

## Two\_factors

```
# Package names
packages <- c("ggrepel", "pheatmap", "DOSE", "clusterProfiler", "ensembldb", "annotables", "apeglm", "R")

# Install packages not yet installed
installed_packages <- packages %in% rownames(installed.packages())
if (any(installed_packages == FALSE)) {
  BiocManager::install(packages[!installed_packages])
}

# Packages loading
invisible(lapply(packages, library, character.only = TRUE))

countData <- read_excel("Gene_count_matrix_DEseq2_V4_NOT normalized.xlsx")
colnames(countData)=c("gene_id", "WT0_1", "WT0_2", "WT0_3", "WT4_1", "WT4_2", "WT4_3", "WT8_1", "WT8_2", "WT8_3")
countData=aggregate(. ~gene_id , data = countData, sum)
countData=column_to_rownames(countData, 'gene_id')
treatment=c("WT", "WT", "WT", "WT", "WT", "WT", "WT", "WT", "WT", "WT", "WT", "WT", "KO", "KO", "KO", "KO", "KO", "KO", "KO", "KO")
timee=c(rep("0",3),rep("4",3),rep("8",3),rep("24",3),rep("0",3),rep("4",3),rep("8",3),rep("24",2))
#colData=as_tibble(cbind(colnames(countData),time,treatment))

colData=as_tibble(cbind(colnames(countData),treatment,timee))

## Warning: The 'x' argument of 'as_tibble.matrix()' must have unique column names if
## '.name_repair' is omitted as of tibble 2.0.0.
## i Using compatibility 'name_repair'.
## This warning is displayed once every 8 hours.
## Call 'lifecycle::last_lifecycle_warnings()' to see where this warning was
## generated.

colData$group=str_c(treatment,timee)
colnames(colData)[1]="samplename"
dds=DESeqDataSetFromMatrix(countData = countData, colData = colData, design = ~group)

## converting counts to integer mode

## Warning in DESeqDataSet(se, design = design, ignoreRank): some variables in
## design formula are characters, converting to factors

dds=DESeq(dds)

## estimating size factors
```



```

summ=reduce(both, bind_rows)

write.csv(summ, "summary_up_down.csv")

normalized_counts_c=counts(dds, normalized=TRUE)

normalized_counts_c <- normalized_counts_c %>%
  data.frame() %>%
  rownames_to_column(var="gene") %>%
  as_tibble()

norm_sig <- normalized_counts_c[,] %>%
  dplyr::filter(normalized_counts_c$gene %in% sig$gene) %>%
  data.frame() %>%
  column_to_rownames(var = "gene")

pdf("PCA.pdf")
print(pca)
dev.off()

## pdf
## 2

phea=pheatmap(norm_sig, scale = "row", clustering_distance_rows = "correlation", fontsize = 3, color = c

```



##	[93]	"Nr1d1"	"Zfp871"	"Gm38102"	"Tbc1d14"
##	[97]	"Zfp799"	"Zfp870"	"Gm26873"	"Gm5548"
##	[101]	"Gm42636"	"1700021J08Rik"	"Mef2b"	"Gm10593"
##	[105]	"Gm42980"	"Etfbl"	"Gm48718"	"Gm20404"
##	[109]	"Gm38973"	"Ptprv"	"Agfg2"	"Fmn11"
##	[113]	"Ankrd13d"	"Gna11"	"Trmt10c"	"C130050018Rik"
##	[117]	"Itsn1"	"Rprd1a"	"Cd3eap"	"Dhx33"
##	[121]	"Ice2"	"Hip1"	"Sumo3"	"Smad2"
##	[125]	"Gid4"	"Prr12"	"Sin3a"	"Cmas"
##	[129]	"Lman21"	"Rmnd1"	"Stk11"	"Chst12"
##	[133]	"Gba2"	"Sike1"	"Yy1"	"Socs5"
##	[137]	"Iqsec1"	"Tnrc6c"	"Neu1"	"Mapk7"
##	[141]	"Snx33"	"Nrros"	"Relt"	"Rev1"
##	[145]	"D10Wsu102e"	"Kcnk6"	"Abcd1"	"Pkn1"
##	[149]	"Gm20605"	"Elmod3"	"Pheta1"	"Arhgef101"
##	[153]	"Tmppe"	"Ubal1"	"Mfsd12"	"Rreb1"
##	[157]	"4933439K11Rik"	"Zbtb26"	"Tor4a"	"Zfp933"
##	[161]	"Zmym6"	"E430018J23Rik"	"Hmg20a"	"Zfc3h1"
##	[165]	"Mef2d"	"Dedd2"	"Ell"	"Fam168a"
##	[169]	"Nmrk1"	"Zfp626"	"Ccfdc125"	"Zfp974"
##	[173]	"Ift74"	"Ing2"	"Tcf20"	"Cdkn2aip"
##	[177]	"Lrsam1"	"Mindy4"	"Gm43039"	"Zranb1"
##	[181]	"Cab39"	"Cyb5d1"	"Cplane1"	"Trim33"
##	[185]	"9130221H12Rik"	"Tspyl2"	"Ptbp2"	"Zmym5"
##	[189]	"Foxo3"	"Kif13b"	"Nadk2"	"Zfp646"
##	[193]	"Plin3"	"P2rx7"	"Prune1"	"Brap"
##	[197]	"Map3k2"	"Chmp4c"	"Gm10863"	"Gm15964"
##	[201]	"Trim65"	"Kctd9"	"Msh3"	"Sp1"
##	[205]	"Tnpo2"	"Rftn2"	"Disp1"	"Spred2"
##	[209]	"Numb"	"Twnk"	"Wipf1"	"Zfp64"
##	[213]	"Mtmr10"	"Ccfdc93"	"Rpain"	"Mob3a"
##	[217]	"Atg101"	"Scyl1"	"Uvrag"	"Akt1s1"
##	[221]	"Zfp7"	"Lats2"	"Soat1"	"Zfyve1"
##	[225]	"Arm9"	"Dcaf5"	"Fam83f"	"Tex2"
##	[229]	"Als2"	"Cln8"	"Rab7b"	"Eif5"
##	[233]	"Dyrk1a"	"Mrtfb"	"Ccfdc91"	"Plcg2"
##	[237]	"Nudt22"	"Tex10"	"Trp53bp1"	"Vps33a"
##	[241]	"Wdfy3"	"Map3k11"	"Ap3d1"	"Tet3"
##	[245]	"Mavs"	"Dgkz"	"Inip"	"4930455G09Rik"
##	[249]	"Inpp5d"	"Pqlc2"	"Osgin1"	"Spsb2"
##	[253]	"Bin2"	"Gm12314"	"Chpf2"	"Arhgap30"
##	[257]	"Map3k14"	"Tmem104"	"Kat7"	"Klf16"
##	[261]	"Tubb2a"	"Tubb2b"	"Angpt12"	"Ncor2"
##	[265]	"Tedc2"	"Dlga4"	"Wdr35"	"Klf11"
##	[269]	"Zfp707"	"Brd3"	"Klhl15"	"Zfp91"
##	[273]	"Ap5m1"	"Axin1"	"Brd1"	"Ube4bos3"
##	[277]	"Lrch4"	"Adap1"	"Pex6"	"Rps6ka1"
##	[281]	"Sipa1"	"Med4"	"Gm10658"	"Gm20511"
##	[285]	"Aff4"	"Fem1b"	"Phf13"	"Ctdp1"
##	[289]	"Tmem251"	"Atp6v1c1"	"Sfmbt1"	"Pmaip1"
##	[293]	"Zfand2a"	"Chka"	"Impact"	"Gtf2h1"
##	[297]	"Ypel5"	"Per1"	"Slc8b1"	"Rassf8"
##	[301]	"Spry3"	"Tob1"	"Zscan2"	"Topors"
##	[305]	"Clk4"	"Lcor1"	"Ostm1"	"Ubn1"

##	[309]	"Acap2"	"Slc35a5"	"1500004A13Rik"	"Tmem263"
##	[313]	"Gm13378"	"Senp7"	"Gm12743"	"Gm45464"
##	[317]	"Gm9517"	"Zfp748"	"Irak4"	"Zfp65"
##	[321]	"Pnrc2"	"Fnip1"	"Fnip2"	"Clk1"
##	[325]	"Inpp4a"	"Zfp729a"	"Zkscan3"	"Arid3a"
##	[329]	"Nol41"	"Gm10643"	"Galnt6os"	"Gm16185"
##	[333]	"Cacul1"	"Pwvp2b"	"Plekho1"	"Zbtb34"
##	[337]	"Pgpep1"	"Rit1"	"Vps26c"	"Mknk2"
##	[341]	"Plekhh2"	"Fam76a"	"Vps18"	"Ccgc85b"
##	[345]	"Kctd7"	"Dbndd1"	"Gm19721"	"Gm44164"
##	[349]	"Gm34084"	"Sik1"	"Skint3"	"4933411K16Rik"
##	[353]	"Gm43609"	"Hspe1-ps3"	"Poln"	"Gm6939"
##	[357]	"2810403D21Rik"	"Gm23451"	"Gm16165"	"Efcab5"
##	[361]	"Gm44502"	"Insyn2b"	"Gm14846"	"Rnf32"
##	[365]	"Mir186"	"Gm15950"	"AC154200.1"	"Gm43300"
##	[369]	"Crybg2"	"Lpcat4"	"Pold1"	"Pidd1"
##	[373]	"Ung"	"Snhg5"	"Mical3"	"Rnft2"
##	[377]	"Fancb"	"Hirip3"	"Tipin"	"Ccne2"
##	[381]	"Usp1"	"Cdc7"	"Recql4"	"Pask"
##	[385]	"Wdhd1"	"Lrr1"	"Phf19"	"Aunip"
##	[389]	"Clspn"	"Dtl"	"E2f7"	"Exo1"
##	[393]	"Rrm2"	"Gm5648"	"Uhrf1"	"Cdc6"
##	[397]	"Cbx5"	"Rpa2"	"Rfc4"	"Dnajc9"
##	[401]	"Tube1"	"Cenps"	"Rpa1"	"Megf9"
##	[405]	"Il1rl1"	"Paqr4"	"Fancm"	"Fasn"
##	[409]	"Mcm3"	"Zgrf1"	"E2f8"	"Chaf1b"
##	[413]	"Pole"	"Cdhr3"	"Mcm7"	"Chtf18"
##	[417]	"Asf1b"	"Tk1"	"Topbp1"	"BC055324"
##	[421]	"Mms221"	"Gm5841"	"Dab2ip"	"Eri1"
##	[425]	"Rad51c"	"Nptx1"	"Olfr110"	"Tmem246"
##	[429]	"Zfp808"	"Elov17"	"Gm29170"	"Olfm1"
##	[433]	"Gm15707"	"Aacs"	"Angpt14"	"Gcm2"
##	[437]	"Epop"	"Plekhh2"	"Gm44985"	"Arhgef40"
##	[441]	"Fbxo48"	"Wee1"	"Nsl1"	"Ticrr"
##	[445]	"Esp11"	"Haspin"	"Tedc1"	"Ska3"
##	[449]	"Stil"	"Foxm1"	"Cenpn"	"Kif18b"
##	[453]	"Tcf19"	"Arhgap33"	"H2ax"	"Lrfrn4"
##	[457]	"Rnf26"	"Hrob"	"Nr0b2"	"Sox12"
##	[461]	"Egr3"	"Gm44206"	"Acat2"	"Hmgcr"
##	[465]	"Nrp1"	"Gm7803"	"Hnrnpf"	"Gm3550"
##	[469]	"Serpina1a"	"Sncaip"	"Glb1l2"	"Gm46649"
##	[473]	"Gm43738"	"Tmem25"	"Ccgc14"	"Matn2"
##	[477]	"Cenpp"	"Rad51b"	"Mis18a"	"Selenoh"
##	[481]	"2610318N02Rik"	"Gm6104"	"Scml2"	"Gm15428"
##	[485]	"Gm8416"	"Cntln"	"Gm47813"	"Pcdhgc3"
##	[489]	"Stmn1"	"Cip2a"	"Nusap1"	"Cdk1"
##	[493]	"Mad2l1"	"Spc24"	"Cenpq"	"Gm44486"
##	[497]	"H2ac13"	"Pclaf"	"Smc2"	"Hist1h2ao"
##	[501]	"Hist1h2ap"	"Gm44390"	"H2ac7"	"H2ac15"
##	[505]	"H2ac10"	"Gm44357"	"Hist1h2an"	"H2ac8"
##	[509]	"H2ac4"	"H2ac5-ps"	"Cks1b"	"Iqgap3"
##	[513]	"Cenpi"	"Fads2"	"Kntc1"	"Gm14091"
##	[517]	"Aldh5a1"	"Rbbp4"	"Dsn1"	"Gins2"
##	[521]	"Rad54l"	"Rfc5"	"Pkmyt1"	"Pmf1"

##	[525]	"Gcat"	"Scd1"	"2010110K18Rik"	"Aurka"
##	[529]	"Dlgap5"	"Hjurp"	"Suv39h1"	"Ercc61"
##	[533]	"Fanci"	"Gm12919"	"Tmem98"	"Ccdc15"
##	[537]	"Net1"	"Cep295"	"Gins3"	"Gm24991"
##	[541]	"Nup210"	"Atad5"	"Fignl1"	"Chek1"
##	[545]	"H2ac11"	"Hells"	"Mcm4"	"Suv39h2"
##	[549]	"Orc6"	"Gm3320"	"Mcm2"	"Mybl2"
##	[553]	"Gins1"	"Cdc45"	"Mcm5"	"Cd34"
##	[557]	"Itga8"	"Xrcc2"	"Gm7390"	"Hspa14"
##	[561]	"Efcab11"	"Ccdc34"	"Smc4"	"Ncaph"
##	[565]	"Neil3"	"Spag5"	"Anln"	"Aurkb"
##	[569]	"Ccna2"	"Cit"	"Fancd2"	"Cdc25c"
##	[573]	"Cdca8"	"Melk"	"Racgap1"	"Birc5"
##	[577]	"Cdca3"	"Prc1"	"Traip"	"Nuf2"
##	[581]	"Spc25"	"Kn11"	"Top2a"	"Bub1"
##	[585]	"Ncapg"	"Pbk"	"Gen1"	"Kif15"
##	[589]	"Hmgb3"	"Kif11"	"Lmb1"	"Brip1"
##	[593]	"Tmpos"	"Cenph"	"Ndc80"	"Shcbp1"
##	[597]	"Smpd3"	"Mcm8"	"Shmt1"	"Kpna2"
##	[601]	"Gm10184"	"Gm10259"	"Mybl1"	"Prim1"
##	[605]	"Rrm1"	"Gm5487"	"Dscc1"	"Ezh2"
##	[609]	"Ighj4"	"Gm6960"	"Msmo1"	"Tubgcp3"
##	[613]	"Elovl6"	"Magi3"	"Tamm41"	"Mad111"
##	[617]	"Parvg"	"Ncaph2"	"Cmc2"	"Prim2"
##	[621]	"Chd11"	"Ptp4a3"	"Pcbp3"	"Phka2"
##	[625]	"Tm7sf3"	"Retsat"	"Tm7sf2"	"Cep128"
##	[629]	"Nipsnap1"	"Commd4"	"Ica1"	"Tmem158"
##	[633]	"Pih1d1"	"Rttm"	"Dnph1"	"Lmb2"
##	[637]	"H2ac12"	"Mboat1"	"Dtymk"	"Tmem97"
##	[641]	"Mutyh"	"Cenpm"	"Nptxr"	"Gtse1"
##	[645]	"Gm12856"	"Plk1"	"Troap"	"Slc1a5"
##	[649]	"Slc35g1"	"Mpo"	"Pcdhgc4"	"Abcb6"
##	[653]	"Celf2"	"Grap2"	"Lhpp"	"9930014A18Rik"
##	[657]	"C2cd5"	"Hdac6"	"Pus11"	"R3hcc1"
##	[661]	"Mtch1"	"Anapc11"	"Cuta"	"Akr7a5"
##	[665]	"Ebp"	"Ptpa"	"Lanc11"	"Oat"
##	[669]	"Rnase6"	"Wdfy4"	"Dpy30"	"Rpp40"
##	[673]	"Acaca"	"Gm5182"	"Lsm2"	"Erg28"
##	[677]	"Tdp1"	"Srbd1"	"Dctpp1"	"Nup133"
##	[681]	"Sptb"	"Ift27"	"Tubgcp2"	"Aarsd1"
##	[685]	"Rpa3"	"Rad18"	"Pola1"	"Dut"
##	[689]	"Lig1"	"Ndc1"	"Syce2"	"Ncs1"
##	[693]	"Pfas"	"Ppat"	"Anp32b"	"Anp32b-ps1"
##	[697]	"Nup155"	"Alyref"	"Nup107"	"Sae1"
##	[701]	"Tfdp1"	"Nup85"	"Rcc1"	"Fry"
##	[705]	"Nudt4"	"Arfgef3"	"Slc12a2"	"Smc6"
##	[709]	"Vps13a"	"Ube2cbp"	"Cyb5b"	"Sfxn1"
##	[713]	"Cep78"	"Rnf219"	"Echdc1"	"Osbpl1a"
##	[717]	"Elovl5"	"Iars2"	"Abcb10"	"Tmem245"
##	[721]	"Cnih1"	"Mbtps1"	"Pomgnt2"	"Gm48200"
##	[725]	"Thyn1"	"Cetn2"	"Gm5518"	"Ola1"
##	[729]	"Gm10075"	"Gm5937"	"Gm37164"	"Gm5527"
##	[733]	"Hmgb1-ps1"	"Hmgb1-ps3"	"Gm8319"	"Hmgb1-ps4"
##	[737]	"Hmgb1"	"Hmgb1-ps2"	"Gm14448"	"Gm13577"

##	[741]	"Gm15387"	"Gm21596"	"Hist1h4m"	"BC064078"
##	[745]	"Gm6750"	"Gria3"	"Gm3851"	"Dennd5b"
##	[749]	"Gm11223"	"A830082N09Rik"	"Cntd1"	"Scrn2"
##	[753]	"Mvk"	"Parp1"	"Trim37"	"Lss"
##	[757]	"Add3"	"Stard4"	"Pcyt2"	"B630019K06Rik"
##	[761]	"Lbr"	"Elane"	"Rnf157"	"Sat2"
##	[765]	"Zfp518b"	"Xk"	"Pter"	"Prps2"
##	[769]	"Stk26"	"Acly"	"Arhgap32"	"Hnrnpul1"
##	[773]	"Morc4"	"Mcam"	"Gm48308"	"Kifc5b"
##	[777]	"Eldr"	"Cenpk"	"Terf1"	"Gm14276"
##	[781]	"Ckap2"	"Depdc1a"	"Parpbp"	"Sgo2a"
##	[785]	"Ttk"	"Hmnr"	"Kif14"	"Ncapd2"
##	[789]	"Kif22"	"Ska1"	"2700099C18Rik"	"Trim59"
##	[793]	"Sgo1"	"Kif2c"	"Kifc1"	"Prr11"
##	[797]	"Ect2"	"Nek2"	"Rad21"	"Dhcr24"
##	[801]	"Mbnl3"	"Nsdhl"	"Arhgef9"	"Gm26394"
##	[805]	"Gm36401"	"Mns1"	"Ttll3"	"Gm45819"
##	[809]	"Hmgb1-ps7"	"Lamb2"	"Gm37784"	"Tiel"
##	[813]	"Nme3"	"Plxdc2"	"Cryzl2"	"Fut10"
##	[817]	"Pi16"	"Cep85"	"Ucp2"	"Gm42428"
##	[821]	"Gm48275"	"Gm43268"	"Nnt"	"9230111E07Rik"
##	[825]	"4921528I07Rik"	"Paqr8"	"Calml4"	"B3galnt1"
##	[829]	"Rwdd3"	"Cadm1"	"Eml5"	"Gm47798"
##	[833]	"Cped1"	"Gin1"	"1110038B12Rik"	"Gpx1"
##	[837]	"Cdon"	"Map3k20"	"Ttc7b"	"Ccnv"
##	[841]	"Ptprs"	"Egf"	"Psm8"	"Gm20075"
##	[845]	"Haao"	"Fam78b"	"Gm43143"	"Neurl1a"
##	[849]	"Hcn2"	"Metrn"	"Kcnk12"	"Smo"
##	[853]	"Dnah8"	"B3gnt7"	"Gm13373"	"Agap1"
##	[857]	"Ppm1j"	"Shisa9"	"Rtl8a"	"Rtl8b"
##	[861]	"Tmem41a"	"Gm33228"	"Zbtb16"	"Fam189b"
##	[865]	"Hspb6"	"Ttc39aos1"	"Gm15156"	"2810414N06Rik"
##	[869]	"Muc2"	"Magee1"	"Mettl9"	"Gm49871"
##	[873]	"Gm31749"	"N4bp2"	"Gk5"	"Gm49731"
##	[877]	"Mapk8ip1"	"Aqp11"	"Gm16001"	"Frg2f1"
##	[881]	"Syngap1"	"Eid2"	"C030034L19Rik"	"Trem11"
##	[885]	"Dclk2"	"Pard6g"	"Slc52a3"	"Gm45718"
##	[889]	"Gm49032"	"Gm49654"	"Gm16576"	"Dffb"
##	[893]	"Wfikkn1"	"Tst"	"Mtmr12"	"Bhlhe41"
##	[897]	"Gm43909"	"Fut11"	"Ptpn21"	"Arsa"
##	[901]	"Zcchc14"	"Gm16104"	"Gm17080"	"Apbb1"
##	[905]	"2410022M11Rik"	"Fbxw4"	"Misp3"	"Mmp11"
##	[909]	"9630028I04Rik"	"Tmem154"	"Krbal"	"Vps37d"
##	[913]	"Gm45767"	"Rcn3"	"Tbc1d10c"	"Arhgap1"
##	[917]	"Cmtm7"	"Fam174c"	"Ankrd39"	"BC017158"
##	[921]	"Nagpa"	"Lrig3"	"Hps1"	"Pskh1"
##	[925]	"Rtl8c"	"Atg1612"	"Gspt2"	"Accs"
##	[929]	"Afap111"	"H2az2"	"Fam171a1"	"Fech"
##	[933]	"Elf2"	"Pbx4"	"Pcp411"	"Fcnb"
##	[937]	"Slc36a2"	"Med16"	"Scarb1"	"Gmpr"
##	[941]	"Asrgl1"	"Sv2a"	"Cenpa"	"Galnt12"
##	[945]	"Ssbp2"	"Itgb3"	"Amot"	"Poglut3"
##	[949]	"Zfpm1"	"Fam83d"	"Pif1"	"Ctdspl"
##	[953]	"Jag2"	"Gm38037"	"Htra3"	"Atg9b"



##	[957]	"Adgrl1"	"Tox2"	"Slc22a21"	"Faap100"
##	[961]	"Scmh1"	"Unc5a"	"Zbed3"	"Gm8437"
##	[965]	"Prtn3"	"Exoc3l2"	"A230005M16Rik"	"Smim1012a"
##	[969]	"Mmp17"	"Gm15853"	"Map7d3"	"Gm20324"
##	[973]	"Tmem256"	"Wtip"	"Pgls"	"Abcb8"
##	[977]	"Timm17b"	"Cacna1f"	"Itga3"	"Tkfc"
##	[981]	"Gusb"	"Icam2"	"Cyp2d22"	"Tpk1"
##	[985]	"Gm22175"	"Rsc1a1"	"Gm4890"	"Jph1"
##	[989]	"4933408J17Rik"	"Eda"	"Atpaf1"	"Fxyd7"
##	[993]	"Ythdc2"	"Ipo11"	"Mtap"	"Nat10"
##	[997]	"2810004N23Rik"	"Cyp20a1"	"Otud6b"	"Pstk"
##	[1001]	"Dock5"	"Dop1a"	"Rasal2"	"Farp2"
##	[1005]	"Cluh"	"Trim28"	"Tsen2"	"Txnrd2"
##	[1009]	"Acp6"	"Exosc5"	"Scfd2"	"Sh3glb2"
##	[1013]	"Eri3"	"Tmc6"	"Hdhd2"	"Cpsf1"
##	[1017]	"Glrx5"	"Ctbp1"	"Zdhhc3"	"Tyw3"
##	[1021]	"Cep68"	"Pald1"	"Polr3h"	"B230219D22Rik"
##	[1025]	"Sccpdh"	"Abcb4"	"Akap11"	"Ddx19a"
##	[1029]	"2210016L21Rik"	"Sft2d3"	"Gm3219"	"Kif13a"
##	[1033]	"4933433G19Rik"	"Grcc10"	"Gm4824"	"Thoc7"
##	[1037]	"Vps36"	"Imp21"	"Gsg1"	"Camk1"
##	[1041]	"Hsd17b4"	"Pccb"	"Exoc4"	"Top2b"
##	[1045]	"Gm4204"	"Atxn10"	"Dock1"	"Fh1"
##	[1049]	"Aldoc"	"Mgst3"	"Npl"	"Rsrc1"
##	[1053]	"Smc1a"	"Idh2"	"Dhx9"	"Hprt"
##	[1057]	"Nap1l1"	"Abcd3"	"Chml"	"Lin7c"
##	[1061]	"Rida"	"Rab11fip2"	"Eif5a2"	"Emb"
##	[1065]	"Gm43254"	"Gm20300"	"Hps3"	"P2ry13"
##	[1069]	"Vat1"	"Plcl1"	"Tmem18"	"BC029722"
##	[1073]	"Khk"	"Pepd"	"Syng1"	"Msrb2"
##	[1077]	"Gpam"	"Trmt1"	"Castor1"	"Higd2a"
##	[1081]	"Nupl2"	"Lrpprc"	"Ttc13"	"Slc39a11"
##	[1085]	"Eif3l"	"Gpr89"	"Naprt"	"Ppm1f"
##	[1089]	"Ext2"	"Glod4"	"Cryz"	"Ddx59"
##	[1093]	"Syp"	"Metap1d"	"Mgmt"	"Xxylt1"
##	[1097]	"Aldh9a1"	"Gamt"	"Ebpl"	"Nostrin"
##	[1101]	"Hadh"	"Mccc2"	"C1qtnf12"	"Fut4"
##	[1105]	"Nme4"	"Ang"	"Ptpn18"	"Rnase4"
##	[1109]	"Gm15706"	"Pecr"	"Nqo2"	"Exoc6"
##	[1113]	"Guf1"	"Cilk1"	"Idh3g"	"Phactr2"
##	[1117]	"Prkcb"	"Abcb7"	"Smyd3"	"Glms-ps1"
##	[1121]	"Tmem253"	"Fbxo45"	"Ccgc78"	"Hcn3"
##	[1125]	"Ly6g6d"	"Calm2"	"Fam151b"	"Nlrp1c-ps"
##	[1129]	"Ranbp6"	"Zfp141"	"Sdhaf3"	"Zfp128"
##	[1133]	"Rnf13"	"Asah1"	"Frmd4b"	"Fdxac1"
##	[1137]	"Hgsnat"	"Arhgap6"	"Gm20072"	"Fam3c"
##	[1141]	"Acadm"	"Fig4"	"Ifi30"	"Abhd14a"
##	[1145]	"Dhrs7"	"Mks1"	"Smim4"	"Fam174a"
##	[1149]	"Mcee"	"Gpx4"	"Gpx4-ps2"	"Fam98c"
##	[1153]	"Tle5"	"Nudt6"	"Gpt"	"Tomm401"
##	[1157]	"Kyat1"	"Mospd3"	"Slc2a8"	"Anxa9"
##	[1161]	"Ei24"	"Irak1"	"Timm21"	"Entpd5"
##	[1165]	"Urod"	"Slc25a16"	"Mrps35"	"Ttc5"
##	[1169]	"Mapk14"	"R3hdm4"	"3110006006Rik"	"Arl6ip5"

