.0737355890  -0.195182578 -0.054986282  -0.060982444 -0.829839003
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## 128  0.1033800125   0.221419584 -0.129657425   0.312633120 -0.837774225
## 129 -0.1275324315   0.483031983  0.269464384  -0.426478230 -0.659311668
## 130 -0.4996775055   0.419949244 -0.094391528   0.086713046 -0.300343649
## 131 -0.2302961905  -0.157373270 -0.162321965   0.247175193 -0.698610796
## 132 -0.1764476810   0.145947783 -0.130198078   0.007190004  0.571526426
## 133 -0.1947016885   0.097355671 -0.264763755  -0.219156850 -0.458928915
## 134  0.0484572457  -0.061815737  0.239022643  -0.005290568 -0.253482332
## 135  0.0951574542  -0.192650485  0.129738628  -0.012141882 -0.100933600
## 136  0.0813815468  -0.149944615 -0.129705001  -0.202654793 -0.153904676
## 137 -0.0008208757  -0.166701148  0.364503074  -0.012604394  0.448295174
## 138  0.0863261005  -0.023697606 -0.129055990  -0.031686630  2.421305033
## 139  0.1079946225  -0.253567852  0.029609685  -0.264747062 -0.340957823
## 140  0.1710020762  -0.261474921 -0.005666830  -0.332852751 -0.341756114
## 141  0.1085742170   0.249390601 -0.077533271  -0.265337914  0.716759279
## 142 -0.0596679487   0.227731024 -0.192920201   0.233745245 -0.442947026
## 143 -0.2017021103   0.102244267  0.015846575   0.065941110  3.205064833
## 144 -0.0891196160   0.300394008 -0.183187941  -0.028988704 -0.380668838
## 145 -0.1276447595   0.283338245 -0.107245411   0.225960187  0.888408825
## 146  0.5523779220  -0.616899115 -0.178471989  -0.329716665 -0.631703436
## 147 -0.0239555725   0.358058794 -0.337266652  -0.094702026 -0.666131420
## 148  0.1735627710  -0.063515539 -0.029474805  -0.184514254 -0.092105441
## 149  0.1365579265  -0.032539697  0.132924840  -0.099474138 -0.213245117
## 150 -0.0881880153  -0.067666937 -0.246297920  -0.012148920  1.836929194
## 151  0.0911184435   0.049895313 -0.087046022   0.182759805  1.122340347
## 152 -0.0057532235  -0.085473233 -0.009458958  -0.084826007 -0.007752473
## 153 -0.2557858950   0.002124897  0.028911482   0.133731261 -0.204716752
## 154  0.0170623158   0.261344325  0.046858004   0.327001050 -0.205619752
## 155  0.0932110737   0.282740384 -0.132101986   0.421319044  1.190091387
## 156  0.1001150645  -0.240812428  0.264906372   0.049030293  0.369870769
##         pp_c.Met     pp_c.Myc      pp_cIAP      pp_eEF2      pp_eEF2K
## 1   -0.159530834  0.383546188  0.236109634 -0.144989427  0.6446010655
## 2   -0.076541298 -0.213369950  0.006367988  0.089477264  0.0751703540
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## 3   -0.001280385 -0.052187236  0.312086154 -0.243315461  0.0558004770
## 4    0.232405600  0.159074400  0.228234371 -0.547761985  0.6171304273
## 5   -0.092542402  0.241797774  0.128055461 -0.343212723 -0.2111990685
## 6   -0.199392302  0.430487286  0.222699492 -0.187830472 -0.7775273655
## 7    0.297226351  1.174591427 -0.239057207 -0.482517706  0.0402334510
## 8   -0.072218793 -0.092861363  0.167918869 -0.071599473 -0.1395921745
## 9    0.138641301 -0.005866656 -0.141608416  0.185589483 -0.3777133805
## 10  -0.136205527 -0.583131968  0.154074697 -0.021060238  0.3392340697
## 11  -0.152431353 -0.555435347  0.184993258  0.164301233 -0.1576186170
## 12  -0.007824425 -0.318532264 -0.165662873 -0.042195300 -0.1823945050
## 13   0.180848362  0.666514782 -0.175475136 -0.106921399 -0.4388102825
## 14  -0.019470220 -0.053088596  0.131805973  0.191214937 -0.6776027125
## 15  -0.016942492 -0.087288315  0.446295759 -0.107005756  0.6138318835
## 16  -0.167620499 -0.139496816  0.239452688  0.000000000  0.1582030295
## 17  -0.038265498 -0.106710555  0.145812902  0.041186706  0.5492307100
## 18   0.114447704 -0.083205799 -0.045508912 -0.222517247  0.3638448080
## 19   0.000000000 -0.057596923  0.087254351  0.054506088  0.4836844220
## 20  -0.043688719 -0.190480585  0.402095245 -0.136885737  0.0156475465
## 21  -0.050688565  0.112016380  0.097968045  0.097120360  0.0289012020
## 22  -0.132219625 -0.304362374 -0.047571150  0.053556040 -0.3665459090
## 23   0.114203912 -0.421860522 -0.180957600  0.307311211 -0.5061573645
## 24   0.233654708  0.236577546 -0.054964514 -0.048896254 -0.8865190520
## 25  -0.221816071 -0.012709890 -0.075743109  0.156925640  1.0286630820
## 26  -0.129443320 -0.341973338  0.003227856 -0.319695041  0.5146575315
## 27  -0.059527065  0.228924808  0.165224018 -0.104845037  0.2025100375
## 28  -0.039797467 -0.095737221 -0.202238962  0.327008056  0.1738136035
## 29   0.608673665  0.504351185 -0.320357334 -0.675573473 -0.6898348835
## 30   0.546761511  0.270760192  0.122707974 -0.753158668 -0.3818213500
## 31   0.423151911  0.064778667 -0.132502394 -0.588134251 -0.6904966895
## 32  -0.274483123 -0.478208226 -0.513926747 -0.324634873  0.1697858275
## 33   0.176188644  0.043274533 -0.485558550 -0.351830665 -0.2476343110
## 34   0.345389798  0.069095050 -0.137201230 -0.599969196  0.0594545500
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## 35  -0.108312132 -0.077959206  0.118132051  0.102485465  0.0114024860
## 36  -0.336705902 -0.482741902 -0.442173782 -0.123802686 -0.5938552600
## 37   0.062717573  0.504487892  0.067999904  0.059038658  0.4358063995
## 38  -0.370624358 -0.335049645  0.154632838  0.327415787  0.1121203160
## 39  -0.272012965 -0.278222774  0.142999075  0.363387542  0.1654743350
## 40   0.224605764  0.348044708 -0.003048021  0.002157182 -0.1824877685
## 41  -0.049766495  0.551811286  0.174501130  0.389399755 -0.3770463660
## 42   0.028568052 -0.200089090  0.213425053 -0.078256402  0.0302843125
## 43  -0.051895749 -0.214897528  0.019823459  0.084149909 -0.3521331780
## 44   0.542156849 -0.043658988 -0.233561137 -0.342740854 -0.2747536815
## 45   0.558295306  0.364150380 -0.530698398 -0.891590222 -0.4502569400
## 46  -0.264240584  0.335574427  0.015051690  0.139148808  0.9593529655
## 47   0.038130699 -0.455171742 -0.510300050 -0.043803325  0.4816633960
## 48   0.028619516 -0.396326383 -0.586690139  0.114178048  0.1415016020
## 49   0.657157232  0.286285464 -0.380036488 -0.581966367 -0.6488245050
## 50  -0.081157519 -0.281647691 -0.183398125 -0.100722375  0.5473727335
## 51   0.021799836 -0.240298209 -0.385955441 -0.131322080 -0.1765825685
## 52   1.072530669  0.717659931 -0.413868929 -0.878311224 -0.4959477010
## 53  -0.211973355 -0.452701904 -0.183456090 -0.006860723 -0.2157906630
## 54  -0.036471663  0.197058895  0.102458999 -0.010487165  0.1518562160
## 55  -0.002392343 -1.124009489 -0.855565046 -0.289652937  0.3718279570
## 56   0.115521780  0.427524282 -0.090509210  0.089786381 -0.0246523115
## 57   0.644887908  0.105500320 -0.406003408 -0.422522011 -0.1866177405
## 58   0.135706497 -0.483282292 -0.593157322  0.037557069  0.0159501275
## 59  -0.119042071 -0.024150731 -0.235340421  0.138199036  0.4969966390
## 60   0.200394044 -0.423161939 -0.233416700  0.046510022  0.3666111995
## 61   0.312506884  0.529346776  0.131384645 -0.389731553 -0.2393515905
## 62   0.146334690 -0.485358395 -0.087207732  0.590991124 -0.4442528235
## 63  -0.103854476 -0.578955235 -0.228542117  0.745522603  0.0460220450
## 64   0.994812616  1.962346500 -0.222222713 -0.776056001 -0.8461379640
## 65   0.461241705  0.737091935 -0.196238416 -0.191765199 -0.4791020923
## 66  -0.049391521 -0.288837158  0.343040627  0.828056625  0.3989522107
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## 67   0.821843657  0.716802831 -0.287755319 -0.428914430 -0.3868937110
## 68   0.479513432 -0.411294722 -0.176456627 -0.141773789 -0.8950174008
## 69  -0.123715270 -0.482590907  0.366528833 -0.100279217 -0.4102844305
## 70  -0.168479793  0.541715737  0.122137579 -0.041864007 -0.3710368057
## 71   0.644489947  0.914426905 -0.097775115  0.151121241 -0.2094098688
## 72  -0.040788607 -0.151149858  0.182835539 -0.156186054 -0.2380903610
## 73   0.024855926  0.252889927  0.604772096  0.176530593 -0.0472912438
## 74   0.099558138 -0.122895656  0.039147779 -0.608433776 -0.0480298940
## 75   0.014694238 -0.050953867 -0.022991207 -0.037517759 -0.0524875845
## 76  -0.086643439  0.107690706 -0.090982392  0.028375008  0.0366321120
## 77   0.477914881  0.260660442 -0.293021508 -0.122520598  0.0402620645
## 78  -0.047434868  0.432415206  0.058954500  0.037821427  0.0046020360
## 79   0.111213650 -0.100062391  0.057249471 -0.020507101  0.3807568225
## 80   0.207017055  0.663875902 -0.272466729 -0.230088360 -0.7403087605
## 81   0.962480193  2.259394037  0.732043416  0.616972870  0.5277571715
## 82   0.306197495  1.284397593 -0.169492885 -0.005870151 -0.0001061145
## 83   0.430377646  0.155404505 -0.044994699 -0.348092265 -0.2773262860
## 84   0.270105787  0.330608428 -0.049463866 -0.264148695  0.3001712672
## 85  -0.107148829  0.129409967  0.231880052 -0.105440316 -0.5174667213
## 86   0.149541627  0.080562452 -0.227564044 -0.794594326 -0.4654994255
## 87   0.282227237  0.467807976 -0.475566165 -0.432230445  0.2672702858
## 88  -0.014510637  0.139723070 -0.028019251  0.255107199  0.0001309330
## 89   0.015055989 -0.128390500  0.178596771  0.142173855 -0.1162619820
## 90  -0.029558344 -0.355580564  0.226107665  0.282157683  0.5953583587
## 91   0.054751397  0.193134787  0.207025107 -0.080286806 -0.1405124105
## 92   0.096394602  0.200910766  0.098964363 -0.245278930 -0.2415060875
## 93   0.089625304  0.376876053 -0.091048632 -0.158476431  0.0489422615
## 94   0.718053873  0.740175767 -0.465873286 -1.035210586 -0.4299433377
## 95   0.380852794 -0.085288654  0.285402463 -0.072471327  0.2043270260
## 96  -0.170245028 -0.110050108  0.228727100 -0.007686505  0.0984209580
## 97  -0.164969762  0.011482672  0.711752110 -0.559178978 -0.6828364717
## 98   0.045496556 -0.578549110 -0.052385471 -0.172684026 -1.0723418145
```

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## 99  -0.230175799 -0.184407084  0.035709017  0.030730856  0.0963913700
## 100 -0.057008756 -0.396930198  0.360066558 -0.174607807  0.7770072190
## 101 -0.024030777 -1.139306893  0.204859291  0.002243682  0.8182596372
## 102 -0.110548503 -0.766900782  0.256359451 -0.197954524  0.7624569983
## 103  0.028756883 -0.132656772  0.130552371 -0.244152859  0.7427040925
## 104  0.343601445  0.196128423  0.049290857 -0.203060894 -1.2331008890
## 105  0.041252829  0.060882341 -0.400154365 -0.443877005  0.5124961265
## 106 -0.060241064  0.136130684  0.101355937 -0.256362115  0.8630914672
## 107 -0.168164995 -0.238841955  0.011066140  0.040909273  0.6196359780
## 108 -0.402729799 -0.291612020 -0.088720868 -0.146171811  0.2867580405
## 109  0.047340023 -0.091371460 -0.812670865 -0.064184860  0.1198538410
## 110 -0.010039363 -0.213359249  0.147124054 -0.008806364 -0.3337511840
## 111 -0.073748137 -0.221997009  0.051224356 -0.026060006 -0.3984515775
## 112  0.352122948  0.093406032 -0.198272032 -0.257669214 -0.0316387185
## 113 -0.135077406 -0.340915021 -0.096641696  0.015474630 -0.9194966395
## 114 -0.155677553  0.161830836  0.115321009 -0.121738694  0.6232806545
## 115 -0.015000737  0.475103190 -0.260251218 -0.092682148 -0.1258759590
## 116 -0.134625241  0.192118896  0.042903797 -0.412440017  0.1139974518
## 117  0.070818891  0.194138280  0.064088065 -0.500967113  0.8244463453
## 118 -0.034402010 -0.428126905 -0.100175950  0.581625664  0.2641861130
## 119  0.662754366  0.452004684 -0.032555487 -0.718335185 -0.5368650970
## 120 -0.097815488 -0.584809212  0.611677949 -0.091691974  0.5570298510
## 121  0.039773257 -0.447074758  0.393454029  0.104240073 -0.0762189017
## 122  0.114203876  0.217100708 -0.254195273 -0.491624576  0.0428879645
## 123 -0.074803826  0.284830200 -0.134768647  0.136138726  0.3633372615
## 124  0.110251507  0.084551547 -0.041723938  0.007785756  0.2523443050
## 125 -0.073752810 -0.042504325  0.275156572  0.095112238 -0.0293728800
## 126  0.530200284  0.710472162  0.029672678 -0.291658843 -0.1856966895
## 127 -0.129780551  0.063346891  0.186922112  0.013049310 -0.0977482550
## 128 -0.079583943 -0.406887365  0.356204727 -0.041468925 -0.1176665035
## 129 -0.257856937 -0.398640427  0.050933202  0.294668877 -0.0923005735
## 130 -0.213993980 -0.103044569  0.040565811  0.241709815 -0.1275900325
```

