

## SUPPLEMENTAL MATERIALS

### **Inhibition of homeodomain-interacting protein kinase 2 (HIPK2) alleviates thoracic aortic disease in mice with progressively severe Marfan syndrome**

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## Major Resources Table

In order to allow validation and replication of experiments, all essential research materials listed in the Methods should be included in the Major Resources Table below. Authors are encouraged to use public repositories for protocols, data, code, and other materials and provide persistent identifiers and/or links to repositories when available. Authors may add or delete rows as needed.

### Genetically Modified Animals

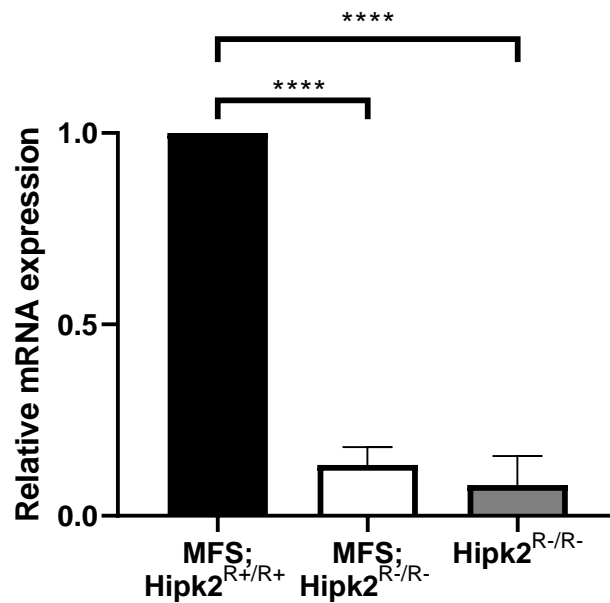
	Species	Vendor or Source	Background Strain	Other Information
Parent - Male	Rodent	The Jackson Laboratory	C57BL/6j;129T2/SvEmsJ	Stock# 004847

### Antibodies

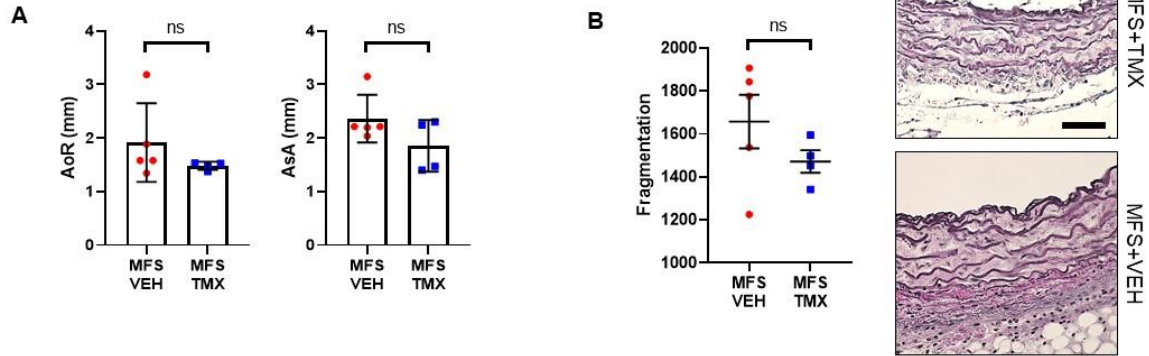
Target antigen	Vendor or Source	Catalog #
Smad3	Cell Signaling	3108
p-Smad3	Abcam	Ab52903
GAPDH	Cell Signaling	6383S

Supplemental Material: Figures

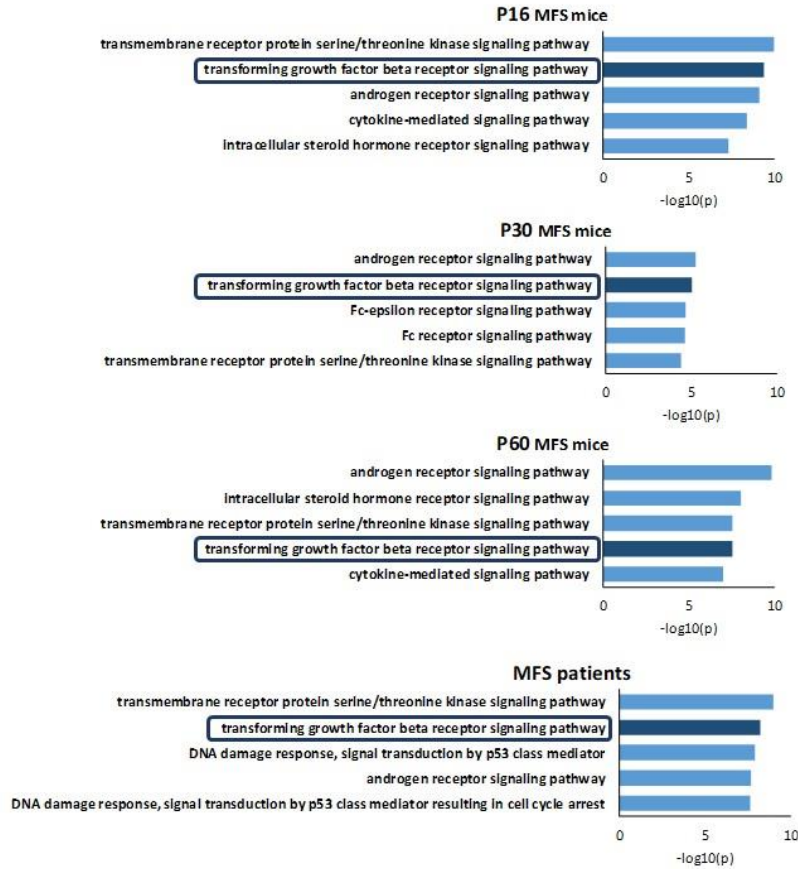
Supp. Fig. I



**Supplemental Figure I: Cre-directed *Hipk2* recombination.** Bar graphs summarize q-PCR estimates of *Hipk2* transcript levels in the ascending aorta of 3-month-old vehicle (VEH)-or tamoxifen (Tmx)-treated  $Hipk2^{R-/R-}$  and  $Fbn1^{mgR/mgR};Hipk2^{R-/R-}$  mice (n=3 per genotype and treatment). Data quantification is shown below with average WT value normalized to 1. 2 × 2 Factorial ANOVA to test for interaction followed by main effect comparisons by CONTRAST statements were employed to determine statistically significant differences which are indicated by asterisks (\*\*\*\* $p$ <0.0001). Error bars indicate means ± SD



**Supplemental Figure II: Tamoxifen effects on TAAD progression in MFS mice.** (A) Diameters of the aortic root (AoR) and proximal ascending aorta (AsA) and (B) degree of elastic fiber fragmentation (illustrated in the representative images on the right; scale bar: 50 μm) in 3-month-old MFS mice injected with vehicle (VEH) or tamoxifen (TMX) for 5 consecutive days soon after birth. Data are presented as mean ± SD. The Wilcoxon Rank sum test compared the two groups with no statistically significant differences found.



**Supplemental Figure III: Predicted DEG-associated signaling pathways.** Top 5 predictions of signaling pathways associated with X2K regulatory subnetworks derived from the mouse and human data sets with highlighted TGFβ receptor signaling pathway.

	P16 HIPK2	P30 HIPK2	P60 HIPK2	Patients HIPK2
AR				
ASXL1				
CAV1				
CEBPB				
CHD8				
CHUK				
CITED1				
FOS				
FOXH1				
GATA1				
HDAC4				
HIF1A				
HIPK2				
JUN				
MAPK8				
MDM4				
MECP2				
MYC				
NCOR1				
NFKB1				
PARP1				
PAX6				
PHF1				
PML				
RCHY1				
RELA				
RUNX1				
SIAH2				
SIN3A				
SIN3A PARP1				
SKI				
SIRT1				
SMAD1				
SMAD2				
SMAD3				
SMAD4				
SMURF1				
SUMO1				
TLE1				
TP53				
TP63				
TRIM28				

Supp. Fig. IV

**Supplemental Figure IV: Predicted HIPK2-targeted subnetwork components.** All potential HIPK2 targets in both human and mouse MFS aortas are listed; blue frame highlights the Smad3 protein.





























































































<b>NCBI gene symbol</b>	<b>P-value</b>	<b>Q-value</b>
1190005I06RIK	0.00117165	0.0431344
2900055J20RIK	2.47423E-05	0.00182177
6030408B16RIK	0.000568793	0.0249837
ABR	1.31571E-08	2.50141E-06
ACAN	5.70783E-07	7.41901E-05
ACTA1	3.76967E-05	0.00259557
ACTR3B	9.880979E-13	4.66163E-10
ADAMTS17	3.23075E-12	1.41908E-09
ADAMTSL3	2.44522E-07	3.53945E-05
ADGRD1	1.06013E-05	0.000937776
ADRA1B	2.05478E-05	0.00160576
AGAP2	0.000225686	0.0112737
AGPAT4	0.000112256	0.00611075
AGT	0.00038069	0.0175697
AKAP5	3.80016E-10	1.0757E-07
ALDH3A1	5.00877E-10	1.38699E-07
ALOX5	0.000217585	0.0109118
ALOX5AP	0.000154797	0.00808117
ANGPT2	6.53861E-09	1.34337E-06
ANGPTL1	0.000348448	0.016439
ANGPTL7	1.58159E-05	0.00129143
APOL10A	0.000891205	0.0352552
APOL9A	8.87496E-05	0.00506947
AQP11	0.000245568	0.0121714
ARC	0.00066222	0.0279317
ARHGAP26	1.87361E-05	0.00150101
ARMC3	0.000118423	0.00633813
ART3	0	0
ATP10B	6.85674E-13	3.79744E-10
B4GALNT3	2.75469E-09	6.26593E-07
BAHCC1	0.000718448	0.0296168
BC067074	0.00100562	0.0387928
BLNK	0.000919794	0.0361615
BMPR1B	0	0
BPGM	1.07476E-05	0.000944158
C5AR1	0.00115461	0.0427541
CACNA1G	3.11638E-09	6.84422E-07
CAMK2B	6.01519E-10	1.53243E-07
CCBE1	0.000165267	0.00859254
CCDC24	0.000603236	0.0261361
CCDC88C	1.69909E-12	7.72962E-10
CCK	0.000103556	0.00572606
CCL27A	6.9906E-06	0.000684971
CCL6	0	0
CCL9	0.00038308	0.0176162



CCR9	4.45491E-08	7.77352E-06
CD209F	0.000204035	0.010396
CD3D	0.000361775	0.0168802
CD3E	0.000795376	0.0321635
CD3G	1.04528E-06	0.000128026
CD84	0.00103968	0.0396511
CD8B1	1.28562E-08	2.50141E-06
CHAD	1.01214E-05	0.000901585
CHIL3	0.00039207	0.0179647
CHRDL1	1.04016E-10	3.75593E-08
CILP	6.54548E-07	8.23227E-05
CLDN3	3.04162E-07	4.23144E-05
CLEC1A	0.000323768	0.0154463
CLEC4A2	8.59692E-05	0.00493277
CLEC4A3	4.21285E-11	1.67698E-08
CLMP	0.00110812	0.0413691
CNTN2	0.00053357	0.0237644
COL19A1	5.0406E-06	0.00052201
COL27A1	0	0
COL6A6	2.80467E-05	0.00201841
CP	9.4514E-06	0.000859942
CREM	2.22045E-15	1.76775E-12
CRHR2	2.29707E-05	0.00174167
CTHRC1	9.07496E-13	4.44603E-10
CXCL3	0.000818571	0.0328926
CXXC4	1.36902E-06	0.000159987
DAPK2	8.16716E-05	0.00481132
DGKG	1.07583E-09	2.58565E-07
DHRS9	0.000189461	0.00973126
DLGAP1	6.4229E-09	1.34123E-06
DLL1	9.73394E-05	0.0054382
DMC1	1.19751E-07	1.83782E-05
DNAJC17	8.04448E-06	0.00074796
DNTT	1.63989E-11	6.96297E-09
DOK2	6.56901E-05	0.00408176
DPEP1	0.000585786	0.0255793
DPEP2	1.44327E-05	0.00120159
DPP10	6.59202E-07	8.23227E-05
DUOXA1	2.45038E-05	0.00182116
DYSF	1.33176E-05	0.00111605
EFHD1	0.000682469	0.0284856
EHD4	1.91564E-08	3.53644E-06
EPHA1	0.000342183	0.0162035
EPHB6	0.000844942	0.0338455
ESM1	0.000154542	0.00808117
ETV1	7.55825E-06	0.000723887
F13A1	0.000327092	0.0155466

F830016B08RIK	2.4591E-05	0.00182116
FAIM2	1.37239E-07	2.05664E-05
FAM169B	0.000132626	0.00703914
FAM198A	2.36369E-05	0.00178158
FAM46B	1.30866E-06	0.000155792
FAM65B	1.92328E-05	0.00152166
FBLN1	3.4163E-06	0.000371939
FBLN7	1.72144E-05	0.00138783
FBN1	0.000115202	0.006218
FBXL22	0.000184521	0.00951592
FCGR2B	1.20741E-05	0.00104129
FCNA	1.23738E-07	1.8764E-05
FECH	0.00108546	0.0410283
FKBP5	2.16237E-05	0.0016603
FMO3	6.46649E-06	0.000643517
FOLH1	0.000256408	0.0125198
FOXO6	1.12045E-06	0.000135807
FRYL	2.61196E-05	0.00191214
FST	2.90585E-08	5.28782E-06
GABRQ	9.56462E-05	0.00537423
GATM	0.000114466	0.00620456
GBP6	3.67089E-06	0.00039627
GBP8	2.60032E-09	6.02234E-07
GCNT4	7.38139E-05	0.00445612
GDA	0.000492475	0.0220886
GDF10	5.54567E-05	0.00356772
GFRA2	7.24728E-05	0.00441702
GIPC2	8.2187E-05	0.00481132
GM28042	7.28084E-13	3.86431E-10
GM4532	0.000979014	0.0379048
GM5820	1.87361E-05	0.00150101
GM5859	0.000968354	0.0377214
GPNMB	5.47026E-06	0.000561937
GPR176	0.000807018	0.032531
GPR35	4.24518E-05	0.00283116
GRB14	8.30097E-05	0.00482821
GRCC10	0.000101945	0.00567062
GRIA4	2.83994E-06	0.000314567
GRP	0.00101108	0.0387928
GRTP1	0.000749406	0.0305959
GSTM1	0.000154485	0.00808117
GXYLT2	6.31666E-06	0.000633556
H2-Q4	8.46905E-06	0.00078173
H2-Q6	3.35011E-08	6.01038E-06
HDAC9	0.000716181	0.0296168
HHIPL1	1.44732E-08	2.71116E-06
HMCN2	1.48284E-05	0.00121861

HSPA1A	0.000539569	0.0239478
IGF1	3.38903E-10	1.00394E-07
IGSF9	5.70153E-11	2.20079E-08
IIGP1	4.12803E-07	5.53504E-05
ILDR2	2.27121E-06	0.000253778
ISG20	1.11022E-15	9.42801E-13
ITGAM	1.20312E-10	4.142E-08
ITGB2	0.000432008	0.0196533
JPH4	6.3758E-10	1.59245E-07
KANK4	4.77774E-05	0.00313545
KCNJ15	0	0
KCTD16	2.67554E-07	3.82933E-05
KHK	0.00133693	0.0479714
KIF26B	0.000481371	0.021821
KRT18	6.72131E-05	0.00413741
LAMA3	9.57725E-05	0.00537423
LAMC2	5.1237E-09	1.08776E-06
LAPTM5	3.79191E-07	5.13844E-05
LAT	0.000489154	0.0220171
LBH	0.000211892	0.0107106
LCK	7.24576E-06	0.000699216
LCLAT1	0.00102664	0.0392714
LCN8	0.000888761	0.0352552
LCP1	1.20985E-05	0.00104129
LIFR	0.000408897	0.0186686
LILR4B	2.16368E-05	0.0016603
LILRB4A	1.63257E-05	0.00132457
LMCD1	0.00137079	0.0490482
LMNTD1	2.63258E-05	0.00191621
LMO7	8.52651E-14	5.43054E-11
LOXL1	0.00100967	0.0387928
LPAR1	3.34406E-05	0.00234048
LRRC17	1.26568E-05	0.00107603
LRRC75B	0.00121308	0.0440235
LRRC8B	6.03728E-05	0.00386446
LRTM2	0.000724207	0.0296718
LSP1	1.99917E-10	6.36636E-08
LY6D	4.14006E-06	0.000435836
LYPD1	0.000548891	0.024193
LYVE1	0.000264377	0.0128536
LYZ1	2.0065E-06	0.000226184
LYZ2	2.09676E-05	0.00162857
MAF	6.56713E-05	0.00408176
MAGI1	3.56569E-10	1.03227E-07
MARCH1	0.000234442	0.0116653
MCTP1	0.00139879	0.0499096
MDFI	0.000105958	0.00581633

MDGA1	3.05986E-05	0.00216536
MEG3	5.87636E-10	1.52761E-07
METTL20	2.93822E-05	0.00210078
MFAP4	4.95159E-13	2.86697E-10
MGAT5B	1.30746E-08	2.50141E-06
MKRN1	7.19425E-14	4.82317E-11
MLXIPL	8.21565E-15	5.81394E-12
MPPED2	3.7588E-05	0.00259557
MRGPRF	0.000656596	0.0277864
MS4A6D	0.000623954	0.0266807
MTMR7	9.03892E-05	0.00513648
MUM1L1	2.95211E-05	0.00210078
MYB	4.24326E-06	0.000443038
MYLK2	1.0615E-10	3.75593E-08
NCAM1	0.000213356	0.010742
NDRG1	4.01041E-06	0.000425705
NECAB1	0.000705527	0.0292736
NFAT5	6.28139E-06	0.000633556
NGP	0.00108906	0.0410427
NLRC5	8.55589E-06	0.000784064
NOTCH3	0.000314246	0.0151051
NOV	1.36497E-06	0.000159987
NPAS4	0.000959391	0.0374869
NPPA	0	0
NPR3	9.05884E-09	1.83161E-06
NPTX2	4.73791E-08	8.15561E-06
NPY1R	0.000251681	0.012378
NR2F2	0	0
NR4A1	4.11231E-05	0.00275698
NRG1	3.87771E-05	0.00262918
NSG2	2.66195E-05	0.00192659
NTN4	0.000958873	0.0374869
NXPH1	0.0011657	0.0430397
OLFR328	1.26921E-05	0.00107603
OLFR329-PS	0.000978988	0.0379048
OLFR330	0	0
OPTC	0.000650421	0.0276169
OSR1	0.000197968	0.0101274
P2RX1	1.91684E-06	0.000218006
PALLD	0	0
PAQR6	1.1151E-07	1.73222E-05
PDE4B	0.000371055	0.01725
PDLIM4	1.89376E-05	0.00150767
PDZRN4	0.000544607	0.0240875
PIPOX	0.000248737	0.0122807
PIRA2	0.000675702	0.0284062
PKDCC	0	0

PLA1A	0.000886551	0.0352552
PLA2G7	9.42438E-08	1.50068E-05
PMEPA1	5.30313E-07	6.96405E-05
PNCK	6.98033E-07	8.63256E-05
PODXL2	3.40301E-06	0.000371939
PPFIBP2	8.23416E-05	0.00481132
PPP1R1B	4.08562E-13	2.47822E-10
PREX2	0.0010964	0.0411537
PRSS12	7.72222E-05	0.00459652
PRSS23	7.90604E-06	0.000740494
PSMB8	0.00108137	0.0409955
PTGFR	1.99073E-05	0.0015653
PTGIR	0	0
PTPRZ1	8.58574E-05	0.00493277
RAB17	3.05615E-07	4.23144E-05
RCOR2	9.42487E-08	1.50068E-05
RGS17	8.81961E-13	4.44603E-10
RGS2	3.41647E-09	7.37609E-07
RLTPR	0.00111071	0.0413691
RPA1	2.42589E-05	0.00181771
S100A8	7.05774E-06	0.000686271
S100A9	1.60274E-10	5.2348E-08
SELPLG	0.00025653	0.0125198
SEMA3E	7.78521E-06	0.000738
SEMA4G	2.84044E-07	4.02017E-05
SEPT1	0.000979014	0.0379048
SERPINB8	0.00124948	0.0450875
SKAP1	0.000313862	0.0151051
SLC11A1	0.000268319	0.0129956
SLC15A2	1.13012E-06	0.000135807
SLC16A10	6.45234E-05	0.00406881
SLC22A3	9.78765E-06	0.00088422
SLC25A23	1.01175E-05	0.000901585
SLC35G1	5.86834E-08	9.70792E-06
SLC37A1	4.55924E-05	0.0030091
SLC43A3	6.72354E-05	0.00413741
SLC6A2	0.00118779	0.043368
SLC7A2	5.84762E-06	0.000595896
SLIT3	7.82148E-06	0.000738
SMAD7	3.86156E-05	0.00262918
SMIM5	0.000684298	0.0284856
SMOC1	6.80284E-06	0.000671741
SNCG	0.00010384	0.00572606
SNRK	4.7999E-05	0.00313544
SPARCL1	7.45642E-05	0.00448018
SPRY4	0.000374103	0.0173284
SRPX2	2.24611E-05	0.00171323

STEAP4	6.53785E-05	0.00408176
STK38L	0.000868085	0.0346635
TAL2	0.00123448	0.0446728
TANC2	0.00014445	0.00763488
TCEA3	5.83097E-07	7.50251E-05
TCEAL3	0	0
TCF7	0	0
TDRD7	0.000618824	0.0266303
TGTP1	2.68096E-10	8.32928E-08
TGTP2	4.71772E-07	6.25983E-05
THEMIS	3.83965E-06	0.000411004
THY1	0.000207563	0.0105336
TIAM1	1.04646E-07	1.64566E-05
TIMM50	0.00107347	0.0408177
TMEM106A	9.96298E-09	1.98294E-06
TMEM120A	0.000352265	0.0165578
TMEM132E	0.000914598	0.0360686
TMEM141	9.07291E-05	0.00513648
TMEM215	5.61919E-08	9.41807E-06
TMEM26	0.000120037	0.00639764
TMEM35	1.7746E-06	0.000203647
TMEM52	3.51984E-07	4.82105E-05
TNFSF13B	0.00128245	0.0461466
TNNI1	0.00109847	0.0411537
TNNT1	1.55795E-10	5.2224E-08
TNNT3	1.39643E-09	3.29402E-07
TPD52L1	3.53361E-05	0.00245962
TREM2	0.00119504	0.0434926
TRIL	0.000724441	0.0296718
TRIM7	7.84917E-05	0.00465036
TRNP1	6.79758E-05	0.00416287
TUBB4A	7.52166E-05	0.00449816
TUFT1	0.000586369	0.0255793
TULP1	6.39936E-07	8.15151E-05
TYRO3	0	0
UCMA	5.22275E-05	0.00337702
UPB1	2.23332E-07	3.30791E-05
UTS2R	3.8804E-05	0.00262918
VIPR2	0.000487679	0.0220171
VTCN1	0.00112096	0.0416292
WISP1	6.3055E-05	0.00400094
WNT2	3.03667E-09	6.78615E-07
WTIP	0.000786101	0.0318897
XPNPEP1	0.000681924	0.0284856
ZCCHC18	8.55081E-05	0.00493277
ZIM1	4.83462E-05	0.00314201
1190005I06RIK	0.000169618	0.0069431

1810011H11RIK	0.00144397	0.0369348
9330159F19RIK	0.000245807	0.00920251
A530064D06RIK	0.000210951	0.0081442
ACAN	9.658579E-10	2.14747E-07
ACBD4	5.2514E-11	1.52389E-08
ACO2	0.00116062	0.0311768
ACTA1	7.51122E-08	1.05276E-05
ACTG1	0.000924592	0.0261659
ADAMTS17	0.000681336	0.0207149
ADAMTSL2	1.03892E-08	1.76902E-06
ADAP2	2.32363E-11	7.11008E-09
ADIPOQ	1.42513E-10	3.79687E-08
ADORA2B	0.000416223	0.0138465
AGAP2	0.00148974	0.037738
AI662270	2.40883E-08	3.84728E-06
AKNAD1	0.000970775	0.0272249
ALOX5AP	6.69541E-05	0.00335013
ANGPT2	0.000237357	0.00896762
ANGPTL7	0.000745823	0.0222594
ANK1	0.00156839	0.0392271
ANKRD1	0.000330009	0.0115648
APOBEC1	0	0
ARG1	3.0378E-08	4.68246E-06
ARHGAP30	7.79354E-06	0.000562027
ARHGAP9	1.45217E-05	0.000919657
ARL4A	5.40632E-07	5.83184E-05
ASPA	5.62827E-06	0.000424766
ATF3	0.000153571	0.00640933
ATP10B	0.000854833	0.0247134
ATP6V0A4	0.0018917	0.0453025
ATP8B4	8.45856E-06	0.00059615
ATRX	0.0003896	0.0131426
AURKB	0.000409069	0.0136969
AVPR1A	7.47884E-06	0.000546415
B4GALNT1	0.000687158	0.020815
B4GALT5	5.5405E-11	1.60027E-08
BB218582	0.000520263	0.0166619
BC029214	9.94071E-06	0.000677437
BIRC5	3.85845E-06	0.000312385
BMPR1B	9.35161E-09	1.61459E-06
C1QA	0.000411704	0.0137628
C1QB	2.12591E-05	0.00126106
C1QC	3.9505E-05	0.00213818
C3AR1	2.74594E-07	3.33451E-05
C4B	0.00118491	0.0317054
C530008M17RIK	0.000188522	0.00751292
C6	0.00118761	0.0317501

C7	1.31939E-12	5.26138E-10
CACNA1G	7.88862E-09	1.38916E-06
CAR3	0.00143668	0.0368291
CASK	1.40572E-08	2.34832E-06
CCBE1	0.00013585	0.00582711
CCDC141	0.00033638	0.0117314
CCDC28A	2.9875E-09	5.97597E-07
CCDC42	0.000153536	0.00640933
CCDC88B	0.00113513	0.0307056
CCK	7.99801E-05	0.00384713
CCL2	2.16271E-13	1.06093E-10
CCL22	0.00014869	0.00626057
CCL27A	4.44089E-16	3.22931E-13
CCL4	0.000893048	0.0254727
CCL7	1.38847E-10	3.73137E-08
CCL8	0.00136557	0.0354916
CCL9	3.60228E-06	0.00029491
CCR1	1.16695E-06	0.000114129
CCR5	6.81488E-11	1.95013E-08
CCR9	0.000994741	0.0277084
CD14	4.40847E-07	4.87456E-05
CD200R1	0.00131434	0.0344965
CD209A	0.000859708	0.0248079
CD300LD	0.000968561	0.0271751
CD33	0.00127835	0.0337017
CD38	0.00126344	0.0334161
CD52	9.15507E-06	0.000635815
CD53	1.77078E-05	0.00108278
CD59A	1.19435E-07	1.60834E-05
CD5L	5.02069E-06	0.000389099
CD80	2.22045E-16	1.69439E-13
CD83	0.00162345	0.0402186
CDH18	0.00193442	0.0460403
CDKN1A	0.000514504	0.0164946
CERS6	0.00119698	0.0319316
CES1D	0	0
CFP	0.0018266	0.0441009
CH25H	5.83212E-09	1.06337E-06
CHDH	6.78744E-09	1.21911E-06
CHRD1	8.01335E-06	0.000572796
CIDEA	5.40311E-05	0.00280408
CLCA3A1	0.00113317	0.0306796
CLEC12A	2.22546E-10	5.63752E-08
CLEC3B	0.000252475	0.00936997
CLEC4A2	4.25215E-07	4.74308E-05
CLEC4D	1.92851E-06	0.000176073
CLEC4E	1.68432E-05	0.00104316



CLEC5A	9.16625E-06	0.000635876
CLEC7A	3.00043E-07	3.58024E-05
CNTRL	0.00118998	0.0317998
COL2A1	8.70823E-05	0.00411825
COL6A6	9.0976E-06	0.00063396
COL8A1	2.22506E-07	2.77841E-05
CPEB2	0.00104875	0.0288009
CRABP2	3.08922E-05	0.00173744
CRIM1	0.000218861	0.00840238
CRLF1	4.44089E-16	3.22931E-13
CSF2RA	0.001016	0.0281737
CSF2RB	7.94899E-06	0.000569985
CSF3	8.22843E-05	0.00392135
CTSS	2.68254E-11	8.08819E-09
CX3CL1	5.30427E-06	0.00040677
CX3CR1	8.82195E-06	0.000618938
CXCL1	1.09881E-09	2.42562E-07
CXCL2	6.24841E-09	1.13259E-06
CXCL3	2.10158E-05	0.00124903
CXCR2	3.45556E-06	0.000285928
CXCR4	3.95299E-07	4.43531E-05
CYSLTR1	0.000475677	0.0155267
CYTH4	1.04129E-06	0.000103643
CYTL1	0.000574501	0.0180528
DAPK2	0.000543807	0.0172994
DCLRE1C	2.68694E-07	3.26929E-05
DCTD	0.000581697	0.0182418
DEPDC1A	2.54457E-07	3.12064E-05
DLGAP1	6.65948E-09	1.20357E-06
DLGAP5	0.000282944	0.0102754
DOCK8	0.00149391	0.0378127
DOK2	7.79317E-07	8.04167E-05
DRP2	0.00117368	0.031473
DTNB	0.00135057	0.0352232
DUSP5	0.00111477	0.0302607
E130006D01RIK	3.5043E-06	0.000288801
E2F7	0.00147598	0.0374662
EAF2	0.000744647	0.0222351
EAR2	0.000820343	0.0239176
EDF1	0.000112336	0.00504246
EGR2	0.000975073	0.0273082
EHD4	6.79427E-07	7.09381E-05
ENPP3	0.000649754	0.019892
EP400	0.000883792	0.0253011
EPHA1	0.00200269	0.0473008
EREG	0.00188933	0.0452984
ESM1	9.91865E-09	1.70298E-06

ETV1	1.95653E-08	3.18245E-06
ETV4	9.42006E-07	9.45217E-05
ETV5	2.33147E-13	1.11712E-10
ETV6	1.16246E-05	0.000772686
EVC	7.42487E-05	0.00365101
F10	0.000297818	0.0106962
F13A1	2.2001E-06	0.000196231
FAIM2	0.000699118	0.0210998
FAM105A	0.00076281	0.022657
FAM132A	1.30292E-05	0.000848612
FAM13A	1.8896E-12	7.29976E-10
FAM64A	0.000677886	0.0206291
FAM78B	0.00155723	0.0390252
FASN	0	0
FBN1	4.85139E-06	0.00037814
FCER1G	0.0013176	0.0345674
FCGR4	0.000106891	0.00485091
FCRLS	5.12824E-10	1.21914E-07
FGD2	4.65869E-08	6.83976E-06
FGD3	0.000502084	0.0162141
FHL2	2.37276E-05	0.00137952
FMNL1	1.32519E-05	0.000857867
FOSL1	0.000369444	0.0126582
FOXM1	0.000205094	0.00797286
FPR2	0.000656766	0.0200567
FUCA2	0.000509261	0.0164116
G2E3	0.000799809	0.0234851
GABRQ	1.15096E-07	1.55669E-05
GAS1	0.000471575	0.0154141
GATM	5.41971E-10	1.2786E-07
GCNT4	1.93684E-09	4.04447E-07
GDA	6.38041E-06	0.000476296
GDE1	0.000911803	0.0258526
GDF6	0.000694441	0.0209894
GJA5	2.00064E-05	0.00119709
GM14548	2.03868E-05	0.00121632
GM15448	0.000841036	0.0244288
GM28042	1.62777E-09	3.46357E-07
GPR132	0.000673299	0.0205109
GPR176	1.67816E-07	2.17457E-05
GPR39	0.00213254	0.0495524
GRIA4	5.03446E-05	0.00264384
GRM3	0.000804759	0.0235633
GRTP1	0.000127911	0.00554256
GSTT1	7.08857E-06	0.000520362
H2-AA	6.10547E-05	0.00311369
H2-AB1	3.77089E-07	4.30829E-05

