

# Module 4 - Unsupervised

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## Warm Up

1. Unsupervised learning is a machine learning technique where the model can detect patterns and new information on its own. Thus, the model does not have to be supervised and can deal with untagged data on its own.
2. K-means clustering is an unsupervised machine learning algorithm that groups similar data points together that looks for k clusters in a dataset. It defines k number of clusters and allocates each data point to the nearest cluster.
3. The Curse of Dimensionality is when there are too many features in the dataset. This makes it difficult to fit the model and may lead to overfitting.
4. Dimensionality reduction occurs when high dimensional data is transformed to reduce the number of input variables to improve predictive modeling. This is done to help reduce the curse of dimensionality.
5. Multicollinearity is when there is a correlation between the independent variables in a regression. This is an issue because the independent variables should be independent of each other.
6. PCA is principal component analysis by transforming a larger set of variables into a smaller one that contains as much information as possible from the larger set. It helps solve the multicollinearity problem because it can be used for dimensionality reduction and can be used to identify if multicollinearity is present in a dataset.
7. The elbow method works by plotting the percent of explained variation as a function of the number of clusters and then picking the sharpest bend in the curve as the number of clusters to use. This elbow in the curve is the point where diminishing returns are no longer worth the additional cost.
8. The silhouette method is used to identify how similar an object is to its own cluster and to other clusters. The clustering is appropriate when most objects have a high silhouette value that shows that the object is well matched to its own cluster, but not to nearby clusters.

## Unsupervised learning

1.

```
library(readxl)
mice <- read_xls("Data_Cortex_Nuclear.xls")
nrow(mice)
```

```
## [1] 1080
```

There are 108 observations.

2.

```
ncol(mice)
```

```
## [1] 82
```

There are 82 variables.

3.

```
sum(is.na(mice))
```

```
## [1] 1396
```

```
colSums(is.na(mice))
```

##	MouseID	DYRK1A_N	ITSN1_N	BDNF_N	NR1_N
##	0	3	3	3	3
##	NR2A_N	pAKT_N	pBRAF_N	pCAMKII_N	pCREB_N
##	3	3	3	3	3
##	pELK_N	pERK_N	pJNK_N	PKCA_N	pMEK_N
##	3	3	3	3	3
##	pNR1_N	pNR2A_N	pNR2B_N	pPKCAB_N	pRSK_N
##	3	3	3	3	3
##	AKT_N	BRAF_N	CAMKII_N	CREB_N	ELK_N
##	3	3	3	3	18
##	ERK_N	GSK3B_N	JNK_N	MEK_N	TRKA_N
##	3	3	3	7	3
##	RSK_N	APP_N	Bcatenin_N	SOD1_N	MTOR_N
##	3	3	18	3	3
##	P38_N	pMTOR_N	DSCR1_N	AMPKA_N	NR2B_N
##	3	3	3	3	3
##	pNUMB_N	RAPTOR_N	TIAM1_N	pP70S6_N	NUMB_N
##	3	3	3	3	0
##	P70S6_N	pGSK3B_N	pPKCG_N	CDK5_N	S6_N
##	0	0	0	0	0
##	ADARB1_N	AcetylH3K9_N	RRP1_N	BAX_N	ARC_N
##	0	0	0	0	0
##	ERBB4_N	nNOS_N	Tau_N	GFAP_N	GluR3_N
##	0	0	0	0	0
##	GluR4_N	IL1B_N	P3525_N	pCASP9_N	PSD95_N
##	0	0	0	0	0
##	SNCA_N	Ubiquitin_N	pGSK3B_Tyr216_N	SHH_N	BAD_N
##	0	0	0	0	213
##	BCL2_N	pS6_N	pCFOS_N	SYP_N	H3AcK18_N
##	285	0	75	0	180
##	EGR1_N	H3MeK4_N	CaNA_N	Genotype	Treatment
##	210	270	0	0	0
##	Behavior	class			
##	0	0			

4.

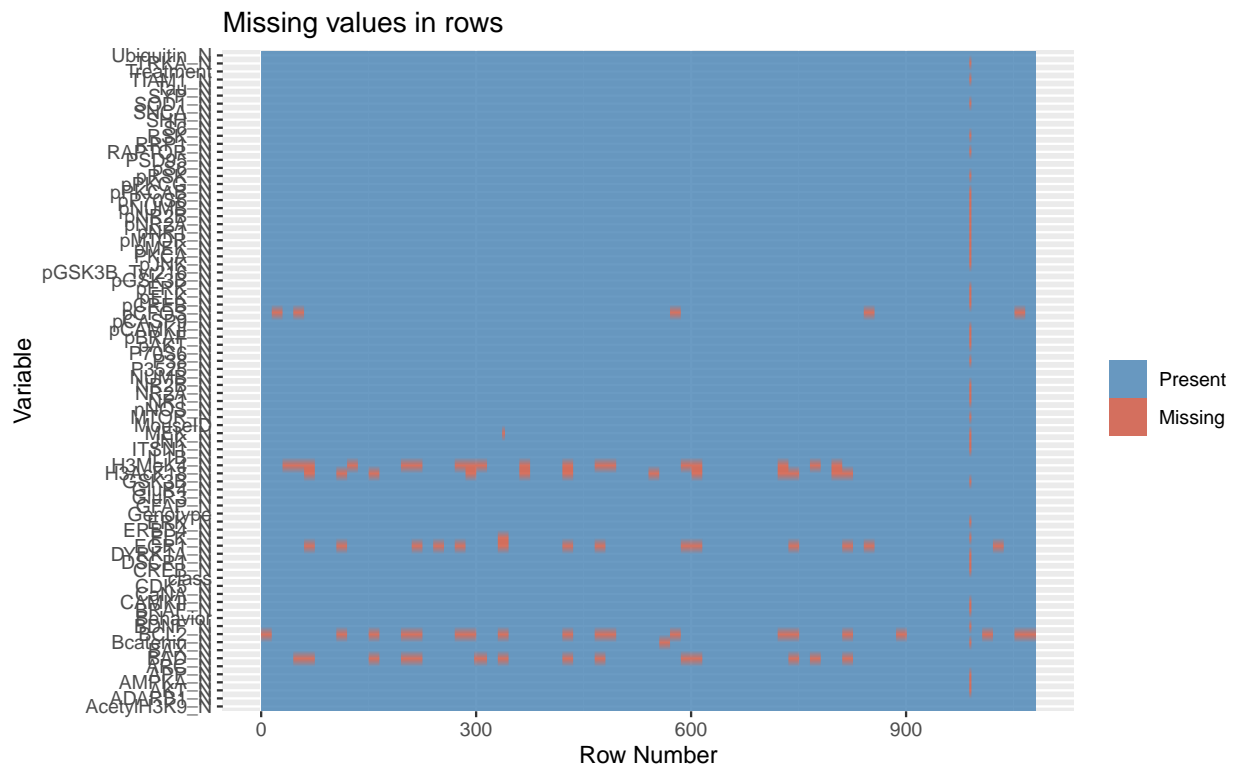
```
library(tidyverse)
```

```
## -- Attaching packages ----- tidyverse 1.3.1 --
```

```
## v ggplot2 3.3.5      v purrr  0.3.4
## v tibble  3.1.6      v dplyr  1.0.7
## v tidyr   1.1.4      v stringr 1.4.0
## v readr   2.1.1      v forcats 0.5.1
```

```
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()
```

```
library(ggplot2)
mice %>%
  mutate(id = row_number()) %>%
  gather(-id, key = "key", value = "val") %>%
  mutate(isna = is.na(val)) %>%
  ggplot(aes(key, id, fill = isna)) + geom_raster(alpha=0.8) +
  scale_fill_manual(values = c('steelblue', 'tomato3'), labels = c("Present", "Missing"), name = "") +
  labs(x = "Variable", y = "Row Number", title = "Missing values in rows") +
  coord_flip()
```



5.

```
multi <- cor(na.omit(mice[, 2:78]))
multi
```

##	DYRK1A_N	ITSN1_N	BDNF_N	NR1_N	NR2A_N
## DYRK1A_N	1.00000000	0.922361635	0.38278421	0.254820291	0.288368744
## ITSN1_N	0.92236164	1.000000000	0.53598062	0.430788523	0.428279149
## BDNF_N	0.38278421	0.535980618	1.00000000	0.832862228	0.747559392
## NR1_N	0.25482029	0.430788523	0.83286223	1.00000000	0.899796904
## NR2A_N	0.28836874	0.428279149	0.74755939	0.899796904	1.00000000
## pAKT_N	-0.12710431	-0.046645034	0.43750621	0.360170390	0.269293352
## pBRAF_N	-0.02665016	0.031511454	0.49988573	0.398750117	0.254086586
## pCAMKII_N	-0.07406235	-0.018897962	0.32714398	0.341446026	0.359483286
## pCREB_N	0.15641188	0.363706527	0.74858507	0.736001302	0.556803041
## pELK_N	0.51547277	0.516033150	0.41310177	0.411778883	0.379700025
## pERK_N	0.92440991	0.868392785	0.36942602	0.260754448	0.292738124
## pJNK_N	-0.05094447	0.092410233	0.58069095	0.596504993	0.514287414
## PKCA_N	0.33519586	0.443251337	0.76605397	0.620292036	0.545392507
## pMEK_N	-0.04092972	0.090705355	0.61462429	0.542057774	0.441471952
## pNR1_N	0.18212435	0.335227376	0.75519975	0.948532125	0.892327172
## pNR2A_N	-0.19835330	-0.071255358	0.41179642	0.611030901	0.570906798
## pNR2B_N	0.17498515	0.339310809	0.73385531	0.938288977	0.888735493
## pPKCAB_N	0.41831660	0.487068069	0.55209652	0.398856534	0.357770508
## pRSK_N	0.15101402	0.209734710	0.41680385	0.285584845	0.187899436
## AKT_N	0.00871931	0.180683173	0.62190670	0.727350448	0.683177603
## BRAF_N	0.91813060	0.848885685	0.36354042	0.208185034	0.212826945
## CAMKII_N	0.01243302	0.129301127	0.64413032	0.617796849	0.500823823
## CREB_N	0.05253206	0.124382376	0.53480413	0.361971950	0.243496288
## ELK_N	0.29864457	0.507412425	0.74241105	0.823789864	0.7537700175
## ERK_N	0.34020524	0.546146731	0.79388685	0.853640037	0.847777492
## GSK3B_N	0.71695434	0.810457181	0.72521252	0.663988589	0.665486592
## JNK_N	0.24044064	0.351483084	0.75945157	0.667133525	0.542415264
## MEK_N	0.19481368	0.382162125	0.81346633	0.747026895	0.631248070
## TRKA_N	0.32693039	0.527308913	0.87079266	0.891089011	0.790894364
## RSK_N	0.01090946	0.093934380	0.55242594	0.441155061	0.253504125
## APP_N	0.57803911	0.721272536	0.71997204	0.543910375	0.501388951
## Bcatenin_N	0.24761531	0.441813484	0.78815811	0.928737818	0.877784365
## SOD1_N	-0.49950147	-0.390787891	0.05269294	0.177175137	0.083557556
## MTOR_N	-0.12518467	-0.113703101	0.43284517	0.401683552	0.360695858
## P38_N	-0.36100723	-0.399538506	0.04194036	0.039450181	-0.003750792
## pMTOR_N	-0.10240441	-0.039811440	0.43948050	0.537291887	0.532168451
## DSCR1_N	0.08062678	0.110919118	0.42245477	0.333143975	0.340425948
## AMPKA_N	0.17325003	0.270216580	0.71375220	0.714437474	0.741625997
## NR2B_N	-0.05874593	0.003153018	0.54188199	0.560966708	0.535173112
## pNUMB_N	0.45568076	0.516417906	0.63530852	0.481648423	0.556321070
## RAPTOR_N	-0.02598228	-0.002232422	0.48308175	0.357086447	0.387165999
## TIAM1_N	0.26624305	0.379594594	0.64661688	0.528276997	0.575248744
## pP70S6_N	-0.07810342	-0.105291917	0.07198899	-0.117192911	-0.162821171
## NUMB_N	0.30956128	0.517926948	0.48353419	0.569664080	0.521470263
## P70S6_N	0.20005359	0.370969792	0.32177973	0.482127774	0.470819078
## pGSK3B_N	0.35844185	0.462515153	0.43064686	0.293414116	0.198079580
## pPKCG_N	0.02869658	0.103451523	0.15891936	-0.036377728	-0.113493338

## CDK5_N	0.17255171	0.319558750	0.42884556	0.361103383	0.293135981
## S6_N	0.44654939	0.589624570	0.22416050	0.136103096	0.091502246
## ADARB1_N	0.24741877	0.366728527	0.61789689	0.600092645	0.645452996
## AcetylH3K9_N	-0.03425022	0.080742016	0.02867825	-0.051787472	-0.094171398
## RRP1_N	-0.05040181	-0.026629554	0.03675090	-0.044089292	-0.062812194
## BAX_N	0.07966677	0.267146827	0.44305793	0.520350873	0.517305410
## ARC_N	-0.36371118	-0.223362718	0.24224126	0.404419650	0.372721618
## ERBB4_N	-0.18076266	0.003579286	0.35681974	0.394519018	0.294676610
## nNOS_N	-0.06960722	0.061654210	0.25605106	0.387875806	0.338882561
## Tau_N	0.09308556	0.251109808	0.09519433	-0.009981153	-0.042522379
## GFAP_N	0.10314075	0.121751661	0.12195024	-0.009755269	-0.032379751
## GluR3_N	0.02426309	0.012737306	-0.01365337	0.182699110	0.163850053
## GluR4_N	0.12856161	0.213451516	0.24425991	0.266769465	0.240625175
## IL1B_N	-0.44718461	-0.409357573	-0.22383983	-0.138047377	-0.229646765
## P3525_N	-0.06258075	0.083980368	0.34143834	0.240459022	0.142282004
## pCASP9_N	-0.09236446	0.034750034	0.17891041	0.276926416	0.230106532
## PSD95_N	-0.19877141	-0.063687110	0.27016126	0.503269114	0.368016108
## SNCA_N	-0.51804369	-0.500357971	-0.15751608	-0.113135443	-0.154128211
## Ubiquitin_N	-0.36924086	-0.237921869	0.20819658	0.267343480	0.208690999
## pGSK3B_Tyr216_N	0.30112497	0.384144220	0.26559374	0.137963826	0.055807910
## SHH_N	-0.26223113	-0.243865053	-0.04038450	-0.153012870	-0.226954887
## BAD_N	-0.27509195	-0.350630511	-0.15761852	-0.407684502	-0.472464023
## BCL2_N	-0.35119911	-0.405715674	-0.13284792	-0.260440227	-0.303924809
## pS6_N	-0.36371118	-0.223362718	0.24224126	0.404419650	0.372721618
## pCFOS_N	-0.31448205	-0.425017674	-0.34308711	-0.404320435	-0.409338394
## SYP_N	-0.06977574	0.131311080	0.59816102	0.624784103	0.492579354
## H3AcK18_N	-0.25074552	-0.175310347	-0.09558934	-0.175718071	-0.236031362
## EGR1_N	-0.42615156	-0.515282063	-0.27644711	-0.385419173	-0.411080678
## H3MeK4_N	-0.39462873	-0.406217923	-0.20123749	-0.306744301	-0.397364337
## CaNA_N	0.46330528	0.526254537	0.34143659	0.258619158	0.183098788
##	pAKT_N	pBRAF_N	pCAMKII_N	pCREB_N	pELK_N
## DYRK1A_N	-0.12710431	-0.02665016	-0.07406235	0.156411885	0.515472775
## ITSN1_N	-0.04664503	0.03151145	-0.01889796	0.363706527	0.516033150
## BDNF_N	0.43750621	0.49988573	0.32714398	0.748585066	0.413101771
## NR1_N	0.36017039	0.39875012	0.34144603	0.736001302	0.411778883
## NR2A_N	0.26929335	0.25408659	0.35948329	0.556803041	0.379700025
## pAKT_N	1.00000000	0.86074837	0.60700629	0.602424085	0.096215984
## pBRAF_N	0.86074837	1.00000000	0.50144657	0.626915460	0.181780529
## pCAMKII_N	0.60700629	0.50144657	1.00000000	0.435850696	0.023029013
## pCREB_N	0.60242409	0.62691546	0.43585070	1.000000000	0.279371498
## pELK_N	0.09621598	0.18178053	0.02302901	0.279371498	1.000000000
## pERK_N	-0.21173939	-0.07137415	-0.15373329	0.107660900	0.494566917
## pJNK_N	0.81232105	0.76824738	0.67626026	0.720884814	0.169573388
## PKCA_N	0.44049353	0.42135785	0.47542456	0.607393384	0.221230720
## pMEK_N	0.89884255	0.84162838	0.62586836	0.751805363	0.185848485
## pNR1_N	0.32422063	0.37691546	0.34208092	0.663764396	0.385932302
## pNR2A_N	0.37565486	0.36818362	0.60707810	0.546633053	0.056991366
## pNR2B_N	0.37809609	0.39207746	0.40525455	0.688177360	0.404983478
## pPKCAB_N	0.09086525	0.07921453	0.15721742	0.302240542	0.146336245
## pRSK_N	0.62278150	0.53851312	0.53378986	0.515492919	0.052895507
## AKT_N	0.51081203	0.49091128	0.27840861	0.659053770	0.345078087
## BRAF_N	0.00832826	0.11566550	-0.04948593	0.160278834	0.527843519
## CAMKII_N	0.78625611	0.79457615	0.45311470	0.679789771	0.325093813
## CREB_N	0.78917398	0.82766466	0.48112028	0.599862673	0.178104607

## ELK_N	0.13457682	0.20664813	0.17870495	0.697494760	0.368823198
## ERK_N	0.13404581	0.15658098	0.11783724	0.631855354	0.358544048
## GSK3B_N	0.10256391	0.14828463	0.07920190	0.425496869	0.442121505
## JNK_N	0.76229712	0.80215540	0.42613489	0.742864675	0.325885896
## MEK_N	0.66442902	0.67813576	0.41640174	0.833022766	0.295142852
## TRKA_N	0.47937637	0.48722851	0.39630841	0.807670437	0.347539704
## RSK_N	0.79218120	0.84701491	0.34351913	0.638520169	0.228783922
## APP_N	0.36089217	0.37248951	0.35414788	0.625995908	0.397339407
## Bcatenin_N	0.32331625	0.33571831	0.39865977	0.775815974	0.355165789
## SOD1_N	0.37443442	0.33850777	0.24366418	0.387568769	-0.038254778
## MTOR_N	0.49300221	0.48822436	0.35930555	0.290927415	0.221076306
## P38_N	0.39692144	0.38718768	0.39452094	0.076076154	-0.002514654
## pMTOR_N	0.57116022	0.51462630	0.54031008	0.444739570	0.198084615
## DSCR1_N	0.60413998	0.58302080	0.38005241	0.342381958	0.295935977
## AMPKA_N	0.30799015	0.36615330	0.26103032	0.462223767	0.399375655
## NR2B_N	0.58677211	0.57810706	0.46647376	0.432698103	0.249227306
## pNUMB_N	0.26486249	0.28441952	0.19397697	0.348610491	0.362651903
## RAPTOR_N	0.57931662	0.58501453	0.40907105	0.348617082	0.231766390
## TIAM1_N	0.41067694	0.41490607	0.33972757	0.479383217	0.369156493
## pP70S6_N	0.42466089	0.34366468	0.46815857	0.113646365	-0.105487726
## NUMB_N	-0.13909790	-0.10316679	-0.07310912	0.464622987	0.150314660
## P70S6_N	-0.01048774	-0.03401647	0.17082703	0.462163953	0.170377570
## pGSK3B_N	0.07058460	0.11930717	-0.03575337	0.404643859	0.099346348
## pPKCG_N	0.21839746	0.11679246	0.31701777	0.235832616	-0.233687461
## CDK5_N	0.10853484	0.11165246	0.06932873	0.391098808	-0.006348123
## S6_N	-0.12564324	-0.11789088	-0.04957832	0.308582850	0.067344674
## ADARB1_N	0.09514092	0.05760021	0.18665882	0.299434359	0.210567399
## AcetylH3K9_N	0.13085785	0.07608520	0.15263936	0.253369445	-0.116311641
## RRP1_N	0.15201292	0.13468508	0.04120225	0.102019623	-0.055614886
## BAX_N	0.10178941	0.05151437	0.19008302	0.474668775	0.025194253
## ARC_N	0.43448441	0.35516467	0.47509964	0.440425689	-0.034131024
## ERBB4_N	0.46975610	0.34967856	0.37671921	0.534198374	-0.039446474
## nNOS_N	0.30294586	0.26715760	0.39835556	0.524724911	-0.019756926
## Tau_N	0.15115560	0.08266732	0.06737702	0.328836901	-0.015131324
## GFAP_N	0.02857590	0.06014918	-0.05912885	0.102934971	-0.032655332
## GluR3_N	-0.28284001	-0.20796368	0.10008990	-0.026917546	-0.008409148
## GluR4_N	-0.06296614	-0.03201227	0.22286095	0.279349403	0.029825727
## IL1B_N	0.21724751	0.18220632	0.17857005	0.064119802	-0.230883800
## P3525_N	0.19646696	0.13098758	0.14852353	0.390751771	-0.172083249
## pCASP9_N	0.15790042	0.09486643	0.22923254	0.359640308	-0.108233847
## PSD95_N	0.42194210	0.35817097	0.46754753	0.521078335	-0.014549284
## SNCA_N	0.30144570	0.26955309	0.19692004	0.029664277	-0.202237964
## Ubiquitin_N	0.69570198	0.54841001	0.66951715	0.500973421	-0.129000766
## pGSK3B_Tyr216_N	0.14808757	0.08058869	0.14379597	0.274895375	-0.058493917
## SHH_N	0.20806231	0.15406326	0.13828643	0.091625487	-0.177741644
## BAD_N	0.34023941	0.36840209	0.18302952	-0.039640820	-0.239612298
## BCL2_N	0.36158632	0.41216039	0.20527991	-0.001710906	-0.169974689
## pS6_N	0.43448441	0.35516467	0.47509964	0.440425689	-0.034131024
## pCFOS_N	-0.01440698	0.02856472	-0.04196062	-0.298671221	-0.211518549
## SYP_N	0.38369079	0.40995157	0.32826763	0.657358373	0.053596736
## H3AcK18_N	0.28726335	0.24517391	0.17522546	0.195551647	-0.188586094
## EGR1_N	0.27166928	0.30564147	0.15292061	-0.141455180	-0.197635867
## H3MeK4_N	0.45783817	0.45756939	0.19488768	0.103150467	-0.213939509
## CaNA_N	-0.16378207	-0.09302197	-0.27715267	0.178116993	0.098234166

##	pERK_N	pJNK_N	PKCA_N	pMEK_N	pNR1_N
## DYRK1A_N	0.924409912	-0.050944467	0.335195862	-0.04092972	0.182124348
## ITSN1_N	0.868392785	0.092410233	0.443251337	0.09070535	0.335227376
## BDNF_N	0.369426020	0.580690954	0.766053969	0.61462429	0.755199754
## NR1_N	0.260754448	0.596504993	0.620292036	0.54205777	0.948532125
## NR2A_N	0.292738124	0.514287414	0.545392507	0.44147195	0.892327172
## pAKT_N	-0.211739391	0.812321047	0.440493526	0.89884255	0.324220626
## pBRAF_N	-0.071374147	0.768247382	0.421357854	0.84162838	0.376915462
## pCAMKII_N	-0.153733290	0.676260262	0.475424558	0.62586836	0.342080919
## pCREB_N	0.107660900	0.720884814	0.607393384	0.75180536	0.663764396
## pELK_N	0.494566917	0.169573388	0.221230720	0.18584849	0.385932302
## pERK_N	1.000000000	-0.065361702	0.324764330	-0.11838098	0.218291598
## pJNK_N	-0.065361702	1.000000000	0.560571294	0.88298271	0.578157461
## PKCA_N	0.324764330	0.560571294	1.000000000	0.54505945	0.513067786
## pMEK_N	-0.118380980	0.882982706	0.545059454	1.000000000	0.483612440
## pNR1_N	0.218291598	0.578157461	0.513067786	0.48361244	1.000000000
## pNR2A_N	-0.114645987	0.700940362	0.333233617	0.48209158	0.696612809
## pNR2B_N	0.198547069	0.657161856	0.525398277	0.53617896	0.943456000
## pPKCAB_N	0.448136346	0.229045538	0.852852659	0.18040168	0.255192748
## pRSK_N	0.051406750	0.571596345	0.685895717	0.63975764	0.188625373
## AKT_N	-0.031001458	0.609303575	0.281298319	0.63056561	0.736183831
## BRAF_N	0.901239707	-0.003681172	0.334036459	0.05442736	0.121582622
## CAMKII_N	-0.039925556	0.726388762	0.484646878	0.80603641	0.563180359
## CREB_N	-0.007186456	0.677970203	0.508287423	0.79683161	0.315090014
## ELK_N	0.304041201	0.461648187	0.488748570	0.37643080	0.808086833
## ERK_N	0.368423826	0.429181113	0.555250451	0.35491639	0.802427274
## GSK3B_N	0.691459400	0.266175380	0.667422358	0.25822287	0.538093070
## JNK_N	0.203859919	0.776497994	0.691959597	0.82958052	0.577974857
## MEK_N	0.147850557	0.786665999	0.655454279	0.80679911	0.665654490
## TRKA_N	0.301657558	0.685463931	0.764651708	0.65810563	0.770708633
## RSK_N	-0.021457705	0.671320312	0.462586343	0.78942638	0.355260343
## APP_N	0.455054994	0.467775141	0.642442243	0.47798472	0.452038449
## Bcatenin_N	0.213041740	0.583711008	0.564905636	0.54266009	0.882882613
## SOD1_N	-0.564705556	0.320850296	-0.212974041	0.39245708	0.238469282
## MTOR_N	-0.120918295	0.461593230	0.276838048	0.48404200	0.470703463
## P38_N	-0.391232607	0.294650498	-0.061647214	0.34686651	0.153997763
## pMTOR_N	-0.092464843	0.679213624	0.302827248	0.61326927	0.613846550
## DSCR1_N	0.062719224	0.562362329	0.309518818	0.56436202	0.393334648
## AMPKA_N	0.190886655	0.463662493	0.439176795	0.45726868	0.775824422
## NR2B_N	-0.064518070	0.601940577	0.351053398	0.61806070	0.615977547
## pNUMB_N	0.474508916	0.378553950	0.599706577	0.33743444	0.498352993
## RAPTOR_N	-0.062913140	0.521034467	0.352540748	0.59721464	0.444264713
## TIAM1_N	0.191907799	0.486017599	0.462382302	0.50446763	0.579874899
## pP70S6_N	-0.201703680	0.218785649	0.342735976	0.34382740	-0.159135676
## NUMB_N	0.360688998	0.211812765	0.384325839	0.05752090	0.515737996
## P70S6_N	0.237534010	0.327616514	0.184671946	0.14450460	0.515437548
## pGSK3B_N	0.372922242	0.153302058	0.553828524	0.21931955	0.161389082
## pPKCG_N	-0.065139827	0.213327872	0.556447681	0.23750504	-0.179930886
## CDK5_N	0.194195081	0.294290636	0.465350176	0.23880493	0.244947551
## S6_N	0.393724638	-0.016079661	0.300807597	-0.01785229	0.047077374
## ADARB1_N	0.271640552	0.281096544	0.515845557	0.21946824	0.541392719
## AcetylH3K9_N	-0.133469790	0.054146242	0.145226809	0.12813122	-0.080349010
## RRP1_N	-0.052589780	0.071835772	0.089226043	0.12978292	-0.046851413
## BAX_N	0.048335183	0.321758094	0.422419096	0.28202873	0.440884312

## ARC_N	-0.388125679	0.484425623	0.033929900	0.49069799	0.447917932
## ERBB4_N	-0.202219474	0.475228267	0.267107517	0.51311017	0.358341916
## nNOS_N	-0.068741150	0.431154125	0.175678461	0.40460756	0.411034432
## Tau_N	-0.008159078	0.110733081	0.034060666	0.15898426	-0.013155855
## GFAP_N	0.136355610	0.031081096	0.251301407	0.04938032	-0.038950473
## GluR3_N	0.151765735	-0.016005742	-0.005907439	-0.20699627	0.252852982
## GluR4_N	0.201454232	0.202133721	0.240145362	0.06430563	0.283485982
## IL1B_N	-0.431679218	0.124129793	-0.346279385	0.13763565	-0.055475341
## P3525_N	-0.089232714	0.208993570	0.386652333	0.27093676	0.168229587
## pCASP9_N	0.004967363	0.383177793	0.220084785	0.24293512	0.307485763
## PSD95_N	-0.200023281	0.570040422	0.196797863	0.49347699	0.454709901
## SNCA_N	-0.532319634	0.198408229	-0.270368312	0.24143972	-0.029735717
## Ubiquitin_N	-0.444639639	0.683655243	0.217530143	0.68581278	0.252358352
## pGSK3B_Tyr216_N	0.252417939	0.144919753	0.408304067	0.21002938	-0.007315384
## SHH_N	-0.290603552	0.031659852	-0.073370986	0.13628833	-0.176015758
## BAD_N	-0.302649799	0.129109656	0.002672615	0.22005573	-0.402983240
## BCL2_N	-0.337729011	0.200698958	-0.115224429	0.25075574	-0.195102365
## pS6_N	-0.388125679	0.484425623	0.033929900	0.49069799	0.447917932
## pCFOS_N	-0.263834899	-0.135139125	-0.302585073	-0.11876988	-0.295706300
## SYP_N	-0.028211802	0.616278960	0.546285197	0.54583831	0.546677461
## H3AcK18_N	-0.324552381	0.127372220	-0.012570226	0.22041037	-0.158956499
## EGR1_N	-0.424929114	0.084538308	-0.270682211	0.13178669	-0.282183627
## H3MeK4_N	-0.447457481	0.205558335	-0.144423573	0.31570311	-0.288545247
## CaNA_N	0.529682182	-0.037266780	0.485470252	-0.06318455	0.103360263
##	pNR2A_N	pNR2B_N	pPKCAB_N	pRSK_N	
## DYRK1A_N	-0.198353299	0.174985147	0.418316603	0.151014022	
## ITSN1_N	-0.071255358	0.339310809	0.487068069	0.209734710	
## BDNF_N	0.411796416	0.733855310	0.552096517	0.416803852	
## NR1_N	0.611030901	0.938288977	0.398856534	0.285584845	
## NR2A_N	0.570906798	0.888735493	0.357770508	0.187899436	
## pAKT_N	0.375654860	0.378096085	0.090865255	0.622781504	
## pBRAF_N	0.368183616	0.392077459	0.079214531	0.538513121	
## pCAMKII_N	0.607078097	0.405254552	0.157217416	0.533789859	
## pCREB_N	0.546633053	0.688177360	0.302240542	0.515492919	
## pELK_N	0.056991366	0.404983478	0.146336245	0.052895507	
## pERK_N	-0.114645987	0.198547069	0.448136346	0.051406750	
## pJNK_N	0.700940362	0.657161856	0.229045538	0.571596345	
## PKCA_N	0.333233617	0.525398277	0.852852659	0.685895717	
## pMEK_N	0.482091578	0.536178955	0.180401678	0.639757640	
## pNR1_N	0.696612809	0.943456000	0.255192748	0.188625373	
## pNR2A_N	1.000000000	0.747491590	0.039606082	0.153603489	
## pNR2B_N	0.747491590	1.000000000	0.277117302	0.185106457	
## pPKCAB_N	0.039606082	0.277117302	1.000000000	0.514200656	
## pRSK_N	0.153603489	0.185106457	0.514200656	1.000000000	
## AKT_N	0.505617250	0.741670950	-0.026575660	0.170583778	
## BRAF_N	-0.260495462	0.100428203	0.402934923	0.234680123	
## CAMKII_N	0.388517434	0.605592220	0.168245925	0.387074573	
## CREB_N	0.263336127	0.322140855	0.193155437	0.569874635	
## ELK_N	0.512759209	0.783375209	0.327354796	0.191868097	
## ERK_N	0.458293885	0.813849448	0.440762344	0.130861429	
## GSK3B_N	0.061362303	0.533670912	0.696949982	0.353985851	
## JNK_N	0.345997292	0.606736682	0.453334591	0.640102548	
## MEK_N	0.483356280	0.702471898	0.381852683	0.539169917	
## TRKA_N	0.504570648	0.809461457	0.591399334	0.484669407	