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## 131  0.047895857 -0.372569002  0.369468949  0.189578762  0.0816705875
## 132  0.175476265 -0.041317126 -0.210728692 -0.144695959  0.3402565360
## 133 -0.117755436 -0.203367333 -0.014597892  0.017351641 -0.0838978605
## 134 -0.015547595 -0.387287914  0.046780092  0.049357440  0.2880271677
## 135  0.215328879  0.021345735 -0.147462789 -0.280098826  0.0242904313
## 136 -0.021301558  0.041842828 -0.158287384 -0.048638211  0.7815321902
## 137 -0.102498570  0.026652946  0.204794112  0.204036402  0.7689721447
## 138  0.069001914 -0.744886505  0.117628483 -0.034476899 -0.3718845730
## 139 -0.034525901 -0.411567300 -0.196394220 -0.004632873  0.3298325560
## 140  0.001387266 -0.333268031  0.042730771  0.211150312  0.0429664428
## 141  0.011027486 -0.394261203 -0.025808937  0.035497593  0.1188649515
## 142 -0.148176358 -0.543453377  0.001427029  0.145302056 -0.1065481002
## 143 -0.003408527 -0.288670779  0.297472541  0.132810721 -0.4096509588
## 144 -0.107848945 -0.362528913  0.184479439  0.141394458  0.3457968265
## 145 -0.064636603 -0.047322303  0.038037658 -0.203107797 -0.6549268790
## 146 -0.059105526  0.362881407  0.226994810  0.007680678  0.2076817050
## 147 -0.115731512 -0.135155860  0.229030866 -0.089972409  0.1000265515
## 148  0.040488727  0.074191221 -0.326087142  0.517069880  0.9584250145
## 149 -0.017811049  0.223742075 -0.025420530 -0.513877793  0.5416343740
## 150 -0.010852927  0.129063478 -0.190584838 -0.409833968 -0.0139387018
## 151  0.334940052  0.699263347 -0.170270194 -0.442930618 -0.0855128780
## 152  0.080588442 -0.337085740  0.137150048 -0.189825996 -0.1062034590
## 153 -0.009362139 -0.160217552 -0.016281471 -0.034220831 -0.2942746305
## 154  0.242857143  0.924947283 -0.358840376 -0.309605658 -0.2737049357
## 155  0.065070419  0.405996873  0.193262045 -0.292113311  0.0805952943
## 156  0.275788490  0.116818904 -0.650302264  0.077611334 -1.0272688695
##          pp_eIF4E     pp_eIF4G       pp_mTOR pp_mTOR.pS2448 pp_p16.INK4a
## 1    0.0576216950 -0.201801367  0.2800510975    0.003706660   0.19042821
## 2    0.4033372120  0.344308456 -0.4349115625    0.258329747   0.89019386
## 3    0.2268358535  0.051262568  0.0323219740   -0.128815228  -0.01236628
## 4    0.0180540017 -0.025084983  0.5334513362    0.069395288  -0.31174931
## 5    0.1980177360 -0.402711605 -0.2610131525   -0.019797394   0.45060184
```