H2-DMA	6.31495E-13	2.69286E-10
HAS1	2.22058E-08	3.56505E-06
HAVCR2	1.96137E-05	0.0011793
HCK	0.000188075	0.00749994
HCLS1	1.36458E-10	3.68473E-08
HDC	0.000326192	0.0114687
HELLS	0.00138641	0.0358212
HGF	0.00157818	0.039413
HHIP	0.000290569	0.0105091
HMOX1	0	0
HPGDS	0.00146765	0.0373008
IFI203	3.39702E-11	1.00464E-08
IFIT1	0.00135465	0.0353145
IFITM1	7.64657E-05	0.0037186
IFNGR2	0.00106679	0.0292279
IL10RA	8.35764E-06	0.000590383
IL11	7.88883E-05	0.0038154
IL1B	4.69691E-12	1.69775E-09
IL1RN	1.27619E-09	2.79578E-07
IL6	1.36082E-11	4.40379E-09
ILDR2	1.44233E-06	0.000136107
INPP5D	1.24609E-08	2.09E-06
IRF8	2.6478E-07	3.22801E-05
JUNB	0.000107712	0.004881
KCNC4	4.20112E-05	0.00225018
KCNG4	0.000499606	0.0161764
KCNK13	0.00168777	0.041496
KIF11	0.00174218	0.0425072
KIF23	0.000134862	0.00580085
KIF2C	2.33478E-05	0.00136016
KIFC1	0.000240953	0.00906357
KIFC5B	0.000323003	0.011402
KLHDC7A	0.000802954	0.023544
KLK10	0.000118592	0.00524706
KMO	0.000999898	0.027827
KRT80	6.43929E-15	4.23418E-12
LCLAT1	9.92428E-07	9.92589E-05
LCN2	1.48569E-05	0.000936089
LITAF	0.000381146	0.0129585
LMO7	3.56392E-10	8.81144E-08
LRP8	3.49976E-11	1.03009E-08
LRRC17	1.80654E-05	0.00110229
LTBP2	0	0
LTBP4	1.55298E-10	4.05021E-08
LY86	0.000161734	0.00666895
LYPD1	0.00129054	0.0339585
LYVE1	9.55187E-06	0.00065893

LYZ1	1.4963E-05	0.000941815
LYZ2	3.74344E-07	4.29281E-05
MADD	2.70758E-08	4.2476E-06
MAF	0.000170759	0.0069739
MAFB	0.00108474	0.0296009
MAGI1	3.88251E-09	7.54648E-07
MAN2A1	0.000190042	0.00756374
MAOB	0.00121904	0.0324361
MARCO	6.31161E-05	0.00318987
MEGF11	0.000216868	0.00833987
MKI67	0.000344187	0.0119585
MN1	0.00190868	0.0456032
MNDA	0.000935336	0.0263987
MPEG1	1.1915E-10	3.27318E-08
MRC1	5.59725E-06	0.000423459
MS4A4C	0.000186333	0.00745934
MS4A6C	0	0
MTR	0.000244738	0.00917917
MUP16	0.00166268	0.0409933
MYLK2	1.47379E-10	3.89329E-08
MYO1F	1.39987E-06	0.000132912
NAIP5	0.00167449	0.0412188
NAPSA	0.000486825	0.0158372
NAT6	1.45084E-05	0.000919657
NCAM1	2.03163E-05	0.00121328
NCKAP1L	2.0883E-06	0.000187887
NDNF	4.61479E-07	5.06643E-05
NDUFAB1	0.00114989	0.0309828
NDUFS5	2.6789E-05	0.00153877
NDUFV3	0.000931565	0.0263138
NEURL3	8.13811E-06	0.000579441
NIN	2.87166E-08	4.45974E-06
NLRC3	6.23606E-05	0.00315685
NLRP3	0.000330614	0.0115781
NOTCH3	3.50395E-05	0.0019372
NOV	0.00117563	0.0315081
NOXO1	0.00027689	0.0100912
NPAS2	0.00036338	0.0124781
NPPA	7.04709E-06	0.000518622
NPR1	4.72913E-09	8.91181E-07
NPTX2	0.000126301	0.00549379
NR2F2	8.88178E-16	6.31015E-13
NRG1	0.000311571	0.0110743
NTS	1.33462E-05	0.000861997
NUF2	0.00181608	0.0438655
OAS1G	6.89078E-05	0.00343483
OAS3	7.93866E-06	0.000569906

OASL2	2.24265E-14	1.30772E-11
OLFR1033	0.000192985	0.0076273
OLFR328	0.000248404	0.00927166
OLR1	0.000512965	0.0164595
OPTC	1.54341E-10	4.05021E-08
OSM	3.95114E-06	0.000317581
P2RX1	5.44152E-07	5.85958E-05
P2RX4	0.000188056	0.00749994
PAK3	0.000173618	0.00706475
PAQR6	1.42205E-08	2.36919E-06
PBK	9.32198E-05	0.00434534
PCCB	4.58634E-06	0.000361123
PCK1	5.65986E-05	0.0029153
PCOLCE2	5.92165E-07	6.32154E-05
PDE9A	0.000876196	0.0251662
PDLIM4	1.13505E-05	0.000757639
PDLIM5	0.000361954	0.0124499
PEMT	0.000807172	0.0236116
PIK3R5	1.27694E-05	0.000834937
PILRB1	0.00122257	0.0325018
PLA2G4F	0.000383022	0.0130009
PLA2G5	5.77168E-06	0.000434528
PLAC8	0.000326126	0.0114687
PLD4	0.000500554	0.0161816
PLEKHB1	0.000492381	0.015973
PLIN1	0.00115294	0.0310469
POLE	3.95382E-07	4.43531E-05
PPP1R1B	2.61302E-08	4.12017E-06
PPP1R3A	0.00109029	0.0296877
PREX1	0.00206429	0.048295
PRKCB	1.92353E-05	0.00116562
PRND	0.000564914	0.0178059
PROCA1	0.00170999	0.041914
PRSS12	0.000192479	0.00762636
PRSS23	0.00149973	0.0379133
PTAFR	3.16982E-05	0.0017747
PTGFR	6.08712E-05	0.00310946
PTGS2	1.17916E-07	1.59135E-05
PTPN6	1.4506E-11	4.64566E-09
PTPRO	5.20886E-05	0.00271467
PTX3	4.29957E-08	6.40582E-06
PXYLP1	0.00146533	0.0372571
PYDC4	0.000758632	0.0225546
PYHIN1	0.000174716	0.00709542
RAB11FIP1	3.28075E-06	0.000273661
RAC2	0.00071838	0.0215444
RARRES1	0.000503702	0.0162579

RASAL2	0.000832815	0.0242241
RASGRP2	7.5965E-07	7.85184E-05
RBMS1	0.000892423	0.0254666
RBP4	7.37425E-05	0.00363189
RDH10	0.00186994	0.0449207
RETNLG	0.000640414	0.0196642
RGS16	5.92332E-05	0.00304087
RGS17	1.7128E-10	4.44824E-08
RNASEL	2.15105E-05	0.00127431
RND1	0.000355119	0.0122762
RNF180	0.000382928	0.0130009
RNF19B	4.63627E-05	0.0024556
RUNX1	1.06581E-13	5.53596E-11
RYR2	0.000144898	0.00613436
S100A8	5.06563E-05	0.00265569
SAA3	2.40696E-13	1.14442E-10
SAMSN1	0.000138514	0.00591268
SBNO2	8.84951E-07	8.96702E-05
SCARA5	0.000649764	0.019892
SCD1	0.000149859	0.00630123
SCIMP	0.00133864	0.0349709
SDC3	0.000187462	0.00748515
SELE	0.000769087	0.0227778
SELENBP2	0.000891658	0.0254565
SEPT11	2.81193E-11	8.43715E-09
SERPINA1B	0.000607104	0.0188568
SERPINA1E	3.15893E-07	3.74049E-05
SERPINA3N	1.72674E-06	0.000159298
SERPINI1	8.82713E-07	8.96702E-05
SFRP2	5.9508E-13	2.59027E-10
SLAMF7	0.000180263	0.00726815
SLC16A11	1.41808E-06	0.000134435
SLC25A23	2.14091E-09	4.41099E-07
SLC2A6	3.83187E-05	0.00208676
SLC38A4	0.000118776	0.00525147
SLC4A10	0.000949479	0.026749
SLC6A6	3.85905E-05	0.00209419
SLFN1	0.000123199	0.00539685
SLFN2	0.000139113	0.00593416
SLFN5	0.000668951	0.0203936
SLFN9	0.000701586	0.0211433
SLIT3	0.000135591	0.00582653
SNCG	2.07397E-05	0.00123618
SND1	6.62507E-06	0.000492182
SOCS3	2.96393E-10	7.41702E-08
SPAG5	0.000748593	0.0223314
SPI1	3.08642E-14	1.73429E-11

SPOCK2	9.54266E-05	0.00442817
SPP1	2.26041E-13	1.09797E-10
SPRR1A	7.76393E-05	0.00376975
SPRY4	0.000114888	0.00513095
STAP1	0.00100811	0.0280174
STT3A	0.000421872	0.0140118
TBXAS1	0.000167027	0.00686432
TFRC	9.11318E-06	0.000633993
TGM1	0.000301828	0.0108088
THEMIS2	0.00039685	0.0133384
THRSP	2.55352E-06	0.0002223
THY1	0.000628368	0.0194197
TIAM1	0.000186586	0.00746466
TIFAB	2.11903E-06	0.000190098
TKT	0.000199059	0.00781851
TLL2	0.000578073	0.0181558
TLR1	0.00164406	0.0406316
TLR13	1.93787E-05	0.0011689
TLR9	0.000887567	0.0253515
TMEM215	9.57842E-10	2.13734E-07
TMEM242	0.00155506	0.0389932
TMEM35	0.000157067	0.0065244
TMEM45B	0.00215278	0.0498552
TMEM52	3.61631E-09	7.11235E-07
TMEM8	0.001972	0.046703
TNFRSF11B	1.28406E-05	0.000838096
TNFRSF1B	2.92312E-05	0.00166217
TNFRSF23	6.9795E-05	0.00346787
TNFSF8	1.38787E-05	0.000887116
TNMD	0.000330932	0.0115826
TNNT1	4.61025E-08	6.80095E-06
TREM1	1.16295E-08	1.96938E-06
TRIM58	0.00122507	0.0325403
TRIM7	1.33895E-05	0.00086299
TSPAN11	0.000244573	0.00917853
TUBB3	0.000126552	0.00549696
TUBB4A	0.00151363	0.0381868
TULP4	0	0
TYROBP	0.000259291	0.00957392
UBASH3B	2.85813E-07	3.44368E-05
UBE2C	0.00163893	0.0405371
UCP1	1.63246E-05	0.00101921
USE1	0.00172184	0.0421159
USP13	0.000355391	0.0122788
VAV1	1.73074E-09	3.6511E-07
VCAM1	1.17975E-08	1.99236E-06
VIPR2	3.07778E-11	9.19023E-09

VSIG4	2.85259E-08	4.45249E-06
VSTM2B	3.76594E-05	0.00205811
WDR92	0.000207613	0.00804046
WDR95	8.20852E-07	8.37242E-05
WFDC17	1.40268E-05	0.000893811
WNK4	0.00136767	0.0355042
XIRP2	5.89669E-07	6.31672E-05
XKR5	0.00196309	0.0465255
ZC3H12A	0.000743181	0.022202
1190005I06RIK	0.000433238	0.0139585
1700017B05RIK	0.000145366	0.00569129
1810011H11RIK	9.97423E-05	0.00418996
3425401B19RIK	0.00204134	0.0482811
3632451O06RIK	3.83546E-09	5.83166E-07
4930402H24RIK	0.000196065	0.00731981
4932438A13RIK	2.5406E-05	0.00133938
5031414D18RIK	0.000141677	0.0055813
5031439G07RIK	0.00065165	0.0193844
9330159F19RIK	2.84927E-06	0.000207352
A630001G21RIK	8.55665E-09	1.20474E-06
AB124611	3.01216E-08	3.7679E-06
ABCA8B	1.62715E-08	2.16936E-06
ABCC3	0.000530885	0.0164383
ABCD2	0.000227963	0.00830333
ABCG1	0.000783781	0.0225562
ABHD14A	0.000506067	0.0158417
ABL2	0.00213103	0.0499322
ABR	0.000535059	0.016535
ACAN	1.96183E-11	4.56271E-09
ACAP1	8.39819E-08	9.26827E-06
ACBD4	2.51306E-05	0.00132688
ACKR2	0.000142182	0.00559768
ACOD1	8.67694E-05	0.0037397
ACSL1	2.54246E-05	0.00133938
ACSS1	0.000104418	0.00435388
ACTA1	1.88446E-05	0.00104076
ACTG2	9.45495E-09	1.32232E-06
ADAM12	4.6444E-05	0.00223826
ADAM19	8.29959E-06	0.000521694
ADAM5	9.36931E-05	0.0039942
ADAMTS4	7.86425E-08	8.74045E-06
ADAMTSL2	1.04031E-05	0.000629347
ADAP2	4.21863E-12	1.12249E-09
ADAR	1.53857E-08	2.06001E-06
ADCY4	4.52246E-08	5.45083E-06
ADGRE1	0	0
ADGRE4	7.11652E-05	0.00317839



ADH1	1.36866E-08	1.84037E-06
ADH7	6.52279E-10	1.13777E-07
ADIPOQ	5.44269E-05	0.00253918
ADPRHL1	0.00074253	0.0215467
ADRA1A	0.00049069	0.0154564
ADRA2A	1.16783E-05	0.000698708
ADRA2C	2.2137E-08	2.84856E-06
ADRB3	0.000160069	0.00618937
AFF3	6.26567E-08	7.21932E-06
AGAP2	4.20711E-08	5.12739E-06
AI504432	0.00178781	0.0435643
AI507597	0.000908514	0.0253782
AI607873	3.65731E-08	4.51199E-06
AI662270	5.19988E-07	4.62502E-05
AIF1	0	0
AIFM3	0.000753513	0.021805
AKAP12	0.00016698	0.00643283
AKAP9	0.001664	0.0411381
AKNA	0.00124339	0.0329029
AKR1C13	1.00765E-05	0.000613883
ALB	4.6962E-05	0.00225803
ALDH1A1	0.00140492	0.0359942
ALDH3A1	0	0
ALOX5	7.22743E-07	6.30343E-05
ALOX5AP	1.93477E-10	3.77311E-08
AMICA1	3.82794E-06	0.000268877
AMZ1	1.64107E-07	1.67836E-05
ANGPT2	5.10703E-15	2.39325E-12
ANGPTL1	1.00434E-05	0.000612898
ANGPTL4	0.000466281	0.0148329
ANGPTL7	0	0
ANK1	0.00161264	0.0401529
ANK2	0.000310912	0.0107017
ANK3	0.00130695	0.0341248
ANKRD1	3.33175E-06	0.00024048
ANKRD44	0.000797161	0.0228365
ANXA1	0.00136961	0.035219
AOAH	8.08414E-08	8.95315E-06
APLNR	3.31497E-07	3.11622E-05
APOBEC1	3.13801E-10	5.84723E-08
APOBR	0.000107052	0.00444599
ARAP2	1.94331E-08	2.53175E-06
ARHGAP15	2.47957E-11	5.56088E-09
ARHGAP19	0.000311363	0.0107076
ARHGAP26	1.0079E-05	0.000613883
ARHGAP30	0	0
ARHGAP9	2.1696E-12	6.24954E-10

ARID5A	1.17873E-05	0.000702929
ARL11	7.42786E-05	0.00328705
ARL4C	2.5537E-05	0.00134304
ARMC3	4.5915E-05	0.00221958
ARRB2	0	0
ART3	0	0
ASPA	2.71364E-05	0.00141296
ASPH	6.87581E-11	1.45867E-08
ATP10B	1.32214E-08	1.80284E-06
ATP1A3	1.74275E-07	1.7651E-05
ATP2B2	0	0
ATP6V0E2	0.000728212	0.0212294
ATP8B4	1.29295E-07	1.34645E-05
ATRX	0.000105865	0.00440242
ATXN1	1.77804E-10	3.51106E-08
AU021092	0.000376242	0.0124742
AURKA	0.000606882	0.018269
AURKB	1.18146E-05	0.000703885
AVPR1A	0.000377104	0.0124962
B430306N03RIK	1.40446E-07	1.44816E-05
B4GALNT1	5.00867E-05	0.00237747
B4GALNT3	1.29008E-07	1.3457E-05
B4GALT5	8.16712E-05	0.00356133
BASP1	0.00129344	0.0338002
BATF	0.000920734	0.0256738
BAZ1A	5.01574E-05	0.00237805
BBS9	5.42386E-05	0.00253416
BC028528	1.77894E-06	0.000137911
BC094916	4.49275E-05	0.00218446
BCL2A1B	2.67758E-07	2.59074E-05
BCL3	5.14085E-09	7.61367E-07
BDH2	2.22045E-16	1.26757E-13
BDNF	0.000856533	0.0242389
BEND5	2.21583E-05	0.00119129
BID	0.00161709	0.0402319
BIRC3	0.00126431	0.0332882
BIRC5	2.19301E-08	2.83355E-06
BLMH	0.000181372	0.00685274
BMP6	2.32607E-06	0.000175139
BMX	0.000291569	0.0101944
BST1	0.00013287	0.00530301
BTBD11	0.000467468	0.0148631
BTK	7.25244E-06	0.000467574
BUB1B	0.0010847	0.0292458
C1QA	1.44865E-09	2.35668E-07
C1QB	3.80806E-12	1.03968E-09
C1QC	1.18061E-12	3.64234E-10

C1QTNF2	0.000990807	0.0272015
C1QTNF3	7.82334E-08	8.71865E-06
C330027C09RIK	0.000219412	0.0080479
C3AR1	1.33227E-15	6.91403E-13
C4B	0.000167735	0.006454
C6	5.54661E-08	6.49365E-06
C7	0	0
CACNA1G	1.37224E-12	4.10331E-10
CACNA2D3	0.000385825	0.0127292
CALML4	6.45424E-05	0.00293479
CAMK1D	0.000575385	0.017548
CAMSAP3	0.00134283	0.0347868
CAPZA2	0.000474867	0.0150375
CAR8	0.00132164	0.0343797
CARD11	2.08719E-05	0.00113085
CASP4	0.000640786	0.0190974
CASQ2	3.80616E-05	0.0018999
CASS4	5.31819E-08	6.24216E-06
CCDC141	0.00065647	0.0195092
CCDC88B	7.99272E-12	2.00278E-09
CCL11	0.000127685	0.00513643
CCL12	1.55165E-12	4.59602E-10
CCL2	1.68472E-11	3.99215E-09
CCL22	7.1836E-05	0.00320174
CCL4	0.000450685	0.0144097
CCL5	1.45211E-06	0.000116904
CCL6	0	0
CCL7	7.99361E-15	3.71821E-12
CCL8	3.10862E-15	1.51323E-12
CCL9	1.52246E-07	1.56469E-05
CCM2L	5.79662E-08	6.71585E-06
CCNA2	0.000252391	0.00903585
CCNB2	4.88389E-05	0.00233043
CCNF	2.41409E-05	0.00127926
CCR1	1.30673E-12	3.94501E-10
CCR5	6.63913E-14	2.51147E-11
CCR7	0.000701164	0.0206421
CD14	1.84619E-08	2.42535E-06
CD163L1	4.48286E-09	6.70241E-07
CD19	3.54635E-08	4.39236E-06
CD2	0.000220716	0.00808626
CD200R1	0.000962896	0.026543
CD209A	2.27268E-06	0.000171736
CD209F	3.84787E-06	0.000269673
CD244	0.000450364	0.0144068
CD300A	3.68028E-06	0.000261429
CD300C2	0	0

CD300LD	1.85237E-07	1.86111E-05
CD300LD3	1.23315E-06	0.000101355
CD300LD4	4.83013E-05	0.00230846
CD300LD5	8.94735E-06	0.000555736
CD300LF	2.94542E-12	8.22034E-10
CD33	1.09864E-09	1.83482E-07
CD38	0.000667181	0.0197714
CD3D	0.000880406	0.0247693
CD3E	0.000135661	0.00539849
CD3G	0.000345406	0.0116615
CD40	0.000495838	0.0155837
CD44	1.09416E-09	1.83221E-07
CD48	3.45004E-10	6.39072E-08
CD5	0.00032914	0.0112145
CD52	2.41815E-11	5.46908E-09
CD53	1.42109E-14	6.32887E-12
CD69	0.000181021	0.00684964
CD79A	0.000402918	0.0131782
CD79B	2.99359E-05	0.00154489
CD80	0.000119742	0.00487309
CD83	1.06569E-08	1.48712E-06
CD84	2.22045E-16	1.26757E-13
CD86	6.36074E-08	7.31544E-06
CD8A	5.08236E-08	6.02164E-06
CD8B1	0.00141908	0.0362242
CDCA2	0.00135799	0.035086
CDCA3	1.68874E-06	0.000131896
CDCA5	0.0009954789	0.0272736
CDCA8	8.40999E-05	0.00364462
CDH6	0.000454509	0.0145025
CDK1	6.09776E-09	8.86364E-07
CDK6	1.10705E-07	1.18026E-05
CDKN1A	2.8957E-05	0.00150153
CDKN1C	6.4253E-08	7.34931E-06
CEACAM1	1.00649E-09	1.71281E-07
CELF1	4.38754E-06	0.000302101
CEMIP	5.0244E-07	4.48276E-05
CENPE	6.73575E-05	0.00302988
CENPI	0.00197756	0.0471718
CEP192	4.99191E-05	0.00237295
CEP55	6.94888E-06	0.0004524
CEP85	0.000440453	0.0141547
CERS6	0.000116956	0.00478764
CFI	0.000396482	0.0130283
CFP	3.99375E-07	3.68806E-05
CH25H	2.29417E-07	2.24747E-05
CHAD	0	0

CHIL3	7.35391E-06	0.000472176
CHL1	0.00148323	0.037617
CHRD	0.000616109	0.0185113
CHRD1	1.34209E-05	0.000781062
CIITA	7.94698E-08	8.8168E-06
CILP	1.23712E-07	1.29691E-05
CKAP2L	0.000203723	0.00756521
CLASP2	0.00014021	0.0055409
CLEC12A	0	0
CLEC1A	1.62057E-05	0.00091549
CLEC2I	0.000100399	0.00420992
CLEC3A	2.58429E-07	2.51208E-05
CLEC3B	9.34808E-07	7.9326E-05
CLEC4A1	1.68003E-11	3.99215E-09
CLEC4A2	3.55271E-15	1.703E-12
CLEC4D	1.57661E-06	0.000124376
CLEC4E	0.00136931	0.035219
CLEC5A	1.04252E-06	8.71707E-05
CLEC7A	7.71427E-09	1.10346E-06
CNR2	4.44506E-06	0.000305726
CNTFR	8.84183E-09	1.24211E-06
CNTN6	4.78009E-09	7.11293E-07
CNTRL	7.09862E-06	0.000460018
COL11A1	4.2179E-10	7.61101E-08
COL11A2	7.29301E-07	6.3518E-05
COL12A1	1.95437E-05	0.00107277
COL19A1	1.67948E-07	1.71206E-05
COL6A6	3.47697E-08	4.31495E-06
COL8A1	7.38988E-06	0.000474001
CORO1A	0	0
CORO2A	3.10613E-07	2.95082E-05
CORO2B	7.69578E-05	0.00338178
COTL1	1.14078E-10	2.3642E-08
CRABP2	0.00052588	0.0163466
CRACR2B	0.000136445	0.00542273
CRLF1	0	0
CRLF2	0.000791034	0.0227232
CSDC2	0.000303236	0.0105203
CSF2RA	1.93384E-05	0.00106429
CSF2RB	1.83868E-08	2.42054E-06
CSF2RB2	4.63485E-07	4.16971E-05
CSMD1	0.00111159	0.0298638
CTHRC1	2.44249E-15	1.21727E-12
CTLA2B	0.000238087	0.00858926
CTSS	0	0
CX3CL1	0.000178399	0.00679356
CX3CR1	1.11022E-15	5.85853E-13

CXADR	0.000869236	0.024521
CXCL1	0.000197761	0.00736998
CXCL10	0	0
CXCL13	1.32106E-08	1.80284E-06
CXCL14	2.80144E-06	0.000204554
CXCL2	0.00201651	0.0477837
CXCL9	3.08642E-14	1.2504E-11
CXCR2	2.08191E-07	2.07185E-05
CXCR3	4.53445E-05	0.00219707
CXCR4	4.14654E-05	0.00203742
CXCR6	1.55537E-06	0.000123476
CYLD	3.05763E-10	5.73147E-08
CYP4F16	9.88588E-06	0.000605053
CYP4F18	1.86901E-08	2.45013E-06
CYP51	0.000292697	0.0102206
CYS1	4.31243E-06	0.000297908
CYSLTR1	1.94636E-05	0.00106931
CYTH1	0.000882773	0.0248137
CYTH4	5.77316E-14	2.21052E-11
CYTIP	5.72388E-08	6.65614E-06
CYTL1	1.58313E-11	3.77996E-09
D630003M21RIK	3.66767E-08	4.51591E-06
D8ERTD82E	0.000460422	0.0146688
DAPP1	0.00048366	0.0152774
DBI	1.27965E-07	1.33703E-05
DCK	1.40843E-05	0.0008114
DDAH1	2.61207E-05	0.00136574
DDAH2	0.000135286	0.00538698
DDX58	2.19077E-08	2.83355E-06
DENND1C	0.000213943	0.00788875
DEPDC1A	5.61519E-05	0.00259926
DGKG	4.556E-07	4.11646E-05
DHH	7.72037E-06	0.00049153
DIAPH3	2.08698E-07	2.07361E-05
DIO2	8.40068E-07	7.24616E-05
DIRAS2	6.07923E-07	5.35407E-05
DLGAP5	0.000140013	0.00553658
DLL1	0.000307547	0.0106346
DNA2	0.00201117	0.0477155
DNAJA1	3.33511E-13	1.1382E-10
DNAJC17	0.000192826	0.00721605
DNM1	0	0
DNMT3A	1.94715E-06	0.000149111
DOCK10	0.000845824	0.0240115
DOCK2	7.47998E-06	0.000478623
DOCK5	0.000325393	0.0111049
DOCK8	5.17141E-06	0.000348432

DOK2	2.45104E-10	4.66404E-08
DOK3	0.000116611	0.00477978
DOLPP1	0.000549113	0.0168875
DPEP2	8.77567E-08	9.61725E-06
DPYSL3	6.98432E-05	0.00313048
DROSHA	1.57274E-12	4.63664E-10
DTNB	5.3306E-05	0.00249616
DTX2	0.00138685	0.0356184
DUOXA1	6.44458E-10	1.12726E-07
DUSP19	0.00105581	0.0285897
DUSP27	0.00073142	0.0212932
DUSP6	0.000158451	0.00613434
E2F8	5.575E-06	0.000372824
EBF4	5.65714E-06	0.000377915
EBI3	2.98771E-05	0.00154414
EDA	2.68183E-09	4.1788E-07
EFEMP1	1.69987E-05	0.000955628
EFHD1	0.000934037	0.0258953
EGR3	0.000438933	0.0141131
EIF1A	5.18209E-09	7.65207E-07
EIF2AK2	0.00178215	0.0434434
EIF4EBP2	0.000153122	0.00595006
ELL2	0.00103736	0.0281995
EMB	0.000204878	0.00759913
ENPP3	2.18594E-09	3.44025E-07
EPB41L3	1.33227E-15	6.91403E-13
EPSTI1	2.08341E-10	4.0379E-08
EPT1	2.5665E-05	0.00134639
EREG	2.8716E-07	2.75722E-05
ESCO2	0.00148569	0.0376642
ESM1	1.61996E-08	2.16438E-06
ESPN	0.000624229	0.0186837
ETV5	0.00124579	0.0329525
EVI2A	0	0
EXOC5	9.50156E-05	0.00403961
F10	0.000102142	0.00427317
F13A1	8.21565E-15	3.76571E-12
F3	1.22182E-05	0.00072245
F630028O10RIK	0.00122809	0.0326349
FADS3	0.000889835	0.0249525
FAIM2	7.27514E-06	0.000467597
FAM105A	1.28666E-11	3.13821E-09
FAM107A	0	0
FAM110C	4.93405E-05	0.00235257
FAM198A	2.51228E-09	3.92434E-07
FAM19A5	6.4484E-12	1.64605E-09
FAM26F	0.000816608	0.0233298

FAM49B	1.6135E-07	1.65285E-05
FAM64A	0.000351037	0.0117942
FAM65B	3.03458E-06	0.000220042
FAR1	0.000189246	0.007111174
FBLN1	0	0
FBXL22	0.000587412	0.0177766
FBXO30	3.79451E-10	6.90655E-08
FBXO31	0.000730746	0.0212835
FCER1G	6.18509E-10	1.08585E-07
FCGR1	0	0
FCGR2B	0	0
FCGR4	1.30812E-09	2.15232E-07
FCNA	0	0
FCRLS	0	0
FERMT3	4.73207E-05	0.00227179
FES	6.66113E-05	0.00300492
FFAR2	9.94599E-05	0.00418819
FGD3	3.18443E-09	4.90113E-07
FGF1	1.95399E-14	8.46214E-12
FGF2	1.14805E-10	2.37144E-08
FGFR4	0.00185217	0.0448715
FGR	0	0
FHL2	5.52158E-12	1.4387E-09
FHL3	1.26335E-09	2.08768E-07
FIBIN	2.38182E-06	0.000178693
FMNL1	3.08642E-14	1.2504E-11
FMO2	0.00199889	0.0475363
FMO3	0.00118715	0.0316549
FNDC1	6.60542E-05	0.00299053
FNDC4	0.00197368	0.0471066
FOLH1	2.5091E-14	1.05039E-11
FOLR2	2.26998E-10	4.35913E-08
FOS	7.66486E-05	0.00337055
FOXD1	4.98249E-06	0.000337878
FOXM1	0.000105933	0.00440242
FOXP2	0.000124252	0.00502409
FOXRED2	7.04134E-05	0.00314705
FPR2	0.00193375	0.0464004
FRYL	0.000923142	0.0257002
FST	3.7963E-12	1.03968E-09
FUCA2	6.4457E-05	0.00293303
FXYD5	5.55313E-08	6.49365E-06
G3BP2	0.000324943	0.0110956
GALNT12	0.000117683	0.00480801
GALNT15	1.38829E-06	0.000112925
GAS1	8.89662E-07	7.63201E-05
GATA2	0.000484951	0.0153047



GATM	0	0
GBP4	1.57656E-05	0.00089431
GCNT4	8.88178E-16	4.76694E-13
GCSAM	0.000401458	0.0131505
GFOD1	0.000426654	0.0138102
GIMAP3	0.000640462	0.0190968
GIPC2	2.80017E-05	0.0014544
GJA1	1.51165E-05	0.000861383
GJA5	2.95257E-11	6.52841E-09
GK	3.49486E-06	0.00024967
GKN3	1.31466E-05	0.000767947
GLI1	0.00140159	0.0359383
GLIPR1	4.37272E-07	3.98837E-05
GLIS3	0.000210441	0.00777791
GLUL	0.00164617	0.0407615
GM13304	0.00127773	0.0334976
GM13305	0.000729477	0.0212564
GM14085	1.26966E-06	0.00010422
GM14548	5.93E-07	5.22997E-05
GM21975	5.59042E-12	1.45062E-09
GM28042	0.000533085	0.0164902
GM5431	4.2619E-11	9.26042E-09
GM5820	1.0079E-05	0.000613883
GMFG	3.85469E-12	1.04786E-09
GMIP	9.20709E-09	1.29053E-06
GNA15	4.07529E-05	0.00201096
GNG2	4.00749E-07	3.6953E-05
GOT1	0.00025526	0.00912298
GPBAR1	4.83096E-05	0.00230846
GPCPD1	0.000444109	0.0142503
GPNMB	5.59382E-09	8.18798E-07
GPR132	4.41611E-07	4.01316E-05
GPR141	0.000120161	0.00488066
GPR160	5.77461E-08	6.70271E-06
GPR171	0.000310008	0.0106961
GPR176	1.75193E-13	6.18048E-11
GPR183	6.0575E-06	0.000401804
GPR34	2.43938E-12	6.96277E-10
GPR65	1.47941E-07	1.52295E-05
GPRC5C	4.56499E-08	5.49154E-06
GRHPR	9.36262E-05	0.00399406
GSTA3	2.81997E-13	9.83777E-11
GSTM1	1.55431E-15	7.93521E-13
GSTT1	3.78417E-06	0.000267297
GTSE1	0.000413349	0.0134628
GXYLT2	0.000105714	0.00439915
GZMB	0.00140453	0.0359942