## RSK_N	0.241561939	0.370428344	0.198786597	0.512875908	
## APP_N	0.202031806	0.501630272	0.496393141	0.372095186	
## Bcatenin_N	0.614894461	0.877405331	0.316339048	0.341715149	
## SOD1_N	0.414159322	0.224718759	-0.518139762	0.043099291	
## MTOR_N	0.422483864	0.433969815	-0.039976883	0.086073820	
## P38_N	0.326484222	0.113773623	-0.390294930	0.005321906	
## pMTOR_N	0.685098965	0.653462390	-0.067460032	0.181962441	
## DSCR1_N	0.334245420	0.413116818	0.009387023	0.174650996	
## AMPKA_N	0.459509455	0.708091258	0.162865277	0.089638999	
## NR2B_N	0.528445679	0.593889069	-0.009404477	0.195786991	
## pNUMB_N	0.151806496	0.462651716	0.471822216	0.284138237	
## RAPTOR_N	0.323861038	0.381251186	-0.010144142	0.272667633	
## TIAM1_N	0.332965801	0.550096075	0.178658304	0.201493795	
## pP70S6_N	-0.078030717	-0.189561592	0.237136452	0.597798042	
## NUMB_N	0.333867496	0.523195685	0.436907681	0.099045227	
## P70S6_N	0.528171730	0.567300501	0.079744120	0.026989083	
## pGSK3B_N	-0.035718123	0.169013233	0.586572390	0.445276676	
## pPKCG_N	-0.057786604	-0.153085749	0.621630617	0.679635840	
## CDK5_N	0.189368802	0.285471613	0.533811487	0.334955240	
## S6_N	-0.125118032	0.023896195	0.403797281	0.273948059	
## ADARB1_N	0.347034737	0.547531953	0.499108057	0.046930447	
## AcetylH3K9_N	-0.044132111	-0.103215178	0.062207739	0.322400616	
## RRP1_N	-0.023808358	-0.042564237	0.052248025	0.158354089	
## BAX_N	0.355939964	0.504339272	0.378039103	0.256042805	
## ARC_N	0.625902235	0.494241838	-0.300561178	0.008747293	
## ERBB4_N	0.467031002	0.413553601	0.023132763	0.259510200	
## nNOS_N	0.555658206	0.432018762	-0.083670202	0.213212304	
## Tau_N	0.013608486	-0.036969339	-0.081265013	0.209536769	
## GFAP_N	-0.069832003	-0.044686396	0.305557665	0.196369674	
## GluR3_N	0.392128831	0.221063179	0.031256072	-0.085243217	
## GluR4_N	0.411016377	0.282077311	0.214982643	0.145681469	
## IL1B_N	0.290762378	-0.026243610	-0.537001205	-0.156272938	
## P3525_N	0.183406658	0.142284568	0.325043819	0.271718023	
## pCASP9_N	0.556316327	0.361698609	0.086175016	0.180819525	
## PSD95_N	0.639410034	0.538453874	0.002958923	0.240207919	
## SNCA_N	0.254328047	0.003384621	-0.464081675	-0.184409494	
## Ubiquitin_N	0.563417067	0.367709298	-0.080367813	0.346521783	
## pGSK3B_Tyr216_N	-0.051307800	0.019441946	0.468454818	0.452313443	
## SHH_N	-0.002020964	-0.131640359	-0.167068562	-0.022783514	
## BAD_N	-0.133346705	-0.387184146	-0.051138386	0.255839220	
## BCL2_N	0.081939294	-0.158585767	-0.243155668	0.029229696	
## pS6_N	0.625902235	0.494241838	-0.300561178	0.008747293	
## pCFOS_N	-0.043852312	-0.290944246	-0.300720073	-0.208895605	
## SYP_N	0.561857844	0.600819359	0.388415767	0.385924336	
## H3AcK18_N	0.001393149	-0.159248118	-0.159883319	0.247046051	
## EGR1_N	0.039965651	-0.269818245	-0.400116154	-0.068458969	
## H3MeK4_N	-0.024186123	-0.252048565	-0.286800305	0.215391342	
## CaNA_N	-0.161265203	0.120723797	0.706252113	0.259729751	
##	AKT_N	BRAF_N	CAMKII_N	CREB_N	ELK_N
## DYRK1A_N	0.008719310	0.918130605	0.012433015	0.052532061	0.29864457
## ITSN1_N	0.180683173	0.848885685	0.129301127	0.124382376	0.50741243
## BDNF_N	0.621906695	0.363540420	0.644130318	0.534804132	0.74241105
## NR1_N	0.727350448	0.208185034	0.617796849	0.361971950	0.82378986
## NR2A_N	0.683177603	0.212826945	0.500823823	0.243496288	0.75370017

## pAKT_N	0.510812029	0.008328260	0.786256107	0.789173981	0.13457682
## pBRAF_N	0.490911284	0.115665500	0.794576146	0.827664655	0.20664813
## pCAMKII_N	0.278408607	-0.049485933	0.453114701	0.481120283	0.17870495
## pCREB_N	0.659053770	0.160278834	0.679789771	0.599862673	0.69749476
## pELK_N	0.345078087	0.527843519	0.325093813	0.178104607	0.36882320
## pERK_N	-0.031001458	0.901239707	-0.039925556	-0.007186456	0.30404120
## pJNK_N	0.609303575	-0.003681172	0.726388762	0.677970203	0.46164819
## PKCA_N	0.281298319	0.334036459	0.484646878	0.508287423	0.48874857
## pMEK_N	0.630565614	0.054427361	0.806036414	0.796831608	0.37643080
## pNR1_N	0.736183831	0.121582622	0.563180359	0.315090014	0.80808683
## pNR2A_N	0.505617250	-0.260495462	0.388517434	0.263336127	0.51275921
## pNR2B_N	0.741670950	0.100428203	0.605592220	0.322140855	0.78337521
## pPKCAB_N	-0.026575660	0.402934923	0.168245925	0.193155437	0.32735480
## pRSK_N	0.170583778	0.234680123	0.387074573	0.569874635	0.19186810
## AKT_N	1.000000000	-0.015914774	0.666706924	0.361294766	0.72815375
## BRAF_N	-0.015914774	1.000000000	0.115225043	0.180719250	0.17209742
## CAMKII_N	0.666706924	0.115225043	1.000000000	0.768051307	0.36273638
## CREB_N	0.361294766	0.180719250	0.768051307	1.000000000	0.15162314
## ELK_N	0.728153746	0.172097418	0.362736380	0.151623145	1.00000000
## ERK_N	0.641934625	0.225582345	0.394032600	0.152453030	0.86733905
## GSK3B_N	0.285173124	0.681414292	0.305027794	0.220874431	0.56805152
## JNK_N	0.574565703	0.336830815	0.808512835	0.747765047	0.47200992
## MEK_N	0.734003507	0.193521283	0.716348624	0.620368389	0.70001402
## TRKA_N	0.605893904	0.308894329	0.646169135	0.501008041	0.74112964
## RSK_N	0.432100191	0.193017060	0.837270322	0.816690484	0.18797861
## APP_N	0.399035948	0.482764673	0.496526057	0.460326424	0.54120826
## Bcatenin_N	0.723722198	0.162932072	0.508869727	0.307848470	0.85090956
## SOD1_N	0.522450329	-0.464460862	0.339797372	0.215401319	0.16449679
## MTOR_N	0.500579217	-0.089222740	0.517039819	0.394854816	0.19335474
## P38_N	0.302809785	-0.311515953	0.290456607	0.280980513	-0.08640544
## pMTOR_N	0.600292596	-0.097307116	0.539149935	0.396528946	0.34328176
## DSCR1_N	0.417763340	0.128667774	0.613568996	0.557659202	0.13935730
## AMPKA_N	0.679644790	0.128999619	0.537202692	0.367115620	0.63709779
## NR2B_N	0.628442049	-0.022239687	0.638082103	0.524584380	0.34428760
## pNUMB_N	0.312386373	0.400795966	0.415919163	0.384058571	0.44883314
## RAPTOR_N	0.465882022	0.020095757	0.596647223	0.625005712	0.20707308
## TIAM1_N	0.563261841	0.183636328	0.539267346	0.485630703	0.50661626
## pP70S6_N	-0.121909668	0.032764281	0.186930073	0.391887089	-0.23852441
## NUMB_N	0.354901533	0.137520633	0.066406854	-0.080680888	0.76008061
## P70S6_N	0.424707781	0.035347761	0.035898972	-0.113825506	0.67674695
## pGSK3B_N	0.054874073	0.332822363	0.150077246	0.284140345	0.38077956
## pPKCG_N	-0.226798717	0.029561045	-0.004339857	0.231607381	-0.01264655
## CDK5_N	0.158981842	0.107862073	0.170073067	0.193365400	0.41498291
## S6_N	-0.005929008	0.347759509	-0.079160013	-0.021737124	0.38707448
## ADARB1_N	0.321912259	0.184819127	0.265509569	0.126627559	0.50675269
## AcetylH3K9_N	-0.066516148	-0.026032597	0.051365101	0.185499865	0.07994242
## RRP1_N	0.032024161	-0.031986927	0.146199515	0.237042708	0.02080296
## BAX_N	0.372327493	-0.037637238	0.200619525	0.126217324	0.56268908
## ARC_N	0.624537450	-0.379818814	0.426300117	0.260584566	0.35849914
## ERBB4_N	0.460032969	-0.176896848	0.388363991	0.328977643	0.39058326
## nNOS_N	0.465063694	-0.110098216	0.206789457	0.208270248	0.42669948
## Tau_N	0.116756660	0.060209026	0.063462571	0.177195503	0.20382763
## GFAP_N	-0.083225882	0.080587046	0.086845101	0.198460012	0.10233669
## GluR3_N	-0.002653123	-0.052104784	-0.225551302	-0.258479067	0.22535454

## GluR4_N	0.167579323	0.017393362	-0.044285107	-0.009343373	0.42774441
## IL1B_N	0.189637683	-0.415495156	0.083991246	0.052329104	-0.07700485
## P3525_N	0.176547040	-0.109673645	0.145522047	0.208009478	0.33079462
## pCASP9_N	0.260148123	-0.163921727	0.046741550	0.069864599	0.38822385
## PSD95_N	0.390416086	-0.201451880	0.363187565	0.288674634	0.34438863
## SNCA_N	0.225455184	-0.482897144	0.232553162	0.177266650	-0.11878596
## Ubiquitin_N	0.425333753	-0.338687194	0.521354411	0.494108353	0.15986714
## pGSK3B_Tyr216_N	-0.012724945	0.293451146	0.008376313	0.152395981	0.15926570
## SHH_N	0.139193181	-0.224385861	0.138336236	0.065469609	-0.08850152
## BAD_N	-0.228306975	-0.165077013	0.139579649	0.400683060	-0.40746884
## BCL2_N	-0.026669425	-0.259760166	0.283574760	0.403929460	-0.28853724
## pS6_N	0.624537450	-0.379818814	0.426300117	0.260584566	0.35849914
## pCFOS_N	-0.175871221	-0.287926239	-0.076052038	0.014513762	-0.33774404
## SYP_N	0.457423230	-0.085051569	0.436177019	0.380985180	0.61325896
## H3AcK18_N	-0.057037245	-0.189340738	0.146458039	0.311987775	-0.09222728
## EGR1_N	-0.070903449	-0.346867218	0.134222384	0.258192464	-0.38172502
## H3MeK4_N	-0.066067152	-0.257294377	0.285903120	0.456325729	-0.32912242
## CaNA_N	-0.151066763	0.445863495	-0.052510190	0.006478803	0.25141142
##	ERK_N	GSK3B_N	JNK_N	MEK_N	TRKA_N
## DYRK1A_N	0.34020524	0.7169543396	0.24044064	0.194813678	0.32693039
## ITSN1_N	0.54614673	0.8104571806	0.35148308	0.382162125	0.52730891
## BDNF_N	0.79388685	0.7252125151	0.75945157	0.813466327	0.87079266
## NR1_N	0.85364004	0.6639885889	0.66713353	0.747026895	0.89108901
## NR2A_N	0.84777749	0.6654865920	0.54241526	0.631248070	0.79089436
## pAKT_N	0.13404581	0.1025639141	0.76229712	0.664429018	0.47937637
## pBRAF_N	0.15658098	0.1482846330	0.80215540	0.678135759	0.48722851
## pCAMKII_N	0.11783724	0.0792018953	0.42613489	0.416401736	0.39630841
## pCREB_N	0.63185535	0.4254968688	0.74286468	0.833022766	0.80767044
## pELK_N	0.35854405	0.4421215053	0.32588590	0.295142852	0.34753970
## pERK_N	0.36842383	0.6914593996	0.20385992	0.147850557	0.30165756
## pJNK_N	0.42918111	0.2661753798	0.77649799	0.786665999	0.68546393
## PKCA_N	0.55525045	0.6674223575	0.69195960	0.655454279	0.76465171
## pMEK_N	0.35491639	0.2582228662	0.82958052	0.806799109	0.65810563
## pNR1_N	0.80242727	0.5380930699	0.57797486	0.665654490	0.77070863
## pNR2A_N	0.45829389	0.0613623033	0.34599729	0.483356280	0.50457065
## pNR2B_N	0.81384945	0.5336709117	0.60673668	0.702471898	0.80946146
## pPKCAB_N	0.44076234	0.6969499822	0.45333459	0.381852683	0.59139933
## pRSK_N	0.13086143	0.3539858505	0.64010255	0.539169917	0.48466941
## AKT_N	0.64193462	0.2851731237	0.57456570	0.734003507	0.60589390
## BRAF_N	0.22558235	0.6814142922	0.33683082	0.193521283	0.30889433
## CAMKII_N	0.39403260	0.3050277939	0.80851284	0.716348624	0.64616914
## CREB_N	0.15245303	0.2208744305	0.74776505	0.620368389	0.50100804
## ELK_N	0.86733905	0.5680515200	0.47200992	0.700014024	0.74112964
## ERK_N	1.00000000	0.7263800795	0.49812730	0.693301637	0.82276931
## GSK3B_N	0.72638008	1.0000000000	0.56692097	0.547886956	0.76588150
## JNK_N	0.49812730	0.5669209730	1.00000000	0.842497736	0.79393472
## MEK_N	0.69330164	0.5478869562	0.84249774	1.000000000	0.83392593
## TRKA_N	0.82276931	0.7658814957	0.79393472	0.833925927	1.00000000
## RSK_N	0.20949635	0.2570950098	0.81625327	0.649542178	0.56397741
## APP_N	0.57964845	0.6502909390	0.59893834	0.632922740	0.69207704
## Bcatenin_N	0.87228148	0.6274320243	0.59145715	0.746881482	0.86323966
## SOD1_N	0.02372740	-0.3856835293	0.12046558	0.233261187	0.06487026
## MTOR_N	0.21911341	0.0245314094	0.40166583	0.401892142	0.24429686
## P38_N	-0.21094754	-0.3920722300	0.09840997	0.105761401	-0.14325290

## pMTOR_N	0.38282054	0.1000302285	0.45515321	0.528386547	0.39259018
## DSCR1_N	0.24751583	0.1429426258	0.50731425	0.449380375	0.29989665
## AMPKA_N	0.65437167	0.4145961600	0.48371917	0.570082120	0.52668501
## NR2B_N	0.37171900	0.1509671810	0.53318542	0.541390788	0.43037020
## pNUMB_N	0.56181097	0.5775176513	0.49398407	0.471528807	0.48954995
## RAPTOR_N	0.21792104	0.0978861779	0.48862854	0.441960374	0.26950339
## TIAM1_N	0.50988587	0.3626089467	0.47910246	0.558470251	0.45887045
## pP7OS6_N	-0.32837919	-0.0706732275	0.26160179	0.092719224	0.01760541
## NUMB_N	0.72919185	0.5164979318	0.21280339	0.440304563	0.58289150
## P7OS6_N	0.61529415	0.2753383752	0.11806079	0.421767717	0.40798158
## pGSK3B_N	0.38487009	0.4924833878	0.34995906	0.405616888	0.46274799
## pPKCG_N	-0.04537933	0.1958307227	0.23201205	0.208905661	0.25798577
## CDK5_N	0.45765621	0.4373664385	0.34778516	0.451999704	0.53932965
## S6_N	0.29192419	0.3919637455	0.10629024	0.201060020	0.30956841
## ADARB1_N	0.67714190	0.5899913774	0.32829437	0.410171515	0.63069646
## AcetylH3K9_N	-0.02133862	-0.0277411591	0.05198643	0.042842320	0.08639664
## RRP1_N	-0.05389649	-0.0647311394	0.12433412	0.086238228	0.01690110
## BAX_N	0.59133186	0.4157100490	0.29451793	0.523585182	0.56662093
## ARC_N	0.27476684	-0.1676039296	0.21839288	0.418963882	0.27956490
## ERBB4_N	0.35144291	0.0627507101	0.34597389	0.503394234	0.43643035
## nNOS_N	0.27667236	0.0044777569	0.23933584	0.443783834	0.32583427
## Tau_N	0.10531055	0.0009712356	0.04527931	0.165160171	0.10845769
## GFAP_N	0.04510892	0.0976658290	0.10168455	0.098107278	0.08656515
## GluR3_N	0.09401583	0.0175893005	-0.17640072	-0.058161629	0.01788314
## GluR4_N	0.28890882	0.1415439141	0.03638933	0.253370435	0.24293302
## IL1B_N	-0.24356282	-0.5274407843	-0.11753764	-0.004217581	-0.21345068
## P3525_N	0.25343779	0.1533843431	0.21478449	0.359073891	0.35687714
## pCASP9_N	0.32558023	0.0137658372	0.09367199	0.338850213	0.25608893
## PSD95_N	0.29748992	0.0763600468	0.36274740	0.463169210	0.50463939
## SNCA_N	-0.26146535	-0.5456104916	-0.04834510	0.020786106	-0.21855177
## Ubiquitin_N	0.10981812	-0.1424702226	0.41314274	0.485294787	0.34620619
## pGSK3B_Tyr216_N	0.19923053	0.4435627013	0.26593075	0.350392075	0.35381796
## SHH_N	-0.21662503	-0.2897654069	0.01895428	0.072918063	-0.13474018
## BAD_N	-0.52301726	-0.3930825799	0.10621817	-0.012202242	-0.25687791
## BCL2_N	-0.40246168	-0.4366228730	0.09556193	0.017721213	-0.23205819
## pS6_N	0.27476684	-0.1676039296	0.21839288	0.418963882	0.27956490
## pCFOS_N	-0.47494830	-0.5163257523	-0.23077965	-0.270905070	-0.48531563
## SYP_N	0.62707517	0.3497471167	0.55396420	0.700047823	0.70389391
## H3AcK18_N	-0.22043573	-0.2898398217	0.05844196	0.013462806	-0.07161786
## EGR1_N	-0.53345852	-0.6101937427	-0.07496486	-0.132975008	-0.41418193
## H3MeK4_N	-0.45081275	-0.4608932051	0.14216001	0.019312715	-0.18777463
## CaNA_N	0.40699120	0.6515427935	0.26802505	0.250700719	0.44598436
## RSK_N					
## APP_N					
## Bcatenin_N					
## SOD1_N					
## MTOR_N					
## DYRK1A_N	0.01090946	0.578039111	0.24761531	-0.49950147	-0.1251846680
## ITSN1_N	0.09393438	0.721272536	0.44181348	-0.39078789	-0.1137031005
## BDNF_N	0.55242594	0.719972039	0.78815811	0.05269294	0.4328451725
## NR1_N	0.44115506	0.543910375	0.92873782	0.17717514	0.4016835518
## NR2A_N	0.25350412	0.501388951	0.87778437	0.08355756	0.3606958578
## pAKT_N	0.79218120	0.360892171	0.32331625	0.37443442	0.4930022105
## pBRAFA_N	0.84701491	0.372489506	0.33571831	0.33850777	0.4882243564
## pCAMKII_N	0.34351913	0.354147881	0.39865977	0.24366418	0.3593055500
## pCREB_N	0.63852017	0.625995908	0.77581597	0.38756877	0.2909274146
## pELK_N	0.22878392	0.397339407	0.35516579	-0.03825478	0.2210763063
## pERK_N	-0.02145771	0.455054994	0.21304174	-0.56470556	-0.1209182946

## pJNK_N	0.67132031	0.467775141	0.58371101	0.32085030	0.4615932298
## PKCA_N	0.46258634	0.642442243	0.56490564	-0.21297404	0.2768380484
## pMEK_N	0.78942638	0.477984724	0.54266009	0.39245708	0.4840420003
## pNR1_N	0.35526034	0.452038449	0.88288261	0.23846928	0.4707034633
## pNR2A_N	0.24156194	0.202031806	0.61489446	0.41415932	0.4224838643
## pNR2B_N	0.37042834	0.501630272	0.87740533	0.22471876	0.4339698150
## pPKCAB_N	0.19878660	0.496393141	0.31633905	-0.51813976	-0.0399768826
## pRSK_N	0.51287591	0.372095186	0.34171515	0.04309929	0.0860738199
## AKT_N	0.43210019	0.399035948	0.72372220	0.52245033	0.5005792166
## BRAF_N	0.19301706	0.482764673	0.16293207	-0.46446086	-0.0892227402
## CAMKII_N	0.83727032	0.496526057	0.50886973	0.33979737	0.5170398189
## CREB_N	0.81669048	0.460326424	0.30784847	0.21540132	0.3948548157
## ELK_N	0.18797861	0.541208258	0.85090956	0.16449679	0.1933547352
## ERK_N	0.20949635	0.579648455	0.87228148	0.02372740	0.2191134149
## GSK3B_N	0.25709501	0.650290939	0.62743202	-0.38568353	0.0245314094
## JNK_N	0.81625327	0.598938336	0.59145715	0.12046558	0.4016658259
## MEK_N	0.64954218	0.632922740	0.74688148	0.23326119	0.4018921417
## TRKA_N	0.56397741	0.692077037	0.86323966	0.06487026	0.2442968584
## RSK_N	1.00000000	0.367128536	0.33985700	0.27884940	0.3831992421
## APP_N	0.36712854	1.000000000	0.55890575	-0.07663366	0.2627800722
## Bcatenin_N	0.33985700	0.558905747	1.00000000	0.29358690	0.2894241901
## SOD1_N	0.27884940	-0.076633662	0.29358690	1.00000000	0.3386687371
## MTOR_N	0.38319924	0.262780072	0.28942419	0.33866874	1.0000000000
## P38_N	0.19632615	-0.028511642	-0.01624576	0.45246683	0.7866700002
## pMTOR_N	0.38521352	0.267752709	0.49866392	0.40463851	0.7891919860
## DSCR1_N	0.50279139	0.440358852	0.24469991	0.19545546	0.7265607873
## AMPKA_N	0.32257177	0.473239196	0.64819366	0.16046226	0.7005424695
## NR2B_N	0.47339398	0.340444831	0.47774433	0.39980108	0.8431491386
## pNUMB_N	0.27534667	0.626266413	0.42441385	-0.30954640	0.3547729676
## RAPTOR_N	0.48433006	0.369820417	0.30380830	0.25284277	0.7501286007
## TIAM1_N	0.32160963	0.695424476	0.50764978	0.12647210	0.6222265555
## pP70S6_N	0.29450629	0.205988842	-0.11336836	0.08858579	0.2791425580
## NUMB_N	-0.05113819	0.428924720	0.60582975	-0.10417057	-0.1835018158
## P70S6_N	-0.12718847	0.299020188	0.57610924	0.06994070	-0.0154686902
## pGSK3B_N	0.22958474	0.326705283	0.30283084	-0.30709525	-0.2862604617
## pPKCG_N	0.13949114	0.306368066	0.02992360	-0.19197901	-0.2103596172
## CDK5_N	0.17570327	0.351018637	0.38200786	-0.14073497	-0.1383113311
## S6_N	-0.05800722	0.464801495	0.22426567	-0.20423620	-0.4139136213
## ADARB1_N	0.10421247	0.461656461	0.51779177	-0.13209359	0.2554243078
## AcetylH3K9_N	0.12208433	0.189057737	0.05013001	0.22012296	-0.2886316412
## RRP1_N	0.14175888	0.060035972	-0.05228064	0.01520051	-0.1356652975
## BAX_N	0.05398984	0.328961329	0.57112448	0.05030848	-0.0961079915
## ARC_N	0.22414061	0.072285884	0.43164803	0.61521650	0.4287795328
## ERBB4_N	0.31282712	0.213212622	0.42091982	0.37058754	0.2213111414
## nNOS_N	0.12270628	0.136354077	0.47551133	0.40865375	0.1904022019
## Tau_N	0.07049764	0.318199431	0.11839082	0.28400299	-0.1694167464
## GFAP_N	0.10028257	0.152092686	-0.05880042	-0.23871736	-0.2112362169
## GluR3_N	-0.31722828	-0.184986672	0.17635218	-0.04133417	-0.0841878535
## GluR4_N	-0.13452628	0.193790167	0.33325694	0.05361391	-0.0425585190
## IL1B_N	0.02949988	-0.259508547	-0.13055001	0.48522976	0.1576285141
## P3525_N	0.12921499	0.284814313	0.24690418	0.04559455	0.0805475730
## pCASP9_N	-0.00732790	0.006036034	0.33381001	0.11773983	0.0008978399
## PSD95_N	0.30949627	0.112599442	0.50400658	0.37513269	0.1192169983
## SNCA_N	0.15464324	-0.167723329	-0.17834492	0.40393119	0.4070141530

## Ubiquitin_N	0.43691169	0.208194292	0.30212347	0.46955319	0.2869604361
## pGSK3B_Tyr216_N	0.09492098	0.304080979	0.17689973	-0.26621897	-0.1794827383
## SHH_N	0.07910797	0.003087503	-0.16368574	0.26000803	0.2333612385
## BAD_N	0.27683306	-0.057075316	-0.44307937	0.02955400	0.0827010718
## BCL2_N	0.30095881	-0.131688410	-0.33846879	0.15196662	0.1826888399
## pS6_N	0.22414061	0.072285884	0.43164803	0.61521650	0.4287795328
## pCFOS_N	-0.08010783	-0.316848784	-0.48870979	-0.01247058	0.0843507616
## SYP_N	0.42513475	0.324944317	0.63528817	0.18706876	0.1447082797
## H3AcK18_N	0.22718318	0.024954302	-0.12469010	0.34747487	-0.1475564182
## EGR1_N	0.14387541	-0.234401985	-0.44974186	0.23472079	0.2661540746
## H3MeK4_N	0.40837358	-0.135121361	-0.31800028	0.34720993	-0.0255643176
## CaNA_N	0.08283454	0.240461809	0.21169040	-0.53173049	-0.3765247495
##	P38_N	pMTOR_N	DSCR1_N	AMPKA_N	NR2B_N
## DYRK1A_N	-0.361007231	-0.102404413	0.080626783	0.17325003	-0.058745935
## ITSN1_N	-0.399538506	-0.039811440	0.110919118	0.27021658	0.003153018
## BDNF_N	0.041940359	0.439480502	0.422454773	0.71375220	0.541881990
## NR1_N	0.039450181	0.537291887	0.333143975	0.71443747	0.560966708
## NR2A_N	-0.003750792	0.532168451	0.340425948	0.74162600	0.535173112
## pAKT_N	0.396921441	0.571160222	0.604139984	0.30799015	0.586772111
## pBRAF_N	0.387187678	0.514626300	0.583020795	0.36615330	0.578107064
## pCAMKII_N	0.394520942	0.540310081	0.380052411	0.26103032	0.466473762
## pCREB_N	0.076076154	0.444739570	0.342381958	0.46222377	0.432698103
## pELK_N	-0.002514654	0.198084615	0.295935977	0.39937566	0.249227306
## pERK_N	-0.391232607	-0.092464843	0.062719224	0.19088666	-0.064518070
## pJNK_N	0.294650498	0.679213624	0.562362329	0.46366249	0.601940577
## PKCA_N	-0.061647214	0.302827248	0.309518818	0.43917679	0.351053398
## pMEK_N	0.346866514	0.613269268	0.564362021	0.45726868	0.618060700
## pNR1_N	0.153997763	0.613846550	0.393334648	0.77582442	0.615977547
## pNR2A_N	0.326484222	0.685098965	0.334245420	0.45950945	0.528445679
## pNR2B_N	0.113773623	0.653462390	0.413116818	0.70809126	0.593889069
## pPKCAB_N	-0.390294930	-0.067460032	0.009387023	0.16286528	-0.009404477
## pRSK_N	0.005321906	0.181962441	0.174650996	0.08963900	0.195786991
## AKT_N	0.302809785	0.600292596	0.417763340	0.67964479	0.628442049
## BRAF_N	-0.311515953	-0.097307116	0.128667774	0.12899962	-0.022239687
## CAMKII_N	0.290456607	0.539149935	0.613568996	0.53720269	0.638082103
## CREB_N	0.280980513	0.396528946	0.557659202	0.36711562	0.524584380
## ELK_N	-0.086405443	0.343281757	0.139357301	0.63709779	0.344287596
## ERK_N	-0.210947539	0.382820536	0.247515828	0.65437167	0.371718999
## GSK3B_N	-0.392072230	0.100030228	0.142942626	0.41459616	0.150967181
## JNK_N	0.098409971	0.455153213	0.507314247	0.48371917	0.533185417
## MEK_N	0.105761401	0.528386547	0.449380375	0.57008212	0.541390788
## TRKA_N	-0.143252901	0.392590184	0.299896653	0.52668501	0.430370200
## RSK_N	0.196326149	0.385213517	0.502791387	0.32257177	0.473393982
## APP_N	-0.028511642	0.267752709	0.440358852	0.47323920	0.340444831
## Bcatenin_N	-0.016245759	0.498663920	0.244699907	0.64819366	0.477744326
## SOD1_N	0.452466835	0.404638513	0.195455463	0.16046226	0.399801075
## MTOR_N	0.786670000	0.789191986	0.726560787	0.70054247	0.843149139
## P38_N	1.000000000	0.610851499	0.495135153	0.42513947	0.621063669
## pMTOR_N	0.610851499	1.000000000	0.761780257	0.65015441	0.831745056
## DSCR1_N	0.495135153	0.761780257	1.000000000	0.57349294	0.785698825
## AMPKA_N	0.425139473	0.650154415	0.573492940	1.000000000	0.707914731
## NR2B_N	0.621063669	0.831745056	0.785698825	0.70791473	1.000000000
## pNUMB_N	0.015307419	0.347236071	0.543524468	0.68668202	0.428333537
## RAPTOR_N	0.646315906	0.649676796	0.733279854	0.75749639	0.741321172

## TIAM1_N	0.405089957	0.572842422	0.668035327	0.83467555	0.644810114
## pP7OS6_N	0.369368781	0.074625341	0.173945534	-0.00438225	0.185221177
## NUMB_N	-0.460918498	-0.003312190	-0.127995992	0.26845683	-0.024087797
## P7OS6_N	-0.113531637	0.288069199	0.053349820	0.29869511	0.076766267
## pGSK3B_N	-0.485813964	-0.163745404	-0.087900136	0.03813763	-0.127352705
## pPKCG_N	-0.196771451	-0.226755103	-0.196224837	-0.25032984	-0.204418189
## CDK5_N	-0.351487424	-0.021095362	-0.049462648	0.06423511	-0.012597898
## S6_N	-0.510133072	-0.339597974	-0.224613945	-0.12607675	-0.260647830
## ADARB1_N	-0.155159006	0.269217315	0.229059419	0.46680300	0.341760505
## AcetylH3K9_N	-0.206442825	-0.218356869	-0.133008900	-0.17045906	-0.159815976
## RRP1_N	-0.070875885	-0.075511637	0.011417188	-0.03479338	-0.017204241
## BAX_N	-0.263439896	0.148798474	-0.022556754	0.20741817	0.084210837
## ARC_N	0.476743809	0.568276940	0.282901796	0.37546489	0.500962579
## ERBB4_N	0.152970967	0.362992008	0.212585996	0.20196869	0.348991945
## nNOS_N	0.247887893	0.377502614	0.064072724	0.23234668	0.279713899
## Tau_N	-0.128864486	-0.093959833	0.032506860	-0.04870809	-0.032709290
## GFAP_N	-0.265563138	-0.194101434	-0.025691898	-0.01542730	-0.123675650
## GluR3_N	0.030901244	0.046202326	-0.237920643	0.02887411	-0.037489589
## GluR4_N	-0.044547502	0.127784307	-0.048086825	0.13625650	0.068544956
## IL1B_N	0.431742300	0.206729475	0.081811115	-0.13354437	0.165227588
## P3525_N	0.023156486	0.002373877	-0.048955685	0.11288324	0.097645402
## pCASP9_N	-0.027774315	0.312055144	0.035172060	0.10187200	0.107571277
## PSD95_N	0.109014296	0.390903006	0.121037031	0.08223000	0.289008474
## SNCA_N	0.635173351	0.355789617	0.267487704	0.14741483	0.311113608
## Ubiquitin_N	0.360205576	0.508125702	0.339300924	0.14277934	0.399065449
## pGSK3B_Tyr216_N	-0.249429056	-0.080686150	-0.089897187	-0.14137540	-0.105880860
## SHH_N	0.374391021	0.104003832	0.068428877	-0.05846947	0.121019465
## BAD_N	0.292123992	-0.040119004	0.186838294	-0.24022785	0.043256368
## BCL2_N	0.383470612	0.165866179	0.318359323	-0.06273432	0.184577635
## pS6_N	0.476743809	0.568276940	0.282901796	0.37546489	0.500962579
## pCFOS_N	0.326260005	0.016954609	0.095532394	-0.12222405	0.000751667
## SYP_N	-0.095658123	0.359843215	0.190823896	0.30674926	0.327279253
## H3AcK18_N	0.024828230	-0.068945867	0.044600508	-0.19879896	-0.035010699
## EGR1_N	0.555256188	0.165329925	0.280274366	-0.07747450	0.195172646
## H3MeK4_N	0.207482596	-0.005509510	0.165360777	-0.28444360	0.044524670
## CaNA_N	-0.685504072	-0.309734826	-0.209978265	-0.12935806	-0.276472590
##	pNUMB_N	RAPTOR_N	TIAM1_N	pP7OS6_N	NUMB_N
## DYRK1A_N	0.45568076	-0.025982283	0.266243047	-0.078103419	0.30956128
## ITSN1_N	0.51641791	-0.002232422	0.379594594	-0.105291917	0.51792695
## BDNF_N	0.63530852	0.483081753	0.646616883	0.071988988	0.48353419
## NR1_N	0.48164842	0.357086447	0.528276997	-0.117192911	0.56966408
## NR2A_N	0.55632107	0.387165999	0.575248744	-0.162821171	0.52147026
## pAKT_N	0.26486249	0.579316621	0.410676936	0.424660889	-0.13909790
## pBRAF_N	0.28441952	0.585014535	0.414906071	0.343664681	-0.10316679
## pCAMKII_N	0.19397697	0.409071047	0.339727572	0.468158575	-0.07310912
## pCREB_N	0.34861049	0.348617082	0.479383217	0.113646365	0.46462299
## pELK_N	0.36265190	0.231766390	0.369156493	-0.105487726	0.15031466
## pERK_N	0.47450892	-0.062913140	0.191907799	-0.201703680	0.36068900
## pJNK_N	0.37855395	0.521034467	0.486017599	0.218785649	0.21181276
## PKCA_N	0.59970658	0.352540748	0.462382302	0.342735976	0.38432584
## pMEK_N	0.33743444	0.597214643	0.504467635	0.343827403	0.05752090
## pNR1_N	0.49835299	0.444264713	0.579874899	-0.159135676	0.51573800
## pNR2A_N	0.15180650	0.323861038	0.332965801	-0.078030717	0.33386750
## pNR2B_N	0.46265172	0.381251186	0.550096075	-0.189561592	0.52319569