```
## 6   -0.0755110135  0.930025309  0.6521127430   0.310265742   1.47420144
## 7   -0.0877547865 -0.428336891 -0.3546296040  -0.100941827  -0.42577514
## 8    0.2838658030  0.475130325 -0.3271927305  -0.188794444   1.43353410
## 9    0.2324819600  0.369399077 -0.1071783095  -0.239197882   2.32635959
## 10   0.0479931813  0.161900901  0.1992041478  -0.087682939   0.15188886
## 11   0.1071090865  0.078639084  0.2688206100   0.191496022  -0.14695214
## 12  -0.0855923650 -0.380636516  0.0506103455   0.430898819  -0.53360579
## 13  -0.0743029875  0.456302514  0.2673370120  -0.028350539   1.90329693
## 14   0.2583908875 -0.386561270 -0.3511617730  -0.332096803   0.75074755
## 15   0.0407055915  0.528979060  0.3749115860   0.085439101  -0.69772924
## 16  -0.1566629925  0.044547864  0.5157047470  -0.020351765   0.66577167
## 17   0.2537142180 -0.459938226  0.3910298365   0.135401553   0.85863864
## 18   0.2938253390  0.702947048  0.4187732945   0.105635587  -0.43810850
## 19  -0.0405472150 -0.283911076  0.0837198895  -0.260552447   1.00140076
## 20  -0.1153866895  0.686428385  0.7566754170   0.225222723  -0.83524904
## 21   0.1872401400  0.865809513  0.1612742235   0.093070676   1.07291952
## 22   0.0631346990 -0.753961656 -0.3013229725  -0.511149761   2.84318419
## 23   0.4566191035 -0.195926922  0.2685692800   0.284954392  -1.16336467
## 24  -0.1972883045  0.274614757 -0.5832149780  -0.246563859   1.10857061
## 25   0.0044006910  0.054529671  0.6849919345   0.408339043   0.85331286
## 26   0.0156887645 -0.288199545  0.2366856280   0.822659783  -0.71742723
## 27  -0.2238193505 -0.216974512  0.6369619840   0.278787293   1.45630236
## 28   0.0088714805  0.172156285  0.6360990310   0.273201967  -0.44467578
## 29  -0.1789982155 -1.262260985 -0.9813730640   0.211002375  -0.87714802
## 30   0.0007582120 -0.643401279 -0.2137808195  -0.078094572   0.01453704
## 31   0.1091353225 -1.372782388 -0.7010463470   0.512413301  -0.21798678
## 32   0.2900911825 -0.301459046  0.3523340620   0.196555491   0.82459354
## 33   0.6086956420 -1.514866714 -0.5689053825  -0.210795211   0.49086633
## 34   0.1937674250 -0.561783124 -0.1538747625   0.123452778   1.37825594
## 35  -0.1797722230  0.261565532 -0.0944161595   0.022711935   0.83201608
## 36   0.1685026520  0.037563394 -0.7332464345   0.385941255   1.67510933
## 37  -0.2306116345 -0.077580143  0.9469208890  -0.737486968   0.47273086
```

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## 38   0.0000000000  0.354564365  0.2707833185    0.235447984   0.41078982
## 39  -0.0106349360  0.681888686  0.6173326445    0.218051165   0.45034228
## 40  -0.2216797545  0.967491731  0.0349494560   -0.221667482   2.03662550
## 41  -0.2891070350  0.490650490  0.4312906145    0.360522244   0.24655684
## 42  -0.1517439565  0.563430182  0.5140622270    0.361615621   0.02071118
## 43  -0.0438005860  0.401625650 -0.1960240165   -0.061039302   1.79923295
## 44   0.0436405105 -0.830668736 -0.7947014110   -0.393738635  -0.92661855
## 45   0.1815400560 -1.024532866 -0.6613402925   -0.544044851   1.27854718
## 46   0.1128356265  0.395791552  0.6679917500    0.038404136   0.54197526
## 47   0.3796220750 -0.597887123 -0.0947615585   -0.095377700  -0.13737941
## 48   0.3534550050  0.327186862 -0.3906686845   -0.251359180   0.10464086
## 49  -0.2508941380 -1.315144015 -0.8418840095   -0.476157513  -1.48967852
## 50   0.1709055865 -0.159280299  0.1349934780    0.250591487   1.04323652
## 51   0.0223066765  0.419479981  0.4642992190    0.400877068   1.69236112
## 52  -0.2832876520 -1.920290407 -1.1718482495   -0.926953647  -1.49393998
## 53   0.0090218090  0.871090889 -0.1440882365   -0.019326293  -0.09650300
## 54  -0.0514289120  0.369959706  0.3633159455    0.121079221   0.04572607
## 55   0.2279413510 -0.238683079 -0.2494695155   -0.653533421   1.53724090
## 56  -0.0101482005  0.583428333 -0.2754849480    0.021540183  -0.09534371
## 57  -0.0556029515 -0.861371540 -0.9350679210   -0.423295182  -1.16873417
## 58   0.2465090965 -0.863903008 -0.3771208940   -0.321247823   0.46234206
## 59   0.2545281250  1.242166870 -0.1685259405   -0.599018567   2.89410728
## 60   0.5496573805  0.272047710 -0.1564113990   -0.763944346   0.43457944
## 61   0.4600832670 -0.068276005  0.2384909045    0.203987832   0.16642846
## 62  -0.0632532540 -0.374245659  0.1768064705   -0.040754648   0.05975710
## 63   0.0267174135 -0.008808148  0.2401771280    0.047815194  -0.10202703
## 64  -0.1040227475 -0.582811601 -1.2935887370   -0.192918189  -0.75299864
## 65  -0.0154147058 -0.460524372 -0.6941314687   -0.092688157  -0.48939240
## 66   0.0874898183  0.093565828  0.5062093227    0.025335249  -0.39633837
## 67  -0.3462746115 -0.645021154  0.0053474440   -0.095877248   0.02219835
## 68   0.0669621447 -0.809826477 -0.8435534802   -0.230928723   0.63179983
## 69   0.4167998040 -0.738861379 -0.3463631310   -0.365809986   0.46028721
```