H2-AA	1.79328E-10	3.53007E-08
H2-AB1	1.28937E-11	3.13821E-09
H2-DMA	5.35127E-14	2.08716E-11
H2-DMB1	9.25641E-08	1.0039E-05
H2-DMB2	4.94055E-09	7.33432E-07
H2-EB1	0	0
H2-OA	0.000178317	0.00679356
H2-OB	3.44882E-07	3.21796E-05
HAAO	0.00125014	0.0330397
HAVCR2	9.78906E-12	2.42966E-09
HBEGF	0.000898476	0.0251239
HCK	2.91926E-11	6.47757E-09
HCLS1	1.11022E-15	5.85853E-13
HCST	0.00126027	0.0332235
HDAC5	2.59281E-08	3.28257E-06
HDC	0.000400764	0.0131415
HGF	3.7515E-05	0.0018771
HHIP	3.5083E-14	1.39433E-11
HIPK2	3.09086E-07	2.94076E-05
HK3	9.31738E-06	0.000575305
HLF	0.000616687	0.0185198
HMCN2	2.22045E-16	1.26757E-13
HMGA1	1.36568E-08	1.84029E-06
HMGB3	0.000544932	0.0167921
HMGCR	0.000577375	0.0175745
HMMR	0.000114311	0.00471009
HMOX1	8.55501E-06	0.000534539
HNRNPH1	1.95035E-06	0.000149175
HOXA9	0.000829755	0.0236301
HOXB8	0.000527149	0.0163604
HP	1.34775E-08	1.82396E-06
HPGDS	4.59151E-08	5.50237E-06
HS3ST1	0.000706193	0.0207512
HS6ST2	1.21863E-06	0.000100425
HSPA12B	6.40558E-08	7.34931E-06
HSPA4L	1.17142E-05	0.000699363
HSPB6	0.000581926	0.0176787
HTR2A	0.00106199	0.0287324
HTRA3	1.02863E-07	1.10604E-05
HTRA4	2.11251E-05	0.00114161
IBSP	2.24617E-07	2.20388E-05
ICAM2	4.44089E-16	2.46784E-13
ICAM5	0.00175983	0.0429659
ICT1	3.37264E-12	9.2888E-10
IFI203	6.66134E-16	3.60602E-13
IFI205	9.3063E-06	0.000575186
IFI27L2A	0.00142648	0.0363492

IFI30	0.000270929	0.00957939
IFI44	0.00016827	0.00647062
IFIT1	8.24559E-06	0.000519862
IFIT1BL1	1.20045E-08	1.65675E-06
IFITM1	1.17724E-07	1.24034E-05
IFNAR2	0.00167311	0.0412383
IGF1	2.12012E-07	2.09989E-05
IGSF10	9.84073E-05	0.00415288
IGSF6	3.44764E-07	3.21796E-05
IKZF3	3.42702E-05	0.00173408
IL10RA	0	0
IL11RA1	4.81104E-10	8.60709E-08
IL18R1	0.000113281	0.00467991
IL18RAP	3.22376E-09	4.93746E-07
IL1B	1.38862E-11	3.34094E-09
IL1R2	6.08319E-06	0.000402947
IL1RL1	3.81877E-05	0.00190468
IL1RN	5.42336E-06	0.000364235
IL20RB	0.000175924	0.0067156
IL2RB	3.83875E-06	0.000269334
IL2RG	5.11844E-05	0.00241482
IL33	0.0014353	0.0365193
IL4RA	2.04148E-12	5.90759E-10
IL6	1.27302E-05	0.000746398
IL6RA	0.00149463	0.0378297
IL7R	3.34921E-06	0.000241462
ILD2R2	0.000343521	0.01161
INHBA	0.000297784	0.0103577
INMT	7.54084E-09	1.08607E-06
INPP4A	6.31606E-12	1.61884E-09
INPP4B	0.000265059	0.00941353
INPP5B	0.00156321	0.039155
INPP5D	5.10703E-15	2.39325E-12
IQGAP3	1.03219E-05	0.000625639
IRF5	1.00951E-05	0.000614266
IRF8	0	0
ISG15	3.3925E-06	0.000244023
ITCH	9.50812E-07	8.03583E-05
ITGA3	1.72931E-06	0.000134396
ITGAX	3.01159E-12	8.36783E-10
ITGB2	0	0
ITGB4	2.12026E-11	4.87699E-09
ITGB7	1.12774E-07	1.19622E-05
ITK	4.49451E-05	0.00218446
ITM2A	0.000413014	0.0134589
ITPRIPL1	0.000241682	0.0086985
JAM2	1.01215E-05	0.000615276

JCHAIN	0	0
KALRN	2.66454E-15	1.31748E-12
KANK4	4.27841E-06	0.00029646
KBTBD11	0.00196669	0.0469934
KCNA6	4.20531E-09	6.3632E-07
KCNAB2	8.97109E-08	9.76325E-06
KCNC4	5.19619E-05	0.00244232
KCNG4	0.000352217	0.0118275
KCNJ15	0	0
KHK	7.49785E-05	0.00330691
KIF11	1.01702E-05	0.000617637
KIF15	0.000314942	0.0108011
KIF1B	0.0012621	0.0332579
KIF21B	2.64188E-06	0.000194944
KIF23	0.000677909	0.0200478
KIF26B	0	0
KIF2C	6.20835E-06	0.000409941
KIF4	2.77649E-05	0.00144449
KIFC3	1.86529E-09	2.97286E-07
KLK10	0	0
KLK11	8.32841E-06	0.000522983
KLK8	3.40586E-07	3.18734E-05
KLRA2	1.87139E-05	0.00103536
KLRD1	0.000473006	0.0149861
KLRK1	5.10903E-06	0.00034534
KMO	1.73931E-07	1.76446E-05
KMT5A	3.41708E-06	0.00024467
KNG2	0.000725008	0.0211582
KNSTRN	0.000126668	0.00511123
KRT80	1.88294E-13	6.60554E-11
LACC1	1.92905E-08	2.5184E-06
LAIR1	3.10862E-15	1.51323E-12
LAMA2	2.90123E-12	8.13317E-10
LAMA4	4.5614E-05	0.00220843
LAPTM5	0	0
LAT	0.000429001	0.0138718
LCK	7.26333E-08	8.15923E-06
LCLAT1	9.36483E-06	0.000577666
LCN2	8.21565E-15	3.76571E-12
LCP1	0	0
LCP2	1.42109E-14	6.32887E-12
LDHA	0.000862147	0.0243538
LGALS12	0.00101186	0.0276019
LGALS3BP	0	0
LGI1	1.7835E-08	2.35778E-06
LILR4B	0	0
LILRA5	1.41596E-05	0.00081499

LILRA6	0.002056	0.0485545
LIMD2	1.05937E-12	3.30962E-10
LMO7	5.51307E-06	0.000369076
LONRF2	0.00161902	0.0402638
LPCAT2	5.93998E-06	0.000395967
LPCAT3	2.31801E-05	0.00123632
LPXN	4.90116E-08	5.81793E-06
LRG1	4.05162E-05	0.00200648
LRMP	2.22045E-16	1.26757E-13
LRP8	6.78513E-06	0.000443825
LRRC17	1.77978E-05	0.000994315
LRRC25	8.80003E-08	9.62714E-06
LRRC39	3.98541E-05	0.00197525
LRRC3B	0.00089348	0.025025
LSAMP	1.54862E-05	0.000880847
LST1	2.67993E-06	0.000196826
LTB	1.10023E-05	0.00066177
LTBP2	4.2622E-10	7.64699E-08
LTBP4	2.14388E-10	4.1296E-08
LTC4S	0.00199686	0.0475152
LY86	4.80282E-13	1.6128E-10
LYVE1	4.06143E-10	7.34978E-08
LYZ1	1.90633E-06	0.000146521
LYZ2	5.973E-13	1.99508E-10
MAD2L1	0.00151022	0.0380996
MADD	6.37282E-06	0.000419918
MAF	1.09488E-11	2.6962E-09
MAFB	0.00185939	0.0450116
MALL	1.81316E-06	0.000140046
MAMSTR	7.83499E-05	0.00343814
MANF	0.00122858	0.0326349
MAP3K6	0.000310656	0.0107017
MAP3K7	0.000133872	0.00533747
MAP4K1	1.20449E-05	0.000714221
MAP7D2	4.10664E-08	5.01705E-06
MAPK8IP3	0.000717914	0.021003
MAPKAPK3	0.000448476	0.0143538
MARCH1	0	0
MARCKSL1	2.98597E-08	3.74259E-06
MARCO	0.000641306	0.0191038
MAST3	4.4287E-05	0.00215582
MATN4	0.00123665	0.0327797
MCCC2	0.00187612	0.0452776
MDGA1	0.000189135	0.00711174
MDM2	4.66161E-05	0.00224483
MEDAG	0.000896991	0.025101
MEFV	0.00027609	0.00971757

MEGF6	0.000128481	0.00515854
MELK	0.000184568	0.00696094
MERTK	1.40702E-06	0.000114005
METAP1D	0.00145125	0.0368952
MFAP4	4.44089E-16	2.46784E-13
MGAT5	7.92921E-13	2.55341E-10
MGAT5B	3.32294E-05	0.00168822
MILR1	7.26411E-10	1.26357E-07
MKI67	3.20557E-11	7.03824E-09
MLX	6.22403E-05	0.00284453
MMP12	2.9754E-14	1.22921E-11
MMP13	2.08435E-11	4.81202E-09
MMP14	0.000861223	0.0243496
MMP25	0.000578348	0.0175871
MMP27	8.54797E-05	0.0036917
MMRN2	2.62823E-05	0.00137305
MN1	7.00168E-05	0.00313379
MNDA	7.65725E-08	8.55581E-06
MNDAL	6.73917E-06	0.000441739
MOB4	0.00213454	0.049977
MPEG1	0	0
MPZ	6.77236E-14	2.54653E-11
MRC1	0	0
MRGPRG	3.07972E-10	5.75569E-08
MS4A1	5.19115E-09	7.65207E-07
MS4A4B	1.60337E-07	1.64516E-05
MS4A4C	1.17615E-07	1.24034E-05
MS4A6C	0	0
MS4A6D	0	0
MS4A8A	0.00022522	0.00824164
MSR1	0	0
MTG2	0.000335274	0.0113926
MTHFR	0.00187614	0.0452776
MTUS2	0	0
MUM1L1	7.3696E-05	0.00326587
MUP7	0.000161909	0.00625281
MUSK	0.000821743	0.0234232
MXD3	0.00153812	0.0386345
MYBPC2	0.000843177	0.0239472
MYCBP2	0.000402451	0.0131762
MYD88	3.96132E-05	0.00196641
MYLK2	1.34133E-11	3.23956E-09
MYO18B	0.00191114	0.046016
MYO1B	0.00127568	0.033476
MYO1F	4.40314E-13	1.49457E-10
MYRIP	4.76795E-05	0.00228552
MZB1	0.00100684	0.0274888

NAALAD2	0.000817316	0.0233394
NABP1	0.00102386	0.027893
NAIP2	6.20591E-06	0.000409941
NAIP5	8.88568E-08	9.70394E-06
NAPSA	1.64563E-08	2.18936E-06
NBR1	0.00156868	0.0392765
NCF1	0	0
NCF2	5.65547E-08	6.58878E-06
NCKAP1L	0	0
NCOR2	4.67467E-06	0.000318725
NCS1	0.000137911	0.00546725
NDC80	0.00104512	0.028386
NDUFA4L2	0.000712759	0.0209051
NECTIN4	1.06246E-07	1.13658E-05
NEK2	0.000521096	0.0162313
NEK6	3.04581E-09	4.6993E-07
NEURL3	1.84035E-11	4.31212E-09
NFAM1	0	0
NFATC4	0.000132924	0.00530301
NFIC	5.10377E-05	0.00240971
NFIX	0.000544359	0.0167893
NFKBID	0.00021529	0.00792446
NFKBIZ	0.000345906	0.0116718
NGF	2.33569E-12	6.69724E-10
NIPSNAP3B	3.70506E-05	0.00185682
NKG7	1.7277E-05	0.000969533
NKX2-3	0.000431692	0.0139159
NLRC3	5.235E-08	6.17917E-06
NLRC4	6.63126E-05	0.00300007
NLRP1B	2.76509E-08	3.49363E-06
NLRP3	3.69517E-10	6.76496E-08
NOS2	0.000349201	0.0117514
NOS3	1.70168E-09	2.73292E-07
NOTCH3	2.02378E-08	2.63112E-06
NOXO1	0.000335672	0.0113986
NPL	1.57047E-06	0.000124047
NPPA	2.72788E-11	6.096E-09
NPPB	0.000167294	0.00644096
NPR1	4.27741E-05	0.0020919
NPR3	4.51169E-08	5.45083E-06
NPTX2	3.19051E-08	3.96729E-06
NPY	6.08909E-05	0.00279
NRG1	0.00213321	0.0499646
NRXN2	0.000238138	0.00858926
NTNG2	0.000728014	0.0212294
NTPCR	1.49277E-06	0.000119412
NTRK2	0.000227654	0.00829907

NUDCD2	0.000922883	0.0257002
NUDT6	6.29718E-13	2.09223E-10
NUF2	0.0017279	0.0423676
NUSAP1	6.02791E-06	0.000400977
NYAP1	0.000103889	0.00433756
OAS1A	0	0
OAS1G	4.77254E-11	1.02987E-08
OAS3	7.92131E-10	1.3703E-07
OASL1	1.28765E-10	2.59658E-08
OASL2	5.72653E-12	1.47376E-09
OCRL	7.47811E-05	0.00330463
OGT	0.000128477	0.00515854
OLFM2	0.000389574	0.0128214
OLFML1	0.000105226	0.00438174
OLFR224	1.02878E-10	2.13915E-08
OLFR330	0.0009969691	0.0273025
OLFR558	6.91006E-08	7.83774E-06
OLR1	5.17659E-05	0.00243676
OMD	1.19804E-06	9.88583E-05
OPTC	4.77634E-08	5.70209E-06
OSM	0.00017948	0.00681515
P2RX1	0	0
P2RX4	0.000408833	0.0133503
P2RX7	0.00136266	0.035141
P2RY10	2.51451E-05	0.00132688
P2RY13	7.91054E-05	0.00346645
P4HA3	0.00148731	0.03769
PAIP1	0.000191966	0.00720533
PAK3	0.000430864	0.0139034
PALLD	0	0
PALM	0.0016035	0.039973
PAPPA	1.67338E-06	0.000131022
PAPSS2	0.000246469	0.00883897
PAQR6	1.02428E-09	1.73836E-07
PARD3	0.000236081	0.00853959
PARP14	0.00153699	0.0386215
PARP8	0.00132721	0.0344816
PARVG	3.8903E-06	0.000271585
PAX1	7.55806E-08	8.47515E-06
PBK	0.000628944	0.0188069
PCDH7	4.74731E-13	1.60273E-10
PCOLCE2	2.09837E-10	4.05438E-08
PDCD6IP	1.08136E-13	3.90252E-11
PDE1C	1.09194E-05	0.000657415
PDE3A	1.08076E-05	0.000653188
PDE9A	1.291E-08	1.77005E-06
PDGFB	6.53507E-05	0.00296082



PDGFRL	3.79591E-08	4.65556E-06
PDLIM7	1.69678E-11	4.0056E-09
PEX5L	0	0
PF4	0.0010697	0.0288912
PFKFB4	7.76934E-13	2.51482E-10
PHF11B	0.000464312	0.0147777
PHLDB1	1.50824E-06	0.000120343
PIEZO2	2.16839E-09	3.42121E-07
PIK3AP1	0	0
PIK3CG	9.3226E-05	0.00397969
PIK3R5	1.83322E-09	2.92918E-07
PILRA	2.91594E-08	3.66947E-06
PILRB1	1.67756E-06	0.000131186
PILRB2	0.000724389	0.0211572
PIP4K2A	3.13818E-07	2.97228E-05
PIRA1	0.000442939	0.01422
PIRA2	1.56541E-13	5.55368E-11
PITPNA	4.95767E-07	4.43471E-05
PLA2G2D	2.2736E-05	0.00121621
PLA2G4F	0.00011883	0.00484228
PLA2G5	1.28463E-10	2.59658E-08
PLAC8	3.55076E-06	0.0002528
PLAU	0.000137788	0.00546584
PLBD1	2.42122E-11	5.46908E-09
PLCXD3	0.00122977	0.0326526
PLD4	7.29417E-13	2.38561E-10
PLEK2	9.53583E-06	0.000586486
PLK1	0.000206179	0.00763386
PLPPR3	0.000792582	0.0227573
PLXDC1	9.45253E-05	0.00402422
PLXNC1	0.00101031	0.0275716
PMAIP1	1.62119E-05	0.00091549
PNKD	0.000933018	0.0258785
PNPT1	0.00208039	0.0490566
PODXL	6.55738E-06	0.000430722
PODXL2	4.61819E-07	4.16372E-05
POLG	0.00015342	0.00595428
POR	5.54471E-05	0.00257693
POU2AF1	1.3585E-05	0.000788679
PPARA	0.000513483	0.0160339
PPFIA4	0.00179875	0.043797
PPL	3.47459E-09	5.30869E-07
PPM1H	0.00113164	0.0303032
PPP1R1B	2.68829E-12	7.60412E-10
PPTC7	8.17242E-05	0.00356133
PRDM1	0.000288521	0.0101159
PRKCB	9.77567E-06	0.000599476

PRND	4.33161E-05	0.00211511
PROCR	5.18862E-05	0.0024406
PROSER2	0.00212194	0.0497413
PRPF38B	0.00136588	0.0351808
PRRT4	1.38205E-05	0.000797365
PRSS12	8.99313E-06	0.000557477
PRSS23	1.48455E-05	0.000847233
PRUNE2	2.02715E-05	0.00110499
PSD4	4.98596E-05	0.00237233
PSMB8	7.20098E-06	0.000465026
PSRC1	1.85228E-07	1.86111E-05
PSTPIP1	0.000180615	0.00684964
PSTPIP2	3.1919E-05	0.00163417
PTAFR	4.24018E-10	7.62928E-08
PTGER3	0.000153414	0.00595428
PTGFR	1.62359E-12	4.76417E-10
PTHLH	0.000358189	0.0120024
PTPN1	4.47525E-06	0.000307465
PTPN18	4.11085E-05	0.00202305
PTPN2	0.000870076	0.0245336
PTPN6	0	0
PTPN7	8.63754E-13	2.73936E-10
PTPRC	0	0
PTPRCAP	6.72885E-05	0.00302895
PTPRE	1.06131E-09	1.78785E-07
PTPRF	0.00175157	0.0428477
PTPRO	1.54181E-11	3.69534E-09
PTPRZ1	0.000345417	0.0116615
PYDC3	9.44737E-07	7.99525E-05
PYDC4	1.07351E-07	1.14644E-05
PYHIN1	3.23075E-13	1.10861E-10
RAB11FIP1	0.00120171	0.0320023
RAB17	0.000242015	0.00870407
RAB31	0.000180977	0.00684964
RAB44	9.95109E-05	0.00418819
RAB8B	3.05267E-06	0.000221099
RAC2	1.52777E-08	2.04993E-06
RACGAP1	4.34307E-09	6.52447E-07
RADIL	0.00155342	0.0389564
RALGPS2	2.26294E-05	0.0012135
RARRES1	1.11592E-07	1.1877E-05
RASAL2	5.2063E-05	0.00244525
RASAL3	0.0003073	0.0106346
RASGRF2	0.00160254	0.0399649
RASGRP1	5.00898E-05	0.00237747
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-1.008566  
0.6675017

**Supplemental Table II Predicted regulatory PKS in the aortas of MFS mice and MFS**

<b>Input list Rank</b>	<b>Protein Kinase</b>	<b>Hypergeometric</b>	<b> Z-score</b>	<b>Combine</b>	<b>Enriched Substrate</b>
MFS mice 1	HIPK2	1.91E-20	0	0	title=Overlapping E
MFS mice 2	CSNK2A1	6.93E-19	0	0	title=Overlapping E
MFS mice 3	CDK1	1.80E-18	0	0	title=Overlapping E
MFS mice 4	MAPK14	1.89E-18	0	0	title=Overlapping E
MFS mice 5	CDK4	4.79E-17	0	0	title=Overlapping E
MFS mice 6	GSK3B	7.75E-15	0	0	title=Overlapping E
MFS mice 7	AKT1	1.16E-12	0	0	title=Overlapping E
MFS mice 8	PKBALPHA	2.05E-12	0	0	title=Overlapping E
MFS mice 9	CDK2	2.83E-12	0	0	title=Overlapping E
MFS mice 10	ERK1	1.43E-11	0	0	title=Overlapping E
MFS mice 11	MAPK1	1.49E-11	0	0	title=Overlapping E
MFS mice 12	GSK3BETA	2.60E-11	0	0	title=Overlapping E
MFS mice 13	JNK1	4.29E-10	0	0	title=Overlapping E
MFS mice 14	ERK2	5.43E-10	0	0	title=Overlapping E
MFS mice 15	MAPK3	1.15E-09	0	0	title=Overlapping E
MFS mice 16	TGFBR2	8.35E-09	0	0	title=Overlapping E
MFS mice 17	ABL1	1.14E-08	0	0	title=Overlapping E
MFS mice 18	CK2ALPHA	2.88E-08	0	0	title=Overlapping E
MFS mice 19	PKBBETA	3.61E-08	0	0	title=Overlapping E
MFS mice 20	ATM	4.05E-08	0	0	title=Overlapping E
MFS mice 21	DNAPK	4.35E-08	0	0	title=Overlapping E
MFS mice 22	GSK3ALPHA	6.75E-08	0	0	title=Overlapping E
MFS mice 23	IKKALPHA	8.53E-08	0	0	title=Overlapping E
MFS mice 24	CDC2	3.18E-07	0	0	title=Overlapping E
MFS mice 25	RPS6KA3	0.000001875	0	0	title=Overlapping E
MFS mice 26	RAF1	0.000002174	0	0	title=Overlapping E
MFS mice 27	MAPK8	0.000003258	0	0	title=Overlapping E
MFS mice 28	PKBGAMMA	0.000004339	0	0	title=Overlapping E
MFS mice 29	GSK	0.000004339	0	0	title=Overlapping E
MFS mice 30	IKKBETA	0.000005045	0	0	title=Overlapping E
MFS mice 31	PRKCD	0.000005118	0	0	title=Overlapping E
MFS mice 32	CHEK2	0.000007351	0	0	title=Overlapping E
MFS mice 33	MAP3K7	0.000009839	0	0	title=Overlapping E
MFS mice 34	CDK5	0.00001005	0	0	title=Overlapping E
MFS mice 35	PIM1	0.00001173	0	0	title=Overlapping E
MFS mice 36	PRKCZ	0.00002274	0	0	title=Overlapping E
MFS mice 37	AURKA	0.00002274	0	0	title=Overlapping E
MFS mice 38	PRKCA	0.0000235	0	0	title=Overlapping E
MFS mice 39	TGFBR1	0.0000245	0	0	title=Overlapping E
MFS mice 40	PKR	0.00003413	0	0	title=Overlapping E
MFS mice 41	CHEK1	0.00004091	0	0	title=Overlapping E
MFS mice 42	NLK	0.00004853	0	0	title=Overlapping E
MFS mice 43	CDK8	0.00006176	0	0	title=Overlapping E
MFS mice 44	MAP2K3	0.00006742	0	0	title=Overlapping E
MFS mice 45	CDK3	0.00009509	0	0	title=Overlapping E

MFS mice 46	JNK2	0.00009509	0	0	title=Overlapping E
MFS mice 47	IKK	0.0001161	0	0	title=Overlapping E
MFS mice 48	TBK1	0.0001235	0	0	title=Overlapping E
MFS mice 49	IKBKE	0.0001329	0	0	title=Overlapping E
MFS mice 50	CHUK	0.0001764	0	0	title=Overlapping E
MFS mice 51	AKT2	0.0002089	0	0	title=Overlapping E
MFS mice 52	MAPK11	0.0002708	0	0	title=Overlapping E
MFS mice 53	PKCIOTA	0.0004203	0	0	title=Overlapping E
MFS mice 54	PDHK1	0.0004524	0	0	title=Overlapping E
MFS mice 55	PRKCB	0.0005203	0	0	title=Overlapping E
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MFS mice 57	PRKDC	0.000819	0	0	title=Overlapping E
MFS mice 58	UHMK1	0.0008451	0	0	title=Overlapping E
MFS mice 59	MTOR	0.0009056	0	0	title=Overlapping E
MFS mice 60	CSNK1A1	0.0009307	0	0	title=Overlapping E
MFS mice 61	CDK9	0.00145	0	0	title=Overlapping E
MFS mice 62	IKBKB	0.001473	0	0	title=Overlapping E
MFS mice 63	CSNK1E	0.001653	0	0	title=Overlapping E
MFS mice 64	CK2A2	0.001768	0	0	title=Overlapping E
MFS mice 65	PKCALPHA	0.00214	0	0	title=Overlapping E
MFS mice 66	DYRK2	0.002306	0	0	title=Overlapping E
MFS mice 67	CK2	0.002432	0	0	title=Overlapping E
MFS mice 68	PRKACA	0.002448	0	0	title=Overlapping E
MFS mice 69	RPS6KB1	0.002585	0	0	title=Overlapping E
MFS mice 70	RPS6KA5	0.002729	0	0	title=Overlapping E
MFS mice 71	MAP2K1	0.003263	0	0	title=Overlapping E
MFS mice 72	PRKAA1	0.003391	0	0	title=Overlapping E
MFS mice 73	CAM	0.00341	0	0	title=Overlapping E
MFS mice 74	CDK7	0.003849	0	0	title=Overlapping E
MFS mice 75	EGFR	0.004302	0	0	title=Overlapping E
MFS mice 76	RPS6KA1	0.004989	0	0	title=Overlapping E
MFS mice 77	PBK	0.005064	0	0	title=Overlapping E
MFS mice 78	GSK3A	0.005295	0	0	title=Overlapping E
MFS mice 79	JAK2	0.006029	0	0	title=Overlapping E
MFS mice 80	MOK	0.006208	0	0	title=Overlapping E
MFS mice 81	CK1ALPHA	0.006652	0	0	title=Overlapping E
MFS mice 82	MELK	0.006833	0	0	title=Overlapping E
MFS mice 83	DNA	0.007122	0	0	title=Overlapping E
MFS mice 84	MAPK10	0.007251	0	0	title=Overlapping E
MFS mice 85	CAMK2A	0.007263	0	0	title=Overlapping E
MFS mice 86	TNK2	0.007494	0	0	title=Overlapping E
MFS mice 87	MAPK9	0.007614	0	0	title=Overlapping E
MFS mice 88	CDK6	0.008191	0	0	title=Overlapping E
MFS mice 89	CAMK4	0.008191	0	0	title=Overlapping E
MFS mice 90	CAMK2D	0.008926	0	0	title=Overlapping E
MFS mice 91	PKD1	0.01016	0	0	title=Overlapping E
MFS mice 92	CAMKIV	0.01027	0	0	title=Overlapping E

MFS mice 93	BMPR1B	0.01136	0	0	title=Overlapping E
MFS mice 94	BRD2	0.01392	0	0	title=Overlapping E
MFS mice 95	RET	0.01513	0	0	title=Overlapping E
MFS mice 96	ALK	0.01513	0	0	title=Overlapping E
MFS mice 97	MARK2	0.01618	0	0	title=Overlapping E
MFS mice 98	ERBB2	0.01718	0	0	title=Overlapping E
MFS mice 99	ACTR2B	0.01805	0	0	title=Overlapping E
MFS mice 100	PRKAA2	0.01838	0	0	title=Overlapping E
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MFS mice 102	BARK1	0.02133	0	0	title=Overlapping E
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MFS mice 105	TRKA	0.02507	0	0	title=Overlapping E
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MFS mice 107	AURORAA	0.02591	0	0	title=Overlapping E
MFS mice 108	FOXO3	0.02599	0	0	title=Overlapping E
MFS mice 109	TRIM33	0.02599	0	0	title=Overlapping E
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MFS mice 112	LYK5	0.02599	0	0	title=Overlapping E
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MFS mice 156	CK1	0.1349	0	0	title=Overlapping E
MFS mice 157	JNK3	0.1462	0	0	title=Overlapping E
MFS mice 158	MAP2K4	0.1524	0	0	title=Overlapping E
MFS mice 159	PDGFRALPHA	0.1574	0	0	title=Overlapping E
MFS mice 160	TTK	0.1613	0	0	title=Overlapping E
MFS mice 161	CK1DELTA	0.1662	0	0	title=Overlapping E
MFS mice 162	CAMKIIBETA	0.1662	0	0	title=Overlapping E
MFS mice 163	P70S6K	0.1685	0	0	title=Overlapping E
MFS mice 164	ABL	0.1802	0	0	title=Overlapping E
MFS mice 165	ERBB3	0.1849	0	0	title=Overlapping E
MFS mice 166	RIPK3	0.1871	0	0	title=Overlapping E
MFS mice 167	PKC	0.1901	0	0	title=Overlapping E
MFS mice 168	CAMKIIALPHA	0.1944	0	0	title=Overlapping E
MFS mice 169	TAF1	0.2007	0	0	title=Overlapping E
MFS mice 170	MAP3K8	0.2184	0	0	title=Overlapping E
MFS mice 171	TAOK1	0.2215	0	0	title=Overlapping E
MFS mice 172	MAST1	0.2215	0	0	title=Overlapping E
MFS mice 173	POMK	0.2215	0	0	title=Overlapping E
MFS mice 174	PRKCG	0.2232	0	0	title=Overlapping E
MFS mice 175	PRKG1	0.2232	0	0	title=Overlapping E
MFS mice 176	BTK	0.228	0	0	title=Overlapping E
MFS mice 177	PDK	0.2317	0	0	title=Overlapping E
MFS mice 178	ROR1	0.2317	0	0	title=Overlapping E
MFS mice 179	LRRK1	0.2317	0	0	title=Overlapping E
MFS mice 180	ULK4	0.2317	0	0	title=Overlapping E
MFS mice 181	MINK1	0.2317	0	0	title=Overlapping E
MFS mice 182	STK40	0.2317	0	0	title=Overlapping E
MFS mice 183	MAP4K5	0.2317	0	0	title=Overlapping E
MFS mice 184	PKDCC	0.2317	0	0	title=Overlapping E
MFS mice 185	MAST4	0.2317	0	0	title=Overlapping E
MFS mice 186	TYRO3	0.2418	0	0	title=Overlapping E