## [1173]	"Gm14493"	"Mansc4"	"2310040G24Rik"	"Slc41a3"
## [1177]	"Galm"	"Slc17a9"	"M1ap"	"Glb11"
## [1181]	"Calhm2"	"Tspan4"	"Pld4"	"Ccs"
## [1185]	"Dus31"	"Amacr"	"Hdhd5"	"Dancr"
## [1189]	"Reep6"	"Smarcd1"	"Mfsd3"	"Pcif1"
## [1193]	"Trappc12"	"Akap1"	"Meaf6"	"B4galnt1"
## [1197]	"Fpgs"	"Btf314"	"Ceacam1"	"Ceacam2"
## [1201]	"Gm47483"	"Rps6ka5"	"Meis1"	"Bin1"
## [1205]	"Blvra"	"Tfb2m"	"Cd81"	"9430038I01Rik"
## [1209]	"Glud1"	"2310057M21Rik"	"Bspry"	"Syp1"
## [1213]	"Slc9a6"	"Washc5"	"Lta4h"	"Tbcd5"
## [1217]	"2610507B11Rik"	"Numa1"	"Micu1"	"Yaf2"
## [1221]	"Cep44"	"Gm5857"	"Fuca2"	"Pgm211"
## [1225]	"Paics"	"Tmco1"	"Hs2st1"	"Qser1"
## [1229]	"Dtwd2"	"Ap1s2"	"Zfp763"	"Rgs18"
## [1233]	"Ivns1abp"	"Tarsl2"	"Alg10b"	"Gpd11"
## [1237]	"Lrmp"	"Galk1"	"Naxe"	"Adh5"
## [1241]	"Ndufb10"	"Cisd3"	"Mfsd13a"	"Ctnnb11"
## [1245]	"Gm43444"	"Dnajc15"	"Atp5c1"	"Nit2"
## [1249]	"Gatb"	"Mrpl58"	"Gm15720"	"Sclt1"
## [1253]	"Dglucy"	"Lamtor4"	"Gm47438"	"Mpp7"
## [1257]	"Gm38099"	"Gm37144"	"Rbm48"	"2610528A11Rik"
## [1261]	"Mpz11"	"Myo6"	"Fsip1"	"Cirbp"
## [1265]	"Taf1d"	"2810408A11Rik"	"4930556H04Rik"	"Gm10825"
## [1269]	"Gm6352"	"Rnf170"	"Gm12966"	"1700047M11Rik"
## [1273]	"Pgr"	"Dipk1b"	"Gm2415"	"G430095P16Rik"
## [1277]	"Gm43621"	"Mlph"	"Gask1b"	"Itga6"
## [1281]	"Asb4"	"Gm38071"	"Gm49760"	"5830416I19Rik"
## [1285]	"Myom1"	"Abca6"	"Mdfi"	"2610035D17Rik"
## [1289]	"Gm50020"	"4833418N02Rik"	"Mir5114"	"Gm37728"
## [1293]	"C430042M11Rik"	"Gm20008"	"Apln"	"Gm5141"
## [1297]	"Zscan30"	"Mmp9"	"Pot1b"	"Gm17122"
## [1301]	"Gm16353"	"Gm43412"	"Phf14"	"Tmem40"
## [1305]	"Gm49474"	"Gm49886"	"Gm34220"	"Gm43413"
## [1309]	"Ephb2"	"Gm1818"	"Fam76b"	"F730016J06Rik"
## [1313]	"Tmem144"	"Bmx"	"Rtkn2"	"Cmtm8"
## [1317]	"Abcg3"	"Fgf11"	"Ralgps2"	"Gm10642"
## [1321]	"Mex3b"	"Edaradd"	"Galnt9"	"3830408C21Rik"
## [1325]	"Gm35853"	"Kcnip3"	"Eya1"	"Lipa"
## [1329]	"4930447K03Rik"	"Rasgrp3"	"Gm15760"	"Ttc3"
## [1333]	"Fam169a"	"Gm23458"	"Ehhadh"	"Sgpp1"
## [1337]	"Gm10654"	"Gm34680"	"Gper1"	"AA474408"
## [1341]	"Erg"	"Rp2"	"Tbcd1d23"	"Gm8983"
## [1345]	"Gm45286"	"Itgb4"	"Gm48342"	"Gm17115"
## [1349]	"Ras12-9"	"Gm30074"	"Gm12852"	"Gm26083"
## [1353]	"Hmgb1-rs16"	"Gm37606"	"Gm43075"	"Hnmt"
## [1357]	"Zfp90"	"Alyref2"	"Mir99ahg"	"Gm16861"
## [1361]	"Hrh1"	"Rnf138"	"Sdhaf4"	"Gm38317"
## [1365]	"Itgb5"	"Wdr41"	"A930004J17Rik"	"Ece1"
## [1369]	"Nfrkb"	"Gm12166"	"Naf1"	"Ccadc102a"
## [1373]	"Fam167b"	"9430053009Rik"	"Gm36963"	"Hlf"
## [1377]	"Gm47550"	"Heph"	"Gm12435"	"Gm6430"
## [1381]	"Gm7446"	"Gm44913"	"Gm20498"	"Fsbp"
## [1385]	"Gm49832"	"D630044L22Rik"	"Gm49783"	"Lrp1"

## [1389]	"Pde1c"	"Cep112"	"Olfr111"	"Trim2"
## [1393]	"Gm38080"	"Gm44667"	"Gm1972"	"Gm37333"
## [1397]	"Kcnq1ot1"	"At11"	"Gm29666"	"Gm46218"
## [1401]	"Cd79a"	"Enho"	"Cd7"	"Slc16a12"
## [1405]	"Gm5063"	"Ajm1"	"Iqch"	"Gm49883"
## [1409]	"8430422M14Rik"	"Gm30238"	"Gm43389"	"Gm17025"
## [1413]	"Pdc1"	"Zfp3612"	"Gm16069"	"Ntn3"
## [1417]	"Gm20507"	"Tmem223"	"Cd51"	"Slc26a10"
## [1421]	"Gm22935"	"Gm49164"	"Gm15246"	"D5Ertd605e"
## [1425]	"Cenp1"	"Gm49503"	"St14"	"Cep72"
## [1429]	"Haus4"	"Wdr90"	"Dhcr7"	"Xkr5"
## [1433]	"Cdca2"	"Depdc1b"	"Arhgef39"	"Ankle1"
## [1437]	"Sapcd2"	"Gm43965"	"Mxd3"	"Esco2"
## [1441]	"Ska2"	"Pxylp1"	"Bex6"	"D130058E05Rik"
## [1445]	"Ccdc85c"	"Cdc25b"	"Bub1b"	"Cdkn2c"
## [1449]	"Pimreg"	"Cdc20"	"Kif20a"	"Lockd"
## [1453]	"Knstrn"	"Aspm"	"Kif23"	"Gm3325"
## [1457]	"Cenpf"	"Kif20b"	"Mis18bp1"	"Kif18a"
## [1461]	"Klhl23"	"Ckap5"	"Chst10"	"Nanos1"
## [1465]	"Gm50322"	"Bag2"	"Dnmt1"	"Prss16"
## [1469]	"Palb2"	"Xrcc3"	"Reep4"	"Lpar2"
## [1473]	"Naa40"	"Pkn3"	"Tmc8"	"Gm42600"
## [1477]	"Gpsm1"	"Gm37249"	"Pdzd4"	"Acss2"
## [1481]	"Dgkg"	"Garnl3"	"Cenpu"	"Poc1a"
## [1485]	"Casc1"	"Chdh"	"Cbx3-ps7"	"Cenpc1"
## [1489]	"Utp14b"	"Msh6"	"Cbx3"	"Gmn"
## [1493]	"Cep57"	"Gm45629"	"9530077C05Rik"	"4930577N17Rik"
## [1497]	"Prob1"	"Traf4"	"6720489N17Rik"	"Gm12940"
## [1501]	"Vangl2"	"Ubl4a"	"Incenp"	"Usp2"
## [1505]	"Tlcd2"	"Zfp473"	"Cchcr1"	"Ccnf"
## [1509]	"Zfp367"	"Haus6"	"Fen1"	"Chaf1a"
## [1513]	"Atad2"	"Brca1"	"Dars2"	"Eri2"
## [1517]	"Wdr62"	"Kcnb1"	"Tmx4"	"Nasp"
## [1521]	"Spd11"	"Zfp850"	"Rgs2"	"Ift140"
## [1525]	"Mbd4"	"Cdk5rap3"	"Mlec"	"Zfp239"
## [1529]	"B230217C12Rik"	"Rhof"	"Gm27011"	"Rasgrf2"
## [1533]	"Mterf2"	"Snhg4"	"Dppa3"	"Snord49a"
## [1537]	"Gm7854"	"Gm48210"	"Nlrp12"	"Ceacam10"
## [1541]	"Gm38910"	"Ap2a1"	"Bax"	"4930515G01Rik"
## [1545]	"Mgat4b"	"Tigd5"	"Ctdsp1"	"Nagk"
## [1549]	"1700016A09Rik"	"Slc26a6"	"Trim32"	"Gm5884"
## [1553]	"Tom1"	"Gm43863"	"Traf7"	"Ppcs"
## [1557]	"Epn1"	"Spns1"	"Fam89b"	"Btbd2"
## [1561]	"Fbxl6"	"Nckipsd"	"Lcmt2"	"Nr2f6"
## [1565]	"Cyp4f16"	"Oxa11"	"Gm20683"	"Shld1"
## [1569]	"Cyb561d2"	"Tvp23a"	"Ddb2"	"Tmem240"
## [1573]	"Klhl25"	"Urb1"	"Adprhl2"	"Hmces"
## [1577]	"Hira"	"Xylb"	"Dgkd"	"Rel12"
## [1581]	"Ints7"	"Slc30a5"	"Mcm3ap"	"Klhdc2"
## [1585]	"Avpi1"	"Pmm1"	"A430057M04Rik"	"A430073D23Rik"
## [1589]	"A930024E05Rik"	"Dag1"	"Dipk2a"	"2410002F23Rik"
## [1593]	"Maz"	"Rbm38"	"Ubqln2"	"Adipor2"
## [1597]	"Zcchc8"	"Tada1"	"Asxl1"	"Cdan1"
## [1601]	"Adrb2"	"Acap3"	"Dennd2c"	"Epb41"

## [1605]	"Zh3"	"Fbx21"	"Agb15"	"Kmt5c"
## [1609]	"Sh2d1b1"	"Ints61"	"Paqr7"	"Unc119"
## [1613]	"Gm47815"	"Vps13c"	"Hs6st1"	"Acd"
## [1617]	"Pcsk4"	"Tmem260"	"Megf8"	"Abhd17a"
## [1621]	"Lrwd1"	"Patz1"	"St3gal2"	"Ankrd10"
## [1625]	"Btbd6"	"Pram1"	"Fam78a"	"Tmem273"
## [1629]	"Cbx2"	"Rap2a"	"Usp28"	"Pbx3"
## [1633]	"Rhno1"	"Sgsm2"	"Zfp770"	"Crocc"
## [1637]	"Trmt2b"	"Msl3"	"Grk6"	"Paip2b"
## [1641]	"Msh2"	"Srl"	"Pcnt"	"Polr3g"
## [1645]	"Phf2"	"Rcor1"	"Zmiz1"	"4930432K21Rik"
## [1649]	"Tssk6"	"Plekhh3"	"Proser1"	"Pafah2"
## [1653]	"Tmem241"	"Terf2"	"Dvl2"	"Lonrf1"
## [1657]	"Cep89"	"Ccdc120"	"Sh2d3c"	"Nemp2"
## [1661]	"Rfc2"	"9830144P21Rik"	"Ankrd9"	"Snhg17"
## [1665]	"Cenpo"	"Pheta2"	"Rassf5"	"Limk1"
## [1669]	"Zfyve21"	"Itpripl1"	"Zfp202"	"Zfp940"
## [1673]	"C2cd21"	"Rassf3"	"Dhx32"	"Aldh4a1"
## [1677]	"Coro1c"	"Vps35"	"Rufy1"	"Haus8"
## [1681]	"Pdik11"	"Thap12"	"Gm4430"	"Rnf227"
## [1685]	"Rexo5"	"Sult2b1"	"Acvr2b"	"Fcr11"
## [1689]	"Gm45737"	"4833417C18Rik"	"Zfp286"	"Epor"
## [1693]	"Tmem231"	"D3Ert751e"	"Nbn"	"Smc3"
## [1697]	"D830039M14Rik"	"Zfp114"	"Minar1"	"Gbx2"
## [1701]	"Prkag2os2"	"Gm48796"	"Zfp101"	"Gm7902"
## [1705]	"Platr25"	"Zfp934"	"Polh"	"Slc16a6"
## [1709]	"Alg14"	"Mmgt1"	"Pms1"	"Cbx3-ps6"
## [1713]	"Etaa1"	"Zfand4"	"Pygb"	"Pdf"
## [1717]	"Slc35e3"	"Gm11944"	"Ovgp1"	"Gapt"
## [1721]	"Hyls1"	"Gpr183"	"Pcyt1b"	"Fbxo17"
## [1725]	"Cmah"	"Poc1b"	"Tfdp2"	"Wdr6"
## [1729]	"Pank1"	"Rtn4r11"	"Tspyl4"	"Dhtkd1"
## [1733]	"AI847159"	"Gm12522"	"Lyz14"	"Gm43031"
## [1737]	"Apold1"	"L3hypdh"	"Rab3d"	"Rnf43"
## [1741]	"Haus3"	"Osgep"	"Gm34280"	"Gm37660"
## [1745]	"Nim1k"	"Tlcd1"	"Gm28229"	"Mrnip"
## [1749]	"Card11"	"Fam102a"	"Cracr2a"	"Tfap4"
## [1753]	"Anks6"	"Tacc2"	"Card10"	"Zfp651"
## [1757]	"2010013B24Rik"	"Gtf2ird1"	"Pkp3"	"Ankrd34a"
## [1761]	"Gm48734"	"C1qtnf6"	"Csnk1g2"	"Zfp512b"
## [1765]	"Zfp362"	"Pxmp4"	"Eif4ebp2"	"Lyl1"
## [1769]	"Vamp1"	"Ankmy2"	"Arhgap39"	"Shcbp11"
## [1773]	"Tns4"	"Gm44428"	"Ccdc142"	"Gm13778"
## [1777]	"B430305J03Rik"	"Mlxipl"	"Sh2d1b2"	"Nedd9"
## [1781]	"Strbp"	"Fam122b"	"Npat"	"Rundc3b"
## [1785]	"Ttc7"	"Gm38079"	"Rfx7"	"Kcnk5"
## [1789]	"Phf24"	"Kcne3"	"Tmem254c"	"Tmem254a"
## [1793]	"Tmem254b"	"Bckdk"	"Cdk4"	"Ctc1"
## [1797]	"Slc2a3"	"Dna2"	"Mtfp1"	"Acs13"
## [1801]	"Cdca71"	"Ydjc"	"Prune2"	"Nsmce4a"
## [1805]	"Pwwp3a"	"Cers4"	"Cyb5r1"	"Slc18b1"
## [1809]	"Gm10138"	"Dcps"	"Manba"	"Fads1"
## [1813]	"Nt5dc2"	"Map4k1"	"Rragb"	"Ttc39a"
## [1817]	"Bend3"	"Wdr5"	"Cela1"	"Tspan9"

## [1821]	"4930520004Rik"	"Zfp706"	"Cyp2u1"	"Map4k2"
## [1825]	"Flot2"	"Map2k6"	"Shc4"	"Arhgef10"
## [1829]	"Klhl3"	"Caprin2"	"Lrrc27"	"Stag3"
## [1833]	"Gm25951"	"Gm26571"	"2610203C22Rik"	"Akip1"
## [1837]	"Zik1"	"Rtl10"	"Cdk2"	"E2f6"
## [1841]	"Gm37422"	"Tnfaip8l1"	"Riox1"	"Tcf3"
## [1845]	"Mbd3"	"Vars2"	"Fdxr"	"Xrcc1"
## [1849]	"Wdr34"	"9430015G10Rik"	"Srebf1"	"Fam173a"
## [1853]	"Tt1l12"	"BC052040"	"Gpr19"	"Gtf3a"
## [1857]	"Recq1"	"Nek8"	"Cep57l1"	"Uevld"
## [1861]	"Hook1"	"Sarm1"	"Tns2"	"Zfp280b"
## [1865]	"Scd2"	"Wdr76"	"Foxd2"	"Hoxa4"
## [1869]	"Zfp296"	"Cdca5"	"Kif24"	"4930579G24Rik"
## [1873]	"Naaladl1"	"Ddx11"	"Brca2"	"Fbxo5"
## [1877]	"Pole2"	"Ube2t"	"Alms1"	"Pcyox1l"
## [1881]	"Ccsap"	"Cdca7"	"Foxd2os"	"Paxip1"
## [1885]	"Bora"	"Mphosph9"	"Ncapd3"	"Zfp941"
## [1889]	"Skp2"	"2900026A02Rik"	"Lrrc20"	"9930012K11Rik"
## [1893]	"Chek2"	"Mmab"	"Ubr7"	"E2f2"
## [1897]	"4933404012Rik"	"Zfp41"	"Dact3"	"Cntrob"
## [1901]	"Rfx2"	"Ccdc69"	"Bcl7a"	"Smtn"
## [1905]	"Cbx6"	"Neurl1b"	"Alms1-ps2"	"Dbf4"
## [1909]	"Alms1-ps1"	"G2e3"	"Rps19-ps3"	"Glb1"
## [1913]	"H2-DMa"	"Smim12"	"Nacc2"	"Rasgrp4"
## [1917]	"Gm22270"	"Slc2a4rg-ps"	"Gm49484"	"Ict1os"
## [1921]	"Echs1"	"Ten1"	"Clta"	"Svil"
## [1925]	"Pak1"	"Agap2"	"Ccar2"	"Rab27a"
## [1929]	"Klhl5"	"Palm"	"Klrd1"	"4930438A08Rik"
## [1933]	"Gm37694"	"Afmid"	"Gm24011"	"Zfp267"
## [1937]	"Gm26982"	"Gm43088"	"Inka1"	"Mdga1"
## [1941]	"Leprot"	"Sft2d1"	"Gm44136"	"A430110L20Rik"
## [1945]	"Fam53b"	"Sec31b"	"A630052C17Rik"	"N4bp2os"
## [1949]	"Tmem8b"	"Cngb1"	"Qrfp"	"Cep131"
## [1953]	"Depdc7"	"Snx8"	"Smad3"	"Gnpda1"
## [1957]	"Snx24"	"Plpp7"	"Dnmbp"	"Nfatc1"
## [1961]	"Slc45a4"	"Fer1l5"	"Tesk2"	"B3gnt8"
## [1965]	"Rnf166"	"E330020D12Rik"	"Ctns"	"Pdxk"
## [1969]	"Marchf8"	"Cdc14b"	"Ncoa3"	"Rbfaos"
## [1973]	"Csnk1e"	"Trim16"	"Gm15539"	"Gm20735"
## [1977]	"Gm45606"	"Polr3gl"	"Eif4b"	"Klc4"
## [1981]	"Syt8"	"Ccnb2-ps"	"Gm16153"	"Sap301"
## [1985]	"Spg21"	"Gm15326"	"Fahd1"	"Pdk2"
## [1989]	"Ttc38"	"Zfp157"	"Arl11"	"Rhod"
## [1993]	"Atp13a2"	"Med22"	"Pisd-ps1"	"0610012G03Rik"
## [1997]	"Tbc1d22a"	"Eepd1"	"Rasa3"	"Fbxo31"
## [2001]	"Susd3"	"Cbx8"	"Rmnd5a"	"AC149090.1"
## [2005]	"Cul9"	"1500002C15Rik"	"Gm14168"	"Gnrh1"
## [2009]	"Setmar"	"5930430L01Rik"	"Slco4c1"	"Mdp1"
## [2013]	"Padi3"	"Gm19142"	"Slc5a3"	"Gm49326"
## [2017]	"Grsf1"	"1190005I06Rik"	"Gm45091"	"Sall2"
## [2021]	"Abcb9"	"Npc1"	"Gm16278"	"Elf2"
## [2025]	"Wdr26"	"Pcyox1"	"Zfp606"	"Klhl21"
## [2029]	"Zfp652"	"Cerk"	"Wdr91"	"Gm44103"
## [2033]	"Flcn"	"Natd1"	"Tfeb"	"Zfp787"

## [2037]	"Clasrp"	"Sh2b3"	"Sppl3"	"Gm13562"
## [2041]	"Gstm4"	"Gm568"	"Nudt1611"	"Zfp385c"
## [2045]	"Acads"	"Grin3b"	"Plppr3"	"Tspyl3"
## [2049]	"Gm42664"	"Gm43127"	"Il17c"	"A130051J06Rik"
## [2053]	"Gm38336"	"Mrgpre"	"Rnls"	"B930094E09Rik"
## [2057]	"Gpr137c"	"Snord17"	"Isoc2b"	"Fcho1"
## [2061]	"P2rx1"	"Cxxc5"	"Oscp1"	"Fzd2"
## [2065]	"Rtl6"	"Nudt15"	"Gpr176"	"Zfp385a"
## [2069]	"Zmym3"	"7330423F06Rik"	"Mxra7"	"Gm5827"
## [2073]	"4931440P22Rik"	"Kif19a"	"Esr1"	"Slc22a18"
## [2077]	"Slc9a7"	"Sord"	"Eef2k"	"Smagp"
## [2081]	"Deptor"	"Galc"	"Plxnb3"	"Smim24"
## [2085]	"Cd300a"	"Tns1"	"Mettl27"	"Trnp1"
## [2089]	"AA388235"	"Kcnh6"	"Gm6652"	"Clec1a"
## [2093]	"Dnajb14"	"Hpgds"	"Patj"	"Snapin"
## [2097]	"Irf4"	"Lama3"	"Ggt5"	"Retnlg"
## [2101]	"Gm44750"	"Gm5112"	"Borcs7"	"Gm42848"
## [2105]	"Inka2"	"Star"	"Fam168b"	"Thumpd2"
## [2109]	"Gm19680"	"Arhgap19"	"Paox"	"Fgfr1op"
## [2113]	"Dcaf4"	"Tab1"	"4930522L14Rik"	"Lefty1"
## [2117]	"Zfp810"	"Hoga1"	"Nhej1"	"Gm49201"
## [2121]	"Cracr2b"	"Gp1ba"	"Foxn3"	"Rapgef6"
## [2125]	"Mblac2"	"Nrde2"	"Lrrc70"	"Lmbrd2"
## [2129]	"Tmem1311"	"Abhd15"	"Slc16a7"	"Snx29"
## [2133]	"Tmem141"	"Tmem37"	"Dcaf8"	"Arhgap18"
## [2137]	"Hacd4"	"Gm20703"	"Ttyh2"	"Gm10614"
## [2141]	"Gm9920"	"Gm44662"	"Aatk"	"Galnt4"
## [2145]	"Gab3"	"Gm10575"	"Mir546"	"Tgfbr2"
## [2149]	"Galk2"	"Rmdn1"	"Klhl6"	"Sgsh"
## [2153]	"AC241534.1"	"Gm9752"	"Neil2"	"Mxd4"
## [2157]	"Abtb1"	"Slc26a11"	"Ctdsp2"	"Ctdsp2-ps"
## [2161]	"Abhd4"	"Ago4"	"Tbc1d2b"	"Il16"
## [2165]	"Tef"	"Gm45546"	"Tusc1"	"Hdac11"
## [2169]	"Neurl2"	"C77080"	"Gm32591"	"Gm32914"
## [2173]	"Fam222a"	"Kcnj9"	"Bmf"	"Zfyve28"
## [2177]	"Gm15513"	"Cd28"	"Rnf144b"	"Zfand1"
## [2181]	"Abcd2"	"Ldlrad3"	"Rasgef1a"	"Wwp1"
## [2185]	"Zfp704"	"Trpv4"	"Per3"	"Slc46a3"
## [2189]	"Sorbs3"	"Fmo5"	"Ncoa4"	"Ncoa4-ps"
## [2193]	"Arhgef4"	"Gm47414"	"Pgap1"	"Znrf2"
## [2197]	"Et14"	"Lrp6"	"Gpr155"	"Ptger3"
## [2201]	"Dchs1"	"Zfp354c"	"BC037032"	"Zfp30"
## [2205]	"Gpr34"	"Gm26912"	"Armc2"	"BC106179"
## [2209]	"Fam187b"	"Snora43"	"Slc25a53"	"Gm45062"
## [2213]	"Zkscan4"	"Ccdc92b"	"Dkk2"	"Vmac"
## [2217]	"Gm43672"	"Tecpr1"	"Tmem82"	"Kxd1"
## [2221]	"Card14"	"Gm42847"	"Gm26387"	"Gm17745"
## [2225]	"Cd163"	"Nrg2"	"A530088E08Rik"	"Gm24366"
## [2229]	"Syt11"	"Gm20658"	"Gm42815"	"Sema6d"
## [2233]	"Aldh6a1"	"Nr1d2"	"Cyp4f17"	"Armc10"
## [2237]	"Gm48768"	"Pgam2"	"Zfp277"	"Gm43307"
## [2241]	"Gm49889"	"Gm26737"	"Phkb"	"Lmo1"
## [2245]	"Mbnl1"	"BC035044"	"Mansc1"	"Gm11738"
## [2249]	"Nrip2"	"Gm17816"	"Gm47322"	"Akap5"

## [2253]	"Fads6"	"Gm45094"	"Cyp2t4"	"Zscan18"
## [2257]	"Gm20939"	"Gm50455"	"Gm15512"	"Gm15537"
## [2261]	"D130017N08Rik"	"Cnnm2"	"Shld2"	"Dym"
## [2265]	"Tmem38a"	"Arrb1"	"Fnbp1"	"Siae"
## [2269]	"Cog7"	"Fam53a"	"Arhgef11"	"Ncoa2"
## [2273]	"Hars2"	"2410006H16Rik"	"Kif5a"	"Mbp"
## [2277]	"Rp9"	"Gm49767"	"Shtn1"	"Pik3c3"
## [2281]	"Ccdc127"	"Fbx120"	"Xpr1"	"Tmem65"
## [2285]	"Zzz3"	"Ptgr2"	"Tmlhe"	"Zfp108"
## [2289]	"Tmem234"	"Zfp958"	"D330041H03Rik"	"Galr2"
## [2293]	"Pan3"	"Zfp383"	"Aktip"	"Hdac8"
## [2297]	"Wdr60"	"Tlr13"	"Zfp60"	"Kmt2c"
## [2301]	"Phf3"	"Jmjd1c"	"Snx30"	"Fam161a"
## [2305]	"Herc2"	"Zc3h14"	"Cbfa2t2"	"Rcor3"
## [2309]	"Nbeal1"	"Kantn"	"Zfp266"	"Acad8"
## [2313]	"Gzmm"	"3222401L13Rik"	"Mplkip"	"Oxld1"
## [2317]	"Zfp773"	"Naa60"	"Smpd1"	"AI467606"
## [2321]	"Rcan3"	"Coasy"	"Tbc1d25"	"Gorasp1"
## [2325]	"Mrm2"	"Rubcn"	"Vps26b"	"Atmin"
## [2329]	"Stx2"	"Mfsd5"	"Zfp511"	"Selenoo"
## [2333]	"Ocel1"	"Tmem218"	"Idua"	"Zfp369"
## [2337]	"Fam193b"	"Gm42688"	"Tbccd1"	"Zdhhc7"
## [2341]	"Elmsan1"	"Iqce"	"Gm21926"	"Mindy2"
## [2345]	"Gm13217"	"Git2"	"Arrdc2"	"Sirpa"
## [2349]	"Slc25a36"	"Zfp120"	"Zfp563"	"Uqcc3"
## [2353]	"Atg14"	"Mindy1"	"Tmem86a"	"2610044015Rik8"
## [2357]	"Ino80b"	"A130014A01Rik"	"Shld3"	"AV356131"
## [2361]	"Nhlrc1"	"Crtc3"	"Gtpbp8"	"1700030K09Rik"
## [2365]	"Zfp661"	"Tb11xr1"	"Zfp3611"	"Synrg"
## [2369]	"Map3k3"	"Zdhhc9"	"Zfp109"	"Gm38335"
## [2373]	"Lpar6"	"Rad51d"	"Stradb"	"Arhgap22"
## [2377]	"Nicn1"	"Pqlc3"	"Camkmt"	"Gm46430"
## [2381]	"Sirt3"	"Rabggta"	"Txndc15"	"B230354K17Rik"
## [2385]	"Mblac1"	"Cd9912"	"Kans12"	"Kans12-ps"
## [2389]	"Kctd2"	"Mat2b"	"Zfp946"	"Cnst"
## [2393]	"Zyg11b"	"Apobec1"	"Harbi1"	"Zfp637"
## [2397]	"Zfp846"	"Wdr73"	"Jmjd8"	"Ccdc61"
## [2401]	"Agap3"	"Mlst8"	"Zfp82"	"Gatc"
## [2405]	"Mlh3"	"Lztr1"	"Pcnx4"	"Snx14"
## [2409]	"Zbtb44"	"Nudcd3"	"Cdpf1"	"Ehmt1"
## [2413]	"Setdb1"	"Emc9"	"Ado"	"Atrn"
## [2417]	"Atg7"	"Inpp5e"	"Zfp72"	"Cxcr4"
## [2421]	"Pdp1"	"Angel2"	"A730017L22Rik"	"Mknk1"
## [2425]	"Dand5"	"Surf1"	"Tpgs1"	"Exoc8"
## [2429]	"Prickle3"	"Trim8"	"Zfp553"	"Man1b1"
## [2433]	"Ppp1r12c"	"Ccm2"	"Phf20"	"Ranbp10"
## [2437]	"Bin3"	"Cyhr1"	"Ogfod2"	"Npr12"
## [2441]	"Ptdss2"	"Fbf1"	"Map3k12"	"Myo1f"
## [2445]	"Aldh3a2"	"Zmynd8"	"Anks3"	"Mapk1ip1"
## [2449]	"Rnf169"	"Fam160b1"	"Acad12"	"Osbpl2"
## [2453]	"Gm2004"	"Gm14326"	"Gm14399"	"0610009B22Rik"
## [2457]	"9330104G04Rik"	"Zfp874b"	"Zfp954"	"Gm16172"
## [2461]	"Klf1"	"Pisd-ps2"	"Fbxw2"	"Mir8101"
## [2465]	"Gm44243"	"Brsk1"	"Rab42"	"Mpv17"