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## 70   0.2318681657  0.138560686  0.2160540067   -0.116592441   0.21535301
## 71  -0.1585929503 -1.237731981 -0.1987124832   -0.567558547  -0.35170962
## 72   0.5245261595  0.327060019  0.2069134495   -0.248076677  -0.47367695
## 73  -0.2189697742  0.569058610 -0.1217753582   -0.256460167   1.50099016
## 74  -0.1402073790 -0.270779275  0.6689936405    0.534272415   0.39164968
## 75  -0.0237570525  1.576333989  0.4995262890    0.527548221   1.82185983
## 76   0.1022983090  1.439283590  1.0866431685    0.969584488   0.02206006
## 77   0.4793414175 -0.530204320 -0.6798618880   -0.215354656  -0.86486710
## 78  -0.2341940740  0.690424765  0.0302384795   -0.010820029   0.69492143
## 79   0.0556871845  0.474325135 -0.1492499530    0.060459964   0.11152899
## 80  -0.5515732020 -0.090056158 -0.3966048675   -0.222850549   1.38479662
## 81   0.2938079940  1.059698185 -0.2758761905    0.793583963   0.16574003
## 82  -0.0839846070  0.403415487 -0.8782748135    0.137301264  -0.13547959
## 83  -0.1880029065 -0.449548812 -0.1668232735   -0.299857684   0.42021474
## 84  -0.2186417902  0.059260192  0.0725287078    0.263843658  -0.08730406
## 85  -0.1214291508  0.792786088  0.1606388873    0.167170879   1.72700145
## 86   0.1739435015 -0.716494115 -0.2605313440    0.318960309   0.08864155
## 87  -0.1535473327 -0.353681499 -0.4464661122    0.132140148  -1.01789763
## 88  -0.0659760380  0.258226019  0.4383026595    0.486912128  -0.31209795
## 89  -0.2821666510  0.981840629  0.1694251825    0.622195546  -0.42426179
## 90   0.0847034093  0.400206938  0.7782988697    0.663684889  -0.91995355
## 91  -0.3963304995  0.915618731  0.0171104450    0.232295742   0.20146609
## 92  -0.3070106585  0.050003060 -0.3139278790    0.324573051  -0.27418074
## 93   0.0004178105 -0.125875696 -0.6633531950   -0.393154399  -0.26903507
## 94  -0.2802736323 -0.612874041 -0.9540943797    0.072230955  -0.74388804
## 95   0.0405205895 -0.080405394 -0.1278984140    0.130455503  -0.08208625
## 96  -0.1295892470  0.992231780  0.2709141555    0.638039559  -0.48989225
## 97   0.6433417688 -0.446668129 -0.2188975037    0.206730792   2.15294664
## 98   0.2656629715 -0.471146428 -0.3900493740    0.082023445  -0.09107855
## 99  -0.0153954110  1.120482803  0.8423619275    0.287127750   0.21743014
## 100 -0.1361473530  0.520296523  0.9880707995    0.335691212  -0.02326570
## 101 -0.2074138242  0.106987948  0.4330329263    0.217927388   0.10433396
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## 102  0.3431091387  0.218707488  0.5133268703    0.347598664  -0.24438738
## 103 -0.2310560335  0.405062655  1.2286735680    0.881568215  -0.90494147
## 104 -0.2658934060 -0.055911213 -0.3697677855   -0.446976447   0.23012817
## 105 -0.0209472555  0.275145431  0.8418932450    0.549276959  -0.77116024
## 106  0.0351883598  0.063678347 -0.0008840697   -0.099982057  -0.08497131
## 107 -0.0127773370  0.727018389  0.9915920685    0.633934906   0.45877015
## 108  0.0383955035  0.507410443  0.6188760750    0.321589283  -0.50958085
## 109  0.0730011810 -0.132729517 -0.6493151955   -0.158836557   0.44871328
## 110 -0.0944085750  0.555199206  0.4721602355    0.450611947  -0.28496795
## 111 -0.1256971365  1.005231571  0.6061455770    0.598007636   1.31621508
## 112 -0.0062763725 -0.061022397 -0.2303352540    0.322662092  -0.61270777
## 113 -0.2538697545 -0.075440313 -0.4874842900    0.459748080  -0.57922642
## 114  0.1237300485  0.603352022  0.2407371820    0.168635428   0.53645816
## 115 -0.0708509255  0.261729343 -0.2149635490    0.042985461  -0.31768806
## 116  0.0330027793  0.021605523 -0.1331634523    0.091428912   0.54442812
## 117  0.3039772757 -0.020960700  0.0234699703    0.260613130  -0.16921154
## 118  0.1431340780  0.286867943  0.8177633965    0.653287005   0.04741624
## 119 -0.2478401160 -1.339732144 -1.1487204215   -0.382594772  -0.63554344
## 120  0.0848639755  0.276780643  0.0479791100   -0.053044194  -0.54969007
## 121 -0.0195129742 -0.297942069  0.2563224853    0.217137520   0.26826462
## 122 -0.1165899065 -0.086738435 -0.1472370980    0.480826005  -0.43552026
## 123 -0.3674709335  0.977396957  0.5965766860    0.168112430  -0.60203834
## 124 -0.0269408450  0.306853055 -0.2549866765    0.044241331   0.10276148
## 125 -0.0527639070  1.057577273  0.3564218135    0.370191664   0.25497615
## 126  0.0434007435 -0.263714255 -0.0168260570    0.320029063  -0.77118506
## 127 -0.1290021720  0.951370375  0.4230405475    0.185909342   0.14044081
## 128 -0.1519038845  0.991014056  1.0662230630    1.041315273   0.44069320
## 129 -0.0070813025  0.212476639 -0.2127336100    0.098016922   0.73262261
## 130 -0.0475933635  0.185556441 -0.0656199030    0.393929792   0.86808103
## 131 -0.0679334245  0.587661505  0.3186998470    0.287123222  -0.04682016
## 132 -0.1069504470 -1.285558896 -0.7777832435    0.248382989  -1.47048507
## 133  0.0049771685  0.163623004  0.2180565650    0.590436685   0.76623330
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## 134 -0.0381116748  0.618465955 -0.2931436218    0.130043480   0.90328382
## 135 -0.2124042093 -0.093336545 -0.1530039362   -0.238280763   0.38164013
## 136 -0.2239231182  0.238563698  0.0089528433   -0.147733493  -0.02922304
## 137  0.2981352792  0.484259239  0.1134363567   -0.107389014  -0.24831194
## 138  0.0638328445  0.483577545 -0.4887332640   -0.366376150   1.13672124
## 139 -0.1320887925  0.623995920  0.3068949770   -0.235800968  -0.41392471
## 140  0.3118080113 -0.012829967  0.0084649598   -0.418457677   0.19238921
## 141  0.3952437610  0.646640473 -0.3986365725   -0.385621265  -0.70320139
## 142 -0.1504314478  0.293619303  0.3303763367    0.120973080   1.52973701
## 143 -0.2087303863  0.144838863 -0.1150263788   -0.106030254  -0.06569520
## 144  0.2026391910  0.259541244 -0.0727098025   -0.189956606  -0.51518291
## 145  0.2911885615  0.481034052 -0.3316430740   -0.086928774  -1.10522663
## 146 -0.4283394260  0.687613363  0.5342487475   -0.425531419  -0.67842781
## 147  0.1023952035 -0.138337843  0.5504714810    0.004101452  -0.33104783
## 148 -0.2333620400  0.756594885  0.0258808705   -0.362290946   1.15479043
## 149 -0.2618024195 -0.072421494 -0.1778740230   -0.331060919  -0.18307458
## 150  0.5558327577  0.212058893  0.5313773523   -0.266448708   0.12050492
## 151  0.0962356275 -0.275533692 -0.2243197270   -0.050161056  -0.27644079
## 152  0.1062884345  0.175677289  0.1449522240   -0.122319489  -0.27871239
## 153  0.0414712390  0.018892776  0.0460013505    0.164716262  -0.08002891
## 154 -0.2019895922 -0.181619449 -0.3033316788   -0.111210471   0.84243804
## 155 -0.2842935603 -0.160707616 -0.1509217948   -0.053159450   1.01699128
## 156  0.1883851645 -0.110027948 -0.6855655930   -0.383467238   0.01852002
##            pp_p21       pp_p27  pp_p27.pT157  pp_p27.pT198  pp_p38.MAPK
## 1   -0.2035868945 -0.022273439 -0.0270422340 -0.0433299720 -0.002598394
## 2    0.3009361070 -0.101746317 -0.0714062610 -0.2207636935  0.220809271
## 3   -0.0501212700  0.119749498  0.0012803845  0.0106151525 -0.133214000
## 4   -0.0829954587  0.780775716 -0.0244955382  0.0640704278 -0.384007691
## 5    0.4528598375  0.100469931 -0.0811894640 -0.0654880260  0.209858160
## 6   -0.5030418925 -0.305853569 -0.1111335565  0.1340298850 -0.338480293
## 7   -0.0203258930  0.230334132  0.3968761285  0.2769240065 -0.190843879
## 8   -0.2930015245  0.275344062  0.0238020860  0.0465661100  0.021015780
```