MFS micε 187	DMPK	0.2418	0	0	title=Overlapping E
MFS micε 188	PKMYT1	0.2418	0	0	title=Overlapping E
MFS micε 189	PRKX	0.2418	0	0	title=Overlapping E
MFS micε 190	LMTK2	0.2418	0	0	title=Overlapping E
MFS micε 191	MARK4	0.2418	0	0	title=Overlapping E
MFS micε 192	MAP3K14	0.2452	0	0	title=Overlapping E
MFS micε 193	PRKD3	0.2518	0	0	title=Overlapping E
MFS micε 194	FASTK	0.2518	0	0	title=Overlapping E
MFS micε 195	PIM3	0.2518	0	0	title=Overlapping E
MFS micε 196	TRIB3	0.2518	0	0	title=Overlapping E
MFS micε 197	GSG2	0.2518	0	0	title=Overlapping E
MFS micε 198	SGK2	0.2518	0	0	title=Overlapping E
MFS micε 199	PNCK	0.2518	0	0	title=Overlapping E
MFS micε 200	MAPK15	0.2518	0	0	title=Overlapping E
MFS micε 201	TYK2	0.2571	0	0	title=Overlapping E
MFS micε 202	HIPK1	0.2616	0	0	title=Overlapping E
MFS micε 203	NEK9	0.2616	0	0	title=Overlapping E
MFS micε 204	STK26	0.2616	0	0	title=Overlapping E
MFS micε 205	TLK1	0.2616	0	0	title=Overlapping E
MFS micε 206	SIK1	0.2616	0	0	title=Overlapping E
MFS micε 207	CAMKK2	0.2616	0	0	title=Overlapping E
MFS micε 208	MAP4K4	0.2616	0	0	title=Overlapping E
MFS micε 209	WEE1	0.2616	0	0	title=Overlapping E
MFS micε 210	MAPK13	0.262	0	0	title=Overlapping E
MFS micε 211	CDK16	0.2713	0	0	title=Overlapping E
MFS micε 212	CSNK1G2	0.2713	0	0	title=Overlapping E
MFS micε 213	CSNK1G1	0.2713	0	0	title=Overlapping E
MFS micε 214	MAP3K11	0.2713	0	0	title=Overlapping E
MFS micε 215	TTN	0.2713	0	0	title=Overlapping E
MFS micε 216	DYRK3	0.2713	0	0	title=Overlapping E
MFS micε 217	AURKC	0.2713	0	0	title=Overlapping E
MFS micε 218	NUAK1	0.2808	0	0	title=Overlapping E
MFS micε 219	CAMKK1	0.2808	0	0	title=Overlapping E
MFS micε 220	GRK5	0.2808	0	0	title=Overlapping E
MFS micε 221	MKNK2	0.2808	0	0	title=Overlapping E
MFS micε 222	INSR	0.2815	0	0	title=Overlapping E
MFS micε 223	NEK1	0.2903	0	0	title=Overlapping E
MFS micε 224	EPHB3	0.2903	0	0	title=Overlapping E
MFS micε 225	PRKCE	0.2912	0	0	title=Overlapping E
MFS micε 226	RPS6KA2	0.2996	0	0	title=Overlapping E
MFS micε 227	MOS	0.2996	0	0	title=Overlapping E
MFS micε 228	CK1EPSILON	0.3088	0	0	title=Overlapping E
MFS micε 229	CLK2	0.3088	0	0	title=Overlapping E
MFS micε 230	RPS6KB2	0.3088	0	0	title=Overlapping E
MFS micε 231	PLK1	0.3116	0	0	title=Overlapping E
MFS micε 232	AKT3	0.3178	0	0	title=Overlapping E
MFS micε 233	SGK3	0.3178	0	0	title=Overlapping E

MFS micε 234	IRAK1	0.3178	0	0	title=Overlapping E
MFS micε 235	MAP3K1	0.32	0	0	title=Overlapping E
MFS micε 236	JAK3	0.3268	0	0	title=Overlapping E
MFS micε 237	LKB1	0.3268	0	0	title=Overlapping E
MFS micε 238	EPHA1	0.3268	0	0	title=Overlapping E
MFS micε 239	PTK6	0.3268	0	0	title=Overlapping E
MFS micε 240	STK3	0.3268	0	0	title=Overlapping E
MFS micε 241	GRK2	0.3268	0	0	title=Overlapping E
MFS micε 242	MAPK7	0.3268	0	0	title=Overlapping E
MFS micε 243	PTK2B	0.3268	0	0	title=Overlapping E
MFS micε 244	PRKCH	0.3356	0	0	title=Overlapping E
MFS micε 245	JAK1	0.3356	0	0	title=Overlapping E
MFS micε 246	PDK1	0.3356	0	0	title=Overlapping E
MFS micε 247	LATS2	0.3356	0	0	title=Overlapping E
MFS micε 248	NEK6	0.3444	0	0	title=Overlapping E
MFS micε 249	LRRK2	0.3444	0	0	title=Overlapping E
MFS micε 250	CAMK1	0.3444	0	0	title=Overlapping E
MFS micε 251	LYN	0.3488	0	0	title=Overlapping E
MFS micε 252	DAPK1	0.353	0	0	title=Overlapping E
MFS micε 253	PLK2	0.353	0	0	title=Overlapping E
MFS micε 254	EIF2AK2	0.353	0	0	title=Overlapping E
MFS micε 255	EPHB1	0.3615	0	0	title=Overlapping E
MFS micε 256	DAPK3	0.3698	0	0	title=Overlapping E
MFS micε 257	CSK	0.3698	0	0	title=Overlapping E
MFS micε 258	LCK	0.381	0	0	title=Overlapping E
MFS micε 259	FGFR1	0.3863	0	0	title=Overlapping E
MFS micε 260	ULK1	0.4023	0	0	title=Overlapping E
MFS micε 261	STK11	0.4179	0	0	title=Overlapping E
MFS micε 262	SLK	0.4179	0	0	title=Overlapping E
MFS micε 263	PDGFRBETA	0.4179	0	0	title=Overlapping E
MFS micε 264	KIT	0.4179	0	0	title=Overlapping E
MFS micε 265	ABL2	0.4256	0	0	title=Overlapping E
MFS micε 266	RIPK1	0.4331	0	0	title=Overlapping E
MFS micε 267	MET	0.4406	0	0	title=Overlapping E
MFS micε 268	RIPK2	0.4479	0	0	title=Overlapping E
MFS micε 269	PRKD2	0.4552	0	0	title=Overlapping E
MFS micε 270	PTK2	0.4624	0	0	title=Overlapping E
MFS micε 271	PAK3	0.4624	0	0	title=Overlapping E
MFS micε 272	PDPK1	0.4694	0	0	title=Overlapping E
MFS micε 273	FYN	0.4751	0	0	title=Overlapping E
MFS micε 274	PAK4	0.4764	0	0	title=Overlapping E
MFS micε 275	PKABETA	0.4901	0	0	title=Overlapping E
MFS micε 276	FGR	0.4968	0	0	title=Overlapping E
MFS micε 277	ROCK1	0.6192	0	0	title=Overlapping E
MFS micε 278	AURORAB	0.6437	0	0	title=Overlapping E
MFS micε 279	MAPK12	0.6796	0	0	title=Overlapping E
MFS micε 280	MAP3K3	0.7098	0	0	title=Overlapping E

MFS mou 1	CSNK2A1	9.70E-18	0	0	title=Overlapping E
MFS mou 2	MAPK1	9.45E-17	0	0	title=Overlapping E
MFS mou 3	MAPK3	2.12E-16	0	0	title=Overlapping E
MFS mou 4	HIPK2	4.85E-16	0	0	title=Overlapping E
MFS mou 5	ERK1	7.00E-16	0	0	title=Overlapping E
MFS mou 6	MAPK14	8.13E-14	0	0	title=Overlapping E
MFS mou 7	CDK1	4.07E-13	0	0	title=Overlapping E
MFS mou 8	AKT1	2.37E-12	0	0	title=Overlapping E
MFS mou 9	CK2ALPHA	6.54E-12	0	0	title=Overlapping E
MFS mou 10	MAPK8	3.15E-11	0	0	title=Overlapping E
MFS mou 11	ERK2	6.15E-11	0	0	title=Overlapping E
MFS mou 12	CDK4	1.21E-10	0	0	title=Overlapping E
MFS mou 13	GSK3B	1.94E-10	0	0	title=Overlapping E
MFS mou 14	JNK1	9.25E-10	0	0	title=Overlapping E
MFS mou 15	PRKCD	2.23E-09	0	0	title=Overlapping E
MFS mou 16	CDC2	3.78E-08	0	0	title=Overlapping E
MFS mou 17	PKBALPHA	3.81E-08	0	0	title=Overlapping E
MFS mou 18	DNAPK	8.63E-08	0	0	title=Overlapping E
MFS mou 19	CK2	1.63E-07	0	0	title=Overlapping E
MFS mou 20	GSK3BETA	1.91E-07	0	0	title=Overlapping E
MFS mou 21	CDK2	4.41E-07	0	0	title=Overlapping E
MFS mous 22	ABL1	7.40E-07	0	0	title=Overlapping Enr
MFS mous 23	IKKBETA	0.000001967	0	0	title=Overlapping Enr
MFS mous 24	JNK2	0.000003212	0	0	title=Overlapping Enr
MFS mous 25	RAF1	0.000004008	0	0	title=Overlapping Enr
MFS mous 26	PRKCB	0.000006162	0	0	title=Overlapping Enr
MFS mous 27	RPS6KA3	0.000007138	0	0	title=Overlapping Enr
MFS mous 28	SRC	0.000007829	0	0	title=Overlapping Enr
MFS mous 29	PKD1	0.00001077	0	0	title=Overlapping Enr
MFS mous 30	PRKACA	0.00001313	0	0	title=Overlapping Enr
MFS mous 31	MAP2K4	0.00004177	0	0	title=Overlapping Enr
MFS mous 32	TBK1	0.00005059	0	0	title=Overlapping Enr
MFS mous 33	RPS6KA1	0.00005452	0	0	title=Overlapping Enr
MFS mous 34	CDK5	0.00007414	0	0	title=Overlapping Enr
MFS mous 35	MAPK9	0.0001024	0	0	title=Overlapping Enr
MFS mous 36	PRKCA	0.0001054	0	0	title=Overlapping Enr
MFS mous 37	ATM	0.0001428	0	0	title=Overlapping Enr
MFS mous 38	CHEK1	0.0002387	0	0	title=Overlapping Enr
MFS mous 39	CHEK2	0.0003474	0	0	title=Overlapping Enr
MFS mous 40	PRKDC	0.0003511	0	0	title=Overlapping Enr
MFS mous 41	GSK3ALPHA	0.0004122	0	0	title=Overlapping Enr
MFS mous 42	GSK	0.0004414	0	0	title=Overlapping Enr
MFS mous 43	AURORAA	0.0004705	0	0	title=Overlapping Enr
MFS mous 44	PIM1	0.0004857	0	0	title=Overlapping Enr
MFS mous 45	CDK6	0.000498	0	0	title=Overlapping Enr
MFS mous 46	MAPK7	0.000498	0	0	title=Overlapping Enr
MFS mous 47	PRKCZ	0.0005	0	0	title=Overlapping Enr



MFS mous 48	CHUK	0.0005308	0	0	title=Overlapping Enr
MFS mous 49	IKBKB	0.0007081	0	0	title=Overlapping Enr
MFS mous 50	CSNK1E	0.000882	0	0	title=Overlapping Enr
MFS mous 51	MAP3K7	0.001139	0	0	title=Overlapping Enr
MFS mous 52	RET	0.00115	0	0	title=Overlapping Enr
MFS mous 53	MARK2	0.00126	0	0	title=Overlapping Enr
MFS mous 54	CSNK2A2	0.001369	0	0	title=Overlapping Enr
MFS mous 55	DYRK2	0.001377	0	0	title=Overlapping Enr
MFS mous 56	RPS6KA5	0.001634	0	0	title=Overlapping Enr
MFS mous 57	PRKAA1	0.001671	0	0	title=Overlapping Enr
MFS mous 58	MAP2K1	0.001768	0	0	title=Overlapping Enr
MFS mous 59	TGFBR2	0.001768	0	0	title=Overlapping Enr
MFS mous 60	PRKD1	0.001872	0	0	title=Overlapping Enr
MFS mous 61	ERBB2	0.001998	0	0	title=Overlapping Enr
MFS mous 62	PKA	0.002138	0	0	title=Overlapping Enr
MFS mous 63	LYN	0.002558	0	0	title=Overlapping Enr
MFS mous 64	CAM	0.002589	0	0	title=Overlapping Enr
MFS mous 65	IKK	0.002589	0	0	title=Overlapping Enr
MFS mous 66	PKBBETA	0.002603	0	0	title=Overlapping Enr
MFS mous 67	IKBKE	0.002734	0	0	title=Overlapping Enr
MFS mous 68	IKKALPHA	0.003062	0	0	title=Overlapping Enr
MFS mous 69	MAPK11	0.003152	0	0	title=Overlapping Enr
MFS mous 70	AURKA	0.003179	0	0	title=Overlapping Enr
MFS mous 71	NIK	0.003426	0	0	title=Overlapping Enr
MFS mous 72	CK1ALPHA	0.003675	0	0	title=Overlapping Enr
MFS mous 73	MAPK10	0.004424	0	0	title=Overlapping Enr
MFS mous 74	PKBGAMMA	0.005081	0	0	title=Overlapping Enr
MFS mous 75	DNA	0.005425	0	0	title=Overlapping Enr
MFS mous 76	CK2A2	0.006597	0	0	title=Overlapping Enr
MFS mous 77	CDK3	0.006601	0	0	title=Overlapping Enr
MFS mous 78	EGFR	0.006981	0	0	title=Overlapping Enr
MFS mous 79	EIF2AK2	0.007161	0	0	title=Overlapping Enr
MFS mous 80	CAMKIV	0.00784	0	0	title=Overlapping Enr
MFS mous 81	CDK9	0.008363	0	0	title=Overlapping Enr
MFS mous 82	MAPKAPK2	0.00852	0	0	title=Overlapping Enr
MFS mous 83	BTK	0.00852	0	0	title=Overlapping Enr
MFS mous 84	MAP3K5	0.009006	0	0	title=Overlapping Enr
MFS mous 85	JNK3	0.009197	0	0	title=Overlapping Enr
MFS mous 86	ALK	0.01038	0	0	title=Overlapping Enr
MFS mous 87	MTOR	0.01052	0	0	title=Overlapping Enr
MFS mous 88	MAPK13	0.01178	0	0	title=Overlapping Enr
MFS mous 89	CDK7	0.0123	0	0	title=Overlapping Enr
MFS mous 90	PRKAA2	0.01265	0	0	title=Overlapping Enr
MFS mous 91	DYRK1A	0.01347	0	0	title=Overlapping Enr
MFS mous 92	CSNK1A1	0.01575	0	0	title=Overlapping Enr
MFS mous 93	CAMK2A	0.01603	0	0	title=Overlapping Enr
MFS mous 94	CSNK1D	0.01702	0	0	title=Overlapping Enr

MFS mous 95	PRKCI	0.02	0	0	title=Overlapping Enr
MFS mous 96	GSK3A	0.02214	0	0	title=Overlapping Enr
MFS mous 97	FOXO3	0.02262	0	0	title=Overlapping Enr
MFS mous 98	PIKFYVE	0.02262	0	0	title=Overlapping Enr
MFS mous 99	PKCTHETA	0.02326	0	0	title=Overlapping Enr
MFS mous 100	PDK	0.02335	0	0	title=Overlapping Enr
MFS mous 101	ACVR2B	0.02335	0	0	title=Overlapping Enr
MFS mous 102	PKMYT1	0.02549	0	0	title=Overlapping Enr
MFS mous 103	CSNK2B	0.02549	0	0	title=Overlapping Enr
MFS mous 104	HIPK1	0.03002	0	0	title=Overlapping Enr
MFS mous 105	MERTK	0.03239	0	0	title=Overlapping Enr
MFS mous 106	AURKB	0.03452	0	0	title=Overlapping Enr
MFS mous 107	NUAK1	0.03484	0	0	title=Overlapping Enr
MFS mous 108	PAK5	0.03484	0	0	title=Overlapping Enr
MFS mous 109	EPHA8	0.03735	0	0	title=Overlapping Enr
MFS mous 110	VRK1	0.03993	0	0	title=Overlapping Enr
MFS mous 111	RIPK3	0.04169	0	0	title=Overlapping Enr
MFS mous 112	MAP3K8	0.04198	0	0	title=Overlapping Enr
MFS mous 113	MELK	0.04258	0	0	title=Overlapping Enr
MFS mous 114	RPS6KB2	0.04258	0	0	title=Overlapping Enr
MFS mous 115	AKT3	0.04529	0	0	title=Overlapping Enr
MFS mous 116	TNK2	0.04529	0	0	title=Overlapping Enr
MFS mous 117	CDK8	0.04529	0	0	title=Overlapping Enr
MFS mous 118	DYRK1B	0.04806	0	0	title=Overlapping Enr
MFS mous 119	CAMK4	0.04806	0	0	title=Overlapping Enr
MFS mous 120	PDHK1	0.05005	0	0	title=Overlapping Enr
MFS mous 121	PRKACB	0.05089	0	0	title=Overlapping Enr
MFS mous 122	EEF2K	0.05089	0	0	title=Overlapping Enr
MFS mous 123	LATS2	0.05089	0	0	title=Overlapping Enr
MFS mous 124	CAMK2D	0.05089	0	0	title=Overlapping Enr
MFS mous 125	TEC	0.05089	0	0	title=Overlapping Enr
MFS mous 126	LRRK2	0.05379	0	0	title=Overlapping Enr
MFS mous 127	AXL	0.05379	0	0	title=Overlapping Enr
MFS mous 128	FER	0.05379	0	0	title=Overlapping Enr
MFS mous 129	ATR	0.05502	0	0	title=Overlapping Enr
MFS mous 130	MAPKAPK5	0.05674	0	0	title=Overlapping Enr
MFS mous 131	BARK1	0.06252	0	0	title=Overlapping Enr
MFS mous 132	DAPK3	0.0628	0	0	title=Overlapping Enr
MFS mous 133	MAP3K14	0.06315	0	0	title=Overlapping Enr
MFS mous 134	INSR	0.06441	0	0	title=Overlapping Enr
MFS mous 135	PAK6	0.06591	0	0	title=Overlapping Enr
MFS mous 136	MAP3K3	0.0661	0	0	title=Overlapping Enr
MFS mous 137	PKM	0.06634	0	0	title=Overlapping Enr
MFS mous 138	PKCALPHA	0.06745	0	0	title=Overlapping Enr
MFS mous 139	PKC	0.06827	0	0	title=Overlapping Enr
MFS mous 140	PKG1CGKI	0.06907	0	0	title=Overlapping Enr
MFS mous 141	FYN	0.07463	0	0	title=Overlapping Enr

MFS mous 142	CHK2	0.07697	0	0	title=Overlapping Enr
MFS mous 143	CHK1	0.07697	0	0	title=Overlapping Enr
MFS mous 144	PDHK2	0.07697	0	0	title=Overlapping Enr
MFS mous 145	MAPK12	0.07837	0	0	title=Overlapping Enr
MFS mous 146	PLK3	0.07884	0	0	title=Overlapping Enr
MFS mous 147	STK11	0.08219	0	0	title=Overlapping Enr
MFS mous 148	MAP2K7	0.08219	0	0	title=Overlapping Enr
MFS mous 149	PDGFRBETA	0.08219	0	0	title=Overlapping Enr
MFS mous 150	KIT	0.08219	0	0	title=Overlapping Enr
MFS mous 151	RSK	0.08747	0	0	title=Overlapping Enr
MFS mous 152	PKR	0.08902	0	0	title=Overlapping Enr
MFS mous 153	RIPK1	0.08902	0	0	title=Overlapping Enr
MFS mous 154	PKCIOTA	0.09601	0	0	title=Overlapping Enr
MFS mous 155	RIPK2	0.09601	0	0	title=Overlapping Enr
MFS mous 156	MAP2K6	0.09601	0	0	title=Overlapping Enr
MFS mous 157	AURORA	0.09786	0	0	title=Overlapping Enr
MFS mous 158	PRKD2	0.09956	0	0	title=Overlapping Enr
MFS mous 159	PAK3	0.1031	0	0	title=Overlapping Enr
MFS mous 160	TRRAP	0.1081	0	0	title=Overlapping Enr
MFS mous 161	RSK	0.1081	0	0	title=Overlapping Enr
MFS mous 162	CK1GAMMA1	0.1081	0	0	title=Overlapping Enr
MFS mous 163	MAP2K3	0.1104	0	0	title=Overlapping Enr
MFS mous 164	PAK4	0.1104	0	0	title=Overlapping Enr
MFS mous 165	PKC	0.1183	0	0	title=Overlapping Enr
MFS mous 166	STK17A	0.1183	0	0	title=Overlapping Enr
MFS mous 167	JAK2	0.1254	0	0	title=Overlapping Enr
MFS mous 168	LCK	0.128	0	0	title=Overlapping Enr
MFS mous 169	TP53RK	0.1283	0	0	title=Overlapping Enr
MFS mous 170	CK1DELTA	0.133	0	0	title=Overlapping Enr
MFS mous 171	IGF1R	0.133	0	0	title=Overlapping Enr
MFS mous 172	CAMKIIIBETA	0.133	0	0	title=Overlapping Enr
MFS mous 173	TRKB	0.1383	0	0	title=Overlapping Enr
MFS mous 174	BRD2	0.1383	0	0	title=Overlapping Enr
MFS mous 175	ADRBK1	0.1383	0	0	title=Overlapping Enr
MFS mous 176	PKAALPHA	0.1452	0	0	title=Overlapping Enr
MFS mous 177	P70S6K	0.1481	0	0	title=Overlapping Enr
MFS mous 178	DMPK1	0.1481	0	0	title=Overlapping Enr
MFS mous 179	PKAGAMMA	0.1486	0	0	title=Overlapping Enr
MFS mous 180	ERBB3	0.1486	0	0	title=Overlapping Enr
MFS mous 181	AKT2	0.1566	0	0	title=Overlapping Enr
MFS mous 182	CAMKIIALPHA	0.1566	0	0	title=Overlapping Enr
MFS mous 183	ACTR2B	0.1578	0	0	title=Overlapping Enr
MFS mous 184	PAK1	0.1587	0	0	title=Overlapping Enr
MFS mous 185	PKC	0.1674	0	0	title=Overlapping Enr
MFS mous 186	TAF1	0.1769	0	0	title=Overlapping Enr
MFS mous 187	PRKG1	0.1808	0	0	title=Overlapping Enr
MFS mous 188	TRKA	0.1862	0	0	title=Overlapping Enr

MFS mous 189	RPS6KB1	0.189	0	0	title=Overlapping Enr
MFS mous 190	HIPK4	0.1955	0	0	title=Overlapping Enr
MFS mous 191	TAOK1	0.1955	0	0	title=Overlapping Enr
MFS mous 192	TNNI3K	0.1955	0	0	title=Overlapping Enr
MFS mous 193	BMP2K	0.1955	0	0	title=Overlapping Enr
MFS mous 194	LMTK3	0.1955	0	0	title=Overlapping Enr
MFS mous 195	MAST1	0.1955	0	0	title=Overlapping Enr
MFS mous 196	SCYL2	0.1955	0	0	title=Overlapping Enr
MFS mous 197	POMK	0.1955	0	0	title=Overlapping Enr
MFS mous 198	SYK	0.2014	0	0	title=Overlapping Enr
MFS mous 199	CDK10	0.2047	0	0	title=Overlapping Enr
MFS mous 200	CDK12	0.2047	0	0	title=Overlapping Enr
MFS mous 201	CDK13	0.2047	0	0	title=Overlapping Enr
MFS mous 202	CDKL2	0.2047	0	0	title=Overlapping Enr
MFS mous 203	ROR1	0.2047	0	0	title=Overlapping Enr
MFS mous 204	LRRK1	0.2047	0	0	title=Overlapping Enr
MFS mous 205	PKCETA	0.2047	0	0	title=Overlapping Enr
MFS mous 206	MAP4K5	0.2047	0	0	title=Overlapping Enr
MFS mous 207	WEE2	0.2047	0	0	title=Overlapping Enr
MFS mous 208	TYK2	0.2098	0	0	title=Overlapping Enr
MFS mous 209	PKCGAMMA	0.2098	0	0	title=Overlapping Enr
MFS mous 210	TYRO3	0.2138	0	0	title=Overlapping Enr
MFS mous 211	DMPK	0.2138	0	0	title=Overlapping Enr
MFS mous 212	PKN3	0.2138	0	0	title=Overlapping Enr
MFS mous 213	NTRK3	0.2138	0	0	title=Overlapping Enr
MFS mous 214	PRKX	0.2138	0	0	title=Overlapping Enr
MFS mous 215	MARK4	0.2138	0	0	title=Overlapping Enr
MFS mous 216	SCYL1	0.2138	0	0	title=Overlapping Enr
MFS mous 217	CAMK1G	0.2138	0	0	title=Overlapping Enr
MFS mous 218	PLK1	0.2193	0	0	title=Overlapping Enr
MFS mous 219	PAK2	0.2223	0	0	title=Overlapping Enr
MFS mous 220	PRKD3	0.2227	0	0	title=Overlapping Enr
MFS mous 221	SMG1	0.2227	0	0	title=Overlapping Enr
MFS mous 222	PIM3	0.2227	0	0	title=Overlapping Enr
MFS mous 223	FLT3	0.2227	0	0	title=Overlapping Enr
MFS mous 224	PIK3CG	0.2227	0	0	title=Overlapping Enr
MFS mous 225	TLK2	0.2227	0	0	title=Overlapping Enr
MFS mous 226	TRIB3	0.2227	0	0	title=Overlapping Enr
MFS mous 227	CAM	0.2227	0	0	title=Overlapping Enr
MFS mous 228	SGK2	0.2227	0	0	title=Overlapping Enr
MFS mous 229	MAPK15	0.2227	0	0	title=Overlapping Enr
MFS mous 230	AURORAB	0.2265	0	0	title=Overlapping Enr
MFS mous 231	EIF2AK1	0.2316	0	0	title=Overlapping Enr
MFS mous 232	MAP3K6	0.2316	0	0	title=Overlapping Enr
MFS mous 233	VRK2	0.2316	0	0	title=Overlapping Enr
MFS mous 234	MAP3K10	0.2316	0	0	title=Overlapping Enr
MFS mous 235	SIK1	0.2316	0	0	title=Overlapping Enr

MFS mous 236	CAMKK2	0.2316	0	0	title=Overlapping Enr
MFS mous 237	MAP4K4	0.2316	0	0	title=Overlapping Enr
MFS mous 238	MAPK6	0.2316	0	0	title=Overlapping Enr
MFS mous 239	WEE1	0.2316	0	0	title=Overlapping Enr
MFS mous 240	CDK16	0.2403	0	0	title=Overlapping Enr
MFS mous 241	FRK	0.2403	0	0	title=Overlapping Enr
MFS mous 242	CSNK1G1	0.2403	0	0	title=Overlapping Enr
MFS mous 243	MAP2K5	0.2403	0	0	title=Overlapping Enr
MFS mous 244	TTN	0.2403	0	0	title=Overlapping Enr
MFS mous 245	DYRK3	0.2403	0	0	title=Overlapping Enr
MFS mous 246	PKCEPSILON	0.2434	0	0	title=Overlapping Enr
MFS mous 247	PBK	0.249	0	0	title=Overlapping Enr
MFS mous 248	RPS6KA4	0.249	0	0	title=Overlapping Enr
MFS mous 249	CAMKK1	0.249	0	0	title=Overlapping Enr
MFS mous 250	GRK5	0.249	0	0	title=Overlapping Enr
MFS mous 251	GRK6	0.249	0	0	title=Overlapping Enr
MFS mous 252	MAP3K1	0.2492	0	0	title=Overlapping Enr
MFS mous 253	PIM2	0.2576	0	0	title=Overlapping Enr
MFS mous 254	EPHB3	0.2576	0	0	title=Overlapping Enr
MFS mous 255	RPS6KA2	0.266	0	0	title=Overlapping Enr
MFS mous 256	MOK	0.266	0	0	title=Overlapping Enr
MFS mous 257	MOS	0.266	0	0	title=Overlapping Enr
MFS mous 258	ILK	0.266	0	0	title=Overlapping Enr
MFS mous 259	MAPKAPK3	0.2744	0	0	title=Overlapping Enr
MFS mous 260	PRKG2	0.2744	0	0	title=Overlapping Enr
MFS mous 261	CK1EPSILON	0.2744	0	0	title=Overlapping Enr
MFS mous 262	SGK3	0.2827	0	0	title=Overlapping Enr
MFS mous 263	IRAK1	0.2827	0	0	title=Overlapping Enr
MFS mous 264	LATS1	0.2827	0	0	title=Overlapping Enr
MFS mous 265	JAK3	0.2909	0	0	title=Overlapping Enr
MFS mous 266	BMX	0.2909	0	0	title=Overlapping Enr
MFS mous 267	UHMK1	0.2909	0	0	title=Overlapping Enr
MFS mous 268	EPHA1	0.2909	0	0	title=Overlapping Enr
MFS mous 269	PTK6	0.2909	0	0	title=Overlapping Enr
MFS mous 270	PRKCH	0.299	0	0	title=Overlapping Enr
MFS mous 271	JAK1	0.299	0	0	title=Overlapping Enr
MFS mous 272	FLT1	0.299	0	0	title=Overlapping Enr
MFS mous 273	PDK1	0.299	0	0	title=Overlapping Enr
MFS mous 274	PKN1	0.307	0	0	title=Overlapping Enr
MFS mous 275	NEK6	0.307	0	0	title=Overlapping Enr
MFS mous 276	CAMK1	0.307	0	0	title=Overlapping Enr
MFS mous 277	DAPK1	0.3149	0	0	title=Overlapping Enr
MFS mous 278	YES1	0.3149	0	0	title=Overlapping Enr
MFS mous 279	EPHB1	0.3227	0	0	title=Overlapping Enr
MFS mous 280	CSK	0.3305	0	0	title=Overlapping Enr
MFS mous 281	PDGFRB	0.3305	0	0	title=Overlapping Enr
MFS mous 282	TTK	0.3361	0	0	title=Overlapping Enr

MFS mous 283	FGFR1	0.3457	0	0	title=Overlapping Enr
MFS mous 284	ITK	0.3531	0	0	title=Overlapping Enr
MFS mous 285	ARAF	0.3605	0	0	title=Overlapping Enr
MFS mous 286	ULK1	0.3605	0	0	title=Overlapping Enr
MFS mous 287	HCK	0.3751	0	0	title=Overlapping Enr
MFS mous 288	MAP2K2	0.3822	0	0	title=Overlapping Enr
MFS mous 289	ABL2	0.3822	0	0	title=Overlapping Enr
MFS mous 290	MET	0.3962	0	0	title=Overlapping Enr
MFS mous 291	NLK	0.41	0	0	title=Overlapping Enr
MFS mous 292	PTK2	0.4167	0	0	title=Overlapping Enr
MFS mous 293	PRKCG	0.4234	0	0	title=Overlapping Enr
MFS mous 294	NEK2	0.4234	0	0	title=Overlapping Enr
MFS mous 295	PDPK1	0.4234	0	0	title=Overlapping Enr
MFS mous 296	KDR	0.443	0	0	title=Overlapping Enr
MFS mous 297	PKABETA	0.443	0	0	title=Overlapping Enr
MFS mous 298	PLK4	0.4741	0	0	title=Overlapping Enr
MFS mous 299	SGK1	0.5314	0	0	title=Overlapping Enr
MFS mous 300	PRKCQ	0.5367	0	0	title=Overlapping Enr
MFS mous 301	PRKCE	0.6059	0	0	title=Overlapping Enr
MFS mous 1	CSNK2A1	5.24E-18	0	0	title=Overlapping Enr
MFS mous 2	MAPK1	1.81E-17	0	0	title=Overlapping Enr
MFS mous 3	MAPK14	5.17E-17	0	0	title=Overlapping Enr
MFS mous 4	MAPK3	6.10E-16	0	0	title=Overlapping Enr
MFS mous 5	HIPK2	3.87E-14	0	0	title=Overlapping Enr
MFS mous 6	ERK1	4.45E-14	0	0	title=Overlapping Enr
MFS mous 7	CDK1	2.58E-13	0	0	title=Overlapping Enr
MFS mous 8	CK2ALPHA	2.91E-13	0	0	title=Overlapping Enr
MFS mous 9	CDK4	4.51E-13	0	0	title=Overlapping Enr
MFS mous 10	AKT1	8.64E-13	0	0	title=Overlapping Enr
MFS mous 11	GSK3B	2.61E-11	0	0	title=Overlapping Enr
MFS mous 12	ERK2	3.13E-10	0	0	title=Overlapping Enr
MFS mous 13	GSK3BETA	1.45E-09	0	0	title=Overlapping Enr
MFS mous 14	JNK1	6.94E-09	0	0	title=Overlapping Enr
MFS mous 15	MAPK8	7.19E-09	0	0	title=Overlapping Enr
MFS mous 16	CDK2	2.57E-08	0	0	title=Overlapping Enr
MFS mous 17	CK2	1.11E-07	0	0	title=Overlapping Enr
MFS mous 18	PKBALPHA	1.44E-07	0	0	title=Overlapping Enr
MFS mous 19	PRKCA	4.40E-07	0	0	title=Overlapping Enr
MFS mous 20	CDC2	6.72E-07	0	0	title=Overlapping Enr
MFS mous 21	RPS6KA3	0.000004195	0	0	title=Overlapping Enr
MFS mous 22	PRKACA	0.00001571	0	0	title=Overlapping Enr
MFS mous 23	IKKBETA	0.00001906	0	0	title=Overlapping Enr
MFS mous 24	GSK3ALPHA	0.00003253	0	0	title=Overlapping Enr
MFS mous 25	TBK1	0.00003806	0	0	title=Overlapping Enr
MFS mous 26	PRKCD	0.00003924	0	0	title=Overlapping Enr
MFS mous 27	IKBKE	0.00004103	0	0	title=Overlapping Enr
MFS mous 28	AURORAA	0.00004753	0	0	title=Overlapping Enr