## pPKCAB_N	0.47182222	-0.010144142	0.178658304	0.237136452	0.43690768
## pRSK_N	0.28413824	0.272667633	0.201493795	0.597798042	0.09904523
## AKT_N	0.31238637	0.465882022	0.563261841	-0.121909668	0.35490153
## BRAF_N	0.40079597	0.020095757	0.183636328	0.032764281	0.13752063
## CAMKII_N	0.41591916	0.596647223	0.539267346	0.186930073	0.06640685
## CREB_N	0.38405857	0.625005712	0.485630703	0.391887089	-0.08068089
## ELK_N	0.44883314	0.207073082	0.506616264	-0.238524405	0.76008061
## ERK_N	0.56181097	0.217921039	0.509885874	-0.328379189	0.72919185
## GSK3B_N	0.57751765	0.097886178	0.362608947	-0.070673227	0.51649793
## JNK_N	0.49398407	0.488628544	0.479102460	0.261601786	0.21280339
## MEK_N	0.47152881	0.441960374	0.558470251	0.092719224	0.44030456
## TRKA_N	0.48954995	0.269503395	0.458870450	0.017605414	0.58289150
## RSK_N	0.27534667	0.484330062	0.321609629	0.294506286	-0.05113819
## APP_N	0.62626641	0.369820417	0.695424476	0.205988842	0.42892472
## Bcatenin_N	0.42441385	0.303808299	0.507649784	-0.113368359	0.60582975
## SOD1_N	-0.30954640	0.252842768	0.126472105	0.088585787	-0.10417057
## MTOR_N	0.35477297	0.750128601	0.622226556	0.279142558	-0.18350182
## P38_N	0.01530742	0.646315906	0.405089957	0.369368781	-0.46091850
## pMTOR_N	0.34723607	0.649676796	0.572842422	0.074625341	-0.00331219
## DSCR1_N	0.54352447	0.733279854	0.668035327	0.173945534	-0.12799599
## AMPKA_N	0.68668202	0.757496391	0.834675547	-0.004382250	0.26845683
## NR2B_N	0.42833354	0.741321172	0.644810114	0.185221177	-0.02408780
## pNUMB_N	1.00000000	0.606520909	0.751421019	0.045635306	0.36528512
## RAPTOR_N	0.60652091	1.000000000	0.805462593	0.316287672	-0.15379519
## TIAM1_N	0.75142102	0.805462593	1.000000000	0.184115113	0.23535186
## pP70S6_N	0.04563531	0.316287672	0.184115113	1.000000000	-0.32287994
## NUMB_N	0.36528512	-0.153795192	0.235351856	-0.322879945	1.00000000
## P70S6_N	0.24487367	-0.054331444	0.260280203	-0.353105796	0.69009509
## pGSK3B_N	0.36460216	-0.063132468	0.081384061	-0.048735568	0.57478445
## pPKCG_N	0.04408894	-0.102737927	-0.044873962	0.611466086	0.17309347
## CDK5_N	0.23319359	-0.098818586	0.088683011	-0.044066207	0.58495422
## S6_N	0.25997377	-0.280360516	0.066868565	0.053678191	0.65524623
## ADARB1_N	0.44091769	0.203075480	0.375702688	-0.140886889	0.45508180
## AcetylH3K9_N	0.01298968	-0.016175277	0.023387518	0.246855926	0.13849437
## RRP1_N	0.11385557	0.074602590	0.061882557	0.061465965	0.10327652
## BAX_N	0.19974046	-0.041281310	0.195068250	-0.135206888	0.65641371
## ARC_N	-0.05949312	0.328641375	0.296692236	-0.028621124	0.11534454
## ERBB4_N	0.04831696	0.176489644	0.179086766	0.008780804	0.28388413
## nNOS_N	-0.06117850	0.108288904	0.201640812	0.062773883	0.31602228
## Tau_N	0.09456329	0.053124255	0.199168292	0.136313844	0.31211610
## GFAP_N	0.32108470	0.062486773	0.087360726	0.054378268	0.34060858
## GluR3_N	-0.08925997	-0.201983234	-0.146456889	-0.177882296	0.31121718
## GluR4_N	0.15426409	-0.054077738	0.138850839	-0.016218692	0.55734440
## IL1B_N	-0.41986760	-0.016165879	-0.158613816	-0.071360181	-0.21134625
## P3525_N	0.10901119	0.066349302	0.154952644	0.219224313	0.40041418
## pCASP9_N	0.05969937	-0.019518172	0.060319950	-0.213635672	0.46968584
## PSD95_N	-0.12925727	-0.001419309	-0.008782489	-0.053787757	0.28032818
## SNCA_N	-0.17069542	0.337994059	0.148071932	0.120169058	-0.28916693
## Ubiquitin_N	-0.03102755	0.318104617	0.227679590	0.205905519	-0.01770162
## pGSK3B_Tyr216_N	0.06622903	-0.179976666	-0.065368830	0.140052753	0.32272661
## SHH_N	-0.19316498	0.026754085	-0.014047654	0.214770657	-0.17609435
## BAD_N	-0.08294491	0.185166210	-0.035768653	0.506472831	-0.39317709
## BCL2_N	-0.06689200	0.270129164	0.052167366	0.212350712	-0.36949827
## pS6_N	-0.05949312	0.328641375	0.296692236	-0.028621124	0.11534454



## pCFOS_N	-0.13662581	0.098810759	-0.075145718	0.044073742	-0.32779513
## SYP_N	0.20384620	0.150938957	0.215714939	-0.069329629	0.51929575
## H3AcK18_N	-0.08198058	0.102536395	0.007366770	0.252633442	-0.10505868
## EGR1_N	-0.15177130	0.291422284	0.033827044	0.270217911	-0.49658584
## H3MeK4_N	-0.22178928	0.144447383	-0.105578306	0.313663833	-0.38243699
## CaNA_N	0.21450549	-0.354208811	-0.170523965	-0.203638612	0.51633920
##	P7OS6_N	pGSK3B_N	pPKCG_N	CDK5_N	
## DYRK1A_N	0.200053589	0.358441852	0.028696582	0.172551709	
## ITSN1_N	0.370969792	0.462515153	0.103451523	0.319558750	
## BDNF_N	0.321779729	0.430646859	0.158919364	0.428845564	
## NR1_N	0.482127774	0.293414116	-0.036377728	0.361103383	
## NR2A_N	0.470819078	0.198079580	-0.113493338	0.293135981	
## pAKT_N	-0.010487735	0.070584601	0.218397460	0.108534838	
## pBRAF_N	-0.034016472	0.119307168	0.116792456	0.111652462	
## pCAMKII_N	0.170827033	-0.035753370	0.317017769	0.069328734	
## pCREB_N	0.462163953	0.404643859	0.235832616	0.391098808	
## pELK_N	0.170377570	0.099346348	-0.233687461	-0.006348123	
## pERK_N	0.237534010	0.372922242	-0.065139827	0.194195081	
## pJNK_N	0.327616514	0.153302058	0.213327872	0.294290636	
## PKCA_N	0.184671946	0.553828524	0.556447681	0.465350176	
## pMEK_N	0.144504596	0.219319550	0.237505045	0.238804931	
## pNR1_N	0.515437548	0.161389082	-0.179930886	0.244947551	
## pNR2A_N	0.528171730	-0.035718123	-0.057786604	0.189368802	
## pNR2B_N	0.567300501	0.169013233	-0.153085749	0.285471613	
## pPKCAB_N	0.079744120	0.586572390	0.621630617	0.533811487	
## pRSK_N	0.026989083	0.445276676	0.679635840	0.334955240	
## AKT_N	0.424707781	0.054874073	-0.226798717	0.158981842	
## BRAF_N	0.035347761	0.332822363	0.029561045	0.107862073	
## CAMKII_N	0.035898972	0.150077246	-0.004339857	0.170073067	
## CREB_N	-0.113825506	0.284140345	0.231607381	0.193365400	
## ELK_N	0.676746949	0.380779565	-0.012646549	0.414982912	
## ERK_N	0.615294148	0.384870085	-0.045379333	0.457656208	
## GSK3B_N	0.275338375	0.492483388	0.195830723	0.437366438	
## JNK_N	0.118060795	0.349959059	0.232012046	0.347785158	
## MEK_N	0.421767717	0.405616888	0.208905661	0.451999704	
## TRKA_N	0.407981578	0.462747989	0.257985773	0.539329651	
## RSK_N	-0.127188466	0.229584739	0.139491141	0.175703274	
## APP_N	0.299020188	0.326705283	0.306368066	0.351018637	
## Bcatenin_N	0.576109244	0.302830844	0.029923597	0.382007860	
## SOD1_N	0.069940695	-0.307095249	-0.191979013	-0.140734975	
## MTOR_N	-0.015468690	-0.286260462	-0.210359617	-0.138311331	
## P38_N	-0.113531637	-0.485813964	-0.196771451	-0.351487424	
## pMTOR_N	0.288069199	-0.163745404	-0.226755103	-0.021095362	
## DSCR1_N	0.053349820	-0.087900136	-0.196224837	-0.049462648	
## AMPKA_N	0.298695106	0.038137635	-0.250329842	0.064235111	
## NR2B_N	0.076766267	-0.127352705	-0.204418189	-0.012597898	
## pNUMB_N	0.244873669	0.364602157	0.044088943	0.233193588	
## RAPTOR_N	-0.054331444	-0.063132468	-0.102737927	-0.098818586	
## TIAM1_N	0.260280203	0.081384061	-0.044873962	0.088683011	
## pP7OS6_N	-0.353105796	-0.048735568	0.611466086	-0.044066207	
## NUMB_N	0.690095088	0.574784449	0.173093469	0.584954220	
## P7OS6_N	1.000000000	0.282074784	-0.074404035	0.321942959	
## pGSK3B_N	0.282074784	1.000000000	0.407352313	0.587541488	
## pPKCG_N	-0.074404035	0.407352313	1.000000000	0.422681064	

## CDK5_N	0.321942959	0.587541488	0.422681064	1.000000000
## S6_N	0.361516190	0.593991660	0.453978993	0.441263669
## ADARB1_N	0.259335854	0.250277920	0.055842259	0.357075200
## AcetylH3K9_N	-0.007106594	0.248841673	0.399244937	0.087550731
## RRP1_N	-0.040100716	0.295058636	0.146070910	0.142034856
## BAX_N	0.565913755	0.565769153	0.285921351	0.559801055
## ARC_N	0.400447005	-0.100835693	-0.181076929	0.034639173
## ERBB4_N	0.411149390	0.273540759	0.109738024	0.270826048
## nNOS_N	0.575192984	0.128551224	0.079159770	0.174256676
## Tau_N	0.254789534	0.243672935	0.266561016	0.142050823
## GFAP_N	-0.006946089	0.617787762	0.274728186	0.310288116
## GluR3_N	0.422193795	0.129155213	-0.038812781	0.206965348
## GluR4_N	0.539439576	0.413950803	0.226603773	0.444553877
## IL1B_N	0.142409820	-0.266989447	-0.217608520	-0.166940642
## P3525_N	0.186781619	0.405616262	0.489945886	0.408323356
## pCASP9_N	0.676315779	0.385244239	0.087956521	0.363434315
## PSD95_N	0.448653306	0.175505992	0.100676010	0.320429944
## SNCA_N	-0.055215205	-0.303393969	-0.186632702	-0.217730725
## Ubiquitin_N	0.227429453	0.015658448	0.189824512	0.138514159
## pGSK3B_Tyr216_N	0.248813261	0.573928990	0.549289756	0.479316882
## SHH_N	-0.081936937	-0.149995717	0.081869902	-0.104441890
## BAD_N	-0.409076118	0.038970075	0.353683365	-0.021702810
## BCL2_N	-0.246916442	-0.049678823	-0.011741347	-0.080178304
## pS6_N	0.400447005	-0.100835693	-0.181076929	0.034639173
## pCFOS_N	-0.265381207	-0.153397461	-0.162603269	-0.229507316
## SYP_N	0.454298234	0.466019544	0.235873410	0.534281016
## H3AcK18_N	-0.124754591	0.123779199	0.242212001	-0.019007330
## EGR1_N	-0.307298613	-0.242385677	-0.083930756	-0.229866389
## H3MeK4_N	-0.329624589	0.001266084	0.150092775	-0.057600673
## CaNA_N	0.176668252	0.710661080	0.346002097	0.567122397
## S6_N		ADARB1_N	AcetylH3K9_N	RRP1_N
## DYRK1A_N	0.446549389	0.247418770	-0.034250221	-0.050401808
## ITSN1_N	0.589624570	0.366728527	0.080742016	-0.026629554
## BDNF_N	0.224160502	0.617896892	0.028678249	0.036750898
## NR1_N	0.136103096	0.600092645	-0.051787472	-0.044089292
## NR2A_N	0.091502246	0.645452996	-0.094171398	-0.062812194
## pAKT_N	-0.125643239	0.095140919	0.130857852	0.152012922
## pBRAF_N	-0.117890884	0.057600207	0.076085197	0.134685079
## pCAMKII_N	-0.049578320	0.186658816	0.152639363	0.041202254
## pCREB_N	0.308582850	0.299434359	0.253369445	0.102019623
## pELK_N	0.067344674	0.210567399	-0.116311641	-0.055614886
## pERK_N	0.393724638	0.271640552	-0.133469790	-0.052589780
## pJNK_N	-0.016079661	0.281096544	0.054146242	0.071835772
## PKCA_N	0.300807597	0.515845557	0.145226809	0.089226043
## pMEK_N	-0.017852294	0.219468244	0.128131215	0.129782920
## pNR1_N	0.047077374	0.541392719	-0.080349010	-0.046851413
## pNR2A_N	-0.125118032	0.347034737	-0.044132111	-0.023808358
## pNR2B_N	0.023896195	0.547531953	-0.103215178	-0.042564237
## pPKCAB_N	0.403797281	0.499108057	0.062207739	0.052248025
## pRSK_N	0.273948059	0.046930447	0.322400616	0.158354089
## AKT_N	-0.005929008	0.321912259	-0.066516148	0.032024161
## BRAF_N	0.347759509	0.184819127	-0.026032597	-0.031986927
## CAMKII_N	-0.079160013	0.265509569	0.051365101	0.146199515
## CREB_N	-0.021737124	0.126627559	0.185499865	0.237042708

## ELK_N	0.387074483	0.506752690	0.079942421	0.020802960
## ERK_N	0.291924190	0.677141902	-0.021338619	-0.053896486
## GSK3B_N	0.391963746	0.589991377	-0.027741159	-0.064731139
## JNK_N	0.106290235	0.328294373	0.051986430	0.124334119
## MEK_N	0.201060020	0.410171515	0.042842320	0.086238228
## TRKA_N	0.309568406	0.630696460	0.086396642	0.016901104
## RSK_N	-0.058007216	0.104212466	0.122084333	0.141758876
## APP_N	0.464801495	0.461656461	0.189057737	0.060035972
## Bcatenin_N	0.224265671	0.517791766	0.050130010	-0.052280639
## SOD1_N	-0.204236195	-0.132093589	0.220122957	0.015200512
## MTOR_N	-0.413913621	0.255424308	-0.288631641	-0.135665298
## P38_N	-0.510133072	-0.155159006	-0.206442825	-0.070875885
## pMTOR_N	-0.339597974	0.269217315	-0.218356869	-0.075511637
## DSCR1_N	-0.224613945	0.229059419	-0.133008900	0.011417188
## AMPKA_N	-0.126076749	0.466803004	-0.170459058	-0.034793378
## NR2B_N	-0.260647830	0.341760505	-0.159815976	-0.017204241
## pNUMB_N	0.259973772	0.440917694	0.012989679	0.113855574
## RAPTOR_N	-0.280360516	0.203075480	-0.016175277	0.074602590
## TIAM1_N	0.066868565	0.375702688	0.023387518	0.061882557
## pP70S6_N	0.053678191	-0.140886889	0.246855926	0.061465965
## NUMB_N	0.655246225	0.455081804	0.138494372	0.103276522
## P70S6_N	0.361516190	0.259335854	-0.007106594	-0.040100716
## pGSK3B_N	0.593991660	0.250277920	0.248841673	0.295058636
## pPKCG_N	0.453978993	0.055842259	0.399244937	0.146070910
## CDK5_N	0.441263669	0.357075200	0.087550731	0.142034856
## S6_N	1.000000000	0.156790204	0.538725832	0.213330933
## ADARB1_N	0.156790204	1.000000000	0.005605172	-0.063425541
## AcetylH3K9_N	0.538725832	0.005605172	1.000000000	0.241937749
## RRP1_N	0.213330933	-0.063425541	0.241937749	1.000000000
## BAX_N	0.409028400	0.450620709	0.192389410	0.187390517
## ARC_N	-0.149459188	0.218258161	0.080345273	0.041362658
## ERBB4_N	0.206947688	0.313799369	0.322472377	0.097107776
## nNOS_N	0.188156786	-0.004854373	0.112795668	0.047203728
## Tau_N	0.610185959	0.062853107	0.798863712	0.236254801
## GFAP_N	0.417457624	0.117615723	0.317940296	0.420826942
## GluR3_N	0.111088711	0.050502697	-0.138618956	0.005160068
## GluR4_N	0.435612297	0.180732519	0.098683752	0.169349524
## IL1B_N	-0.167968483	-0.211792455	0.115217308	0.068086380
## P3525_N	0.468710232	0.325614691	0.343056797	0.189705856
## pCASP9_N	0.192137744	0.175659214	0.074314669	0.097079957
## PSD95_N	0.055191888	0.255036200	0.071997484	0.019057017
## SNCA_N	-0.358036347	-0.136496190	-0.062294627	0.119896643
## Ubiquitin_N	-0.093346930	0.157277859	0.183710996	0.208163529
## pGSK3B_Tyr216_N	0.478151828	0.245494547	0.101460761	0.089789637
## SHH_N	-0.039123522	-0.153631517	0.019342334	0.067816330
## BAD_N	-0.084384834	-0.342244580	0.100476188	0.268867168
## BCL2_N	-0.275188824	-0.276864024	-0.023702126	0.290059410
## pS6_N	-0.149459188	0.218258161	0.080345273	0.041362658
## pCFOS_N	-0.300403735	-0.316115476	-0.165618127	0.249671459
## SYP_N	0.169244087	0.453567011	0.128193019	0.089309005
## H3AcK18_N	0.277696056	-0.144915198	0.877612314	0.292123253
## EGR1_N	-0.335396148	-0.358589259	-0.023406706	0.212222215
## H3MeK4_N	-0.064017805	-0.350673715	0.439330472	0.320761514
## CaNA_N	0.467227039	0.338169604	0.039675805	0.023507279

##	BAX_N	ARC_N	ERBB4_N	nNOS_N
## DYRK1A_N	0.0796667714	-0.363711184	-0.180762659	-0.069607218
## ITSN1_N	0.2671468265	-0.223362718	0.003579286	0.061654210
## BDNF_N	0.4430579343	0.242241256	0.356819743	0.256051059
## NR1_N	0.5203508732	0.404419650	0.394519018	0.387875806
## NR2A_N	0.5173054098	0.372721618	0.294676610	0.338882561
## pAKT_N	0.1017894087	0.434484415	0.469756103	0.302945856
## pBRAF_N	0.0515143667	0.355164671	0.349678555	0.267157600
## pCAMKII_N	0.1900830236	0.475099641	0.376719207	0.398355559
## pCREB_N	0.4746687753	0.440425689	0.534198374	0.524724911
## pELK_N	0.0251942533	-0.034131024	-0.039446474	-0.019756926
## pERK_N	0.0483351833	-0.388125679	-0.202219474	-0.068741150
## pJNK_N	0.3217580937	0.484425623	0.475228267	0.431154125
## PKCA_N	0.4224190964	0.033929900	0.267107517	0.175678461
## pMEK_N	0.2820287283	0.490697989	0.513110169	0.404607563
## pNR1_N	0.4408843119	0.447917932	0.358341916	0.411034432
## pNR2A_N	0.3559399637	0.625902235	0.467031002	0.555658206
## pNR2B_N	0.5043392716	0.494241838	0.413553601	0.432018762
## pPKCAB_N	0.3780391031	-0.300561178	0.023132763	-0.083670202
## pRSK_N	0.2560428048	0.008747293	0.259510200	0.213212304
## AKT_N	0.3723274934	0.624537450	0.460032969	0.465063694
## BRAF_N	-0.0376372378	-0.379818814	-0.176896848	-0.110098216
## CAMKII_N	0.2006195250	0.426300117	0.388363991	0.206789457
## CREB_N	0.1262173239	0.260584566	0.328977643	0.208270248
## ELK_N	0.5626890799	0.358499140	0.390583256	0.426699481
## ERK_N	0.5913318567	0.274766842	0.351442911	0.276672356
## GSK3B_N	0.4157100490	-0.167603930	0.062750710	0.004477757
## JNK_N	0.2945179255	0.218392878	0.345973893	0.239335837
## MEK_N	0.5235851821	0.418963882	0.503394234	0.443783834
## TRKA_N	0.5666209336	0.279564901	0.436430346	0.325834271
## RSK_N	0.0539898450	0.224140611	0.312827123	0.122706281
## APP_N	0.3289613285	0.072285884	0.213212622	0.136354077
## Bcatenin_N	0.5711244768	0.431648030	0.420919816	0.475511327
## SOD1_N	0.0503084776	0.615216495	0.370587545	0.408653750
## MTOR_N	-0.0961079915	0.428779533	0.221311141	0.190402202
## P38_N	-0.2634398956	0.476743809	0.152970967	0.247887893
## pMTOR_N	0.1487984737	0.568276940	0.362992008	0.377502614
## DSCR1_N	-0.0225567545	0.282901796	0.212585996	0.064072724
## AMPKA_N	0.2074181673	0.375464887	0.201968692	0.232346679
## NR2B_N	0.0842108374	0.500962579	0.348991945	0.279713899
## pNUMB_N	0.1997404598	-0.059493121	0.048316961	-0.061178501
## RAPTOR_N	-0.0412813097	0.328641375	0.176489644	0.108288904
## TIAM1_N	0.1950682502	0.296692236	0.179086766	0.201640812
## pP70S6_N	-0.1352068882	-0.028621124	0.008780804	0.062773883
## NUMB_N	0.6564137099	0.115344538	0.283884134	0.316022276
## P70S6_N	0.5659137545	0.400447005	0.411149390	0.575192984
## pGSK3B_N	0.5657691530	-0.100835693	0.273540759	0.128551224
## pPKCG_N	0.2859213515	-0.181076929	0.109738024	0.079159770
## CDK5_N	0.5598010555	0.034639173	0.270826048	0.174256676
## S6_N	0.4090283998	-0.149459188	0.206947688	0.188156786
## ADARB1_N	0.4506207090	0.218258161	0.313799369	-0.004854373
## AcetylH3K9_N	0.1923894102	0.080345273	0.322472377	0.112795668
## RRP1_N	0.1873905172	0.041362658	0.097107776	0.047203728
## BAX_N	1.0000000000	0.374905849	0.443294656	0.453296992

## ARC_N	0.3749058487	1.000000000	0.708290886	0.683079589
## ERBB4_N	0.4432946562	0.708290886	1.000000000	0.568236342
## nNOS_N	0.4532969917	0.683079589	0.568236342	1.000000000
## Tau_N	0.2726255331	0.234490417	0.441986704	0.293101229
## GFAP_N	0.3103132684	-0.085638927	0.095103624	-0.110098760
## GluR3_N	0.3049615447	0.182006656	0.121390077	0.340953646
## GluR4_N	0.5191047281	0.243438877	0.276739897	0.468714792
## IL1B_N	-0.0002830988	0.618194657	0.533394565	0.440734860
## P3525_N	0.4277146182	0.355734908	0.581113307	0.393441469
## pCASP9_N	0.4915246955	0.452368140	0.567891555	0.598198906
## PSD95_N	0.5075658538	0.651626726	0.684265110	0.584340226
## SNCA_N	-0.0924826930	0.600497580	0.331764117	0.222048019
## Ubiquitin_N	0.3427821215	0.705410687	0.632122725	0.476515733
## pGSK3B_Tyr216_N	0.4988252789	0.044204014	0.398090406	0.253052969
## SHH_N	-0.0196865776	0.383026252	0.319207960	0.246308268
## BAD_N	-0.1669915531	-0.021234815	0.012628411	-0.072484094
## BCL2_N	-0.1136832222	0.205289439	0.090423264	-0.009448400
## pS6_N	0.3749058487	1.000000000	0.708290886	0.683079589
## pCFOS_N	-0.1947943494	0.055734370	-0.092157589	-0.138547637
## SYP_N	0.5880512254	0.395031542	0.547569872	0.377703976
## H3AcK18_N	0.0685323297	0.203910599	0.359515496	0.115431745
## EGR1_N	-0.2681933472	0.224491255	0.062471332	-0.011997457
## H3MeK4_N	-0.0896478265	0.199488168	0.242642100	0.030619848
## CaNA_N	0.4422548337	-0.374123955	0.043918957	-0.068549583
##	Tau_N	GFAP_N	GluR3_N	GluR4_N
## DYRK1A_N	0.0930855594	0.103140752	0.024263091	0.128561609
## ITSN1_N	0.2511098080	0.121751661	0.012737306	0.213451516
## BDNF_N	0.0951943347	0.121950237	-0.013653370	0.244259913
## NR1_N	-0.0099811534	-0.009755269	0.182699110	0.266769465
## NR2A_N	-0.0425223794	-0.032379751	0.163850053	0.240625175
## pAKT_N	0.1511556024	0.028575900	-0.282840006	-0.062966138
## pBRAF_N	0.0826673164	0.060149184	-0.207963679	-0.032012271
## pCAMKII_N	0.0673770210	-0.059128847	0.100089896	0.222860949
## pCREB_N	0.3288369013	0.102934971	-0.026917546	0.279349403
## pELK_N	-0.0151313237	-0.032655332	-0.008409148	0.029825727
## pERK_N	-0.0081590783	0.136355610	0.151765735	0.201454232
## pJNK_N	0.1107330814	0.031081096	-0.016005742	0.202133721
## PKCA_N	0.0340606655	0.251301407	-0.005907439	0.240145362
## pMEK_N	0.1589842644	0.049380324	-0.206996266	0.064305629
## pNR1_N	-0.0131558546	-0.038950473	0.252852982	0.283485982
## pNR2A_N	0.0136084858	-0.069832003	0.392128831	0.411016377
## pNR2B_N	-0.0369693387	-0.044686396	0.221063179	0.282077311
## pPKCAB_N	-0.0812650129	0.305557665	0.031256072	0.214982643
## pRSK_N	0.2095367686	0.196369674	-0.085243217	0.145681469
## AKT_N	0.1167566595	-0.083225882	-0.002653123	0.167579323
## BRAF_N	0.0602090260	0.080587046	-0.052104784	0.017393362
## CAMKII_N	0.0634625705	0.086845101	-0.225551302	-0.044285107
## CREB_N	0.1771955032	0.198460012	-0.258479067	-0.009343373
## ELK_N	0.2038276263	0.102336693	0.225354541	0.427744407
## ERK_N	0.1053105506	0.045108922	0.094015835	0.288908824
## GSK3B_N	0.0009712356	0.097665829	0.017589300	0.141543914
## JNK_N	0.0452793058	0.101684553	-0.176400719	0.036389326
## MEK_N	0.1651601710	0.098107278	-0.058161629	0.253370435
## TRKA_N	0.1084576887	0.086565155	0.017883136	0.242933023

## RSK_N	0.0704976396	0.100282573	-0.317228278	-0.134526276
## APP_N	0.3181994310	0.152092686	-0.184986672	0.193790167
## Bcatenin_N	0.1183908226	-0.058800420	0.176352184	0.333256937
## SOD1_N	0.2840029911	-0.238717356	-0.041334170	0.053613914
## MTOR_N	-0.1694167464	-0.211236217	-0.084187853	-0.042558519
## P38_N	-0.1288644859	-0.265563138	0.030901244	-0.044547502
## pMTOR_N	-0.0939598327	-0.194101434	0.046202326	0.127784307
## DSCR1_N	0.0325068603	-0.025691898	-0.237920643	-0.048086825
## AMPKA_N	-0.0487080856	-0.015427303	0.028874112	0.136256504
## NR2B_N	-0.0327092898	-0.123675650	-0.037489589	0.068544956
## pNUMB_N	0.0945632913	0.321084695	-0.089259972	0.154264087
## RAPTOR_N	0.0531242553	0.062486773	-0.201983234	-0.054077738
## TIAM1_N	0.1991682918	0.087360726	-0.146456889	0.138850839
## pP70S6_N	0.1363138440	0.054378268	-0.177882296	-0.016218692
## NUMB_N	0.3121160954	0.340608579	0.311217181	0.557344403
## P70S6_N	0.2547895342	-0.006946089	0.422193795	0.539439576
## pGSK3B_N	0.2436729348	0.617787762	0.129155213	0.413950803
## pPKCG_N	0.2665610159	0.274728186	-0.038812781	0.226603773
## CDK5_N	0.1420508231	0.310288116	0.206965348	0.444553877
## S6_N	0.6101859587	0.417457624	0.111088711	0.435612297
## ADARB1_N	0.0628531074	0.117615723	0.050502697	0.180732519
## AcetylH3K9_N	0.7988637123	0.317940296	-0.138618956	0.098683752
## RRP1_N	0.2362548008	0.420826942	0.005160068	0.169349524
## BAX_N	0.2726255331	0.310313268	0.304961545	0.519104728
## ARC_N	0.2344904167	-0.085638927	0.182006656	0.243438877
## ERBB4_N	0.4419867042	0.095103624	0.121390077	0.276739897
## nNOS_N	0.2931012285	-0.110098760	0.340953646	0.468714792
## Tau_N	1.0000000000	0.256938821	-0.102536333	0.240906957
## GFAP_N	0.2569388208	1.000000000	0.098705102	0.349870098
## GluR3_N	-0.1025363326	0.098705102	1.000000000	0.727867347
## GluR4_N	0.2409069570	0.349870098	0.727867347	1.000000000
## IL1B_N	0.2240834382	-0.125889200	0.229590687	0.136028681
## P3525_N	0.4047254354	0.374173327	0.136114626	0.381064951
## pCASP9_N	0.2275610397	0.148277482	0.491999598	0.590152254
## PSD95_N	0.1185561275	-0.023415866	0.406891285	0.398925117
## SNCA_N	0.0340557848	0.081002316	0.021921107	0.009324545
## Ubiquitin_N	0.2128055246	0.027828543	-0.035555905	0.153803100
## pGSK3B_Tyr216_N	0.2487870194	0.229449633	0.169227333	0.345326998
## SHH_N	0.0853698946	0.037685318	-0.062287247	0.005499974
## BAD_N	0.0419785832	0.369235431	-0.067980670	0.067221525
## BCL2_N	-0.0507934920	0.308304616	0.046078718	0.082853177
## pS6_N	0.2344904167	-0.085638927	0.182006656	0.243438877
## pCFOS_N	-0.1776508052	0.324497861	0.095997141	0.010470620
## SYP_N	0.1177531204	0.177820367	0.153330356	0.368044410
## H3AcK18_N	0.6847335961	0.329678733	-0.140449027	0.057161919
## EGR1_N	-0.0327698616	0.203367334	0.071999900	0.051265159
## H3MeK4_N	0.3056109932	0.312434969	-0.135062154	-0.028956980
## CaNA_N	-0.0065057374	0.272797651	0.117408727	0.195087434
##	IL1B_N	P3525_N	pCASP9_N	PSD95_N
## DYRK1A_N	-0.4471846114	-0.062580748	-0.0923644607	-0.198771407
## ITSN1_N	-0.4093575726	0.083980368	0.0347500337	-0.063687110
## BDNF_N	-0.2238398338	0.341438339	0.1789104134	0.270161257
## NR1_N	-0.1380473774	0.240459022	0.2769264159	0.503269114
## NR2A_N	-0.2296467651	0.142282004	0.2301065324	0.368016108

## pAKT_N	0.2172475147	0.196466965	0.1579004226	0.421942101
## pBRAF_N	0.1822063235	0.130987578	0.0948664336	0.358170971
## pCAMKII_N	0.1785700477	0.148523528	0.2292325431	0.467547534
## pCREB_N	0.0641198020	0.390751771	0.3596403077	0.521078335
## pELK_N	-0.2308837997	-0.172083249	-0.1082338468	-0.014549284
## pERK_N	-0.4316792176	-0.089232714	0.0049673632	-0.200023281
## pJNK_N	0.1241297928	0.208993570	0.3831777934	0.570040422
## PKCA_N	-0.3462793848	0.386652333	0.2200847855	0.196797863
## pMEK_N	0.1376356511	0.270936757	0.2429351240	0.493476993
## pNR1_N	-0.0554753410	0.168229587	0.3074857634	0.454709901
## pNR2A_N	0.2907623780	0.183406658	0.5563163272	0.639410034
## pNR2B_N	-0.0262436103	0.142284568	0.3616986088	0.538453874
## pPKCAB_N	-0.5370012048	0.325043819	0.0861750165	0.002958923
## pRSK_N	-0.1562729376	0.271718023	0.1808195248	0.240207919
## AKT_N	0.1896376827	0.176547040	0.2601481227	0.390416086
## BRAF_N	-0.4154951555	-0.109673645	-0.1639217266	-0.201451880
## CAMKII_N	0.0839912463	0.145522047	0.0467415504	0.363187565
## CREB_N	0.0523291044	0.208009478	0.0698645994	0.288674634
## ELK_N	-0.0770048515	0.330794624	0.3882238465	0.344388631
## ERK_N	-0.2435628246	0.253437787	0.3255802253	0.297489920
## GSK3B_N	-0.5274407843	0.153384343	0.0137658372	0.076360047
## JNK_N	-0.1175376356	0.214784489	0.0936719946	0.362747401
## MEK_N	-0.0042175807	0.359073891	0.3388502135	0.463169210
## TRKA_N	-0.2134506846	0.356877144	0.2560889299	0.504639386
## RSK_N	0.0294998825	0.129214990	-0.0073278998	0.309496275
## APP_N	-0.2595085469	0.284814313	0.0060360345	0.112599442
## Bcatenin_N	-0.1305500103	0.246904183	0.3338100083	0.504006576
## SOD1_N	0.4852297598	0.045594549	0.1177398315	0.375132689
## MTOR_N	0.1576285141	0.080547573	0.0008978399	0.119216998
## P38_N	0.4317423001	0.023156486	-0.0277743154	0.109014296
## pMTOR_N	0.2067294751	0.002373877	0.3120551441	0.390903006
## DSCR1_N	0.0818111153	-0.048955685	0.0351720601	0.121037031
## AMPKA_N	-0.1335443719	0.112883236	0.1018719976	0.082230003
## NR2B_N	0.1652275884	0.097645402	0.1075712775	0.289008474
## pNUMB_N	-0.4198675985	0.109011192	0.0596993746	-0.129257266
## RAPTOR_N	-0.0161658793	0.066349302	-0.0195181717	-0.001419309
## TIAM1_N	-0.1586138163	0.154952644	0.0603199498	-0.008782489
## pP70S6_N	-0.0713601805	0.219224313	-0.2136356724	-0.053787757
## NUMB_N	-0.2113462528	0.400414177	0.4696858381	0.280328176
## P70S6_N	0.1424098198	0.186781619	0.6763157789	0.448653306
## pGSK3B_N	-0.2669894467	0.405616262	0.3852442393	0.175505992
## pPKCG_N	-0.2176085199	0.489945886	0.0879565213	0.100676010
## CDK5_N	-0.1669406423	0.408323356	0.3634343153	0.320429944
## S6_N	-0.1679684833	0.468710232	0.1921377443	0.055191888
## ADARB1_N	-0.2117924545	0.325614691	0.1756592138	0.255036200
## AcetylH3K9_N	0.1152173083	0.343056797	0.0743146690	0.071997484
## RRP1_N	0.0680863798	0.189705856	0.0970799571	0.019057017
## BAX_N	-0.0002830988	0.427714618	0.4915246955	0.507565854
## ARC_N	0.6181946573	0.355734908	0.4523681398	0.651626726
## ERBB4_N	0.5333945648	0.581113307	0.5678915545	0.684265110
## nNOS_N	0.4407348595	0.393441469	0.5981989063	0.584340226
## Tau_N	0.2240834382	0.404725435	0.2275610397	0.118556127
## GFAP_N	-0.1258891997	0.374173327	0.1482774817	-0.023415866
## GluR3_N	0.2295906874	0.136114626	0.4919995975	0.406891285