```
## 9    0.1398504215  0.378664783  0.0698089620  0.2239154600 -0.207887101
## 10   0.2534886277  0.465793863 -0.1267331587 -0.0276281447  0.092449761
## 11  -0.1651349730  0.536211540  0.0178353465  0.1368480625  0.121170433
## 12  -0.3752241210  0.249034888  0.0623752680 -0.1032348115  0.112179023
## 13   0.0993267695 -0.409968383 -0.0262864765 -0.0260055960 -0.304109548
## 14   0.5188093665  0.577218023 -0.0283030315  0.0060647800 -0.343031741
## 15  -0.3686681675  0.815171319 -0.0568113895 -0.0095257470  0.034244037
## 16   0.2778008935 -0.190263164 -0.1201849075  0.0854109200  0.232420284
## 17   0.1002952350  0.776490980 -0.0388770520  0.2313827035  0.194086244
## 18  -0.2663687210  0.598134286  0.0000000000 -0.0058513685 -0.020855322
## 19  -0.1802747550  0.778999464 -0.0315152500 -0.1329644785 -0.036927442
## 20  -0.2130649655 -0.107119426 -0.0311473425  0.1277507240 -0.041726837
## 21   0.2206055620 -0.412178077 -0.1623089130  0.1301246985  0.133936357
## 22  -0.0569747330 -0.426413920  0.0745087830  0.0259661105 -0.244725258
## 23  -0.3749939685 -0.906653684  0.0619017125  0.0620819570 -0.526645038
## 24   0.0062482490 -0.333640857  0.0027264055 -0.0161303035 -0.031251209
## 25  -0.2853861610  0.133653581  0.0094871020  0.0409423465  0.103167808
## 26  -0.5307150945  0.061631087 -0.1553530815  0.0557265520  0.704695287
## 27   0.3834077635  0.016983562 -0.1112702775 -0.1286686920 -0.312092618
## 28  -0.1574913825 -0.257115598  0.0601484305  0.6427845520 -0.155540320
## 29  -0.0801607515  0.417548924 -0.0694704205 -0.3052399150 -0.617166700
## 30  -0.1327731500  0.241115358 -0.0866134610 -0.2411592185 -0.266320106
## 31   0.2337273635  0.095730198 -0.5873733215 -0.6040952420 -0.064583616
## 32  -0.1063636085  0.030042920 -0.2367786595 -0.1290137750  0.520453831
## 33  -0.0298286150  0.581766876 -0.4106477720 -0.2063135445  0.715293334
## 34   0.0657489970  0.105559871 -0.1893147780 -0.3253937865 -0.109177753
## 35  -0.3301305270 -0.587389229 -0.0642947540 -0.0380494565 -0.124720742
## 36  -0.4500265520  0.301252117 -0.0259050250  0.5975191525  0.292071824
## 37   0.0004118535  0.720913965  0.0493840385 -0.1147548950  0.013934452
## 38   0.0022593720 -0.550664616 -0.1143181100  0.0847974625  0.102598619
## 39   0.0767245270 -0.545233684 -0.0732117590  0.1446564315 -0.002982905
## 40  -0.0820681745  0.376055044  0.4348785735  0.5693761050  0.034414098
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## 41   0.0850578900 -0.501780276  0.0000000000  0.2578585795 -0.198677038
## 42   0.1085193405 -0.498184986  0.0239782645  0.1368615990 -0.181331046
## 43  -0.0456667270 -0.593794214  0.0818538050  0.1162980915 -0.165722946
## 44   0.0209783075  0.119820424 -0.1975142885 -0.0875615000 -0.127944825
## 45   0.2071466920  0.050386403 -0.4505890880 -0.4066214155 -0.179706216
## 46  -0.1768414725  0.064479948 -0.0621558185  0.0241622180 -0.174764084
## 47   0.0747563370  0.446423171 -0.3618991940  0.1095316665  0.402411274
## 48   0.0502833610  0.015466323 -0.1510098940 -0.1567082345  0.596362333
## 49   0.2565301580  0.016189317  0.2850105630 -0.0266774415 -0.571407202
## 50   0.3417102365  0.064615986 -0.0312700655 -0.0461243910  0.615966714
## 51   0.0199897305 -0.779645529  0.1693773895 -0.1454164740  0.159013425
## 52   0.1671697240  0.441061722  0.2075266480 -0.3019019635 -0.602580169
## 53  -0.1610131390 -0.489324612 -0.0370562240  0.1711889405 -0.001301618
## 54  -0.2377246790 -0.345114704 -0.0480116500  0.2890970265  0.208465271
## 55  -0.1736388850  0.342692295 -0.4642370980 -0.4340524625  0.537925934
## 56  -0.0790969585 -0.402147798  0.0164311935 -0.0574485860 -0.139785313
## 57   0.1918403785  0.338913729 -0.4038086475  0.0496824660 -0.178684972
## 58   0.2566632555 -0.050013639 -0.4175858995 -0.3001769330  0.333078082
## 59  -0.0016006310 -0.211902582  0.0252413890 -0.1719222925  0.229071819
## 60  -0.1027612045  0.277196864 -0.4417303015 -0.3152183710  0.555662904
## 61  -0.2878721305  0.276818002 -0.0017841700 -0.0509111890  0.001951092
## 62   0.2428386655  0.512634949  0.0937016990  0.0810062490 -0.197448720
## 63  -0.1072522260 -0.529926356 -0.0737533455 -0.2514835715 -0.277873754
## 64   0.3725583200  0.237300626  0.4093150925  0.4431582505 -0.393578946
## 65   0.2631582463  0.471245429  0.1097762517  0.1839798448 -0.039131299
## 66  -0.1978979942  0.088498156 -0.1040909068 -0.0571267668 -0.390266411
## 67  -0.1637184880  0.060113911 -0.0962698535 -0.0455064705 -0.129461619
## 68  -0.0469943862  0.024945166 -0.3055431957 -0.1458807937 -0.120508841
## 69  -0.0331634310  0.564678718  0.0909398625 -0.1704089255  0.580519292
## 70   0.0609460837 -0.305670680  0.0662036542  0.1641684563  0.122085500
## 71   0.3771767408  0.178741508  0.1593072252  0.1121008083  0.838596578
## 72  -0.1431452675  0.376374836  0.1042228690 -0.0280508030  0.402457467
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## 73   0.4355475308 -0.581208318  0.0805221172 -0.1078014198  0.120977463
## 74  -0.0199883670 -0.467649810  0.0905165420 -0.3565934005  0.249448628
## 75  -0.2499231715 -0.084526797 -0.0695791825 -0.0685706420 -0.406722535
## 76  -0.4059827460 -0.008911870 -0.1093544860 -0.0418949945  0.273119837
## 77  -0.0818960135  0.168028298  0.0199466255 -0.2146163900  0.303912301
## 78   0.3997856270 -0.454984207  0.0377942250  0.1722180105 -0.022295594
## 79   0.0228134695  0.755055643  0.0040303465 -0.1226764750  0.040720624
## 80  -0.0367283595 -0.624123115 -0.0013211820 -0.1155684410 -0.697435058
## 81   0.5476827555 -0.174224497 -0.4672508490 -0.0985768735 -0.131622940
## 82  -0.0266362915  0.021490710  0.5715092940  0.4705086425 -0.402273300
## 83   0.0451682365  0.291878837  0.0405085180 -0.1030692720  0.056574882
## 84   0.1723853908 -0.440412246  0.0538459513  0.2706201413  0.064749126
## 85   0.2734519672 -0.649239593  0.0628028417 -0.0302733212 -0.085196338
## 86  -0.2992161165 -0.745572901 -0.0221057775 -0.5468760700 -0.732672406
## 87  -0.2259291312  0.604158735  1.0550502432  0.2373039782 -0.305174307
## 88  -0.2415173090  0.026904566 -0.0294838620 -0.0490376035 -0.251856965
## 89  -0.2095008590  0.015970549 -0.1487981360 -0.3178917745 -0.026329241
## 90   0.0336952128  0.598469955 -0.0327481107 -0.0643820957 -0.219234084
## 91   0.1871155315 -0.474841428 -0.0260505315  0.5919006310 -0.039996547
## 92   0.2188728015 -0.227997663 -0.0368881035 -0.0814944790  0.001944926
## 93  -0.0990006465  0.002227530  0.1398236255 -0.0700772510 -0.141487268
## 94   0.0021969642  0.259114264  0.2127080128  0.0659018048 -0.550579648
## 95   0.1843937020  0.250748515  0.0002697915 -0.1619565085  0.204488321
## 96   0.1669369410 -0.042048827 -0.1587928100  0.1996692335  0.597456833
## 97  -0.3643312987 -0.202311707 -0.0228685093 -0.0568021183  0.082060808
## 98  -0.1350832835  0.696676260 -0.1978027915 -0.5664835370  0.071157665
## 99  -0.0753499020  0.001476031 -0.0331906090 -0.0896624565 -0.108812063
## 100 -0.0688234080 -0.823658616 -0.0264503180 -0.3907988845  0.215268956
## 101 -0.3896764477  0.152609633 -0.0288594313 -0.0390846203 -0.184508566
## 102 -0.1712993137  0.313197318 -0.0279526012 -0.0817923972 -0.270715178
## 103 -0.5501872825  0.326779439 -0.0462367665 -0.1864675150 -0.112432240
## 104  0.5166924630 -0.474571615  0.0134681970 -0.2186988865 -0.151938849
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## 105 -0.1704543155 -0.589827432 -0.1510325405 -0.5191554390 -0.159612423
## 106  0.3994181702  0.060784528 -0.1106727563 -0.0761392613 -0.148013664
## 107  0.2657140620  0.274627310 -0.0015486530 -0.1473172415  0.033595425
## 108 -0.0827067935  0.386939343 -0.2214916985 -0.0666754990 -0.021461939
## 109 -0.2654085390 -0.255927920 -0.2384126230 -0.6717110135  0.080567224
## 110  0.1048572820 -0.183043462  0.0155467910  0.2901106585  0.075856627
## 111  0.5196026995  0.021696700  0.0414900355  0.1887468060 -0.169960377
## 112 -0.1448314305  0.360377693 -0.0684016475 -0.3509420510 -0.042957168
## 113 -0.1459277115 -0.051411780 -0.1125581965 -0.2953514620  0.271143906
## 114 -0.2769744155  0.259016393 -0.1194199545 -0.1127986570 -0.086720281
## 115 -0.1973518100  0.035028500  0.0242140495  0.4970302205 -0.028143529
## 116  0.0210693048  0.007548152 -0.0801230577 -0.1008946318  0.205124955
## 117 -0.2077352638  0.499678375 -0.0769770672 -0.0598181682 -0.521186817
## 118 -0.2534472060 -0.286283005  0.0739677950  0.5790295475  0.201950615
## 119  0.4888702350  0.266348547  0.1223596650  0.0539584875 -0.345552772
## 120 -0.2733527860 -0.300252780 -0.0226968265 -0.0822988055  0.298461996
## 121  0.0161221273  0.517023125 -0.0867988702 -0.1922810182 -0.130814289
## 122 -0.4107272885 -0.497335085 -0.5397492755 -0.2711094890  0.267537331
## 123  0.1095587075  0.329011285  0.2516783925 -0.1459085470 -0.045550140
## 124  0.0539165350 -0.246140678 -0.0324832880  0.1109093145  0.029137354
## 125  0.3233212420 -0.172769926  0.0065849310  0.0103491015  0.209444936
## 126 -0.1349050675  0.098064013  0.0645810855 -0.1885643000 -0.198443088
## 127  0.0862529400 -0.410114496 -0.0202494010  0.1729050975  0.154595686
## 128  0.0845731165 -0.417765520 -0.0760906845 -0.4188419130 -0.125957520
## 129  0.0100883155 -0.083580341 -0.1420428965 -0.0844267850  0.175387454
## 130 -0.0723583665 -0.199430887 -0.0971638855  0.1876814050 -0.155115198
## 131  0.0346470125 -0.830141316  0.0019882955 -0.1424518790  0.592603791
## 132 -0.0277557230  0.135950450  0.2475200360 -0.2627468665 -0.236980792
## 133 -0.0601183075  0.026784320  0.0592592505  0.6714645760  0.055729166
## 134 -0.2258654448  0.066599958 -0.1467972573  0.0004923317  0.024483770
## 135  0.2659304068 -0.419056216  0.1914821513 -0.0768360817  0.013663168
## 136  0.1524979663  0.254558849  0.3955615547  0.0510159077  0.166952974
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## 137  0.2592071647  0.127368171  0.0286193003  0.1145339582  0.448546742
## 138 -0.3633963760  0.536378267 -0.0781279665  0.1636880165 -0.261945850
## 139  0.0768365400 -0.291297845 -0.0916661225  0.0594408225  0.067785043
## 140  0.0120729178 -0.166238466 -0.0705385577 -0.0132404037 -0.096127654
## 141 -0.1971404025 -0.266755000 -0.0170332340  0.3771189910 -0.540742345
## 142  0.0749840618 -0.222722806 -0.0351683177 -0.0511244677 -0.043448367
## 143  0.3820972062 -0.245251772 -0.0253335953 -0.2028643313 -0.376327444
## 144  0.0002156725  0.007558803  0.0356402940 -0.1773192350 -0.250683212
## 145  0.0476859510 -0.272221223 -0.0332541145  0.0267943355 -0.039402785
## 146 -0.0423537940  0.330727568  0.0000000000  0.2007900485  0.101781802
## 147 -0.0257806515 -0.517595905 -0.0676164815  0.2439124450  0.270268383
## 148  0.1346076765  0.339958218  0.0076718320 -0.0701016540 -0.308901545
## 149  0.3540142270  0.624277668  0.0363452545  0.1229348655  0.139662096
## 150 -0.6151921458 -0.197861248 -0.0722134553 -0.0152165452 -0.205586430
## 151 -0.0329058190  0.361040454  0.0879855305  0.0214053395  0.046037418
## 152 -0.1956236180 -0.125648830  0.0663971735  0.0458259075  0.351851778
## 153  0.0211578145 -0.518711584  0.0541252370  0.0131647630 -0.165671355
## 154  0.3196864382 -0.008462572  0.1115244067  0.1376164797 -0.370251324
## 155  0.1790025642  0.623266938 -0.0781390222  0.0530409307 -0.159838830
## 156  0.0525088125 -0.196242125 -0.2552017875 -0.1679756330  0.326872312
##     pp_p38.pT180.Y182 pp_p62.LCK.ligand   pp_p70S6K pp_p70S6K.pT389
## 1         0.449227635      -0.691766355 -0.33786329    -0.178502932
## 2         1.035114857       0.279066987  0.29292532    -0.155241958
## 3         0.344968936       0.219909595  0.30810973    -0.190794317
## 4         0.678041668      -0.266553609 -0.07987070    -0.463237239
## 5         0.920407979      -0.441541641 -0.15231735     0.511386491
## 6        -0.669933719       0.274994774 -0.07727569    -0.117310321
## 7        -0.218775649      -0.711631017 -0.51696006     0.251031279
## 8         0.353763829       0.573339793 -0.09337942    -0.048553510
## 9        -0.544790256      -0.480589577 -0.21781018    -0.156723380
## 10        0.108749862       0.021280778  0.15259129    -0.327824587
## 11        0.471528320       0.520752936  0.01500806    -0.193345351
```