## [2469]	"Zfp12"	"Fam210b"	"Gm20712"	"Gm37494"
## [2473]	"Foxo4"	"Tsc22d3"	"Zmat3"	"Zfp318"
## [2477]	"Zfp764"	"Commd6"	"Magef1"	"Zfp970"
## [2481]	"Fam199x"	"Gm42933"	"2610507I01Rik"	"Ercc4"
## [2485]	"Zfp866"	"Arhgap45"	"Dstyk"	"5730409E04Rik"
## [2489]	"Otulinl"	"Stard9"	"Fan1"	"Arhgap9"
## [2493]	"Unc13a"	"Hectd3"	"Usp48"	"Ap2a2"
## [2497]	"Zfp61"	"Bpgm"	"Fgd4"	"Rbl2"
## [2501]	"Eif2ak3"	"Zfp273"	"Fbxo10"	"Pkig"
## [2505]	"Fcsk"	"Scnn1a"	"Shpk"	"Letmd1"
## [2509]	"Dmac2"	"Tex261"	"Smpd2"	"Nipal3"
## [2513]	"Tsc1"	"1810034E14Rik"	"Rxbp"	"Leng8"
## [2517]	"A430033K04Rik"	"C87436"	"Vps35l"	"Mink1"
## [2521]	"Ap4m1"	"Crat"	"Pik3r2"	"Zfp316"
## [2525]	"Ldb1"	"Mast3"	"Chmp6"	"Tgfbrap1"
## [2529]	"Zbtb14"	"5031439G07Rik"	"Tbc1d24"	"Ccgc166"
## [2533]	"Tmem19"	"Prkaca"	"Thap11"	"Irf2bp2"
## [2537]	"Mex3d"	"Fv1"	"Snhg20"	"Dyrk1b"
## [2541]	"Zer1"	"4932422M17Rik"	"Cipc"	"Ulk1"
## [2545]	"Zkscan14"	"4833420G17Rik"	"Gigyf1"	"5530601H04Rik"
## [2549]	"Vps39"	"Maf1"	"Snx21"	"Dhrs3"
## [2553]	"Zfp740"	"Tbc1d17"	"Lrrc56"	"Snx32"
## [2557]	"Mypopos"	"Gm10676"	"Rab3a"	"Foxk1"
## [2561]	"Slc15a4"	"Ganc"	"Zfp715"	"Actr8"
## [2565]	"Ppp2r5c"	"Gm20342"	"Gm21781"	"Aph1b"
## [2569]	"Zfp579"	"Gpr157"	"Mob2"	"Rnf44"
## [2573]	"Zbtb42"	"Fbxl8"	"Pcnx3"	"Ppp1r16a"
## [2577]	"Arrdc1"	"Kdelr1"	"Rgl3"	"Gm9796"
## [2581]	"Phf1"	"Zfp760"	"Map3k10"	"Ipp"
## [2585]	"Ppp6r2"	"Klhl35"	"Phkg2"	"Gm27042"
## [2589]	"Pdcd7"	"B130046B21Rik"	"Rfx3"	"Car7"
## [2593]	"Ttc30a2"	"Gm10033"	"Kbtbd3"	"1700001L05Rik"
## [2597]	"Fam13a"	"E130307A14Rik"	"4732496C06Rik"	"4930517E14Rik"
## [2601]	"H3f3aos"	"Sbsn"	"4930431P19Rik"	"Fbxo44"
## [2605]	"Dcst1"	"Fopnl"	"Gm43759"	"Cabyr"
## [2609]	"E130317F20Rik"	"Gm45820"	"Gm4356"	"Gm48086"
## [2613]	"Gm12316"	"Wdr5b"	"1700020D05Rik"	"Erbb3"
## [2617]	"Commd7"	"Qars"	"Lsm10"	"Abl1"
## [2621]	"Tk2"	"Zfp709"	"Lat2"	"Hs1bp3"
## [2625]	"Wdr81"	"Zfp668"	"Limk2"	"Arf2"
## [2629]	"Casp9"	"Tchp"	"Zxdc"	"D230025D16Rik"
## [2633]	"Ddi2"	"4930557K07Rik"	"Ap5s1"	"Pip5k1c"
## [2637]	"Klhl36"	"Sap25"	"BC043934"	"Rxra"
## [2641]	"Zfp839"	"Gm14403"	"Rab11fip5"	"Pla2g15"
## [2645]	"Tmem51"	"Vav2"	"Eif2ak4"	"Ppm1m"
## [2649]	"Ajuba"	"Cmtr2"	"Septin9"	"Taf6l"
## [2653]	"Dusp7"	"Lfng"	"Map1s"	"Tmem181a"
## [2657]	"Tpra1"	"Tspan14"	"1810012K08Rik"	"Gm49284"
## [2661]	"Zfp956"	"Fem1a"	"Card9"	"Ccgc115"
## [2665]	"Marchf2"	"Zfp59"	"Sash3"	"Nfam1"
## [2669]	"Pfkfb4"	"Spsb3"	"Kcnk13"	"Zcchc24"
## [2673]	"Washc1"	"Mfsd11"	"Sec14l1"	"Akap10"
## [2677]	"Hsd1l1"	"Vps11"	"Iffo1"	"Aagab"
## [2681]	"Vgll4"	"Orai3"	"Mnt"	"Mrtfa"



## [2685]	"Rab40c"	"Acox1"	"Commd8"	"Grpel2"
## [2689]	"Zbtb1"	"Ormdl1"	"Pwpp2a"	"Slc25a51"
## [2693]	"Dusp3"	"Serac1"	"Nhirc3"	"Zfp953"
## [2697]	"Plpbp"	"Zfp667"	"Dennd4c"	"Gm18537"
## [2701]	"Bend4"	"Cd3001b"	"Gpr137b-ps"	"Cfap157"
## [2705]	"Gm50387"	"Exo5"	"Zfp942"	"Tnfaip812"
## [2709]	"Zfp85"	"Slc43a2"	"Xpc"	"Dbnidd2"
## [2713]	"Gpr146"	"Gm13212"	"Gm7452"	"Zfp418"
## [2717]	"Ophn1"	"Exoc3"	"Tmem126b"	"Ccr2"
## [2721]	"Mir568"	"9430064I24Rik"	"Dph3"	"Chmp3"
## [2725]	"Gdi2"	"9530050K03Rik"	"B130034C11Rik"	"Efcab12"
## [2729]	"Nacad"	"Clk2"	"Idh3b"	"Nlrp1b"
## [2733]	"Atp6v0a1"	"Rab3i11"	"Zfp472"	"Fgd2"
## [2737]	"Tbxas1"	"Akap8"	"Snora62"	"Cxadr"
## [2741]	"Gm36995"	"Gm45632"	"mt-Nd6"	"Zfp97"
## [2745]	"Zfp442"	"Zfp975"	"9130002K18Rik"	"Gm26789"
## [2749]	"Gm43813"	"Gm37010"	"Mirt1"	"5430434F05Rik"
## [2753]	"Gm29609"	"Gm44829"	"Gm48048"	"2010001K21Rik"
## [2757]	"Gm37642"	"Gm43692"	"Gm43858"	"Angpt17"
## [2761]	"Gm42748"	"Gm25193"	"Gm26620"	"Gm20687"
## [2765]	"Gm50478"	"Gm13205"	"Bph1"	"Pcdhga9"
## [2769]	"Chil4"	"Zfp456"	"9130604C24Rik"	"Stk25"
## [2773]	"Lrrc61"	"Nudt7"	"Pkdcc"	"Kcnj10"
## [2777]	"Rapgef3"	"Vapb"	"Vps41"	"Gm43935"
## [2781]	"Vamp5"	"Sema6c"	"Gm11464"	"Klhdc8b"
## [2785]	"Fam219a"	"Naga"	"Ccgc32"	"A130077B15Rik"
## [2789]	"Cul7"	"Gm16206"	"Gm47175"	"6030442K20Rik"
## [2793]	"Gm23493"	"Coq8a"	"Gm37500"	"Acsbg3"
## [2797]	"Gm49888"	"Gtf2ird2"	"Gm43267"	"Snrnp48"
## [2801]	"B330016D10Rik"	"Gm17491"	"Izumo4"	"Gm49492"
## [2805]	"Snap23"	"Xpa"	"Klhl124"	"Ttc30b"
## [2809]	"Gm9403"	"Smad2"	"Rnf19a"	"Klf9"
## [2813]	"4930481A15Rik"	"Gabarapl1"	"Gm45495"	"Repin1"
## [2817]	"Fer"	"Akr1b10"	"Zfp251"	"Fnta"
## [2821]	"Wdsub1"	"Cluap1"	"Osbpl11"	"Il6ra"
## [2825]	"Tubgcp5"	"Mbtd1"	"Tgfbr1"	"Borcs6"
## [2829]	"Ip6k1"	"Trp53inp2"	"Atp6v1a"	"Gm19253"
## [2833]	"A330023F24Rik"	"Mir6939"	"Zc2hc1c"	"Gm8738"
## [2837]	"Pkd2l2"	"Ypel1"	"Gm17084"	"Snhg14"
## [2841]	"Gm49874"	"Zfp524"	"Gm26826"	"Hoxaas3"
## [2845]	"Gramd1c"	"Zbtb10"	"BC030343"	"Ccr111"
## [2849]	"Gm17354"	"Ltb4r2"	"Crot"	"Pex1"
## [2853]	"Arhgef6"	"Vps13b"	"Kif16b"	"Peg13"
## [2857]	"Cnot6l"	"Pkib"	"Ccni"	"Fam107b"
## [2861]	"Ptpra"	"Hac11"	"Irak1bp1"	"Aamd"
## [2865]	"Ccgc163"	"Ift46"	"Mafa"	"Gm10369"
## [2869]	"Gm9929"	"E130308A19Rik"	"Lrrc1"	"Btd"
## [2873]	"Mical1"	"Trim24"	"Mzf1"	"Map2k5"
## [2877]	"Cnm3"	"Tbc1d2"	"Suox"	"Slc25a27"
## [2881]	"Wdr7"	"Brf1"	"Gng7"	"Gm26770"
## [2885]	"Tlr5"	"Tspan32"	"1700025G04Rik"	"Amz1"
## [2889]	"Gga2"	"Mef2c"	"Galnt10"	"Gltp"
## [2893]	"Klhl42"	"Adcy9"	"Zfp398"	"Carf"
## [2897]	"Plcg1"	"Acss1"	"Pip4k2a"	"R74862"

## [2901]	"Gm37696"	"Prkra"	"Rmnd5b"	"Tmem8"
## [2905]	"Polg2"	"Wdr11"	"Cradd"	"Acot2"
## [2909]	"Atp23"	"Tle6"	"Engase"	"Usf2"
## [2913]	"Usf2-ps1"	"Adi1"	"Hscb"	"Foxo1"
## [2917]	"Tmod1"	"Mturn"	"Snhg11"	"Tbx6"
## [2921]	"Bbs2"	"Gm15952"	"Crebrf"	"Dennd5a"
## [2925]	"Gm44249"	"Gm9522"	"Lrrc14b"	"2900052L18Rik"
## [2929]	"Cyp27a1"	"Slit1"	"Ttpa"	"Gm9449"
## [2933]	"Socs6"	"0610040J01Rik"	"Dbp"	"Gpr162"
## [2937]	"Gm17096"	"BC021767"	"Gm49417"	"St8sia6"
## [2941]	"3110053B16Rik"	"Gm38057"	"Gm10353"	"1110035H17Rik"
## [2945]	"Gm37669"	"Sdr42e1"	"Chd6"	"Fbxo3"
## [2949]	"Zfp217"	"Galnt21"	"Gm47003"	"4930568A12Rik"
## [2953]	"Bbs10"	"Zfp955a"	"Gm36298"	"Zfp882"
## [2957]	"BC055308"	"Cnr2"	"2610008E11Rik"	"Gm13091"
## [2961]	"Dnajc28"	"Pcmt2"	"Hsd17b11"	"Runx2os2"
## [2965]	"4931406C07Rik"	"Otulin"	"4833413G10Rik"	"Rtf1"
## [2969]	"Capn7"	"4930516B21Rik"	"Zfp2"	"Rab6b"
## [2973]	"Syng3"	"Idh1"	"Surf6"	"Oip5os1"
## [2977]	"Rufy2"	"Snx5"	"Ifngr1"	"Krt80"
## [2981]	"Cdad1"	"Gm47097"	"Nuak1"	"Tmem150b"
## [2985]	"Lncppara"	"Map3k1"	"Rora"	"Zbtb38"
## [2989]	"Gpcpd1"	"Frat1"	"Pdcd4"	"A430108G06Rik"
## [2993]	"Aph1c"	"Kif3a"	"Fam214a"	"Ypel2"
## [2997]	"Tcp1112"	"Trp53inp1"	"Map11c3b"	"Slc40a1"
## [3001]	"9330160F10Rik"	"Osbpl6"	"Oplah"	"Fbxw10"
## [3005]	"Gm47004"	"Fam160a2"	"Stx17"	"Setd7"
## [3009]	"Zfand6"	"Kiz"	"N4bp211"	"Sox4"
## [3013]	"Slc17a5"	"Prxl2c"	"Washc2"	"Etfbkmt"
## [3017]	"Mr1"	"Insr"	"Gng2"	"Tmem106b"
## [3021]	"Rnf167"	"Wdr45"	"Ypel3"	"Gm17251"
## [3025]	"Kifc2"	"Tle2"	"Calcoco1"	"Tmem71"
## [3029]	"Epb4114aos"	"Smim14"	"Spaca9"	"Peli2"
## [3033]	"Rragd"	"Rel11"	"Il6st"	"Stxbp5"
## [3037]	"Ccpg1"	"Elac1"	"Glul"	"Zfhx3"
## [3041]	"Fstl3"	"Mok"	"Marchf9"	"Thap6"
## [3045]	"Gm50103"	"Gmcl1"	"Sh3yl1"	"Arhgap5"
## [3049]	"Ccde82"	"Gm12708"	"Lmln"	"Helb"
## [3053]	"Rev3l"	"Slc16a5"	"Frrs1"	"Mphosph8"
## [3057]	"Phf20-ps"	"Oard1"	"Ppp1r21"	"Zswim3"
## [3061]	"Mtmr4"	"Nlk"	"Gm19719"	"Gm5512"
## [3065]	"Ahrr"	"Pus3"	"Ncbp2"	"Dhdh"
## [3069]	"Lair1"	"Tyw1"	"Nbeal2"	"Ogg1"
## [3073]	"Myo18a"	"Zfp566"	"Gm26947"	"Cnpy3"
## [3077]	"Mrm1"	"Cnpy4"	"Zc3h8"	"Ccde112"
## [3081]	"Ikbip"	"Ncbp3"	"Ddx50"	"Tmf1"
## [3085]	"Gm14391"	"Gm6710"	"Gm14410"	"Bnip31"
## [3089]	"Gm8459"	"1700022N22Rik"	"Apc"	"Osbpl8"
## [3093]	"Mpv17l"	"Uvssa"	"Terf2ip"	"Snrk"
## [3097]	"1110032A03Rik"	"Fbxo32"	"Jmy"	"Rtl5"
## [3101]	"Fbxl18"	"Mib2"	"Ago2"	"Fblim1"
## [3105]	"Flvcr1"	"Atg2a"	"Dusp18"	"Kat6b"
## [3109]	"Cdkn1b"	"Ccpg1os"	"Foxj2"	"Zfp14"
## [3113]	"Pnp1a8"	"Ubxn7"	"8430429K09Rik"	"Zfp54"

## [3117]	"Arhgap12"	"Cep19"	"Prorsd1"	"Gm43597"
## [3121]	"2700097009Rik"	"Lactb"	"Tt111"	"Glr2"
## [3125]	"Cog5"	"Tatdn3"	"Tmem156"	"Angpt16"
## [3129]	"Cyb5a"	"Def8"	"Tal2"	"Cep97"
## [3133]	"Prdm10"	"Dusp23"	"Atg2b"	"Castor2"
## [3137]	"Epn2"	"Stom"	"Ank1"	"Slco4a1"
## [3141]	"Gm13803"	"Cir1"	"Gm2810"	"Oga"
## [3145]	"Ttc33"	"Bod11"	"Ccng1"	"Usp53"
## [3149]	"No13"	"Pnistr"	"Zfp984"	"Gm31024"
## [3153]	"Vps45"	"Hmgb1-ps8"	"Tnrc6b"	"Gm16618"
## [3157]	"Gm38190"	"Emilin1"	"Fes"	"1700010I14Rik"
## [3161]	"Txnl4a"	"E030042020Rik"	"Agl"	"Zfp40"
## [3165]	"Umad1"	"Decr2"	"Zfp944"	"Gdpgp1"
## [3169]	"Zfp52"	"Gm41611"	"Gm43351"	"Sema4b"
## [3173]	"1700003E16Rik"	"Synj2"	"Gm19325"	"Slc25a43"
## [3177]	"Snx22"	"4930412C18Rik"	"Oxr1"	"Raph1"
## [3181]	"Ino80dos"	"Atrx"	"Zscan12"	"Gm37621"
## [3185]	"5430403G16Rik"	"Gm14295"	"Atxn3"	"St8sia4"
## [3189]	"Fuca1"	"Tbc1d12"	"Ro60"	"Zfp317"
## [3193]	"Btbd1"	"Lpgat1"	"Rock2"	"Cdk12"
## [3197]	"Glce"	"Hdac4"	"Cuedc1"	"Klhl8"
## [3201]	"Fam126b"	"Ahnak"	"Tbc1d15"	"Mterf1a"
## [3205]	"Zfp932"	"Nek10"	"Creg1"	"Pygl"
## [3209]	"Camk1d"	"Zfp386"	"Rarg"	"Stk24"
## [3213]	"Zfyve9"	"Zbtb20"	"Akap9"	"Atp2b1"
## [3217]	"Dock2"	"Pex12"	"Prpsap2"	"Hagh"
## [3221]	"Acot13"	"Retreg1"	"Ndufaf7"	"Uprt"
## [3225]	"Dcaf17"	"Kifap3"	"Extl2"	"Sirt5"
## [3229]	"Ttc41"	"Arvcf"	"Gm45449"	"Zfp619"
## [3233]	"Cbr1"	"Gm28417"	"Zfp647"	"Bbs7"
## [3237]	"Armt1"	"Slc35b2"	"Eid1"	"Traf3ip3"
## [3241]	"Nfatc2"	"6430548M08Rik"	"Kifc3"	"Gtf2i"
## [3245]	"Rbfa"	"Pnpo"	"Tmem186"	"Snora9"
## [3249]	"Sdhaf1"	"Sgsm3"	"Dgcr6"	"Haghl"
## [3253]	"Mzt2"	"Bcs11"	"Mtr"	"Polr2e"
## [3257]	"Gnpat"	"Colgalt1"	"Fto"	"Lyrm9"
## [3261]	"Tada2a"	"Lactb2"	"Aco1"	"Ddhd2"
## [3265]	"Igip"	"Gm9949"	"Smg6"	"Prkci"
## [3269]	"Smarca2"	"Dmac21"	"Gm26740"	"Prkdc"
## [3273]	"Def6"	"Gabpb2"	"Bcas2"	"Gm12397"
## [3277]	"Nmnat3"	"Vsir"	"Acox3"	"Zdhhc14"
## [3281]	"Rcbtb2"	"Rnf150"	"Snta1"	"Txnip"
## [3285]	"9330151L19Rik"	"Ankrd46"	"2310015A10Rik"	"Thada"
## [3289]	"Gm14305"	"Klhl7"	"Gm47862"	"Nepro"
## [3293]	"Taf51"	"Arl10"	"Zfp951"	"Chd3"
## [3297]	"Rnf130"	"Clcn4"	"Abhd14b"	"Pigz"
## [3301]	"Zfp968-ps"	"Gm14288"	"Gm14440"	"Gm14308"
## [3305]	"Gm14434"	"Gm2026"	"Gm4724"	"Rbak"
## [3309]	"Cd84"	"H2bc21"	"Adipor1"	"Thra"
## [3313]	"Mettl26"	"Polr1c"	"Fars2"	"Prorp"
## [3317]	"B4gat1"	"Alox5ap"	"Arsk"	"Dync21i1"
## [3321]	"Mcoln1"	"Tspan17"	"Wdr13"	"Gm11423"
## [3325]	"2300009A05Rik"	"Rom1"	"Gpr65"	"Zfp976"
## [3329]	"Man2c1os"	"Ap1b1"	"Cd200r3"	"Mertk"

## [3333]	"Zfp111"	"Spg20"	"Zfp397"	"Zscan26"
## [3337]	"Zfp966"	"Zfp969"	"Shprh"	"Zfp967"
## [3341]	"Zfp968"	"Cebpzoz"	"Dctn6"	"A930033H14Rik"
## [3345]	"Arrdc3"	"Rhobtbl1"	"Evi5"	"Appl2"
## [3349]	"Zfp74"	"Tifab"	"Zfp329"	"Gm37499"
## [3353]	"Ppwd1"	"9030407P20Rik"	"Ddx55"	"Zfp788"
## [3357]	"Gm4631"	"Gm11007"	"Gm2007"	"Zfp971"
## [3361]	"Zfp965"	"Zfp973"	"Mettl18"	"Coa6"
## [3365]	"Hibch"	"2210418010Rik"	"Gm14296"	"Bivm"
## [3369]	"Ralbp1"	"Spast"	"Gas5"	"Pgm2"
## [3373]	"Utp14a"	"Sgpp2"	"6330537M06Rik"	"Khsrp"
## [3377]	"Tsc2"	"D2hgdh"	"Gm45867"	"C1galt1"
## [3381]	"Pbdc1"	"Kcnab3"	"Ide"	"Ncbp1"
## [3385]	"Nom1"	"Rxylt1"	"Slc39a10"	"Kdm1b"
## [3389]	"Vav3"	"Acyp1"	"Gm50010"	"Gm15991"
## [3393]	"Gsdme"	"Snx15"	"Abcc3"	"Mccc1"
## [3397]	"Cebpz"	"Nol8"	"4930430F08Rik"	"Snapc5"
## [3401]	"Inpp4b"	"Mia2"	"Tdrd3"	"Gm28187"
## [3405]	"Prpcp"	"Mysm1"	"Auh"	"Hgf"
## [3409]	"Ston2"	"Cpeb1"	"Neo1"	"Asph"
## [3413]	"Zfp69"	"Zfp467"	"Zfp955b"	"Nlrc3"
## [3417]	"Slc36a4"	"Srpk2"	"Hdac5"	"2310022A10Rik"
## [3421]	"Rnf103"	"Gm48837"	"Scel"	"Gm11699"
## [3425]	"Gm8615"	"Arl4c"	"Got1"	"Cd200r1"
## [3429]	"Thbd"	"Pomk"	"S1pr1"	"Arhgap24"
## [3433]	"Edem3"	"Gm45403"	"Lonrf3"	"Cytip"
## [3437]	"AU022793"	"Eps8"	"Gm32098"	"Gcnt1"
## [3441]	"Cass4"	"Etv1"	"Tanc2"	"Slc25a30"
## [3445]	"Tlr4"	"Hpd1"	"Mdc1"	"Ipo9"
## [3449]	"Kpnb1"	"Tmcc2"	"Urb2"	"Zmynd19"
## [3453]	"Pycrl"	"Tnk2"	"Sac3d1"	"Scrib"
## [3457]	"Pcgf6"	"Slc5a6"	"Sema6b"	"Vac14"
## [3461]	"Tmem41b"	"Mdm1"	"Smyd4"	"Bcl2"
## [3465]	"Tbc1d31"	"Gm6330"	"Uba2"	"Ppan"
## [3469]	"Rrp1b"	"Sdr39u1"	"Lmbr1"	"Nars2"
## [3473]	"Slc25a35"	"Cfap298"	"Atl2"	"Naa50"
## [3477]	"L2hgdh"	"Tarbp1"	"Pradc1"	"Mcph1"
## [3481]	"Nelfcd"	"Alad"	"Prkar2a"	"Xrcc6"
## [3485]	"Mrpl28"	"Mrps36"	"Cars2"	"Gcdh"
## [3489]	"Hmbs"	"Mars2"	"Rpusd2"	"Comtd1"
## [3493]	"Bola1"	"Tysnd1"	"Gstz1"	"Mcrip2"
## [3497]	"Tmem14c"	"Apopt1"	"Wdr18"	"Lage3"
## [3501]	"Ogfod3"	"3110082I17Rik"	"Mthfd1"	"Alg6"
## [3505]	"Them6"	"Mrps26"	"Ttf2"	"Cdc23"
## [3509]	"Smarcc1"	"Adal"	"Elp2"	"Polr3k"
## [3513]	"Polr2h"	"Rfk"	"Utp25"	"Ccnh"
## [3517]	"Larp4"	"Cnot10"	"Yeats2"	"Ankrd26"
## [3521]	"Cdkal1"	"Nipa1"	"2510002D24Rik"	"Ate1"
## [3525]	"Dus1l"	"Pank4"	"Ampd2"	"Exosc7"
## [3529]	"D030028A08Rik"	"Dhodh"	"Gart"	"Mrpl12"
## [3533]	"Mtg1"	"Tsnax"	"Nans"	"Nudt5"
## [3537]	"Ppm1g"	"Spr"	"Wdr12"	"Ash2l"
## [3541]	"Ptrh2"	"Pdha1"	"D6Wsu163e"	"Glmn"
## [3545]	"Nudt2"	"Rnd2"	"Mrps6"	"Arl15"

## [3549]	"Nav1"	"Aifm1"	"Syne1"	"Zfp335os"
## [3553]	"Csgalnact2"	"Mfsd6"	"Ptpdc1"	"Slc25a40"
## [3557]	"L3mbtl2"	"Cers5"	"Zfp692"	"Tmem107"
## [3561]	"Dpagt1"	"Mpv17l2"	"Snhg12"	"Slc25a42"
## [3565]	"Zc4h2"	"Abcd4"	"Habp4"	"Spice1"
## [3569]	"Alkbh7"	"Ech1"	"Sbk1"	"Slc46a1"
## [3573]	"Gpr180"	"Polr3e"	"Polrmt"	"Nfs1"
## [3577]	"Pomt1"	"Ppp1r3e"	"Aars2"	"Tm6sf1"
## [3581]	"Gm17055"	"Mageh1"	"Srd5a1"	"Ttl15"
## [3585]	"Tmem74"	"Mak"	"Pck2"	"Tmem143"
## [3589]	"Pgghg"	"1700037H04Rik"	"Trappc1"	"Celsr2"
## [3593]	"Tmem94"	"Pkd1"	"Wbp1"	"Rad50"
## [3597]	"Dynl12"	"Tdp2"	"Gnl3"	"Rfc1"
## [3601]	"Brd8"	"Ppip5k1"	"Hnrnp1"	"Mrs2"
## [3605]	"Mzt1"	"Sacs"	"Nmt2"	"Dyrk3"
## [3609]	"Uri1"	"Gm19557"	"Zfp414"	"Agbl3"
## [3613]	"4933431E20Rik"	"Helq"	"Ift80"	"Cdc42bpg"
## [3617]	"Hdgfl2"	"Gm43481"	"Stk10"	"Dcaf7"
## [3621]	"Dffa"	"Sergef"	"Erp29"	"Map3k4"
## [3625]	"2700049A03Rik"	"Phka1"	"Supt3"	"Gne"
## [3629]	"Mmut"	"Nectin1"	"Tmem102"	"Fam120c"
## [3633]	"Ptpn22"	"Mri1"	"Spata9"	"Nsf"
## [3637]	"Pank2"	"Ano7"	"Lmf1"	"Rabl6"
## [3641]	"Asb2"	"Gm38376"	"D830024N08Rik"	"Gm26581"
## [3645]	"Gm15764"	"Gm50105"	"Exoc31"	"Rap1gap"
## [3649]	"4930473A02Rik"	"Nek3"	"Mroh6"	"Knop1"
## [3653]	"Fli1"	"Surf2"	"Arl6ip4"	"Gm20457"
## [3657]	"Zfp873"	"Gm10778"	"Gm4767"	"2500004C02Rik"
## [3661]	"Gm47467"	"Slc16a11"	"Clic3"	"F830045P16Rik"
## [3665]	"Odf2"	"Jade1"	"Maco1"	"Gm37125"
## [3669]	"Polr2a"	"Primpol"	"Slc19a2"	"Osgepl1"
## [3673]	"Cep170b"	"Depdc5"	"Kif21b"	"Lzts3"
## [3677]	"Rdh11"	"Zw10"	"Cep70"	"Gm49870"
## [3681]	"Gm15523"	"Impa2"	"Nphp3"	"Fbxo8"
## [3685]	"Nf2"	"Tpmt"	"1110013H19Rik"	"Ets1"
## [3689]	"5730455P16Rik"	"Prkab2"	"Phf10"	"Phlda3"
## [3693]	"Prox2"	"Gm50431"	"Ercc5"	"Slx1b"
## [3697]	"Zfp106"	"Fam117b"	"Rchy1"	"Rb1"
## [3701]	"Vps8"	"Acbd5"	"Mettl7a2"	"Setx"
## [3705]	"Foxred2"	"Mettl7a1"	"Cep164"	"Epm2aip1"
## [3709]	"Nr2c2"	"Phf7"	"Ndufv3"	"Wipi1"
## [3713]	"Gm43703"	"Rwdd2a"	"Pdpr"	"Ulk2"
## [3717]	"Gm9530"	"Epm2a"	"Trim7"	"Bmt2"
## [3721]	"C330013E15Rik"	"Kcnj2"	"6330562C20Rik"	"Gm9967"
## [3725]	"A930004D18Rik"	"Creld1"	"Etfdh"	"Stxbp4"
## [3729]	"Gm50107"	"Myorg"	"Cby1"	"Rab3gap2"
## [3733]	"Rapgef11"	"Slc38a2"	"Cfap20"	"Tlk1"
## [3737]	"Rhebl1"	"Sec22c"	"Coq10a"	"Josd1"
## [3741]	"Abhd8"	"Pias3"	"Usp20"	"Bicdl1"
## [3745]	"Tmem147os"	"Szt2"	"Crtc1"	"Pigb"
## [3749]	"Srcap"	"Ssbp3"	"Taf4"	"Deaf1"
## [3753]	"Slc35b4"	"Trmo"	"Setd1a"	"Ssna1"
## [3757]	"Ttl14"	"Hgh1"	"Kat14"	"Lipt2"
## [3761]	"Poldip2"	"Slc16a13"	"Zbtb48"	"Nfic"