## GluR4_N	0.1360286806	0.381064951	0.5901522541	0.398925117
## IL1B_N	1.0000000000	0.232380914	0.3878248330	0.443221392
## P3525_N	0.2323809143	1.0000000000	0.3193668989	0.372405974
## pCASP9_N	0.3878248330	0.319366899	1.0000000000	0.543975134
## PSD95_N	0.4432213922	0.372405974	0.5439751339	1.0000000000
## SNCA_N	0.6182681727	0.274676694	0.1043021513	0.251276186
## Ubiquitin_N	0.4697283766	0.328485066	0.3843039309	0.664098041
## pGSK3B_Tyr216_N	0.0305879676	0.530380449	0.3476661758	0.331538327
## SHH_N	0.5066538110	0.371022119	-0.0069208760	0.109926199
## BAD_N	0.2686730271	0.217755496	-0.0608690524	-0.015096910
## BCL2_N	0.4154640284	0.060527316	0.0552775860	0.091187321
## pS6_N	0.6181946573	0.355734908	0.4523681398	0.651626726
## pCFOS_N	0.3581554514	0.007334250	0.0001166429	-0.145854701
## SYP_N	0.0970504497	0.386115232	0.5308583710	0.588295602
## H3AcK18_N	0.3463833665	0.263261101	0.1021369863	0.149408130
## EGR1_N	0.5178065652	0.049379376	0.0021367017	0.029486659
## H3MeK4_N	0.4631036834	0.125855154	0.0090603685	0.190695116
## CaNA_N	-0.3805085041	0.227981211	0.1960079186	0.087784219
##	SNCA_N	Ubiquitin_N	pGSK3B_Tyr216_N	SHH_N
## DYRK1A_N	-0.518043691	-0.36924086	0.301124973	-0.262231133
## ITSN1_N	-0.500357971	-0.23792187	0.384144220	-0.243865053
## BDNF_N	-0.157516080	0.20819658	0.265593740	-0.040384496
## NR1_N	-0.113135443	0.26734348	0.137963826	-0.153012870
## NR2A_N	-0.154128211	0.20869100	0.055807910	-0.226954887
## pAKT_N	0.301445696	0.69570198	0.148087572	0.208062314
## pBRAF_N	0.269553087	0.54841001	0.080588694	0.154063258
## pCAMKII_N	0.196920037	0.66951715	0.143795971	0.138286433
## pCREB_N	0.029664277	0.50097342	0.274895375	0.091625487
## pELK_N	-0.202237964	-0.12900077	-0.058493917	-0.177741644
## pERK_N	-0.532319634	-0.44463964	0.252417939	-0.290603552
## pJNK_N	0.198408229	0.68365524	0.144919753	0.031659852
## PKCA_N	-0.270368312	0.21753014	0.408304067	-0.073370986
## pMEK_N	0.241439721	0.68581278	0.210029376	0.136288330
## pNR1_N	-0.029735717	0.25235835	-0.007315384	-0.176015758
## pNR2A_N	0.254328047	0.56341707	-0.051307800	-0.002020964
## pNR2B_N	0.003384621	0.36770930	0.019441946	-0.131640359
## pPKCAB_N	-0.464081675	-0.08036781	0.468454818	-0.167068562
## pRSK_N	-0.184409494	0.34652178	0.452313443	-0.022783514
## AKT_N	0.225455184	0.42533375	-0.012724945	0.139193181
## BRAF_N	-0.482897144	-0.33868719	0.293451146	-0.224385861
## CAMKII_N	0.232553162	0.52135441	0.008376313	0.138336236
## CREB_N	0.177266650	0.49410835	0.152395981	0.065469609
## ELK_N	-0.118785960	0.15986714	0.159265699	-0.088501522
## ERK_N	-0.261465350	0.10981812	0.199230532	-0.216625030
## GSK3B_N	-0.545610492	-0.14247022	0.443562701	-0.289765407
## JNK_N	-0.048345098	0.41314274	0.265930752	0.018954276
## MEK_N	0.020786106	0.48529479	0.350392075	0.072918063
## TRKA_N	-0.218551774	0.34620619	0.353817958	-0.134740178
## RSK_N	0.154643239	0.43691169	0.094920980	0.079107967
## APP_N	-0.167723329	0.20819429	0.304080979	0.003087503
## Bcatenin_N	-0.178344920	0.30212347	0.176899732	-0.163685744
## SOD1_N	0.403931188	0.46955319	-0.266218967	0.260008032
## MTOR_N	0.407014153	0.28696044	-0.179482738	0.233361238
## P38_N	0.635173351	0.36020558	-0.249429056	0.374391021



## pMTOR_N	0.355789617	0.50812570	-0.080686150	0.104003832
## DSCR1_N	0.267487704	0.33930092	-0.089897187	0.068428877
## AMPKA_N	0.147414833	0.14277934	-0.141375397	-0.058469471
## NR2B_N	0.311113608	0.39906545	-0.105880860	0.121019465
## pNUMB_N	-0.170695424	-0.03102755	0.066229025	-0.193164977
## RAPTOR_N	0.337994059	0.31810462	-0.179976666	0.026754085
## TIAM1_N	0.148071932	0.22767959	-0.065368830	-0.014047654
## pP70S6_N	0.120169058	0.20590552	0.140052753	0.214770657
## NUMB_N	-0.289166930	-0.01770162	0.322726609	-0.176094345
## P70S6_N	-0.055215205	0.22742945	0.248813261	-0.081936937
## pGSK3B_N	-0.303393969	0.01565845	0.573928990	-0.149995717
## pPKCG_N	-0.186632702	0.18982451	0.549289756	0.081869902
## CDK5_N	-0.217730725	0.13851416	0.479316882	-0.104441890
## S6_N	-0.358036347	-0.09334693	0.478151828	-0.039123522
## ADARB1_N	-0.136496190	0.15727786	0.245494547	-0.153631517
## AcetylH3K9_N	-0.062294627	0.18371100	0.101460761	0.019342334
## RRP1_N	0.119896643	0.20816353	0.089789637	0.067816330
## BAX_N	-0.092482693	0.34278212	0.498825279	-0.019686578
## ARC_N	0.600497580	0.70541069	0.044204014	0.383026252
## ERBB4_N	0.331764117	0.63212272	0.398090406	0.319207960
## nNOS_N	0.222048019	0.47651573	0.253052969	0.246308268
## Tau_N	0.034055785	0.21280552	0.248787019	0.085369895
## GFAP_N	0.081002316	0.02782854	0.229449633	0.037685318
## GluR3_N	0.021921107	-0.03555590	0.169227333	-0.062287247
## GluR4_N	0.009324545	0.15380310	0.345326998	0.005499974
## IL1B_N	0.618268173	0.46972838	0.030587968	0.506653811
## P3525_N	0.274676694	0.32848507	0.530380449	0.371022119
## pCASP9_N	0.104302151	0.38430393	0.347666176	-0.006920876
## PSD95_N	0.251276186	0.66409804	0.331538327	0.109926199
## SNCA_N	1.000000000	0.52227339	-0.140520190	0.520323364
## Ubiquitin_N	0.522273391	1.00000000	0.221845023	0.299047446
## pGSK3B_Tyr216_N	-0.140520190	0.22184502	1.000000000	0.212391100
## SHH_N	0.520323364	0.29904745	0.212391100	1.000000000
## BAD_N	0.442416007	0.26670715	0.104908458	0.376549183
## BCL2_N	0.609874769	0.36412479	-0.073504762	0.362892057
## pS6_N	0.600497580	0.70541069	0.044204014	0.383026252
## pCFOS_N	0.571415133	0.10250596	-0.124726338	0.433059290
## SYP_N	0.004021618	0.47131865	0.292950961	-0.107368662
## H3AcK18_N	0.229434395	0.33775336	-0.016864648	0.159736861
## EGR1_N	0.701158302	0.31603030	-0.192653228	0.404669102
## H3MeK4_N	0.460930930	0.43526536	-0.043850827	0.309726790
## CaNA_N	-0.593095684	-0.27808646	0.544473598	-0.274716092
##	BAD_N	BCL2_N	pS6_N	pCFOS_N
## DYRK1A_N	-0.275091946	-0.351199108	-0.363711184	-0.3144820484
## ITSN1_N	-0.350630511	-0.405715674	-0.223362718	-0.4250176737
## BDNF_N	-0.157618519	-0.132847917	0.242241256	-0.3430871111
## NR1_N	-0.407684502	-0.260440227	0.404419650	-0.4043204351
## NR2A_N	-0.472464023	-0.303924809	0.372721618	-0.4093383937
## pAKT_N	0.340239412	0.361586317	0.434484415	-0.0144069780
## pBRAF_N	0.368402091	0.412160393	0.355164671	0.0285647175
## pCAMKII_N	0.183029516	0.205279907	0.475099641	-0.0419606245
## pCREB_N	-0.039640820	-0.001710906	0.440425689	-0.2986712207
## pELK_N	-0.239612298	-0.169974689	-0.034131024	-0.2115185493
## pERK_N	-0.302649799	-0.337729011	-0.388125679	-0.2638348990

## pJNK_N	0.129109656	0.200698958	0.484425623	-0.1351391251
## PKCA_N	0.002672615	-0.115224429	0.033929900	-0.3025850727
## pMEK_N	0.220055731	0.250755743	0.490697989	-0.1187698841
## pNR1_N	-0.402983240	-0.195102365	0.447917932	-0.2957063002
## pNR2A_N	-0.133346705	0.081939294	0.625902235	-0.0438523118
## pNR2B_N	-0.387184146	-0.158585767	0.494241838	-0.2909442462
## pPKCAB_N	-0.051138386	-0.243155668	-0.300561178	-0.3007200727
## pRSK_N	0.255839220	0.029229696	0.008747293	-0.2088956051
## AKT_N	-0.228306975	-0.026669425	0.624537450	-0.1758712215
## BRAF_N	-0.165077013	-0.259760166	-0.379818814	-0.2879262388
## CAMKII_N	0.139579649	0.283574760	0.426300117	-0.0760520381
## CREB_N	0.400683060	0.403929460	0.260584566	0.0145137617
## ELK_N	-0.407468836	-0.288537242	0.358499140	-0.3377440412
## ERK_N	-0.523017264	-0.402461684	0.274766842	-0.4749482981
## GSK3B_N	-0.393082580	-0.436622873	-0.167603930	-0.5163257523
## JNK_N	0.106218171	0.095561930	0.218392878	-0.2307796548
## MEK_N	-0.012202242	0.017721213	0.418963882	-0.2709050700
## TRKA_N	-0.256877909	-0.232058187	0.279564901	-0.4853156324
## RSK_N	0.276833055	0.300958805	0.224140611	-0.0801078347
## APP_N	-0.057075316	-0.131688410	0.072285884	-0.3168487836
## Bcatenin_N	-0.443079369	-0.338468788	0.431648030	-0.4887097861
## SOD1_N	0.029554000	0.151966616	0.615216495	-0.0124705810
## MTOR_N	0.082701072	0.182688840	0.428779533	0.0843507616
## P38_N	0.292123992	0.383470612	0.476743809	0.3262600049
## pMTOR_N	-0.040119004	0.165866179	0.568276940	0.0169546093
## DSCR1_N	0.186838294	0.318359323	0.282901796	0.0955323937
## AMPKA_N	-0.240227846	-0.062734322	0.375464887	-0.1222240489
## NR2B_N	0.043256368	0.184577635	0.500962579	0.0007516670
## pNUMB_N	-0.082944905	-0.066891997	-0.059493121	-0.1366258100
## RAPTOR_N	0.185166210	0.270129164	0.328641375	0.0988107589
## TIAM1_N	-0.035768653	0.052167366	0.296692236	-0.0751457178
## pP70S6_N	0.506472831	0.212350712	-0.028621124	0.0440737423
## NUMB_N	-0.393177093	-0.369498271	0.115344538	-0.3277951295
## P70S6_N	-0.409076118	-0.246916442	0.400447005	-0.2653812067
## pGSK3B_N	0.038970075	-0.049678823	-0.100835693	-0.1533974614
## pPKCG_N	0.353683365	-0.011741347	-0.181076929	-0.1626032689
## CDK5_N	-0.021702810	-0.080178304	0.034639173	-0.2295073157
## S6_N	-0.084384834	-0.275188824	-0.149459188	-0.3004037345
## ADARB1_N	-0.342244580	-0.276864024	0.218258161	-0.3161154756
## AcetylH3K9_N	0.100476188	-0.023702126	0.080345273	-0.1656181271
## RRP1_N	0.268867168	0.290059410	0.041362658	0.2496714591
## BAX_N	-0.166991553	-0.113683222	0.374905849	-0.1947943494
## ARC_N	-0.021234815	0.205289439	1.000000000	0.0557343697
## ERBB4_N	0.012628411	0.090423264	0.708290886	-0.0921575891
## nNOS_N	-0.072484094	-0.009448400	0.683079589	-0.1385476373
## Tau_N	0.041978583	-0.050793492	0.234490417	-0.1776508052
## GFAP_N	0.369235431	0.308304616	-0.085638927	0.3244978607
## GluR3_N	-0.067980670	0.046078718	0.182006656	0.0959971406
## GluR4_N	0.067221525	0.082853177	0.243438877	0.0104706200
## IL1B_N	0.268673027	0.415464028	0.618194657	0.3581554514
## P3525_N	0.217755496	0.060527316	0.355734908	0.0073342502
## pCASP9_N	-0.060869052	0.055277586	0.452368140	0.0001166429
## PSD95_N	-0.015096910	0.091187321	0.651626726	-0.1458547014
## SNCA_N	0.442416007	0.609874769	0.600497580	0.5714151330

## Ubiquitin_N	0.266707149	0.364124790	0.705410687	0.1025059647
## pGSK3B_Tyr216_N	0.104908458	-0.073504762	0.044204014	-0.1247263379
## SHH_N	0.376549183	0.362892057	0.383026252	0.4330592900
## BAD_N	1.000000000	0.790777044	-0.021234815	0.5775688081
## BCL2_N	0.790777044	1.000000000	0.205289439	0.6807298435
## pS6_N	-0.021234815	0.205289439	1.000000000	0.0557343697
## pCFOS_N	0.577568808	0.680729843	0.055734370	1.0000000000
## SYP_N	-0.004716826	0.031134324	0.395031542	-0.2584524323
## H3AcK18_N	0.384712629	0.342216539	0.203910599	0.1234582518
## EGR1_N	0.791789568	0.857426854	0.224491255	0.7280722312
## H3MeK4_N	0.738193999	0.724917425	0.199488168	0.4511252334
## CaNA_N	-0.186303537	-0.325668964	-0.374123955	-0.3611201037
##	SYP_N	H3AcK18_N	EGR1_N	H3MeK4_N
## DYRK1A_N	-0.069775743	-0.250745519	-0.426151565	-0.394628727
## ITSN1_N	0.131311080	-0.175310347	-0.515282063	-0.406217923
## BDNF_N	0.598161020	-0.095589338	-0.276447108	-0.201237490
## NR1_N	0.624784103	-0.175718071	-0.385419173	-0.306744301
## NR2A_N	0.492579354	-0.236031362	-0.411080678	-0.397364337
## pAKT_N	0.383690789	0.287263349	0.271669281	0.457838169
## pBRAF_N	0.409951575	0.245173908	0.305641470	0.457569389
## pCAMKII_N	0.328267632	0.175225463	0.152920610	0.194887680
## pCREB_N	0.657358373	0.195551647	-0.141455180	0.103150467
## pELK_N	0.053596736	-0.188586094	-0.197635867	-0.213939509
## pERK_N	-0.028211802	-0.324552381	-0.424929114	-0.447457481
## pJNK_N	0.616278960	0.127372220	0.084538308	0.205558335
## PKCA_N	0.546285197	-0.012570226	-0.270682211	-0.144423573
## pMEK_N	0.545838309	0.220410368	0.131786688	0.315703114
## pNR1_N	0.546677461	-0.158956499	-0.282183627	-0.288545247
## pNR2A_N	0.561857844	0.001393149	0.039965651	-0.024186123
## pNR2B_N	0.600819359	-0.159248118	-0.269818245	-0.252048565
## pPKCAB_N	0.388415767	-0.159883319	-0.400116154	-0.286800305
## pRSK_N	0.385924336	0.247046051	-0.068458969	0.215391342
## AKT_N	0.457423230	-0.057037245	-0.070903449	-0.066067152
## BRAF_N	-0.085051569	-0.189340738	-0.346867218	-0.257294377
## CAMKII_N	0.436177019	0.146458039	0.134222384	0.285903120
## CREB_N	0.380985180	0.311987775	0.258192464	0.456325729
## ELK_N	0.613258960	-0.092227277	-0.381725024	-0.329122416
## ERK_N	0.627075169	-0.220435729	-0.533458517	-0.450812751
## GSK3B_N	0.349747117	-0.289839822	-0.610193743	-0.460893205
## JNK_N	0.553964201	0.058441963	-0.074964857	0.142160007
## MEK_N	0.700047823	0.013462806	-0.132975008	0.019312715
## TRKA_N	0.703893913	-0.071617865	-0.414181932	-0.187774628
## RSK_N	0.425134747	0.227183178	0.143875410	0.408373582
## APP_N	0.324944317	0.024954302	-0.234401985	-0.135121361
## Bcatenin_N	0.635288173	-0.124690096	-0.449741863	-0.318000277
## SOD1_N	0.187068760	0.347474869	0.234720788	0.347209931
## MTOR_N	0.144708280	-0.147556418	0.266154075	-0.025564318
## P38_N	-0.095658123	0.024828230	0.555256188	0.207482596
## pMTOR_N	0.359843215	-0.068945867	0.165329925	-0.005509510
## DSCR1_N	0.190823896	0.044600508	0.280274366	0.165360777
## AMPKA_N	0.306749256	-0.198798962	-0.077474500	-0.284443601
## NR2B_N	0.327279253	-0.035010699	0.195172646	0.044524670
## pNUMB_N	0.203846204	-0.081980581	-0.151771298	-0.221789280
## RAPTOR_N	0.150938957	0.102536395	0.291422284	0.144447383

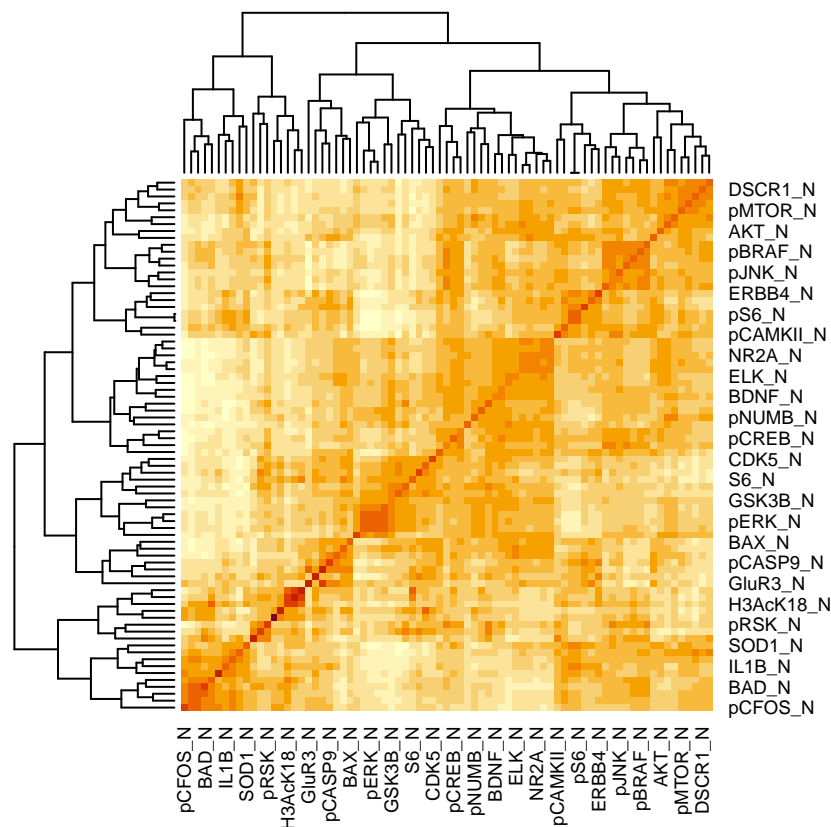
## TIAM1_N	0.215714939	0.007366770	0.033827044	-0.105578306
## pP7OS6_N	-0.069329629	0.252633442	0.270217911	0.313663833
## NUMB_N	0.519295748	-0.105058681	-0.496585837	-0.382436987
## P7OS6_N	0.454298234	-0.124754591	-0.307298613	-0.329624589
## pGSK3B_N	0.466019544	0.123779199	-0.242385677	0.001266084
## pPKCG_N	0.235873410	0.242212001	-0.083930756	0.150092775
## CDK5_N	0.534281016	-0.019007330	-0.229866389	-0.057600673
## S6_N	0.169244087	0.277696056	-0.335396148	-0.064017805
## ADARB1_N	0.453567011	-0.144915198	-0.358589259	-0.350673715
## AcetylH3K9_N	0.128193019	0.877612314	-0.023406706	0.439330472
## RRP1_N	0.089309005	0.292123253	0.212222215	0.320761514
## BAX_N	0.588051225	0.068532330	-0.268193347	-0.089647827
## ARC_N	0.395031542	0.203910599	0.224491255	0.199488168
## ERBB4_N	0.547569872	0.359515496	0.062471332	0.242642100
## nNOS_N	0.377703976	0.115431745	-0.011997457	0.030619848
## Tau_N	0.117753120	0.684733596	-0.032769862	0.305610993
## GFAP_N	0.177820367	0.329678733	0.203367334	0.312434969
## GluR3_N	0.153330356	-0.140449027	0.071999900	-0.135062154
## GluR4_N	0.368044410	0.057161919	0.051265159	-0.028956980
## IL1B_N	0.097050450	0.346383366	0.517806565	0.463103683
## P3525_N	0.386115232	0.263261101	0.049379376	0.125855154
## pCASP9_N	0.530858371	0.102136986	0.002136702	0.009060369
## PSD95_N	0.588295602	0.149408130	0.029486659	0.190695116
## SNCA_N	0.004021618	0.229434395	0.701158302	0.460930930
## Ubiquitin_N	0.471318652	0.337753359	0.316030300	0.435265358
## pGSK3B_Tyr216_N	0.292950961	-0.016864648	-0.192653228	-0.043850827
## SHH_N	-0.107368662	0.159736861	0.404669102	0.309726790
## BAD_N	-0.004716826	0.384712629	0.791789568	0.738193999
## BCL2_N	0.031134324	0.342216539	0.857426854	0.724917425
## pS6_N	0.395031542	0.203910599	0.224491255	0.199488168
## pCFOS_N	-0.258452432	0.123458252	0.728072231	0.451125233
## SYP_N	1.000000000	0.125525796	-0.116044720	0.084781190
## H3AcK18_N	0.125525796	1.000000000	0.360854634	0.746254568
## EGR1_N	-0.116044720	0.360854634	1.000000000	0.715605806
## H3MeK4_N	0.084781190	0.746254568	0.715605806	1.000000000
## CaNA_N	0.391148666	-0.149353501	-0.508548010	-0.265352409
## CaNA_N				
## DYRK1A_N	0.463305284			
## ITSN1_N	0.526254537			
## BDNF_N	0.341436585			
## NR1_N	0.258619158			
## NR2A_N	0.183098788			
## pAKT_N	-0.163782068			
## pBRAF_N	-0.093021973			
## pCAMKII_N	-0.277152671			
## pCREB_N	0.178116993			
## pELK_N	0.098234166			
## pERK_N	0.529682182			
## pJNK_N	-0.037266780			
## PKCA_N	0.485470252			
## pMEK_N	-0.063184546			
## pNR1_N	0.103360263			
## pNR2A_N	-0.161265203			
## pNR2B_N	0.120723797			

## pPKCAB_N	0.706252113
## pRSK_N	0.259729751
## AKT_N	-0.151066763
## BRAF_N	0.445863495
## CAMKII_N	-0.052510190
## CREB_N	0.006478803
## ELK_N	0.251411416
## ERK_N	0.406991202
## GSK3B_N	0.651542794
## JNK_N	0.268025054
## MEK_N	0.250700719
## TRKA_N	0.445984363
## RSK_N	0.082834536
## APP_N	0.240461809
## Bcatenin_N	0.211690396
## SOD1_N	-0.531730491
## MTOR_N	-0.376524750
## P38_N	-0.685504072
## pMTOR_N	-0.309734826
## DSCR1_N	-0.209978265
## AMPKA_N	-0.129358060
## NR2B_N	-0.276472590
## pNUMB_N	0.214505492
## RAPTOR_N	-0.354208811
## TIAM1_N	-0.170523965
## pP70S6_N	-0.203638612
## NUMB_N	0.516339203
## P70S6_N	0.176668252
## pGSK3B_N	0.710661080
## pPKCG_N	0.346002097
## CDK5_N	0.567122397
## S6_N	0.467227039
## ADARB1_N	0.338169604
## AcetylH3K9_N	0.039675805
## RRP1_N	0.023507279
## BAX_N	0.442254834
## ARC_N	-0.374123955
## ERBB4_N	0.043918957
## nNOS_N	-0.068549583
## Tau_N	-0.006505737
## GFAP_N	0.272797651
## GluR3_N	0.117408727
## GluR4_N	0.195087434
## IL1B_N	-0.380508504
## P3525_N	0.227981211
## pCASP9_N	0.196007919
## PSD95_N	0.087784219
## SNCA_N	-0.593095684
## Ubiquitin_N	-0.278086456
## pGSK3B_Tyr216_N	0.544473598
## SHH_N	-0.274716092
## BAD_N	-0.186303537
## BCL2_N	-0.325668964
## pS6_N	-0.374123955

```
## pCFOS_N      -0.361120104
## SYP_N        0.391148666
## H3AcK18_N    -0.149353501
## EGR1_N       -0.508548010
## H3MeK4_N     -0.265352409
## CaNA_N       1.000000000
```

6.

```
heatmap(multi)
```



There is multicollinearity because there is a correlation between some of the variables in the dataset

7.

```
mice1 <- mice[, 2:78]
mice1 <- apply(mice1, 2, as.numeric)
for(i in 1:ncol(mice1)) {
  mice1[, i][is.na(mice1[, i])] <- mean(mice1[, 2], na.rm=TRUE)
}
```

I imputed the missing values by replacing them with the mean value for each column.

8.

```
pc <- prcomp(mice1, scale = TRUE)
pc$rotation <- -1*pc$rotation
pc$rotation
```

##	PC1	PC2	PC3	PC4
## DYRK1A_N	0.048045625	-0.2023628691	0.107906272	-0.008153166
## ITSN1_N	0.075167052	-0.2162955674	0.070888758	0.002826787
## BDNF_N	0.199922695	-0.0629988779	0.082583574	0.015203630
## NR1_N	0.180101072	-0.0994200872	-0.079886622	-0.108763671
## NR2A_N	0.171452639	-0.1106473965	-0.068201209	-0.160304680
## pAKT_N	0.129371114	0.1517150147	0.119031417	0.146326842
## pBRAF_N	0.124113340	0.1357680769	0.146307130	0.141283829
## pCAMKII_N	0.099491615	0.0898500491	-0.063452351	-0.002645502
## pCREB_N	0.162564488	0.0493870593	0.047684132	0.171248985
## pELK_N	0.084327051	-0.1352373098	0.103122880	-0.098002308
## pERK_N	0.045716450	-0.2051651569	0.097474921	-0.021793922
## pJNK_N	0.175760390	0.1084235302	0.031420876	0.070918876
## PKCA_N	0.160848988	-0.0647087760	0.114459251	0.085873301
## pMEK_N	0.160539778	0.1243563398	0.102312144	0.128666291
## pNR1_N	0.189495231	-0.0585159538	-0.076326628	-0.135601655
## pNR2A_N	0.146206662	0.0789978695	-0.138339076	-0.091511739
## pNR2B_N	0.184045522	-0.0544883344	-0.113812456	-0.146133032
## pPKCAB_N	0.081487230	-0.1781670658	0.065583970	0.075220555
## pRSK_N	0.097537337	-0.0007873637	0.085661167	0.208747489
## AKT_N	0.180601386	0.0128639271	-0.068976394	-0.085745709
## BRAF_N	0.045036555	-0.1738766615	0.138952961	0.020762877
## CAMKII_N	0.166544091	0.1000786635	0.121954599	0.043952989
## CREB_N	0.114212748	0.1123628345	0.171179278	0.171393663
## ELK_N	0.164428764	-0.1200860947	-0.107144739	-0.059156837
## ERK_N	0.154666405	-0.1644541236	-0.078309778	-0.093776821
## GSK3B_N	0.116620665	-0.2179120457	0.048300983	-0.019276162
## JNK_N	0.164407527	0.0303136154	0.137447933	0.139077328
## MEK_N	0.172581886	0.0001462868	0.059048330	0.099682782
## TRKA_N	0.190503184	-0.1021883538	-0.037336811	0.046169423
## RSK_N	0.109439524	0.1039981992	0.173048037	0.175561439
## APP_N	0.140669119	-0.0645893465	0.086233780	0.035881242
## Bcatenin_N	0.157675591	-0.0999044182	-0.090779327	-0.089018352
## SOD1_N	0.053988870	0.1530761457	-0.101947875	-0.025845744
## MTOR_N	0.142852676	0.1316659909	0.077675784	-0.155767723
## P38_N	0.067286323	0.2161883485	0.037663415	-0.122044487
## pMTOR_N	0.157655381	0.1265931801	-0.015256872	-0.163471454
## DSCR1_N	0.125892749	0.1167917532	0.129250454	-0.120929447
## AMPKA_N	0.173655058	0.0201431780	0.097644880	-0.178278803
## NR2B_N	0.166117917	0.1096206619	0.043335116	-0.134507741
## pNUMB_N	0.140440598	-0.0236921341	0.152597450	-0.072899238
## RAPTOR_N	0.132259846	0.1268260299	0.169391075	-0.109926636
## TIAM1_N	0.152973201	0.0380396848	0.125282604	-0.144616338
## pP70S6_N	0.016763234	0.0914740642	0.111800994	0.082395008
## NUMB_N	0.098864864	-0.1569775666	-0.146639866	0.059472942
## P70S6_N	0.095624028	-0.0692852729	-0.217345639	0.003854796
## pGSK3B_N	0.061247477	-0.1251571227	0.066371166	0.191716476

## pPKCG_N	0.004160581	-0.0255997192	0.029994012	0.253985699
## CDK5_N	0.091112626	-0.1128384204	-0.070444434	0.162057887
## S6_N	0.013372486	-0.1389951411	-0.052408269	0.217972900
## ADARB1_N	0.136205963	-0.0693281128	-0.065860288	-0.060055463
## AcetylH3K9_N	-0.022835399	0.0430322808	-0.009940160	0.119831591
## RRP1_N	0.012900590	0.0550179588	0.083556523	0.055988153
## BAX_N	0.114294619	-0.0860346415	-0.113106733	0.026861493
## ARC_N	0.099168808	0.1446155810	-0.209649078	-0.013068749
## ERBB4_N	0.097606569	0.0758812718	-0.197867824	0.132061627
## nNOS_N	0.089570674	0.0185107548	-0.219432845	0.057591966
## Tau_N	0.008995963	0.0081840386	-0.054791672	0.144983531
## GFAP_N	0.012179771	0.0102602454	0.078789419	0.106863619
## GluR3_N	0.001197735	-0.0264262290	-0.184112910	-0.037997943
## GluR4_N	0.043391362	-0.0193852219	-0.131279287	0.002615553
## IL1B_N	-0.010786041	0.1568928483	-0.194851014	0.094460151
## P3525_N	0.057800048	0.0237101551	-0.088657273	0.216696846
## pCASP9_N	0.066453258	0.0348759144	-0.227796931	0.095977250
## PSD95_N	0.068414555	0.0447223665	-0.230529136	0.131731313
## SNCA_N	0.010251629	0.2176033113	-0.039649791	0.012740087
## Ubiquitin_N	0.091140566	0.1859539960	-0.107575161	0.088512447
## pGSK3B_Tyr216_N	0.044820844	-0.0952272400	-0.086269343	0.237129761
## SHH_N	-0.008893715	0.0981873763	-0.072068428	0.109017104
## BAD_N	0.013425174	0.1035880692	0.037815821	0.011592667
## BCL2_N	-0.008211935	0.0805986352	0.014965582	0.014672136
## pS6_N	0.099168808	0.1446155810	-0.209649078	-0.013068749
## pCFOS_N	-0.009989480	0.0043480105	0.072104803	-0.004170318
## SYP_N	0.132517399	0.0021727763	-0.136018439	0.082378407
## H3AcK18_N	0.003956268	0.0851123378	-0.006304935	0.026851493
## EGR1_N	-0.013742685	0.1111054970	0.040226708	-0.037154478
## H3MeK4_N	0.039741015	0.0804105994	0.015143670	0.045757662
## CaNA_N	0.015971115	-0.2173720642	-0.001407777	0.174395453
##	PC5	PC6	PC7	PC8
## DYRK1A_N	0.1673303707	-0.107156487	0.117049828	-0.245455882
## ITSN1_N	0.1349669878	-0.090491212	0.135494503	-0.213798000
## BDNF_N	-0.0269750338	0.030772604	-0.038023240	-0.010784594
## NR1_N	-0.0563015962	-0.034978389	0.008029049	-0.017697709
## NR2A_N	-0.0135120065	0.014123419	-0.018184728	0.032781243
## pAKT_N	-0.0088791745	-0.113186765	0.015566453	0.074986828
## pBRAF_N	0.0308255211	-0.119396385	0.019215848	0.079914357
## pCAMKII_N	-0.2159427089	-0.075071403	-0.010136642	-0.155578690
## pCREB_N	-0.0102808715	-0.104442962	0.096433932	0.113318958
## pELK_N	0.1760923523	-0.119041214	0.128268675	-0.195389930
## pERK_N	0.1976334613	-0.090131391	0.061900503	-0.192015061
## pJNK_N	-0.0198827018	-0.103563844	0.008092372	0.136720634
## PKCA_N	-0.1551191157	0.067005347	-0.165963025	-0.077586170
## pMEK_N	-0.0084910212	-0.121810723	0.047967027	0.077515169
## pNR1_N	-0.0430825213	-0.010778263	0.039196491	0.017624828
## pNR2A_N	-0.0499309393	-0.041593986	-0.022511289	0.060550393
## pNR2B_N	-0.0171331193	-0.048231387	-0.012911061	0.012510730
## pPKCAB_N	-0.1876935289	0.092523782	-0.200079151	-0.103979572
## pRSK_N	-0.1984300039	-0.083071893	0.049182980	-0.020617758
## AKT_N	0.0350854593	-0.031371531	0.165108375	0.087503673
## BRAF_N	0.1923491300	-0.146207750	0.111659144	-0.250519227
## CAMKII_N	0.1024247119	-0.058791786	-0.020132868	0.038051459