```
## 12        0.416792497      -0.677066449 -0.06271774     0.186294701
## 13        0.477514932      -0.472941722 -0.55850504    -0.233468428
## 14       -0.084773772      -1.504806133 -0.07840515    -0.191461442
## 15       -0.350194401       0.364674406  0.09348820    -0.344940847
## 16        0.306251204      -0.545810505  0.03026205    -0.090262345
## 17       -0.445128937       1.058320767  0.60552671    -0.280063197
## 18        0.334846289       1.817001247  0.19807559    -0.204888314
## 19       -0.172124667      -0.893376403 -0.57070027    -0.141489509
## 20        0.263963008       0.995924524 -0.09212883    -0.239914479
## 21        0.676347224       0.568959564  0.81794291    -0.347467258
## 22        0.131512162       0.861811716 -0.69169243    -0.260327885
## 23        0.368790297      -0.292280302 -0.64496136    -0.103245804
## 24        0.212929070       0.228629446 -0.15821210    -0.204072811
## 25        0.627218252      -0.284402545 -0.19287649    -0.142689751
## 26        0.011002107       1.965303032 -0.00139724    -0.108310197
## 27        0.682405511      -0.209216704 -0.06260729    -0.260900460
## 28        0.067230424       0.071992266  0.24029427    -0.212991455
## 29        0.507027327      -1.349741664 -1.20561693     1.048413433
## 30       -0.247619360      -0.561917323 -0.73321795    -0.318029102
## 31        0.205991174      -0.261930417 -1.21938686     0.993459127
## 32        1.361028826       2.212031285  0.40459805    -0.058688136
## 33        0.526040902      -1.428990181 -0.26107727     0.129894806
## 34        0.776276323      -0.905400833 -0.45317381    -0.116608776
## 35        1.136707203      -0.048002162 -0.26104480    -0.236906197
## 36        0.958813959      -0.336535268 -0.22986892     0.226132136
## 37       -0.460204589       0.511307208  0.50638865     0.028647532
## 38       -0.154813863       1.091390596 -0.06752674    -0.308567024
## 39       -0.186186840       1.258780729 -0.08853658    -0.244025595
## 40        0.162424865      -0.247806977 -0.16693345    -0.196730921
## 41        0.842606042       0.326932122  0.47276833    -0.182218649
## 42        0.398844225      -0.296888254  0.20641071    -0.125202234
## 43        0.691922612      -0.181717702 -0.45529661    -0.268588903
```

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## 44        0.732908535      -0.873534905 -0.62271923     0.170443921
## 45        0.328527112       0.036891276 -0.51876749    -0.476750241
## 46        0.454199289      -0.144822894  0.02253071    -0.312416480
## 47        0.734915538      -0.465780990 -0.21222056    -0.474839425
## 48        0.060799373      -0.428306676  0.12296724    -0.027715443
## 49        0.248216417      -0.872773253 -0.77023584     0.617074495
## 50        1.754936183      -0.442910153 -0.10887023    -0.040296888
## 51        1.445944904       1.854852900 -0.04303367    -0.084848583
## 52       -0.023539104      -2.012390868 -1.37059843     0.474251620
## 53        0.584671695       0.839143065  2.13533050    -0.005460944
## 54        0.012011621       1.389186184  0.33526087    -0.163267116
## 55        0.421233880      -1.243642313 -0.03946937    -0.398093824
## 56        0.402754891      -0.592737181 -0.32786908    -0.105986326
## 57        0.382983158      -1.114404372 -1.14764822     0.336186174
## 58        0.712725494      -0.360922046  0.32808924    -0.357202668
## 59        0.306643055      -0.514170469  0.11013366     0.400132389
## 60       -0.569563910       0.664888348  0.19314871    -0.297818193
## 61       -0.358238377       0.085891933 -0.07376677     0.188676110
## 62       -0.179880285      -0.005234441  1.77041250    -0.122077571
## 63       -0.708840966       0.509247419  0.15671484    -0.203219251
## 64       -0.047092334      -0.386988769 -0.55869223     0.105421778
## 65        0.354670455      -0.294768001 -0.50149664     1.024442322
## 66        0.837903345      -0.731286936 -0.04234342    -0.422001368
## 67       -0.005243889      -0.328412233 -0.54571931    -0.092291289
## 68        0.843136852       0.083196799 -0.59113275     0.509742830
## 69        0.713465548      -0.184257855 -0.73767747    -0.227804021
## 70        0.292895068       0.691398032  1.41756799    -0.250099584
## 71       -1.566497455      -0.613055276 -0.43658622    -0.304026549
## 72       -0.191382026      -0.099506932 -0.05879351     0.001624785
## 73        0.051098970      -0.305885428  0.28614869    -0.294618206
## 74       -0.001760081       1.755405378  0.29384391     0.098537047
## 75        0.211669688      -0.791932999 -0.32353994    -0.023005550
```

```
## 76       -0.028478604       0.960951291  0.31398206     0.200833098
## 77       -0.392261240      -0.522750893 -0.31719366     0.210786220
## 78       -0.008012393      -0.581509989 -0.02933903     0.055626233
## 79        0.096095229      -0.034026495 -0.19282509    -0.125748675
## 80       -1.102312336      -0.716278074 -0.63534317    -0.042722220
## 81       -0.009358160       1.784635498  0.50843288     0.362959596
## 82       -0.034314910       1.128352800 -0.14784982    -0.293323102
## 83       -0.665816657      -0.556773329 -0.55780977     0.648623367
## 84        0.123042958       1.723699855  0.25309570    -0.177376725
## 85        0.243088805      -0.087622342  0.02052525    -0.236445842
## 86       -1.073825149       0.488229078 -0.26525285     0.256434027
## 87       -0.406440077      -0.472139054 -0.55200811     0.712366055
## 88        0.152502933       0.899538840  0.87069083     0.418376750
## 89        0.264506673       0.504977472  0.10110013     0.530781213
## 90       -0.008498232       0.840391244  0.58973472    -0.079572671
## 91       -0.910479074      -0.266213011  0.10342642     0.091476952
## 92       -0.037507723      -0.356456929  0.49106244     0.611554251
## 93       -0.498350770       0.771162672 -0.01008978     0.105566433
## 94       -0.081958873      -0.513605080 -0.88804552     1.022993671
## 95        0.072581672      -0.178178937 -0.28762825     0.448691927
## 96       -0.209540859       0.146396801  0.76497268     0.007854508
## 97        0.650368498       0.280745988  0.05403746     0.096437806
## 98        0.203710916       2.620912197  1.14722395     0.099598088
## 99       -0.290352219      -0.589948768  0.14169141    -0.219509597
## 100       0.362831994       1.166141948 -0.28223472     0.109394106
## 101       0.014677485       0.765782118  0.37785040     0.041874424
## 102      -0.460733854      -0.795036536 -0.15992764     0.049489522
## 103       0.789293953       1.009416948 -0.08054578    -0.076457824
## 104       0.035528640      -1.242879529 -0.36885049    -0.092983992
## 105      -0.076670479       0.057923668  1.41231608     0.015535310
## 106      -0.207058813       0.696502928  0.28799128    -0.181932301
## 107      -0.390193653      -0.182598679  0.06083455    -0.132471375
```

```
## 108      -0.029593657       1.642213839  0.39347982     0.684033199
## 109       0.032996188       1.047354947 -0.15041927     0.385086455
## 110      -0.830819238       2.512639334  2.07530289     0.565803661
## 111      -0.098159861      -0.775893993  0.07790426    -0.116219515
## 112       0.435805705      -0.453860826 -0.43531375     0.531402822
## 113       0.531346908       0.916269084 -0.16617949     0.152428308
## 114      -0.255508611      -0.336505931 -0.23028474    -0.087018564
## 115       0.614256654      -0.365667260 -0.22359680     0.364465041
## 116       0.378658339      -0.492338814  0.21295102     0.423159366
## 117       0.172467488      -0.395364546 -0.18093034     0.792446920
## 118       1.072857304      -0.492557317 -0.53315426     0.104882045
## 119       0.479872858      -1.420610826 -1.42131999     0.575924929
## 120      -0.084532779       0.562407190  0.23863244    -0.041623454
## 121       0.015371105      -0.228876777  0.45726345    -0.107614434
## 122       0.077820580      -0.476747444 -0.21710605     0.947073138
## 123      -0.084250473       1.105245874  0.02781639    -0.113054481
## 124      -0.139544926      -0.531070278  1.41857373     0.265826174
## 125      -0.189026262       1.018707071  1.50332850    -0.207273370
## 126      -0.381142233       0.326722077  0.51308590     0.236202939
## 127      -0.821891783       1.561008499  0.80691946    -0.248591704
## 128      -0.178123849       1.735209224  1.08665980     0.138603189
## 129       0.217104087      -0.135473701  0.81983547     0.283015976
## 130      -0.011108951       0.543754987  0.03765224     0.329289624
## 131      -0.395588585       0.572781356  0.07692694    -0.144823394
## 132       0.039631504      -0.830487659 -0.01323646     0.159135773
## 133       0.133895949       1.591010686  0.28025307     0.225386929
## 134      -0.397355593       1.446853190  0.20805901     0.319799637
## 135      -0.301931787      -0.531642068 -0.18713552    -0.008051324
## 136       0.148656037       1.573602375  0.34088568    -0.060019894
## 137      -0.394471440      -0.277117831  0.66706553    -0.292209353
## 138       0.429531332      -0.080247288  0.39368672    -0.236719466
## 139      -0.847131511       0.924915133  0.63752808    -0.271233844
```