## [3765]	"Prkch"	"Nelfa"	"Swsap1"	"Pcgf2"
## [3769]	"Rassf7"	"Tctn3"	"Tjp3"	"F8a"
## [3773]	"Zdhhc8"	"Lbh"	"Tprn"	"Zfp248"
## [3777]	"Amigo1"	"Cmtm4"	"Efemp2"	"Hmg20b"
## [3781]	"Tmem60"	"Nfx1"	"Rab11fip3"	"Fbx14"
## [3785]	"Plxdc1"	"Tmem250-ps"	"Zfp282"	"Btbd3"
## [3789]	"Ttc30a1"	"Gan"	"Zfp772"	"Gdpd5"
## [3793]	"Mrpl2"	"Mrpl34"	"Aspscr1"	"Endog"
## [3797]	"Pip4p2"	"Pot1a"	"Mmgt2"	"Pdlim2"
## [3801]	"Dele1"	"Pithd1"	"Pigyl"	"Asnsd1"
## [3805]	"Camk2g"	"Gdpd3"	"Zfp791"	"Nceh1"
## [3809]	"Dip2b"	"Mtss1"	"Gramd4"	"Kdsr"
## [3813]	"Gm15545"	"Ndr3"	"Zfp28"	"Gm18666"
## [3817]	"Kank3"	"Slc35c2"	"Stim1"	"Trim47"
## [3821]	"Fam234b"	"Kdm2b"	"Jmjd7"	"Pctp"
## [3825]	"Ethe1"	"Arhgef1"	"Imp3"	"Cc2d1b"
## [3829]	"Mid1ip1"	"Eef1aknmt"	"Daglb"	"Comt"
## [3833]	"Prkag2"	"Plcb2"	"Scamp5"	"Emc8"
## [3837]	"Ctnnbip1"	"Mvb12b"	"Myo7a"	"Ppox"
## [3841]	"Gm13316"	"Rfng"	"Rnf220"	"1190007I07Rik"
## [3845]	"Pop5"	"Rad1"	"Zfp939"	"Bcat2"
## [3849]	"Nthl1"	"Dph7"	"Entpd6"	"Dnase1"
## [3853]	"Qtrt1"	"Fam219b"	"Mrps23"	"Nr2c2ap"
## [3857]	"Actr5"	"Galt"	"Snapc4"	"Gm37145"
## [3861]	"Zfp280c"	"Lipt1"	"Grin2d"	"Rpp21"
## [3865]	"4933437G19Rik"	"F630028010Rik"	"Zfp449"	"Jpx"
## [3869]	"Pagr1a"	"Tons1"	"Dolpp1"	"Slc35c1"
## [3873]	"Cpsf4"	"Smarcd2"	"Bdh1"	"Nlrx1"
## [3877]	"Pars2"	"Pgp"	"BC005537"	"Map3k9"
## [3881]	"Bcl2l12"	"Ppp2r5d"	"Hoxa1"	"Tubb5"
## [3885]	"Dnaaf2"	"Siva1"	"Slc9a5"	"Chad1"
## [3889]	"Ankrd54"	"Stn1"	"Fadd"	"Pex10"
## [3893]	"1700066M21Rik"	"Bag4"	"Proser3"	"Elmo2"
## [3897]	"Pms2"	"Zbtb25"	"Arhgef7"	"Ripor1"
## [3901]	"Hexdc"	"Pacc1"	"Xpo7"	"B3gnt11"
## [3905]	"Ccadc57"	"Gm25047"	"B4galt7"	"Dip2a"
## [3909]	"Foxj3"	"Rbm15b"	"Rita1"	"Snap47"
## [3913]	"Klhl122"	"Orc5"	"Samd10"	"Slc35e4"
## [3917]	"Ntpcr"	"Tep1"	"Sco2"	"Ppp5c"
## [3921]	"Cdkn2aipn1"	"Tmx2"	"Bbs12"	"Fancf"
## [3925]	"Trmt2a"	"Tssc4"	"Usp36"	"Get1"
## [3929]	"Pip4k2b"	"Dagla"	"Ttl"	"Tssk4"
## [3933]	"Ecsit"	"Kcnab2"	"Dis3l"	"Zfp146"
## [3937]	"Actr6"	"Zfp938"	"Smim11"	"Gm42742"
## [3941]	"Tdrkh"	"Gm10651"	"Cdk5rap2"	"Haus2"
## [3945]	"Myo9a"	"Gm10644"	"Rint1"	"Med18"
## [3949]	"Nudt1"	"Aplf"	"Taf5"	"Carnmt1"
## [3953]	"Etv5"	"Gm4798"	"Golm1"	"Mrpl18"
## [3957]	"Zfp948"	"Kras"	"Tmem41b-ps"	"Gpn3"
## [3961]	"Scrn3"	"Cpsf3"	"Pqbp1"	"Kif2a"
## [3965]	"Plekkg3"	"Soga1"	"Gxylt1"	"Ppm1d"
## [3969]	"Coa7"	"Mrpl41"	"Fbxo9"	"Cep250"
## [3973]	"Znym1"	"Akap17b"	"Inpp5f"	"Pja1"
## [3977]	"Gm1966"	"Vdac3-ps1"	"Igfbp5"	"Sod3"

## [3981]	"Col8a1"	"Gm28035"	"Gm45522"	"Gm13339"
## [3985]	"mt-Nd4"	"Cfdp1"	"Gm5611"	"Gm49066"
## [3989]	"Gm6363"	"Gm6937"	"Slc25a2"	"Anxa3"
## [3993]	"Clstn1"	"Dapk1"	"Mapre2"	"Tmem176b"
## [3997]	"Cdk5r1"	"Srsf2"	"Chd5"	"Bank1"
## [4001]	"Tpx2"	"0610039K10Rik"	"Ms4a3"	"Clec9a"
## [4005]	"Fbxo33"	"Pcca"	"Vwa8"	"Gm42829"
## [4009]	"Pts"	"Cyp4f37"	"Triqk"	"Tsku"
## [4013]	"Gm15421"	"S100a9"	"Camp"	"Nfe2"
## [4017]	"Kif7"	"Ripor2"	"Asb8"	"Ctsf"
## [4021]	"Trf"	"Aldh2"	"Man2b1"	"Macrocl1"
## [4025]	"Ctse"	"Aplp2"	"Ephx1"	"Ptms"
## [4029]	"Rab34"	"Lrrc45"	"Lpcat1"	"Mrip-ps"
## [4033]	"Ap1g2"	"Ly6a2"	"Lsp1"	"Acdbd6"
## [4037]	"Gstm5"	"Anapc13"	"Rack1"	"Rps16"
## [4041]	"Rp118a"	"Rp128"	"Rps15"	"Rps19"
## [4045]	"Rp113"	"Rp1p0"	"Rps12"	"Rps4x"
## [4049]	"Prdm11"	"Mfge8"	"Rsu1"	"Chil3"
## [4053]	"Cuedc2"	"Ak1"	"Cep63"	"Sulf2"
## [4057]	"Arhgap15"	"Enpp1"	"Fcrls"	"Gm27194"
## [4061]	"Ltbp3"	"Mprip"	"Gstm7"	"Fubp3"
## [4065]	"Gm44950"	"2310009B15Rik"	"Plcxd1"	"Pdpdpf"
## [4069]	"Ppif"	"Sf1"	"Gm20627"	"Olf658"
## [4073]	"Mfsd9"	"Sema4f"	"Slc16a1"	"Tagap1"
## [4077]	"Bmp10"	"Slfn5os"	"Htra2"	"5033417F24Rik"
## [4081]	"Gm45316"	"Dqx1"	"Gm30083"	"1700120G11Rik"
## [4085]	"Gm6475"	"Gm30613"	"Gm42546"	"Gm6410"
## [4089]	"Tesk1"	"Tusc3"	"Aven"	"Sfpq"
## [4093]	"Fbxw8"	"Pop7"	"Ptpmt1"	"Man2a1"
## [4097]	"Pcdhgb5"	"Gm36684"	"Gtsf2"	"Marcks11"
## [4101]	"Gm15821"	"Pik3r6"	"Sugct"	"Abcc4"
## [4105]	"Gm7115"	"Abhd16a"	"Whrn"	"Msl1312"
## [4109]	"Unk"	"Aar2"	"Mmp28"	"Hivep3"
## [4113]	"Ttc39c"	"4833438C02Rik"	"Gm37305"	"Klf5"
## [4117]	"Rarres1"	"Fhit"	"Pear1"	"Olf1396"
## [4121]	"Etv3"	"Serpine1"	"Chsy3"	"Eml4"
## [4125]	"Plet1"	"Steap4"	"Slc1a6"	"Fam177a"
## [4129]	"Fam177a2"	"Gm47922"	"Gm12187"	"Gm43197"
## [4133]	"Gm49134"	"Slc15a5"	"Gm18301"	"6530409C15Rik"
## [4137]	"Gm42549"	"Shfl"	"Dennd6b"	"Fam241a"
## [4141]	"Gm17017"	"Gm38372"	"A930037H05Rik"	"Gm36043"
## [4145]	"Alpk1"	"Cntnap3"	"Gm44284"	"Tpbpb"
## [4149]	"Gm36723"	"Peg10"	"Rai14"	"Gm26788"
## [4153]	"Zfp105"	"Gm5038"	"1600020E01Rik"	"Crim1"
## [4157]	"Mtres1"	"Entpd4"	"Entpd4b"	"Mios"
## [4161]	"9130008F23Rik"	"Cep295n1"	"Gm9830"	"Gdf3"
## [4165]	"Vill"	"Igha"	"Hba-a1"	"Hba-a2"
## [4169]	"Hbb-bs"	"Hbb-bt"	"Pla2g12a"	"Rnps1"
## [4173]	"Caskin2"	"Rsph3a"	"Pon2"	"Sh3d19"
## [4177]	"Gm13657"	"Zfp943"	"Gm27221"	"Guca1b"
## [4181]	"Gm26510"	"Lrmda"	"Eif3a"	"4930556M19Rik"
## [4185]	"Gm42585"	"9430025C20Rik"	"9930017N22Rik"	"Adgra2"
## [4189]	"Gm13196"	"Blm"	"Gm4870"	"Ccn5"
## [4193]	"Cxc112"	"S1pr4"	"Gm18649"	"Hsd11b1"

## [4197]	"Rab3b"	"Qpct"	"AI506816"	"Gm35572"
## [4201]	"3300005D01Rik"	"Fkbp9"	"Gm49863"	"Gm38021"
## [4205]	"Nck2"	"Celf3"	"Rsph3b"	"Osbpl5"
## [4209]	"Rab44"	"Cxcr2"	"Cbr2"	"Pdlm4"
## [4213]	"S100a8"	"Pacsin3"	"Sh3tc1"	"Rpl31-ps15"
## [4217]	"Rps13-ps4"	"Prg2"	"Tinagl1"	"Gm12751"
## [4221]	"Gm47882"	"Mrfap1"	"Ftl1-ps1"	"Gm43775"
## [4225]	"9530056E24Rik"	"Gm37474"	"Gm37553"	"Gm43162"
## [4229]	"Gm49413"	"4930506C21Rik"	"Gm26520"	"Phax"
## [4233]	"Arhgef18"	"Cyp4f41-ps"	"Mir6999"	"Gm13245"
## [4237]	"Gm37689"	"Gm43201"	"Apcdd1"	"Gm42967"
## [4241]	"Ubash3a"	"Dbt"	"Gm17868"	"Zfp947"
## [4245]	"Gm11574"	"Crispld2"	"Zfp184"	"Carmil3"
## [4249]	"Gm25604"	"C230013L11Rik"	"Gm37397"	"Csf1r"
## [4253]	"Smim1011"	"Gm20707"	"Thy1"	"Tcf12"
## [4257]	"Slk"	"Snx9"	"Gm44949"	"Rbm45"
## [4261]	"Fam126a"	"Pacrg"	"E130311K13Rik"	"Ropn11"
## [4265]	"Cwc22"	"Twistnb"	"Scaf11"	"Wwc2"
## [4269]	"2810410L24Rik"	"Gm34882"	"Gm8991"	"Fn3krp"
## [4273]	"Lamtor2"	"Phtf1"	"Fcho2"	"Klhl9"
## [4277]	"Ramac"	"Zhx1"	"Erich1"	"Gm5547"
## [4281]	"Gm37962"	"Bach1"	"Rnf146"	"Gm10163"
## [4285]	"Gm48161"	"Nsa2"	"Nsa2-ps1"	"Pbx1"
## [4289]	"Iqgap2"	"Gm29562"	"Mamdc2"	"Apoc2"
## [4293]	"Cd48"	"Fbln5"	"Fcna"	"Pdzk1ip1"
## [4297]	"Cd300c"	"Gm37758"	"Ednrb"	"Clec7a"
## [4301]	"Dtnbp1"	"Tom111"	"Gm42566"	"Gm13849"
## [4305]	"Sgip1"	"Tnfsf13"	"2900045020Rik"	"Cdkn1c"
## [4309]	"Mir1892"	"Smad5"	"Srsf5"	"Rnasel"
## [4313]	"Cbfa2t3"	"Mn1"	"Lpin1"	"Sesn1"
## [4317]	"Nat81"	"Cables1"	"Cnrip1"	"Frat2"
## [4321]	"Gpr160"	"Gm26542"	"Asb10"	"D930048N14Rik"
## [4325]	"Glis2"	"Gm16845"	"Ier51"	"Psrc1"
## [4329]	"Thsd1"	"Miga1"	"Vsig10"	"Lrp5"
## [4333]	"Pfkml"	"Cd101"	"Tbc1d4"	"Kank2"
## [4337]	"Ighm"	"Vipr1"	"Gm10762"	"2510016D11Rik"
## [4341]	"Tpcn1"	"Gm5086"	"Gnb5"	"Tmem184c"
## [4345]	"Pdzk1"	"Tbc1d16"	"Zfp422"	"Slco2b1"
## [4349]	"St6gal1"	"2410004P03Rik"	"Kbtbd11"	"Mrvi1"
## [4353]	"Acsf2"	"Man1c1"	"Gm45540"	"Clec2i"
## [4357]	"Hpgd"	"Cbx7"	"Acot1"	"Kctd12b"
## [4361]	"Slc9a3r2"	"5031425F14Rik"	"Fam117a"	"2010008C14Rik"
## [4365]	"Gna12"	"Tbc1d8"	"N4bp3"	"Nynrin"
## [4369]	"Gm15635"	"Myadml2"	"Cercam"	"Nhs12"
## [4373]	"Gm47992"	"Plekhg5"	"Rasgrp2"	"Adamts10"
## [4377]	"Cd79b"	"Sptbn5"	"D630023F18Rik"	"Zbtb22"
## [4381]	"Stab2"	"P3h3"	"Prr33"	"1700001C19Rik"
## [4385]	"Npas1"	"1700008J07Rik"	"4933440N22Rik"	"Hmx2"
## [4389]	"Klf2"	"Ubl3"	"Bbs9"	"Laptm4b"
## [4393]	"Agmo"	"Fam120a"	"Tpp1"	"Fam234a"
## [4397]	"Tprgl"	"Amdhd2"	"Prxl2b"	"Rps6kl1"
## [4401]	"Rtkn"	"Gm6277"	"Pyroxd2"	"Csad"
## [4405]	"Dpp8"	"Wls"	"Matk"	"Lifr"
## [4409]	"Reps2"	"Serinc5"	"Adcy3"	"Hebp1"



## [4413]	"Rgs10"	"Atraid"	"Nfia"	"Dock9"
## [4417]	"Smim13"	"Gpd1"	"Ndst1"	"Lmo2"
## [4421]	"Plxnc1"	"Gm16244"	"Spata1"	"Lrrc66"
## [4425]	"Met125"	"Gm44509"	"Cd93"	"Ncapg2"
## [4429]	"Gm30329"	"Tnfsf13os"	"Kdm5d"	"Zfp746"
## [4433]	"E230016M11Rik"	"Ccl27a"	"Lix11"	"Samd14"
## [4437]	"Mrps21"	"Zkscan8"	"Gm48420"	"Septin1"
## [4441]	"Nos1ap"	"Lrg1"	"Uap111"	"Dpp7"
## [4445]	"Fuom"	"Ascc1"	"Gm26782"	"Tnnt3"
## [4449]	"Cyp39a1"	"Slc14a1"	"Mogat2"	"Itgb21"
## [4453]	"Pik3r1"	"Cpxm1"	"Gm26813"	"Adgre4"
## [4457]	"Zfp300"	"Ndrp2"	"Abcc2"	"G730013B05Rik"
## [4461]	"Nxpe1-ps"	"Scn3b"	"Fzd4"	"Pglyrp1"
## [4465]	"Rflnb"	"Hebp2"	"Sptbn1"	"Ctsg"
## [4469]	"Ltf"	"Mef2a"	"Alox5"	"Ear2"
## [4473]	"Mir1903"	"Oxct1"	"Decr1"	"P2ry12"
## [4477]	"Lrrcc1"	"Sort1"	"Cd177"	"Ephb6"
## [4481]	"Batf3"	"Mta1"	"Bri3bp"	"Nav2"
## [4485]	"Rai1"	"Bid"	"Plekhf1"	"Fbx12"
## [4489]	"Tesmin"	"Nin"	"Osbp110"	"Ttc28"
## [4493]	"Acap1"	"Gm6741"	"Nanp"	"Svip"
## [4497]	"Tspan2"	"Prkacb"	"Ptgs1"	"Slc25a23"
## [4501]	"Rogdi"	"Sptssa"	"Slc13a2"	"Nlrp10"
## [4505]	"Pdp2"	"Prkca"	"Gm14117"	"Proz"
## [4509]	"Tspan5"	"Hspa12b"	"Miip"	"Ppfia4"
## [4513]	"Prr5"	"Bmyc"	"Tpbgl"	"Sigirr"
## [4517]	"Vwa7"	"Fndc10"	"Slc7a4"	"Cln6"
## [4521]	"Vegfb"	"Vash2"	"AI661453"	"Fance"
## [4525]	"Tmem255b"	"Ttyh3"	"Klhl33"	"Lpar5"
## [4529]	"Zfp395"	"Gm10605"	"B3gnt9"	"Bsn"
## [4533]	"Cpped1"	"Marveld1"	"Mfng"	"P2ry1"
## [4537]	"Mpg"	"Thtpa"	"Plxna3"	"Cand2"
## [4541]	"Plekha7"	"Coprs"	"Slc25a15"	"Dnase2a"
## [4545]	"Ccdc22"	"Ccnq"	"Mlycd"	"Hsf4"
## [4549]	"Cacna1a"	"Dusp22"	"Fam110b"	"Pto1"
## [4553]	"Fbx117"	"Syt3"	"Gm10392"	"Npas2"
## [4557]	"Pparg"	"Tmem64"	"C8g"	"Cdc42ep3"
## [4561]	"Hdgfl3"	"Gm33280"	"Scal"	"Tmem121b"
## [4565]	"Nr3c2"	"AL928616.1"	"Gm47567"	"B630019A10Rik"
## [4569]	"Gm4598"	"Gm12353"	"Gm37198"	"Adgrg3"
## [4573]	"Vipr2"	"Gm38220"	"Gm32687"	"Zfp433"
## [4577]	"Dnajb13"	"Adgra3"	"Meioc"	"Trav14d-3-dv8"
## [4581]	"Gm14461"	"Grtp1"	"Stac2"	"Rab12"
## [4585]	"Tnfsfm13"	"5031425E22Rik"	"Mcoln3"	"1700096K18Rik"
## [4589]	"Plxnd1"	"Mpst"	"Zfp219"	"Mroh1"
## [4593]	"Naglu"	"2600006K01Rik"	"A230083G16Rik"	"Dennd11"
## [4597]	"Trpm7"	"Slc37a1"	"Pan2"	"Vsig101"
## [4601]	"Rhobtb2"	"Firme"	"Tmem14a"	"Cspg5"
## [4605]	"Gm26839"	"Gm28370"	"Fgfr11"	"Serpib10"
## [4609]	"Clock"	"Mib1"	"Gm49602"	"Plxna2"
## [4613]	"Pmp22"	"Scp2"	"Selenbp1"	"Selenbp2"
## [4617]	"Arsg"	"Plpp6"	"Adgre5"	"Pink1"
## [4621]	"Pnp1a7"	"Entpd1"	"Serpib6a"	"Gnpda2"
## [4625]	"Arid1b"	"Bcas3"	"Gm45112"	"Cdk5rap1"

## [4629]	"Rere"	"Bckdha"	"Sft2d2"	"Gm47155"
## [4633]	"Porcn"	"Sidt2"	"2310068J16Rik"	"Gm49703"
## [4637]	"Gm12247"	"9530018F02Rik"	"Armc3"	"Cmc1"
## [4641]	"Ebag9"	"Rnf122"	"Scp2-ps2"	"Myo5a"
## [4645]	"Susd1"	"Eif2a"	"Ppp3ca"	"Ciita"
## [4649]	"Fam43a"	"Gm13370"	"Gyg"	"Gm13710"
## [4653]	"Nop53"	"D630033011Rik"	"Gm11100"	"Cat"
## [4657]	"Cox7a21"	"Ramp1"	"Abca9"	"Man2a2"
## [4661]	"Gm15503"	"Pat12"	"Samd4"	"Ak8"
## [4665]	"Icos"	"Sult1a1"	"Gm43667"	"Gm48350"
## [4669]	"Rpl13a"	"Eef2"	"Eif3f"	"Dscam"
## [4673]	"Ndnf"	"B3glct"	"Prxl2a"	"Pros1"
## [4677]	"Cfhr2"	"Cfh"	"Gm16332"	"Acaa2"
## [4681]	"Sdha"	"Satb1"	"Stk11ip"	"Sor11"
## [4685]	"Padi2"	"Plscr4"	"Txndc16"	"Igfbp4"
## [4689]	"Serinc3"	"Ak3"	"Rapsn"	"Als2c1"
## [4693]	"Ggact"	"Tmem191c"	"Lzts2"	"Tmem106c"
## [4697]	"Kcp"	"Ppp1r9a"	"Aplnr"	"Mgl1"
## [4701]	"Gm1673"	"Ltc4s"	"Dtx3"	"1810058I24Rik"
## [4705]	"Laptm5"	"Olfr920"	"Slc6a6"	"Asgr2"
## [4709]	"Atp6v0d2"	"Smim19"	"Cib2"	"Hfe"
## [4713]	"Stab1"	"Trem2"	"Atp1a3"	"Padi4"
## [4717]	"Akt2-ps"	"Man2b2"	"Akt2"	"Gm42517"
## [4721]	"Hexa"	"Timp2"	"Mrc1"	"Gas6"
## [4725]	"Slc9a9"	"Gm15441"	"Gm2a"	"Casp6"
## [4729]	"Hpse"	"Klk1b11"	"Siglech"	"Ccadc152"
## [4733]	"Clec10a"	"Fcgrt"	"Mgl2"	"Msi2"
## [4737]	"Zbtb37"	"Cntn5"	"Usp33"	"Cdiptos"
## [4741]	"F13a1"	"Spin1"	"Cd4"	"Selenop"
## [4745]	"Cd160"	"Mest"	"Vwf"	"Gm12504"
## [4749]	"Gm33699"	"Mrgpra2a"	"Mrgpra2b"	"Hmgn5"
## [4753]	"Sub1"	"Ankrd22"	"Rps3a1"	"Crppa"
## [4757]	"Rps19-ps1"	"Rps19-ps2"	"Gm14614"	"Thg11"
## [4761]	"Gm43712"	"Zfp518a"	"Rpl36a-ps2"	"Gm12816"
## [4765]	"Gm6035"	"Gm12918"	"Rpl12"	"Rpl2211"
## [4769]	"Chil1"	"Fkbp7"	"Gm13341"	"Gm10132"
## [4773]	"Gm10335"	"Epb4115"	"Papss2"	"Gm28437"
## [4777]	"mt-Co3"	"Gm28661"	"mt-Co2"	"Gm10925"
## [4781]	"mt-Atp8"	"Hs3st1"	"Asap2"	"Septin5"
## [4785]	"mt-Cytb"	"mt-Nd2"	"Gm28439"	"mt-Nd41"
## [4789]	"Rpl28-ps1"	"mt-Nd1"	"Gm28438"	"mt-Nd3"
## [4793]	"mt-Atp6"	"mt-Tl1"	"Gm7392"	"Rps26-ps1"
## [4797]	"Rpl3"	"Rpl10a"	"Rpl10a-ps1"	"Gm5879"
## [4801]	"Rpl3-ps1"	"Rpl3-ps2"	"Ppa2"	"Dpy1914"
## [4805]	"Brd9"	"Ndufa4"	"Gng10"	"Rpsa-ps2"
## [4809]	"Rpl14"	"Rps26"	"Omg"	"Dek"
## [4813]	"Vcl"	"Pmvk"	"Arhgap11a"	"H2az1"
## [4817]	"Snrgp"	"Slc39a8"	"Lgr4"	"Siah1b"
## [4821]	"Mamld1"	"Atp11c"	"Atp13a3"	"Rdx"
## [4825]	"Gm13502"	"Idi1"	"Hsd17b7"	"Lrrc8b"
## [4829]	"Srebf2"	"Klrb1f"	"C330007P06Rik"	"Gm13340"
## [4833]	"1700019D03Rik"	"Bmp2"	"Pex7"	"Rcbtb1"
## [4837]	"Syne2"	"Zbtb8a"	"Map3k5"	"Pdlm5"
## [4841]	"Ldlrad4"	"Col15a1"	"H1f2"	"Samd5"

## [4845]	"Nrip1"	"Ppargc1b"	"Gm44429"	"Ddx3x"
## [4849]	"Herc1"	"6430571L13Rik"	"Rsbni1"	"Rps11-ps1"
## [4853]	"Stfa2l1"	"Gm10036"	"Gm8172"	"Rpl5-ps1"
## [4857]	"Tnfrsf13b"	"Rpl27a"	"Rps8"	"Rpl11"
## [4861]	"Rps6-ps4"	"Arhgef17"	"Slc35a3"	"Hnrnph1"
## [4865]	"Ncl1"	"Gm14494"	"Impad1"	"Npm1"
## [4869]	"Tnik"	"Gprc5c"	"Igf1r"	"Rhbd1f1"
## [4873]	"Gm17828"	"Gm13456"	"Rpl23a"	"Rpl30"
## [4877]	"Rps16-ps2"	"Eef1a1"	"Rpl7"	"Rpl6"
## [4881]	"Rpl7a"	"Gm15427"	"Rps28"	"Rps17"
## [4885]	"Rpl32"	"Rps7"	"Gm6252"	"Rps7-ps3"
## [4889]	"Gm13680"	"Rpl36a"	"Zdhhc20"	"Uqcrh"
## [4893]	"Gm15772"	"Rpl26"	"Prom1"	"Zfp326"
## [4897]	"Gm10297"	"Gm34144"	"2510017J16Rik"	"Rps12-ps4"
## [4901]	"Adcy5"	"Gm5242"	"Rdh16f1"	"Ccadc88c"
## [4905]	"mt-Tt"	"Hmgcs1"	"Rgs7bp"	"Arap2"
## [4909]	"Insig1"	"Hnrnpl1"	"Jcad"	"Cyp51"
## [4913]	"Gm28875"	"Ldlr"	"Sc5d"	"Champ1"
## [4917]	"Dicer1"	"Tanc1"	"Fgd1"	"Gm43272"
## [4921]	"Smco4"	"Ankrd13b"	"Hnrnpa0"	"Dhx35"
## [4925]	"Arap3"	"Plpp2"	"Gm336"	"Dnajc27"
## [4929]	"C630043F03Rik"	"Slc20a2"	"Ctcf"	"Pds5b"
## [4933]	"Sephs1"	"Fdft1"	"Sqle"	"Rif1"
## [4937]	"Dhx37"	"Kti12"	"Ankrd28"	"Clnd34c1"
## [4941]	"Gm29257"	"Gm37254"	"Tceal9"	"Cyp2j9"
## [4945]	"Mgam"	"Med17"	"Ndufb5"	"Qk"
## [4949]	"Sh3pxd2a"	"Naca"	"Pyurf"	"Dtd2"
## [4953]	"Elp1"	"Mrps9"	"Kit"	"Enc1"
## [4957]	"Hhex"	"Gm5835"	"Eif3e"	"Rpl4"
## [4961]	"Gm6863"	"Dnmt3b"	"Rin3"	"Nedd41"
## [4965]	"Pacs1"	"Fbxl3"	"Rpl28-ps3"	"Eif3h"
## [4969]	"Eef1b2"	"Rpl5"	"Gsto1"	"Eif3k"
## [4973]	"Rpl22"	"Rpl37"	"Rps11"	"Cd33"
## [4977]	"Zmynd11"	"Pigp"	"Bcl7c"	"Fam91a1"
## [4981]	"Man1a"	"Mtmr1"	"Dock3"	"Rab19"
## [4985]	"Zfp961"	"Gm38227"	"Ccadc148"	"Ptpro"
## [4989]	"Snhg8"	"Cdc16"	"Ptpn4"	"Mctp1"
## [4993]	"Sepsecs"	"Trmt6"	"Usp46"	"Adss"
## [4997]	"Maml3"	"Txnrd3"	"Mmd"	"Trub1"
## [5001]	"Lratd2"	"Mbtps2"	"Reep3"	"Sbf2"
## [5005]	"Trmt11"	"Degs1"	"Stambp11"	"Map4k5"
## [5009]	"O610010F05Rik"	"Prps113"	"Map3k7"	"Pbrm1"
## [5013]	"Pank3"	"Prkd3"	"Tmem135"	"Gm38345"
## [5017]	"Gm14698"	"Rbm28"	"Gm14681"	"Opa1"
## [5021]	"Dnajc8"	"Denn2b"	"Dipk1a"	"Asap1"
## [5025]	"Ankrd44"	"Tsc22d1"	"Ddx46"	"Manea"
## [5029]	"C130083M11Rik"	"Gm8546"	"Ndufaf2"	"Ylpm1"
## [5033]	"Supt16"	"Hnrnpr"	"Matr3"	"Gm6159"
## [5037]	"Glr3"	"Cetn3"	"Htatsf1"	"Gm5809"
## [5041]	"Ranbp17"	"Gm9118"	"Trim68"	"Lbx2"
## [5045]	"Mir5116"	"Tomm20"	"Yeats4"	"Akt1"
## [5049]	"Pde4a"	"Gm13375"	"Gsn"	"Atp5g2"
## [5053]	"Vkorc1"	"Abca2"	"Arl2bp"	"Nudt21"
## [5057]	"Ank"	"Slc29a1"	"Nudt14"	"Aldh16a1"