## CREB_N	0.0463727261	-0.080595537	-0.012438839	0.042242313
## ELK_N	-0.0081631641	0.058533841	0.135538771	0.077911622
## ERK_N	0.0447024683	0.048343676	-0.012680118	0.119334501
## GSK3B_N	0.0073518578	-0.098231054	-0.003726740	-0.138903658
## JNK_N	0.0326768356	-0.118068362	0.018735486	0.116638998
## MEK_N	-0.0071897205	-0.050989214	-0.023168903	0.014149067
## TRKA_N	-0.0485699115	-0.066306427	-0.018933237	0.031831922
## RSK_N	0.0543536830	-0.135272107	0.014604400	0.120903693
## APP_N	-0.0803394966	0.071882856	0.055547737	-0.054270024
## Bcatenin_N	-0.0531831190	-0.077328433	0.098239884	0.054283617
## SOD1_N	-0.0588309946	-0.080541524	0.265183756	0.044774176
## MTOR_N	-0.0458880302	0.068212930	-0.066328719	-0.126380636
## P38_N	-0.0631420079	0.041466027	-0.010268079	-0.215389952
## pMTOR_N	-0.0256815746	-0.038882652	-0.042138298	-0.056732432
## DSCR1_N	0.0759246599	0.123718567	-0.045478327	-0.037718856
## AMPKA_N	-0.0135760592	0.137096716	0.016913014	0.011430214
## NR2B_N	-0.0071812321	0.075038425	-0.015945221	-0.108424266
## pNUMB_N	0.0785833939	0.209123958	-0.103579589	0.086328835
## RAPTOR_N	0.0030528116	0.140352788	-0.017839019	-0.045504658
## TIAM1_N	-0.0576709155	0.197567433	0.052323010	-0.048037061
## pP70S6_N	-0.3052682623	0.060247397	0.043616586	-0.262858438
## NUMB_N	0.0230431563	0.146765128	0.084604251	0.167823221
## P70S6_N	0.0907857297	-0.039917476	0.051353871	0.082708790
## pGSK3B_N	0.1219283204	0.181476822	-0.085839444	0.110132467
## pPKCG_N	-0.3119393734	0.051846837	-0.033905891	-0.150360636
## CDK5_N	0.0597487145	0.080189863	-0.168827232	0.088759508
## S6_N	0.0112538080	0.184052078	0.159978725	0.094461473
## ADARB1_N	-0.0412260117	0.142642023	-0.162354343	0.008069205
## AcetylH3K9_N	-0.0710151255	0.255444582	0.385623797	-0.033011624
## RRP1_N	0.1178349815	0.260929823	0.078952390	0.005839105
## BAX_N	0.0163880957	0.136822622	0.011542468	0.057728867
## ARC_N	0.0868784244	0.014747530	0.041877574	-0.079245431
## ERBB4_N	0.0785109601	0.074516176	0.025823265	-0.057990531
## nNOS_N	-0.0649860117	-0.054273433	0.107632135	-0.100191922
## Tau_N	0.0407965734	0.228967693	0.445173139	-0.083061061
## GFAP_N	0.2266426084	0.331345909	-0.041884039	0.007885333
## GluR3_N	0.0330417893	-0.011327212	-0.180081154	-0.141992626
## GluR4_N	0.0074540521	0.111214453	-0.081688581	-0.114838459
## IL1B_N	0.1395880871	-0.022353063	-0.007811503	-0.123656313
## P3525_N	-0.0059437024	0.235824647	-0.092703088	-0.149755072
## pCASP9_N	0.0353717359	-0.002516122	-0.118664171	0.007424303
## PSD95_N	0.0566946790	-0.181150847	-0.021993538	-0.007590896
## SNCA_N	0.1505243719	0.087009311	-0.027755932	-0.134903861
## Ubiquitin_N	-0.0025746269	-0.035551706	-0.020983236	-0.013324319
## pGSK3B_Tyr216_N	-0.0002692238	-0.095474525	-0.113836600	-0.281641852
## SHH_N	0.0467339798	0.061271649	-0.062816863	-0.296237755
## BAD_N	0.2160906297	0.028919966	-0.183428830	-0.032957540
## BCL2_N	0.1243410391	-0.107339375	-0.017000906	0.039974278
## pS6_N	0.0868784244	0.014747530	0.041877574	-0.079245431
## pCFOS_N	0.0941767578	0.099116489	0.032647421	0.120694703
## SYP_N	0.0595789538	0.018358852	-0.203202113	0.028550079
## H3AcK18_N	0.2535491506	-0.021139397	0.100337204	-0.090136102
## EGR1_N	0.2168249352	0.086045381	-0.158845055	-0.029379781
## H3MeK4_N	0.2703636105	-0.088608212	-0.030677818	-0.003078743

## CaNA_N	0.0864393557	-0.009458644	-0.175497226	0.065209959
##	PC9	PC10	PC11	PC12
## DYRK1A_N	0.0114514253	-0.076772671	0.0582459629	-0.007904233
## ITSN1_N	0.0197442395	-0.052446728	0.0415802000	0.008342052
## BDNF_N	0.0242839712	-0.010574645	-0.1671223459	0.084022253
## NR1_N	-0.0582358458	0.165330583	-0.0694420869	-0.120736580
## NR2A_N	-0.0648129635	0.108491860	0.0283939734	0.015920673
## pAKT_N	0.0515780554	-0.014319511	0.0702470886	-0.002516396
## pBRAF_N	0.0585869479	-0.149483359	-0.0687564053	0.044116305
## pCAMKII_N	-0.1833277686	-0.011194916	0.3043138122	0.018448884
## pCREB_N	-0.0406818296	-0.081056105	-0.1816598199	0.037546344
## pELK_N	0.0024368596	0.017276553	0.0983986463	-0.118124406
## pERK_N	0.0370733253	-0.099327944	0.0853502049	0.015690576
## pJNK_N	0.0074533590	-0.104473334	0.1880080791	-0.019624798
## PKCA_N	-0.0794468841	-0.028637938	-0.0351458064	0.071038774
## pMEK_N	-0.0245696563	-0.006898382	0.0822821471	-0.040911458
## pNR1_N	-0.0288807221	0.063473995	-0.0882536012	-0.061512487
## pNR2A_N	-0.0974551974	-0.080858329	0.2209375053	0.005383839
## pNR2B_N	-0.0373737197	0.083072419	0.0317732319	-0.048413473
## pPKCAB_N	-0.0558745304	0.117284035	0.0959727224	0.038877056
## pRSK_N	-0.0755935211	-0.046973974	0.2355779541	-0.065885586
## AKT_N	0.1216589664	0.044720980	0.0007243903	-0.080612871
## BRAF_N	0.0187781960	-0.030401255	0.0868332315	-0.023410270
## CAMKII_N	0.0266047989	0.114595613	-0.0291472258	-0.041807748
## CREB_N	0.0296258707	-0.111531775	-0.0814886212	0.068635755
## ELK_N	0.0261492098	-0.021070598	-0.0254620416	-0.010477408
## ERK_N	0.0282888323	0.102247082	-0.0537157815	0.031629958
## GSK3B_N	-0.0126829813	0.123824646	0.0127025075	-0.020856874
## JNK_N	0.0667593185	-0.052576975	-0.0367022943	-0.006349294
## MEK_N	-0.0042038441	0.010657018	-0.1815670655	0.030228273
## TRKA_N	-0.0316620138	0.192398503	-0.0474689952	-0.028247952
## RSK_N	0.0541553660	-0.006656189	-0.1251096761	0.036110596
## APP_N	-0.0453275939	-0.078169760	-0.1762988873	0.082370144
## Bcatenin_N	-0.1391935659	0.085750060	-0.0513955145	-0.104621391
## SOD1_N	-0.0885355125	0.055428248	-0.1534201907	-0.195190891
## MTOR_N	0.1321049805	-0.011854886	-0.1083079171	0.027110971
## P38_N	0.0516633868	-0.118719200	-0.0692077334	-0.001218869
## pMTOR_N	-0.0061442484	-0.023876107	0.0903344414	-0.085536991
## DSCR1_N	0.0312761431	0.036845964	0.0628022339	-0.050718054
## AMPKA_N	0.0658519208	-0.076802315	-0.0579878815	0.073661439
## NR2B_N	0.0625699795	0.071749742	-0.0322921152	-0.015436831
## pNUMB_N	0.0450899662	-0.131446632	0.0514975785	0.144080238
## RAPTOR_N	-0.0001995647	-0.120612176	-0.0030181542	0.030792939
## TIAM1_N	-0.0034831323	-0.124764928	-0.0586485781	0.039196251
## pP7OS6_N	-0.1796503391	0.084398716	-0.0443509157	-0.045123540
## NUMB_N	0.0032472174	-0.072738523	-0.0205162016	0.052833180
## P7OS6_N	0.0236409660	-0.239861644	0.0794691851	0.103145209
## pGSK3B_N	-0.0522213567	-0.074084183	0.0691451490	-0.197207166
## pPKCG_N	-0.1498739750	0.080118547	0.0645269480	-0.032519847
## CDK5_N	0.0001803816	-0.016412156	-0.0269149210	-0.056073228
## S6_N	0.0317400325	0.002321472	-0.0509450603	0.108685968
## ADARB1_N	0.0496559234	0.152189454	0.0820138498	0.235406440
## AcetylH3K9_N	-0.1888016632	0.070070384	0.0001316122	0.138264486
## RRP1_N	-0.0765387337	-0.073866233	0.2127547057	-0.360123356

## BAX_N	-0.1429115393	0.006971787	0.1368335043	-0.080128311
## ARC_N	0.0708023740	0.055854123	0.0290041876	0.099820753
## ERBB4_N	0.1213971203	0.116097204	-0.0235890809	0.133010102
## nNOS_N	0.0434138605	-0.096020467	-0.0793481531	-0.027220454
## Tau_N	-0.0144379911	0.037591174	-0.0239459239	0.145563657
## GFAP_N	-0.0567938331	-0.015147094	0.1180544745	-0.197042407
## GluR3_N	-0.1753950322	-0.347414990	-0.2140916587	-0.115801381
## GluR4_N	-0.2533489534	-0.336151023	-0.2043292490	-0.156443800
## IL1B_N	0.1538454045	-0.031410054	-0.0533054321	0.053058567
## P3525_N	0.1675583443	0.150287376	-0.1006604553	0.002354009
## pCASP9_N	-0.0163065463	-0.269158248	0.0920350363	0.024594580
## PSD95_N	-0.0610511540	0.078501623	-0.0289969695	-0.068358088
## SNCA_N	0.1508065255	0.011190318	0.0669270879	-0.132438764
## Ubiquitin_N	-0.0100483700	0.085148463	0.2540706658	-0.113819157
## pGSK3B_Tyr216_N	0.1133631658	-0.005527856	-0.0379136517	-0.055815080
## SHH_N	0.2260263640	0.143871336	-0.1484033137	-0.104845881
## BAD_N	-0.2651684346	0.219109296	-0.0107142589	0.261865136
## BCL2_N	-0.3619932573	0.163379330	-0.3263644685	-0.193176372
## pS6_N	0.0708023740	0.055854123	0.0290041876	0.099820753
## pCFOS_N	0.1220505246	0.215044316	-0.0781885240	-0.421506980
## SYP_N	0.0085523507	-0.003138488	0.0733311633	-0.101090778
## H3AcK18_N	-0.3258806246	-0.060493034	0.0065824138	0.154983276
## EGR1_N	-0.2847332087	0.097987792	-0.0903880678	0.085934714
## H3MeK4_N	-0.1848793324	0.188857857	0.1717884011	0.176844472
## CaNA_N	0.0690605192	0.039515231	-0.0560449382	0.032542771
##	PC13	PC14	PC15	PC16
## DYRK1A_N	0.033996022	-0.023590339	0.0723082812	-2.266112e-02
## ITSN1_N	0.067604823	-0.042928853	0.0319778936	-5.006188e-02
## BDNF_N	-0.094691764	-0.044905383	0.0248923903	-5.384354e-02
## NR1_N	-0.031945594	0.037994652	-0.1368258459	-1.092925e-02
## NR2A_N	-0.020747348	0.038730658	0.0035654976	7.872459e-05
## pAKT_N	0.058208459	0.080831127	-0.0178693533	3.722630e-02
## pBRAF_N	-0.052068143	-0.010641387	0.0475385668	3.613790e-02
## pCAMKII_N	0.244702695	0.049213954	-0.0630237587	-1.641556e-01
## pCREB_N	0.061694930	-0.146370018	-0.0209062534	-1.052409e-01
## pELK_N	-0.034201566	-0.045535114	-0.0228622033	-5.198292e-02
## pERK_N	0.029692663	0.027097187	0.0667824054	2.601897e-02
## pJNK_N	0.068783968	0.107798955	-0.0421450310	7.631237e-02
## PKCA_N	-0.063549981	0.043543729	0.0813718280	-2.708766e-02
## pMEK_N	0.004182442	-0.004008460	-0.0394365509	4.354289e-02
## pNR1_N	-0.058478950	0.061314552	-0.1071943662	1.545919e-02
## pNR2A_N	0.011469841	-0.028297524	0.0326034185	-2.892269e-02
## pNR2B_N	0.025379406	0.024032847	-0.0634882600	-4.809650e-02
## pPKCAB_N	-0.070070107	0.021421095	-0.0301961993	2.901857e-02
## pRSK_N	-0.074695215	0.182242961	-0.1697796606	2.692572e-01
## AKT_N	-0.113913190	-0.027032170	-0.1990089737	1.474656e-01
## BRAF_N	-0.011906298	-0.007776011	0.0643294817	-2.076944e-02
## CAMKII_N	-0.012581132	-0.045498391	-0.1223846641	-1.394519e-01
## CREB_N	-0.064817709	-0.063534923	0.1392035235	-1.020714e-01
## ELK_N	-0.060399419	-0.053662947	-0.1442809880	8.740375e-02
## ERK_N	0.017452607	0.044972519	-0.0317213074	-3.091086e-02
## GSK3B_N	-0.037066463	0.035089767	0.0310242401	1.048031e-02
## JNK_N	-0.034708484	0.067421896	-0.0457722518	1.353773e-01
## MEK_N	-0.036293497	-0.164878124	0.1118056674	-8.719858e-02

## TRKA_N	0.046060256	0.092063079	-0.0375741779	-5.749778e-02
## RSK_N	-0.043960642	-0.056590615	0.0557643323	-8.858602e-02
## APP_N	0.380727254	-0.029629131	-0.1080415684	-1.990087e-01
## Bcatenin_N	0.033511359	-0.045115516	-0.1239050918	1.635050e-02
## SOD1_N	-0.226568677	-0.140286215	-0.0808829641	8.539459e-03
## MTOR_N	-0.065630121	0.118525499	0.0090934892	8.946822e-02
## P38_N	-0.063830701	0.010123657	0.0107175471	9.842929e-02
## pMTOR_N	0.066556361	0.124485469	-0.0085342824	2.489567e-03
## DSCR1_N	0.160131188	0.102285049	0.0091438458	-1.193449e-02
## AMPKA_N	-0.068523493	-0.076717758	0.0930242468	1.033070e-01
## NR2B_N	-0.062423089	0.102296032	0.0077702809	5.205859e-02
## pNUMB_N	0.163242135	0.103762161	-0.0353206969	5.091165e-02
## RAPTOR_N	-0.086544838	-0.008582317	0.1178000787	1.603537e-02
## TIAM1_N	0.122730521	-0.065754833	0.0378128545	-7.778997e-03
## pP70S6_N	0.028373182	-0.031816879	0.0516168315	1.144526e-01
## NUMB_N	0.078190263	-0.150108890	-0.0311661436	1.214954e-01
## P70S6_N	0.236486028	-0.088486810	0.0704902923	1.048061e-01
## pGSK3B_N	-0.076156256	-0.043837766	-0.0292950172	-1.236026e-02
## pPKCG_N	0.025722832	-0.067898777	0.0728975019	5.091412e-02
## CDK5_N	-0.015298573	0.018587736	-0.0300846378	2.859937e-02
## S6_N	0.270732833	0.043049813	-0.2051639617	5.853254e-02
## ADARB1_N	-0.109842043	-0.001923350	0.1646346572	-2.143101e-01
## AcetylH3K9_N	-0.168080093	0.217446118	0.0300336182	-9.073954e-02
## RRP1_N	-0.087911804	-0.236595154	-0.0126563332	-5.084969e-02
## BAX_N	-0.094442769	-0.330500937	0.3406081275	4.237418e-02
## ARC_N	0.014482232	-0.086399526	0.1467197052	-4.189809e-02
## ERBB4_N	-0.077594407	0.179892663	0.0849913549	-7.675799e-02
## nNOS_N	0.127107812	-0.088026912	0.1685017114	3.467764e-01
## Tau_N	-0.079218820	0.136770449	0.1506806305	-2.148275e-02
## GFAP_N	-0.042121397	0.001859366	-0.1645800644	-8.767061e-02
## GluR3_N	-0.107373999	0.168711521	-0.0270527220	2.675705e-02
## GluR4_N	-0.054722571	0.065768709	0.0099845869	6.938376e-02
## IL1B_N	-0.032994305	0.143044395	-0.0726609930	-3.815985e-02
## P3525_N	0.027430384	-0.006729801	-0.0933942388	4.524593e-02
## pCASP9_N	0.020168083	0.124779538	0.0147957623	5.027200e-02
## PSD95_N	0.108647469	0.034140336	0.1096842937	-1.223115e-01
## SNCA_N	-0.000621632	-0.082140801	-0.1002570842	-1.220341e-01
## Ubiquitin_N	0.169007378	-0.071490014	0.0605895198	-1.893937e-01
## pGSK3B_Tyr216_N	-0.031024314	-0.050184638	0.0861032050	4.609988e-03
## SHH_N	0.117627669	-0.181918342	-0.3283237976	1.412003e-01
## BAD_N	0.037837315	-0.126155124	0.0303011971	2.801688e-01
## BCL2_N	0.072497122	0.033765458	0.1212363801	-7.889628e-02
## pS6_N	0.014482232	-0.086399526	0.1467197052	-4.189809e-02
## pCFOS_N	0.297286003	0.389825265	0.4322944666	2.062140e-01
## SYP_N	-0.272672184	0.109314135	0.0007790275	-1.715770e-01
## H3AcK18_N	-0.004679039	0.292801917	-0.1716473799	-1.531654e-01
## EGR1_N	0.239235047	-0.152824806	-0.0870483245	5.563393e-02
## H3MeK4_N	-0.176263758	-0.004882664	-0.0278056290	4.122153e-01
## CaNA_N	-0.073387674	0.149691447	0.0147869172	1.387434e-02
##	PC17	PC18	PC19	PC20
## DYRK1A_N	0.0197541428	-0.0182558211	0.0598173777	-0.029919946
## ITSN1_N	-0.0353680829	-0.0726377230	0.0315177498	-0.026905831
## BDNF_N	0.0863230298	0.0167724109	0.0054178210	-0.070221971
## NR1_N	0.1066939314	0.0681465917	-0.0449458172	0.076938023

## NR2A_N	0.0336712637	0.1796054300	-0.0039116319	-0.048466928
## pAKT_N	-0.0519848529	0.0612993465	0.0127854142	-0.021144996
## pBRAF_N	0.0532308930	0.0821170473	0.0208700144	-0.084949769
## pCAMKII_N	0.0963516238	0.1488853476	0.0888336849	0.005651417
## pCREB_N	0.1689385499	-0.1517633472	0.0506352202	-0.060402496
## pELK_N	0.0370059717	-0.0857702585	0.0589749650	0.029189937
## pERK_N	0.0972809739	-0.0365344482	0.0909197414	-0.009827939
## pJNK_N	-0.0482332893	-0.0098730284	0.1217009323	-0.054424394
## PKCA_N	0.1332047049	-0.0209112624	-0.0942665056	-0.084863447
## pMEK_N	-0.0686881052	-0.0021382499	-0.0240584671	-0.045321673
## pNR1_N	0.1944044120	0.0683999482	-0.0179094636	0.060740913
## pNR2A_N	0.2446039541	-0.2091451878	0.2494607479	-0.122787453
## pNR2B_N	0.0958273830	0.0684180201	-0.0058990533	0.005043143
## pPKCAB_N	0.0515073527	-0.0501224102	0.0024961379	-0.050509431
## pRSK_N	-0.0451246879	0.0635871377	-0.1597900443	-0.094966409
## AKT_N	-0.1650550684	0.1140058093	-0.0331511557	-0.088650329
## BRAF_N	0.0590382303	-0.0023041158	0.0722201421	0.013633561
## CAMKII_N	0.0087816414	0.1655279132	-0.0002111264	0.104702029
## CREB_N	0.1163534240	0.0433701745	0.0237708889	-0.039369486
## ELK_N	0.0892034084	-0.1207852362	0.0559310504	-0.089141671
## ERK_N	-0.0399357497	-0.0731158152	-0.0017386731	0.039495996
## GSK3B_N	-0.0674923652	0.0297549841	-0.0446947687	0.025379043
## JNK_N	-0.0368059481	0.1993150294	-0.0011336305	-0.095589298
## MEK_N	-0.0237398441	-0.1311886651	0.0236623225	0.106361478
## TRKA_N	-0.0127086358	0.0802680388	0.0394379829	0.005430820
## RSK_N	0.1409212523	0.0358813043	0.0561526314	0.072946906
## APP_N	-0.2459037586	-0.0545475625	-0.1011194237	-0.225326982
## Bcatenin_N	0.0238088595	-0.1148513687	-0.1265816374	-0.071186825
## SOD1_N	-0.2236225966	-0.2358918072	0.0497438268	-0.101864518
## MTOR_N	-0.0519400753	-0.0369036422	0.0423087170	0.081169415
## P38_N	-0.0137320204	-0.0044622496	-0.0125872630	0.001294141
## pMTOR_N	-0.0494473227	-0.1468545200	-0.1188647062	0.096748541
## DSCR1_N	-0.1925537711	-0.1410437646	-0.1575157752	0.189600949
## AMPKA_N	0.0739082490	0.0284848437	0.0313862333	0.011794103
## NR2B_N	-0.0029972816	0.0175631957	-0.1009875758	0.174049887
## pNUMB_N	0.0023737138	0.0375619029	0.0119113544	0.089159974
## RAPTOR_N	-0.0355787484	-0.0363552130	-0.0342680991	-0.001985900
## TIAM1_N	-0.1293075344	-0.0930682301	-0.0346346117	-0.010310840
## pP70S6_N	0.0205412720	0.0052328633	0.0537256708	0.143167593
## NUMB_N	-0.0021016533	0.0005623618	0.1176509877	0.066542533
## P70S6_N	0.0006029791	-0.1664980976	-0.0317543028	0.042728016
## pGSK3B_N	0.0652051499	-0.0343166650	-0.2269593523	0.054839470
## pPKCG_N	-0.0208914985	-0.1152455282	0.1291904205	0.022457012
## CDK5_N	-0.3865666288	0.1295309106	0.2348194472	0.127007119
## S6_N	0.0635947781	0.0231038675	0.0919552929	0.164211184
## ADARB1_N	-0.0539343901	-0.0819212835	0.1186672246	-0.326844666
## AcetylH3K9_N	0.1211535585	0.0322866348	-0.0907534787	-0.094086742
## RRP1_N	0.1366251196	0.0756990222	-0.2111776796	-0.039961699
## BAX_N	-0.2512183847	0.1675780024	-0.1198769804	-0.085661429
## ARC_N	-0.0053840501	0.2127229835	-0.0037864468	-0.062382388
## ERBB4_N	-0.0354258181	-0.0216842259	-0.1395273718	0.046343176
## nNOS_N	0.1410900646	0.0933723175	-0.1469069048	0.239855866
## Tau_N	0.0141322215	0.0008637891	0.0028476548	0.124211014
## GFAP_N	0.1125266580	0.0284671651	0.0770716774	-0.101057699

## GluR3_N	0.1931207598	0.2183142595	0.0465530102	-0.120061245
## GluR4_N	-0.2014918661	0.1263878963	0.3212399385	-0.014103906
## IL1B_N	0.0646425182	-0.0727514675	-0.1394906266	-0.074803268
## P3525_N	0.1084043464	-0.1368672814	0.2830209525	0.106946469
## pCASP9_N	0.0452098393	-0.3813655115	-0.2411051849	-0.107657382
## PSD95_N	0.0829220396	0.1469072500	-0.0130708501	0.031512114
## SNCA_N	0.0412574442	-0.0435693606	0.2066096274	0.063678203
## Ubiquitin_N	-0.0781759685	-0.0112845039	0.0556476902	0.071853499
## pGSK3B_Tyr216_N	-0.2072621406	-0.0333457605	-0.1986092983	0.035900319
## SHH_N	0.0003580240	0.0057233723	-0.0472837008	-0.354376934
## BAD_N	0.0630070037	-0.0429260693	-0.0817739928	-0.257449135
## BCL2_N	-0.0011821759	-0.2258532601	-0.0274306530	0.067296425
## pS6_N	-0.0053840501	0.2127229835	-0.0037864468	-0.062382388
## pCFOS_N	0.0632866302	-0.0267531650	0.1313171959	-0.272931251
## SYP_N	0.0004821081	-0.1533120358	0.0208577715	0.225342230
## H3AcK18_N	-0.2345139715	0.0673403229	-0.0181347540	-0.070528488
## EGR1_N	0.1343770164	0.1120272981	-0.1488318753	0.187750165
## H3MeK4_N	-0.0633976788	-0.1543930193	0.2218549114	0.090903307
## CaNA_N	0.0020119734	0.0157085709	-0.1795092497	0.035088850
##	PC21	PC22	PC23	PC24
## DYRK1A_N	0.036686706	-0.015648273	0.0211415357	-0.0238807747
## ITSN1_N	0.046407094	-0.038271388	0.0355028806	-0.0094393576
## BDNF_N	0.035314865	0.009827076	-0.0153840826	0.0801629971
## NR1_N	0.009468634	-0.042418309	0.0088843706	0.0200353555
## NR2A_N	-0.040244011	0.051324760	0.0382204609	0.0989361456
## pAKT_N	-0.045702437	0.008276021	0.0652539266	0.0169435579
## pBRAF_N	-0.044224260	-0.032657278	-0.0091110396	-0.0005271709
## pCAMKII_N	0.033199076	0.112500488	0.0330928868	-0.0164528953
## pCREB_N	0.081123856	-0.022976300	0.0018886853	-0.0469491069
## pELK_N	0.055886436	0.020500169	0.0862553340	-0.0867090246
## pERK_N	-0.057860592	0.001971074	-0.0241390774	-0.0685118651
## pJNK_N	-0.092804054	0.042018354	-0.0828252106	0.0233895153
## PKCA_N	0.073371968	0.037858035	-0.0554883267	0.0065237962
## pMEK_N	0.016034762	0.094110872	0.0634705138	0.0301623888
## pNR1_N	-0.047696198	-0.027352944	-0.0618789547	0.0286390077
## pNR2A_N	-0.075863771	-0.052727296	-0.1431194957	-0.1917371085
## pNR2B_N	-0.031255238	-0.065263486	-0.0885638830	-0.0460806584
## pPKCAB_N	-0.058839205	0.001130883	-0.1117362534	-0.0349223480
## pRSK_N	0.076590768	0.136403400	0.1248264548	-0.0118856814
## AKT_N	0.008330769	0.156801343	0.0683408736	0.0942170052
## BRAF_N	0.004644260	0.010799524	0.0228870666	-0.0469613420
## CAMKII_N	-0.061811542	0.016781064	-0.0305587638	-0.0743095075
## CREB_N	-0.018975276	-0.104671899	0.0334347888	-0.0246276932
## ELK_N	0.099540041	0.084352159	-0.0507136709	0.1283743967
## ERK_N	0.054611515	0.058328926	-0.0512169295	0.0731408053
## GSK3B_N	-0.061303651	0.015787939	-0.0065031532	0.0967162035
## JNK_N	-0.108546966	-0.006845248	-0.0160062624	0.0754269797
## MEK_N	0.207252446	0.069671546	-0.2145190855	-0.1562296233
## TRKA_N	-0.004115449	-0.115457024	0.0007848226	0.0061012445
## RSK_N	-0.042897542	0.004833666	-0.0018215529	-0.0668060809
## APP_N	0.062443171	-0.243806911	0.1937027119	0.0685908362
## Bcatenin_N	0.168562616	-0.126257105	0.1077291485	0.0008980860
## SOD1_N	0.064656239	-0.109032096	0.1593133710	-0.1629708095
## MTOR_N	-0.062514992	0.021261744	-0.0572716224	-0.0430834962

## P38_N	0.044634885	0.005035710	-0.0970745110	0.0086729655
## pMTOR_N	-0.073228332	0.077760346	-0.0635093906	-0.2201512965
## DSCR1_N	-0.139565292	-0.089430154	0.0544450805	-0.3039241557
## AMPKA_N	0.051913813	0.054617634	-0.0380092042	0.1305336443
## NR2B_N	-0.183923429	-0.081376381	0.0555061769	-0.2117245166
## pNUMB_N	-0.090805037	0.083034791	-0.0709370951	0.1403024082
## RAPTOR_N	0.057240614	0.005479464	0.0345933165	0.0986544849
## TIAM1_N	0.103278327	-0.080124126	0.0529034359	0.1244407757
## pP70S6_N	0.033070747	-0.011398657	0.0079646039	0.0206477970
## NUMB_N	-0.161891083	0.035211041	-0.1469822326	-0.0644812819
## P70S6_N	-0.050030364	0.106522748	-0.1249352088	0.0052022499
## pGSK3B_N	0.161965942	0.241020740	0.1900545193	-0.0705015982
## pPKCG_N	0.069681299	-0.020372160	-0.1219425023	0.0315296844
## CDK5_N	0.080914019	-0.292611116	-0.2598232484	-0.1851851667
## S6_N	-0.159525298	0.055265464	0.1277500314	-0.0522357954
## ADARB1_N	-0.258979233	-0.016631271	0.2505988533	0.0751648011
## AcetylH3K9_N	0.028367910	-0.026452254	-0.0848506583	-0.1183499182
## RRP1_N	-0.274933677	-0.478772639	-0.1101731727	0.2694807532
## BAX_N	0.027969918	0.147459292	-0.1177766812	-0.1312927176
## ARC_N	0.135047645	0.072881459	0.0406944848	0.0362426034
## ERBB4_N	0.010606051	0.020250796	0.1436334687	0.0179364522
## nNOS_N	0.065686977	-0.103139256	-0.0121728459	0.1072604229
## Tau_N	-0.171461703	0.054185133	-0.0661825963	-0.1031679313
## GFAP_N	0.060331238	0.209396146	0.0968328496	-0.1559912247
## GluR3_N	-0.053611663	-0.092307197	-0.0031082038	-0.0476252340
## GluR4_N	-0.125441392	0.108484258	0.3083891888	-0.0854960186
## IL1B_N	-0.017318146	-0.081019439	0.0045834160	-0.0183913222
## P3525_N	0.090675109	-0.096497694	0.1174089459	0.1739940070
## pCASP9_N	0.021703375	-0.070539045	0.0356289397	0.0484910490
## PSD95_N	-0.094237622	-0.174221804	0.1398449362	-0.1427041163
## SNCA_N	0.117280028	0.104580343	-0.0294659412	0.1043811945
## Ubiquitin_N	-0.065192112	0.035886321	-0.0117064894	0.1476740427
## pGSK3B_Tyr216_N	-0.164096670	0.130155934	0.0210869064	0.1714472499
## SHH_N	-0.128681536	0.115338654	-0.2882089429	-0.1268283409
## BAD_N	-0.027776334	-0.031631254	-0.0189571576	-0.2195098824
## BCL2_N	-0.390744904	0.328753391	-0.1091944316	0.2628588092
## pS6_N	0.135047645	0.072881459	0.0406944848	0.0362426034
## pCFOS_N	0.216527955	-0.032652645	-0.0458332551	0.0179250871
## SYP_N	0.193190170	0.008594940	-0.0419071716	0.0676260461
## H3AcK18_N	0.197771006	-0.030744403	-0.3885594629	0.2231778309
## EGR1_N	0.229185094	0.004865383	0.1475774410	-0.0213377624
## H3MeK4_N	-0.030075821	-0.197989729	0.1722784569	0.1781468512
## CaNA_N	0.006493629	-0.078830282	-0.0596002500	-0.0979018736
##	PC25	PC26	PC27	PC28
## DYRK1A_N	-0.012852216	0.032528267	0.0061838474	-7.235719e-02
## ITSN1_N	-0.019021520	0.012972308	0.0398414372	-1.782359e-02
## BDNF_N	0.084098713	-0.038164047	-0.0018553465	-2.853786e-02
## NR1_N	-0.035087833	0.038262714	0.0207146472	8.324115e-02
## NR2A_N	-0.049685912	-0.055532805	-0.0380217939	-1.656711e-01
## pAKT_N	0.007752100	-0.025296556	-0.1214807440	6.891013e-02
## pBRAFA_N	0.053306958	0.180212802	0.0004050768	-5.541060e-02
## pCAMKII_N	0.066820226	-0.187876284	0.1234947729	-3.193791e-01
## pCREB_N	-0.000601839	-0.043154643	-0.0571606956	1.179390e-01
## pELK_N	0.056496636	-0.074804896	0.0153550366	2.700429e-01