```
## 140      -1.189772254       0.265542484 -0.14167744    -0.264726861
## 141      -1.210451054       1.446622916 -0.25620753    -0.178104582
## 142       0.696512891       0.809617483  0.34150798    -0.187463779
## 143       0.029795660      -0.271261904 -0.41426059    -0.195451492
## 144       0.192599644       0.098445015 -0.39405921    -0.164610923
## 145       0.112263276       0.287365834 -0.18078089    -0.098855833
## 146      -1.057894979      -0.071505534  2.21253818    -0.211776495
## 147       0.427434888       0.078640984  0.03673634    -0.247593426
## 148      -0.546798676       0.067862437 -0.27427510    -0.114037584
## 149      -0.065712441      -0.117714068 -0.23148246    -0.066671652
## 150      -0.218381351      -0.475156066 -0.59713186    -0.071975147
## 151       0.719843658      -0.447849475 -0.25707826    -0.162807878
## 152       0.962193208      -0.762263506  0.36102366    -0.023555353
## 153       0.435765519       1.028401250  0.05568229    -0.011147624
## 154      -0.274256705      -0.638430842 -0.37425197     0.088076917
## 155       0.160072077      -0.998717085 -0.14207556     0.077615350
## 156      -0.561664561      -0.292721576 -0.80088211     0.032766367
##          pp_p90RSK pp_p90RSK.pT359.S363
## 1    0.0116379730         -0.207256814
## 2   -0.0893652800          0.267529559
## 3   -0.2221495655         -0.198518362
## 4    0.5229981437         -0.046902282
## 5   -0.0964824650          0.037472796
## 6    0.2841947205         -0.048473903
## 7    0.0157851605          0.677039869
## 8    0.2360462620         -0.101639752
## 9   -0.2322585540         -0.102919278
## 10  -0.1383301957         -0.408919050
## 11   0.1004060395         -0.342924312
## 12   0.0784902100         -0.099270723
## 13   0.0439860135         -0.095381039
## 14  -0.0564153275         -0.419000904
```

```
## 15   0.3948969325         -0.171594534
## 16   0.1652951775          0.241038135
## 17  -0.4872454980         -0.383343445
## 18   0.1086049510          0.024335570
## 19   0.2015112400         -0.383346376
## 20  -0.2096092055         -0.046568946
## 21  -0.0253699590          0.016025792
## 22   0.0095175220         -0.503475612
## 23  -0.0118123585         -0.084312474
## 24  -0.0198051105          0.019019576
## 25   0.3603607900         -0.116649522
## 26   0.0178296685          0.022336420
## 27   0.1261199625          0.001205244
## 28  -0.0290260725         -0.012362142
## 29  -0.1244083035          0.186107804
## 30   0.1867632890         -0.040532603
## 31  -0.4904454505         -0.382860011
## 32  -0.1778455505         -0.147140260
## 33  -0.0529499600         -0.319905909
## 34   0.0197588860         -0.273416346
## 35   0.1913334620          0.113676963
## 36  -0.1790143870         -0.167956254
## 37  -0.1017651985         -0.198683988
## 38   0.1935836670         -0.319663045
## 39   0.2182114610         -0.297074086
## 40  -0.2554833675         -0.176418659
## 41  -0.3101871400          0.065597786
## 42   0.0484315265         -0.114711658
## 43   0.3849636200          0.273273874
## 44  -0.3254708575         -0.119512267
## 45  -0.4743804870         -0.389226115
## 46   0.4209307775         -0.140709560
```

```
## 47  -0.4676939440         -0.313979236
## 48   0.0000000000         -0.337024752
## 49  -0.1431990880          0.095295483
## 50   0.2634490445          0.868294438
## 51   0.0359157045         -0.094522259
## 52  -0.2035578580          0.000000000
## 53  -0.1301094280          0.185892320
## 54  -0.0677886440         -0.189475827
## 55  -0.2542863490          0.019909171
## 56   0.5394502155         -0.074147547
## 57   0.1650309345         -0.188891973
## 58  -0.1385969165         -0.203596915
## 59   0.2076435640          0.233937691
## 60   0.0697194385         -0.687651179
## 61   0.0642172880         -0.012830825
## 62  -0.1401142730         -0.199403131
## 63  -0.3192497875         -0.384659009
## 64  -0.2814309845          0.596690393
## 65  -0.8037255623         -0.021200068
## 66   0.2563178193         -0.209581997
## 67   0.1790902765          0.044188433
## 68  -0.0693184888         -0.075796190
## 69  -0.1834191895         -0.017847293
## 70  -0.0737854558         -0.007863347
## 71  -0.0963615897         -0.388227547
## 72  -0.9072259210         -0.082992268
## 73  -0.4209938778         -0.105211369
## 74   0.1915334400          0.608871008
## 75   0.1033244495          0.828992471
## 76   0.1833930620          0.245429412
## 77  -0.2716287425         -0.013014678
## 78  -0.1852069990          0.103983087
```

```
## 79  -0.2477154015          0.094274560
## 80   0.3662937740          0.133268857
## 81   0.5067726940         -0.071593270
## 82  -0.1495100040         -0.033820383
## 83  -0.0679357470          0.181444958
## 84   0.0898581362         -0.033439172
## 85   0.5692855248          0.237910523
## 86  -0.0029945135         -0.127561425
## 87  -0.1859348758          0.196497376
## 88  -0.2740562390          0.254587392
## 89  -0.2549568780          0.340575162
## 90   0.7445018402         -0.045609598
## 91  -0.2532901715         -0.087872817
## 92  -0.3840437505         -0.057328386
## 93  -0.5349093765          0.025531987
## 94  -0.5299069662          0.272743594
## 95  -0.2303389955         -0.234988648
## 96   0.2211871220          0.202436636
## 97   0.0114214707         -0.246649024
## 98  -0.3685695715          0.149865216
## 99  -0.0832479430          0.094831547
## 100  0.3629589300          0.478365283
## 101  0.0409658507         -0.258460623
## 102  0.4279547638          0.510564622
## 103  0.5037599695          0.611915811
## 104 -0.3942404150         -0.090194117
## 105 -0.0058947715          0.127953934
## 106  0.0185342268         -0.145447816
## 107  0.2626923380          0.400822571
## 108  0.2610754365         -0.113562231
## 109 -0.0202230170          0.140788256
## 110 -0.1220207060          0.050913639
```

```
## 111  0.0493038665          0.424266084
## 112 -0.2889901265          0.241316854
## 113 -0.2381251045         -0.093736174
## 114 -0.1995625365          0.332511946
## 115 -0.1397797495          0.306749895
## 116 -0.0196637927         -0.022062685
## 117  0.0055302178          0.246166586
## 118  0.5934681680          0.084707507
## 119 -0.1927139220          0.016793897
## 120 -0.1769760475         -0.281999972
## 121 -0.2690491162         -0.284175057
## 122  0.2726098585          0.476691201
## 123 -0.1990453895          0.268126723
## 124  0.2539838780         -0.107734131
## 125 -0.5036650920         -0.252734685
## 126 -0.5913201155          0.059770683
## 127 -0.1031508360          0.122939798
## 128  0.1633746145          0.045126220
## 129 -0.4380307995          0.180518804
## 130  0.2720356195         -0.051585476
## 131  0.1977683005         -0.215431609
## 132 -0.1203779900         -0.035212254
## 133 -0.0680517085         -0.109402876
## 134  0.5592097778         -0.196076736
## 135  0.0306137633          0.005199930
## 136  0.0004484447         -0.127944221
## 137 -0.0255305138         -0.271648100
## 138 -0.3477282345         -0.205933774
## 139 -0.2304684645         -0.319288415
## 140 -0.0225800248         -0.390152059
## 141  0.7193195960         -0.028474969
## 142  0.0426634023         -0.158302835
```

```
## 143 -0.2747444622         -0.200035169
## 144  0.0091802080         -0.027827369
## 145 -0.2258909425          0.096487858
## 146 -0.1803571830         -0.615772071
## 147  0.5503879525          0.646075314
## 148  0.1550359260         -0.241696632
## 149 -0.0476187625         -0.072438049
## 150  0.4483232397          0.221834906
## 151 -0.1867825915         -0.041029279
## 152 -0.1114162115         -0.131205910
## 153  0.0428394930          0.016108462
## 154 -0.2891546453          0.320363137
## 155 -0.2428999873          0.029020596
## 156 -0.5148238305         -0.168450000
##  [ reached 'max' / getOption("max.print") -- omitted 351 rows ]
```