## [5061]	"Ndufb11"	"Chchd10"	"Slc25a1"	"Wasf1"
## [5065]	"Fdx1"	"Isoc2a"	"Slc22a15"	"Npepl1"
## [5069]	"Sun2"	"Fundc2"	"Rpsa"	"Rpsa-ps10"
## [5073]	"Pard3b"	"Rdm1"	"Tnni2"	"Cd300lg"
## [5077]	"Chn2"	"Gm5596"	"Rgs12"	"Bhlhb9"
## [5081]	"Ulbp1"	"Il12rb2"	"Ldhb"	"Bex3"
## [5085]	"Fam92a"	"Acat1"	"Dhrs4"	"Csrp2"
## [5089]	"Fanc1"	"Slc25a4"	"Tmcc1"	"Dennd2d"
## [5093]	"Galnt1"	"Nde1"	"Prpf8"	"Fahd2a"
## [5097]	"Prrg1"	"Egfl7"	"Serpinf1"	"Tmsb151"
## [5101]	"Akr1b3"	"Gm12138"	"Gm38056"	"Dbi"
## [5105]	"S100a4"	"Ptrhd1"	"Gm37416"	"B4galt4"
## [5109]	"Crip1"	"Nmb"	"Rhoj"	"Abcb1b"
## [5113]	"Ilk"	"Nbdy"	"Cox6b2"	"Copz2"
## [5117]	"Gm7967"	"Aipl1"	"Espn"	"Gchfr"
## [5121]	"Itm2a"	"Rnaseh2b"	"Tmtc4"	"Cdkn2a"
## [5125]	"Gm7862"	"H2-0b"	"Olfm4"	"Tgfbr3"
## [5129]	"Gm9616"	"Gm48226"	"Rps12-ps3"	"Arpp19"
## [5133]	"Abi2"	"Abcg2"	"Ngp"	"Egfr"
## [5137]	"Ckap4"	"Maged1"	"Heca"	"Rasd2"
## [5141]	"Gm4833"	"Reck"	"Gm15163"	"Prdm5"
## [5145]	"Rps2"	"Gatd3a"	"Rcsd1"	"Gm29156"
## [5149]	"Slain1"	"Edem1"	"Arhgap29"	"Larp7"
## [5153]	"Mpp6"	"Gm17082"	"H2ac6"	"Bicd1"
## [5157]	"Gm19161"	"Gm5641"	"Gm7551"	"Gm6793"
## [5161]	"Hnrnpa3"	"Rpsa-ps9"	"Gm19209"	"Snrpe"
## [5165]	"Gtf2a2"	"Prodh"	"Maoa"	"Suc1g2"
## [5169]	"Atr"	"Nedd1"	"Ak6"	"Gtpbp10"
## [5173]	"Gm13237"	"Gm13160"	"Gm13167"	"Gm13232"
## [5177]	"Gm4739"	"Hmgb2"	"Atpif1"	"Cenpe"
## [5181]	"Lsm5"	"Stau2"	"Fdps"	"Gm3571"
## [5185]	"Gm1976"	"Taf9-ps"	"Dkc1"	"Nudcd2"
## [5189]	"Apex1"	"Uck2"	"Ndufs8"	"Slc35f3"
## [5193]	"Pabpc4"	"Smyd2"	"C1qbp"	"Npm3"
## [5197]	"Impdh2"	"Prpf19"	"Rcc2"	"Gm49223"
## [5201]	"Fkbp3"	"Hddc2"	"Rnaseh2c"	"Adk"
## [5205]	"Uchl3"	"Itgb3bp"	"Ttc21b"	"Mdh1"
## [5209]	"Septin6"	"Nxt2"	"Stat4"	"Lpl"
## [5213]	"Uggt1"	"Qdpr"	"Slc25a13"	"Tkt"
## [5217]	"Cenpx"	"Tecn"	"Gstk1"	"Gm10175"
## [5221]	"Gm10231"	"Atp2a3"	"Cryl1"	"Ccadc18"
## [5225]	"2810025M15Rik"	"Haus1"	"Mki67"	"Ccnb1-ps"
## [5229]	"Ccnb2"	"Cdkn3"	"Ube2c"	"Ccnb1"
## [5233]	"Cep55"	"Phpt1"	"Anapc15"	"Ckap21"
## [5237]	"Hmgn1"	"Hmgn2-ps1"	"Gm10282"	"Gm7931"
## [5241]	"Adarb2"	"Gm10182"	"Myl2"	"Pir"
## [5245]	"Pitpnm2"	"Fads3"	"Myb"	"Nhs11"
## [5249]	"Ada"	"Anp32e"	"Gm18194"	"Gm38574"
## [5253]	"Gmds"	"Nucks1"	"Mast1"	"Eme1"
## [5257]	"Oip5"	"Hmgn2"	"Spata24"	"Snrnp25"
## [5261]	"9330182L06Rik"	"Diaph3"	"Kif4"	"Arse"
## [5265]	"Polq"	"Ddias"	"Rad51"	"Plk4"
## [5269]	"Rad51ap1"	"Tacc3"	"Zwilch"	"4930558J18Rik"
## [5273]	"Rad54b"	"Bard1"	"Rbbp7"	"Gm13523"

## [5277]	"Cox20"	"Gm17200"	"Gm4045"	"Gm6981"
## [5281]	"Gm6776"	"Degs2"	"AC125149.3"	"Stat1"
## [5285]	"1700071M16Rik"	"Rftn1"	"Mir6953"	"Gm19684"
## [5289]	"Gm7160"	"1810037I17Rik"	"Spcs1"	"Trim6"
## [5293]	"Bpifc"	"Unc50"	"Smarcb1"	"Atp5b"
## [5297]	"Cct7"	"Cox5b"	"Cox7a2"	"Pcsk5"
## [5301]	"Eif5a"	"Ybx3"	"Bnip1"	"Cct3"
## [5305]	"Cct8"	"Prpf31"	"Timm23"	"Chchd7"
## [5309]	"Cox7c"	"Gm12338"	"1700011B04Rik"	"AA414768"
## [5313]	"Atp5pb"	"2700062C07Rik"	"Ercc1"	"Tdgf1-ps1"
## [5317]	"Foxred1"	"Piwil4"	"Mrpl53"	"Gpr85"
## [5321]	"H2-M2"	"Tlr6"	"Rasgrp1"	"Eml2"
## [5325]	"Gsap"	"AI662270"	"Gm20257"	"Gm43068"
## [5329]	"Uxt"	"Nsfl1c"	"Magohb"	"Cbwd1"
## [5333]	"Dnm11"	"Thumpd3"	"C330018D20Rik"	"Ocr1"
## [5337]	"Gm5521"	"Rbm8a"	"Eloc"	"Uqcrb"
## [5341]	"Atp2a2"	"Erap1"	"Pmpca"	"Ube2n"
## [5345]	"Ube2n-ps1"	"Slc7a7"	"Exosc3"	"Kctd5"
## [5349]	"Plrg1"	"Mrpl46"	"Caprin1"	"Ptpn11"
## [5353]	"Ints4"	"Mtor"	"Cr11"	"Tm2d1"
## [5357]	"Gm5578"	"Btaf1"	"Synj2bp"	"Fam122a"
## [5361]	"Polr2c"	"Dedd"	"Eloa"	"Ptprc"
## [5365]	"Klhl18"	"Med6"	"Med31"	"Tmem30a"
## [5369]	"Usp15"	"2310043P16Rik"	"Tgfbr31"	"Cops9"
## [5373]	"Poll"	"Igsf9"	"Mcat"	"4930471E15Rik"
## [5377]	"Gm44427"	"1700012B09Rik"	"Ublcp1"	"Gm28347"
## [5381]	"Kalrn"	"Sectm1a"	"Chrna5"	"Gm15990"
## [5385]	"Polr2g"	"Ppm1n"	"Txk"	"2500002B13Rik"
## [5389]	"Gm16181"	"H1f10"	"Cbr4"	"Stox2"
## [5393]	"Cdh1"	"Gm23450"	"Jazf1"	"Timeless"
## [5397]	"Gm15953"	"Itk"	"Myo1d"	"Gm11998"
## [5401]	"Gpr15"	"Gm15247"	"Lcor"	"Carmil1"
## [5405]	"Mtpn"	"Adhfe1"	"Rbm3-ps"	"Slc39a2"
## [5409]	"Gpsm2"	"Asf1a"	"Dcbld2"	"Nt5c1a"
## [5413]	"Tmem192"	"A530032D15Rik"	"Gm7809"	"Gm7598"
## [5417]	"Gm11999"	"Rpl9-ps1"	"Cfap54"	"Gm11578"
## [5421]	"Gm27671"	"Tbc1d22b"	"Adck1"	"Gm8641"
## [5425]	"4833419F23Rik"	"Phf2011"	"Gm4841"	"Iigp1"
## [5429]	"Rnf4"	"Lap3"	"Sgcb"	"Bcl9"
## [5433]	"Dnajc13"	"Gm37960"	"Apol10b"	"Ifitm10"
## [5437]	"Gm8463"	"Tmprss2"	"Trim12c"	"Coq2"
## [5441]	"Mir24-1"	"Ust"	"1110004F10Rik"	"H60b"
## [5445]	"Adora3"	"Gm38275"	"Gm6829"	"Abhd13"
## [5449]	"Fpgt"	"Gm28041"	"Trappc13"	"Adam9"
## [5453]	"Trib1"	"Pofut2"	"Rpl711"	"Isca2"
## [5457]	"Prkaa1"	"Eif6"	"Tapt1"	"Gm24060"
## [5461]	"Gm12854"	"Gm7665"	"Gm11224"	"Plekhg4"
## [5465]	"Ssr4"	"Yif1a"	"Eef1akmt4"	"Ndufaf1"
## [5469]	"Miga2"	"Sap18b"	"E2f4"	"Tmem185b"
## [5473]	"Mrpl20"	"Clptm11"	"Emc4"	"Gm18679"
## [5477]	"Slfn10-ps"	"Enox1"	"Gtf2h3"	"Hemk1"
## [5481]	"Rab4b"	"Rft1"	"Gm14051"	"Top3b"
## [5485]	"Znrd1"	"Cox17"	"Itprlp12"	"Leprot11"
## [5489]	"Mrpl44"	"Kbtbd7"	"Irak2"	"Tbrg1"

## [5493]	"Xaf1"	"Gm10177"	"Pigl"	"Sar1b"
## [5497]	"Ndufs3"	"Isclu"	"Acsl5"	"Xylt2"
## [5501]	"Atp5md"	"Psmc7"	"Cnih4"	"Psmc4"
## [5505]	"Meis3"	"Gm6733"	"Ctso"	"Gm39556"
## [5509]	"Gm20412"	"Csn1s1"	"Gm2541"	"Gm28177"
## [5513]	"Gm10941"	"Gm26756"	"Gm9892"	"Gm11993"
## [5517]	"Rps7-ps2"	"Gm15337"	"Lrrfip2"	"Sqstm1"
## [5521]	"Clasp1"	"Pcmt1"	"Zfp9"	"4930512H18Rik"
## [5525]	"AC132444.5"	"AC132444.1"	"C130026I21Rik"	"Gm16026"
## [5529]	"Gm23722"	"Zfyve16"	"Usp32"	"Taok1"
## [5533]	"Wac"	"Taok3"	"Ppp4r3a"	"Rbm27"
## [5537]	"Ddit4"	"Msl2"	"Mreg"	"Rnf214"
## [5541]	"Khdc4"	"Mex3c"	"Phlda1"	"Chd7"
## [5545]	"Sptlc2"	"Lamc1"	"Cyth1"	"Lilrb4a"
## [5549]	"Gm49339"	"Lgals8"	"Hectd1"	"Rsrc2"
## [5553]	"Nupr1"	"Bdp1"	"Ythdc1"	"Rnf11"
## [5557]	"Baz1a"	"Mtmr6"	"Pxx"	"Bud13"
## [5561]	"Immt"	"Mrps22"	"Mthfd2"	"Zfp330"
## [5565]	"Cops5"	"Ngdn"	"Bclaf1"	"Sec63"
## [5569]	"Septin7"	"Stk3"	"Nae1"	"Zfp407"
## [5573]	"Csde1"	"Strn3"	"Mob4"	"Eif2s2"
## [5577]	"Snrrnp35"	"Gcc1"	"Gm6039"	"Snrw1"
## [5581]	"Ppp4r2"	"Gm20784"	"Gm21378"	"Abhd16b"
## [5585]	"Nsrrp1"	"Ppig"	"Otud7a"	"Zfp429"
## [5589]	"Gm10634"	"Zfp819"	"4930579C12Rik"	"Synpo2"
## [5593]	"Fndc7"	"Cntrl"	"Gm2396"	"Gm37975"
## [5597]	"4930440I19Rik"	"Smpdl3b"	"Senp8"	"Smim8"
## [5601]	"Hk1"	"Gm15133"	"Gbp8"	"Gbp11"
## [5605]	"Gbp6"	"BC147527"	"Tmcc3"	"Dpys12"
## [5609]	"Zfp719"	"Mecp2"	"Rbms2"	"Rnf19b"
## [5613]	"Stxbp3"	"Gbp4"	"Gbp9"	"Ifit1b11"
## [5617]	"Cysltr2"	"Gm45418"	"Crem"	"Kdr"
## [5621]	"Pls3"	"Pou3f1"	"Smg1"	"Ube2w"
## [5625]	"Snrrnp27"	"Zcrb1"	"Mrpl32"	"Trappc6b"
## [5629]	"Braf"	"Swt1"	"Fbxo38"	"Gggs1"
## [5633]	"Gtpbp2"	"Rnf145"	"BC051226"	"Slc30a9"
## [5637]	"Atg4d"	"Zdhhc5"	"Vps37c"	"Wipf2"
## [5641]	"Adamts6"	"Akap6"	"Sec23a"	"Pfkp"
## [5645]	"Rsbn1"	"Rabl3"	"Ccl7"	"Necap1"
## [5649]	"Znrd1as"	"Ppp2r3c"	"Ccl2"	"Ghitm"
## [5653]	"Cdk12"	"Fbxo42"	"Gbbp111"	"Zfp260"
## [5657]	"Pkp2"	"Gm10752"	"Gsto2"	"Asns"
## [5661]	"Them4"	"Fam167a"	"Gramd3"	"Gm15832"
## [5665]	"Gm7135"	"Gm13835"	"9130230L23Rik"	"AC133103.3"
## [5669]	"Orc4"	"Tcea1-ps1"	"Ccl12"	"Hspa5"
## [5673]	"Clp1"	"Coro2a"	"Stxbp1"	"Atxn711"
## [5677]	"Ccz1"	"Cbl11"	"Prdm4"	"Anxa4"
## [5681]	"Med10"	"Ier5"	"Lilr4b"	"Golp3"
## [5685]	"Crebbp"	"Sik3"	"1810062018Rik"	"Med12"
## [5689]	"Gm12970"	"Mmp13"	"Tirap"	"Amer2"
## [5693]	"Fgd6"	"Etohd2"	"Urah"	"Cln3"
## [5697]	"H2aw"	"Cdc42bpb"	"Stard7"	"Xbp1"
## [5701]	"Tmigd3"	"Heatr6"	"Itpk1"	"Clec2d"
## [5705]	"Atp9b"	"Gm46224"	"Ctdnep1"	"Gm12026"

## [5709]	"Pigm"	"Elfn1"	"Errfi1"	"Pum1"
## [5713]	"Tle4"	"Gm49037"	"Mapk6"	"Il10"
## [5717]	"Il33"	"Obsl1"	"Tiam1"	"Foxf1"
## [5721]	"Noct"	"Olr1"	"Stat5a"	"Tle3"
## [5725]	"Arhgap26"	"Bcl11a"	"Epb4114b"	"Osmr"
## [5729]	"Selp"	"Gja1"	"Pdgfa"	"Sphk1"
## [5733]	"Cnn3"	"Creb311"	"Klk9"	"Mapk11"
## [5737]	"Tha1"	"Tmem243"	"Plcb3"	"Foxp4"
## [5741]	"Src"	"Nkain1"	"Gm45774"	"Atp11a"
## [5745]	"Flt1"	"Camk2n1"	"Rcan1"	"Tnfrsf12a"
## [5749]	"Mylk2"	"Rhou"	"Il17ra"	"Ezr"
## [5753]	"Slc45a3"	"Gm9484"	"Gem"	"Plekha5"
## [5757]	"Cul3"	"Ppp1r12a"	"Rab5a"	"Slc26a9"
## [5761]	"Smndc1"	"Dusp14"	"Gm20234"	"Jarid2"
## [5765]	"N4bp212"	"Wdr44"	"Man1a2"	"Atxn7"
## [5769]	"Plpp3"	"Ptch1"	"Ktn1"	"Gpr132"
## [5773]	"Mir221"	"Tiparp"	"Ifi207"	"Jak2"
## [5777]	"Mier3"	"Whamm"	"Tent5a"	"Irf2"
## [5781]	"Usp42"	"Rin2"	"Trim30c"	"Bcl6"
## [5785]	"Cnep1r1"	"Gm14636"	"Zfp281"	"Susd6"
## [5789]	"Dgkh"	"Ncoa5"	"Socs3"	"a"
## [5793]	"Slc7a15"	"Il1rap11"	"Sntg1"	"Hk2"
## [5797]	"Nod1"	"Ankrd13c"	"Kat6a"	"Dyrk2"
## [5801]	"Abi1"	"Dlgap4"	"Abi3bp"	"Abhd17b"
## [5805]	"Rybp-ps"	"Abhd2"	"Rnf213"	"Ccdc711"
## [5809]	"Tmem128"	"Coq10b"	"Irf5"	"Ptcd1"
## [5813]	"Rtp4"	"Ube2f"	"Adar"	"Znfx1"
## [5817]	"Akap13"	"Ints12"	"Slc7a11"	"Gm13822"
## [5821]	"Hrh2"	"Srgn"	"Arid5b"	"Lims1"
## [5825]	"Morrbid"	"Traf2"	"Cd164"	"Homer1"
## [5829]	"Rbms1"	"Dennd1b"	"Pkn2"	"Saria"
## [5833]	"Morc3"	"Pgs1"	"Lats1"	"Tmem248"
## [5837]	"Appbp2"	"Piezo1"	"Ugcg"	"Gm7099"
## [5841]	"Lag3"	"Gm44751"	"Sf3b6"	"Gm11787"
## [5845]	"G3bp2"	"Lyn"	"Slc30a7"	"Atg1611"
## [5849]	"Srgap2"	"Ankle2"	"Ssr3"	"Rgs14"
## [5853]	"Sec23b"	"Map4"	"Triobp"	"Ankrd40"
## [5857]	"Tmem50b"	"Gm22396"	"Gm48990"	"Brox"
## [5861]	"Gnai3"	"Crkl"	"B4galt5"	"Ist1"
## [5865]	"Fos12"	"Vapa"	"Gm2427"	"Ppp6c"
## [5869]	"Pafah1b2"	"Pak2"	"Luzp1"	"Capza2"
## [5873]	"Rap1b"	"Dmtf1"	"Eapp"	"Gpr158"
## [5877]	"Mul1"	"Fyttd1"	"Kif5b"	"Arid4a"
## [5881]	"Fxr1"	"Gm49774"	"Hipk2"	"Creb5"
## [5885]	"Zcchc2"	"2810047C21Rik1"	"Gm20482"	"Gm45351"
## [5889]	"Klf6"	"Med7"	"Dcun1d3"	"Zeb2"
## [5893]	"Gm26801"	"Gm16378"	"Gm10157"	"Gm44705"
## [5897]	"Gm47248"	"Trim34a"	"Trim34b"	"B230307C23Rik"
## [5901]	"Trim30d"	"Plaur"	"Rbm12b2"	"Amn1"
## [5905]	"Rbm12b1"	"Cnksr1"	"Api5"	"Arid1a"
## [5909]	"Cox18"	"Stard3n1"	"Chtop"	"Riox2"
## [5913]	"Slc30a6"	"Trim14"	"Tlr3"	"Tmem67"
## [5917]	"Fbxw11"	"Fam53c"	"Lrch3"	"Usp25"
## [5921]	"Gm8388"	"F11r"	"Wdr37"	"Atad2b"

## [5925]	"Batf2"	"Gm37486"	"Gm9845"	"H3f3b"
## [5929]	"AC133103.7"	"AC132444.2"	"AC132444.4"	"AC133103.6"
## [5933]	"Cnot7"	"Slc23a2"	"Azi2"	"Ifit3"
## [5937]	"Gm8995"	"Tut7"	"N4bp1"	"Mitd1"
## [5941]	"Parp8"	"Mitf"	"Birc3"	"Pstpip2"
## [5945]	"Trim12a"	"Plekha2"	"Skil"	"Pip5k1a"
## [5949]	"Cggbp1"	"Pcgf3"	"Gm4070"	"Gvin1"
## [5953]	"Gm5431"	"Igtf"	"Slfn8"	"Cep350"
## [5957]	"Gm8989"	"Dtx31"	"Zc3hav1"	"Dram1"
## [5961]	"Mapk9"	"Slc25a22"	"Arf4"	"Max"
## [5965]	"Tox4"	"Gadd45b"	"Aida"	"Itpkb"
## [5969]	"Zfp207"	"Cd40"	"Rab11fip1"	"Gm42547"
## [5973]	"Ttc9c"	"Poldip3"	"Gch1"	"Parp12"
## [5977]	"Gbp3"	"Vcan"	"Stat3"	"Arhgef12"
## [5981]	"Car13"	"Traf1"	"9130208D14Rik"	"AC125149.2"
## [5985]	"Gm14253"	"Usp9x"	"Prpf38a"	"Rars"
## [5989]	"Mmadhc"	"Ppp2r2a"	"Ints8"	"Kars"
## [5993]	"Fyc1"	"Mrpl39"	"4933432I03Rik"	"Keap1"
## [5997]	"Rapgef2"	"Traf1"	"Tank"	"Ddx60"
## [6001]	"Ptgs2os2"	"Aftph"	"Casp8"	"Tdrd7"
## [6005]	"Rab21"	"Yme1l1"	"Bloc1s6"	"AC125149.1"
## [6009]	"Usp18"	"Pml"	"Cd47"	"Ddx58"
## [6013]	"Kat2b"	"BC023105"	"Ifi203-ps"	"Mir155"
## [6017]	"Mx1"	"Nlrc5"	"Ambra1"	"Usp38"
## [6021]	"Golga3"	"Pdcd10"	"Tmod3"	"Yipf6"
## [6025]	"Sec23ip"	"Themis2"	"Gm8613"	"Rc3h2"
## [6029]	"Apaf1"	"Mbnl2"	"Prrc2c"	"Mxd1"
## [6033]	"Nos2"	"Gm44292"	"Spen"	"Atp11b"
## [6037]	"P2ry14"	"Nudt13"	"Psme2b"	"Plod2"
## [6041]	"Ccn11"	"Mx2"	"Eif2ak2"	"Rgcc"
## [6045]	"Gm10553"	"AC133103.1"	"A530040E14Rik"	"Gm10552"
## [6049]	"Zfp319"	"Csrnp1"	"Gm18852"	"Gm18853"
## [6053]	"Tbk1"	"Erich2os"	"AW011738"	"Gm20559"
## [6057]	"Gm5823"	"Gm8752"	"Gbp7"	"Gm9706"
## [6061]	"Ift43"	"Heatr9"	"Olf1r56"	"Apba1"
## [6065]	"Fbh1"	"9130230N09Rik"	"Gpatch2"	"Epc1"
## [6069]	"Gm14140"	"C9orf72"	"Gm7229"	"Selenot-ps"
## [6073]	"Dck"	"Ccnyl1"	"Tmem171"	"Pi4k2a"
## [6077]	"Prkx"	"Samhd1"	"Slc11a2"	"Ap3b1"
## [6081]	"Ube2d3"	"Ifi205"	"Csnk1a1"	"Nab1"
## [6085]	"Gm50083"	"Tma16"	"Abr"	"Gbp2"
## [6089]	"Msn"	"Pdzd11"	"Psma5"	"Myl12a"
## [6093]	"Lrrc59"	"Ywhae"	"AC125149.4"	"Il18"
## [6097]	"AC125149.5"	"AC132444.3"	"Nmi"	"Actr3"
## [6101]	"Cmtr1"	"Rpe"	"I830077J02Rik"	"CAAA01098150.1"
## [6105]	"Gm15753"	"Rnf135"	"Cab391"	"Gm5345"
## [6109]	"4933412E12Rik"	"AC168977.1"	"Sp110"	"Gm12764"
## [6113]	"Tgtp1"	"Tgtp2"	"AC133103.4"	"Sass6"
## [6117]	"Zfp513"	"Dhx58"	"Trim30a"	"Helz2"
## [6121]	"Tap1"	"Tor1aip2"	"Tor3a"	"Vta1"
## [6125]	"Maip1"	"Tmed5"	"Polr3c"	"Scfd1"
## [6129]	"Gm14287"	"Gm4202"	"Ywhaz"	"Ppa1"
## [6133]	"Aldh1b1"	"Actr2"	"Selenot"	"Sema4d"
## [6137]	"Lrrc63"	"4930599N23Rik"	"Parp10"	"AC167036.2"



## [6141]	"Ifi204"	"Ifi209"	"Ifi211"	"Ifi214"
## [6145]	"Ap3m2"	"Rnf114"	"Stat2"	"Gm7730"
## [6149]	"Tes"	"Rab18"	"Trim25"	"Trim30b"
## [6153]	"Brd2"	"Cd274"	"Nrp2"	"F8"
## [6157]	"Gpbp1"	"Naip6"	"Oas1b"	"Stom11"
## [6161]	"Kcnh4"	"Idnk"	"Tm9sf4"	"Gm17435"
## [6165]	"Gm26797"	"Stx16"	"Rasa4"	"Hook2"
## [6169]	"Otud5"	"Phf11c"	"Pnp2"	"App"
## [6173]	"Rhoc"	"Slc25a37"	"Tnfrsf1b"	"Insl6"
## [6177]	"Cybb"	"Mfap31"	"Dnajc1"	"Fabp7"
## [6181]	"Slc39a1"	"Slc39a1-ps"	"Mtm1"	"Stk19"
## [6185]	"9430034N14Rik"	"Zc3h11a"	"Snapc1"	"Top1"
## [6189]	"Hif1a"	"Srsf11"	"Vezt"	"Rbm39"
## [6193]	"Tnip2"	"Ism1"	"Tdgf1"	"Gm16933"
## [6197]	"Gm45359"	"Mettl5"	"Mindy3"	"Vrk2"
## [6201]	"B4galt3"	"Rptor"	"Lnpep"	"Galnt7"
## [6205]	"Tmem39a"	"Lrrfip1"	"Wbp4"	"8030462N17Rik"
## [6209]	"Sertad2"	"Fam133b"	"Spag9"	"Cdv3"
## [6213]	"Eif3j1"	"Klf7"	"Sptan1"	"Ubxn2a"
## [6217]	"Pim1"	"Tnfsf4"	"Arhgap28"	"Fzd1"
## [6221]	"Gm44013"	"Srgap1"	"A030001D20Rik"	"Fam83c"
## [6225]	"Nrip3"	"Gm27995"	"Gm5555"	"1700023B13Rik"
## [6229]	"Kdm4a"	"Fscn1"	"Ift57"	"Ppp1cb"
## [6233]	"Gm15478"	"Shisa3"	"Anapc10"	"Bcl2a1b"
## [6237]	"Nudt9"	"Crbn"	"Nub1"	"Sh3bp4"
## [6241]	"Yju2"	"Sbds"	"Ccnd2"	"Dld"
## [6245]	"Dnajb6"	"Gpr153"	"Malsu1"	"Gm14023"
## [6249]	"Gopc"	"Garem2"	"Sh3d21"	"Ciapin1"
## [6253]	"Gm37545"	"Pdgfrb"	"Tmem266"	"Grhl1"
## [6257]	"Tshz1"	"Icam1"	"Rgs16"	"Reps1"
## [6261]	"Il1a"	"Zhx2"	"Il1bos"	"Pdgbf"
## [6265]	"Nck1"	"Sele"	"Gm10425"	"Tnfaip2"
## [6269]	"Map3k6"	"Cdkn1a"	"Pcdh7"	"9330154J02Rik"
## [6273]	"Tex12"	"Il20rb"	"Tmem132e"	"Fat2"
## [6277]	"Mtdh"	"Macc1"	"Tnf"	"Grm5"
## [6281]	"Il6"	"Nr4a3"	"Kcna7"	"Icam5"
## [6285]	"Pwp1"	"Gm20655"	"Hoxb2"	"Efna2"
## [6289]	"Inava"	"Pakap"	"Plat"	"Adamts4"
## [6293]	"Etnk2"	"Senp1"	"Gm11843"	"Ifi202b"
## [6297]	"Gm27494"	"Gm38357"	"Gm2238"	"Gng4"
## [6301]	"Mt2"	"E2f5"	"Mrgbp"	"Slc39a14"
## [6305]	"Col27a1"	"Rcl1"	"Tmem200b"	"Gm10125"
## [6309]	"Tlnrd1"	"Cd44"	"9030624G23Rik"	"D1Ert622e"
## [6313]	"Ifit1"	"Trim26"	"Nxf1"	"Gm9847"
## [6317]	"Ubash3b"	"Slc25a28"	"Aen"	"Pak1ip1"
## [6321]	"Fbxw7"	"Gmeb2"	"Vopp1"	"Col19a1"
## [6325]	"Gm12188"	"Septin10"	"Gm19144"	"Has1"
## [6329]	"Gm44148"	"Msh5"	"Il34"	"Ppef2"
## [6333]	"Cc2d2a"	"Nfyb"	"Cpt1a"	"Tnks1bp1"
## [6337]	"Rdh10"	"Gm42635"	"Nipal1"	"Usp43"
## [6341]	"Cobll1"	"Gm14608"	"Gm12928"	"Hoxb5"
## [6345]	"Cwf1912"	"Kctd12"	"Mier1"	"Notch2"
## [6349]	"Prr51"	"Il15"	"Mosmo"	"Cc6c6"
## [6353]	"Ppfia1"	"5430427019Rik"	"Krit1"	"Atad1"