## pERK_N	-0.040666288	-0.012249406	-0.0641556373	-6.250389e-02
## pJNK_N	0.054255273	0.126824576	-0.0409113495	-9.845441e-03
## PKCA_N	-0.003136453	-0.096817436	-0.1421889245	1.006375e-02
## pMEK_N	-0.024552426	0.018087291	-0.0281102255	3.529884e-02
## pNR1_N	-0.020350744	0.114738518	0.0465733439	2.120813e-02
## pNR2A_N	-0.051875176	0.036762144	-0.0992141560	-7.819141e-02
## pNR2B_N	0.035261872	0.033254188	-0.0395908038	1.179303e-01
## pPKCAB_N	-0.034760156	-0.102959136	-0.1875975520	2.056457e-01
## pRSK_N	-0.042375523	0.048796404	0.1055891656	3.044503e-02
## AKT_N	0.091205792	-0.082111612	0.0652526943	3.815664e-02
## BRAF_N	-0.019720983	-0.001545401	-0.0315634425	-3.558476e-02
## CAMKII_N	-0.048664588	-0.197958899	0.0009777692	1.121891e-01
## CREB_N	-0.072638207	-0.017000054	0.0457737108	-9.986617e-02
## ELK_N	0.126363723	-0.006505623	0.1616751899	8.542185e-03
## ERK_N	0.070379792	-0.094586584	-0.0797053802	-7.968841e-02
## GSK3B_N	0.003073789	0.051698347	0.0423639580	1.107150e-02
## JNK_N	0.107889540	0.178558944	-0.0486951890	-6.818640e-03
## MEK_N	0.144126226	-0.223290365	0.0284115969	-3.508111e-01
## TRKA_N	0.081503316	0.001688490	-0.0339944257	1.186973e-01
## RSK_N	0.001113460	-0.038580533	-0.0349089540	1.299736e-01
## APP_N	0.032321579	0.048044814	0.0903666584	-4.628757e-02
## Bcatenin_N	-0.194255040	0.058440517	0.0678270444	-1.087773e-02
## SOD1_N	-0.079469817	0.018962807	-0.0745984330	-1.765983e-01
## MTOR_N	-0.039534709	0.034440861	-0.0043020014	1.392531e-02
## P38_N	-0.053757076	0.080824091	0.2010275785	1.005500e-01
## pMTOR_N	-0.078412635	-0.013691963	-0.0513702651	9.831979e-03
## DSCR1_N	0.070580400	0.033857303	-0.1709015157	4.305686e-02
## AMPKA_N	-0.028491871	0.015918774	0.0498993351	7.631903e-02
## NR2B_N	-0.001054392	0.035511354	0.0693431126	-1.207119e-01
## pNUMB_N	-0.048638084	-0.087951308	0.0358947720	-1.213523e-01
## RAPTOR_N	-0.106381203	0.041385633	0.0769119209	-3.842618e-02
## TIAM1_N	-0.072700057	0.058861921	0.0279494642	2.051162e-02
## pP70S6_N	-0.016708216	0.004261178	0.0417349502	5.074206e-02
## NUMB_N	0.034562183	0.133333317	0.1009868290	1.507082e-01
## P70S6_N	0.115668668	0.033435381	0.1048143745	1.694875e-01
## pGSK3B_N	-0.190243802	-0.176993020	0.0534885407	5.236301e-02
## pPKCG_N	0.015464136	0.030223423	0.0336982792	1.374995e-01
## CDK5_N	-0.276641263	-0.063631556	0.1633127899	1.194066e-02
## S6_N	-0.104480956	-0.106766130	0.0899412316	-1.851198e-01
## ADARB1_N	-0.010668245	0.142789454	-0.0965513661	-1.414754e-02
## AcetylH3K9_N	0.087840829	0.068921743	-0.0446462263	5.875089e-02
## RRP1_N	0.130484705	-0.235928016	0.0156946586	-7.927321e-07
## BAX_N	0.024888625	0.236101070	-0.1099130625	-9.101258e-02
## ARC_N	-0.136790182	-0.150384302	-0.0856427116	7.250569e-02
## ERBB4_N	-0.051101707	-0.188476879	0.0639597818	1.315854e-03
## nNOS_N	-0.122161813	-0.035707484	-0.3114162195	-1.101989e-01
## Tau_N	0.093769193	0.052870527	0.1056171577	2.986784e-02
## GFAP_N	-0.190685658	0.237109231	-0.0822749924	-1.640806e-01
## GluR3_N	-0.139718599	0.101115851	0.1984182578	-1.505634e-01
## GluR4_N	0.330967902	-0.284847639	-0.1896027470	1.939609e-01
## IL1B_N	0.178296848	-0.068895136	0.0478003470	-6.400119e-02
## P3525_N	-0.087441278	0.137303233	-0.1084390029	-2.237006e-03
## pCASP9_N	-0.112070779	-0.045581624	-0.1234612405	1.033387e-01
## PSD95_N	-0.089477344	0.211227293	0.0839939783	9.305500e-02



## SNCA_N	-0.136882298	0.095128338	0.1108492431	2.560869e-01
## Ubiquitin_N	0.075945629	0.001263416	0.0856258220	-4.854488e-04
## pGSK3B_Tyr216_N	0.040787405	0.163899884	0.1934841406	-5.360049e-02
## SHH_N	0.119601149	-0.024853257	-0.1948947108	-1.374460e-01
## BAD_N	0.025242027	-0.184227952	0.4238119432	1.385952e-01
## BCL2_N	-0.203714393	-0.023406176	0.0014735506	-3.783719e-02
## pS6_N	-0.136790182	-0.150384302	-0.0856427116	7.250569e-02
## pCFOS_N	0.124155615	-0.041546937	0.0728637957	-1.997082e-02
## SYP_N	0.395597321	0.096897798	0.1757380926	-1.331581e-01
## H3AcK18_N	-0.073872325	0.031691048	-0.1991020130	4.962445e-02
## EGR1_N	0.308675565	0.317153470	-0.1243138362	2.915348e-02
## H3MeK4_N	-0.010999622	-0.040195815	-0.0815141624	-1.916956e-01
## CaNA_N	-0.004444153	0.022115582	-0.1412139555	5.027825e-02
##	PC29	PC30	PC31	PC32
## DYRK1A_N	0.066556270	0.0024156727	0.0296182838	-0.075531416
## ITSN1_N	0.041439409	0.0194449932	0.0532478694	-0.037075904
## BDNF_N	0.095944874	0.0807827486	-0.0499062797	-0.026155313
## NR1_N	-0.115790535	0.0381164846	-0.0338695900	0.001526651
## NR2A_N	-0.057510530	-0.0686989504	0.0379800461	-0.033291436
## pAKT_N	-0.011988670	-0.1623898403	0.0418301745	-0.019187398
## pBRAF_N	0.065988495	0.0348508740	-0.0005569691	0.033328082
## pCAMKII_N	0.023500446	0.0112816292	-0.1176545319	0.014420858
## pCREB_N	-0.051745384	-0.0075754515	-0.1940476638	-0.089588490
## pELK_N	0.050044704	-0.0902060343	-0.0469013268	0.385709441
## pERK_N	0.127820468	0.0357564330	0.0175253520	-0.110483541
## pJNK_N	0.112030252	0.0060711370	0.1518194872	0.008108266
## PKCA_N	0.045568733	0.0613425304	-0.0981284924	0.061817389
## pMEK_N	0.034293212	-0.0472072889	0.1203485547	-0.102630338
## pNR1_N	-0.143278874	-0.0476637457	-0.0510031674	-0.028477861
## pNR2A_N	0.058237995	-0.0150064132	0.0006390632	-0.070029290
## pNR2B_N	-0.078251627	0.0658014720	0.0544151876	0.087421478
## pPKCAB_N	0.048091338	0.0777491014	0.0291194594	0.165162716
## pRSK_N	0.126180730	-0.0624220341	0.0987755848	-0.060682577
## AKT_N	0.104111014	-0.1046423072	0.0798382096	0.150298963
## BRAF_N	0.071465647	-0.0298642849	0.0109023200	-0.067972237
## CAMKII_N	-0.076958159	0.0039635656	-0.1363303507	0.179204705
## CREB_N	-0.061706582	0.1116702653	-0.0349576265	-0.030672184
## ELK_N	0.085920590	0.0755643107	0.1337855618	0.044183125
## ERK_N	0.051396711	-0.0529253232	-0.0193038578	-0.078781329
## GSK3B_N	-0.042165661	-0.0542432954	0.0481012946	-0.052332814
## JNK_N	0.063101853	0.0138131885	0.0539871601	0.016965137
## MEK_N	-0.186779207	-0.3059849317	0.3854537202	0.101459110
## TRKA_N	-0.019953144	0.0328666590	0.0633178041	-0.017228105
## RSK_N	-0.073490346	-0.0506224569	-0.1569703171	-0.014207445
## APP_N	0.001607337	0.3482657658	0.1190349377	0.123844320
## Bcatenin_N	-0.016861042	-0.1535810797	-0.0596307282	-0.201595573
## SOD1_N	0.049760103	-0.0549371468	-0.2646300253	-0.028344712
## MTOR_N	-0.001479766	-0.0090348788	-0.0715723276	-0.008651818
## P38_N	-0.017696779	0.0279250911	0.0460684254	-0.017118151
## pMTOR_N	-0.040671791	0.0009765264	0.0452113254	-0.253322522
## DSCR1_N	-0.023654836	0.0146547780	-0.0109540765	0.076861150
## AMPKA_N	-0.028875523	-0.0331673096	-0.0381562788	-0.009170014
## NR2B_N	0.007353699	0.0101330692	0.0153654985	-0.131640672
## pNUMB_N	-0.073850530	-0.0790662695	-0.1256857947	0.052395018

## RAPTOR_N	-0.023642550	0.0153851857	-0.0323631686	-0.024220533
## TIAM1_N	-0.019366433	0.0783322025	0.0540335505	0.082828553
## pP70S6_N	0.016436672	-0.0638196745	-0.1671713466	0.224395580
## NUMB_N	-0.068525207	0.0348602658	-0.1017254720	0.027565311
## P70S6_N	-0.061934649	-0.0468514042	-0.1760105955	0.056128179
## pGSK3B_N	-0.084664491	0.1027268011	-0.1964740396	-0.135433440
## pPKCG_N	-0.010516955	-0.0789357472	0.0073855010	0.035761789
## CDK5_N	0.411204841	-0.0870615718	-0.0527532288	0.012709894
## S6_N	-0.038250444	-0.0719942303	-0.0777808517	0.017532009
## ADARB1_N	0.116505884	-0.1901742392	-0.1264502641	-0.065149979
## AcetylH3K9_N	0.022344666	0.0644686046	0.0722796075	-0.023966144
## RRP1_N	0.053347772	-0.1459152947	0.0587485428	-0.099421764
## BAX_N	-0.226001297	0.0016738267	0.0663887127	0.156303918
## ARC_N	0.187185432	0.0171877939	-0.0477986071	-0.024575705
## ERBB4_N	-0.044643840	-0.0360858451	0.0664041223	0.166247930
## nNOS_N	0.083715923	0.2831816685	0.1014070655	-0.072808253
## Tau_N	0.113315317	-0.0110131434	-0.0653411189	-0.046304609
## GFAP_N	-0.020208881	0.1074408591	0.1375964179	0.166272903
## GluR3_N	-0.023956621	-0.1220504741	-0.0923794858	0.205116946
## GluR4_N	-0.118173817	0.0245327507	0.1035598125	-0.199764821
## IL1B_N	0.025564091	-0.1256356856	0.0983065946	0.217437265
## P3525_N	-0.099930661	-0.1742122970	0.2188755203	-0.180504436
## pCASP9_N	0.054928008	-0.1596197697	0.0307430267	0.163196302
## PSD95_N	-0.191197771	0.0722977626	0.1199583744	0.061976799
## SNCA_N	-0.086713933	0.0642611219	0.1502816297	-0.053631000
## Ubiquitin_N	-0.067574709	0.0934532406	-0.0492339643	-0.046431488
## pGSK3B_Tyr216_N	-0.154725246	-0.1626445113	-0.1975007834	-0.145749604
## SHH_N	0.002864113	0.1333099465	-0.1990371068	-0.024561426
## BAD_N	-0.036828102	0.0946464871	0.1567714488	-0.206461241
## BCL2_N	0.288904231	0.0986573226	0.1591380036	0.098389530
## pS6_N	0.187185432	0.0171877939	-0.0477986071	-0.024575705
## pCFOS_N	-0.055422984	-0.0572522838	-0.1636720020	0.020022666
## SYP_N	0.187581816	0.3623029674	-0.1342603523	-0.059982436
## H3AcK18_N	-0.251518943	-0.0587981942	-0.1140670158	-0.140394263
## EGR1_N	0.317755480	-0.3068220436	-0.0906878977	-0.014642731
## H3MeK4_N	-0.216170350	0.1729479652	-0.1536865879	0.221809271
## CaNA_N	-0.028015268	0.0912893795	0.0530360055	-0.050684194
##	PC33	PC34	PC35	PC36
## DYRK1A_N	-5.441587e-05	-0.006503703	0.006149433	0.062579054
## ITSN1_N	8.531536e-03	-0.045140478	0.024063242	0.076583414
## BDNF_N	1.064688e-01	0.112883985	-0.005007874	0.087895059
## NR1_N	-3.110433e-02	-0.015477758	-0.034217055	0.072236730
## NR2A_N	3.752997e-02	-0.117271791	0.038248165	-0.003565902
## pAKT_N	-1.028618e-02	-0.109339280	0.001960498	-0.117211905
## pBRAFA_N	1.256728e-02	-0.095145787	-0.003687949	0.021456322
## pCAMKII_N	2.242186e-01	0.092097069	0.011299627	0.048066820
## pCREB_N	1.041952e-01	0.100304944	0.031943563	0.038960949
## pELK_N	3.736009e-02	0.107100317	0.181598741	-0.418793713
## pERK_N	-1.327811e-02	-0.003392126	-0.007772744	0.042035302
## pJNK_N	-2.117691e-02	-0.011668899	0.005955042	-0.083235419
## PKCA_N	-4.247449e-02	0.086646069	0.070065416	0.046915724
## pMEK_N	2.251178e-02	0.047192634	0.072981029	-0.017686929
## pNR1_N	4.821492e-03	-0.101241823	0.008847890	0.124385601
## pNR2A_N	1.513559e-01	0.079352771	0.064686679	0.038397445

## pNR2B_N	5.218226e-03	-0.189704321	-0.063563779	0.006445329
## pPKCAB_N	-4.935927e-02	0.098120177	0.021390542	0.103197196
## pRSK_N	-3.329650e-02	0.090202258	-0.029404454	-0.080981118
## AKT_N	1.319724e-02	0.021720005	0.111288756	0.168446776
## BRAF_N	-1.276565e-02	-0.003810434	-0.004796295	0.031772745
## CAMKII_N	2.613923e-02	-0.190721005	0.145526213	0.081132056
## CREB_N	1.400642e-01	-0.125077674	0.036698696	0.056698119
## ELK_N	8.075649e-02	0.185507544	-0.072238595	0.129027444
## ERK_N	6.061766e-02	-0.001477914	0.064951198	-0.026492176
## GSK3B_N	-1.420396e-02	-0.141652091	-0.069214026	0.041276632
## JNK_N	-6.017346e-02	0.085513359	-0.042804036	-0.099496873
## MEK_N	-3.144915e-01	0.049289365	-0.249315810	-0.042513672
## TRKA_N	-7.905955e-02	-0.117842113	-0.028884532	-0.013140023
## RSK_N	-2.306025e-02	-0.023402738	-0.020919545	0.078892097
## APP_N	-1.252223e-01	0.146941239	0.032320253	0.093512191
## Bcatenin_N	1.115604e-01	-0.157664158	-0.143695582	-0.107898167
## SOD1_N	-1.058741e-01	-0.034950615	0.189880191	-0.057926122
## MTOR_N	-1.233265e-01	0.240131328	0.021955334	-0.057335057
## P38_N	-4.420123e-02	0.181620639	0.039253537	-0.016331745
## pMTOR_N	-1.092220e-01	0.172218075	-0.077582827	0.091999398
## DSCR1_N	8.435590e-02	-0.018935620	-0.014485578	0.010680291
## AMPKA_N	1.155888e-01	0.019724604	-0.101219578	0.033353383
## NR2B_N	-6.573886e-02	0.065235895	0.183650921	0.098532197
## pNUMB_N	8.075724e-02	-0.116161924	-0.016001798	-0.134206105
## RAPTOR_N	8.006554e-02	-0.095230873	-0.034341318	-0.121799325
## TIAM1_N	1.246651e-01	-0.165941096	-0.062982667	-0.051798922
## pP70S6_N	-1.467115e-01	-0.119231434	-0.042999899	0.018452580
## NUMB_N	-2.058143e-01	0.016659916	-0.006508031	0.041804086
## P70S6_N	-8.726127e-02	-0.018690114	-0.043150023	-0.165199872
## pGSK3B_N	5.509506e-02	0.201030034	-0.098564515	0.023502450
## pPKCG_N	-5.675835e-02	-0.050207758	0.103316570	0.061768920
## CDK5_N	1.993359e-01	-0.026459446	-0.149466855	0.073667980
## S6_N	-1.693197e-01	0.145296327	0.254786656	0.007322153
## ADARB1_N	-2.157202e-01	0.068703133	-0.026014045	-0.050406652
## AcetylH3K9_N	1.057597e-01	-0.027432091	-0.161505106	0.001966232
## RRP1_N	-1.132030e-01	0.138270142	-0.013926574	-0.057288127
## BAX_N	2.656455e-01	0.134767387	0.264691770	0.033329099
## ARC_N	-2.070878e-01	0.015208906	-0.005424149	0.026398757
## ERBB4_N	2.099343e-01	0.081235354	-0.198869520	-0.266860175
## nNOS_N	-6.497056e-02	-0.123906878	0.129681240	-0.092062725
## Tau_N	4.794229e-02	-0.079100397	-0.109450873	0.046236739
## GFAP_N	-2.388888e-01	-0.285257405	-0.046901563	0.028610388
## GluR3_N	-5.854726e-02	0.063463872	0.044252975	-0.091450064
## GluR4_N	7.235944e-02	-0.100352365	-0.086928569	0.042879788
## IL1B_N	1.747734e-01	-0.057735773	0.273051109	0.326336258
## P3525_N	2.091425e-01	0.027372597	0.249560363	-0.223773724
## pCASP9_N	-4.408185e-02	-0.218736404	-0.062160922	0.173271405
## PSD95_N	2.059199e-02	0.232680072	-0.216257327	-0.134499737
## SNCA_N	-1.091952e-02	0.095042855	-0.056829824	0.249819507
## Ubiquitin_N	2.424159e-05	-0.121903373	-0.037430963	0.013600212
## pGSK3B_Tyr216_N	1.080131e-03	-0.089084809	-0.035846325	0.143624347
## SHH_N	1.331997e-01	-0.031344524	-0.254372388	-0.186959854
## BAD_N	-4.374564e-02	-0.193509684	0.215623511	-0.114010928
## BCL2_N	8.808200e-02	0.062583610	0.019969318	-0.029506839

## pS6_N	-2.070878e-01	0.015208906	-0.005424149	0.026398757
## pCFOS_N	-4.158357e-02	0.025593118	0.032930230	0.087017623
## SYP_N	-1.391285e-01	-0.097282504	0.106060526	-0.215914680
## H3AcK18_N	-1.150192e-01	0.099685227	0.172552161	-0.063298479
## EGR1_N	5.099449e-02	0.100454022	-0.087766709	0.098262493
## H3MeK4_N	1.626672e-03	0.142678378	-0.244687142	0.183065952
## CaNA_N	3.845037e-02	0.092241360	0.098121880	0.037114506
##	PC37	PC38	PC39	PC40
## DYRK1A_N	-0.0547534146	-0.094592722	0.038673984	0.0518440924
## ITSN1_N	-0.0638824297	-0.089814140	-0.021364227	0.0544721734
## BDNF_N	0.1095928399	0.050511220	0.142898143	-0.0628688833
## NR1_N	0.0577333116	0.004699332	-0.002360899	0.0536079078
## NR2A_N	0.0458205366	0.050226181	0.079279231	0.0864258340
## pAKT_N	0.0240585834	-0.119281750	-0.096447515	0.2257137099
## pBRAF_N	-0.0444250524	0.016102548	0.026864472	-0.0329249394
## pCAMKII_N	0.0389082472	0.075891076	0.157413437	0.0542801900
## pCREB_N	0.0040407827	-0.089279156	0.007851352	-0.0493070046
## pELK_N	0.2634758866	0.225291880	-0.073426721	-0.2616336698
## pERK_N	-0.0530238624	-0.100191218	0.061995787	0.1104849276
## pJNK_N	0.0139390332	0.019494757	-0.097829068	-0.0314097831
## PKCA_N	-0.1325781180	-0.193594061	-0.100723583	-0.1958538303
## pMEK_N	0.1256279908	0.004262005	-0.052069202	0.1201992231
## pNR1_N	0.0383180240	0.006387210	0.053326623	0.0192339929
## pNR2A_N	-0.0255151815	-0.134722046	0.013365135	-0.0753298712
## pNR2B_N	0.0138437521	-0.122743178	-0.122785642	0.0250504566
## pPKCAB_N	-0.1134692519	-0.041978464	-0.061682311	-0.0231382222
## pRSK_N	-0.2090914165	0.112055914	0.058344630	-0.0944854351
## AKT_N	0.0895621613	-0.085857655	0.033655173	0.0562324918
## BRAF_N	-0.0273518927	-0.046683490	0.058792583	0.1344345650
## CAMKII_N	-0.0437558752	-0.062398469	-0.116837325	0.1456635578
## CREB_N	0.0540127969	0.159230691	0.056023576	-0.0711473324
## ELK_N	0.1402809198	0.086970940	0.071827235	-0.0206172037
## ERK_N	-0.1341834628	0.007545185	0.012912187	-0.1077187976
## GSK3B_N	-0.0845498963	-0.024253557	-0.126806695	-0.0345820975
## JNK_N	-0.0936630504	0.023012550	0.072187202	0.0518554792
## MEK_N	0.0393786446	0.123070920	-0.078815905	0.0345459605
## TRKA_N	0.1057179159	-0.068620981	-0.135756013	0.0001606838
## RSK_N	-0.0480033096	-0.044986681	0.049877790	-0.0069631514
## APP_N	-0.0298177151	-0.055236707	-0.018801495	0.0222596026
## Bcatenin_N	-0.2882130168	0.129219701	-0.004923623	-0.0415611690
## SOD1_N	-0.0913201104	-0.091997552	0.008009228	-0.0522439477
## MTOR_N	0.0520270961	-0.104133614	0.072765887	0.0229366554
## P38_N	0.0702503108	-0.172693334	-0.133961006	-0.0404309944
## pMTOR_N	-0.0109303849	-0.061713634	-0.103917236	-0.0591062488
## DSCR1_N	-0.2000023315	0.166919763	-0.030688611	0.0848562205
## AMPKA_N	-0.0008916572	0.040107027	0.083764391	-0.0620272003
## NR2B_N	0.1497077068	0.098374392	0.171874457	-0.1104377111
## pNUMB_N	-0.1098217292	0.117972521	-0.022220795	-0.1698481028
## RAPTOR_N	0.0438413357	-0.015714103	-0.060540448	-0.0810555077
## TIAM1_N	-0.0315343516	0.071788210	-0.073042691	0.0313511547
## pP70S6_N	-0.0498382678	0.124442976	0.386216330	0.2963665178
## NUMB_N	-0.0117402460	-0.062563962	0.211930426	-0.0557621720
## P70S6_N	-0.2041078702	0.041800717	0.050402140	0.1532914473
## pGSK3B_N	0.2244609970	0.118383966	-0.095172331	0.2286719615

## pPKCG_N	-0.0081370679	-0.031052154	-0.067864902	-0.1310905823
## CDK5_N	0.1661656104	-0.003105519	0.016650815	0.0059250414
## S6_N	-0.0151266662	-0.060824292	-0.204047256	-0.0072970998
## ADARB1_N	0.1854770840	0.133786931	-0.040715332	0.2763438891
## AcetylH3K9_N	0.0390744547	0.054647759	-0.255604852	0.0165023641
## RRP1_N	-0.0952292584	-0.052089718	0.071404194	-0.0113752819
## BAX_N	-0.0889307554	-0.043722833	-0.035959891	0.1360371002
## ARC_N	-0.1762487004	0.136232862	-0.027233656	-0.1556207726
## ERBB4_N	-0.0970152550	-0.562170031	0.228079169	0.0604457825
## nNOS_N	0.2569535797	-0.028274962	-0.057365535	0.1077038107
## Tau_N	0.0244824245	0.104018411	-0.088026554	0.0161755250
## GFAP_N	0.0393500274	-0.156736871	0.220711817	-0.2312247441
## GluR3_N	-0.1041689605	0.006522584	-0.341324633	0.1542163467
## GluR4_N	-0.0168413437	0.015404790	0.057909936	-0.0929001364
## IL1B_N	-0.1071863701	0.148841629	0.045219363	-0.0259451754
## P3525_N	-0.0571253803	0.081799303	0.009987256	0.0327495139
## pCASP9_N	0.2399661088	0.046156637	0.089589515	0.0520254840
## PSD95_N	0.0447223743	0.158975032	0.200887131	-0.1360487809
## SNCA_N	-0.2039308373	0.087299768	-0.080330986	0.2402626660
## Ubiquitin_N	0.1766248341	-0.036980898	-0.181425651	-0.1522157680
## pGSK3B_Tyr216_N	0.0865832951	-0.073851715	-0.063934939	-0.2654607662
## SHH_N	0.0482170544	0.101501169	-0.044192560	0.0562461771
## BAD_N	0.0440853978	-0.026960059	0.039459260	0.0553116513
## BCL2_N	-0.0878679175	0.053122847	0.012794533	0.0082093302
## pS6_N	-0.1762487004	0.136232862	-0.027233656	-0.1556207726
## pCFOS_N	0.0236212185	-0.022298392	0.009022357	0.0011402151
## SYP_N	-0.1136963781	0.029549658	-0.006908253	0.1448742022
## H3AcK18_N	0.1239897175	0.024931141	0.190038672	0.0243047676
## EGR1_N	0.0716037887	-0.146705561	-0.065120152	-0.0308892494
## H3MeK4_N	-0.0553013947	0.044566323	-0.150602598	-0.0583392802
## CaNA_N	-0.1305605827	0.194538052	0.058243788	-0.0383238591
##	PC41	PC42	PC43	PC44
## DYRK1A_N	2.679648e-02	0.047971154	-0.04432377	-0.062196295
## ITSN1_N	3.329903e-02	0.031896005	-0.10282404	-0.059078105
## BDNF_N	-8.036266e-02	0.010920135	0.18490408	-0.161157576
## NR1_N	-8.169895e-03	-0.059439431	0.01587326	0.092672909
## NR2A_N	-6.639342e-02	0.107068449	0.13553200	0.094415822
## pAKT_N	-1.659038e-01	0.156696116	0.13637000	-0.218071476
## pBRAF_N	3.501916e-02	-0.007061748	-0.15819274	0.019836361
## pCAMKII_N	5.601132e-02	-0.072702599	0.09488739	0.089284617
## pCREB_N	-1.785595e-01	0.034410850	0.03688762	-0.091807942
## pELK_N	-9.787082e-02	-0.024341092	0.03230219	0.125251052
## pERK_N	1.193312e-01	-0.022180316	-0.02086013	-0.034023980
## pJNK_N	2.235405e-01	0.019723730	0.02446220	-0.068713327
## PKCA_N	-1.437551e-01	0.095634235	-0.07795351	0.094915159
## pMEK_N	-1.035948e-01	0.095233485	0.07981038	-0.036801040
## pNR1_N	-8.817227e-02	-0.081227827	0.02965546	0.220094225
## pNR2A_N	2.040391e-01	-0.113043775	0.06104834	0.133509974
## pNR2B_N	2.110806e-02	-0.067751711	0.05966106	0.076565707
## pPKCAB_N	2.017382e-02	0.043224988	-0.16822475	0.058014014
## pRSK_N	-5.735423e-02	-0.094619229	-0.04736064	0.267310873
## AKT_N	7.628056e-02	0.197349444	-0.01531302	-0.046122938
## BRAF_N	2.343037e-02	0.003467708	-0.07362832	-0.054892616
## CAMKII_N	1.233613e-01	-0.068539130	-0.05995078	0.065620425

## CREB_N	-9.177453e-02	0.149848574	-0.01780309	0.203138679
## ELK_N	-5.509733e-02	0.089352204	-0.15009757	-0.078175831
## ERK_N	-9.241367e-02	0.094080452	0.14131184	-0.120392242
## GSK3B_N	3.134409e-02	-0.090286486	0.02635112	-0.054659966
## JNK_N	7.816659e-02	-0.128103794	-0.01678122	0.021832494
## MEK_N	6.563323e-02	-0.074079284	-0.04894852	0.108130403
## TRKA_N	1.270351e-01	-0.055364460	0.17025417	-0.079791297
## RSK_N	-3.690339e-02	-0.083076551	-0.03788248	-0.031597707
## APP_N	4.883461e-02	-0.023358795	0.20025700	0.069751111
## Bcatenin_N	-8.473024e-02	-0.136286362	-0.26060117	-0.254866675
## SOD1_N	2.091489e-01	-0.049415310	0.04129844	0.155723503
## MTOR_N	4.269250e-02	-0.261490847	0.13615896	-0.189190553
## P38_N	-2.624034e-02	-0.338672812	-0.06969987	-0.104783022
## pMTOR_N	-1.640235e-01	0.126153938	0.19646956	-0.003384609
## DSCR1_N	1.548913e-02	0.132836888	0.00569166	0.090711595
## AMPKA_N	2.042695e-02	-0.012508721	-0.02311837	-0.009237749
## NR2B_N	-7.941442e-02	0.295912793	-0.27220293	-0.181627233
## pNUMB_N	1.235254e-01	-0.030345855	-0.06040013	-0.008979192
## RAPTOR_N	1.082409e-01	-0.038245334	-0.03078121	0.114892455
## TIAM1_N	7.050312e-02	0.084821897	-0.08636663	0.010049786
## pP70S6_N	1.623226e-02	-0.082195337	0.02650142	-0.160164557
## NUMB_N	3.156342e-01	0.128738397	-0.06733897	0.053237519
## P70S6_N	-3.230859e-01	-0.091117150	0.18916162	0.001639991
## pGSK3B_N	2.576980e-01	-0.059570011	0.11265180	-0.081566690
## pPKCG_N	3.510844e-02	0.255277762	0.04778469	-0.134812217
## CDK5_N	-2.060939e-01	-0.097895732	0.01148014	0.072596132
## S6_N	-1.521459e-01	-0.083326767	-0.29356515	0.026265646
## ADARB1_N	-1.299752e-01	-0.134047694	-0.15232866	0.120694592
## AcetylH3K9_N	-8.579708e-02	-0.062078336	-0.07765638	-0.029813408
## RRP1_N	-4.734380e-02	-0.012801145	0.06925902	0.018562469
## BAX_N	-8.770360e-02	-0.051885592	-0.06161346	-0.092335596
## ARC_N	6.706577e-02	0.046940458	0.04835960	-0.054376296
## ERBB4_N	4.805262e-02	0.081597576	-0.12213323	0.074437116
## nNOS_N	-1.011479e-01	-0.105211664	-0.06226004	0.164773377
## Tau_N	1.022694e-01	0.042064018	0.24724608	0.038227865
## GFAP_N	-2.347254e-01	-0.107268770	0.16896272	-0.112782202
## GluR3_N	7.446367e-02	0.261156803	0.08075500	-0.142096753
## GluR4_N	-4.334791e-02	-0.106855027	-0.10345917	0.022278688
## IL1B_N	-6.248027e-02	-0.272662811	0.05438812	-0.097604504
## P3525_N	1.167396e-01	0.038697859	0.17880520	-0.014019915
## pCASP9_N	1.136252e-01	0.069911034	-0.08205918	-0.033992330
## PSD95_N	2.122435e-02	0.094283123	-0.07729349	-0.041481612
## SNCA_N	-7.418581e-02	0.081839583	-0.10370816	0.270602846
## Ubiquitin_N	8.222198e-02	-0.150233893	-0.23378151	-0.306709919
## pGSK3B_Tyr216_N	-1.267080e-02	0.008475713	0.12472111	0.216457487
## SHH_N	-3.593153e-05	0.084741453	-0.08853308	-0.019458710
## BAD_N	2.740845e-02	-0.004027180	0.03985640	0.025678294
## BCL2_N	1.718915e-04	-0.036618969	-0.01872346	0.018956737
## pS6_N	6.706577e-02	0.046940458	0.04835960	-0.054376296
## pCFOS_N	-1.102066e-02	0.013087003	-0.07301890	0.083151495
## SYP_N	-6.208815e-02	0.075336976	-0.08791728	0.017550688
## H3AcK18_N	6.575905e-03	0.048503180	-0.10538199	0.058568343
## EGR1_N	9.379984e-02	0.008769680	-0.03940333	0.093546170
## H3MeK4_N	-7.769802e-02	0.020648731	0.08711283	-0.061388325