MFS mous 29	CHUK	0.00005487	0	0	title=Overlapping Enr
MFS mous 30	ABL1	0.0001166	0	0	title=Overlapping Enr
MFS mous 31	CHEK1	0.0001655	0	0	title=Overlapping Enr
MFS mous 32	IKKALPHA	0.0001899	0	0	title=Overlapping Enr
MFS mous 33	NLK	0.0001962	0	0	title=Overlapping Enr
MFS mous 34	SRC	0.0002147	0	0	title=Overlapping Enr
MFS mous 35	PRKAA1	0.0002158	0	0	title=Overlapping Enr
MFS mous 36	PKBBETA	0.0002366	0	0	title=Overlapping Enr
MFS mous 37	DNAPK	0.0002406	0	0	title=Overlapping Enr
MFS mous 38	RPS6KA1	0.0003276	0	0	title=Overlapping Enr
MFS mous 39	PKBGAMMA	0.0003732	0	0	title=Overlapping Enr
MFS mous 40	PRKCZ	0.0003946	0	0	title=Overlapping Enr
MFS mous 41	CDK6	0.0004212	0	0	title=Overlapping Enr
MFS mous 42	JNK2	0.0005301	0	0	title=Overlapping Enr
MFS mous 43	IKBKB	0.0005602	0	0	title=Overlapping Enr
MFS mous 44	CK2A2	0.0007737	0	0	title=Overlapping Enr
MFS mous 45	CDK5	0.001223	0	0	title=Overlapping Enr
MFS mous 46	PDHK1	0.001292	0	0	title=Overlapping Enr
MFS mous 47	MAP2K1	0.001454	0	0	title=Overlapping Enr
MFS mous 48	TGFBR2	0.001454	0	0	title=Overlapping Enr
MFS mous 49	ERBB2	0.001595	0	0	title=Overlapping Enr
MFS mous 50	ATM	0.001693	0	0	title=Overlapping Enr
MFS mous 51	CDK7	0.001724	0	0	title=Overlapping Enr
MFS mous 52	PKA	0.001884	0	0	title=Overlapping Enr
MFS mous 53	PRKCB	0.002272	0	0	title=Overlapping Enr
MFS mous 54	IKK	0.002373	0	0	title=Overlapping Enr
MFS mous 55	MAP2K3	0.002381	0	0	title=Overlapping Enr
MFS mous 56	MAPK11	0.002526	0	0	title=Overlapping Enr
MFS mous 57	CHEK2	0.002555	0	0	title=Overlapping Enr
MFS mous 58	AURKA	0.002626	0	0	title=Overlapping Enr
MFS mous 59	GSK3A	0.002736	0	0	title=Overlapping Enr
MFS mous 60	PIM1	0.003335	0	0	title=Overlapping Enr
MFS mous 61	RAF1	0.003685	0	0	title=Overlapping Enr
MFS mous 62	MELK	0.00409	0	0	title=Overlapping Enr
MFS mous 63	CDK8	0.004492	0	0	title=Overlapping Enr
MFS mous 64	GSK	0.004492	0	0	title=Overlapping Enr
MFS mous 65	UHMK1	0.004919	0	0	title=Overlapping Enr
MFS mous 66	MAPK7	0.004919	0	0	title=Overlapping Enr
MFS mous 67	MAP3K7	0.005167	0	0	title=Overlapping Enr
MFS mous 68	CAMK2D	0.005368	0	0	title=Overlapping Enr
MFS mous 69	CDK3	0.005842	0	0	title=Overlapping Enr
MFS mous 70	CAMKIV	0.0072	0	0	title=Overlapping Enr
MFS mous 71	BTK	0.007311	0	0	title=Overlapping Enr
MFS mous 72	CDK9	0.00741	0	0	title=Overlapping Enr
MFS mous 73	PRKDC	0.008186	0	0	title=Overlapping Enr
MFS mous 74	MTOR	0.008787	0	0	title=Overlapping Enr
MFS mous 75	RET	0.009205	0	0	title=Overlapping Enr

MFS mous 76	MAPK13	0.01014	0	0	title=Overlapping Enr
MFS mous 77	DYRK2	0.01053	0	0	title=Overlapping Enr
MFS mous 78	DYRK1A	0.01196	0	0	title=Overlapping Enr
MFS mous 79	RPS6KA5	0.01196	0	0	title=Overlapping Enr
MFS mous 80	CK1ALPHA	0.01646	0	0	title=Overlapping Enr
MFS mous 81	TRKA	0.01776	0	0	title=Overlapping Enr
MFS mous 82	EGFR	0.01969	0	0	title=Overlapping Enr
MFS mous 83	CSNK2A2	0.02065	0	0	title=Overlapping Enr
MFS mous 84	MAP2K4	0.02073	0	0	title=Overlapping Enr
MFS mous 85	FYN	0.02105	0	0	title=Overlapping Enr
MFS mous 86	ACVR2B	0.0215	0	0	title=Overlapping Enr
MFS mous 87	FOXO3	0.02165	0	0	title=Overlapping Enr
MFS mous 88	TRIM33	0.02165	0	0	title=Overlapping Enr
MFS mous 89	LYK5	0.02165	0	0	title=Overlapping Enr
MFS mous 90	PIKFYVE	0.02165	0	0	title=Overlapping Enr
MFS mous 91	PKMYT1	0.02349	0	0	title=Overlapping Enr
MFS mous 92	ERBB3	0.0285	0	0	title=Overlapping Enr
MFS mous 93	MERTK	0.02987	0	0	title=Overlapping Enr
MFS mous 94	PAK5	0.03214	0	0	title=Overlapping Enr
MFS mous 95	CSNK1E	0.03223	0	0	title=Overlapping Enr
MFS mous 96	PKD1	0.03223	0	0	title=Overlapping Enr
MFS mous 97	EPHA8	0.03446	0	0	title=Overlapping Enr
MFS mous 98	RIPK3	0.03636	0	0	title=Overlapping Enr
MFS mous 99	ILK	0.03686	0	0	title=Overlapping Enr
MFS mous 100	MAP3K8	0.0376	0	0	title=Overlapping Enr
MFS mous 101	PKAALPHA	0.03837	0	0	title=Overlapping Enr
MFS mous 102	TNK2	0.04183	0	0	title=Overlapping Enr
MFS mous 103	PRKACB	0.04704	0	0	title=Overlapping Enr
MFS mous 104	PRKCH	0.04704	0	0	title=Overlapping Enr
MFS mous 105	TEC	0.04704	0	0	title=Overlapping Enr
MFS mous 106	AXL	0.04973	0	0	title=Overlapping Enr
MFS mous 107	FER	0.04973	0	0	title=Overlapping Enr
MFS mous 108	EIF2AK2	0.05247	0	0	title=Overlapping Enr
MFS mous 109	MAP3K14	0.05542	0	0	title=Overlapping Enr
MFS mous 110	AURORAB	0.05623	0	0	title=Overlapping Enr
MFS mous 111	INSR	0.05795	0	0	title=Overlapping Enr
MFS mous 112	MAP3K5	0.06101	0	0	title=Overlapping Enr
MFS mous 113	PAK6	0.06101	0	0	title=Overlapping Enr
MFS mous 114	PKC	0.06146	0	0	title=Overlapping Enr
MFS mous 115	CSNK1A1	0.06326	0	0	title=Overlapping Enr
MFS mous 116	CAM	0.06357	0	0	title=Overlapping Enr
MFS mous 117	PKM	0.06357	0	0	title=Overlapping Enr
MFS mous 118	PKG1CGKI	0.06395	0	0	title=Overlapping Enr
MFS mous 119	ALK	0.06695	0	0	title=Overlapping Enr
MFS mous 120	MARK2	0.06999	0	0	title=Overlapping Enr
MFS mous 121	MAPK12	0.07067	0	0	title=Overlapping Enr
MFS mous 122	CHK1	0.07376	0	0	title=Overlapping Enr



MFS mous 123	PDHK2	0.07376	0	0	title=Overlapping Enr
MFS mous 124	NIK	0.07376	0	0	title=Overlapping Enr
MFS mous 125	STK11	0.0762	0	0	title=Overlapping Enr
MFS mous 126	MAPK9	0.07846	0	0	title=Overlapping Enr
MFS mous 127	RIPK1	0.08258	0	0	title=Overlapping Enr
MFS mous 128	RSK	0.08385	0	0	title=Overlapping Enr
MFS mous 129	PLK1	0.08856	0	0	title=Overlapping Enr
MFS mous 130	PKCIOTA	0.08911	0	0	title=Overlapping Enr
MFS mous 131	RIPK2	0.08911	0	0	title=Overlapping Enr
MFS mous 132	MAP2K6	0.08911	0	0	title=Overlapping Enr
MFS mous 133	AURKB	0.09313	0	0	title=Overlapping Enr
MFS mous 134	AURORA	0.09383	0	0	title=Overlapping Enr
MFS mous 135	SGK	0.09383	0	0	title=Overlapping Enr
MFS mous 136	DNA	0.09383	0	0	title=Overlapping Enr
MFS mous 137	NEK2	0.09919	0	0	title=Overlapping Enr
MFS mous 138	PRKCI	0.1026	0	0	title=Overlapping Enr
MFS mous 139	TRRAP	0.1037	0	0	title=Overlapping Enr
MFS mous 140	RSK	0.1037	0	0	title=Overlapping Enr
MFS mous 141	CK1GAMMA1	0.1037	0	0	title=Overlapping Enr
MFS mous 142	PKCTHETA	0.1131	0	0	title=Overlapping Enr
MFS mous 143	PKC	0.1135	0	0	title=Overlapping Enr
MFS mous 144	CK1	0.1135	0	0	title=Overlapping Enr
MFS mous 145	JAK2	0.1167	0	0	title=Overlapping Enr
MFS mous 146	JNK3	0.1231	0	0	title=Overlapping Enr
MFS mous 147	CK1DELTA	0.1238	0	0	title=Overlapping Enr
MFS mous 148	IGF1R	0.1238	0	0	title=Overlapping Enr
MFS mous 149	CAMKIIIBETA	0.1238	0	0	title=Overlapping Enr
MFS mous 150	MAPK10	0.1275	0	0	title=Overlapping Enr
MFS mous 151	TRKB	0.1327	0	0	title=Overlapping Enr
MFS mous 152	PDGFRALPHA	0.1327	0	0	title=Overlapping Enr
MFS mous 153	BRD2	0.1327	0	0	title=Overlapping Enr
MFS mous 154	PKAGAMMA	0.1385	0	0	title=Overlapping Enr
MFS mous 155	P70S6K	0.1421	0	0	title=Overlapping Enr
MFS mous 156	AKT2	0.146	0	0	title=Overlapping Enr
MFS mous 157	CAMKIIALPHA	0.146	0	0	title=Overlapping Enr
MFS mous 158	ACTR2B	0.1515	0	0	title=Overlapping Enr
MFS mous 159	MAP3K3	0.1522	0	0	title=Overlapping Enr
MFS mous 160	ATR	0.155	0	0	title=Overlapping Enr
MFS mous 161	PKC	0.1607	0	0	title=Overlapping Enr
MFS mous 162	SGK1	0.1651	0	0	title=Overlapping Enr
MFS mous 163	MAPKAPK2	0.1728	0	0	title=Overlapping Enr
MFS mous 164	RPS6KB1	0.1767	0	0	title=Overlapping Enr
MFS mous 165	TAOK1	0.1879	0	0	title=Overlapping Enr
MFS mous 166	TNNI3K	0.1879	0	0	title=Overlapping Enr
MFS mous 167	TNIK	0.1879	0	0	title=Overlapping Enr
MFS mous 168	BMP2K	0.1879	0	0	title=Overlapping Enr
MFS mous 169	MAST1	0.1879	0	0	title=Overlapping Enr

MFS mous 170	POMK	0.1879	0	0	title=Overlapping Enr
MFS mous 171	SYK	0.1885	0	0	title=Overlapping Enr
MFS mous 172	PRKD1	0.1964	0	0	title=Overlapping Enr
MFS mous 173	TYK2	0.1964	0	0	title=Overlapping Enr
MFS mous 174	PDK	0.1968	0	0	title=Overlapping Enr
MFS mous 175	CDK12	0.1968	0	0	title=Overlapping Enr
MFS mous 176	CDKL2	0.1968	0	0	title=Overlapping Enr
MFS mous 177	ROR1	0.1968	0	0	title=Overlapping Enr
MFS mous 178	LRRK1	0.1968	0	0	title=Overlapping Enr
MFS mous 179	MAP4K5	0.1968	0	0	title=Overlapping Enr
MFS mous 180	MAST4	0.1968	0	0	title=Overlapping Enr
MFS mous 181	WEE2	0.1968	0	0	title=Overlapping Enr
MFS mous 182	TYRO3	0.2055	0	0	title=Overlapping Enr
MFS mous 183	DMPK	0.2055	0	0	title=Overlapping Enr
MFS mous 184	PKN3	0.2055	0	0	title=Overlapping Enr
MFS mous 185	NTRK3	0.2055	0	0	title=Overlapping Enr
MFS mous 186	CSNK2B	0.2055	0	0	title=Overlapping Enr
MFS mous 187	PRKX	0.2055	0	0	title=Overlapping Enr
MFS mous 188	MARK4	0.2055	0	0	title=Overlapping Enr
MFS mous 189	SCYL1	0.2055	0	0	title=Overlapping Enr
MFS mous 190	CAMK1G	0.2055	0	0	title=Overlapping Enr
MFS mous 191	BARK1	0.2123	0	0	title=Overlapping Enr
MFS mous 192	PIM3	0.2142	0	0	title=Overlapping Enr
MFS mous 193	FLT3	0.2142	0	0	title=Overlapping Enr
MFS mous 194	TRIB3	0.2142	0	0	title=Overlapping Enr
MFS mous 195	CAM	0.2142	0	0	title=Overlapping Enr
MFS mous 196	SGK2	0.2142	0	0	title=Overlapping Enr
MFS mous 197	MAPK15	0.2142	0	0	title=Overlapping Enr
MFS mous 198	EIF2AK1	0.2228	0	0	title=Overlapping Enr
MFS mous 199	HIPK1	0.2228	0	0	title=Overlapping Enr
MFS mous 200	MAP3K6	0.2228	0	0	title=Overlapping Enr
MFS mous 201	STK26	0.2228	0	0	title=Overlapping Enr
MFS mous 202	MAP3K10	0.2228	0	0	title=Overlapping Enr
MFS mous 203	AMPKA2	0.2228	0	0	title=Overlapping Enr
MFS mous 204	SIK1	0.2228	0	0	title=Overlapping Enr
MFS mous 205	CAMKK2	0.2228	0	0	title=Overlapping Enr
MFS mous 206	MAP4K4	0.2228	0	0	title=Overlapping Enr
MFS mous 207	WEE1	0.2228	0	0	title=Overlapping Enr
MFS mous 208	MAP3K1	0.2293	0	0	title=Overlapping Enr
MFS mous 209	CDK16	0.2313	0	0	title=Overlapping Enr
MFS mous 210	FRK	0.2313	0	0	title=Overlapping Enr
MFS mous 211	CSNK1G1	0.2313	0	0	title=Overlapping Enr
MFS mous 212	TTN	0.2313	0	0	title=Overlapping Enr
MFS mous 213	DYRK3	0.2313	0	0	title=Overlapping Enr
MFS mous 214	PBK	0.2396	0	0	title=Overlapping Enr
MFS mous 215	RPS6KA4	0.2396	0	0	title=Overlapping Enr
MFS mous 216	CAMKK1	0.2396	0	0	title=Overlapping Enr

MFS mous 217	GRK5	0.2396	0	0	title=Overlapping Enr
MFS mous 218	GRK6	0.2396	0	0	title=Overlapping Enr
MFS mous 219	BRSK1	0.2479	0	0	title=Overlapping Enr
MFS mous 220	EPHB3	0.2479	0	0	title=Overlapping Enr
MFS mous 221	LYN	0.2526	0	0	title=Overlapping Enr
MFS mous 222	VRK1	0.2562	0	0	title=Overlapping Enr
MFS mous 223	RPS6KA2	0.2562	0	0	title=Overlapping Enr
MFS mous 224	MOK	0.2562	0	0	title=Overlapping Enr
MFS mous 225	PRKG2	0.2643	0	0	title=Overlapping Enr
MFS mous 226	CK1EPSILON	0.2643	0	0	title=Overlapping Enr
MFS mous 227	RPS6KB2	0.2643	0	0	title=Overlapping Enr
MFS mous 228	AKT3	0.2723	0	0	title=Overlapping Enr
MFS mous 229	SGK3	0.2723	0	0	title=Overlapping Enr
MFS mous 230	IRAK1	0.2723	0	0	title=Overlapping Enr
MFS mous 231	LATS1	0.2723	0	0	title=Overlapping Enr
MFS mous 232	LCK	0.2792	0	0	title=Overlapping Enr
MFS mous 233	JAK3	0.2803	0	0	title=Overlapping Enr
MFS mous 234	EPHA1	0.2803	0	0	title=Overlapping Enr
MFS mous 235	PTK6	0.2803	0	0	title=Overlapping Enr
MFS mous 236	CAMK4	0.2803	0	0	title=Overlapping Enr
MFS mous 237	PTK2B	0.2803	0	0	title=Overlapping Enr
MFS mous 238	JAK1	0.2881	0	0	title=Overlapping Enr
MFS mous 239	FLT1	0.2881	0	0	title=Overlapping Enr
MFS mous 240	PDK1	0.2881	0	0	title=Overlapping Enr
MFS mous 241	EEF2K	0.2881	0	0	title=Overlapping Enr
MFS mous 242	NEK6	0.2959	0	0	title=Overlapping Enr
MFS mous 243	LRRK2	0.2959	0	0	title=Overlapping Enr
MFS mous 244	MAPKAPK5	0.3036	0	0	title=Overlapping Enr
MFS mous 245	EPHB1	0.3112	0	0	title=Overlapping Enr
MFS mous 246	STK4	0.3112	0	0	title=Overlapping Enr
MFS mous 247	BMPR1B	0.3112	0	0	title=Overlapping Enr
MFS mous 248	CSK	0.3187	0	0	title=Overlapping Enr
MFS mous 249	FGFR1	0.3335	0	0	title=Overlapping Enr
MFS mous 250	ITK	0.3408	0	0	title=Overlapping Enr
MFS mous 251	ULK1	0.348	0	0	title=Overlapping Enr
MFS mous 252	PLK3	0.3552	0	0	title=Overlapping Enr
MFS mous 253	SLK	0.3622	0	0	title=Overlapping Enr
MFS mous 254	MAP2K7	0.3622	0	0	title=Overlapping Enr
MFS mous 255	PRKAA2	0.3622	0	0	title=Overlapping Enr
MFS mous 256	PDGFRBETA	0.3622	0	0	title=Overlapping Enr
MFS mous 257	HCK	0.3622	0	0	title=Overlapping Enr
MFS mous 258	KIT	0.3622	0	0	title=Overlapping Enr
MFS mous 259	MAP2K2	0.3692	0	0	title=Overlapping Enr
MFS mous 260	ABL2	0.3692	0	0	title=Overlapping Enr
MFS mous 261	PKR	0.3761	0	0	title=Overlapping Enr
MFS mous 262	PAK1	0.3767	0	0	title=Overlapping Enr
MFS mous 263	PRKD2	0.3964	0	0	title=Overlapping Enr

MFS mous 264	CSNK1D	0.3964	0	0	title=Overlapping Enr
MFS mous 265	PTK2	0.403	0	0	title=Overlapping Enr
MFS mous 266	CAMK2A	0.4037	0	0	title=Overlapping Enr
MFS mous 267	PRKCG	0.4095	0	0	title=Overlapping Enr
MFS mous 268	PDPK1	0.4095	0	0	title=Overlapping Enr
MFS mous 269	PKCALPHA	0.4265	0	0	title=Overlapping Enr
MFS mous 270	KDR	0.4287	0	0	title=Overlapping Enr
MFS mous 271	PKABETA	0.4287	0	0	title=Overlapping Enr
MFS mous 272	PLK4	0.4593	0	0	title=Overlapping Enr
MFS mous 273	ABL	0.4711	0	0	title=Overlapping Enr
MFS mous 274	TGFBR1	0.4883	0	0	title=Overlapping Enr
MFS mous 275	PRKCQ	0.5211	0	0	title=Overlapping Enr
MFS mous 276	PRKG1	0.5211	0	0	title=Overlapping Enr
MFS mous 277	PKCGAMMA	0.5567	0	0	title=Overlapping Enr
MFS mous 278	PAK2	0.5711	0	0	title=Overlapping Enr
MFS mous 279	PRKCE	0.5897	0	0	title=Overlapping Enr
MFS mous 280	PKCEPSILON	0.5942	0	0	title=Overlapping Enr
MFS mous 281	TTK	0.6819	0	0	title=Overlapping Enr
MFS patier 1	CSNK2A1	2.03E-22	0	0	title=Overlapping Enr
MFS patier 2	HIPK2	2.25E-19	0	0	title=Overlapping Enr
MFS patier 3	CDK1	5.72E-18	0	0	title=Overlapping Enr
MFS patier 4	MAPK14	8.01E-18	0	0	title=Overlapping Enr
MFS patier 5	CDK4	6.34E-15	0	0	title=Overlapping Enr
MFS patier 6	MAPK3	7.88E-15	0	0	title=Overlapping Enr
MFS patier 7	MAPK1	1.04E-14	0	0	title=Overlapping Enr
MFS patier 8	GSK3B	9.17E-14	0	0	title=Overlapping Enr
MFS patier 9	CDK2	3.94E-13	0	0	title=Overlapping Enr
MFS patier 10	CDC2	5.05E-12	0	0	title=Overlapping Enr
MFS patier 11	GSK3BETA	2.23E-11	0	0	title=Overlapping Enr
MFS patier 12	DNAPK	3.89E-11	0	0	title=Overlapping Enr
MFS patier 13	CK2ALPHA	8.28E-11	0	0	title=Overlapping Enr
MFS patier 14	ERK1	1.10E-10	0	0	title=Overlapping Enr
MFS patier 15	ERK2	4.70E-10	0	0	title=Overlapping Enr
MFS patier 16	AKT1	1.66E-09	0	0	title=Overlapping Enr
MFS patier 17	RPS6KA3	1.91E-09	0	0	title=Overlapping Enr
MFS patier 18	JNK1	4.29E-09	0	0	title=Overlapping Enr
MFS patier 19	PKBALPHA	5.68E-09	0	0	title=Overlapping Enr
MFS patier 20	MAPK8	1.55E-08	0	0	title=Overlapping Enr
MFS patier 21	ATM	3.51E-08	0	0	title=Overlapping Enr
MFS patier 22	GSK3ALPHA	6.22E-08	0	0	title=Overlapping Enr
MFS patier 23	IKKBETA	3.86E-07	0	0	title=Overlapping Enr
MFS patier 24	CK2	5.05E-07	0	0	title=Overlapping Enr
MFS patier 25	IKKALPHA	0.000001529	0	0	title=Overlapping Enr
MFS patier 26	PRKCB	0.000004693	0	0	title=Overlapping Enr
MFS patier 27	TGFBR2	0.000008145	0	0	title=Overlapping Enr
MFS patier 28	ABL1	0.00001752	0	0	title=Overlapping Enr
MFS patier 29	CSNK1A1	0.00001803	0	0	title=Overlapping Enr

MFS patier 30	AURORAA	0.00001958	0	0	title=Overlapping Enr
MFS patier 31	CSNK2A2	0.00002243	0	0	title=Overlapping Enr
MFS patier 32	CSNK1E	0.00002542	0	0	title=Overlapping Enr
MFS patier 33	PRKCD	0.00002819	0	0	title=Overlapping Enr
MFS patier 34	CHEK1	0.00003724	0	0	title=Overlapping Enr
MFS patier 35	CDK5	0.00004709	0	0	title=Overlapping Enr
MFS patier 36	MELK	0.00005062	0	0	title=Overlapping Enr
MFS patier 37	PRKCA	0.0000538	0	0	title=Overlapping Enr
MFS patier 38	PKBBETA	0.00005746	0	0	title=Overlapping Enr
MFS patier 39	PKBGAMMA	0.00005905	0	0	title=Overlapping Enr
MFS patier 40	CDK6	0.00006852	0	0	title=Overlapping Enr
MFS patier 41	CHEK2	0.00007106	0	0	title=Overlapping Enr
MFS patier 42	JNK2	0.00009094	0	0	title=Overlapping Enr
MFS patier 43	PIM1	0.0001059	0	0	title=Overlapping Enr
MFS patier 44	PRKAA1	0.0001076	0	0	title=Overlapping Enr
MFS patier 45	RPS6KA1	0.0001253	0	0	title=Overlapping Enr
MFS patier 46	PRK CZ	0.0001552	0	0	title=Overlapping Enr
MFS patier 47	SRC	0.0001635	0	0	title=Overlapping Enr
MFS patier 48	PRKACA	0.0001729	0	0	title=Overlapping Enr
MFS patier 49	PKR	0.0003305	0	0	title=Overlapping Enr
MFS patier 50	PLK1	0.0003498	0	0	title=Overlapping Enr
MFS patier 51	GSK	0.0007242	0	0	title=Overlapping Enr
MFS patier 52	PRKDC	0.0007746	0	0	title=Overlapping Enr
MFS patier 53	TBK1	0.0007836	0	0	title=Overlapping Enr
MFS patier 54	IKBKE	0.0008336	0	0	title=Overlapping Enr
MFS patier 55	CHUK	0.001059	0	0	title=Overlapping Enr
MFS patier 56	CK1ALPHA	0.001188	0	0	title=Overlapping Enr
MFS patier 57	ATR	0.001376	0	0	title=Overlapping Enr
MFS patier 58	CDK9	0.001401	0	0	title=Overlapping Enr
MFS patier 59	PKD1	0.001585	0	0	title=Overlapping Enr
MFS patier 60	CK2A2	0.001696	0	0	title=Overlapping Enr
MFS patier 61	RET	0.001865	0	0	title=Overlapping Enr
MFS patier 62	RAF1	0.002028	0	0	title=Overlapping Enr
MFS patier 63	PLK3	0.002228	0	0	title=Overlapping Enr
MFS patier 64	DYRK2	0.002228	0	0	title=Overlapping Enr
MFS patier 65	DYRK1A	0.002638	0	0	title=Overlapping Enr
MFS patier 66	PDHK1	0.002793	0	0	title=Overlapping Enr
MFS patier 67	IKK	0.003348	0	0	title=Overlapping Enr
MFS patier 68	NLK	0.003606	0	0	title=Overlapping Enr
MFS patier 69	CDK7	0.003698	0	0	title=Overlapping Enr
MFS patier 70	HIPK1	0.003952	0	0	title=Overlapping Enr
MFS patier 71	AURORAB	0.004112	0	0	title=Overlapping Enr
MFS patier 72	NIK	0.004426	0	0	title=Overlapping Enr
MFS patier 73	MAP2K3	0.004473	0	0	title=Overlapping Enr
MFS patier 74	MAP2K4	0.00547	0	0	title=Overlapping Enr
MFS patier 75	AURKA	0.005555	0	0	title=Overlapping Enr
MFS patier 76	CK1DELTA	0.006607	0	0	title=Overlapping Enr

MFS patier 77	DNA	0.006994	0	0	title=Overlapping Enr
MFS patier 78	CDC7	0.007303	0	0	title=Overlapping Enr
MFS patier 79	CDK8	0.007303	0	0	title=Overlapping Enr
MFS patier 80	IKBKB	0.007324	0	0	title=Overlapping Enr
MFS patier 81	MAPK9	0.007324	0	0	title=Overlapping Enr
MFS patier 82	UHMK1	0.007983	0	0	title=Overlapping Enr
MFS patier 83	MAPK7	0.007983	0	0	title=Overlapping Enr
MFS patier 84	CK1GAMMA1	0.008476	0	0	title=Overlapping Enr
MFS patier 85	PKCALPHA	0.008584	0	0	title=Overlapping Enr
MFS patier 86	CDK3	0.009453	0	0	title=Overlapping Enr
MFS patier 87	EIF2AK2	0.01024	0	0	title=Overlapping Enr
MFS patier 88	BMPR1B	0.01107	0	0	title=Overlapping Enr
MFS patier 89	JNK3	0.01182	0	0	title=Overlapping Enr
MFS patier 90	SGK1	0.01208	0	0	title=Overlapping Enr
MFS patier 91	MAP3K5	0.01284	0	0	title=Overlapping Enr
MFS patier 92	PKG1CGKI	0.01378	0	0	title=Overlapping Enr
MFS patier 93	ALK	0.01476	0	0	title=Overlapping Enr
MFS patier 94	ERBB2	0.01656	0	0	title=Overlapping Enr
MFS patier 95	AURKB	0.01747	0	0	title=Overlapping Enr
MFS patier 96	MTOR	0.01772	0	0	title=Overlapping Enr
MFS patier 97	ACTR2B	0.01773	0	0	title=Overlapping Enr
MFS patier 98	STK11	0.01793	0	0	title=Overlapping Enr
MFS patier 99	PRKAA2	0.01793	0	0	title=Overlapping Enr
MFS patier 100	RPS6KA5	0.01906	0	0	title=Overlapping Enr
MFS patier 101	INSR	0.02153	0	0	title=Overlapping Enr
MFS patier 102	PKCIOTA	0.0227	0	0	title=Overlapping Enr
MFS patier 103	PKC	0.0233	0	0	title=Overlapping Enr
MFS patier 104	MAPK11	0.0236	0	0	title=Overlapping Enr
MFS patier 105	CSNK1D	0.02399	0	0	title=Overlapping Enr
MFS patier 106	FOXO3	0.02575	0	0	title=Overlapping Enr
MFS patier 107	TRIM33	0.02575	0	0	title=Overlapping Enr
MFS patier 108	LYK5	0.02575	0	0	title=Overlapping Enr
MFS patier 109	PIKFYVE	0.02575	0	0	title=Overlapping Enr
MFS patier 110	MAP3K14	0.02895	0	0	title=Overlapping Enr
MFS patier 111	ACVR2B	0.02976	0	0	title=Overlapping Enr
MFS patier 112	GSK3A	0.03103	0	0	title=Overlapping Enr
MFS patier 113	PKMYT1	0.03246	0	0	title=Overlapping Enr
MFS patier 114	PKA	0.03246	0	0	title=Overlapping Enr
MFS patier 115	MAPK15	0.03526	0	0	title=Overlapping Enr
MFS patier 116	AMPKA2	0.03814	0	0	title=Overlapping Enr
MFS patier 117	SIK1	0.03814	0	0	title=Overlapping Enr
MFS patier 118	MAP4K4	0.03814	0	0	title=Overlapping Enr
MFS patier 119	MERTK	0.04112	0	0	title=Overlapping Enr
MFS patier 120	EGFR	0.04156	0	0	title=Overlapping Enr
MFS patier 121	NUAK1	0.04417	0	0	title=Overlapping Enr
MFS patier 122	GRK5	0.04417	0	0	title=Overlapping Enr
MFS patier 123	EPHA8	0.04731	0	0	title=Overlapping Enr