## [6357]	"Phf6"	"Tasor2"	"Bclaf3"	"Calcr1"
## [6361]	"Schip1"	"Ppip5k2"	"Map3k8"	"Snn"
## [6365]	"Cpsf2"	"Ino80"	"Acvr1"	"Nfkbiz"
## [6369]	"Gm17709"	"Ptpn2"	"Gm46212"	"Nsmaf"
## [6373]	"Rps6ka3"	"Klrg2"	"Rnpc3"	"Znrf3"
## [6377]	"Cemip2"	"Spred1"	"Edn1"	"Hivep2"
## [6381]	"Arl4a"	"Dsel"	"Rbm22"	"Bzw1"
## [6385]	"Dhx15"	"Igsf3"	"Gfpt2"	"Sdc4"
## [6389]	"Mob3b"	"Six1"	"Ints13"	"Fmr1"
## [6393]	"Fnbp11"	"Nfkbid"	"Exoc3l4"	"Stx6"
## [6397]	"Tlr2"	"Slc44a1"	"Tab2"	"Nr3c1"
## [6401]	"Prdm1"	"Myo10"	"Gm13768"	"Spsb1"
## [6405]	"Tnfaip3"	"Ptprj"	"Gm13767"	"Rab12"
## [6409]	"Casp7"	"Dusp2"	"Ext1"	"Malt1"
## [6413]	"Sytl3"	"Ntn1"	"Rcn1"	"Gm15856"
## [6417]	"Gm15694"	"Gm50268"	"Fam98b"	"Dcaf13"
## [6421]	"Luc7l3"	"Tbce"	"Rbm26"	"Tomm70a"
## [6425]	"Xrn2"	"Pnpt1"	"Samsn1"	"Gm10233"
## [6429]	"Gm10273"	"Psme3"	"Ttc37"	"Ibtk"
## [6433]	"Plekha3"	"Nup153"	"Strap"	"Farsa"
## [6437]	"Tcof1"	"Tnpo3"	"Gtpbp4"	"Eef1e1"
## [6441]	"Rrp9"	"Ints2"	"Rnaseh1"	"Bach2"
## [6445]	"Phlpp2"	"Tfec"	"Socs2"	"Usp7"
## [6449]	"Adgrl2"	"Spire1"	"Sdad1"	"Marcks"
## [6453]	"Rnd1"	"Slc30a4"	"Rnd3"	"Pura"
## [6457]	"Rc3h1"	"Gm10356"	"Ikzf5"	"Prr7"
## [6461]	"Septin11"	"Il17rd"	"Tbc1d1"	"Gabpb1"
## [6465]	"Tra2b"	"Ppp3cc"	"Msantd2"	"Gm11772"
## [6469]	"Seh1l"	"Rsl24d1"	"Wdr43"	"Cul2"
## [6473]	"Nol10"	"Slc25a17"	"Cebpd"	"Gm45716"
## [6477]	"F2r"	"Ubtd2"	"Phldb1"	"Slc4a7"
## [6481]	"Dr1"	"Ikzf1"	"Csf1"	"Rel"
## [6485]	"Kctd3"	"Lmna"	"Cdc42bpa"	"Tjp2"
## [6489]	"Raver1"	"Gspt1"	"Erc1"	"Llg11"
## [6493]	"Gm17641"	"Gm19244"	"4930405A21Rik"	"5930403N24Rik"
## [6497]	"Il21"	"Accs1"	"Gm45428"	"Gm29371"
## [6501]	"Casp12"	"Il19"	"Cacnb2"	"Ptx3"
## [6505]	"Gm8773"	"Lck"	"Tnfaip6"	"Gm7450"
## [6509]	"Zfp536"	"4932438H23Rik"	"Gm44672"	"Gm20394"
## [6513]	"Tlr11"	"Rgs9"	"A1cf"	"Unc80"
## [6517]	"Il10ra"	"Fbxo4"	"Plagl1"	"Cd69"
## [6521]	"Myc1"	"Cdyl"	"Klf8"	"Plek2"
## [6525]	"Prdm9"	"Alox12"	"Lysmd2"	"Tnfsf15"
## [6529]	"4930523C07Rik"	"Chst7"	"Amotl2"	"RhoH"
## [6533]	"Tagap"	"Gm49442"	"Grk3"	"AU020206"
## [6537]	"Oprd1"	"AC115752.1"	"E430024P14Rik"	"Aebp2"
## [6541]	"Atp2b4"	"Itgav"	"Arhgef28"	"Cish"
## [6545]	"Arhgef3"	"Plscr1"	"Nat2"	"D16Ertd472e"
## [6549]	"Otud1"	"Tnfaip8l3"	"Armc8"	"Dll1"
## [6553]	"Minpp1"	"Ripk2"	"Gypc"	"Birc2"
## [6557]	"Cdyl2"	"Crlf3"	"Slco5a1"	"Bnc2"
## [6561]	"Gm11874"	"Mgat1"	"Fst"	"Kcna3"
## [6565]	"Gm17193"	"Ppm1k"	"Rab3ip"	"Tmem229b"
## [6569]	"1110038F14Rik"	"Urgcp"	"Noc41"	"Ch25h"

## [6573]	"Socs1"	"Cc14"	"Sec24b"	"4932441J04Rik"
## [6577]	"Naa16"	"Epha4"	"Gm50476"	"1700052K11Rik"
## [6581]	"Gm18953"	"Srsf7"	"Cgas"	"Zdhhc21"
## [6585]	"Cstf2"	"Srsf3"	"Gm9761"	"Srsf3-ps"
## [6589]	"Dtwd1"	"Prpf4"	"Slfn3"	"Phip"
## [6593]	"Il27"	"Cdk15"	"Spryd7"	"Stk381"
## [6597]	"Cc13"	"Zbtb5"	"Fzd5"	"Ppm1b"
## [6601]	"4930453N24Rik"	"Kpna3"	"F3"	"Neu3"
## [6605]	"Pcgf5"	"Gm7993"	"Odc1"	"Tnfsf10"
## [6609]	"Calhm6"	"Tnfsf8"	"Nfx11"	"6530403H02Rik"
## [6613]	"Tra2a"	"Usp12"	"3110001I22Rik"	"Zfp800"
## [6617]	"Cc dc50"	"Pp fibp1"	"Nfkb1"	"Trim21"
## [6621]	"Peli1"	"Rbm43"	"Gm3555"	"9130016M20Rik"
## [6625]	"Gm15754"	"Gm9115"	"Tmem229b-ps"	"Gm16425"
## [6629]	"Gm47735"	"Shbg"	"Gm33994"	"Hspa2"
## [6633]	"Pd zd2"	"Sowahc"	"Nipa2"	"Irf8"
## [6637]	"Sertad3"	"Endod1"	"Uba6"	"Ido2"
## [6641]	"Ifit3b"	"Hamp"	"Bbx"	"Cep851"
## [6645]	"Lhx2"	"Gm5917"	"Prn"	"Bcl2a1c"
## [6649]	"Gm6206"	"Art2a"	"Bco2"	"Cop1"
## [6653]	"1700041G16Rik"	"Gm50069"	"Spta1"	"Heat r5b"
## [6657]	"Ccnc"	"2610002M06Rik"	"Cam1"	"Gm9923"
## [6661]	"Wdr59"	"Acot9"	"Lcp2"	"Cops8"
## [6665]	"Myadm"	"Spata5l1"	"Gm6900"	"Hao1"
## [6669]	"Gm12818"	"Tmem209"	"Adgrg6"	"Ptger4"
## [6673]	"Ercc6l2"	"Tmem68"	"Gm34006"	"Heg1"
## [6677]	"Vash1"	"4931414P19Rik"	"4632415L05Rik"	"Cox15"
## [6681]	"Gca"	"Kcnh7"	"Ccr9"	"Gm11706"
## [6685]	"Gm50419"	"1110032F04Rik"	"Zbtb32"	"Fbn1"
## [6689]	"Sptbn2"	"Gm16685"	"Cutc"	"Arid5a"
## [6693]	"Lpar1"	"Pigv"	"Tefm"	"Iqgap1"
## [6697]	"Mtmr14"	"Tdg"	"Dn ajb6-ps"	"Gm7684"
## [6701]	"Ube2e2"	"AI504432"	"Dnaja2"	"Socs7"
## [6705]	"Xiap"	"Ncoa7"	"Washc4"	"Caap1"
## [6709]	"Chac2"	"Il7"	"Cul1"	"Denr"
## [6713]	"Mtf2"	"Lrrc8c"	"Tuba8"	"Zc3h12c"
## [6717]	"Elov12"	"Gm43814"	"Adora2a"	"Lztfl1"
## [6721]	"Cc dc86"	"Ndufb1-ps"	"Gm15027"	"Vps37a"
## [6725]	"4930518I15Rik"	"Gm16712"	"Gm26902"	"Gm19412"
## [6729]	"Misp"	"Mark2"	"Tnip1"	"Cacybp"
## [6733]	"Stip1"	"Acod1"	"Nfkbib"	"Slfn2"
## [6737]	"Trex1"	"Psm d6"	"Trmt5"	"Zswim7"
## [6741]	"Rheb"	"Jam2"	"Nfkb2"	"Nlrp3"
## [6745]	"Adap2"	"Mug-ps1"	"Slfn5"	"Ankrd17"
## [6749]	"Nup98"	"Bcl3"	"Tor1aip1"	"Ppp1r15b"
## [6753]	"Anxa7"	"Bfar"	"Daam1"	"Fndc3a"
## [6757]	"Ifi203"	"Daxx"	"Ifi47"	"Frmd4a"
## [6761]	"Irgm1"	"Parp14"	"Plek"	"Stau1"
## [6765]	"Atp10a"	"Klhl32"	"Mapk1ip1l"	"Ppp2r5a"
## [6769]	"Kremen1"	"Ppp6r1"	"Clic4"	"Apobec3"
## [6773]	"Marchf5"	"Gm7281"	"Nampt"	"Samd91"
## [6777]	"Cflar"	"Gm6264"	"Gtdc1"	"Notch1"
## [6781]	"Trim13"	"Rela"	"Sertad1"	"Itgb8"
## [6785]	"Gm26616"	"Tifa"	"Car2"	"Gm9895"

## [6789]	"Clint1"	"Cmtm6"	"Gramd1a"	"AI837181"
## [6793]	"Elp5"	"Mapkapk2"	"Sgk3"	"Fas"
## [6797]	"Spata13"	"Snx10"	"Cers6"	"Myd88"
## [6801]	"Junb"	"Etv6"	"Rap2c"	"Il1rap"
## [6805]	"Mob1a"	"Larp1"	"Zc3h12a"	"Rep15"
## [6809]	"Cc dc63"	"Vcam1"	"Abrac1"	"Gm12840"
## [6813]	"Rbbp8"	"Eif1"	"Abtb2"	"Zc2hc1a"
## [6817]	"Gm45640"	"Chd9"	"Ecpas"	"Carlr"
## [6821]	"Glipr1"	"Il15ra"	"Tmem170b"	"4932438A13Rik"
## [6825]	"Rictor"	"Arel1"	"Dcp1a"	"Enpp4"
## [6829]	"Nod2"	"Lsm14a"	"Rnf14"	"Cenpj"
## [6833]	"Cxc111"	"Gm11626"	"Tmem132d"	"Phc2"
## [6837]	"Gcnt2"	"Smim3"	"Gm17334"	"Ikbkb"
## [6841]	"Bloc1s4"	"Dhx58os"	"Gm44339"	"Rh bdf2"
## [6845]	"Usb1"	"Fam49a"	"Kdm1a"	"Parp4"
## [6849]	"Ifit1bl2"	"Nh lrc2"	"Crybg1"	"Ptgs2"
## [6853]	"Pik3r5"	"Bambi-ps1"	"Mapkbp1"	"Plagl2"
## [6857]	"Nfkb1a"	"Pde4b"	"Tpst1"	"Gbp5"
## [6861]	"Zeb1"	"Irf1"	"Sap30"	"Ccr12"
## [6865]	"Ccnj"	"Dusp16"	"Rnf139"	"Tent4a"
## [6869]	"B3gnt2"	"Ythdf1"	"Dcp2"	"Lrch1"
## [6873]	"Katna1"	"Aim2"	"Ifih1"	"Sav1"
## [6877]	"Tpbg"	"Ptbp3"	"Rab8b"	"Ep400"
## [6881]	"Tet2"	"Xrn1"	"Etnk1"	"Plek hf2"
## [6885]	"Alcam"	"Cmpk2"	"Rsad2"	"Aff1"
## [6889]	"Map2k4"	"Gtf2a1"	"Hectd2"	"Mob1b"
## [6893]	"Setdb2"	"Stx11"	"Irgm2"	"Vcpip1"
## [6897]	"Parp9"	"Gm12250"	"Zup1"	"Mdfic"
## [6901]	"Mafk"	"Taf7"	"Nt5c3"	"Slfn9"
## [6905]	"Cpeb4"	"Ranbp2"	"Ankib1"	"Rmdn3"
## [6909]	"Cc dc25"	"Tlk2"	"Elmod2"	"Ifit2"
## [6913]	"Vps54"	"Brwd3"	"Prpf39"	"4931406P16Rik"
## [6917]	"Tent2"	"Kh drbs1"	"Optn"	"Gm16092"
## [6921]	"Iqsec2"	"Asb13"	"Shf"	"Stk40"
## [6925]	"Zfp36"	"Gm6377"	"Sema4c"	"Traf3ip2"
## [6929]	"Wsb2"	"Gm49733"	"Gm8979"	"Zfp366"
## [6933]	"Gnb4"	"Cd2ap"	"Tnip3"	"Acer3"
## [6937]	"Trmt61b"	"Sos1"	"Rock1"	"9930111J21Rik2"
## [6941]	"Sp140"	"Synj1"	"Zc3h7a"	"Nsd3"
## [6945]	"Smg7"	"Gad2"	"Bend7"	"Gipc3"
## [6949]	"Rilpl1"	"Gm2237"	"Fyn"	"Eif1a"
## [6953]	"Tmem131"	"Zyx"	"Abhd17c"	"Gm36976"
## [6957]	"Rapgef1"	"Sgms2"	"Gm14010"	"F830208F22Rik"
## [6961]	"Pde10a"	"Azin2"	"Me1"	"Gm25026"
## [6965]	"Gm49730"	"Gm16175"	"Gm43587"	"Polm"
## [6969]	"Amz2"	"4933421010Rik"	"Gm3912"	"Il1r2"
## [6973]	"Dnm3os"	"Mip"	"Dpm1"	"B430218F22Rik"
## [6977]	"Gm43802"	"Ano8"	"Amfr"	"Cln5"
## [6981]	"Edc4"	"Hlx"	"Nckap1"	"Apobr"
## [6985]	"Kif1b"	"Snapc3"	"Sh3bgr12"	"Fndc3b"
## [6989]	"Rhot1"	"Ppp2r1b"	"Kpna1"	"Nectin3"
## [6993]	"Otud4"	"Twsg1"	"Cyb561a3"	"Zbtb3"
## [6997]	"Gm23823"	"Dennd4a"	"Leo1"	"Dnajc25"
## [7001]	"Papolg"	"Ints9"	"Oxsr1"	"Hivep1"

## [7005]	"Chd1"	"Fmn12"	"Resf1"	"Csnk1g3"
## [7009]	"Olfr1033"	"Clndnd1"	"Ttc39b"	"Efcab14"
## [7013]	"Naa25"	"Rnf31"	"Trmt11"	"Pla2g4a"
## [7017]	"Txlng"	"Nfil3"	"Tnfsf9"	"Il1b"
## [7021]	"St3gal1"	"Sacm11"	"Ergic2"	"Chuk"
## [7025]	"Med1"	"Gosr1"	"Mgat4a"	"Coq3"
## [7029]	"Gm4117"	"Rwdd4a"	"Tmem167"	"Yrdc"
## [7033]	"Dcun1d5"	"Fcf1"	"Tmem87a"	"Ube3a"
## [7037]	"Ptpn13"	"Taf15"	"Usp47"	"Eif3d"
## [7041]	"Ebna1bp2"	"Cct6a"	"Eif2s1"	"Gda"
## [7045]	"Filip11"	"S100a10"	"Rpf2"	"Gtf2f2"
## [7049]	"Zc3h15"	"Epb4112"	"Rbis"	"Gm48942"
## [7053]	"Ggct"	"Cacnb3"	"Gm48228"	"4921529L05Rik"
## [7057]	"Ccde171"	"Gm49625"	"Gm25371"	"Cav1"
## [7061]	"Gm26110"	"Usp40"	"Zfp160"	"Slc17a8"
## [7065]	"Gata2"	"Gm32296"	"Gm7019"	"Gm12185"
## [7069]	"Gm26885"	"Gm43215"	"Mapkapk3"	"Gm38204"
## [7073]	"Ifitm7"	"Ifnar1"	"Dnajb3"	"Gm20236"
## [7077]	"Gm37094"	"Prkcg"	"Penk"	"Sf3b4"
## [7081]	"Gm14137"	"Tnfrsf13c"	"Casc4"	"Gm14963"
## [7085]	"Timd2"	"Csgalnact1"	"Gm8865"	"Ifitm2"
## [7089]	"Wfdc17"	"Htra1"	"Igf2bp1"	"2200002D01Rik"
## [7093]	"Mif4gd"	"Nfya"	"Kctd1"	"Smad6"
## [7097]	"U90926"	"Col18a1"	"Spint2"	"Gm35037"
## [7101]	"Gpr84"	"Arpin"	"Oaf"	"Dhps"
## [7105]	"Mrpl54"	"Agrn"	"H6pd"	"Gm28913"
## [7109]	"Gm10366"	"Mir6972"	"Gm45266"	"Xkr8"
## [7113]	"Fkrp"	"Pcbp1"	"Id1"	"Prkar1b"
## [7117]	"Cgref1"	"Gm18445"	"Gm12216"	"Dusp28"
## [7121]	"Mfsd7a"	"Sipa111"	"Tnfrsf1a"	"Alpk2"
## [7125]	"Adarb1"	"Chic2"	"Cdh5"	"Pmepa1"
## [7129]	"Smad7"	"Tns3"	"Fez2"	"Trim56"
## [7133]	"Muc1"	"Fbxo7"	"Ier2"	"Anxa5"
## [7137]	"Aig1"	"Ctnnb1"	"Mcoln2"	"Gm45717"
## [7141]	"Tpbpa"	"Thbs4"	"Tnfrsf9"	"Chst11"
## [7145]	"Nek6"	"Mllt6"	"Rffl"	"Il13ra1"
## [7149]	"Pfkfb3"	"Cebpb"	"Pcid2"	"Cacna1b"
## [7153]	"Slc12a4"	"Il4ra"	"Sbno2"	"Tmbim1"
## [7157]	"Zfp691"	"Gm9117"	"Slc22a28"	"Col5a3"
## [7161]	"Gm12664"	"Ehd1"	"Gm37498"	"6530402F18Rik"
## [7165]	"Rrad"	"Marf1"	"Trpm4"	"Arl5c"
## [7169]	"Clec4e"	"Nfkbie"	"Cd82"	"Psd"
## [7173]	"Rfx5"	"Adam17"	"Anp32a"	"Ctla2a"
## [7177]	"Nudt17"	"Ago3"	"Hip1r"	"Mrpl52"
## [7181]	"Relb"	"Sash1"	"Fcrlb"	"Gm10522"
## [7185]	"Fam102b"	"Fgr"	"Gpc1"	"Mir5046"
## [7189]	"Gabrr3"	"Orai2"	"Tbx10"	"Ikbke"
## [7193]	"Cyb5r3"	"Fcgr2b"	"Fap"	"Slc4a11"
## [7197]	"Slc4a2"	"Elavl1"	"Smn1"	"Pofut1"
## [7201]	"Zfand2b"	"Mfsd14b"	"Lrp11"	"Lipe"
## [7205]	"Vasp"	"Gm7818"	"Gm16867"	"Gm27177"
## [7209]	"Gm37513"	"Gm38378"	"Ehd2"	"Ifi208"
## [7213]	"Gm17907"	"Bmp1"	"Ltbp2"	"Furin"
## [7217]	"Unc45a"	"Rnaset2a"	"Casp4"	"Herc6"

## [7221]	"Pign"	"Gm13772"	"Gm10053"	"Cycs"
## [7225]	"Gm10108"	"Gm31706"	"CAAA01118383.1"	"Lamtor5"
## [7229]	"Rbm4"	"Gm44386"	"Picalm"	"P2ry2"
## [7233]	"Acp5"	"Cr1f2"	"Gm45222"	"Igsf11"
## [7237]	"Gm11951"	"Gm20139"	"Gm9687"	"Cd74"
## [7241]	"Gm15987"	"H2-Ab1"	"Mrpl57"	"Psmg3"
## [7245]	"Bop1"	"Emc6"	"Pomgnt1"	"Qsox2"
## [7249]	"Slc7a1"	"Nup93"	"Tagln2"	"9130401M01Rik"
## [7253]	"BC048403"	"Ddx49"	"Mrpl21"	"Thoc5"
## [7257]	"Nup54"	"Srsf10"	"Pno1"	"Dph6"
## [7261]	"Lars"	"Myo1g"	"Ddx54"	"Eif3g"
## [7265]	"Gnl2"	"Lsg1"	"Abcc1"	"Abt1"
## [7269]	"Orm2"	"Pip5k1b"	"Gm14584"	"Ralgapa2"
## [7273]	"Rrm2b"	"Tbp"	"Hus1"	"Med27"
## [7277]	"Intu"	"Spin4"	"1110002J07Rik"	"Rnf24"
## [7281]	"Stim2"	"Tulp3"	"4930412F12Rik"	"AW046200"
## [7285]	"Slc1a1"	"Zfp697"	"Gm17040"	"Gm47772"
## [7289]	"Cxc11"	"Ifnb1"	"Slc6a15"	"1110028F18Rik"
## [7293]	"Serpina3f"	"Serpina3i"	"Popdc2"	"Zfhx4"
## [7297]	"Zic5"	"Areg"	"Cxc12"	"Rasgef1b"
## [7301]	"Gm15229"	"Gm35363"	"Lamc2"	"Med21"
## [7305]	"Ereg"	"Iqschfp"	"Eif1-ps2"	"Rpl10-ps2"
## [7309]	"Gm12843"	"Mall"	"Syt16"	"Cx3c11"
## [7313]	"Il12a"	"Cd247"	"Il4i1"	"Cc117"
## [7317]	"Il12b"	"Lanc13"	"Megf10"	"Gm18561"
## [7321]	"Gm45472"	"AC139579.1"	"Ccm21"	"Gm7804"
## [7325]	"Gm29696"	"Gm7327"	"Phf8"	"Henmt1"
## [7329]	"Fgl2"	"Spats21"	"Washc3"	"Serp1"
## [7333]	"Slc25a12"	"Gucy2g"	"Ppfia3"	"Apol7c"
## [7337]	"Gm8221"	"Akna"	"Cabp4"	"Tenm4"
## [7341]	"4930417H01Rik"	"Gm16638"	"Agpat3"	"Klhdc10"
## [7345]	"Phf11"	"Snd1"	"Itpr1"	"Pla2r1"
## [7349]	"Pecam1"	"Ccdc146"	"Nav3"	"Cptp"
## [7353]	"P2ry10"	"A630012P03Rik"	"Ccdc173"	"Apod"
## [7357]	"Prm1"	"Slamf9"	"Nkiras2"	"Unc93a"
## [7361]	"Gpr31b"	"Gpr31c"	"Flt4"	"Lrp4"
## [7365]	"Pla2g4c"	"Rpgr11"	"Btg2"	"Laptm4a"
## [7369]	"Htr7"	"Tex14"	"Rab1a"	"Snap29"
## [7373]	"Ddc"	"Unc93a2"	"Gm9791"	"Zfp131"
## [7377]	"Carhsp1"	"Tsc22d2"	"Armxc3"	"Gm9299"
## [7381]	"1810013L24Rik"	"Samd4b"	"Rgl1"	"Slamf7"
## [7385]	"Sp100"	"Lamp2"	"Mocs2"	"Phf11d"
## [7389]	"Kdm6bos"	"Fpr2"	"Gm5966"	"Isg20"
## [7393]	"Phf11a"	"Chpt1"	"Oas1h"	"Dennd2a"
## [7397]	"Ric1"	"Smap1"	"Plac8"	"Gm10851"
## [7401]	"Gm6335"	"Tmem132a"	"Dnaja1"	"Gm15542"
## [7405]	"Gm7816"	"Gm4761"	"Neb"	"Col9a3"
## [7409]	"A730011C13Rik"	"Ssc5d"	"1700014D04Rik"	"5430430K15Rik"
## [7413]	"Gad1os"	"Hrc"	"Zfp568"	"Dlg3"
## [7417]	"1190001M18Rik"	"Nes"	"Ctsc"	"Pcdhgb2"
## [7421]	"Hspb7"	"Hsp90ab1"	"Trem14"	"Med29"
## [7425]	"Wbp11"	"Csnk2b"	"Ssr2"	"Copz1"
## [7429]	"Tsta3"	"Psen1"	"Rab20"	"Rab5if"
## [7433]	"Micall2"	"Zdhhc12"	"Myh9"	"Ptgir"

## [7437]	"Gm12791"	"Gm20547"	"Sla"	"Plekhg6"
## [7441]	"Spcs2"	"Gm6553"	"Diaph2"	"Gpr31a"
## [7445]	"Ppm1h"	"Trpc4ap"	"Atp6vid"	"Fhad1"
## [7449]	"Nuak2"	"Gm48786"	"C4b"	"Slc12a9"
## [7453]	"Stx18"	"Ly75"	"Ntng2"	"Map1b"
## [7457]	"Il23r"	"A330040F15Rik"	"Apol9b"	"Atg4a"
## [7461]	"Cttn"	"Gm11425"	"Stx8"	"Gm43963"
## [7465]	"Rnf121"	"Hbs11"	"Ppp1r11"	"Psemb6"
## [7469]	"4833439L19Rik"	"Ankfy1"	"Dpf2"	"Cd200"
## [7473]	"Kdm6b"	"A230028005Rik"	"Oas1c"	"Apol9a"
## [7477]	"Gbp10"	"Gm43302"	"Bsdcl"	"Arfgef1"
## [7481]	"Inpp5b"	"Cnot4"	"Uso1"	"Arl1"
## [7485]	"Ell2"	"Srpr"	"Chic1"	"2310001H17Rik"
## [7489]	"Mrps18c"	"Bdh2"	"Slc16a10"	"Hmcn2"
## [7493]	"M6pr-ps"	"Phf11b"	"Ikbkg"	"Itga5"
## [7497]	"Apool"	"M6pr"	"Gm16464"	"Copa"
## [7501]	"Copb1"	"Pafah1b1"	"Hdlbp"	"Mdm2"
## [7505]	"Psme4"	"Bak1"	"Gm14270"	"Gm16675"
## [7509]	"Map10"	"Oas3"	"Esyt1"	"Ass1"
## [7513]	"Gm5424"	"B430306N03Rik"	"Scimp"	"Ms4a4b"
## [7517]	"Ms4a4c"	"Gm19076"	"Myo3b"	"Gm17046"
## [7521]	"Hcls1"	"E230013L22Rik"	"Tmem26"	"Gm17045"
## [7525]	"Gm5456"	"Gm5844"	"Hsp90aa1"	"Esd"
## [7529]	"Esd-ps"	"Gm34643"	"Gm17222"	"Leng9"
## [7533]	"Slc31a2"	"H2-T22"	"Naip3"	"Ahi1"
## [7537]	"P4ha1"	"Nkiras1"	"Irf7"	"Lgals3bp"
## [7541]	"Gm37787"	"Gm18752"	"Ifi206"	"Taok2"
## [7545]	"3830406C13Rik"	"Itgal"	"Nmt1"	"Pou2f2"
## [7549]	"Snx20"	"Spop"	"Sugt1"	"Bud31"
## [7553]	"Rspry1"	"Eif4e2"	"Psm12"	"Rrbp1"
## [7557]	"Jag1"	"Riok3"	"Atg3"	"Ms4a6c"
## [7561]	"Smarca4"	"Tardbp"	"Manf"	"Pdia5"
## [7565]	"Htt"	"Psemb2"	"Sec61g"	"Calu"
## [7569]	"Psm11"	"Psm14"	"Psemb7"	"Sec13"
## [7573]	"Cep135"	"Vcp"	"Calm1"	"Arpc2"
## [7577]	"Ndufs4"	"Radil"	"1810059H22Rik"	"Gm11542"
## [7581]	"Rbx1-ps"	"Ndufa9"	"Rbx1"	"Wfs1"
## [7585]	"Btrc"	"D030051J21Rik"	"Cdk7"	"Ufm1"
## [7589]	"Srp68"	"Srp72"	"Arcn1"	"Uba5"
## [7593]	"Gm47260"	"Ficd"	"Med19"	"Nbas"
## [7597]	"Ccr7"	"Dl14"	"Fpr3"	"Psmf1"
## [7601]	"Gorasp2"	"Stt3a"	"Tyw5"	"Gm11216"
## [7605]	"Pla1a"	"Dxo"	"Zfp618"	"Prcc2a"
## [7609]	"Rexo1"	"Gm7935"	"Prcc1"	"Ppp4c"
## [7613]	"Arhgdia"	"Cables2"	"Zfp593"	"Ddx39b"
## [7617]	"Thoc6"	"Dad1"	"Tmem258"	"Gm6467"
## [7621]	"Gm6485"	"Gm45847"	"Hpcal4"	"Timd4"
## [7625]	"Gm14569"	"A430093F15Rik"	"Sh2d6"	"Trpm3"
## [7629]	"Gm49579"	"Wdr20rt"	"Gmppb"	"Mcmbp"
## [7633]	"Arhgap17"	"Atp8b2"	"Adprm"	"Creb312"
## [7637]	"Phospho2"	"Pmpcb"	"Stambp"	"Akt3"
## [7641]	"Parp11"	"Gm32568"	"Stk39"	"Sco1"
## [7645]	"Tfg"	"Htra4"	"Rab29"	"Hdac1-ps"
## [7649]	"Hdac1"	"Mtmr7"	"9530068E07Rik"	"Pttg1"