## CaNA_N	2.084596e-01	-0.211589240	0.03077023	-0.090344041
##	PC45	PC46	PC47	PC48
## DYRK1A_N	-0.083585524	-0.011101805	0.031876680	0.032851017
## ITSN1_N	-0.022171288	-0.058246624	0.032764994	0.038244220
## BDNF_N	-0.071006901	-0.190651495	-0.048893564	0.009475356
## NR1_N	-0.017914777	0.137525899	0.112713392	0.107891979
## NR2A_N	-0.216680642	0.042649810	-0.231830611	-0.057877606
## pAKT_N	-0.170139364	0.232599186	0.134421491	-0.011623303
## pBRAF_N	0.221016008	0.011792546	-0.017662707	0.134438707
## pCAMKII_N	0.101906688	0.112868016	0.117666184	0.052582724
## pCREB_N	-0.163946116	0.107099010	-0.068262120	0.045614906
## pELK_N	0.159559047	0.054194597	-0.175079936	0.034018915
## pERK_N	-0.098110083	0.038556923	0.047651384	-0.037063555
## pJNK_N	0.247548800	-0.063843396	-0.104298703	-0.150402616
## PKCA_N	0.015286758	0.075124693	0.110267919	-0.136265843
## pMEK_N	0.104458530	-0.001812437	0.075705892	0.188643203
## pNR1_N	0.033476875	0.163138347	0.065910347	0.145932813
## pNR2A_N	0.076055778	0.049328974	-0.030172905	-0.037892188
## pNR2B_N	0.038580883	-0.327095136	0.055767182	0.120454879
## pPKCAB_N	-0.020569634	0.156039150	0.041225097	-0.101313430
## pRSK_N	-0.243430724	-0.138955583	0.092389736	-0.076750374
## AKT_N	-0.116590755	0.071956306	-0.040906233	-0.195784344
## BRAF_N	-0.135203705	-0.011068711	0.014353994	0.039454862
## CAMKII_N	-0.128321336	0.031648559	0.157384092	-0.190492730
## CREB_N	0.056844429	-0.378862351	0.021420094	-0.210438663
## ELK_N	0.037153475	0.076233612	0.090965629	0.114470841
## ERK_N	-0.002023268	-0.015543230	-0.139992888	-0.057362416
## GSK3B_N	0.092089996	-0.081542660	-0.020583160	0.074307031
## JNK_N	0.103993433	0.088435571	-0.131491853	0.128615177
## MEK_N	-0.003024812	0.065245840	0.048802526	-0.072573580
## TRKA_N	0.015848523	-0.391938124	0.074010504	-0.009218393
## RSK_N	0.099239988	0.125664628	-0.096582246	0.165224326
## APP_N	0.053895620	0.139446944	-0.064881970	-0.035961541
## Bcatenin_N	0.263456377	0.043851625	-0.073369622	-0.227323389
## SOD1_N	-0.163353284	-0.020025224	-0.033990518	-0.014490110
## MTOR_N	-0.000706899	-0.015621241	-0.102335829	-0.139817400
## P38_N	-0.104724925	-0.114225579	0.258863795	0.007166941
## pMTOR_N	-0.023100928	-0.102483528	-0.308454458	0.176631441
## DSCR1_N	0.077489219	0.126530214	0.156081429	0.120698934
## AMPKA_N	-0.030221176	0.109584600	-0.051821506	0.031332970
## NR2B_N	0.143061742	-0.049023714	0.173524307	-0.158330902
## pNUMB_N	-0.191435513	-0.064742321	-0.148912712	0.042180498
## RAPTOR_N	-0.273098333	0.019089824	-0.022408075	0.030015841
## TIAM1_N	0.015590495	-0.010270792	0.079519002	0.025933079
## pP7OS6_N	0.048921947	-0.095085905	-0.200168796	0.136112433
## NUMB_N	0.031373493	0.033611788	0.105041646	0.010217988
## P7OS6_N	-0.012933441	-0.068769975	0.229859394	-0.241994274
## pGSK3B_N	0.174225154	-0.074438932	0.088911835	-0.087954140
## pPKCG_N	-0.013153720	-0.079221347	-0.115075363	-0.136236142
## CDK5_N	-0.012922205	0.059086563	0.008198640	0.040989831
## S6_N	-0.050526659	-0.203657957	-0.131795952	0.224765505
## ADARB1_N	0.033103448	-0.007961487	-0.001794845	-0.124247198
## AcetylH3K9_N	-0.045760731	0.080790369	0.014577159	0.115229864
## RRP1_N	0.014174856	-0.035263167	-0.005175192	0.021528924

## BAX_N	-0.018540869	-0.108390339	-0.052931881	0.133688833
## ARC_N	0.048600695	-0.008425124	0.098779243	0.164116842
## ERBB4_N	0.182543931	-0.056293837	-0.121652633	-0.010313127
## nNOS_N	0.065504952	0.131339254	-0.126571791	-0.196160386
## Tau_N	-0.001917466	0.074627731	-0.068528512	-0.200253415
## GFAP_N	0.042647217	0.067602106	0.035846990	-0.076629235
## GluR3_N	0.058384126	0.097128270	-0.074608316	-0.021775506
## GluR4_N	0.018850326	-0.014969834	-0.015137324	-0.007005957
## IL1B_N	0.025371003	-0.042215487	-0.021656005	-0.094866563
## P3525_N	0.003167249	0.045480766	0.231679060	0.107725542
## pCASP9_N	-0.144999827	-0.080127934	-0.035037022	0.241205697
## PSD95_N	-0.361043893	-0.009011417	0.032575437	-0.075168673
## SNCA_N	0.023081989	-0.042426842	-0.329187118	-0.135903368
## Ubiquitin_N	-0.145287570	0.172639769	-0.128788712	-0.085297221
## pGSK3B_Tyr216_N	0.145383055	0.159763158	0.016824519	0.047308927
## SHH_N	-0.057874246	-0.087480167	-0.027768435	0.022471944
## BAD_N	0.004475879	0.117649000	-0.109755045	0.054125254
## BCL2_N	-0.024346861	-0.022943929	0.105765982	0.014570793
## pS6_N	0.048600695	-0.008425124	0.098779243	0.164116842
## pCFOS_N	0.001759347	-0.002593490	0.036700694	-0.002709112
## SYP_N	-0.087814482	0.010948921	-0.011026219	0.119152571
## H3AcK18_N	0.075802294	-0.028432762	0.041706847	-0.059296450
## EGR1_N	-0.047413018	-0.068707772	-0.048650682	-0.095241107
## H3MeK4_N	0.032881345	-0.011487632	0.054648987	0.003756922
## CaNA_N	-0.117624014	0.124587458	-0.174836042	-0.050408215
##	PC49	PC50	PC51	PC52
## DYRK1A_N	0.0199128442	0.097557350	0.040643898	0.0263428508
## ITSN1_N	-0.0255233452	0.039450801	0.011243318	0.0488984298
## BDNF_N	0.0303168013	-0.200865354	0.371744964	0.0078386069
## NR1_N	-0.0947350779	0.028899383	0.122407781	0.0578533407
## NR2A_N	0.0008464839	0.073051047	-0.068910194	-0.0337137460
## pAKT_N	-0.2811610495	0.131573199	-0.099339590	0.4214794286
## pBRAF_N	0.0814729660	0.204815916	-0.068100052	-0.1071073372
## pCAMKII_N	-0.1107905071	-0.065378967	-0.021318060	-0.1348510671
## pCREB_N	0.1358646596	-0.010995382	-0.333304114	-0.0691914578
## pELK_N	-0.1152557468	0.069310466	0.038664886	0.0238244357
## pERK_N	0.0991863513	-0.038491740	0.021906913	0.0024028917
## pJNK_N	-0.0131457805	-0.142001122	-0.086059822	-0.0051500362
## PKCA_N	0.0680136048	0.120637722	0.105105121	-0.0312194475
## pMEK_N	-0.0602284056	-0.339727471	0.223327612	0.0045475011
## pNR1_N	0.0232396760	0.229699684	0.065994896	0.2275825049
## pNR2A_N	-0.0565133471	-0.050716325	-0.137254325	0.1747857406
## pNR2B_N	0.1084600132	0.139579352	-0.136136112	0.1501783552
## pPKCAB_N	0.1159329801	-0.036681329	-0.040274637	-0.0099541163
## pRSK_N	0.0008203939	0.129747581	0.165266035	0.0424347010
## AKT_N	0.1323458561	0.042958053	-0.233588259	-0.1953004463
## BRAF_N	0.0032724019	-0.008970395	0.029865007	-0.0210761841
## CAMKII_N	-0.2193034383	-0.116106441	0.043115060	-0.4083225194
## CREB_N	-0.0043901736	0.226252361	-0.072458745	-0.0915387883
## ELK_N	0.1553840931	-0.029392211	-0.205858366	-0.0003698211
## ERK_N	0.0244174661	-0.054032614	0.040801223	0.0114392631
## GSK3B_N	-0.0043753402	-0.109344649	0.008277811	-0.0739067310
## JNK_N	0.1528430022	0.060489594	0.042752324	-0.0599510418
## MEK_N	0.0142929302	0.023488296	0.024885335	0.0262503865



## TRKA_N	0.1317819502	-0.141251353	-0.048034252	0.0648819613
## RSK_N	-0.0660052551	-0.101057236	0.118282385	0.0474590010
## APP_N	-0.1465282133	0.069489303	0.037307260	0.0455127165
## Bcatenin_N	-0.2196873693	-0.053956279	-0.068838611	-0.1027871536
## SOD1_N	0.1717315764	-0.062036908	0.179067567	0.1136694940
## MTOR_N	-0.1149270077	0.287004406	-0.099079722	-0.0790117031
## P38_N	-0.1108091538	-0.174904933	-0.131028134	-0.0397246545
## pMTOR_N	-0.0708829170	0.128885440	0.083843593	-0.2957352276
## DSCR1_N	0.3359220915	-0.180737915	-0.098527239	-0.0347482478
## AMPKA_N	0.0461538166	-0.210184031	0.136161873	-0.0102028113
## NR2B_N	-0.0560973180	0.040538689	0.074652325	0.1784027865
## pNUMB_N	-0.0284938409	-0.092107360	0.011346606	0.1785179226
## RAPTOR_N	0.0212273560	-0.135770435	-0.140763337	0.0761077258
## TIAM1_N	-0.0328480220	0.095831167	0.006420986	0.0519668481
## pP7OS6_N	0.1438173341	0.016244455	-0.117522593	0.0018127651
## NUMB_N	-0.2489019678	0.038848007	0.222777392	-0.0491607212
## P7OS6_N	0.1880854161	0.027575125	0.112843628	-0.0510942286
## pGSK3B_N	0.1226926284	0.097716614	-0.035007654	0.1753301096
## pPKCG_N	-0.0608987489	-0.097282534	-0.029710223	0.1255355711
## CDK5_N	0.0339407909	0.049639265	0.029399063	0.0203585813
## S6_N	-0.0076780655	-0.057994620	-0.116122216	0.0325869844
## ADARB1_N	0.0082648299	-0.074827771	-0.009027206	-0.0226032533
## AcetylH3K9_N	-0.0024519964	0.004297077	0.087506099	-0.1101047408
## RRP1_N	-0.0207899525	-0.015872931	-0.050282413	-0.0232255549
## BAX_N	-0.1356826676	0.073797616	-0.002361976	-0.0019790583
## ARC_N	-0.0172766142	0.042194540	-0.068555966	0.0421709018
## ERBB4_N	0.0361694847	-0.016375665	0.072057817	0.0554403938
## nNOS_N	0.0342413023	-0.168855559	0.019057147	-0.0099243168
## Tau_N	-0.0977842424	0.042664314	-0.066625554	-0.0081435713
## GFAP_N	0.0359374894	-0.115716008	-0.053146505	-0.0485624711
## GluR3_N	0.1321010493	-0.049588919	0.106732824	-0.0428422633
## GluR4_N	-0.0642107978	0.016386874	-0.020118392	0.0100262766
## IL1B_N	0.0277454776	-0.054105123	0.097108796	0.2104439765
## P3525_N	0.0766350568	0.177346459	0.067533411	-0.2535250548
## pCASP9_N	-0.1854686849	0.063511518	0.036627510	-0.1820839558
## PSD95_N	0.0271362418	-0.170245827	-0.096099333	-0.0099987373
## SNCA_N	-0.0373267854	-0.070736694	0.068525850	0.1388259904
## Ubiquitin_N	0.3369640398	0.269431626	0.300211264	-0.0170550772
## pGSK3B_Tyr216_N	0.0109538625	-0.114140753	-0.199159347	0.0012079900
## SHH_N	-0.1032805737	0.001473550	0.023593566	0.0486328652
## BAD_N	0.0936620960	0.010906776	-0.006217149	-0.0104409459
## BCL2_N	-0.0501076620	0.062563447	-0.009724975	0.0393483223
## pS6_N	-0.0172766142	0.042194540	-0.068555966	0.0421709018
## pCFOS_N	-0.0522594722	-0.022388147	0.004452006	-0.0547237153
## SYP_N	-0.1719038205	-0.040927013	-0.111270712	-0.0157381319
## H3AcK18_N	0.0831283522	-0.033455038	-0.038963340	0.0183647329
## EGR1_N	-0.0451732944	0.038914945	0.014896954	0.0096743409
## H3MeK4_N	-0.0883487709	0.031925898	0.002590975	-0.0193769664
## CaNA_N	-0.0776653851	0.004438083	-0.105018808	0.0281520541
##	PC53	PC54	PC55	PC56
## DYRK1A_N	-0.1334152955	-0.0112036909	-0.051389062	-0.0457948908
## ITSN1_N	-0.0272177384	-0.0153384635	-0.070302371	0.0012157502
## BDNF_N	0.2715302299	-0.2253132014	-0.086956423	-0.3396246991
## NR1_N	-0.0665677955	0.0323532334	-0.205152957	-0.0243537183

## NR2A_N	-0.1269558937	0.0644022077	0.070496160	0.0019369659
## pAKT_N	0.1679027258	-0.2323111406	0.190198575	-0.0480735170
## pBRAF_N	-0.0469841571	-0.1753667647	-0.046754293	-0.5228497686
## pCAMKII_N	-0.0030903991	0.0027677156	0.240919568	-0.1610086173
## pCREB_N	0.2094975577	0.2835229995	0.044833450	0.0328656141
## pELK_N	0.0362632412	0.0029131438	0.091160386	-0.0186328402
## pERK_N	-0.0615804040	-0.0550965859	0.054557045	0.1126337502
## pJNK_N	-0.0417062493	0.0530044576	-0.236010033	0.0750736036
## PKCA_N	-0.2962578269	-0.0285075319	0.183576165	-0.0350565878
## pMEK_N	-0.3078258397	0.1183532454	-0.182892396	0.1616408087
## pNR1_N	-0.0691559485	-0.0413467269	-0.357635909	-0.0062222556
## pNR2A_N	0.0838116681	-0.0030590001	-0.090500134	0.0846912477
## pNR2B_N	-0.0239880266	0.0694218391	0.173490817	-0.0131036851
## pPKCAB_N	-0.0602948009	-0.0505932066	0.006084804	0.0330080605
## pRSK_N	0.3183662202	0.0445124678	-0.050192250	0.1080909756
## AKT_N	-0.1407370049	-0.0934107014	0.073516753	0.0445312867
## BRAF_N	-0.0052672398	0.0565184564	-0.048250647	-0.0172911147
## CAMKII_N	0.1176446526	0.0515132442	-0.211594222	-0.0663501739
## CREB_N	0.0089234418	-0.1301304990	-0.052098675	0.3162470294
## ELK_N	0.2253117928	-0.0667853192	-0.085989421	0.0119875172
## ERK_N	-0.0830770026	0.0162377667	-0.091603054	-0.0109662130
## GSK3B_N	0.2087885943	-0.0593446493	0.080391985	0.0313594684
## JNK_N	-0.1773375676	0.1694579286	0.179163907	-0.0024330156
## MEK_N	0.0235525048	0.0313691371	0.012012378	-0.0091738824
## TRKA_N	0.0328656424	0.0857880463	0.245184107	-0.0477290314
## RSK_N	0.0005432099	0.0143468050	0.083380136	0.2243244080
## APP_N	0.0055753784	0.1470455322	-0.007970076	0.0593938664
## Bcatenin_N	-0.0650782791	-0.1036017766	0.109300520	-0.0328239945
## SOD1_N	-0.0635718471	0.0065085138	0.046217727	-0.0990592842
## MTOR_N	-0.1156835434	-0.1357931049	-0.066454783	-0.0440431864
## P38_N	-0.0440946123	0.0416702363	-0.025089789	-0.0111704125
## pMTOR_N	0.0555072578	-0.1630436562	0.048276521	0.1079472073
## DSCR1_N	0.1136526972	-0.2165960864	-0.012969711	-0.0528710391
## AMPKA_N	-0.0361502669	-0.0408657284	0.148071576	0.2695733964
## NR2B_N	0.0676291774	0.4556739466	0.108070502	-0.0642389262
## pNUMB_N	-0.1349354631	0.1410962121	-0.062721430	-0.1367124594
## RAPTOR_N	0.0185244894	-0.0136119497	0.137766286	-0.0675900700
## TIAM1_N	0.0294510640	-0.1207065376	-0.118393767	0.1631000505
## pP70S6_N	0.0122951510	0.0519633824	-0.031166359	0.1352657387
## NUMB_N	0.0933287739	-0.1855400103	0.312108215	0.0906378248
## P70S6_N	-0.0871425043	0.1483443434	-0.044575004	-0.0936067076
## pGSK3B_N	-0.1402732984	-0.0811939718	0.023745515	-0.0248251454
## pPKCG_N	-0.1107426998	-0.1060663421	-0.196051120	-0.1231019562
## CDK5_N	-0.0500674750	0.0242173295	0.035421915	0.0120035505
## S6_N	-0.0350479672	-0.1627246845	-0.041658766	0.0151007182
## ADARB1_N	0.0814527842	-0.0478847648	-0.032992557	0.0256889994
## AcetylH3K9_N	-0.1122717823	0.0502221841	0.129172149	-0.0278753907
## RRP1_N	0.0034125952	-0.0137009898	-0.031536535	-0.0224945198
## BAX_N	0.0482439999	0.0710188647	-0.021106752	-0.0023073799
## ARC_N	0.0233659665	0.0177998069	-0.066927896	0.0197188211
## ERBB4_N	0.1109325853	0.0384111294	-0.117006975	0.0119083315
## nNOS_N	0.0953249500	-0.0839377865	0.055584886	-0.0404856156
## Tau_N	-0.0025714225	0.0687007684	-0.094810969	-0.0275093753
## GFAP_N	0.0575813396	-0.0013897662	-0.004647552	0.0123659914

## GluR3_N	0.1747264245	0.0339480293	-0.007824965	0.0856604839
## GluR4_N	-0.0191459157	0.0116424040	-0.055018891	-0.0089274775
## IL1B_N	-0.1176628668	-0.2049064716	0.132169461	0.1703551762
## P3525_N	-0.0158536952	0.0544089824	0.071453736	0.0172274309
## pCASP9_N	-0.0691831065	0.1479791749	0.021113813	-0.1151670839
## PSD95_N	-0.2572765371	-0.2021391296	-0.052664669	-0.0341894525
## SNCA_N	0.0161107266	0.1186289249	0.162362025	-0.2353445450
## Ubiquitin_N	0.1145470091	0.0124181474	-0.038366953	0.1049648998
## pGSK3B_Tyr216_N	0.0163674149	-0.0002992484	0.032023587	0.0006839287
## SHH_N	-0.0304690350	0.0228371541	-0.041601426	0.0662704059
## BAD_N	-0.0258478192	-0.0570164694	-0.004005946	-0.0539083035
## BCL2_N	0.0038989770	0.0033736790	0.067296774	0.0062050020
## pS6_N	0.0233659665	0.0177998069	-0.066927896	0.0197188211
## pCFOS_N	0.0387855307	0.0074805785	-0.010043535	-0.0049686124
## SYP_N	-0.0702506840	-0.0652672155	0.012705295	0.0966735121
## H3AcK18_N	0.0731365380	-0.1017146068	0.003465876	0.0348945633
## EGR1_N	0.0147985212	0.0148922516	-0.043358799	0.0462345785
## H3MeK4_N	0.0094475149	0.0549819913	0.014386536	-0.0087919366
## CaNA_N	0.1739686773	0.1639374776	-0.069221672	-0.0180072774
##	PC57	PC58	PC59	PC60
## DYRK1A_N	-0.075406146	0.0701699531	0.066694812	0.079790855
## ITSN1_N	-0.039361127	0.2524910071	0.005316461	0.127946900
## BDNF_N	-0.100318554	-0.1276705967	0.255881273	0.009817168
## NR1_N	-0.026974591	0.0301693785	-0.013508602	-0.122226485
## NR2A_N	-0.286475451	0.1044644170	-0.180001739	0.080692652
## pAKT_N	0.140981330	-0.0058438450	-0.080378673	-0.027786491
## pBRAF_N	0.117010698	-0.0882933716	-0.274393619	0.063884138
## pCAMKII_N	0.110732415	0.0672934551	0.114891124	-0.060369933
## pCREB_N	-0.233154137	-0.0902754739	0.015299780	0.098461051
## pELK_N	-0.029753881	-0.0659074870	-0.046705003	-0.016419313
## pERK_N	0.089643336	-0.4828166536	-0.006232593	-0.264684459
## pJNK_N	0.157284497	0.1475259293	0.006857480	0.148029821
## PKCA_N	0.095075352	-0.0162041989	-0.015655249	0.164720678
## pMEK_N	-0.019343411	-0.3528541097	-0.147979931	0.017383568
## pNR1_N	-0.059575162	0.0111256821	-0.038669706	-0.058297419
## pNR2A_N	-0.100162456	0.0074052743	0.016684953	0.054547566
## pNR2B_N	0.086014639	-0.2136836539	0.168288102	0.034729148
## pPKCAB_N	0.096492453	-0.0632944648	0.034213459	-0.011184607
## pRSK_N	-0.040277757	-0.0095746613	0.099722676	-0.041099260
## AKT_N	0.065077511	-0.0073740444	0.147019075	-0.120077188
## BRAF_N	0.002113803	0.1836951022	-0.033168878	0.039501971
## CAMKII_N	-0.009184405	-0.0257063202	-0.062093002	0.177097710
## CREB_N	0.029008474	0.0243527855	-0.143498131	-0.312852041
## ELK_N	0.209531870	0.0667567035	-0.173273987	0.015546253
## ERK_N	0.078050176	-0.0358425276	-0.007638361	-0.132593317
## GSK3B_N	0.062798485	0.2672870233	-0.197866884	-0.003105565
## JNK_N	-0.384605457	0.0900329792	0.196852067	0.032885688
## MEK_N	-0.036817182	-0.0592600665	0.034415794	-0.003258903
## TRKA_N	0.051349048	0.0444282614	0.004515290	-0.034100115
## RSK_N	0.193828044	0.2859469279	0.287592321	-0.123567083
## APP_N	0.029752792	0.0152842720	-0.137938418	-0.152359553
## Bcatenin_N	-0.107104770	-0.1464693148	0.046822205	-0.107015890
## SOD1_N	0.237840948	0.0828113802	-0.050691502	0.010699878
## MTOR_N	0.062613329	0.0616089521	0.174674998	-0.168355049

## P38_N	-0.145260938	0.0130755221	-0.117848189	-0.142881312
## pMTOR_N	0.068075744	-0.0185388689	-0.155301995	0.251187394
## DSCR1_N	-0.231391267	0.0786741058	0.021385683	-0.257443598
## AMPKA_N	0.146791541	0.1684054283	-0.082373808	-0.070978547
## NR2B_N	0.028908982	0.0284104297	0.010916803	0.083734043
## pNUMB_N	0.150804873	0.0053919602	-0.084133378	-0.107663401
## RAPTOR_N	-0.127759100	-0.0553545446	-0.160435174	0.099966590
## TIAM1_N	0.040487565	-0.0919823029	0.394303316	0.435413833
## pP7OS6_N	0.112452998	-0.1506466221	-0.151232960	0.116066321
## NUMB_N	-0.186399341	-0.1006771496	-0.179340750	0.051203135
## P7OS6_N	0.104757963	0.1090152324	-0.078543864	0.059482475
## pGSK3B_N	-0.088365125	0.1010234568	-0.070044246	0.088009531
## pPKCG_N	-0.263787439	0.1671023146	-0.042844631	-0.132632641
## CDK5_N	0.004177248	0.0282328862	-0.031680981	0.039190145
## S6_N	-0.003757634	-0.0245327773	0.094204835	0.002763905
## ADARB1_N	-0.014775640	0.0061135200	-0.014634267	0.040655407
## AcetylH3K9_N	0.093128533	0.0696301886	-0.087009247	-0.038682301
## RRP1_N	0.048443756	0.0097688450	0.014919584	0.010944739
## BAX_N	0.062906493	-0.0130100172	0.062741868	-0.104444591
## ARC_N	-0.034936716	0.0008790089	-0.013578520	-0.017609297
## ERBB4_N	-0.061057777	-0.0062621828	-0.095018093	-0.012327930
## nNOS_N	0.013894253	0.0613891653	0.025926312	-0.005065405
## Tau_N	-0.022337757	-0.1051566981	0.138257449	-0.011159343
## GFAP_N	0.011243783	0.0340026329	0.032953011	-0.003565048
## GluR3_N	0.013308511	-0.0255909641	0.026302956	-0.053041865
## GluR4_N	-0.003948547	-0.0070599486	-0.026744865	0.002176531
## IL1B_N	-0.144957293	-0.0028044215	-0.136587739	0.224226865
## P3525_N	0.064420136	0.0287932257	-0.012054810	0.006753067
## pCASP9_N	-0.001065536	0.0858477402	0.135886979	-0.204418649
## PSD95_N	0.137050663	0.0360666565	0.070903847	0.117065524
## SNCA_N	0.065334832	-0.0370917669	0.053397269	-0.067840601
## Ubiquitin_N	-0.057184179	-0.0879002821	-0.046322862	-0.088526507
## pGSK3B_Tyr216_N	0.094795087	-0.1345395466	0.108287030	0.040635556
## SHH_N	-0.011290514	0.0439416199	-0.030089373	-0.002037370
## BAD_N	0.072684454	0.0320007149	0.102553261	-0.013286648
## BCL2_N	-0.017701022	0.0330214570	0.001941108	-0.005422433
## pS6_N	-0.034936716	0.0008790089	-0.013578520	-0.017609297
## pCFOS_N	0.005308315	-0.0333355239	0.012730942	0.017694074
## SYP_N	-0.044181020	0.0131976533	0.054362808	-0.018269596
## H3AcK18_N	-0.004987046	0.0041940507	0.037681931	0.008956681
## EGR1_N	0.051708434	0.0086569038	-0.054170019	-0.008882198
## H3MeK4_N	-0.046018930	-0.0466847968	0.002734739	0.029327143
## CaNA_N	0.172557432	-0.1047609302	-0.101330037	0.074326357
##	PC61	PC62	PC63	PC64
## DYRK1A_N	0.0044688217	0.0782047412	0.0934481835	0.1769525449
## ITSN1_N	-0.0951718185	0.0605766734	0.0987105067	0.0019471440
## BDNF_N	0.1393294119	-0.2154368336	0.1183650191	0.0137863235
## NR1_N	-0.1074438607	0.1253243219	-0.0608316035	-0.0494089669
## NR2A_N	-0.1075797524	-0.2552327370	0.0504138114	0.1320811590
## pAKT_N	0.0670529491	-0.1159172411	0.0979743225	-0.1094458269
## pBRAFA_N	-0.1839017477	0.0694855900	-0.3382517619	0.0317643774
## pCAMKII_N	-0.2267494667	0.0459892214	0.0970366529	-0.0635462879
## pCREB_N	-0.1048060913	0.3719673694	0.0341778503	-0.0413337170
## pELK_N	-0.0314372249	-0.0479519824	-0.0106749463	0.0102714257

## pERK_N	0.1127266341	-0.0425079238	-0.1945965118	0.0009020551
## pJNK_N	0.1325541758	0.0228117709	0.2323736049	0.1582304743
## PKCA_N	0.0005248835	-0.0004950906	0.1730827370	0.1720950542
## pMEK_N	-0.2008831531	0.1093123367	0.1365566797	-0.0997963297
## pNR1_N	0.0140981260	-0.0275807688	0.1293693464	0.0555823734
## pNR2A_N	0.0795999908	-0.1898716415	-0.2257295017	-0.1400066307
## pNR2B_N	0.1272035332	0.0133063861	-0.0832616061	0.1277632055
## pPKCAB_N	0.0449449970	-0.0715279779	0.1027164914	-0.2541843784
## pRSK_N	0.0021715426	0.1895603332	-0.1821877044	0.1083550003
## AKT_N	-0.1529505514	-0.1097758193	-0.1677897578	0.1181921061
## BRAF_N	0.0080449822	0.0345246313	0.0612140898	0.0197785710
## CAMKII_N	0.2806813504	0.0128673807	-0.0647574473	-0.0474146782
## CREB_N	-0.0805563772	-0.1132588682	0.2097154821	-0.1716897160
## ELK_N	0.1728070254	-0.0153483615	0.2228782041	0.0556084723
## ERK_N	-0.1393539773	0.0723402388	-0.2655940889	-0.2430281161
## GSK3B_N	-0.0553792159	0.0267062560	-0.1114001441	-0.4081101554
## JNK_N	0.1848567506	-0.1579035787	0.0752519168	-0.2925313142
## MEK_N	0.0020645625	0.0081395839	-0.0302561306	0.0027621190
## TRKA_N	-0.1424897565	0.1261552024	0.0800488361	0.0884191267
## RSK_N	-0.0811831168	-0.1439610594	-0.2004674328	0.3318366386
## APP_N	0.1852158952	-0.0488201327	-0.1529641626	0.0707797385
## Bcatenin_N	0.1166896073	-0.0530963114	0.1089102871	0.1190202833
## SOD1_N	-0.0309911844	-0.0567925198	0.1461873083	-0.0962999861
## MTOR_N	-0.0069566938	0.3196046332	0.1595857280	-0.1931044324
## P38_N	-0.2390114721	-0.2791419666	-0.0091771698	0.1274148017
## pMTOR_N	0.0713433226	-0.0491981802	-0.0604582293	0.1094747582
## DSCR1_N	-0.0611359006	0.0303066576	0.1092932200	0.1242027670
## AMPKA_N	0.0700925034	0.0778213738	-0.1721602865	-0.0350883146
## NR2B_N	0.0670743739	-0.0631535985	-0.1328802089	-0.0822993888
## pNUMB_N	0.1021782731	0.2201111089	0.0638585547	0.1340464232
## RAPTOR_N	0.1177114407	-0.0601910267	-0.0006184197	-0.0324660391
## TIAM1_N	-0.3311134610	-0.0511000930	-0.0805452176	-0.1607166767
## pP70S6_N	0.0791732980	-0.0896209015	-0.0029981571	0.0203026748
## NUMB_N	-0.1555814839	0.1284916976	0.1268039871	0.0424907289
## P70S6_N	-0.0293319468	-0.2081063582	-0.0387908285	-0.0728948588
## pGSK3B_N	0.0768655725	-0.0098515202	-0.1492779152	-0.0158212372
## pPKCG_N	-0.0344598218	0.0104902950	-0.1964489508	0.0799527114
## CDK5_N	0.0160327819	0.0211933254	-0.0194257058	0.0235242765
## S6_N	0.0100626947	-0.1625556472	0.0030077067	-0.1100591206
## ADARB1_N	-0.0701927908	0.1204052118	-0.0740232308	0.1342672227
## AcetylH3K9_N	0.0401211562	-0.0363101714	-0.0084422828	-0.0809759348
## RRP1_N	-0.0547688449	0.0257874648	-0.0041142946	0.0049606258
## BAX_N	0.0958099901	0.0806317874	0.0102852396	0.0465567433
## ARC_N	0.0279444974	-0.0195334519	0.0208553293	-0.0204810331
## ERBB4_N	-0.0615403354	-0.0138334697	0.0226814044	0.0210577774
## nNOS_N	-0.0009452043	0.1277105740	-0.0254726208	0.0433658082
## Tau_N	-0.0138360576	0.0089185485	0.0250445259	0.0425737369
## GFAP_N	-0.0698825185	0.0144460911	0.0191724813	-0.0264151116
## GluR3_N	-0.0645339196	0.0577977258	0.0127766860	0.0084237019
## GluR4_N	0.0105538558	-0.0147285566	0.0025744619	-0.0090707414
## IL1B_N	0.0590376677	0.1913147025	-0.0573991400	0.0187801184
## P3525_N	0.1013998518	-0.0480502028	-0.0413317515	0.0955076272
## pCASP9_N	0.0293111528	-0.0405298783	0.0379182245	-0.0893619658
## PSD95_N	0.0693131734	0.0407105454	-0.0831236176	-0.0841948517