MFS patier 124	MARK3	0.04731	0	0	title=Overlapping Enr
MFS patier 125	TGFBR1	0.04798	0	0	title=Overlapping Enr
MFS patier 126	TTK	0.04986	0	0	title=Overlapping Enr
MFS patier 127	VRK1	0.05053	0	0	title=Overlapping Enr
MFS patier 128	ILK	0.05053	0	0	title=Overlapping Enr
MFS patier 129	CK1EPSILON	0.05383	0	0	title=Overlapping Enr
MFS patier 130	TNK2	0.05719	0	0	title=Overlapping Enr
MFS patier 131	PRKG1	0.05993	0	0	title=Overlapping Enr
MFS patier 132	MAPKAPK2	0.06205	0	0	title=Overlapping Enr
MFS patier 133	BTK	0.06205	0	0	title=Overlapping Enr
MFS patier 134	PRKACB	0.06415	0	0	title=Overlapping Enr
MFS patier 135	EEF2K	0.06415	0	0	title=Overlapping Enr
MFS patier 136	LATS2	0.06415	0	0	title=Overlapping Enr
MFS patier 137	CAMK2D	0.06415	0	0	title=Overlapping Enr
MFS patier 138	RPS6KB1	0.0642	0	0	title=Overlapping Enr
MFS patier 139	LRRK2	0.06772	0	0	title=Overlapping Enr
MFS patier 140	AXL	0.06772	0	0	title=Overlapping Enr
MFS patier 141	FER	0.06772	0	0	title=Overlapping Enr
MFS patier 142	MAPKAPK5	0.07136	0	0	title=Overlapping Enr
MFS patier 143	MAP2K1	0.07313	0	0	title=Overlapping Enr
MFS patier 144	STK4	0.07507	0	0	title=Overlapping Enr
MFS patier 145	PKM	0.0753	0	0	title=Overlapping Enr
MFS patier 146	PRKD1	0.07545	0	0	title=Overlapping Enr
MFS patier 147	MAPK13	0.0778	0	0	title=Overlapping Enr
MFS patier 148	DAPK3	0.07883	0	0	title=Overlapping Enr
MFS patier 149	PAK6	0.08266	0	0	title=Overlapping Enr
MFS patier 150	CAMK2A	0.08614	0	0	title=Overlapping Enr
MFS patier 151	CHK2	0.08729	0	0	title=Overlapping Enr
MFS patier 152	CHK1	0.08729	0	0	title=Overlapping Enr
MFS patier 153	PDHK2	0.08729	0	0	title=Overlapping Enr
MFS patier 154	HSPB8	0.08729	0	0	title=Overlapping Enr
MFS patier 155	MARK2	0.09445	0	0	title=Overlapping Enr
MFS patier 156	PKC	0.09912	0	0	title=Overlapping Enr
MFS patier 157	RSK	0.09912	0	0	title=Overlapping Enr
MFS patier 158	MAP2K7	0.1026	0	0	title=Overlapping Enr
MFS patier 159	AURORA	0.1108	0	0	title=Overlapping Enr
MFS patier 160	SGK	0.1108	0	0	title=Overlapping Enr
MFS patier 161	TRRAP	0.1223	0	0	title=Overlapping Enr
MFS patier 162	PRKD2	0.1236	0	0	title=Overlapping Enr
MFS patier 163	PAK3	0.128	0	0	title=Overlapping Enr
MFS patier 164	NEK2	0.1323	0	0	title=Overlapping Enr
MFS patier 165	PKC	0.1337	0	0	title=Overlapping Enr
MFS patier 166	CAMKIV	0.1337	0	0	title=Overlapping Enr
MFS patier 167	STK17A	0.1337	0	0	title=Overlapping Enr
MFS patier 168	CK1	0.1337	0	0	title=Overlapping Enr
MFS patier 169	PRKCI	0.1367	0	0	title=Overlapping Enr
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MFS patier 171	MAP3K7	0.1428	0	0	title=Overlapping Enr
MFS patier 172	TP53RK	0.145	0	0	title=Overlapping Enr
MFS patier 173	KDR	0.1456	0	0	title=Overlapping Enr
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MFS patier 175	JAK2	0.1547	0	0	title=Overlapping Enr
MFS patier 176	LYN	0.1559	0	0	title=Overlapping Enr
MFS patier 177	PDGFRALPHA	0.1561	0	0	title=Overlapping Enr
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MFS patier 179	P70S6K	0.167	0	0	title=Overlapping Enr
MFS patier 180	DMPK1	0.167	0	0	title=Overlapping Enr
MFS patier 181	PLK4	0.1684	0	0	title=Overlapping Enr
MFS patier 182	MAPK10	0.1684	0	0	title=Overlapping Enr
MFS patier 183	ABL	0.1776	0	0	title=Overlapping Enr
MFS patier 184	PKAGAMMA	0.1823	0	0	title=Overlapping Enr
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MFS patier 187	AKT2	0.1917	0	0	title=Overlapping Enr
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MFS patier 189	TAF1	0.199	0	0	title=Overlapping Enr
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MFS patier 191	TRKA	0.2094	0	0	title=Overlapping Enr
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MFS patier 193	HIPK4	0.2197	0	0	title=Overlapping Enr
MFS patier 194	TAOK1	0.2197	0	0	title=Overlapping Enr
MFS patier 195	TNNI3K	0.2197	0	0	title=Overlapping Enr
MFS patier 196	ROR2	0.2197	0	0	title=Overlapping Enr
MFS patier 197	BMP2K	0.2197	0	0	title=Overlapping Enr
MFS patier 198	RPS6KA6	0.2197	0	0	title=Overlapping Enr
MFS patier 199	MAST1	0.2197	0	0	title=Overlapping Enr
MFS patier 200	POMK	0.2197	0	0	title=Overlapping Enr
MFS patier 201	PDK	0.2298	0	0	title=Overlapping Enr
MFS patier 202	CDK13	0.2298	0	0	title=Overlapping Enr
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MFS patier 204	LRRK1	0.2298	0	0	title=Overlapping Enr
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MFS patier 206	MAP4K5	0.2298	0	0	title=Overlapping Enr
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MFS patier 208	WEE2	0.2298	0	0	title=Overlapping Enr
MFS patier 209	TYRO3	0.2399	0	0	title=Overlapping Enr
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MFS patier 211	NEK3	0.2399	0	0	title=Overlapping Enr
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MFS patier 218	FLT3	0.2497	0	0	title=Overlapping Enr
MFS patier 219	PIK3CG	0.2497	0	0	title=Overlapping Enr
MFS patier 220	TRIB3	0.2497	0	0	title=Overlapping Enr
MFS patier 221	CAM	0.2497	0	0	title=Overlapping Enr
MFS patier 222	SGK2	0.2497	0	0	title=Overlapping Enr
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MFS patier 231	CSNK1G1	0.2691	0	0	title=Overlapping Enr
MFS patier 232	MAP2K5	0.2691	0	0	title=Overlapping Enr
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MFS patier 234	DYRK3	0.2691	0	0	title=Overlapping Enr
MFS patier 235	AURKC	0.2691	0	0	title=Overlapping Enr
MFS patier 236	BARK1	0.273	0	0	title=Overlapping Enr
MFS patier 237	PBK	0.2786	0	0	title=Overlapping Enr
MFS patier 238	RPS6KA4	0.2786	0	0	title=Overlapping Enr
MFS patier 239	CAMKK1	0.2786	0	0	title=Overlapping Enr
MFS patier 240	GRK6	0.2786	0	0	title=Overlapping Enr
MFS patier 241	PIM2	0.288	0	0	title=Overlapping Enr
MFS patier 242	EPHB3	0.288	0	0	title=Overlapping Enr
MFS patier 243	RPS6KA2	0.2972	0	0	title=Overlapping Enr
MFS patier 244	MOK	0.2972	0	0	title=Overlapping Enr
MFS patier 245	PRKG2	0.3064	0	0	title=Overlapping Enr
MFS patier 246	RPS6KB2	0.3064	0	0	title=Overlapping Enr
MFS patier 247	MAPK12	0.3115	0	0	title=Overlapping Enr
MFS patier 248	AKT3	0.3154	0	0	title=Overlapping Enr
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MFS patier 258	GRK2	0.3243	0	0	title=Overlapping Enr
MFS patier 259	PTK2B	0.3243	0	0	title=Overlapping Enr
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MFS patier 261	JAK1	0.3331	0	0	title=Overlapping Enr
MFS patier 262	FLT1	0.3331	0	0	title=Overlapping Enr
MFS patier 263	PDK1	0.3331	0	0	title=Overlapping Enr
MFS patier 264	TEC	0.3331	0	0	title=Overlapping Enr

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MFS patier 274	SLK	0.415	0	0	title=Overlapping Enr
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MFS patier 276	KIT	0.415	0	0	title=Overlapping Enr
MFS patier 277	MAP2K2	0.4226	0	0	title=Overlapping Enr
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MFS patier 279	RIPK1	0.4301	0	0	title=Overlapping Enr
MFS patier 280	MET	0.4375	0	0	title=Overlapping Enr
MFS patier 281	PKAALPHA	0.4411	0	0	title=Overlapping Enr
MFS patier 282	MAP2K6	0.4449	0	0	title=Overlapping Enr
MFS patier 283	PTK2	0.4592	0	0	title=Overlapping Enr
MFS patier 284	PRKCG	0.4663	0	0	title=Overlapping Enr
MFS patier 285	PDPK1	0.4663	0	0	title=Overlapping Enr
MFS patier 286	PKABETA	0.4869	0	0	title=Overlapping Enr
MFS patier 287	IGF1R	0.5131	0	0	title=Overlapping Enr
MFS patier 288	CAMKIIBETA	0.5131	0	0	title=Overlapping Enr
MFS patier 289	MAP3K1	0.5863	0	0	title=Overlapping Enr
MFS patier 290	TYK2	0.6208	0	0	title=Overlapping Enr
MFS patier 291	PKCGAMMA	0.6208	0	0	title=Overlapping Enr
MFS patier 292	LCK	0.6447	0	0	title=Overlapping Enr
MFS patier 293	PRKCE	0.6542	0	0	title=Overlapping Enr
MFS patier 294	PKCEPSILON	0.6587	0	0	title=Overlapping Enr
MFS patier 295	MAP3K3	0.7049	0	0	title=Overlapping Enr
MFS patier 296	RIPK3	0.7703	0	0	title=Overlapping Enr

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nrichrSubstrates" data-content="SGK3 targets 1 genes from the input gene list.The full list of substrat





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richrSubstrates" data-content="GSK3ALPHA targets 5 genes from the input gene list.The full list of substrates is  
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richrSubstrates" data-content="MAPK7 targets 4 genes from the input gene list.The full list of substrates is av  
richrSubstrates" data-content="PRKCZ targets 6 genes from the input gene list.The full list of substrates is avail











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chrSubstrates" data-content="AURORAA targets 7 genes from the input gene list.The full list of substrates is a















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chrSubstrates" data-content="CK1ALPHA targets 6 genes from the input gene list.The full list of substrates is ;  
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ichrSubstrates" data-content="GRK5 targets 2 genes from the input gene list.The full list of substrates is availa

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ates is available below:TRIM28 MYC TP63 AR HIF1A SMAD2 SMAD1 SMAD3 CAV1 SIAH2 NFKB1  
bstrates is available below:EHMT2 AKT1 DAXX AR PPARGC1A JUN EZH2 SIRT1 STAT3 YY1 SQS  
ates is available below:EHMT2 AR PPARGC1A JUN EZH2 SIRT1 STAT3 SQSTM1 FOXO1 NFKB1 S  
strates is available below:EHMT2 AKT1 AR PPARGC1A JUN EZH2 STAT3 YY1 SQSTM1 FOXO1 S  
ates is available below:RB1 MYC SKP2 WDR77 FOXO1 SMAD2 JUN SMAD3 ESR1 SP1 MDM4 CDI  
trates is available below:JUN SP1 UHRF1 E2F1 TRIM24 TP63 SMARCC1 SMARCA4 RELA CAV1 W  
ates is available below:MYC AKT1 AR HIST1H3A PPARGC1A JUN EZH2 CDKN1A NCOR1 CDKN2A  
substrates is available below:MYC AKT1 SKP2 SMARCC1 AR PPARGC1A EZH2 CDKN1A NCOR2 F  
ates is available below:JUN DDB2 SP1 UHRF1 E2F1 E2F4 TRIM28 TP63 SMARCC1 SMARCA4 CA  
ates is available below:KAT5 MYC AR SQSTM1 HIF1A SMAD2 SMAD1 JUN SMAD4 SMAD3 ESR1 N  
trates is available below:RB1 MYC AKT1 AR HIF1A JUN EZH2 CDKN1A TGFB1I1 NCOR2 CDKN2A  
substrates is available below:MYC AKT1 AR FOXO1 PPARGC1A SMAD1 JUN SMAD3 ESR1 NFKB1  
ates is available below:CDKN1A HNF4A MYC SIRT1 HIF1A RELA E2F1 SMAD2 JUN SMAD3 STAT3  
ates is available below:RB1 MYC AR SMAD2 SMAD1 JUN SMAD4 SMAD3 ESR1 NFKB1 SP1 NCOF  
trates is available below:MYC AKT1 AR JUN CDKN1A STAT3 FBXW7 FOXO1 SMAD2 SMAD4 SMA  
strates is available below:TGFB1I1 MYC HSP90AA1 SMAD2 SMAD3 CAV1 WWP1 NFKB1 PML PPI  
ates is available below:RB1 KAT5 MYC TP63 DDX5 JUN CAV1 ESR1 SNW1 MDM4 CDKN1A MYOD  
substrates is available below:RB1 MYC AKT1 JUN SMARCA4 NCOR2 RELA YY1 SP1 SUMO1 SIN3,  
strates is available below:GSK3B CDKN1A FOXO4 FOXO1 RELA AKT1 CHUK ESR1 NFKB1" style=  
tes is available below:RB1 KAT5 TRIM28 TP63 DAXX HIF1A SMARCA4 EZH2 PARP1 FBXW7 SMA  
trates is available below:KAT5 TRIM28 AKT1 SMAD2 JUN SMAD4 ESR1 SP1 HSP90AA1 CHUK PA  
substrates is available below:GSK3B HNF4A MYC AKT1 PARP1 FOXO1 JUN ESR1 NFKB1" style="c  
bstrates is available below:HSP90AA1 CHUK NFKB1 RELA NCOR2 IRF7 AKT1" style="cursor: point  
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bstrates is available below:MYC AR HIST1H3A JUN CDKN1A TCF20 HNF4A NCOR2 KAT2B CDKN  
ates is available below:RB1 MYC AKT1 AR ESR1 NFKB1 PIN1 PRKG1 HSP90AA1 PARP1 MAPK1" :  
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substrates is available below:GSK3B CDKN1A FOXO1 RELA CHUK NFKB1" style="cursor: pointer; te  
s is available below:CDKN1A CEBPB RELA MYC ESR1 NFKB1" style="cursor: pointer; text-decorati  
strates is available below:RELA AKT1 CHUK STAT3 NFKB1 IRF7 SQSTM1" style="cursor: pointer; te  
trates is available below:TRIM28 SQSTM1 HIST1H3A JUN CAV1 NFE2L2 GSK3B CDKN1A HDAC5  
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tes is available below:HIST1H3A E2F1 SMAD1 SMAD3 STAT3" style="cursor: pointer; text-decoration  
trates is available below:TRAF6 SMAD2 SMAD1 SMAD4 SMAD3 SMURF1" style="cursor: pointer; te  
tes is available below:RB1 CDKN1A E2F1 JUN ESR1" style="cursor: pointer; text-decoration: underlir

es is available below:RB1 RELA MYC SMAD2 JUN" style="cursor: pointer; text-decoration: underline  
; is available below:NCOR2 NFKB1 RELA" style="cursor: pointer; text-decoration: underline dotted;">  
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ites is available below:AKT1 BTRC IRF1 IRF7 RELA ESR1 NFKB1" style="cursor: pointer; text-decor  
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trates is available below:PPARGC1A JUN ESR1 NFKB1 HNF4A CEBPB E2F1 PML" style="cursor: p  
strates is available below:RELA HSP90AA1 CHUK NFKB1 SQSTM1" style="cursor: pointer; text-decc  
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ates is available below:MYC JUN SIAH2 STAT3" style="cursor: pointer; text-decoration: underline dot  
s is available below:AKT1 HSP90AA1 HDAC2 RELA JUN" style="cursor: pointer; text-decoration: unc  
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strates is available below:RELA HIST1H3A TRIM28 STAT3" style="cursor: pointer; text-decoration: u  
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as is available below:HDAC4 HDAC5" style="cursor: pointer; text-decoration: underline dotted;">2 sub  
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strates is available below:CDKN1A MYC JUN CDKN2A" style="cursor: pointer; text-decoration: underli  
strates is available below:MYC SMAD2 CDKN1A NCOR2 HDAC5 RCHY1" style="cursor: pointer; text-  
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s is available below:YY1 TRIM28 MYC" style="cursor: pointer; text-decoration: underline dotted;">3 s  
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ates is available below:FOXH1" style="cursor: pointer; text-decoration: underline dotted;">1 substrate  
es is available below:SQSTM1" style="cursor: pointer; text-decoration: underline dotted;">1 substrate  
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substrates is available below:AR" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"  
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bstrates is available below:RB1" style="cursor: pointer; text-decoration: underline dotted;">1 substrate  
trates is available below:JUN" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"  
trates is available below:PPP1CA STUB1" style="cursor: pointer; text-decoration: underline dotted;">2

substrates is available below:SPI1 AKT1 DAXX CSNK2A1 AR JUN EZH2 FOS SIRT1 STAT3 YY1 SQSTM1

substrates is available below:RB1 AKT1 MED1 CSNK2A1 AR GATA1 JUN SNAI1 EZH2 CDKN1A FOS NCOR2

substrates is available below:SPIB AKT1 MED1 RUNX1 AR TP53 TWIST1 GATA1 JUN CDKN1A FOS VAV1

substrates is available below:TRIM28 TLE1 RUNX1 AR TP53 GATA1 SMAD3 SIAH2 PHF1 SUMO1 SIN3A

substrates is available below:ETS1 ETS2 SPIB PRKCD AR SQSTM1 TP53 GATA1 JUN SMAD3 SP1 TCF3

substrates is available below:AKT1 AR JUN EZH2 FOS STAT3 YY1 SQSTM1 SP1 NFE2L2 TP53 SMARCA4

substrates is available below:CSNK2A1 AR GATA2 JUN EZH2 FOS SIRT1 STAT3 SQSTM1 SP1 NFE2L2

substrates is available below:AKT1 CSNK2A1 AR TP53 TWIST1 GATA2 GATA1 JUN EZH2 CDKN1A FOS NCOR2

substrates is available below:RB1 SPI1 SPIB AKT1 TP53 JUN SMARCA4 NCOR2 RELA YY1 TLE1 VAV1

substrates is available below:RUNX1 AR TP53 TWIST1 JUN CDKN1A FOS SIRT1 RARA SUZ12 STAT3

substrates is available below:RB1 ETS1 ETS2 AR TP53 JUN SMAD3 SP1 TCF3 FOS NCOR2 HDAC4 CEBP

substrates is available below:RB1 SKP2 WDR77 TP53 DNMT1 JUN SMAD3 SP1 TCF3 CDKN1A SUMO1 FOS

substrates is available below:GATA2 JUN FOS SP1 UHRF1 SMARCC1 TP53 SMARCA4 RELA ETS1 BHLHE40

substrates is available below:CDKN1A HSPB1 FOS SIRT1 RUNX1 TP53 RELA MAPK8 JUN SMAD3 STAT3

substrates is available below:TRIM28 PRKCD SQSTM1 TP53 JUN NFE2L2 GSK3B CDKN1A HSPB1 FOS NCOR2

substrates is available below:RB1 TRIM28 SKP2 CSNK2A1 AR TP53 JUN EZH2 CDKN1A PARP1 FOS NCOR2

substrates is available below:AKT1 SKP2 SMARCC1 AR TP53 GATA1 EZH2 CDKN1A NCOR2 TAL1

substrates is available below:TRIM28 AKT1 PRKCD TP53 JUN SP1 TCF3 PARP1 RELA MAPK9 MAPK8

substrates is available below:SPI1 AKT1 TLE1 HDAC2 RELA MAPK9 JUN VDR CDK1" style="cursor: pointer;

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substrates is available below:JUN FOS DDB2 SP1 UHRF1 TRIM28 SMARCC1 TP53 SMARCA4 BHLHE40

substrates is available below:RB1 SPI1 PRKCD TP53 JUN CDKN1A FOS VAV1 CEBPB HDAC2 STAT3 HIPK2" style="cursor: pointer;

substrates is available below:HSPB1 RELA AKT1 STAT3 FOS SQSTM1 TP53" style="cursor: pointer; text-decoration: underline c

substrates is available below:RB1 HSPB1 RELA JUN FOS TP53" style="cursor: pointer; text-decoration: underline dotted;">6 subst

substrates is available below:RB1 ETS2 AKT1 PRKCD AR TP53 HSPA4 PARP1 FOS MAPK7" style="cursor: pointer; text-decoration

substrates is available below:AKT1 RUNX1 AR TP53 JUN CDKN1A STAT3 BHLHE40 CDK1 GSK3B HSPB1 MAPK9" style="cursor: p

substrates is available below:AR TP53 JUN CDKN1A TCF20 FOS NCOR2 KAT2B STAT3 SMAD3 BHLHE40 CDK1 GSK3B SIN3A" s

substrates is available below:RB1 SPI1 AKT1 PRKCD AR JUN CDKN1A FOS STAT3 HIPK2 CDK1 CEBPB RUNX1 TP53 CALM1 VAV1 SV

substrates is available below:HSPB1 TP53 HDAC4 HDAC5 MAPK9 MAPK8 JUN" style="cursor: pointer; text-decoration: underline

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substrates is available below:HSPB1 AKT1 DAXX MAPK9 MAPK8 HSPA4" style="cursor: pointer; text-decoration: underline do

substrates is available below:AKT1 SQSTM1 RELA NONO STAT3 CALM1 HSPA1A" style="cursor: pointer; text-decoration: underlin

substrates is available below:GSK3B FOS VAV1 TP53 CEBPB MAPK7 JUN" style="cursor: pointer; text-decoration: underline dc

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substrates is available below:CDKN1A ETS2 FOS TP53 JUN STAT3 BHLHE40" style="cursor: pointer; text-decoration: underline c

substrates is available below:SPI1 AKT1 AR JUN FOS STAT3 SQSTM1 NFE2L2 STUB1 TP53 RELA VDR BHLHE40 GSK3B RB1 CDKN

substrates is available below:RB1 SMARCB1 TRIM28 MED1 DAXX TP53 SMARCA4 EZH2 PARP1 SP1 CDK1" style="cursor: pointer;

substrates is available below:RB1 TRIM28 SKP2 MED1 TP53 EZH2 CDKN1A FOS CDK1 SIN3A" style="cursor: pointer; text-decor

substrates is available below:RB1 TRIM28 TP53 SIAH2 PML" style="cursor: pointer; text-decoration: underline dotted;">5 subst

substrates is available below:AKT1 SKP2 MED1 TP53 CDKN1A RELA MAPK8" style="cursor: pointer; text-decoration: underline c

substrates is available below:GSK3B AKT1 PARP1 TP53 JUN" style="cursor: pointer; text-decoration: underline dotted;">5

substrates is available below:CDKN1A CEBPB RELA SNAI1" style="cursor: pointer; text-decoration: underline dotted;">4 substrate:

substrates is available below:GSK3B AKT1 NCOR1 TP53 HDAC3 CDK1" style="cursor: pointer; text-decoration: underline dot

substrates is available below:CDKN1A SKP2 AR UHRF1 RELA" style="cursor: pointer; text-decoration: underline dotted;">5 substr

substrates is available below:RB1 CEBPA CDKN1A RUNX1" style="cursor: pointer; text-decoration: underline dotted;">4 substrat

substrates is available below:ETS1 MAPK7 FOS PML" style="cursor: pointer; text-decoration: underline dotted;">4 substrates"

substrates is available below:GSK3B AKT1 RELA MAPK7 STAT3 SP1" style="cursor: pointer; text-decoration: underline dotted;">

available below: BTRC NCOR2 NCOR1 RELA CALM1 HSPA1A" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: SMARCC1 PARP1 FOS RELA CALM1 HSPA1A" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: TP53 DNMT1 SIAH2 SMARCA4 SNAI1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: SQSTM1 SMAD3 CALM1 HDAC4 HDAC5 HSPA1A" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: MAPK9 MAPK8 AKT1 STAT3" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: HDAC4 GSK3B HDAC5 PHF1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

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available below: TP53 SMAD3 PML SP1 SNAI1" style="cursor: pointer; text-decoration: underline dotted;">5 substrates

available below: HSPB1 AKT1 HDAC5 JUN SNAI1" style="cursor: pointer; text-decoration: underline dotted;">5 substrates

available below: ETS1 AR CDK1 VAV1 NCOR1 STAT3" style="cursor: pointer; text-decoration: underline dotted;">6 substrates

available below: GSK3B RELA RARA" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below: SPI1 YY1 TRIM28 CSNK2A1 PRKCD TP53 VAV1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: HDAC4 HDAC5" style="cursor: pointer; text-decoration: underline dotted;">2 substrates

available below: NCOR2 RELA" style="cursor: pointer; text-decoration: underline dotted;">2 substrates

available below: GSK3B CDKN1A RELA AKT1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: AKT1 BTRC RELA CALM1 HSPA1A" style="cursor: pointer; text-decoration: underline dotted;">5 substrates

available below: RELA NCOR2 AKT1" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below: TP53 JUN HSPB1 FOS CEBPB PML" style="cursor: pointer; text-decoration: underline dotted;">6 substrates

available below: GSK3B CDKN1A AR TP53 SKI" style="cursor: pointer; text-decoration: underline dotted;">5 substrates

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available below: RB1 GSK3B FOS TP53 JUN" style="cursor: pointer; text-decoration: underline dotted;">5 substrates

available below: CDKN1A FOS JUN BHLHE40" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: GSK3B CDKN1A RELA" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below: JUN TP53" style="cursor: pointer; text-decoration: underline dotted;">2 substrates

available below: SPIB HDAC2 RELA JUN" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: RB1 CDKN1A JUN" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below: PRKCD AR JUN CALM1 CDKN1A FOS STAT3" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

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available below: JUN TP53" style="cursor: pointer; text-decoration: underline dotted;">2 substrates

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available below: AKT1 SQSTM1 DNMT1 JUN STAT3" style="cursor: pointer; text-decoration: underline dotted;">5 substrates

available below: FOS SQSTM1 TP53 JUN" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: AR RARA TP53 CDK1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: HDAC5 PARP1 TP53" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below: SIRT1 RUNX1 TP53" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below: CDKN1A SQSTM1 TP53 RELA" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below: ETS1 ETS2 CDKN1A NCOR2 HDAC5" style="cursor: pointer; text-decoration: underline dotted;">5 substrates

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ilable below:TLE1 RUNX1 AR GATA1 SMAD1 SMAD3 CAV1 SIAH2 SUMO1 SIN3A PAX6 SIRT1 NCOR1 HDAC4 CEF  
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lable below:JUN FOS DDB2 CDC25B SP1 SMARCC1 SMARCA4 CAV1 TCF3 RNF4 WDR77 NCOR2 USP7 TLE1 CEBF  
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; available below:AKT1 SKP2 SMARCC1 AR GATA1 EZH2 NCOR2 TAL1 RARA RELA FOXO3 FOXO1 SMAD3 GSK3B  
ailable below:SPI1 AKT1 AR JUN FOS STAT3 SQSTM1 NFE2L2 STUB1 HNF4A RELA CCNE1 VDR CAV1 GSK3B IRF1  
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available below:AR JUN TCF20 HNF4A FOS NCOR2 KAT2B STAT3 CDC25B FOXO3 SMAD3 CDK1 GSK3B SIN3A" st  
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; available below:GSK3B HNF4A AKT1 FOXO3 FOXO1 JUN" style="cursor: pointer; text-decoration: underline d  
ble below:AKT1 SQSTM1 RELA NONO STAT3 CALM1 HSPA1A" style="cursor: pointer; text-decoration: underlin  
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available below:GSK3B AKT1 CDC25B NCOR1 CCNE1 HDAC3 CDK1" style="cursor: pointer; text-decoration: unc



available below:RB1 SPI1 JUN CAV1 FOS VAV1 CEBPB HDAC2 STAT3" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:RB1 SKP2 MED1 EZH2 FOS CDC25B CCNE1 CDK1 FOXM1 SIN3A" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:FOXO3 RELA NCOR2 AKT1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:FOXO1 HNF4A TCF7L2 SMAD4 STAT3" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:RB1 SPI1 AKT1 AR JUN FOS STAT3 CDK1 CEBPB RUNX1 CALM1 HNF4A VAV1 SMAD3 CAV1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:RB1 MED1 SQSTM1 FOXO3 FOXO1 NFE2L2 HNF4A" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:GSK3B FOXO3 FOXO1 RELA AKT1" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:AKT1 JUN SMAD4 SP1 TCF3 RELA MAPK8" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:GSK3B FOS VAV1 CDC25B CEBPB JUN" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:GSK3B FOXO3 FOXO1 RELA" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:GSK3B AKT1 PIAS4 RELA STAT3 SP1" style="cursor: pointer; text-decoration: underline dotted;">6 substrates" available below:RB1 CEBPA FOXM1 RUNX1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:RB1 RELA JUN FOS" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:SMARCC1 FOS FOXO3 RELA CALM1 HSPA1A" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:SPIB HDAC2 RELA TCF7L2 JUN" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:RB1 AR DNMT1 FOXO1 NFE2L2 GSK3B STAT3 STUB1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:GSK3B AKT1 PRKG1 FOXO3 FOXO1" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:GSK3B FOS TAL1 MAPK8 STAT3" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:TGFB1I1 SMAD3 CAV1 PML SP1" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:ETS1 AR CDK1 VAV1 NCOR1 STAT3" style="cursor: pointer; text-decoration: underline dotted;">6 substrates" available below:RB1 MED1 DAXX SMARCA4 EZH2 SMAD1 SP1 CDK1 RBL1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:AR CCNE1 RARA SMAD1 CDK1" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:GSK3B RELA RARA" style="cursor: pointer; text-decoration: underline dotted;">3 substrates" available below:AKT1 RUNX1 AR JUN STAT3 CAV1 CDK1 GSK3B" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:NCOR2 RELA" style="cursor: pointer; text-decoration: underline dotted;">2 substrates" available below:TRAF6 SMAD1 SMAD4 SMAD3" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:CDC25B JUN HNF4A FOS CEBPB PML" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:RB1 FOXM1 SIAH2 PML" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:GSK3B FOXM1 CDC25B AR SKI" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:AKT1 CCNE1 CEBPA CEBPB" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:SKP2 AR FOXO3 RELA" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:RB1 AKT1 CDC25B AR PRKG1 FOS" style="cursor: pointer; text-decoration: underline dotted;">6 substrates" available below:SMAD4 SMAD3 CDC25B" style="cursor: pointer; text-decoration: underline dotted;">3 substrates" available below:SMAD1 SMAD3 STAT3" style="cursor: pointer; text-decoration: underline dotted;">3 substrates" available below:CEBPB RELA CCNE1" style="cursor: pointer; text-decoration: underline dotted;">3 substrates" available below:MED1 SMAD1 SMAD4" style="cursor: pointer; text-decoration: underline dotted;">3 substrates" available below:ETS1 FOS PML" style="cursor: pointer; text-decoration: underline dotted;">3 substrates" available below:SQSTM1 SMAD3 CALM1 HDAC4 HSPA1A" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:HDAC4 GSK3B SMAD4" style="cursor: pointer; text-decoration: underline dotted;">3 substrates" available below:RB1 JUN CCNE1" style="cursor: pointer; text-decoration: underline dotted;">3 substrates" available below:HDAC4 RELA" style="cursor: pointer; text-decoration: underline dotted;">2 substrates" available below:FOS VAV1 JUN CAV1" style="cursor: pointer; text-decoration: underline dotted;">4 substrates" available below:RB1 SMAD1 SMAD3" style="cursor: pointer; text-decoration: underline dotted;">3 substrates" available below:AKT1 SKP2 MED1 RELA MAPK8" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:AKT1 SQSTM1 DNMT1 JUN STAT3" style="cursor: pointer; text-decoration: underline dotted;">5 substrates" available below:MAPK8 AKT1 STAT3" style="cursor: pointer; text-decoration: underline dotted;">3 substrates"

available below:FOS CDC25B SQSTM1 JUN" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below:JUN SIAH2 STAT3" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below:FOXO1 SIRT1 RUNX1" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below:RELA STAT3 RARA" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below:RB1 GSK3B FOS JUN" style="cursor: pointer; text-decoration: underline dotted;">4 substrates

available below:TRAF6 SQSTM1" style="cursor: pointer; text-decoration: underline dotted;">2 substrates

available below:AR JUN CAV1 CALM1 FOS STAT3" style="cursor: pointer; text-decoration: underline dotted;">6 substrates

available below:AR JUN CDK1 PRMT1 FOS" style="cursor: pointer; text-decoration: underline dotted;">5 substrates

available below:AKT1 DAXX MAPK8" style="cursor: pointer; text-decoration: underline dotted;">3 substrates

available below:SPI1 TGFB1I1 FOS VAV1 CAV1 NFE2L2" style="cursor: pointer; text-decoration: underline dotted;">6 substrates

available below:FOXH1 AKT1" style="cursor: pointer; text-decoration: underline dotted;">2 substrates