## [7653]	"AC133103.5"	"Oas11"	"Supt71"	"Dnase113"
## [7657]	"Vgf"	"Art3"	"Dnmt3c"	"Tyk2"
## [7661]	"Cdk14"	"Gm38316"	"Gm39383"	"Trpm6"
## [7665]	"Egr1"	"Ddx4"	"Angpt1"	"Armcx6"
## [7669]	"Gm16397"	"Pcp4"	"Nectin4"	"P3h2"
## [7673]	"Tpp2"	"Adgrg7"	"Fbrsl1"	"Slc6a4"
## [7677]	"Hap1"	"Plekha4"	"Axl"	"Pdk3"
## [7681]	"A4galt"	"Spink2"	"Vwa3b"	"Gm21742"
## [7685]	"Mov10"	"Mid1"	"Mid1-ps1"	"Ambp"
## [7689]	"Tubb6"	"Cfl1"	"Nmral1"	"Gbp2b"
## [7693]	"Unc5c"	"Gm16315"	"Gm24158"	"Gm29367"
## [7697]	"Vps37b"	"Txnrd1"	"Map2k3"	"Prnp"
## [7701]	"Asah2"	"Arhgef37"	"Ctla2b"	"Mmp25"
## [7705]	"Gm35028"	"Ly86"	"Sgk1"	"Arhgap8"
## [7709]	"Gm12989"	"Gm5970"	"Zfand5"	"Gm37296"
## [7713]	"Gm14866"	"Sptssb"	"Fam131b"	"Cd200r4"
## [7717]	"Filip1"	"Gm49392"	"Calcr"	"Gm18840"
## [7721]	"C1ra"	"C1rb"	"Gm48857"	"Gm50488"
## [7725]	"Gm16091"	"Gm42963"	"Gm43221"	"Cth"
## [7729]	"Rbm7"	"Gm13400"	"Mir6963"	"Gm6180"
## [7733]	"Gm6201"	"Serpinb3b"	"Wdr1"	"Arpc5"
## [7737]	"Zdhhc2"	"Tmco3"	"Plaat3"	"Pnp"
## [7741]	"Dbnl"	"Gnptab"	"Pdgfr1"	"Slc25a25"
## [7745]	"Mpp1"	"Gm8806"	"Nono"	"Dcakd"
## [7749]	"Jpt1"	"Bckdhhb"	"Hmgn3"	"Cpd"
## [7753]	"Eif4g2"	"Hdc"	"Tbc1d13"	"Tnc"
## [7757]	"St7"	"Trp53i11"	"Lcp1"	"Actb"
## [7761]	"Flnb"	"Mab2113"	"Mast4"	"Gm2774"
## [7765]	"Gpd2"	"Serinc2"	"Pop4"	"Hsd17b12"
## [7769]	"Mrp113"	"Ap3m1"	"Fhod3"	"Gm4750"
## [7773]	"Jdp2"	"Flna"	"Klhdc4"	"Mad212"
## [7777]	"Cspg4"	"Gm9844"	"Gm12254"	"Gm9385"
## [7781]	"Rpl24"	"Actg-ps1"	"Gm6375"	"Gm16385"
## [7785]	"Gm23374"	"Paf1"	"Vmn1r55"	"Sh3kbp1"
## [7789]	"Syt7"	"AW112010"	"Gm44165"	"Sf3b1"
## [7793]	"Mndal"	"Trip12"	"Gna13"	"Sh3glb1"
## [7797]	"Stard5"	"Slc2a6"	"Tpm4"	"Ccl9"
## [7801]	"Tram2"	"Gm16589"	"Itgb1"	"Arsl"
## [7805]	"Svbp"	"Isoc1"	"Actg1"	"Gm12715"
## [7809]	"Ube2d2a"	"Lipg"	"Rap1gap2"	"Cccl62"
## [7813]	"Ighv6-3"	"AC113595.1"	"Ube2e1"	"Gm14269"
## [7817]	"Sumo1"	"Gm42918"	"Anxa1"	"Gm5828"
## [7821]	"Alkbh3"	"Med28"	"Pphln1"	"Lacc1"
## [7825]	"Wars"	"Kctd10"	"Gm14536"	"Gm14845"
## [7829]	"Vma21"	"Pak4"	"Arf5"	"Ppp2r1a"
## [7833]	"4933416M07Rik"	"Actb-ps1"	"Cacng6"	"Meikin"
## [7837]	"Gm10134"	"Pappa2"	"Gm13535"	"Nhs"
## [7841]	"Rnase10"	"Rtn2"	"Lpcat2"	"Mmp2"
## [7845]	"Gm12251"	"Jrk"	"Ghr"	"Pkp1"
## [7849]	"Shroom4"	"Gm4157"	"Gm7591"	"Gm26920"
## [7853]	"Gm525"	"Gm15340"	"Ms4a4d"	"Batf"
## [7857]	"Rhoq"	"Zdhhc6"	"Ebi3"	"Pasma6"
## [7861]	"Hck"	"Rab10"	"Pasma5-ps"	"Rab2b"
## [7865]	"1600014C10Rik"	"Psmb9"	"Epsti1"	"Slco3a1"



## [7869]	"9330175E14Rik"	"Dync1i2"	"Ociad1"	"Atp13a1"
## [7873]	"Extl3"	"Gk"	"Agfg1"	"Arf1"
## [7877]	"Fbxw17"	"Slc9a8"	"Anks1"	"Tmem184b"
## [7881]	"Dync1h1"	"Ubr4"	"Rnf34"	"Mlk1"
## [7885]	"Parp3"	"Pik3ap1"	"Ascc3"	"Cept1"
## [7889]	"Pcsk7"	"Fam20b"	"Ilrun"	"Glipr2"
## [7893]	"Map2k1"	"Casp1"	"Isg15"	"Mthfr"
## [7897]	"Oas2"	"Ube2z"	"Ifi35"	"Tap2"
## [7901]	"Slc28a2"	"Slc28a2b"	"Gatad2a"	"Traf3"
## [7905]	"Etf1"	"Gm8775"	"Hnrnp2"	"Cwc15"
## [7909]	"Gm47863"	"Gm6542"	"Actr3-ps"	"Gm29284"
## [7913]	"Gm10791"	"Rtraf"	"Gm5824"	"Olfr433"
## [7917]	"Evi2a"	"Gadd45a"	"Chmp5"	"Krccl1"
## [7921]	"A630001G21Rik"	"AC168977.2"	"Gm2619"	"Myo1e"
## [7925]	"Actr10"	"Pdlim7"	"Id2"	"Znrf1"
## [7929]	"Adora2b"	"Ubtd1"	"Tax1bp1"	"Ube2r2"
## [7933]	"Hibadh"	"Slamf1"	"Acvr1b"	"Evalb"
## [7937]	"Ifnar2"	"Fbxo6"	"Mthfr-ps1"	"1700019L13Rik"
## [7941]	"Gm48529"	"Med15"	"Rnpepl1"	"Trip10"
## [7945]	"Wdr33"	"Mrpl27-ps"	"Ms4a1"	"Gm5539"
## [7949]	"Gm28914"	"Gm47727"	"Fip111"	"Ptges3"
## [7953]	"Prelid3b"	"Ptges3-ps"	"Fubp1"	"Gnb1"
## [7957]	"Tpm3"	"Tpm3-rs7"	"Bnip2"	"Ifngr2"
## [7961]	"Supt6"	"Cxcl16"	"Cyfip1"	"Morf411"
## [7965]	"Rab2a"	"Snx19"	"Zfr"	"Ddx24"
## [7969]	"Tcea1"	"Serinc1"	"Txndc9"	"Mrpl27"
## [7973]	"Psm2"	"Psm3"	"Psm4"	"Bag1"
## [7977]	"Vdac3"	"Gtf2f1"	"Rexo4"	"Ube2j1"
## [7981]	"Morf412"	"Rrp7a"	"Ttc19"	"Ap1g1"
## [7985]	"Ogfr"	"Oas12"	"Sppl2a"	"Slirp"
## [7989]	"Mrpl30"	"Psm10"	"Gm19705"	"Ugdh"
## [7993]	"Zdhhc18"	"Zkscan6"	"Kdm7a"	"Naip2"
## [7997]	"Prkar1a"	"Gm20496"	"Ube2a"	"Eipr1"
## [8001]	"Mefv"	"Rab5c"	"Rnf149"	"Ifitm3"
## [8005]	"Shisa5"	"Ppp2ca"	"Cdc42"	"Utp23"
## [8009]	"Fcer1g"	"Arf3"	"Rhog"	"Spi1"
## [8013]	"Gm12692"	"Myl6"	"Zeb2os"	"P2ry6"
## [8017]	"Scamp2"	"Saa2"	"Tcp10c"	"Efna3"
## [8021]	"Kif1a"	"Il1rn"	"Il2ra"	"Scarf2"
## [8025]	"Unc45b"	"Palld"	"Rab32"	"Igsf6"
## [8029]	"Tlr1"	"Sin3b"	"Snf8"	"Atp6v1e1"
## [8033]	"Sod2"	"Gm5920"	"Rnaset2b"	"Sema4a"
## [8037]	"Bmerb1"	"Gfra1"	"Id3"	"Agtrap"
## [8041]	"Naaa"	"Dgat2"	"Gdpd2"	"Aoep"
## [8045]	"Zfp558"	"Tcp10b"	"Akirin1"	"Eng"
## [8049]	"Marchf1"	"4933430I17Rik"	"Efhd2"	"Dtx2"
## [8053]	"Mbd1"	"Setd1b"	"Elf4"	"Tcirg1"
## [8057]	"Fcgr4"	"Uba1"	"Msantd3"	"Lrp10"
## [8061]	"Gsdmd"	"Mvp"	"Naip5"	"Tspo"
## [8065]	"Oas1a"	"Oas1g"	"Slx4ip"	"Cst7"
## [8069]	"Txn1"	"Ncstn"	"Milr1"	"Psme2"
## [8073]	"AA467197"	"Psm10"	"Lgals9"	"Mmp14"
## [8077]	"Cp"	"Tarm1"	"Clcn7"	"Cnp"
## [8081]	"Chmp4b"	"Psme1"	"Uba7"	"Pgap2"

## [8085]	"Tmbim6"	"Gm26621"	"Erich2"	"Il1f9"
## [8089]	"Pdcd1lg2"	"Mocs1"	"Ralgds"	"1700058P15Rik"
## [8093]	"Rtca"	"Tmc3"	"Gatm"	"Lrrc4"
## [8097]	"Cc15"	"Slc15a3"	"Slc7a8"	"Ube2l6"
## [8101]	"Zbp1"	"Pomp"	"Psmb8"	"Plod3"
## [8105]	"Tapbp"	"Cog4"	"Tmeff1"	"Atp6v0a2"
## [8109]	"Polb"	"Ciao2b"	"Zmynd15"	"Coa5"
## [8113]	"Ifi213"	"Tapbpl"	"Celf1"	"Smg8"
## [8117]	"Ap2b1"	"Sec61a1"	"Pmm2"	"Surf4"
## [8121]	"Sh3bp2"	"Trir"	"Pamr1"	"Wscd2"
## [8125]	"Gm7535"	"Iah1"	"C1s1"	"Uqcrc2"
## [8129]	"Clec12a"	"Cdc42ep2"	"Lmo4"	"Gm1123"
## [8133]	"Dlat"	"Ssr1"	"Nup88"	"Pole4"
## [8137]	"Gm2991"	"Efhb"	"Ido1"	"Ehd3"
## [8141]	"Lix1"	"Gm2065"	"Tnn"	"Csf2"
## [8145]	"Gm13889"	"Nts"	"Dyrk4"	"Tnnt2"
## [8149]	"Rbm14"	"Snrpc"	"Cxcl14"	"Xpnpep1"
## [8153]	"Mrp14"	"Sec61b"	"Trap1"	"Vps25"
## [8157]	"9930111J21Rik1"	"Mir155hg"	"Lad1"	"Krt222"
## [8161]	"Zfp811"	"Gfi1"	"Nr4a2"	"Lta"
## [8165]	"Bcl2a1a"	"Bcl2a1d"	"Ccl22"	"Slc6a20a"
## [8169]	"Awat2"	"Havcr1"	"Kctd14"	"Gm1070"
## [8173]	"Gm4129"	"Tacr2"	"Nox1"	"Hopx"
## [8177]	"Klrk1"	"Cxcl9"	"Serpina3g"	"8030451A03Rik"
## [8181]	"Hsh2d"	"Serpina3e-ps"	"Pdcd1"	"Serpina3h"
## [8185]	"Gm47976"	"Spata25"	"Gm49599"	"Inca1"
## [8189]	"Mir1932"	"Bicd12"	"Ast1"	"Gm8288"
## [8193]	"Gm12291"	"Prdx2-ps1"	"Gm8909"	"Dnaaf5"
## [8197]	"Rabepk"	"Aptx"	"Sugp1"	"C1galt1c1"
## [8201]	"BC031181"	"Il2rg"	"2410004B18Rik"	"Nmnat1"
## [8205]	"Xpot"	"Fam192a"	"Rala"	"Secisbp2l"
## [8209]	"Rnf6"	"Copb2"	"Upf2"	"Acs14"
## [8213]	"B2m"	"C3ar1"	"Lyrm1"	"Dock4"
## [8217]	"Tsg101"	"Gm37800"	"Leng1"	"Slu7"
## [8221]	"Blzf1"	"Slc4a1ap"	"Rap2b"	"H2-M3"
## [8225]	"Sra1"	"Gm17173"	"Ufd1"	"Zcchc4"
## [8229]	"S100a11"	"C920009B18Rik"	"Csf2ra"	"Gpat4"
## [8233]	"Gm10698"	"Tmed2"	"Gsr"	"Cfb"
## [8237]	"Slamf8"	"Agpat1"	"Gstt1"	"Cd52"
## [8241]	"Psma7"	"Gm3375"	"Psmb5"	"Psmc5"
## [8245]	"Psm4"	"Cope"	"H2-T23"	"Bst2"
## [8249]	"Fth1"	"Edf1"	"Ugp2"	"Lsm12"
## [8253]	"Naa35"	"Dctn3"	"Prkrip1"	"Gm1848"
## [8257]	"Atp1b3"	"Gm20489"	"Ets2"	"Psm11"
## [8261]	"Ubqln1"	"Gosr2"	"Psd4"	"Crk"
## [8265]	"Flii"	"Nckap1l"	"Il21r"	"Gskip"
## [8269]	"Stard3"	"Golga7"	"Xpo6"	"Stx12"
## [8273]	"Mbd2"	"Trmt44"	"Rnf20"	"Ddx42"
## [8277]	"Msant4"	"Rbm5"	"Xrcc4"	"Dctn4"
## [8281]	"Lrrc41"	"Entr1"	"Gnl1"	"Cstb"
## [8285]	"Msr1"	"Gng5"	"Pdcd6"	"Szrd1"
## [8289]	"Zfp263"	"Gabarap12"	"Ccdc59"	"Txndc17"
## [8293]	"Gm10145"	"Ube2k"	"1600012H06Rik"	"Gm7368"
## [8297]	"Zfp110"	"Abca1"	"Dmx12"	"Tor1b"

## [8301]	"Ercc3"	"Gm31544"	"Ankrd27"	"Pex14"
## [8305]	"Ptges2"	"Cog8"	"Gtpbp6"	"Gm21370"
## [8309]	"Med23"	"C2cd2"	"Snord89"	"Mir6990"
## [8313]	"Spaca6"	"Met"	"Tmem165"	"Ctu1"
## [8317]	"Utp11"	"Kcnn4"	"Plec"	"Ddah2"
## [8321]	"Npy"	"Camkk1"	"Phyhd1"	"Tmem119"
## [8325]	"Bst1"	"Nr1h3"	"Fam104a"	"Strip1"
## [8329]	"Gm36287"	"Spred3"	"Tmem221"	"B4galt1"
## [8333]	"Cybc1"	"Msrbl1"	"Acp2"	"Glrx"
## [8337]	"Lrpap1"	"Pfk1"	"Rnf183"	"Dok1"
## [8341]	"Sharpin"	"Dpm2"	"Mgrn1"	"2310011J03Rik"
## [8345]	"Irf3"	"Cdc42se1"	"D17H6S53E"	"Mir22"
## [8349]	"Gm14548"	"Zfp276"	"Hax1"	"Ube2m"
## [8353]	"Ncf4"	"Prdx5"	"Syk"	"Lcn2"
## [8357]	"Pitpnm1"	"Fcgr1"	"Ift22"	"Prss50"
## [8361]	"Hk3"	"Snx18"	"Aoah"	"Saa3"
## [8365]	"Gm15931"	"Pirb"	"Metap1"	"Gm28935"
## [8369]	"Tpst2"	"Ctsz"	"Arrdc4"	"Rab11a"
## [8373]	"Clec4a1"	"Lilra6"	"Araf"	"Snx11"
## [8377]	"Dhx8"	"Flad1"	"Atg4b"	"Yipf1"
## [8381]	"Gstm2"	"St7l"	"P2rx4"	"Rtf2"
## [8385]	"Gm43890"	"Dynll1"	"Gm6788"	"Tfpt"
## [8389]	"Vps72"	"Pym1"	"Fam222b"	"Mtf1"
## [8393]	"Aurkaip1"	"Prdx6"	"Ampd3"	"Slpi"
## [8397]	"Mcemp1"	"Trem3"	"Gm11541"	"Ndufb9"
## [8401]	"Tti1"	"Ccnd3"	"Cinp"	"Gnb2"
## [8405]	"Coq4"	"Ppp1r35"	"Gm49207"	"Gm5763"
## [8409]	"Nme6"	"Pfn1"	"S1pr2"	"Vhl"
## [8413]	"Plekhhg1"	"Prss46"	"Saa4"	"Tmco4"
## [8417]	"Sox5"	"Upk3b"	"Il1f6"	"Phyh"
## [8421]	"Btbd16"	"Hspa8"	"AB124611"	"Hmox2"
## [8425]	"Saa1"	"Arap1"	"Dhx38"	"Tfe3"
## [8429]	"Vav1"	"Plk3"	"Chordc1"	"Evl"
## [8433]	"D330050I16Rik"	"Tgfb1"	"Lrrc25"	"Scarf1"
## [8437]	"Alas1"	"Slc31a1"	"Cmklr1"	"Cpne2"
## [8441]	"Mvb12a"	"Tnfaip8"	"Draxin"	"Cd38"
## [8445]	"Kmt5a"	"Antxr1"	"Gp6"	"1200007C13Rik"
## [8449]	"Anpep"	"Csfr3"	"Boc"	"Sdc1"
## [8453]	"Nxpe4"	"Ptges"	"F10"	"Hp"
## [8457]	"Lox"	"Slc13a3"	"Chst1"	"Jak3"
## [8461]	"Rnpep"	"B230303A05Rik"	"Cxcr5"	"Serpinb1b"
## [8465]	"C1rl1"	"Nectin2"	"Gm44418"	"Slc1a2"
## [8469]	"Gm20100"	"Rps6kb2"	"Gm7644"	"Plpp1"
## [8473]	"Rims3"	"Prdx2"	"Ly6c1"	"Ly6c2"
## [8477]	"Acsbg1"	"St3gal5"	"Gm29253"	"Ppp1r12b"
## [8481]	"Slc39a13"	"Gm15568"	"Ceacam18"	"Fpr1"
## [8485]	"Acaa1a"	"Acaa1b"	"Nadk"	"Irak3"
## [8489]	"Ccde88b"	"Esrra"	"Gm12868"	"Cd2bp2"
## [8493]	"Vamp8"	"Blvrb"	"Gm15625"	"AC161757.1"
## [8497]	"Gm36551"	"Gm18541"	"Gm3744"	"Gm10015"
## [8501]	"Gm10705"	"Gm5422"	"Gm15925"	"Mir686"
## [8505]	"Gm5801"	"Ubxn11"	"Gm4742"	"Gng11"
## [8509]	"Nyap2"	"Gm4189"	"Nat14"	"Rnf10"
## [8513]	"Gm44652"	"Setd5"	"Spic"	"Slc10a7"

## [8517]	"Sec24d"	"Sez612"	"Dda1"	"Ccnk"
## [8521]	"Hspa13"	"Syvn1"	"Smim40"	"Gfpt1"
## [8525]	"Yipf4"	"Uros"	"Ostc"	"Cdk14"
## [8529]	"H2-T24"	"AC147806.2"	"Csprs"	"Gm7609"
## [8533]	"AC133103.2"	"AC167036.1"	"AC147806.1"	"Gm7592"
## [8537]	"Zbtb21"	"Dusp8"	"Stx3"	"Ttc1"
## [8541]	"Gpr108"	"Nktr"	"Tmbim4"	"Zbtb18"
## [8545]	"Exoc1"	"Tstd2"	"Tmem127"	"Pramef8"
## [8549]	"Kdm5c"	"Zfp821"	"Ccadc130"	"Erlec1"
## [8553]	"Npepps"	"Ttf1"	"Asb11"	"Ptgs2os"
## [8557]	"Casp3"	"Gm43464"	"Ermap"	"Ppp1r15a"
## [8561]	"4930509G22Rik"	"Smc5"	"Gldc"	"Gm43069"
## [8565]	"4930471E19Rik"	"Gm38166"	"Ccadc96"	"Gm12551"
## [8569]	"Cdk16"	"Tjap1"	"Selenow"	"Nlrc4"
## [8573]	"Xdh"	"Birc6"	"Ttll2"	"Gorab"
## [8577]	"Ndel1"	"Dusp5"	"Ifrd1"	"Ankrd66"
## [8581]	"Nabp1"	"G530011006Rik"	"Robo2"	"Gm15726"
## [8585]	"Srp54c"	"Srp54a"	"Srp54b"	"Dram2"
## [8589]	"Rbbp6"	"Gm7292"	"Rab22a"	"Gm2511"
## [8593]	"Zcwpw2"	"Gm40685"	"Zfyve26"	"Kcnab1"
## [8597]	"Gm14199"	"Gm8369"	"Cldn12"	"Gm37914"
## [8601]	"Spata2"	"Cnppd1"	"Fbrs"	"Kctd11"
## [8605]	"Bahd1"	"Frmd8"	"Dnajb1"	"Srf"
## [8609]	"Baz2a"	"Ddx6"	"Ip6k2"	"Ticam1"
## [8613]	"Arfgap3"	"Mark4"	"Fhl3"	"Asb6"
## [8617]	"Fam207a"	"Kbtbd4"	"Gm7664"	"Gm8508"
## [8621]	"Stk35"	"Zfp384"	"Gm7353"	"Zc3h3"
## [8625]	"Atxn713"	"Pias4"	"Actr1a"	"Preb"
## [8629]	"Clip2"	"Uspl1"	"Midn"	"Sphk2"
## [8633]	"Fkbp1"	"Tor1a"	"Camta2"	"Tomm34"
## [8637]	"Gon7"	"Ube2g2"	"Slx4"	"Smg9"
## [8641]	"Arm7c"	"Cd151"	"Fiz1"	"Eif2b2"
## [8645]	"Jund"	"Rad9a"	"Zfp142"	"Akirin2"
## [8649]	"Atf4"	"Sesn2"	"Cttnbp2nl"	"Evi2"
## [8653]	"Il12rb1"	"A530064D06Rik"	"Creb3"	"Selenos"
## [8657]	"Ube2j2"	"Dnajc7"	"Gas8"	"Csnk1g1"
## [8661]	"Dop1b"	"Kif9"	"Stx5a"	"Golgb1"
## [8665]	"Ube4a"	"Tvp23b"	"Wasf2"	"Capn10"
## [8669]	"Gb1"	"Ttpal"	"Chac1"	"Trim35"
## [8673]	"Sec22b"	"Yipf5"	"Rnf40"	"Ifi44"
## [8677]	"Peak1os"	"Majin"	"Map4k3"	"Mill2"
## [8681]	"Tnrc6a"	"Procr"	"Edem2"	"Igf2bp2"
## [8685]	"Slc25a14"	"Chd2"	"Suco"	"Ubc"
## [8689]	"Htr2b"	"Hspa11"	"Stam2"	"Mkks"
## [8693]	"Lrrc8d"	"Prmt9"	"Prex1"	"Vtila"
## [8697]	"Acvrl1"	"Ptpr"	"Txnl4b"	"Ahsa2"
## [8701]	"Dnttip1"	"Trem12"	"Ryr3"	"Iifo2"
## [8705]	"Zc3h12d"	"Ldah"	"Med8"	"Dennd4b"
## [8709]	"Gpatch3"	"Nrpb1"	"Nufip2"	"Wap1"
## [8713]	"Rnf111"	"Zbtb7a"	"Ammecr11"	"Tgifi1"
## [8717]	"Slc3a2"	"Cndp2"	"Dnajb2"	"1700123020Rik"
## [8721]	"Gm22240"	"Ywhag"	"Brd4"	"Acdb3"
## [8725]	"Cwc25"	"Rab6a"	"Safb"	"Prpf3"
## [8729]	"Cpg1"	"Nploc4"	"Der12"	"Faf2"

## [8733]	"Itpa"	"4933434E20Rik"	"Banp"	"Itgax"
## [8737]	"Tmem230"	"Gm26674"	"Snx6"	"Cant1"
## [8741]	"Crtc2"	"Nr1h2"	"Itprid2"	"Wnk1"
## [8745]	"Arih1"	"Scyl2"	"Kansl3"	"Ptk2b"
## [8749]	"Rlim"	"Shoc2"	"Atg9a"	"Grn"
## [8753]	"Itm2c"	"Csnk1d"	"Ppp4r1"	"Bag3"
## [8757]	"Pdcd6ip"	"Sh3pxd2b"	"Tmem106a"	"Gm15974"
## [8761]	"Sstr5"	"Gm15056"	"Gm46189"	"A930007I19Rik"
## [8765]	"Fam114a1"	"Gm31166"	"Gm21399"	"Prkce"
## [8769]	"Serpib9"	"Gm30881"	"Ppfibp2"	"Prdx1"
## [8773]	"9330179D12Rik"	"Prkcsh"	"Fyb"	"Grpel1"
## [8777]	"Trip4"	"Rab8a"	"Safb2"	"Tspan31"
## [8781]	"Mlx"	"Rac2"	"Kdm2a"	"Kcmf1"
## [8785]	"Ubb"	"Ubb-ps"	"Gucy2c"	"Gm8797"
## [8789]	"Prmt2"	"Ubap1"	"Hsph1"	"Rmc1"
## [8793]	"Atp7a"	"Gm7204"	"Lipc"	"Pde1b"
## [8797]	"Meak7"	"Cep95"	"Tnrc18"	"Fbxo46"
## [8801]	"Arl8a"	"Tbc1d10b"	"Cmip"	"Hgs"
## [8805]	"Ogt"	"Sec16a"	"Dnhd1"	"Fam214b"
## [8809]	"Zswim4"	"Kif1c"	"Pef1"	"Hilpda"
## [8813]	"Il7r"	"6430562015Rik"	"Gla"	"Prokr1"
## [8817]	"Snx16"	"Plin2"	"Slc29a3"	"AK157302"
## [8821]	"Rlf"	"Dubr"	"Slc2a1"	"Aifm2"
## [8825]	"Apba3"	"Slc27a4"	"Jmjd6"	"Pgam1"
## [8829]	"Pgam1-ps2"	"Lemd2"	"Por"	"Micall1"
## [8833]	"Gde1"	"Rhov"	"Pon3"	"Ccadc194"
## [8837]	"Gm16217"	"Fosl1"	"Srxn1"	"Gm20604"
## [8841]	"Lasp1"	"Eaf1"	"Hmox1"	"Prdm2"
## [8845]	"Ubxn4"	"Tbc1d9"	"Slc41a2"	"Ms4a6d"
## [8849]	"Tmem33"	"Ankrd50"	"Blcap"	"Tgoln1"
## [8853]	"Ptafr"	"Csf2rb2"	"Zfand3"	"Mcl1"
## [8857]	"R3hcc11"	"Csf2rb"	"Ubp1"	"Fam83g"
## [8861]	"Pgf"	"Il18bp"	"Ykt6"	"Fam129b"
## [8865]	"Slc6a8"	"Atn1"	"Atp6v0e"	"Napa"
## [8869]	"Dhrs9"	"Olfr1444"	"Slc6a19"	"Flrt3"
## [8873]	"Pla2g7"	"Grhl2"	"Osbp2"	"Stmn4"
## [8877]	"Mir7676-1"	"Fbxo39"	"Cdcp1"	"Ctsk"
## [8881]	"Mep1a"	"Samd11"	"Dok7"	"Wwc1"
## [8885]	"Slc27a1"	"Lhfp12"	"Slc35f6"	"Gm26532"
## [8889]	"Sfn"	"Irf9"	"Rnasek"	"Pnrc1"
## [8893]	"Tmem140"	"Mlxip"	"Zc3h10"	"Gm49749"
## [8897]	"Gm11496"	"Hpx"	"Il3ra"	"Tm4sf1"
## [8901]	"Fabp3-ps1"	"Fabp3"	"Sh2b2"	"Gm42462"
## [8905]	"Igsf8"	"Clmp"	"Sipa112"	"Ifitm1"
## [8909]	"Fbx15"	"Timp1"	"Adamts1"	"Gm8818"
## [8913]	"Arc"	"Cited4"	"Perm1"	"Dpp6"
## [8917]	"Dusp10"	"Rgs1"	"Gm8597"	"Gm11166"
## [8921]	"Gm19283"	"Oas1d"	"Ppp1r10"	"Fosb"
## [8925]	"Plk2"	"Hspa1a"	"Hspa1b"	"Azin1"
## [8929]	"Dot11"	"Sla2"	"2900060B14Rik"	"Zfp750"
## [8933]	"Anxa11"	"Emd"	"Dennd1a"	"Ptpn23"
## [8937]	"Slc24a3"	"Csf3"	"Naif1"	"Gm15998"
## [8941]	"Slc30a1"	"Arg2"	"Casz1"	"Sde2"
## [8945]	"Gm4799"	"Gm15459"	"Gm7232"	"Gm6210"