## SNCA_N	-0.0719390891	0.0101711747	0.0948761459	-0.0797328983
## Ubiquitin_N	-0.0566340383	-0.0565226721	0.0353000037	0.0099861111
## pGSK3B_Tyr216_N	0.1206894018	-0.0591701834	0.0566127847	-0.0193260689
## SHH_N	-0.0463800426	-0.0113536405	-0.0524815796	0.0281926017
## BAD_N	-0.0004359754	0.0469398419	0.0468412096	-0.0368200653
## BCL2_N	-0.0250047691	0.0092550430	-0.0257176555	0.0508637132
## pS6_N	0.0279444974	-0.0195334519	0.0208553293	-0.0204810331
## pCFOS_N	0.0049627459	-0.0234985842	0.0100412326	-0.0227508473
## SYP_N	0.0427320358	0.0205616080	-0.0467642023	0.0117983892
## H3AcK18_N	0.0232850248	-0.0089733342	-0.0718298109	0.0093501686
## EGR1_N	-0.0110651860	-0.0569592653	0.0323262699	-0.0625043658
## H3MeK4_N	-0.0373432990	-0.0153751646	-0.0273805521	0.0548834420
## CaNA_N	-0.3868681320	-0.2529639614	0.1297107605	0.0775454002
##	PC65	PC66	PC67	PC68
## DYRK1A_N	0.027817528	-0.1058437800	-0.025799411	-0.1791141447
## ITSN1_N	-0.133962293	-0.1845537052	0.124839485	-0.0904005990
## BDNF_N	-0.085019807	-0.0318145534	-0.020573550	0.0424041731
## NR1_N	0.079676917	0.0405319340	0.114516106	0.1413498777
## NR2A_N	-0.266404539	0.1230043267	-0.466203243	0.0190847040
## pAKT_N	0.029043631	-0.1390958829	-0.009455017	0.0555846616
## pBRAF_N	-0.125179771	-0.0423168903	-0.110238277	-0.0493433286
## pCAMKII_N	0.202509184	0.0301193487	0.037603876	-0.0378341353
## pCREB_N	0.046794313	-0.0122869101	-0.124149611	0.1580202479
## pELK_N	0.004298104	-0.0011432148	-0.029091541	0.0363514659
## pERK_N	0.236323779	0.2930642117	-0.233227999	0.2182311687
## pJNK_N	-0.034042684	0.1657451404	-0.109261935	0.3154186833
## PKCA_N	-0.160800038	0.0408980181	0.230165485	0.3135430780
## pMEK_N	-0.159393421	0.0023912839	0.052691234	-0.2533050157
## pNR1_N	0.123698477	0.0964260849	0.060469999	0.0686185211
## pNR2A_N	-0.262735472	-0.1037100927	0.086057800	-0.1083078492
## pNR2B_N	0.051707140	-0.1980443255	0.047162828	-0.1929275200
## pPKCAB_N	-0.011904264	-0.0841677063	-0.179872569	-0.1477407086
## pRSK_N	-0.140277133	0.0060147985	-0.046449760	-0.0162527236
## AKT_N	0.036296652	-0.0268040865	0.205585013	-0.0311956041
## BRAF_N	-0.043504647	-0.0384086313	0.107664626	-0.0314599596
## CAMKII_N	0.032762709	-0.0467880514	-0.042866887	-0.0813771180
## CREB_N	0.090723008	-0.0838000302	0.046093054	-0.0302338659
## ELK_N	0.119068484	0.0817216765	-0.009220904	-0.1079007629
## ERK_N	-0.086565640	-0.0927003224	0.232211184	0.1533189588
## GSK3B_N	-0.007459001	0.1634330421	0.034698727	0.2494168681
## JNK_N	0.294548100	-0.1362126180	0.103297260	0.0150750894
## MEK_N	-0.012747859	-0.0281404526	-0.005345726	-0.0006869985
## TRKA_N	-0.068866642	0.1145948257	-0.050293085	-0.0538409654
## RSK_N	-0.020051771	0.2579150771	0.004517933	-0.0719660802
## APP_N	-0.071895899	-0.0006749283	0.005689694	-0.0285717509
## Bcatenin_N	-0.027762743	-0.0135159420	0.026195785	-0.0672374021
## SOD1_N	0.142789092	-0.0618658903	-0.133184666	0.0198133492
## MTOR_N	-0.172648699	0.2119320540	-0.129016523	-0.2482021844
## P38_N	0.063558131	-0.2347857305	-0.067958651	0.2643529503
## pMTOR_N	0.286984350	-0.0847666150	0.053012002	-0.0170916993
## DSCR1_N	-0.117670530	-0.0186501622	-0.007686333	0.0211152644
## AMPKA_N	-0.086582037	-0.3073457449	-0.163047369	-0.1213568887
## NR2B_N	0.009190143	0.0676617166	-0.044672005	-0.0277389275
## pNUMB_N	0.195604014	-0.2170383253	-0.060357368	0.0340727676

## RAPTOR_N	-0.013569116	0.4656554392	0.437068975	-0.2070014856
## TIAM1_N	0.137119213	0.0877567608	-0.179659913	0.0574298371
## pP70S6_N	-0.134747372	-0.0724077477	0.123941886	0.1140712207
## NUMB_N	-0.015131760	0.0138948725	0.013569083	0.0171667333
## P70S6_N	0.050718048	0.1418029575	-0.023024018	-0.1591254716
## pGSK3B_N	0.008744498	-0.0379517442	-0.046939426	0.0613801633
## pPKCG_N	0.361047164	0.0832246293	-0.058422800	-0.1921705787
## CDK5_N	-0.001220003	0.0189653417	0.002184063	0.0282210278
## S6_N	-0.115556667	0.0538527519	0.002100829	-0.0080070332
## ADARB1_N	0.163223332	-0.0714695723	0.085095781	0.0003763954
## AcetylH3K9_N	0.030317101	0.0806322733	-0.165855526	-0.1151180468
## RRP1_N	-0.009765312	0.0194683681	-0.011684295	-0.0044742976
## BAX_N	-0.001535651	0.0594798932	0.011699442	0.0819625306
## ARC_N	0.009143308	0.0318117464	-0.024425840	-0.0192102861
## ERBB4_N	0.093312934	0.0187759189	-0.037282701	-0.0316235842
## nNOS_N	0.064298507	-0.0627015291	0.034703078	-0.0317782951
## Tau_N	-0.097622243	-0.1342538451	0.157947074	0.1270809809
## GFAP_N	0.062068177	-0.0311542919	0.003184858	-0.0355835453
## GluR3_N	-0.026893075	-0.0158530034	0.047366563	-0.0755505147
## GluR4_N	-0.001957714	0.0099751604	0.021441200	-0.0050941929
## IL1B_N	0.086414660	0.0675861602	-0.035509716	0.0170453650
## P3525_N	-0.008389567	-0.0186232271	0.022297808	0.0183047818
## pCASP9_N	-0.075197358	0.0152147096	0.002006583	0.0993389789
## PSD95_N	-0.037878974	-0.0224948955	0.014025472	0.0898099324
## SNCA_N	-0.044769865	0.0289444929	-0.005476096	0.0771735565
## Ubiquitin_N	-0.098060153	-0.0361822091	0.050626701	-0.0106708778
## pGSK3B_Tyr216_N	-0.090975435	-0.0620729247	-0.135174120	-0.0939378281
## SHH_N	-0.044868701	0.0650715258	0.045643728	0.0104517303
## BAD_N	0.001278160	-0.0229744781	0.012452102	0.0548822696
## BCL2_N	0.024972665	-0.0123587052	-0.017505390	-0.0557528836
## pS6_N	0.009143308	0.0318117464	-0.024425840	-0.0192102861
## pCFOS_N	-0.003319901	-0.0149619301	-0.015808469	-0.0206995202
## SYP_N	-0.033826620	-0.0376735739	-0.071061231	0.0013526241
## H3AcK18_N	-0.029408806	-0.0219034217	0.021078669	-0.0014933332
## EGR1_N	0.020237276	0.0149330726	-0.028292377	-0.0375042520
## H3MeK4_N	0.010021210	0.0092227667	0.008762890	-0.0061355104
## CaNA_N	0.123186988	-0.0363814387	0.092226741	-0.1883122727
##	PC69	PC70	PC71	PC72
## DYRK1A_N	-0.0048232520	-0.1359507984	0.039015757	0.180823795
## ITSN1_N	0.0610287837	0.0051484929	0.081189927	-0.014013767
## BDNF_N	0.1924498665	-0.0034063645	-0.057943669	0.086224708
## NR1_N	0.0131725991	0.1480736724	0.117655618	0.199738683
## NR2A_N	-0.0656175453	-0.0405200024	0.084123151	-0.176745124
## pAKT_N	-0.0586291256	0.0003468627	0.020459285	0.062036557
## pBRAF_N	-0.0330212069	0.1560426699	0.011262279	-0.057637480
## pCAMKII_N	-0.0500842866	0.0759928198	-0.033006261	-0.022233947
## pCREB_N	0.1330192331	0.0484084502	-0.081041413	0.053963253
## pELK_N	-0.0102633358	-0.0089055792	-0.003748430	0.034598035
## pERK_N	-0.1114820024	-0.0197265024	-0.048597169	0.022362788
## pJNK_N	0.0412226296	0.1337908921	0.028773626	0.208594261
## PKCA_N	-0.1993178446	-0.2033532701	-0.187659189	-0.025789704
## pMEK_N	0.0624473874	-0.1077541679	-0.104861068	-0.192269213
## pNR1_N	0.0477112559	0.1009843189	-0.168666248	0.068996897
## pNR2A_N	0.0836938706	-0.1864783003	-0.015322384	0.100738469

## pNR2B_N	-0.0087849800	-0.1301769532	-0.090609579	-0.217243283
## pPKCAB_N	0.2887684511	0.4252509175	0.211054623	-0.199834458
## pRSK_N	-0.0462976175	-0.0284969392	0.052582044	-0.023877701
## AKT_N	0.3437469985	-0.0483175603	-0.154122662	0.170158195
## BRAF_N	0.0081509211	0.1942805740	0.071702056	-0.036415088
## CAMKII_N	-0.2074094070	-0.1400796614	0.040845330	0.020794820
## CREB_N	0.0434059098	-0.0082744798	0.082035107	0.056086637
## ELK_N	-0.2857838640	-0.1807111476	0.150504446	-0.278471439
## ERK_N	-0.2498422226	-0.0755869500	0.493311984	0.046811053
## GSK3B_N	0.2301903331	-0.2289307064	-0.332496257	-0.239833254
## JNK_N	-0.1606262418	-0.0358326062	0.060677219	-0.033472977
## MEK_N	0.0394483117	0.0214188346	-0.025225713	0.031367396
## TRKA_N	-0.1653247792	0.2233727147	0.077934222	0.177617307
## RSK_N	0.0780926049	-0.0483382928	0.190663427	-0.250803321
## APP_N	0.0615628443	0.0241391661	-0.031048206	-0.029827615
## Bcatenin_N	0.0379415608	0.0846163839	-0.022497007	-0.036134296
## SOD1_N	-0.0402533491	0.0051544152	-0.004227033	-0.092312831
## MTOR_N	-0.0555888042	-0.1417284676	-0.036794765	-0.037514574
## P38_N	0.0066891920	-0.0011942137	0.161571020	-0.099179577
## pMTOR_N	0.0602948075	0.1363818300	0.049744230	-0.013131014
## DSCR1_N	-0.0652623257	-0.1163972164	-0.020657865	0.023408590
## AMPKA_N	-0.3061352848	0.2529823858	-0.363999339	0.215652996
## NR2B_N	0.0346422234	0.0023697709	-0.023738854	0.016418900
## pNUMB_N	0.3082906235	-0.1602914875	0.066339385	-0.097506678
## RAPTOR_N	0.0093625797	0.2028974348	0.079997207	0.026081415
## TIAM1_N	-0.0650763221	-0.0523906198	0.054604002	-0.003186090
## pP70S6_N	0.0453817230	-0.1057477204	0.089428511	0.122381255
## NUMB_N	0.0805437265	-0.0885468972	0.129273324	0.022750786
## P70S6_N	0.0565346122	0.0344179722	-0.044375593	0.056121677
## pGSK3B_N	0.0382812291	-0.0203316195	0.028849425	-0.022995114
## pPKCG_N	-0.1630844013	-0.0891463536	-0.123259049	-0.025304228
## CDK5_N	0.0225045145	-0.0198412191	-0.017995762	0.010271425
## S6_N	-0.1118684432	0.1023341514	-0.137303579	0.095057430
## ADARB1_N	-0.0150045213	-0.0631365402	0.012599986	0.002125841
## AcetylH3K9_N	0.1630786837	-0.2542591147	0.149735180	0.340317149
## RRP1_N	-0.0043661123	-0.0050444562	-0.011415365	0.006820105
## BAX_N	-0.0151285564	0.0846808193	0.006486152	-0.007864693
## ARC_N	0.0206101098	-0.0002246543	-0.014345760	0.032054929
## ERBB4_N	-0.0002780528	0.0259878482	-0.018139846	0.018891733
## nNOS_N	0.0555210300	-0.0852633983	0.071081483	-0.033618915
## Tau_N	-0.1082430545	0.2315761894	-0.118023662	-0.363097446
## GFAP_N	-0.0167672876	0.0197917569	-0.008081092	-0.018873715
## GluR3_N	-0.0060662454	-0.0002894733	0.046543976	-0.031664743
## GluR4_N	-0.0113602155	0.0021744047	-0.012036735	-0.006561517
## IL1B_N	0.0344911795	0.0677938802	0.063388792	-0.040512132
## P3525_N	0.0925547111	0.0232489452	-0.001783967	-0.044762956
## pCASP9_N	-0.1032661135	0.0354270014	-0.046177952	-0.024831632
## PSD95_N	0.0045668368	-0.0648254235	-0.016393326	-0.063960238
## SNCA_N	-0.0502377035	-0.0859580900	0.003753701	0.045638412
## Ubiquitin_N	-0.0307483633	0.0073816510	-0.008815795	-0.027360484
## pGSK3B_Tyr216_N	-0.0150438493	-0.0765996990	0.163631158	0.169954125
## SHH_N	-0.0335324171	0.0338981037	-0.051850320	-0.010781553
## BAD_N	-0.0190277356	-0.0035919249	0.009350856	0.017477220
## BCL2_N	0.0030553480	0.0104251746	-0.023782507	0.060470163



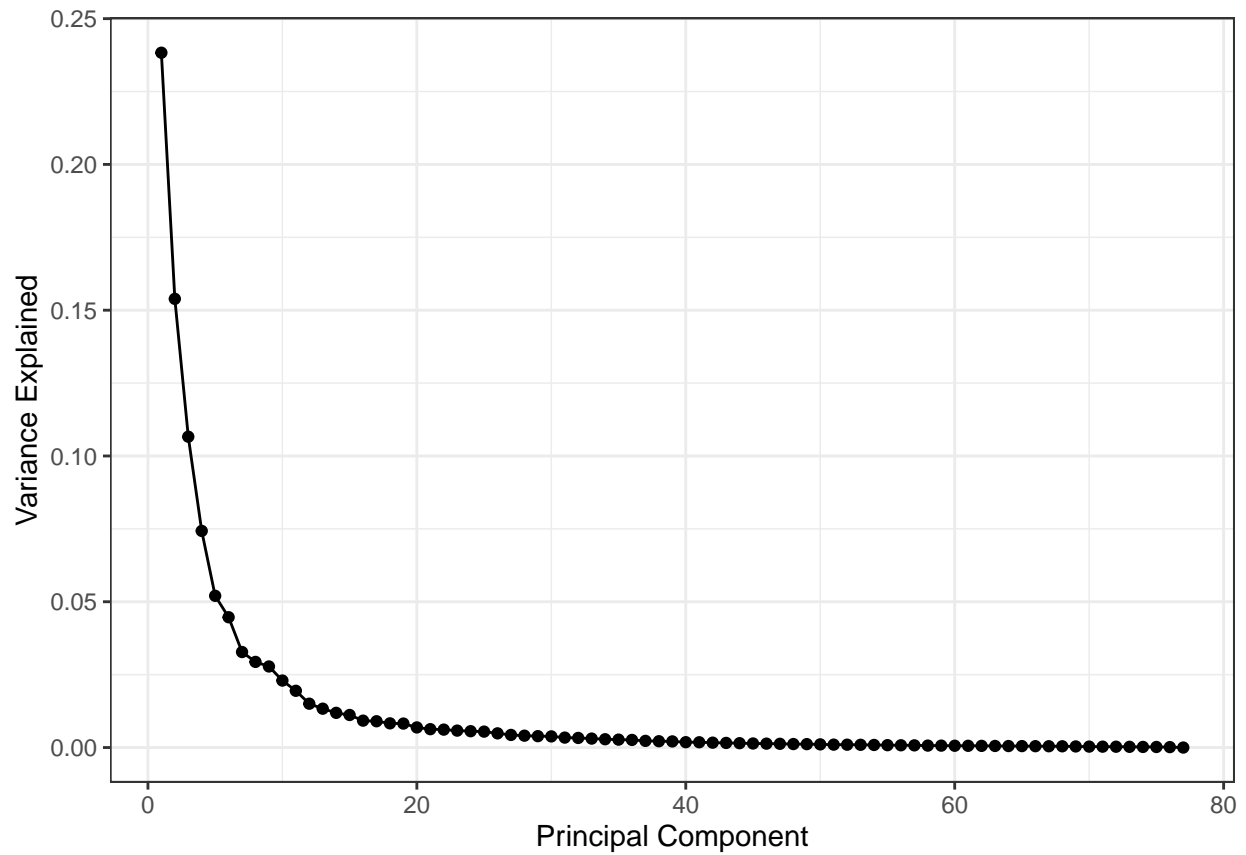
## pS6_N	0.0206101098	-0.0002246543	-0.014345760	0.032054929
## pCFOS_N	0.0526565694	0.0078521555	-0.001530557	-0.025463116
## SYP_N	0.0783660600	0.0408810461	-0.085019628	0.007172522
## H3AcK18_N	-0.0098634803	0.0366114956	-0.040520074	-0.058703189
## EGR1_N	0.0193585022	0.0055660468	0.012838575	-0.043060764
## H3MeK4_N	-0.0034242683	0.0097691487	-0.004819948	0.025749603
## CaNA_N	-0.1143390259	-0.0824216217	-0.184601897	0.112734817
##	PC73	PC74	PC75	PC76
## DYRK1A_N	0.183312780	0.215788896	-0.6597984705	0.1888966818
## ITSN1_N	-0.029815981	-0.114580104	0.2134747216	-0.7125866109
## BDNF_N	0.065183156	-0.039933646	0.0447096626	-0.0150580283
## NR1_N	0.090711997	-0.667395151	-0.2028762345	0.0532888618
## NR2A_N	0.065570471	-0.094662809	0.0116417276	-0.0201616895
## pAKT_N	0.002266150	-0.015831970	-0.0315329395	-0.0047105001
## pBRAF_N	-0.017510748	-0.027847793	-0.0250340817	0.0025066071
## pCAMKII_N	0.100130824	0.079876413	0.0261956466	-0.0493520272
## pCREB_N	0.100196444	0.032061598	0.0211950805	-0.0178994741
## pELK_N	-0.023153629	0.029744820	-0.0095749640	-0.0158230099
## pERK_N	-0.058863124	-0.049316957	0.0641518808	-0.1879334955
## pJNK_N	0.341825160	0.011614545	0.0499444939	-0.0197918425
## PKCA_N	-0.096366996	-0.086447333	0.0276185062	0.0412222254
## pMEK_N	-0.021989496	0.007672989	0.0041031780	0.0199783589
## pNR1_N	-0.116074934	0.513126486	0.1387699611	-0.0720845253
## pNR2A_N	-0.272485668	-0.091545274	-0.0650256005	0.0758911075
## pNR2B_N	0.457279328	-0.061538123	0.1683675811	0.0431445753
## pPKCAB_N	0.054822864	0.101912405	-0.1196961278	-0.0155780685
## pRSK_N	0.004381422	0.036700664	-0.0006428412	-0.0230532760
## AKT_N	-0.087056066	0.007961753	0.0352545425	0.0212418804
## BRAF_N	-0.069101000	-0.057916847	0.5072539885	0.5878237203
## CAMKII_N	-0.048936162	0.083392655	-0.0045731818	-0.0438110887
## CREB_N	0.028262161	-0.071378774	-0.0324814773	0.0335094564
## ELK_N	-0.124352787	-0.098134450	-0.0701374358	0.0357198841
## ERK_N	0.195733688	0.267965472	0.0567213624	0.0156092678
## GSK3B_N	0.059486350	0.058286834	-0.1462316862	0.0676769108
## JNK_N	-0.102684064	-0.045991990	-0.0155002292	-0.0351645843
## MEK_N	0.014251940	-0.001362423	0.0049560351	-0.0089562884
## TRKA_N	-0.483284079	0.105711710	-0.1128290828	-0.0025028332
## RSK_N	0.006264530	0.017951043	-0.0610844642	-0.0357133995
## APP_N	-0.001978868	0.051372406	0.0300671093	0.0721120399
## Bcatenin_N	-0.063352216	0.004525403	0.0074027854	0.0382005480
## SOD1_N	0.061822128	-0.012330679	-0.0061471481	0.0013881485
## MTOR_N	0.016397234	-0.042815447	0.0704174623	-0.0052195729
## P38_N	0.052618507	0.100524935	-0.0127976167	0.0165555046
## pMTOR_N	-0.110298501	-0.019129814	-0.0340564789	-0.0334249469
## DSCR1_N	0.034931124	-0.014237110	0.0289688540	0.0235484987
## AMPKA_N	0.111469498	0.019832931	0.0141600061	-0.0301949190
## NR2B_N	0.021203475	0.022064337	-0.0076439907	-0.0226403871
## pNUMB_N	-0.240402580	-0.085298809	-0.0147641672	0.0224293549
## RAPTOR_N	0.167989297	0.022404890	-0.0533691184	-0.0699611340
## TIAM1_N	-0.124936238	-0.022232663	0.0358956810	0.1179578783
## pP70S6_N	-0.031671963	0.006465587	-0.0337317249	-0.0265500080
## NUMB_N	0.089227681	0.068684930	0.0797058747	0.0502180658
## P70S6_N	-0.003013648	-0.071012575	-0.0227685412	-0.0029787575
## pGSK3B_N	0.032128563	0.052585831	0.0175439729	0.0013131282

## pPKCG_N	0.043620371	-0.046637504	0.1072089016	0.0100539148
## CDK5_N	0.018670966	-0.007175752	0.0121314337	0.0064304831
## S6_N	0.067440868	-0.031744410	-0.0310214556	0.0407292231
## ADARB1_N	0.030869206	0.015954375	0.0097808006	-0.0184492677
## AcetylH3K9_N	0.045656952	0.034479396	0.1448051594	-0.0043251020
## RRP1_N	0.014339113	0.003734968	0.0050619386	-0.0150202466
## BAX_N	-0.077987153	0.003076594	-0.0339576629	-0.0074631285
## ARC_N	-0.007492416	-0.010424493	0.0116251691	0.0011393267
## ERBB4_N	-0.001414439	-0.010804766	-0.0065416996	0.0183862016
## nNOS_N	-0.023426153	0.037394473	0.0034953612	0.0003320325
## Tau_N	-0.048980774	-0.044696827	-0.1542265260	-0.0039824683
## GFAP_N	-0.009458125	-0.014379363	-0.0041577298	-0.0134162607
## GluR3_N	-0.007934860	0.010229023	0.0040138395	-0.0042777358
## GluR4_N	0.003450231	-0.005920972	-0.0037675761	0.0010071934
## IL1B_N	0.020223757	-0.048848872	-0.0054668295	0.0346094848
## P3525_N	0.026334606	-0.004576685	0.0016372145	-0.0217215844
## pCASP9_N	0.010355029	0.052476668	-0.0401586128	-0.0045550882
## PSD95_N	-0.007352388	0.071554095	0.0050672307	-0.0266183606
## SNCA_N	-0.013666481	0.024052676	-0.0119666851	0.0037530912
## Ubiquitin_N	0.002409406	-0.007458889	-0.0081039840	0.0159630564
## pGSK3B_Tyr216_N	-0.021601555	-0.049826348	0.0841510468	0.0332293743
## SHH_N	0.003543786	0.031835745	-0.0265497057	-0.0204851561
## BAD_N	0.013736207	-0.005070035	0.0024427654	0.0128223028
## BCL2_N	0.002228801	0.010067641	0.0205442950	-0.0091889419
## pS6_N	-0.007492416	-0.010424493	0.0116251691	0.0011393267
## pCFOS_N	0.032584383	-0.001426629	0.0085843988	-0.0097262113
## SYP_N	-0.042710591	0.017913277	-0.0081544946	-0.0024590583
## H3AcK18_N	-0.003784710	-0.025443989	-0.0343382411	-0.0003838182
## EGR1_N	0.015862280	-0.011290590	-0.0122727748	-0.0164997228
## H3MeK4_N	0.013244125	0.036694738	0.0274110250	-0.0207141467
## CaNA_N	0.084268403	-0.031678441	0.0340812028	-0.0073301284
##	PC77			
## DYRK1A_N	2.239716e-16			
## ITSN1_N	-2.326312e-16			
## BDNF_N	7.026698e-17			
## NR1_N	3.322747e-16			
## NR2A_N	5.649209e-17			
## pAKT_N	3.735118e-16			
## pBRAF_N	5.012670e-17			
## pCAMKII_N	1.637287e-17			
## pCREB_N	8.662082e-18			
## pELK_N	-1.537313e-16			
## pERK_N	5.253249e-18			
## pJNK_N	1.560715e-16			
## PKCA_N	3.885998e-17			
## pMEK_N	-1.670076e-16			
## pNR1_N	-3.690804e-16			
## pNR2A_N	6.510159e-17			
## pNR2B_N	7.872344e-17			
## pPKCAB_N	-2.444294e-16			
## pRSK_N	-1.568335e-16			
## AKT_N	1.840151e-16			
## BRAF_N	6.640450e-17			
## CAMKII_N	1.196744e-16			

## CREB_N	-9.335564e-17
## ELK_N	-5.605232e-17
## ERK_N	-2.833675e-17
## GSK3B_N	-2.831890e-16
## JNK_N	-2.039692e-16
## MEK_N	1.097281e-16
## TRKA_N	1.555244e-16
## RSK_N	-6.980244e-17
## APP_N	-4.565971e-17
## Bcatenin_N	-5.249342e-17
## SOD1_N	-6.436241e-17
## MTOR_N	4.227418e-17
## P38_N	-1.023801e-16
## pMTOR_N	1.310922e-16
## DSCR1_N	-1.287892e-16
## AMPKA_N	2.629937e-16
## NR2B_N	9.481126e-17
## pNUMB_N	-2.982206e-16
## RAPTOR_N	-3.904256e-17
## TIAM1_N	1.483523e-16
## pP70S6_N	9.934197e-17
## NUMB_N	-3.377675e-16
## P70S6_N	2.171718e-16
## pGSK3B_N	-4.244459e-17
## pPKCG_N	-1.613032e-16
## CDK5_N	5.471228e-17
## S6_N	2.244897e-16
## ADARB1_N	7.564856e-17
## AcetylH3K9_N	1.402270e-16
## RRP1_N	5.306947e-17
## BAX_N	1.699149e-16
## ARC_N	7.071068e-01
## ERBB4_N	-4.119021e-17
## nNOS_N	-1.688864e-16
## Tau_N	3.513125e-17
## GFAP_N	-6.353425e-17
## GluR3_N	1.430280e-17
## GluR4_N	1.255339e-17
## IL1B_N	6.155550e-17
## P3525_N	-6.237051e-17
## pCASP9_N	9.682764e-17
## PSD95_N	4.205310e-17
## SNCA_N	1.094644e-16
## Ubiquitin_N	-1.794305e-16
## pGSK3B_Tyr216_N	2.062871e-16
## SHH_N	5.709740e-17
## BAD_N	6.575833e-17
## BCL2_N	-6.292332e-17
## pS6_N	-7.071068e-01
## pCFOS_N	-3.079958e-17
## SYP_N	5.073638e-17
## H3AcK18_N	-7.288421e-17
## EGR1_N	-4.967085e-17
## H3MeK4_N	3.086126e-17

```
## CaNA_N -3.027586e-17
```

```
var <- (pc$sdev ** 2) / sum(pc$sdev ** 2)
qplot(c(1:77), var) +
  geom_line() +
  xlab("Principal Component") + ylab("Variance Explained") +
  theme_bw()
```



```
var[10]
```

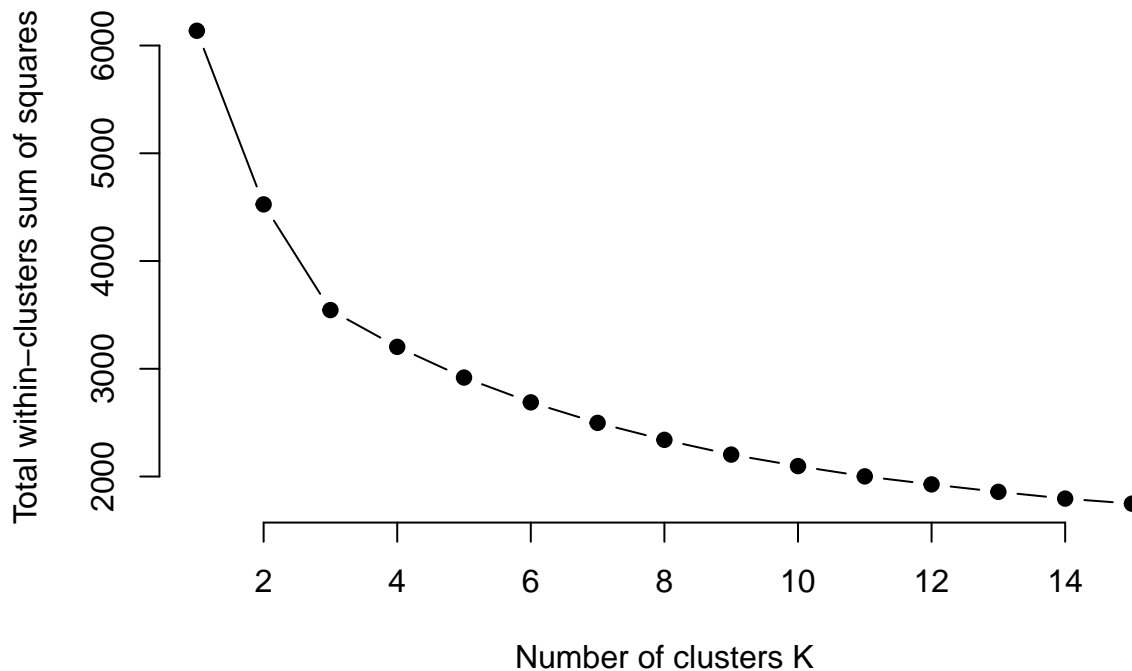
```
## [1] 0.02297464
```

9.

```
set.seed(123)
k.max <- 15
wss <- sapply(1:k.max,
  function(k){kmeans(mice1, k, nstart=50, iter.max = 15 )$tot.withinss})
wss
```

```
## [1] 6137.117 4525.696 3544.630 3203.327 2918.556 2688.363 2497.656 2340.216
## [9] 2203.363 2096.738 2001.308 1927.038 1857.727 1794.940 1748.105
```

```
plot(1:k.max, wss,
     type="b", pch = 19, frame = FALSE,
     xlab="Number of clusters K",
     ylab="Total within-clusters sum of squares")
```



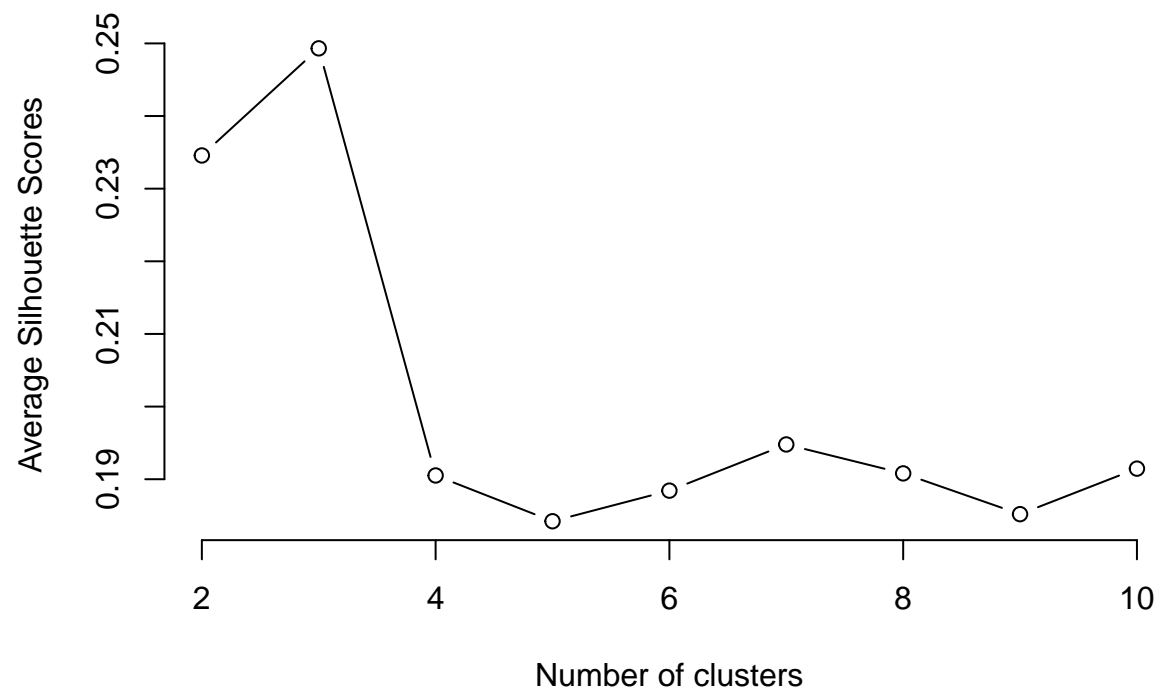
The elbow method shows that  $k = 3$ .

10.

```
library("cluster")
```

```
## Warning: package 'cluster' was built under R version 4.1.2
```

```
silhouette_score <- function(k){
  km <- kmeans(mice1, centers = k, nstart=25)
  ss <- silhouette(km$cluster, dist(mice1))
  mean(ss[, 3])
}
k <- 2:10
avg_sil <- sapply(k, silhouette_score)
plot(k, type='b', avg_sil, xlab='Number of clusters', ylab='Average Silhouette Scores', frame=FALSE)
```

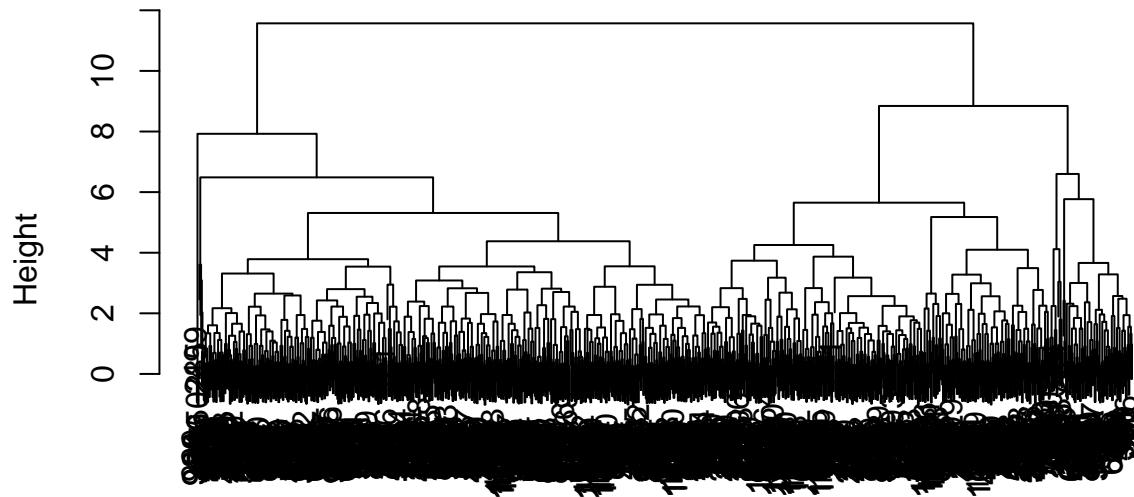


The silhouette method shows that  $k = 3$ .

11.

```
clusters <- hclust(dist(mice1))  
plot(clusters)
```

## Cluster Dendrogram



```
dist(mice1)  
hclust (*, "complete")
```