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available below:SMAD4" style="cursor: pointer; text-decoration: underline dotted;">1 substrates

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available below:ETS1 NCOR2" style="cursor: pointer; text-decoration: underline dotted;">2 substrates"  
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available below:AKT1 DAXX AR SET JUN EZH2 CTCF SIRT1 CRYAB STAT3 YY1 SQSTM1 KPNB1 FOXO3 FOXO1 MDM4  
available below:TRIM28 RUNX1 AR TP53 SMAD2 SMAD1 SMAD3 CAV1 SIAH2 MDM4 CHD8 PHF1 MECP2 SUMO1  
available below:AR JUN EZH2 CTCF SIRT1 STAT3 SQSTM1 KPNB1 FOXO3 FOXO1 SP1 MDM4 NFE2L2 UHRF1 STUB1  
available below:AKT1 AR JUN EZH2 CTCF CRYAB STAT3 YY1 SQSTM1 FOXO3 FOXO1 SP1 MDM4 NFE2L2 TP53 SMC3  
available below:RB1 SMC3 SKP2 WDR77 TP53 DNMT1 FOXO1 SMAD2 JUN SMAD3 SP1 MDM4 CDKN1A CHD8 SUMO1  
available below:AKT1 RUNX1 AR TP53 JUN TOP2A CDKN1A SREBF1 STAT3 ETS1 FOXO3 FOXO1 SMAD2 SMAD4 SIRT1  
available below:RB1 AKT1 AR JUN SNAI1 EZH2 CDKN1A TGFB1I1 NCOR2 STAT3 FOXO3 FOXO1 SP1 CDK1 CEBPA CEBPB  
available below:SET JUN MECP2 SP1 UHRF1 SMARCC1 TP53 SMARCA4 SREBF1 RELA ETS1 CAV1 SMC3 SNAI1 CDK1  
available below:SET JUN DDB2 SP1 UHRF1 TRIM28 SMARCC1 TP53 SMARCA4 SREBF1 CAV1 RNF4 SMC3 WDR77 CDK1  
available below:RB1 TRIM28 SKP2 AR TP53 RAD21 JUN ATM EZH2 TOP2A TOP2B CDKN1A XPO1 SREBF1 PARP1 NFKBIA  
available below:AKT1 AR TP53 DNMT1 FOXO3 FOXO1 SMAD1 JUN SMAD3 SNAI1 GSK3B PHF1 HNF4A SREBF1  
available below:SOX2 TRIM28 AKT1 TP53 SMAD2 JUN SMAD4 SP1 ATM TOP2B PARP1 SMC1A RELA MAPK9 MAPK8  
available below:RB1 AKT1 TP53 JUN SMARCA4 TOP2A NCOR2 RELA NPM1 YY1 NCL VDR NFKBIA SP1 CDK1 SUZ12  
available below:ETS1 AR SQSTM1 TP53 SMAD2 SMAD1 JUN SMAD4 SMAD3 SP1 SREBF1 NCOR2 CEBPB RELA MAPK9  
available below:RB1 ETS1 AR TP53 SMAD2 SMAD1 JUN SMAD4 SMAD3 SP1 SREBF1 NCOR2 CEBPB RELA MAPK7 STK11  
available below:SOX2 AKT1 AR TP53 JUN EZH2 CDKN1A NCOR1 STAT3 SKI PIAS2 KAT6A DNMT1 FOXO3 FOXO1 SMAD3  
available below:AR TP53 JUN TOP2A TOP2B CDKN1A TCF20 CTCF HNF4A NCOR2 STAT3 KPNA4 FOXO3 SMAD3  
available below:CDKN1A HNF4A SIRT1 RUNX1 TP53 RELA MAPK8 SMAD2 JUN SMAD3 STAT3 SP1" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"  
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available below:SOX2 RUNX1 AR TP53 JUN CDKN1A SREBF1 SIRT1 SUZ12 STAT3 FOXO3 NFKBIA SP1 CDK1 NFE2L2  
available below:RB1 SMARCB1 SMC3 SOX2 TRIM28 DAXX TP53 SMARCA4 ATM EZH2 PARP1 SMAD1 SP1 CDK1 MDM4  
available below:GSK3B HNF4A AKT1 SREBF1 PARP1 TP53 FOXO3 FOXO1 JUN" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"  
available below:FOXO3 RELA AKT1 STAT3 NFKBIA IRF7 SQSTM1 TP53" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"  
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available below:FOXO3 RELA NCOR2 NFKBIA IRF7 AKT1" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"  
available below:AKT1 RUNX1 AR TP53 JUN CDKN1A STAT3 CAV1 SMAD7 NFKBIA CDK1 GSK3B MAPK9" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"  
available below:TGFB1I1 TP53 SMAD2 SMAD3 CAV1 PML SP1 SNAI1" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"  
available below:RB1 TP53 JUN CAV1 NFKBIA MDM4 CDKN1A CEBPB HDAC2 STAT3 HIPK2" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"  
available below:CDKN1A YBX1 SQSTM1 TP53 KPNB1 FOXO1 RELA MDM4" style="cursor: pointer; text-decoration: underline dotted;">1 substrates"

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TM1 FOXO1 PIN1 MDM4 SUMO1 HSP90AA1 UHRF1 E2F1 GADD45GIP1 STUB1 TRIM28 SMARCC  
3P1 MDM4 NFE2L2 HSP90AA1 UHRF1 E2F1 E2F4 STUB1 TRIM28 SMARCC1 SMARCA4 SNW1 H  
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KN1A SUMO1 HSP90AA1 PARP1 RBL1 MYOD1 CEBPA CEBPB CDKN2A STAT3 PPP1CA" style="c  
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RELA FOXO4 FOXO1 SMAD2 SMAD3 ESR1 NFKB1 MDM4 GSK3B HSP90AA1 CHUK MYOD1" styl  
V1 WHSC1 MYOD1 RNF4 REST PHB2 WDR77 CDKN1A NCOR2 CDKN2A USP7 CEBPB HDAC2 F  
NFKB1 SP1 NCOR2 HDAC4 CEBPB RELA STAT3" style="cursor: pointer; text-decoration: underline  
STAT3 FBXW7 FOXO1 SP1 CHUK CEBPA CEBPB PML SKP2 HIST1H3A PARP1 RELA SMAD2 S  
PIN1 GSK3B HNF4A PARP1 CEBPB E2F1 STAT3" style="cursor: pointer; text-decoration: underline  
NFKB1 SP1" style="cursor: pointer; text-decoration: underline dotted;">13 substrates"  
HDAC4 CEBPB RELA STAT3" style="cursor: pointer; text-decoration: underline dotted;">16 substr  
D3 CAV1 ESR1 SP1 GSK3B CHUK CEBPA CEBPB E2F4 PML STUB1" style="cursor: pointer; text-c  
P1CA SP1" style="cursor: pointer; text-decoration: underline dotted;">11 substrates"  
CEBPB HDAC2 STAT3" style="cursor: pointer; text-decoration: underline dotted;">15 substrates"  
A HSP90AA1 HDAC4 HDAC2 HDAC3 RBBP4 PML" style="cursor: pointer; text-decoration: underline  
"style="cursor: pointer; text-decoration: underline dotted;">9 substrates"  
D1 SP1 MDM4 HSP90AA1 RBL1 E2F1 VHL" style="cursor: pointer; text-decoration: underline dotted;  
RP1 RELA" style="cursor: pointer; text-decoration: underline dotted;">12 substrates"  
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er; text-decoration: underline dotted;">7 substrates"  
A STAT3 FOXO1 RBL1 MYOD1 E2F1" style="cursor: pointer; text-decoration: underline dotted;">17 :  
2A STAT3 SMAD3 ESR1 GSK3B SIN3A CHUK" style="cursor: pointer; text-decoration: underline dot  
style="cursor: pointer; text-decoration: underline dotted;">11 substrates"  
2 SIN3A MAPK1 STUB1" style="cursor: pointer; text-decoration: underline dotted;">14 substrates"  
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MAPK1 STAT3" style="cursor: pointer; text-decoration: underline dotted;">11 substrates"  
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ELA CAV1 GSK3B IRF1 RB1 HOXA9 MYC CDKN1A NCOR2 NCOR1 CDKN2A AHR PRKG1 CEBPB  
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STM1 SUMO1 UHRF1 GADD45GIP1 STUB1 TRIM28 SMARCC1 TP53 SMARCA4 RELA VDR BHLH  
COR2 STAT3 TLE1 SP1 CDK1 CEBPA CEBPB PML SKP2 RUNX1 TP53 TWIST1 CALM1 PARP1 R  
AV1 TAL1 STAT3 ETS1 ETS2 SMAD3 SP1 BHLHE40 CDK1 GSK3B CEBPA CEBPB MAPK8 MAPK7  
, PARP1 SIRT1 NCOR1 HDAC4 CEBPB RELA MAPK8 PML HIPK2" style="cursor: pointer; text-deco  
} FOS NCOR2 TAL1 HDAC4 CEBPB RELA MAPK8 MAPK7 STAT3" style="cursor: pointer; text-deco  
:CA4 RELA BHLHE40 TCF3 GSK3B RB1 CDKN1A NCOR2 NCOR1 TLE1 DNMT1 CDK1 SIN3A CEE  
UHRF1 STUB1 TRIM28 SMARCC1 TP53 SMARCA4 RELA BHLHE40 TCF3 GSK3B RB1 MED1 WD  
NCOR1 TAL1 RARA STAT3 SKI KAT6A DNMT1 SMAD3 SP1 TCF3 GSK3B HSPB1" style="cursor:  
'DR SP1 CDK1 SUMO1 SIN3A HDAC4 HDAC2 HDAC3 PML" style="cursor: pointer; text-decoration:  
TLE1 SP1 BHLHE40 CDK1 NFE2L2 HSPB1 SIN3A STUB1" style="cursor: pointer; text-decoration: u  
}PB RELA MAPK7 STAT3" style="cursor: pointer; text-decoration: underline dotted;">16 substrates"  
PARP1 CEBPA CEBPB STAT3" style="cursor: pointer; text-decoration: underline dotted;">15 substra  
LHE40 TCF3 SNAI1 CDKN1A NCOR2 NCOR1 HIPK2 TLE1 KAT6A HDAC4 CEBPA CEBPB PML TV  
3 SP1" style="cursor: pointer; text-decoration: underline dotted;">12 substrates"  
S VAV1 HDAC5 MAPK8 STAT3" style="cursor: pointer; text-decoration: underline dotted;">14 substr  
>OR1 RELA NFYA STAT3 ZBTB16 CDK1" style="cursor: pointer; text-decoration: underline dotted;">  
RARA RELA SMAD3 GSK3B HSPB1" style="cursor: pointer; text-decoration: underline dotted;">15 s  
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JMO1 GADD45GIP1 STUB1 SMARCC1 SMARCA4 RELA CCNE1 VDR CAV1 TCF3 GSK3B IRF1 OTUB1 RB1 MED1 W  
CL6 SP1 CDK1 CEBPA CEBPB PML SKP2 RUNX1 CALM1 RELA ETS1 CCNE1 SMAD1 SMAD4 SMAD3 CAV1 TCF3 G  
A4 HNF4A RELA CCNE1 CAV1 TCF3 GSK3B RB1 NCOR2 NCOR1 TLE1 DNMT1 CDK1 SIN3A CEBPA CEBPB SKP2 R  
D3 CAV1 BCL6 SP1 CDK1 GSK3B CEBPA CEBPB MAPK8 PML STUB1" style="cursor: pointer; text-decoration: un  
3PB RELA MAPK8 PML" style="cursor: pointer; text-decoration: underline dotted;">18 substrates"  
PB RELA MAPK8 STAT3" style="cursor: pointer; text-decoration: underline dotted;">19 substrates"  
SMARCC1 SMARCA4 HNF4A RELA CCNE1 CAV1 TCF3 GSK3B RB1 MED1 WDR77 NCOR2 NCOR1 RARA USP7 DN  
I3A HDAC4 HDAC2 HDAC3 TCF7L2 PML" style="cursor: pointer; text-decoration: underline dotted;">21 substra  
PA CEBPB STAT3" style="cursor: pointer; text-decoration: underline dotted;">17 substrates"  
FOXO1 SMAD4 SMAD3 BCL6 SP1 TCF3 GSK3B" style="cursor: pointer; text-decoration: underline dotted;">23  
.6 HDAC4 CEBPA CEBPB PML RBL1 MAPK8 DAXX AR EZH2 SIRT1 STAT3 SQSTM1 FOXO3 FOXO1 NFE2L2 FOXM1  
'cursor: pointer; text-decoration: underline dotted;">15 substrates"  
T3" style="cursor: pointer; text-decoration: underline dotted;">14 substrates"  
t-decoration: underline dotted;">11 substrates"  
B1" style="cursor: pointer; text-decoration: underline dotted;">16 substrates"  
PB HDAC2 PML NONO RBL1 MAPK8 TCF7L2 DAXX AR EZH2 STAT3 YY1 FOXO3 FOXO1 NFE2L2 FOXM1 SUMO1 C  
ine dotted;">9 substrates"  
" style="cursor: pointer; text-decoration: underline dotted;">14 substrates"  
RB1 HOXA9 NCOR2 NCOR1 AHR BCL6 CDK1 PRKG1 CEBPB VAV1 SMAD3 TCF7L2" style="cursor: pointer; text-c  
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MDM4 SUMO1 UHRF1 GADD45 GIP1 STUB1 TRIM28 SMARCC1 TP53 SMARCA4 RELA NPM1 VDR CAV1 GSK3B OTU  
SIN3A PARP1 PAX6 SIRT1 NCOR1 CEBPB RELA MAPK8 PML HIPK2" style="cursor: pointer; text-decoration: underline dotted;">20 substrates

TRIM28 SMARCC1 TP53 SMARCA4 HNF4A SREBF1 RELA NPM1 CAV1 GSK3B RB1 SMC3 WDR77 RAD21 CDKN1A  
SMARCA4 HNF4A SREBF1 RELA NPM1 CAV1 GSK3B RB1 SMC3 CDKN1A NCOR2 NCOR1 DNMT1 CDK1 SIN3A CEBP  
A IO1 PARP1 RBL1 CEBPA CEBPB STAT3" style="cursor: pointer; text-decoration: underline dotted;">20 substrates

MAD3 CAV1 SMAD7 NFKBIA SP1 CDK1 GSK3B CEBPA CEBPB MAPK8 MAPK7 PML STUB1" style="cursor: pointer; text-decoration: underline dotted;">17 substrates

CEBPB PML SKP2 RUNX1 TP53 TOP2A SREBF1 PARP1 RELA ETS1 SMAD2 SMAD1 SMAD4 SMAD3 CAV1 SMAD7  
PML N1A NCOR2 NCOR1 HIPK2 KAT6A CEBPA CEBPB PML TOP2A TOP2B RBL1 MAPK8 MAPK7 DAXX AR EZH2 CTCF  
FOXP1 CDKN1A NCOR2 USP7 KAT6A SMC1A CEBPB HDAC2 PML TOP2A TOP2B XPO1 PARP1 RBL1 MAPK8 DAXX AR EZH2  
CTCF FOXO1 NCOR1 RELA NPM1 STAT3 NCL FOXO1 CDK1 RBL1" style="cursor: pointer; text-decoration: underline dotted;">23 substrates

PARP1 CEBPB STAT3" style="cursor: pointer; text-decoration: underline dotted;">17 substrates"

MAPK8" style="cursor: pointer; text-decoration: underline dotted;">15 substrates"

MDM1 SIN3A HDAC2 HDAC3 PML" style="cursor: pointer; text-decoration: underline dotted;">20 substrates"

MDM2 MAPK7 STAT3" style="cursor: pointer; text-decoration: underline dotted;">17 substrates"

STAT3" style="cursor: pointer; text-decoration: underline dotted;">16 substrates"

MDM4 SMAD3 SP1 MDM4 GSK3B YBX1" style="cursor: pointer; text-decoration: underline dotted;">21 substrate

SMAD7 NFKBIA CDK1 GSK3B YBX1 SIN3A" style="cursor: pointer; text-decoration: underline dotted;">20 substrates

MDM1" style="cursor: pointer; text-decoration: underline dotted;">12 substrates"

MDM3 NFKBIA MDM4 GSK3B" style="cursor: pointer; text-decoration: underline dotted;">17 substrates"

MDM2 SIN3A STUB1" style="cursor: pointer; text-decoration: underline dotted;">17 substrates"

MDM4 SMC1A RBL1" style="cursor: pointer; text-decoration: underline dotted;">17 substrates"

MDM1" style="cursor: pointer; text-decoration: underline dotted;">9 substrates"

MDM2" style="cursor: pointer; text-decoration: underline dotted;">8 substrates"

MDM1" style="cursor: pointer; text-decoration: underline dotted;">9 substrates"

MDM2" style="cursor: pointer; text-decoration: underline dotted;">6 substrates"

MDM1" style="cursor: pointer; text-decoration: underline dotted;">13 substrates"

MDM2" style="cursor: pointer; text-decoration: underline dotted;">8 substrates"

MDM1" style="cursor: pointer; text-decoration: underline dotted;">11 substrates"

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CL1" style="cursor: pointer; text-decoration: underline dotted;">25 substrates"

C1 SMARCA4 RELA PPP1CA CAV1 GSK3B IRF1 OTUB1 VHL RB1 PHB2 MYC WDR77 HIF1A CDK1  
NF4A RELA PPP1CA DDX5 CAV1 GSK3B WHSC1 MYOD1 VHL REST RB1 MYC WDR77 HIF1A C  
-HIF1A CDKN1A NCOR2 NCOR1 CDKN2A SIN3A CHUK CEBPA CEBPB RBBP4 ASXL1 KAT5 SKP2  
cursor: pointer; text-decoration: underline dotted;">22 substrates"

B1 KDM5A RBL1 MAPK1 EHMT2 DAXX AR EZH2 SIRT1 STAT3 SQSTM1 FOXO1 NFKB1 MDM4 N  
IKK MAPK1" style="cursor: pointer; text-decoration: underline dotted;">25 substrates"

e="cursor: pointer; text-decoration: underline dotted;">21 substrates"

ML ASXL1 KAT5 SETDB1 PARP1 RBL1 MAPK1 EHMT2 DAXX AR EZH2 STAT3 YY1 FOXO1 MDM  
dotted;">18 substrates"

MAD1 SMAD4 SMAD3 CAV1 ESR1 GSK3B MAPK1" style="cursor: pointer; text-decoration: underline  
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HIST1H3A SMAD3 ESR1 MAPK1" style="cursor: pointer; text-decoration: underline dotted;">28 sub

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\D3 ESR1 MAPK1" style="cursor: pointer; text-decoration: underline dotted;">25 substrates"











E40 TCF3 GSK3B RB1 MED1 WDR77 SNAI1 CDKN1A NCOR2 NCOR1 USP7 TLE1 DNMT1 CDK1  
:ELA ETS1 ETS2 SMAD3 BHLHE40 TCF3 GSK3B HSPB1 MAPK8 MAPK7" style="cursor: pointer; te  
7 PML STUB1" style="cursor: pointer; text-decoration: underline dotted;">27 substrates"

ration: underline dotted;">20 substrates"

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3PA CEBPB SKP2 RUNX1 TWIST1 SIAH2 PARP1 VAV1 SUZ12 SMAD3 HSPB1 MAPK8" style="cur  
R77 CDKN1A NCOR2 NCOR1 RARA USP7 KAT6A DNMT1 CDK1 SIN3A CEBPA CEBPB HDAC2 F  
pointer; text-decoration: underline dotted;">23 substrates"

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MIST1 MAPK8 MAPK7 DAXX AR EZH2 SIRT1 STAT3 SQSTM1 NFE2L2 CALM1 GSK3B RB1 MED1

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17 substrates"

substrates"

.PK8 DAXX AR EZH2 STAT3 YY1 ZBTB16 NFE2L2 SUMO1 GSK3B RB1 MED1 TCF20 DNMT1 CD1

decoration: underline dotted;">28 substrates"

lotted;">24 substrates"













/DR77 NCOR2 NCOR1 USP7 TLE1 DNMT1 CDK1 SIN3A CEBPB HDAC2 HDAC3 PML RUNX1 PRMT1 SUZ12 SMAD4  
GSK3B MAPK8 TCF7L2" style="cursor: pointer; text-decoration: underline dotted;">35 substrates"  
JNX1 SIAH2 VAV1 SUZ12 SMAD4 SMAD3 MAPK8 TCF7L2" style="cursor: pointer; text-decoration: underline dotted;">26 substrates"

MT1 CDK1 SIN3A CEBPA CEBPB HDAC2 PML SKP2 RUNX1 SUZ12 SMAD4 SMAD3 NONO RBL1 MAPK8" style="cursor: pointer; text-decoration: underline dotted;">27 substrates"

substrates"

CALM1 CCNE1 GSK3B IRF1 RB1 MED1 TCF20 DNMT1 CDK1 SIN3A SKP2 RUNX1 SUZ12 SMAD1 SMAD4 SMAD3

CNE1 GSK3B RB1 MED1 TCF20 PAX6 DNMT1 CDK1 SIN3A SKP2 RUNX1 PRMT1 SUZ12 SMAD4 SMAD3" style="cursor: pointer; text-decoration: underline dotted;">28 substrates"

text-decoration: underline dotted;">28 substrates"

text-decoration: underline dotted;">27 substrates"











RB1 SMC3 WDR77 RAD21 SNAI1 CDKN1A NCOR2 NCOR1 USP7 NCL DNMT1 COPS5 CDK1 SIN3A CEBPB HDAC2  
style="text-decoration: underline dotted;">24 substrates"

NCOR2 NCOR1 USP7 KAT6A NCL DNMT1 CDK1 SIN3A SMC1A CEBPA CEBPB HDAC2 PML SOX2 SKP2 RUNX1 A  
CEBPB SKP2 RUNX1 SIAH2 TOP2A TOP2B XPO1 PARP1 SUZ12 SMAD4 SMAD3 NFKBIA MAPK8" style="cursor  
pointer; text-decoration: underline dotted;">27 substrates"

NFKBIA GSK3B MAPK8 MAPK7" style="cursor: pointer; text-decoration: underline dotted;">35 substrates"

SIRT1 STAT3 SQSTM1 KPNB1 FOXO3 FOXO1 MDM4 NFE2L2 NPM1 GSK3B RB1 TCF20 DNMT1 CDK1 SIN3A KLF5  
CTCF STAT3 YY1 ZBTB33 KPNB1 FOXO3 FOXO1 MDM4 NFE2L2 SUMO1 NPM1 GSK3B CHD8 RB1 RAD21 TCF20  
>3 substrates"

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<N1A NCOR2 NCOR1 CDKN2A USP7 CUL3 SKIL COPS5 SIN3A CHUK CEBPB HDAC2 HDAC3 RE  
DKN1A NCOR2 NCOR1 CDKN2A USP7 SIN3A CHUK CEBPA CEBPB HDAC2 RBBP4 PML ASXL1  
? HIST1H3A SIAH2 PARP1 SUZ12 SMAD4 SMAD3 ESR1 MAPK1" style="cursor: pointer; text-decora

FE2L2 SNW1 GSK3B IRF1 VHL RB1 MYC HIF1A TCF20 SKIL SIN3A CHUK RBBP4 KLF5 SKP2 SL

/4 NFE2L2 SUMO1 HSP90AA1 SNW1 PPP1CA GSK3B VHL RB1 MYC HIF1A TCF20 PAX6 SIN3A

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SIN3A CEBPB HDAC2 HDAC3 PML RUNX1 TWIST1 PRMT1 SUZ12 SMAD3 HSPA4 NONO HSPB  
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'sor: pointer; text-decoration: underline dotted;">36 substrates"  
'ML SKP2 RUNX1 ZFPM1 SUZ12 NFYA SMAD3 NONO HSPB1 MAPK8" style="cursor: pointer; text-

I TCF20 DNMT1 CDK1 SIN3A SKP2 RUNX1 ZFPM1 SUZ12 SMAD3 HSPB1" style="cursor: pointer;

<1 SIN3A SKP2 RUNX1 PRMT1 SUZ12 SMAD3 HSPB1" style="cursor: pointer; text-decoration: unde













4 SMAD3 NONO RBL1" style="cursor: pointer; text-decoration: underline dotted;">49 substrates"

otted;">39 substrates"

ursor: pointer; text-decoration: underline dotted;">45 substrates"

" style="cursor: pointer; text-decoration: underline dotted;">47 substrates"

ursor: pointer; text-decoration: underline dotted;">46 substrates"













AC2 HDAC3 PML SOX2 RUNX1 TOP2A TOP2B XPO1 PRMT1 SUZ12 SMAD4 SMAD3 NFKBIA RBL1 MAPK9" style="

TM TOP2A TOP2B XPO1 SUZ12 SMAD4 SMAD3 NFKBIA YBX1 RBL1 MAPK8" style="cursor: pointer; text-decoration: underline dotted;">44 substrates"

SOX2 SKP2 RUNX1 SUZ12 SMAD2 SMAD1 SMAD4 SMAD3 SMAD7 NFKBIA" style="cursor: pointer; text-decoration: underline dotted;">44 substrates"  
) PAX6 NCL DNMT1 CDK1 SIN3A SOX2 SKP2 RUNX1 PRMT1 SUZ12 SMAD2 SMAD4 SMAD3 NFKBIA" style="cursor: pointer; text-decoration: underline dotted;">44 substrates"













3BP4 PML SUZ12 SMAD4 SMAD3 ESR1 RBL1 MAPK1" style="cursor: pointer; text-decoration: underline dotted;">45 substrates"  
KAT5 SKP2 SETDB1 SUZ12 SMAD4 SMAD3 ESR1 RBL1 MAPK1" style="cursor: pointer; text-decoration: underline dotted;">45 substrates"

JZ12 CDYL SMAD2 SMAD1 SMAD4 SMAD3 SMURF1 ESR1" style="cursor: pointer; text-decoration: underline dotted;">45 substrates"

CHUK RBBP4 SKP2 SUZ12 CDYL SMAD2 SMAD4 SMAD3 ESR1" style="cursor: pointer; text-decoration: underline dotted;">45 substrates"













1 MAPK9" style="cursor: pointer; text-decoration: underline dotted;">50 substrates"

text-decoration: underline dotted;">46 substrates"

text-decoration: underline dotted;">47 substrates"

text-decoration: underline dotted;">45 substrates"



























"cursor: pointer; text-decoration: underline dotted;">60 substrates"

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**Supplemental Table III:** Blood pressure measurements of mice of the indicated genotypes (n=30-35 mice per genotype).