## [8949]	"Gm8355"	"Ap1s3"	"Gprc5a"	"Gm44867"
## [8953]	"Cyp26c1"	"Gtf2b"	"Fbxo40"	"Hmcn1"
## [8957]	"Gm5475"	"Hes1"	"Sox5os3"	"Hbegf"
## [8961]	"Ptp4a1"	"Gm7357"	"Ildr1"	"D330050G23Rik"
## [8965]	"Arl5b"	"4930430E12Rik"	"Osm"	"Fabp4"
## [8969]	"Galnt15"	"Gm26672"	"Sorbs1"	"Dpy1912"
## [8973]	"Gm21748"	"Gm21860"	"Gm12058"	"Gnat3"
## [8977]	"F830016B08Rik"	"Olfr432"	"Acyp2"	"Gm5996"
## [8981]	"Gm39469"	"Syf2"	"Txnl1"	"Zwint"
## [8985]	"Atp6v1h"	"Maff"	"Med13"	"Pi4k2b"
## [8989]	"Rnf115"	"Atf3"	"Gadd45g"	"Dusp4"
## [8993]	"Spty2d1"	"Cript"	"Dusp1"	"Sfmbt2"
## [8997]	"Kpna4"	"Rabgef1"	"Cd86"	"Smcr8"
## [9001]	"Gm11517"	"Gm10171"	"Kctd19"	"Gm11870"
## [9005]	"Masp1"	"Bend6"	"Cd1d2"	"Zfp609"
## [9009]	"Emilin2"	"Hmga1b"	"Gm2436"	"Gm2446"
## [9013]	"1700128A07Rik"	"Flrt2"	"Ptprm"	"Sema3c"
## [9017]	"Gm44658"	"Smox"	"Ddit3"	"Insig2"
## [9021]	"Hspb1"	"Gm10557"	"Gm3365"	"Alg9"
## [9025]	"Ube2o"	"Mapk8ip3"	"Gm12915"	"Gm36486"
## [9029]	"E030030I06Rik"	"Il1rl2"	"Alkbh6"	"Gm10382"
## [9033]	"Zfp458"	"3000002C10Rik"	"Gm8756"	"Gm10290"
## [9037]	"Ak312-ps"	"Adgre1"	"Gm31814"	"Gm32089"
## [9041]	"Slamf6"	"Slc39a4"	"Styk1"	"Gm39473"
## [9045]	"Mllt11"	"H2-T-ps"	"Ddt"	"Pex16"
## [9049]	"Hmga1"	"Siglec1"	"Itgb2"	"Slc25a33"
## [9053]	"Slc11a1"	"Sqor"	"Cdc34"	"Chpf"
## [9057]	"Pid1"	"Bcl2l2"	"Os9"	"Dnajc17"
## [9061]	"Pin4"	"Gm3671"	"Gm14111"	"Gm7507"
## [9065]	"Mir7658"	"Gm13012"	"Gm28809"	"Scnm1"
## [9069]	"Tppp3"	"Cep104"	"BC028528"	"Dcn"
## [9073]	"Pde7b"	"Tmem167b"	"Zfyve27"	"Tmem134"
## [9077]	"Pde4dip"	"Unc13d"	"Usp4"	"Fos"
## [9081]	"Mfsd4b3-ps"	"Gm6977"	"Diaph1"	"Slfn1"
## [9085]	"Npc2"	"Rnf25"	"Sdc3"	"Znhit1"
## [9089]	"Crcp"	"Ensa"	"Ms4a6b"	"Trappc4"
## [9093]	"Zdhhc24"	"Gpr35"	"Rassf1"	"Ubr2"
## [9097]	"Zfp346"	"Stra6l"	"Taf12"	"Ifi27l2a"
## [9101]	"Tmem179b"	"Nrg4"	"Gm49364"	"Mien1"
## [9105]	"Clec4d"	"Elk3"	"Ptger2"	"Capg"
## [9109]	"Gm21188"	"Gm36161"	"Zfp35"	"H2-D1"
## [9113]	"Ly96"	"Ginm1"	"Ptpn12"	"Cd53"
## [9117]	"Stam"	"Btg1"	"Gm14519"	"Pdpn"
## [9121]	"Ccnt1"	"Fbxo28"	"Mmaa"	"Ccr5"
## [9125]	"Vmp1"	"Ggta1"	"Ifitm6"	"Smpdl3a"
## [9129]	"Ctss"	"Ms4a7"	"Hid1"	"Akr1c13"
## [9133]	"Gm5652"	"Gm36172"	"Eno1"	"Eno1b"
## [9137]	"Gm4735"	"Aldoa"	"Pkm"	"Emc7"
## [9141]	"Nt5e"	"Csta2"	"Gm6992"	"Nek4"
## [9145]	"Tcta"	"Tmem62"	"Txndc12"	"Stard13"
## [9149]	"Trib3"	"Pla2g5"	"Rhbdd1"	"Soat2"
## [9153]	"Arg1"	"Tnfrsf23"	"Gm10521"	"Mgat5"
## [9157]	"Tulp4"	"Gm12017"	"Gm12428"	"Ywhah"
## [9161]	"Plekha8"	"Gm12589"	"Gm5452"	"Gm8565"

## [9165]	"Gm11605"	"Gm29667"	"Gm6560"	"Gm12419"
## [9169]	"Gm3200"	"Gm7985"	"Gm10327"	"Gm3839"
## [9173]	"Gm4518"	"Gm11960"	"Gm16470"	"Gm11185"
## [9177]	"Gm6316"	"Gm14148"	"Gm3809"	"Gtf2e2"
## [9181]	"Pgk1"	"Gm13882"	"Gm2546"	"Gm5523"
## [9185]	"Gm4691"	"Gm12416"	"Gm15191"	"Gm5855"
## [9189]	"C230062I16Rik"	"Mif"	"Gm9619"	"Gm10313"
## [9193]	"Gm10566"	"Gm2445"	"Gapdh"	"Gm5559"
## [9197]	"Gm7336"	"Gm12033"	"Gm13394"	"Gapdh-ps15"
## [9201]	"Gm2574"	"Gm5138"	"Gapdh-ps16"	"Gm10284"
## [9205]	"Gm13292"	"Gm16374"	"Gm2451"	"Gm2606"
## [9209]	"Gm14760"	"Gm12070"	"Gm12537"	"Gm10359"
## [9213]	"Gm12671"	"Gm4335"	"Gm4654"	"Gm4575"
## [9217]	"Gm10358"	"Gm3222"	"Gm13464"	"Gm10291"
## [9221]	"Gm10293"	"Gm5507"	"Gm10481"	"Gm12286"
## [9225]	"Gm3534"	"Gm4609"	"Ldha-ps2"	"Tpi-rs11"
## [9229]	"Tpi1"	"Ldha"	"Slc16a3"	"Gm2308"
## [9233]	"Fam162a"	"Higd1a"	"Lpxn"	"Zfp983"
## [9237]	"Hikeshi"	"1700088E04Rik"	"Pik3cb"	"Uhrf2"
## [9241]	"Zswim9"	"Abcg1"	"Trpv2"	"4930402H24Rik"
## [9245]	"Tmem170"	"Spryd3"	"Camsap1"	"Fxr2"
## [9249]	"Slc35a2"	"Gmppa"	"Zfp11"	"Gm37233"
## [9253]	"Gpr137"	"Cdk2ap2"	"Mboat7"	"Klhdc3"
## [9257]	"Uckl1"	"Acbd4"	"Rras"	"Plekhn3"
## [9261]	"Zbtb7b"	"Cacfd1"	"Med20"	"Tmub1"
## [9265]	"Tmem214"	"Ccdc97"	"Tmem115"	"Nrd1"
## [9269]	"Agtppbp1"	"Dera"	"Aip"	"Atf6b"
## [9273]	"Afg11"	"Acot8"	"Alg12"	"Gm40723"
## [9277]	"Prepl"	"Zscan20"	"Cd72"	"AU040320"
## [9281]	"Ppp2r5b"	"Sdhaf2"	"Vrk3"	"1700030J22Rik"
## [9285]	"Golp31"	"Bet11"	"Rundc1"	"Dnajb9"
## [9289]	"Plekhn1"	"Gprasp1"	"4930503L19Rik"	"Gm45879"
## [9293]	"Nsun6"	"Kctd13"	"Cdr2"	"Entpd7"
## [9297]	"Mpi"	"Adrm1"	"Gm9774"	"Slc35b1"
## [9301]	"Creld2"	"Dnajb11"	"Cdk11b"	"Bbip1"
## [9305]	"Dynlrb1"	"Rngtt"	"Psmc2"	"Ly6e"
## [9309]	"Psmc2"	"Tmed9"	"Erp44"	"H13"
## [9313]	"Gm17655"	"Gm8717"	"Gm5944"	"Cox6a2"
## [9317]	"1810055G02Rik"	"Psmc1"	"Ap1s1"	"Tarbp2"
## [9321]	"Ptprn"	"Trem1"	"Tspan3"	"Dnajc4"
## [9325]	"Mettl3"	"Gm25579"	"Gm31522"	"Srp19"
## [9329]	"Acot7"	"Cep83"	"Polr3a"	"Vegfc"
## [9333]	"Gpr141"	"Neurl3"	"Osgin2"	"P2ry10b"
## [9337]	"Zfp287"	"Gpatch11"	"Stap1"	"Rpgr"
## [9341]	"5830408C22Rik"	"Lrrk2"	"Vmn2r-ps104"	"Uchl1"
## [9345]	"Dnmt31"	"Acpp"	"Gm19026"	"Ly6m"
## [9349]	"Gm5537"	"Nfe2l1"	"1600022D10Rik"	"Gm38250"
## [9353]	"H2-Q1"	"Mvd"	"Med11"	"Gripap1"
## [9357]	"Klhl12"	"Eif2b5"	"Pdcd5"	"Cars"
## [9361]	"Rad23b"	"Ppib"	"Mrpl1"	"Psmc6"
## [9365]	"Gm22108"	"Gm24798"	"Sptlc1"	"Adprh"
## [9369]	"Ier3"	"AL731706.1"	"Gpr18"	"Susd2"
## [9373]	"Igfbp7"	"Ncf1"	"Sprr2d"	"Gpr55"
## [9377]	"Siglece"	"Gm12758"	"Gstt4"	"Ramp3"

## [9381]	"Gm5535"	"Gm11814"	"U2af114"	"Ppt2"
## [9385]	"1110008P14Rik"	"5830417I10Rik"	"Qsox1"	"Atg4a-ps"
## [9389]	"Gm16754"	"Pkp4"	"Basp1"	"Inhba"
## [9393]	"Nfat5"	"Zfas1"	"Zfp438"	"Aqp9"
## [9397]	"Nos1"	"Olfr99"	"4933433H22Rik"	"Clic5"
## [9401]	"Arnt2"	"Adm"	"Apbb2"	"Pvr"
## [9405]	"Slc22a4"	"Klc2"	"Sirt6"	"H2-K1"
## [9409]	"Ppme1"	"Tcf25"	"Gm11131"	"Slfn4"
## [9413]	"5430405H02Rik"	"Plekha6"	"Zfp654"	"Ly9"
## [9417]	"Rbm47"	"Rest"	"Clcf1"	"Ankrd33b"
## [9421]	"Senp2"	"Fmn1"	"Tgm2"	"Gm10802"
## [9425]	"Gm36913"	"Acs11"	"Vnn3"	"C3"
## [9429]	"Upp1"	"Gm27167"	"Samd15"	"Smurf1"
## [9433]	"Cxxc1"	"Gm20632"	"Gm42878"	"Tlr8"
## [9437]	"Gm5581"	"Gm50237"	"Gm15283"	"Gm49662"
## [9441]	"Acox1"	"Wnk2"	"Bcar1"	"Ero11"
## [9445]	"Mgarp"	"Gm20400"	"Orm1"	"Pgk1-rs7"
## [9449]	"Adgb"	"Marco"	"Akap3"	"Rasgrf1"
## [9453]	"A330074K22Rik"	"Serpini1"	"Gm42647"	"Spag1"
## [9457]	"1700037C18Rik"	"Gm9817"	"Cplx2"	"A930006K02Rik"
## [9461]	"D530033B14Rik"	"Gm38339"	"Mirt2"	"Grina"
## [9465]	"Gm38171"	"Naip1"	"Ankrd37"	"Ak4"
## [9469]	"Egln3"	"AC160336.1"	"Gm6532"	"Bnip3"
## [9473]	"Pgm1"	"Fam8a1"	"Gm50345"	"Rab15"
## [9477]	"Serpib9b"	"Pold3"	"Brpf3"	"Irf2bpl1"
## [9481]	"H2ac20"	"Gt (ROSA)26Sor"	"Lipn"	"Ndfip2"
## [9485]	"Ms4a8a"	"Gm41804"	"Mterf3"	"Nus1"
## [9489]	"Sel113"	"Gm42979"	"Gm27486"	"Gm4835"
## [9493]	"Gm42639"	"Wiz"	"Nvl"	"Nif3l1"
## [9497]	"Timm17a"	"Zcchc10"	"Tigar"	"Timmcd1"
## [9501]	"Uba3"	"Mrps10"	"Pigf"	"Mrpl22"
## [9505]	"Rasip1"	"Slc35d1"	"Dync11i1"	"Ccar1"
## [9509]	"Usp16"	"Anxa2"	"Arhgap10"	"Bmi1"
## [9513]	"Cd14"	"Vim"	"Odf21"	"Cox11"
## [9517]	"Btg3"	"Gm7334"	"Tdrd9"	"Rbpms"
## [9521]	"Wdr48"	"Clcn3"	"Scml4"	"Kpna6"
## [9525]	"Mtg2"	"Tti2"	"E230025N22Rik"	"Tmem168"
## [9529]	"Ralgapa1"	"Tmem161b"	"Stxbp3-ps"	"Slc41a1"
## [9533]	"Dnajc21"	"Secisbp2"	"Dnaja3"	"Dus2"
## [9537]	"Polr3d"	"Atox1"	"Tut1"	"Ccl8"
## [9541]	"Igfbp6"	"Smug1"	"Tradd"	"Eef1a2"
## [9545]	"Clic1"	"Ptpn5"	"4930431P03Rik"	"AI606473"
## [9549]	"Gm5150"	"Ly6a"	"Cfp"	"Spint1"
## [9553]	"Cysltr1"	"Ctsl"	"Syn1"	"Ccr3"
## [9557]	"Folr2"	"Pf4"	"Pbbp"	"Cxc15"
## [9561]	"Tmem70"	"Clec5a"	"Hspa9"	"Snhg6"
## [9565]	"Hyou1"	"Lman1"	"Ahcyl2"	"Srprb"
## [9569]	"Pfdn1"	"Pfdn6"	"Nars"	"Mrpl35"
## [9573]	"Mrpl47"	"Dvl1"	"Rnh1"	"Ugt1a6b"
## [9577]	"Agpat4"	"Serpib2"	"Cxc13"	"Fam20a"
## [9581]	"AC169509.1"	"Gm48065"	"Hspa41"	"Klf4"
## [9585]	"Mmp10"	"Zfp455"	"Prpf40b"	"Ptk2"
## [9589]	"H2-Q10"	"H2-Q5"	"H2-Q7"	"H2-Q4"
## [9593]	"Tjp1"	"1300002E11Rik"	"Pigg"	"Tgds"



## [9597]	"0610030E20Rik"	"Golga1"	"Alg11"	"Csnk2a1"
## [9601]	"Ap2m1-ps"	"Ost4"	"Jagn1"	"Mogs"
## [9605]	"Alg3"	"Drg2"	"Polr1a"	"Rnf126"
## [9609]	"Slc52a2"	"Tmem161a"	"Tmem39b"	"Gm8483"
## [9613]	"B3galnt2"	"Tmem42"	"Cd1d1"	"Afp"
## [9617]	"Timm8b"	"Nucb2"	"Bcap31"	"P4hb"
## [9621]	"Tcaim"	"Aga"	"Prpf2"	"Atf5"
## [9625]	"Plbd1"	"Rps19bp1"	"Klra2"	"Sirpb1c"
## [9629]	"Sirpb1a"	"Sirpb1b"	"Taf1c"	"Aup1"
## [9633]	"Tmem208"	"Cox14"	"Tmed3"	"Tsr3"
## [9637]	"Gm47507"	"Lpp"	"Zfp462"	"Il1r1"
## [9641]	"Thbs1"	"Pcdhac2"	"Mmp12"	"Pxdc1"
## [9645]	"Fam110c"	"Ahr"	"Ccr1"	"Sbspon"
## [9649]	"Dcaf1"	"Usp6nl"	"Gm11557"	"Gpat3"
## [9653]	"Tmem63b"	"Bsg"	"H2-Q6"	"Gm14377"
## [9657]	"Spry2"	"Golt1b"	"Rassf6"	"Slc6a9"
## [9661]	"Sec31a"	"Inpp11"	"Trim46"	"Zfp446"
## [9665]	"Kdelr2"	"Lmtk2"	"Fastk"	"Rbpj"
## [9669]	"Rbpj-ps3"	"Fbxl15"	"Strn4"	"Rer1"
## [9673]	"BC004004"	"Diablo"	"Dner"	"Ergic1"
## [9677]	"Mrp155"	"Ncln"	"Afg311"	"Mydgf"
## [9681]	"Psm3"	"Tbcb"	"Gm33142"	"Arf6"
## [9685]	"Aars"	"Csnk2a3"	"Galns"	"Wdr83"
## [9689]	"Krtcap2"	"Btbd19"	"Rad23a"	"AI427809"
## [9693]	"Ndufaf3"	"Dhrs7b"	"Myo1c"	"Trappc5"
## [9697]	"Dapk3"	"Alg2"	"Ciao1"	"Zbtb40"
## [9701]	"Gm20460"	"Cox19"	"Thap7"	"Ppp1r13b"
## [9705]	"Cdipt"	"Nlrp1a"	"Zranb2"	"Eif2b4"
## [9709]	"Sec11a"	"Abcf3"	"Lst1"	"Cyp4f13"
## [9713]	"Gpr107"	"Snx1"	"Adam8"	"Gba"
## [9717]	"Ctsh"	"Itgam"	"Mrpl17"	"Ap2m1"
## [9721]	"Plbd2"	"Exosc4"	"Tmem11"	"Coa3"
## [9725]	"Map11"	"Clptm1"	"Rhbdd2"	"Aif1"
## [9729]	"Cib1"	"Pilra"	"Ly6i"	"Pilrb1"
## [9733]	"Pilrb2"	"Mea1"	"Pstpip1"	"Luc7l"
## [9737]	"Smim15"	"Cyc1"	"Uqcrq"	"Elob"
## [9741]	"Mdh2"	"Psm3"	"Ndufab1"	"Pin1"
## [9745]	"Timm22"	"Chchd2"	"Zbed5"	"Yif1b"
## [9749]	"Cox6a1"	"Ndufa11"	"Lypla2"	"Gm4459"
## [9753]	"Ndufa3"	"Gm12992"	"Gm4995"	"Atp6v0c-ps2"
## [9757]	"Abhd1"	"Gm10503"	"Dynlt1-ps1"	"Dynlt1b"
## [9761]	"Abcc10"	"Ngrn"	"Rnps1-ps"	"Gm35279"
## [9765]	"Prss41"	"Gm50242"	"Abca5"	"Spr-ps1"
## [9769]	"A930005H10Rik"	"Glo1-ps"	"Grk5"	"Fah"
## [9773]	"Rps2-ps10"	"Rps2-ps13"	"Gm7143"	"Rps2-ps6"
## [9777]	"Gm46620"	"4930578N18Rik"	"Gm42427"	"Gm6433"
## [9781]	"Gm11249"	"Gm12366"	"Gm6139"	"Gm6311"
## [9785]	"Gm7432"	"Rps2-ps8"	"Gm30984"	"Gm50022"
## [9789]	"Gm5815"	"Gm7995"	"9030025P20Rik"	"Gm26862"
## [9793]	"Rpl34-ps2"	"Gm15432"	"Gm5871"	"Ndufs5-ps"
## [9797]	"Gm4705"	"Gm11942"	"Rps3a2"	"Gm5586"
## [9801]	"Rpl34-ps1"	"Rps3a3"	"Gm10154"	"Gm18025"
## [9805]	"Gm6576"	"Gm20532"	"Rpl31"	"4933424G06Rik"
## [9809]	"Mir692-1"	"Gm25328"	"Smoc1"	"Gm18801"

```
## [9813] "Insm1"          "Lum"          "Gm6012"       "Sdcbp2"
## [9817] "Myo16"             "Rpl391"       "Atf7ip2"      "Gm43951"
## [9821] "Mir5122"           "Afdn"         "Zfpm2"        "Dsp"
## [9825] "Gm37103"           "Gm6034"       "Wdfy1"        "Gm45410"
## [9829] "St6galnac1"        "Fzd8"         "Capza1-ps1"   "Gm8801"
## [9833] "Gm15473"           "Tmem236"      "Gm17034"      "9530082P21Rik"
## [9837] "Gm4951"            "Dst"          "Gm50390"      "Atp13a4"
## [9841] "Fem1c"             "Gm31532"      "Gm45193"      "1110059E24Rik"
## [9845] "Iglon5"            "Phlpp1"       "Paqr9"        "Zfp37"
## [9849] "BC018473"          "Elavl4"       "Camk2b"       "Phactr1"
## [9853] "H2-B1"             "Gm20478"      "Gm47547"      "Gm43196"
## [9857] "Gm8810"            "H2-T10"       "Gm8815"       "4930405D11Rik"
## [9861] "Gm37847"           "St6galnac2"   "Syt6"         "Gm10499"
## [9865] "Rps41"             "Babam2"       "Gm48496"      "Igf2r"
## [9869] "Tmem219"           "Cldn23"       "Nap112"       "Prng4"
## [9873] "Tmem151a"          "Ttc9"         "Gm35154"      "Ndst3"
## [9877] "Hmga2"             "Rab30"        "Gm15789"      "B3gnt5"
## [9881] "Spp1"
```

```
a=sort(cutree(phea$tree_row, k=2))
```

```
WT_only=names(a[a==1])
```

```
write.csv(WT_only,"WT_only.csv")
```

```
KO_only=names(a[a==2])
```

```
write.csv(KO_only,"KO_only.csv")
```

```
pdf("heatmap.pdf", height = 27)
```

```
print(phea)
```

```
dev.off()
```

```
## pdf
```

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## 2
```

```
idx = grcm38$symbol %in% rownames(res_table)
```

```
ids <- grcm38[idx, ]
```

```
non_duplicates <- which(duplicated(ids$symbol) == FALSE)
```

```
ids <- ids[non_duplicates, ]
```

```
res_ids <- inner_join(res_table_tb, ids, by=c("gene"="symbol"))
```

```
all_genes <- as.character(res_ids$entrez)
```

```
sig <- dplyr::filter(res_ids, padj < 0.05)
```

```
sig_genes <- as.character(sig$entrez)
```

```
res_entrez <- filter(res_ids, entrez != "NA")
```

```
res_entrez <- res_entrez[which(duplicated(res_entrez$entrez) == F), ]
```

```

all_foldchanges <- res_entrez$log2FoldChange
names(all_foldchanges) <- res_entrez$entrez
all_foldchanges <- sort(all_foldchanges, decreasing = TRUE)

symbol_foldchanges=sig$log2FoldChange

names(symbol_foldchanges)=sig$gene

all_foldchanges=sort(all_foldchanges,decreasing=TRUE)

go <- enrichGO(gene = sig_genes,
               universe = all_genes,
               keyType = "ENTREZID",
               OrgDb = org.Mm.eg.db,
               ont = "BP",
               pAdjustMethod = "BH",
               qvalueCutoff = 0.05,
               readable = TRUE,)

go_dp=dotplot(go, showCategory=60)

netplot=cnetplot(go, foldchange=all_foldchanges,)

ids<-bitr(rownames(norm_sig), fromType = "SYMBOL", toType = "ENTREZID", OrgDb=org.Mm.eg.db)

## 'select()' returned 1:1 mapping between keys and columns

## Warning in bitr(rownames(norm_sig), fromType = "SYMBOL", toType = "ENTREZID", :
## 6.4% of input gene IDs are fail to map...

dedup_ids = ids[!duplicated(ids[c("ENTREZID")]),]

df2 = res_table_tb[res_table_tb$gene %in% dedup_ids$SYMBOL,]

df2$Y = dedup_ids$ENTREZID

# Name vector with ENTREZ ids
kegg_gene_list <- df2$log2FoldChange

names(kegg_gene_list) <- df2$Y

```

```

# omit any NA values
kegg_gene_list<-na.omit(kegg_gene_list)

# sort the list in decreasing order (required for clusterProfiler)
kegg_gene_list = sort(kegg_gene_list, decreasing = TRUE)

gse <- gseGO(gene = kegg_gene_list,
             keyType = "ENTREZID",
             OrgDb = org.Mm.eg.db,
             ont = "BP", pAdjustMethod = "BH",)

## preparing geneSet collections...

## GSEA analysis...

## Warning in fgseaMultilevel(pathways = pathways, stats = stats, minSize =
## minSize, : For some pathways, in reality P-values are less than 1e-10. You can
## set the 'eps' argument to zero for better estimation.

## leading edge analysis...

## done...

gsea=dotplot(gse, showCategory=50)

a=lapply(1:length(gse$Description), function(i) {gseaplot(gse, by = "all", title = gse$Description[i],
pdf("gseas.pdf",width = 10)
print(a)

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```
dev.off()
```

```
## pdf  
## 2
```

```
kgg <- gseKEGG(geneList= kegg_gene_list, organism= "mmu", minGSSize = 3,maxGSSize = 1800, pvalueC
```

```
## Reading KEGG annotation online: "https://rest.kegg.jp/link/mmu/pathway"...
```

```
## Reading KEGG annotation online: "https://rest.kegg.jp/list/pathway/mmu"...
```

```
## preparing geneSet collections...
```

```
## GSEA analysis...
```

```
## Warning in fgseaMultilevel(pathways = pathways, stats = stats, minSize =  
## minSize, : For some pathways, in reality P-values are less than 1e-10. You can  
## set the 'eps' argument to zero for better estimation.
```

```
## leading edge analysis...
```

```
## done...
```

```
kegg=dotplot(kgg, showCategory=80)
```

```
pathwayss <- lapply(1:10, function(x) {  
  pathview(gene.data = foldchanges, pathway.id = kgg$ID[x], species = "mmu")  
})
```

```
## Error in pathview(gene.data = foldchanges, pathway.id = kgg$ID[x], species = "mmu"): object 'foldchanges' not found
```

```
pdf("GO_dotplot.pdf", width=10, height=33)  
print(go_dp)  
dev.off()
```

```
## pdf  
## 2
```

```
pdf("gsea_dotplot.pdf", width=10, height=33)  
print(gsea)  
dev.off()
```

```
## pdf  
## 2
```

```
pdf("kegg_dotplot.pdf", width=10, height=35)  
print(kegg)  
dev.off()
```

```
## pdf  
## 2
```

```
pdf("network.pdf", width=27, height=20)  
print(netplot)
```

```
## Warning: ggrepel: 49 unlabeled data points (too many overlaps). Consider  
## increasing max.overlaps
```

```
dev.off()
```

```
## pdf  
## 2
```

```
normalized_counts=rlog(counts(dds))
```

```
normalized_counts <- normalized_counts %>%  
  data.frame() %>%  
  rownames_to_column(var="gene") %>%  
  as_tibble()
```

```
normalized_counts$entrez=mapIds(org.Mm.eg.db,key=normalized_counts$gene,column = "ENTREZID", keytype="ENTREZID")
```

```

## 'select()' returned 1:1 mapping between keys and columns

normalized_counts$gene=normalized_counts$entrez

normalized_counts=normalized_counts[,1:24]

normalized_counts=aggregate(. ~gene , data = normalized_counts, sum)

normalized_counts <- normalized_counts %>%
  data.frame() %>%
  column_to_rownames(var = "gene")

require(Biobase)
normalized_counts1<-new("ExpressionSet", exprs=as.matrix(normalized_counts))

normalized_counts1$time= colData$group


pathwaysDF <- msigdbr("mouse", category=c("H"))
pathways <- split(as.character(pathwaysDF$entrez_gene), pathwaysDF$gs_name)

set.seed(1)
gesecaRes <- geseca(pathways, exprs(normalized_counts1), minSize = 10, maxSize = 1000, eps = 0, nPermSim)

geseres=plotGesecaTable(gesecaRes |> head(5), pathways,E=exprs(normalized_counts1),)

IFNG=plotCoregulationProfile(pathway=pathways[["HALLMARK_INTERFERON_GAMMA_RESPONSE"]],
                             E=exprs(normalized_counts1), conditions=normalized_counts1$time)

INF=plotCoregulationProfile(pathway=pathways[["HALLMARK_INFLAMMATORY_RESPONSE"]],
                             E=exprs(normalized_counts1), conditions=normalized_counts1$time)

TNF_NFKB=plotCoregulationProfile(pathway=pathways[["HALLMARK_TNFA_SIGNALING_VIA_NFKB"]],
                                  E=exprs(normalized_counts1), conditions=normalized_counts1$time)

TNFA=plotCoregulationProfile(pathway=pathways[["HALLMARK_INTERFERON_ALPHA_RESPONSE"]],
                              E=exprs(normalized_counts1), conditions=normalized_counts1$time)

E2F=plotCoregulationProfile(pathway=pathways[["HALLMARK_E2F_TARGETS"]],
                             E=exprs(normalized_counts1), conditions=normalized_counts1$time)

```



```

fgseaRes <- fgsea(pathways = pathways,
                 stats      = all_foldchanges,)

fgseaResTidy <- fgseaRes %>%
  as_tibble() %>%
  arrange(desc(NES))

# Show in a nice table:
fgseaResTidy %>%
  dplyr::select(-leadingEdge, -ES) %>%
  arrange(padj) %>%
  DT::datatable()

```

**pathway pval padj log2err NES size**

```

fgsearesgraph=ggplot(fgseaResTidy, aes(reorder(pathway, NES), NES)) +
  geom_col(aes(fill=padj<0.05)) +
  coord_flip() +
  labs(x="Pathway", y="Normalized Enrichment Score",
       title="Hallmark pathways NES from GSEA") +
  theme_minimal()

pdf("IFNG.pdf",width = 10)
print(IFNG)

```

```
dev.off()
```

```
## pdf  
## 2
```

```
pdf("INF.pdf",width = 10)  
print(INF)  
dev.off()
```

```
## pdf  
## 2
```

```
pdf("TNF_NFKB.pdf",width = 10)  
print(TNF_NFKB)  
dev.off()
```

```
## pdf  
## 2
```

```
pdf("TNFA.pdf",width = 10)  
print(TNFA)  
dev.off()
```

```
## pdf  
## 2
```

```
pdf("E2F.pdf",width = 10)  
print(E2F)  
dev.off()
```

```
## pdf  
## 2
```

```
pdf("geseca.pdf",width = 10)  
print(geseres)  
dev.off()
```

```
## pdf  
## 2
```

```
pdf("fgsearesgraph.pdf",width = 10)  
print(fgsearesgraph)  
dev.off()
```

```
## pdf  
## 2
```