Modeling with KNN (predict PR.Status)

Split the data:

```
## 75% of the sample size
smp_size <- floor(0.75 * nrow(non_categorical_brca))

## set the seed to make your partition reproducible
set.seed(123)
train_ind <- sample(seq_len(nrow(non_categorical_brca)), size = smp_size)

brca_train <- as.matrix(non_categorical_brca[train_ind, ])
brca_test <- as.matrix(non_categorical_brca[-train_ind, ])



train_y = as.matrix(predictors$PR.Status[train_ind])
```

```
brca_train_1 = as.matrix(cbind(brca_train, train_y))
```

{r} # library(kknn) # # control <- trainControl(method = "cv", number = 10) # knn.cvfit <- train(y ~ ., method = "knn", # data = data.frame("x" = brca_train_1, "y" = as.factor(predictors$PR.Status[train_ind])), # = data.frame(k = seq(1, 40, 1)), # trControl = control) #

{r} # plot(knn.cvfit$results$k, 1-knn.cvfit$results$Accuracy, # xlab = "K", ylab = "Classification Error", type = "b", # pch = 19, col = "darkorange") #

{r} # which.min(1-knn.cvfit$results$Accuracy) #

The best k is 10

```
library(caret)
library(class)
train_y = as.matrix(predictors$PR.Status[train_ind])
# brca_train = cbind(brca_train, train_y)

y = as.matrix(predictors$PR.Status[train_ind])

pred = knn.fit = knn(train = brca_train, test = brca_test, cl = y, k = 10)

cmat = table(pred, as.factor(predictors$PR.Status[-train_ind]))
```

```
cmat
```

```
##
## pred       Negative Positive
##   Negative       23        3
##   Positive       20       81
```

Accuracy:

```
(81 + 23)/sum(cmat)
```

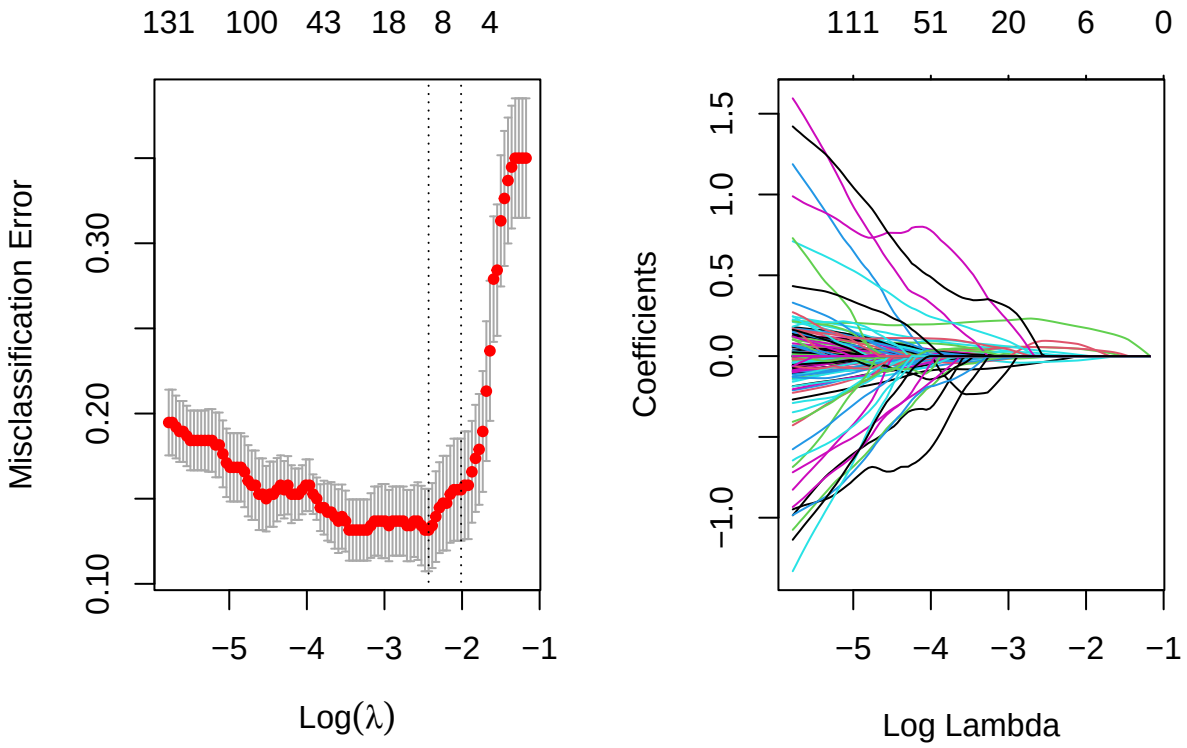
```
## [1] 0.8188976
```

Modeling with Lasso (predict PR.Status)

```
suppressMessages(library(glmnet))
set.seed(1)

lasso.fit = cv.glmnet(brca_train, train_y, nfolds = 10, alpha = 1, type.measure = "class", fami

par(mfrow = c(1, 2))
    plot(lasso.fit)
    plot(lasso.fit$glmnet.fit, "lambda")
```



{r} # coef(lasso.fit, s = "lambda.min")

{r} # coef(lasso.fit, s = "lambda.1se")

Predict on the test data:

```
best_lambda = lasso.fit$lambda.min
test_predict = predict(lasso.fit, brca_test, s = best_lambda, type = "class")
# test_predict
# length(test_predict)
# length(predictors$PR.Status[-train_ind])
cmat_1 = table(predictors$PR.Status[-train_ind], test_predict)
cmat_1
```

```
##           test_predict
##            Negative Positive
```

```
##   Negative       25       18
##   Positive        5       79
```

Accuracy:

```
(25 + 79)/sum(cmat_1)
```

```
## [1] 0.8188976
```