<b>Genotype</b>	<b>Systolic</b>	<b>Diastolic</b>	<b>Mean</b>
<b>WT</b>	99±4	74±3	82±5
<b>Hipk2<sup>R-/R-</sup></b>	94±7	71±5	78±7
<b>MFS</b>	105±5	80±5	88±3
<b>MFS;Hipk2<sup>R-/R-</sup></b>	104±6	81±4	91±4

**Supplemental Table IV List of DEGs identified in aortas of MFS patients**

<b>Comparison</b>	<b>NCBI gene symbol</b>	<b>P-value</b>	<b>Q-value</b>	<b>Log2(fold_change)</b>
FB vs AS	AAAS	3.99236E-13	3.96812E-11	-0.8432809
FB vs AS	AARSD1	0	0	-0.8199553
FB vs AS	ABCB4	0.000335463	0.00497917	-1.375102
FB vs AS	ABCC3	8.34122E-11	5.99061E-09	-1.446303
FB vs AS	ABCD4	0.000263168	0.00402969	-0.8942512
FB vs AS	ABL2	4.21838E-09	2.15998E-07	-0.8727594
FB vs AS	ABLIM1	2.06593E-05	0.00045904	0.7108819
FB vs AS	ABR	0	0	-1.018789
FB vs AS	ACAD11	0.00108998	0.0131744	-0.6975787
FB vs AS	ACAD9	6.66134E-16	9.75711E-14	-0.8099042
FB vs AS	ACIN1	7.96829E-12	6.77122E-10	-0.9841055
FB vs AS	ACOX3	7.41632E-10	4.69082E-08	-0.9281282
FB vs AS	ACRC	0.00444597	0.0412782	-1.960485
FB vs AS	ACSS1	7.4829E-14	7.9333E-12	-1.300108
FB vs AS	ACSS2	3.07222E-08	1.34645E-06	-0.8692014
FB vs AS	ADAMTS9	0.00213977	0.0230144	-0.554121
FB vs AS	ADARB1	2.00952E-05	0.0004474	-1.316787
FB vs AS	ADCY6	0.000217218	0.00342989	-0.9995689
FB vs AS	ADCY7	1.8069E-06	5.34958E-05	0.925166
FB vs AS	ADGRA2	0.00384449	0.036862	1.22702
FB vs AS	ADGRB1	1.19153E-05	0.000284028	-2.683001
FB vs AS	ADGRB2	8.80316E-05	0.00160914	0.7946585
FB vs AS	ADGRF5	0	0	2.950191
FB vs AS	ADGRG1	0.00402946	0.0382915	-1.923137
FB vs AS	ADHFE1	0	0	-1.526735
FB vs AS	ADM	0.000696789	0.00910405	0.9544768
FB vs AS	ADRA1A	0.00565364	0.0492459	-2.818947
FB vs AS	ADRA1D	5.07979E-05	0.000993282	-1.772842
FB vs AS	ADRA2C	0.000198093	0.00315025	-1.924417
FB vs AS	AFF3	0.00309405	0.0311138	-1.297626
FB vs AS	AGAP3	0.000392484	0.00564487	-0.9099944
FB vs AS	AHI1	0.000901753	0.0113299	-0.8792961
FB vs AS	AHNAK2	0.00220555	0.0234725	1.295983
FB vs AS	AKAP13	8.20988E-12	6.92366E-10	-0.6537082
FB vs AS	AKAP9	0.00200009	0.0218071	-0.442843
FB vs AS	AKNA	6.66134E-15	8.52345E-13	-1.11482
FB vs AS	AKR1A1	1.03308E-09	6.18295E-08	0.5216148
FB vs AS	AKR1C2	0	0	1.501397
FB vs AS	ALCAM	0.00159906	0.018164	0.8904775
FB vs AS	ALS2CR12	0.000665511	0.00876725	-1.461442
FB vs AS	AMACR	1.37497E-09	7.8898E-08	0.8452834
FB vs AS	AMDHD2	0.000983306	0.0122031	-0.6982397
FB vs AS	AMER1	0.00554869	0.0486807	-0.9701349
FB vs AS	AMOTL2	2.71036E-06	7.81651E-05	1.237032
FB vs AS	ANAPC2	0.000321859	0.00480285	-1.124207

FB vs AS	ANAPC5	3.28402E-09	1.72442E-07	-0.9733605
FB vs AS	ANGPT1	2.55214E-11	1.97294E-09	1.547242
FB vs AS	ANGPTL1	0.00110112	0.0132803	-1.535898
FB vs AS	ANKLE2	8.39872E-08	3.44998E-06	-0.9797172
FB vs AS	ANKMY1	0.000660302	0.00872978	-1.053225
FB vs AS	ANKRD10	3.25186E-07	1.15286E-05	-1.012484
FB vs AS	ANKRD13D	3.48906E-10	2.2451E-08	-1.256819
FB vs AS	ANKRD6	0.000147667	0.00246822	0.6621571
FB vs AS	ANKS1B	7.87289E-06	0.000198283	-0.7292957
FB vs AS	ANKS3	1.90292E-13	1.94342E-11	-1.190891
FB vs AS	ANKS6	7.30024E-05	0.00136582	-1.072912
FB vs AS	ANKZF1	3.37508E-14	3.87334E-12	-1.408873
FB vs AS	ANOS1	0.000551778	0.00749072	1.880218
FB vs AS	ANTXR1	9.63979E-05	0.00173641	1.194656
FB vs AS	ANTXR2	0.00101629	0.0125147	0.9051775
FB vs AS	ANXA3	0.00336246	0.0332411	1.394404
FB vs AS	AP2A2	1.0435E-05	0.000254742	-0.8910686
FB vs AS	AP2B1	0.000519352	0.00711122	0.4679998
FB vs AS	APLN	1.11298E-08	5.36351E-07	3.646226
FB vs AS	AQP1	2.70416E-08	1.19455E-06	0.4512905
FB vs AS	ARFGAP1	0.000717777	0.00932897	-1.192371
FB vs AS	ARGLU1	9.78568E-11	6.93849E-09	-2.267305
FB vs AS	ARHGAP22	1.04424E-06	3.30241E-05	-1.253464
FB vs AS	ARHGAP25	0.00322612	0.0322595	0.5978763
FB vs AS	ARHGAP26	1.80146E-05	0.000407598	-1.560099
FB vs AS	ARHGAP32	0.000129598	0.00220931	-1.330304
FB vs AS	ARHGAP33	4.40195E-11	3.31098E-09	-1.684006
FB vs AS	ARHGEF1	1.00364E-13	1.04416E-11	-1.149113
FB vs AS	ARHGEF17	0.0028286	0.0288881	-0.8095191
FB vs AS	ARHGEF2	2.23061E-05	0.000485932	-0.7105328
FB vs AS	ARHGEF28	0.000350092	0.00516464	0.7788789
FB vs AS	ARHGEF7	6.58403E-10	4.18819E-08	-1.346813
FB vs AS	ARID4A	0.000139229	0.0023377	-0.7335579
FB vs AS	ARIH2	1.94189E-08	9.00712E-07	-0.7533236
FB vs AS	ARL6IP1	0.000665066	0.00876725	0.8459253
FB vs AS	ARL6IP5	7.56373E-07	2.48376E-05	0.6830605
FB vs AS	ARMC8	0.000323531	0.00482134	-0.8411255
FB vs AS	ARMC9	0.00128786	0.0151228	-1.115698
FB vs AS	ARNTL	2.41986E-05	0.000521043	-2.717763
FB vs AS	ARPP19	5.34762E-05	0.0010335	0.5782333
FB vs AS	ARRB2	0.00281301	0.0287816	-0.7561291
FB vs AS	ARSA	0.000872336	0.0109976	-0.8228611
FB vs AS	ARSE	0.000208316	0.00330338	1.923343
FB vs AS	ASAP3	4.57279E-06	0.000123554	-1.398408
FB vs AS	ASB16	0.00292659	0.029698	-1.287503
FB vs AS	ASCC1	0.000587955	0.00788568	-0.5481139
FB vs AS	ATF3	3.19046E-05	0.000655281	1.081093

FB vs AS	ATG16L2	2.82095E-08	1.24122E-06	-0.9199218
FB vs AS	ATG4D	0.00353362	0.0345806	-0.9546014
FB vs AS	ATP10A	8.43769E-15	1.05538E-12	-2.537244
FB vs AS	ATP13A1	5.88834E-07	1.99237E-05	-1.265526
FB vs AS	ATP2A3	1.77545E-06	5.27047E-05	-0.9043756
FB vs AS	ATRN	0.000508714	0.0070056	0.5714812
FB vs AS	ATXN2	0.00019182	0.00306361	-0.7159666
FB vs AS	ATXN7	0.00511483	0.0459179	-0.5436587
FB vs AS	ATXN7L1	0.000534422	0.00728174	-0.7775681
FB vs AS	AUTS2	8.21446E-05	0.00152152	-0.9901956
FB vs AS	B3GALNT1	0.00302292	0.0305364	1.136792
FB vs AS	B3GALT2	0.00571774	0.0497654	1.425248
FB vs AS	B4GALNT3	5.46205E-11	4.02673E-09	-1.930524
FB vs AS	BANF1	9.51344E-07	3.03449E-05	0.5294521
FB vs AS	BAP1	0.00115098	0.0138068	-0.5506615
FB vs AS	BARD1	0.00073774	0.00953835	-0.7031292
FB vs AS	BAZ2A	2.24265E-14	2.62791E-12	-1.314667
FB vs AS	BCAS2	0.000166204	0.00272888	0.437412
FB vs AS	BCAT1	0.00213158	0.0229707	0.695303
FB vs AS	BCL3	0.00337649	0.0332924	-1.110952
FB vs AS	BCL6	2.29535E-06	6.65816E-05	-0.9583753
FB vs AS	BCL6B	0.00345228	0.0339195	2.062303
FB vs AS	BCORL1	3.82892E-05	0.000763568	-0.7377556
FB vs AS	BCR	2.10499E-05	0.00046586	-1.057553
FB vs AS	BDNF	7.06102E-14	7.55801E-12	2.153999
FB vs AS	BHLHE40	1.65188E-11	1.35211E-09	2.070935
FB vs AS	BHMT2	1.66864E-05	0.000382208	-0.8558531
FB vs AS	BICD1	0.00312389	0.0313855	-1.016466
FB vs AS	BID	0.000468303	0.00656568	1.377024
FB vs AS	BMP4	3.34104E-06	9.4397E-05	1.826148
FB vs AS	BNC2	0.000476746	0.0066589	-0.7458209
FB vs AS	BOC	1.47406E-07	5.67792E-06	-1.721543
FB vs AS	BRD4	0.00344911	0.0339183	-0.5094087
FB vs AS	BRD9	3.02113E-05	0.000623957	-0.9352105
FB vs AS	BRICD5	3.84771E-07	1.35119E-05	-2.235798
FB vs AS	BRPF3	0.000138882	0.0023354	-0.7894991
FB vs AS	BRSK1	1.36216E-06	4.18884E-05	-1.749576
FB vs AS	BTBD19	0.000117526	0.00204422	-1.064957
FB vs AS	BTN3A1	1.06029E-07	4.23052E-06	0.9320894
FB vs AS	BTNL9	0.000208781	0.00330605	-2.585858
FB vs AS	C11ORF80	0.00103344	0.0126738	-0.9719176
FB vs AS	C15ORF52	1.69438E-07	6.39383E-06	-1.549662
FB vs AS	C15ORF59	5.06346E-06	0.000133887	-1.913367
FB vs AS	C19ORF66	8.51324E-05	0.00156903	-0.9945363
FB vs AS	C1ORF159	0.00280643	0.0287407	-1.358149
FB vs AS	C1ORF198	0.000848282	0.0107186	0.94586
FB vs AS	C1RL	2.52265E-05	0.000539004	-0.7908827

FB vs AS	C21ORF58	0.00428803	0.0402142	-1.586502
FB vs AS	C2ORF40	0.00234224	0.0246445	1.89296
FB vs AS	C3	6.94726E-08	2.8857E-06	2.86161
FB vs AS	C4A	0.00191055	0.0210994	-1.325256
FB vs AS	C5ORF46	0.000412133	0.005897	2.559767
FB vs AS	C7ORF43	3.90624E-07	1.36314E-05	-0.858746
FB vs AS	C9ORF47	0.000585481	0.00786197	-2.708931
FB vs AS	CACNA2D3	0.00488397	0.0443461	-1.963015
FB vs AS	CACTIN	0.000843063	0.0106769	-0.9616553
FB vs AS	CALCRL	0.00205016	0.022244	2.524124
FB vs AS	CALR	0.00215048	0.0230405	0.7953217
FB vs AS	CALU	1.61412E-06	4.8537E-05	0.5833347
FB vs AS	CAMK2B	8.19345E-13	7.79568E-11	-3.823105
FB vs AS	CAMK2G	9.56936E-05	0.00172652	-0.7955866
FB vs AS	CAMKK2	0.00109346	0.0132022	-0.5000491
FB vs AS	CANX	1.18055E-08	5.66458E-07	0.6033314
FB vs AS	CAPN1	0.000220294	0.00346862	-0.503437
FB vs AS	CAPN10	6.44217E-08	2.68593E-06	-0.8940226
FB vs AS	CAPN15	0.00378451	0.0363539	-1.0186
FB vs AS	CAPN2	0.00285384	0.0291191	-1.025051
FB vs AS	CAPN3	0.00452839	0.0418688	-1.674362
FB vs AS	CAPNS1	0	0	0.7574211
FB vs AS	CAPRIN2	9.08969E-07	2.91603E-05	-1.336913
FB vs AS	CAPS	0.00504057	0.0453977	-1.296061
FB vs AS	CARS2	5.10703E-15	6.6884E-13	-1.095657
FB vs AS	CASZ1	0	0	-2.23807
FB vs AS	CCAR1	0.000470763	0.00659187	-0.6271423
FB vs AS	CCDC130	0	0	-2.129268
FB vs AS	CCDC136	2.77556E-14	3.21849E-12	-1.801049
FB vs AS	CCDC14	0.000581654	0.00782502	-0.5668879
FB vs AS	CCDC142	1.25919E-05	0.000298241	-1.430283
FB vs AS	CCDC144A	0.00204745	0.022244	-2.049447
FB vs AS	CCDC144B	2.62411E-08	1.16846E-06	-1.416861
FB vs AS	CCDC146	3.10862E-15	4.1693E-13	0.868943
FB vs AS	CCDC149	3.88764E-05	0.000772807	-1.222383
FB vs AS	CCDC159	1.89206E-07	7.06794E-06	-1.476482
FB vs AS	CCDC190	3.42349E-08	1.48868E-06	2.304881
FB vs AS	CCDC40	1.98805E-05	0.000443507	-2.101536
FB vs AS	CCDC57	5.65587E-09	2.86187E-07	-1.498058
FB vs AS	CCDC66	6.24774E-05	0.00119092	-0.5298948
FB vs AS	CCDC80	0.00188854	0.0209604	0.9901658
FB vs AS	CCDC82	0.00448886	0.0415723	-0.7120954
FB vs AS	CCNK	1.93371E-09	1.0763E-07	-0.885991
FB vs AS	CCNL1	0.00102006	0.0125473	-0.6182341
FB vs AS	CD34	0.00141532	0.016429	0.6014155
FB vs AS	CD37	0.00553846	0.0486807	0.6548783
FB vs AS	CD4	0.00140178	0.0162887	1.281067

FB vs AS	CD44	0.00100782	0.0124309	0.4870883
FB vs AS	CDCA7L	0.00108526	0.0131602	1.563367
FB vs AS	CDH11	1.1992E-08	5.70492E-07	1.793268
FB vs AS	CDH19	2.63864E-05	0.000560559	2.760658
FB vs AS	CDH2	8.93771E-05	0.00162839	1.341917
FB vs AS	CDH5	0.00181468	0.0203025	1.448246
FB vs AS	CDH8	2.13571E-06	6.25651E-05	-1.470358
FB vs AS	CDK3	0.00260109	0.0268602	-1.176401
FB vs AS	CDK9	0.00332175	0.0329569	-0.9841795
FB vs AS	CEACAM19	0.00424423	0.0399043	-1.184972
FB vs AS	CEBPB	0.00231365	0.024436	-1.668313
FB vs AS	CEBPD	0.0013034	0.0152892	-1.645254
FB vs AS	CEP131	0.00111782	0.0134525	-1.223796
FB vs AS	CEP295NL	0.000679936	0.00890476	-1.85741
FB vs AS	CERCAM	0.000269891	0.00412129	0.6987991
FB vs AS	CES4A	1.61761E-06	4.8537E-05	-1.940738
FB vs AS	CFD	8.62372E-10	5.33329E-08	1.817678
FB vs AS	CFH	2.90687E-06	8.31857E-05	1.611803
FB vs AS	CHD6	3.33949E-05	0.00067962	-1.789463
FB vs AS	CHFR	8.89934E-09	4.403E-07	-1.708171
FB vs AS	CHIT1	0.000802695	0.0102355	-2.032073
FB vs AS	CHN2	3.02404E-09	1.60002E-07	2.239984
FB vs AS	CHST15	0.000131931	0.00223881	1.090555
FB vs AS	CIC	2.39665E-05	0.000517044	-0.9413783
FB vs AS	CKM	0.000812601	0.01035	3.546692
FB vs AS	CLASRP	0	0	-1.978717
FB vs AS	CLCN7	0.00445633	0.0413399	-1.092988
FB vs AS	CLEC16A	4.21971E-07	1.46793E-05	-1.217824
FB vs AS	CLK1	8.58715E-10	5.33329E-08	-1.333431
FB vs AS	CLK2	2.4418E-11	1.91424E-09	-1.726432
FB vs AS	CLK3	4.87927E-11	3.64537E-09	-1.143878
FB vs AS	CLUH	0.00356084	0.0348018	-0.7872727
FB vs AS	CMTR1	0.00328069	0.0326465	-0.6740121
FB vs AS	CNOT3	0.00108829	0.0131684	-0.6245519
FB vs AS	CNTN1	0.00470925	0.0430405	0.7242808
FB vs AS	CNTN5	0.00364892	0.0353523	-2.547177
FB vs AS	COL10A1	0.00220424	0.0234725	2.502373
FB vs AS	COL15A1	2.43626E-05	0.000523562	1.853301
FB vs AS	COL1A2	0.000524296	0.0071613	0.8320629
FB vs AS	COL21A1	0.000373708	0.00541681	0.8396047
FB vs AS	COL3A1	0.000599366	0.00800978	0.8604489
FB vs AS	COL4A3	0.000445934	0.00630767	-1.432342
FB vs AS	COL6A3	4.22892E-06	0.000115895	1.279643
FB vs AS	COL7A1	0.000171917	0.00281438	-2.382302
FB vs AS	COL8A1	9.6402E-11	6.87915E-09	2.561815
FB vs AS	COL9A2	0.000393922	0.00565095	-1.8857
FB vs AS	COPRS	0.00537332	0.047624	0.9371071

FB vs AS	CORIN	0.00514892	0.0460754	1.600191
FB vs AS	CORO6	7.81314E-07	2.54315E-05	-1.309865
FB vs AS	CORO7	2.12377E-05	0.000468155	-1.258544
FB vs AS	COTL1	0.000431904	0.00611922	1.153866
FB vs AS	COX7A2L	0.00464919	0.0426469	0.7486656
FB vs AS	COX7C	1.17201E-06	3.66484E-05	0.6807802
FB vs AS	CPAMD8	0.000321797	0.00480285	-1.83516
FB vs AS	CPEB3	0.00153967	0.0175971	-1.785415
FB vs AS	CPED1	1.56996E-08	7.37416E-07	0.7998987
FB vs AS	CPNE1	0.00144746	0.016767	-0.6524042
FB vs AS	CPNE2	0.00217427	0.0232283	0.7061706
FB vs AS	CPNE3	0.000109078	0.00193014	0.7247935
FB vs AS	CPQ	6.57205E-05	0.00124211	0.8395923
FB vs AS	CRABP2	0.000112337	0.00197558	1.12396
FB vs AS	CREB5	0.00153947	0.0175971	-0.5859728
FB vs AS	CREBZF	0	0	-1.782815
FB vs AS	CRIM1	9.30504E-08	3.76668E-06	1.249685
FB vs AS	CRISPLD1	4.72708E-07	1.61913E-05	1.766018
FB vs AS	CRLF1	0.00136043	0.015858	1.216867
FB vs AS	CROCCP3	0	0	-1.771025
FB vs AS	CSAD	7.20351E-09	3.59594E-07	-1.730463
FB vs AS	CSMD2	3.15688E-06	8.94208E-05	-2.689041
FB vs AS	CSNK1G2	0.000109233	0.00193014	-1.13096
FB vs AS	CTSZ	0.000280788	0.00427596	1.175717
FB vs AS	CTTN	0	0	-0.9258899
FB vs AS	CUEDC1	0.000123127	0.00212175	-0.9647134
FB vs AS	CYB5A	6.11928E-05	0.00117044	0.4237652
FB vs AS	CYBRD1	0.00246657	0.025782	0.9249258
FB vs AS	CYCS	0.00120711	0.0143564	0.6143023
FB vs AS	CYP20A1	0.00372023	0.0359181	0.8302966
FB vs AS	CYP2R1	4.66013E-06	0.000125609	-1.080362
FB vs AS	CYP4B1	0.00244605	0.0256397	-3.200304
FB vs AS	CYR61	0.00018531	0.00298967	1.837854
FB vs AS	CYSLTR1	0.0020203	0.0220058	2.93491
FB vs AS	CYTL1	6.18652E-09	3.11622E-07	2.09157
FB vs AS	DACT1	0.00330308	0.0328303	0.8862491
FB vs AS	DCAF11	2.9291E-05	0.000609472	-0.7232407
FB vs AS	DCAF8	0.00315918	0.0316829	-0.7267929
FB vs AS	DCN	0	0	3.685443
FB vs AS	DCTPP1	0.00185004	0.0206153	0.5692988
FB vs AS	DDIT4	2.83868E-05	0.000596503	-1.436713
FB vs AS	DDX17	1.95421E-08	9.02665E-07	-1.024482
FB vs AS	DDX51	0.000348488	0.00515188	-1.190382
FB vs AS	DENND1A	4.35254E-07	1.50474E-05	-0.6551479
FB vs AS	DENND3	2.47502E-10	1.64982E-08	-1.711936
FB vs AS	DES	0.000101808	0.00181914	-1.001371
FB vs AS	DGAT1	0.000164006	0.00270077	-0.9507347



FB vs AS	DGCR8	3.60731E-05	0.000723541	-0.9868298
FB vs AS	DGKA	1.4489E-05	0.000336725	-1.044561
FB vs AS	DGKD	1.16653E-09	6.83466E-08	-1.936455
FB vs AS	DGKG	3.87436E-07	1.35627E-05	-2.582562
FB vs AS	DHDDS	0.000112296	0.00197558	-0.4383432
FB vs AS	DHX34	0.00288636	0.0293701	-0.9190901
FB vs AS	DHX38	5.91055E-07	1.99383E-05	-0.8255828
FB vs AS	DIO2	2.63599E-10	1.74666E-08	-0.9192376
FB vs AS	DIS3L2	0.00208247	0.0225285	-0.7061265
FB vs AS	DLC1	0.00554249	0.0486807	0.6249508
FB vs AS	DLGAP4	1.55764E-12	1.42129E-10	-0.5753064
FB vs AS	DLL1	0.00378496	0.0363539	-1.96347
FB vs AS	DLX1	0.000749924	0.00966222	-2.825828
FB vs AS	DLX2	0.00050975	0.0070056	-1.308931
FB vs AS	DMTF1	1.25583E-05	0.000298078	-0.89062
FB vs AS	DNAJC11	0.000192521	0.0030704	-0.7402251
FB vs AS	DNAJC17	2.07577E-05	0.000460309	-1.240003
FB vs AS	DNAJC7	0.000150605	0.00250603	-0.5308186
FB vs AS	DNM1L	8.0439E-05	0.00149241	-0.6802794
FB vs AS	DNM1P46	0.00336373	0.0332411	-1.537562
FB vs AS	DNM2	0.000286705	0.00436011	-0.6144944
FB vs AS	DNMT3A	2.609E-09	1.41416E-07	-1.313442
FB vs AS	DOCK4	2.54075E-06	7.3464E-05	-1.16496
FB vs AS	DOCK8	0.00415793	0.0392255	0.807946
FB vs AS	DOK7	0.00104178	0.0127441	-1.143339
FB vs AS	DPF2	0.0019099	0.0210994	-0.5620742
FB vs AS	DRD2	0.000226745	0.0035551	-1.866533
FB vs AS	DSEL	0.00525586	0.0468202	1.284406
FB vs AS	DST	5.44128E-10	3.48117E-08	-0.569961
FB vs AS	DTNB	0.000313725	0.00470144	-1.036511
FB vs AS	DUSP15	1.91344E-05	0.000427718	-1.731929
FB vs AS	DVL3	1.57589E-05	0.000363206	-0.9395135
FB vs AS	DXO	0.00277254	0.0284722	-0.8637823
FB vs AS	DYNLL1	0.00437283	0.0407691	1.11781
FB vs AS	DYRK1B	0.0047299	0.0431584	-0.7415372
FB vs AS	DYRK3	0.00031255	0.00469543	1.814857
FB vs AS	DZIP1L	2.94369E-07	1.06049E-05	-1.964515
FB vs AS	E2F4	6.34281E-06	0.000164205	-1.054204
FB vs AS	E4F1	2.32923E-05	0.000505438	-1.186773
FB vs AS	EBF4	0.000127089	0.00217655	-1.491716
FB vs AS	ECHDC2	1.17706E-12	1.10109E-10	-1.170923
FB vs AS	ECI1	0.0049408	0.0447783	-0.5105588
FB vs AS	EDC3	0.00012308	0.00212175	-0.5800598
FB vs AS	EDNRB	0.000486785	0.00678209	2.531942
FB vs AS	EEF2K	4.39976E-05	0.000868407	-1.352616
FB vs AS	EEPDI	3.04172E-05	0.000627044	-1.606238
FB vs AS	EFTUD2	8.5875E-05	0.0015801	-0.9364178

FB vs AS	EGR1	0.000702117	0.00916291	1.788146
FB vs AS	EHBP1L1	2.22045E-15	3.08975E-13	-1.373231
FB vs AS	EHD2	0	0	0.5222663
FB vs AS	EI24	0.00197974	0.0216275	0.6114351
FB vs AS	EIF3L	0.00128349	0.0151219	0.6127192
FB vs AS	ELL2	4.22943E-09	2.15998E-07	-1.294755
FB vs AS	ENGASE	2.2879E-11	1.80631E-09	-1.644024
FB vs AS	ENTPD4	2.29878E-07	8.4221E-06	-1.042818
FB vs AS	EP400NL	2.44874E-05	0.000524219	-0.8412265
FB vs AS	EPHA3	0.00278718	0.0285962	1.607645
FB vs AS	EPHA4	2.8839E-05	0.000602318	-1.120394
FB vs AS	EPS8	2.29996E-07	8.4221E-06	0.6923146
FB vs AS	ERC2	8.92472E-05	0.00162839	-3.339396
FB vs AS	ERFE	4.0602E-06	0.000112714	-1.652803
FB vs AS	ERG	0.0013509	0.0157965	-0.627423
FB vs AS	ERLIN2	0.00388686	0.0371085	0.8256182
FB vs AS	ESM1	7.81166E-06	0.000197187	2.176329
FB vs AS	ESPNL	0.00481596	0.0439077	-1.597192
FB vs AS	ETV1	0.00233541	0.0245958	0.8077464
FB vs AS	ETV7	0.00499785	0.045123	-1.207278
FB vs AS	EXD3	2.73108E-10	1.78369E-08	-1.373387
FB vs AS	EXOC3	1.23106E-05	0.000292825	-1.04853
FB vs AS	F2R	0.000976524	0.0121324	1.772982
FB vs AS	FAM118A	0.00327973	0.0326465	-1.412587
FB vs AS	FAM120C	5.18895E-05	0.00100809	-1.249065
FB vs AS	FAM149A	3.23051E-07	1.15263E-05	0.6588198
FB vs AS	FAM150B	0.00455294	0.0419911	-2.712618
FB vs AS	FAM160B2	1.29785E-12	1.20397E-10	-1.223938
FB vs AS	FAM193A	1.7642E-08	8.21719E-07	-0.950282
FB vs AS	FAM193B	1.45284E-09	8.29387E-08	-1.055358
FB vs AS	FAM229A	0.00118661	0.0141579	-1.400645
FB vs AS	FAM84A	1.23701E-08	5.85976E-07	-2.490987
FB vs AS	FBF1	0.00559587	0.0489727	-0.8869873
FB vs AS	FBLIM1	3.42642E-09	1.78238E-07	-0.6596678
FB vs AS	FBN1	0.000163755	0.00270063	0.7567235
FB vs AS	FBRSL1	1.39997E-05	0.000327404	-1.54923
FB vs AS	FBXL19	2.00798E-07	7.45096E-06	-1.517706
FB vs AS	FBXL22	0.000180552	0.00293845	-1.567485
FB vs AS	FBXL6	0.000828489	0.0105162	-1.115726
FB vs AS	FBXO31	0.00363125	0.0352424	-1.43152
FB vs AS	FECH	0.000114842	0.00201009	-0.6235021
FB vs AS	FGFR1OP2	0.000501384	0.00693343	-0.4548618
FB vs AS	FGFRL1	6.07287E-08	2.54147E-06	-0.9103189
FB vs AS	FHL2	0.000118608	0.00205661	0.840327
FB vs AS	FKBP5	9.3386E-10	5.61931E-08	-2.461547
FB vs AS	FLRT2	0.00471586	0.0430656	1.745618
FB vs AS	FLYWCH1	0.0051612	0.0461111	-0.8393353

FB vs AS	FMNL3	4.12337E-13	4.06207E-11	1.230525
FB vs AS	FMOD	6.54519E-07	2.18147E-05	1.591311
FB vs AS	FNBP4	2.75091E-12	2.44985E-10	-1.410377
FB vs AS	FNDC5	0.0005728	0.00774776	-2.599956
FB vs AS	FOXD2	0.000104431	0.00185707	-1.616566
FB vs AS	FOXL1	1.00595E-05	0.000247201	-1.792161
FB vs AS	FOXS1	0.00204934	0.022244	1.630846
FB vs AS	FPGS	1.23126E-06	3.83932E-05	-1.634255
FB vs AS	FRAS1	0.00163754	0.0185067	0.7402131
FB vs AS	FREM1	0.0010672	0.0129837	-0.7268199
FB vs AS	FRZB	0.000303015	0.0045645	1.864735
FB vs AS	FST	0.0019453	0.0213694	2.911156
FB vs AS	FSTL1	0.00133931	0.0156773	0.9547881
FB vs AS	FSTL3	2.19868E-05	0.000479916	-0.8477144
FB vs AS	FXYD5	6.53723E-05	0.00123763	0.8079027
FB vs AS	FZD8	0.000304247	0.00457687	1.834627
FB vs AS	G6PD	0.00288228	0.0293555	-0.7152504
FB vs AS	GAB2	1.70281E-05	0.000388436	-0.7679195
FB vs AS	GAD1	1.76124E-09	9.86041E-08	-3.17197
FB vs AS	GADD45G	0.000116491	0.00203257	-1.716201
FB vs AS	GAL3ST4	0	0	1.432739
FB vs AS	GALM	0.00552245	0.048636	0.9774858
FB vs AS	GALNT11	4.22246E-05	0.000836378	0.6550119
FB vs AS	GALNT5	0.000239649	0.00372074	2.149904
FB vs AS	GARNL3	0.000105526	0.00187354	-1.08497
FB vs AS	GAS8	0	0	-1.92478
FB vs AS	GBA2	0.00147159	0.0169935	-0.8511767
FB vs AS	GBP1	0.00121883	0.014434	-1.021664
FB vs AS	GCNT2	1.79743E-07	6.75979E-06	-1.63171
FB vs AS	GFAP	0	0	-3.960166
FB vs AS	GFOD1	0.00259205	0.0268166	-1.305214
FB vs AS	GFRA1	0.000259088	0.00397816	-1.699501
FB vs AS	GGA1	0.000740026	0.00955681	-0.9344437
FB vs AS	GGA3	7.51322E-05	0.00140096	-0.8831893
FB vs AS	GGT7	9.55714E-05	0.00172652	-1.132503
FB vs AS	GIGYF1	8.00653E-07	2.59095E-05	-2.001092
FB vs AS	GIGYF2	1.77024E-06	5.26907E-05	-0.5940986
FB vs AS	GIPC1	0.000381789	0.00551958	-0.9015274
FB vs AS	GIT2	2.85001E-06	8.19801E-05	-0.3969828
FB vs AS	GJC1	0.00484735	0.0441216	-0.9597099
FB vs AS	GLI2	0.000121441	0.00209919	-1.674276
FB vs AS	GLIPR2	0.00434963	0.040655	-0.8514057
FB vs AS	GLIS3	0.0018826	0.0209152	-0.7586036
FB vs AS	GLRB	8.46597E-05	0.0015655	1.849439
FB vs AS	GLYCTK	3.45031E-05	0.000699317	-1.088256
FB vs AS	GLYR1	0.00409335	0.0387761	-0.7085845
FB vs AS	GMPR	0.00145783	0.0168521	-0.8186064

FB vs AS	GOLGA2P5	0.00487793	0.0443461	-1.647927
FB vs AS	GOLGA6L4	7.64014E-09	3.79687E-07	-2.314591
FB vs AS	GOLGA8O	1.4187E-05	0.000331089	-1.470475
FB vs AS	GOLGA8R	3.38314E-05	0.000687246	-1.378953
FB vs AS	GPAT2	1.37769E-10	9.64557E-09	1.125474
FB vs AS	GPC4	0.00433632	0.0405647	1.220134
FB vs AS	GPX3	2.14603E-05	0.000469443	1.036012
FB vs AS	GRB10	8.79795E-05	0.00160914	-0.9879352
FB vs AS	GREB1L	1.94137E-07	7.22789E-06	-1.567037
FB vs AS	GRIA2	2.14217E-05	0.000469443	0.6292467
FB vs AS	GSG1L	0.000645584	0.00856572	1.324369
FB vs AS	GSTM1	0.000535962	0.0072938	-2.816653
FB vs AS	GSTM2	0.000169084	0.00277209	-0.6745549
FB vs AS	GTPBP3	2.5266E-09	1.38552E-07	-1.747033
FB vs AS	H1FNT	0.000644009	0.00855502	-1.535942
FB vs AS	HAPLN1	1.82077E-14	2.17944E-12	2.571024
FB vs AS	HAUS7	1.36802E-06	4.19527E-05	-0.7367263
FB vs AS	HCFC1R1	5.08597E-05	0.000993282	0.6984885
FB vs AS	HDAC10	0.000921912	0.0115312	-0.8466733
FB vs AS	HDAC6	1.30999E-06	4.07328E-05	-1.041012
FB vs AS	HDAC7	1.50724E-12	1.38666E-10	-1.159711
FB vs AS	HECTD3	0.00345786	0.0339443	-0.7156898
FB vs AS	HECTD4	0.000460676	0.00648325	-1.147966
FB vs AS	HEPH	1.37126E-09	7.8898E-08	0.6467603
FB vs AS	HERC2	0.00441081	0.0410544	-0.7248708
FB vs AS	HGS	7.76452E-07	2.53474E-05	-1.085332
FB vs AS	HIF1A	0.00366197	0.0354479	-0.7212613
FB vs AS	HIF3A	0	0	-3.341685
FB vs AS	HINFP	4.896E-06	0.000130701	-1.349423
FB vs AS	HIP1R	0	0	-3.781329
FB vs AS	HLA-DPA1	2.88658E-15	3.91871E-13	1.954569
FB vs AS	HLA-DQA1	0	0	2.822928
FB vs AS	HLA-DQB1	0.000358771	0.00524126	1.596512
FB vs AS	HLA-DRB1	0.000718193	0.00932897	2.143701
FB vs AS	HLA-DRB5	0.00234885	0.0246907	1.70858
FB vs AS	HMG20B	1.59806E-05	0.000366933	-0.8580062
FB vs AS	HMGN1	4.59998E-05	0.000903122	-0.6985893
FB vs AS	HNRNPH1	2.90299E-10	1.87884E-08	-0.6219834
FB vs AS	HPR	0.0039455	0.0376038	1.847328
FB vs AS	HS3ST2	2.17706E-11	1.73107E-09	-3.298399
FB vs AS	HS6ST3	6.8112E-07	2.26335E-05	-3.470236
FB vs AS	HSD17B7P2	0.0010287	0.0126396	-1.089311
FB vs AS	HSF1	0.00215004	0.0230405	-0.8017551
FB vs AS	HSP90B1	0	0	0.7884235
FB vs AS	HSPB6	7.43127E-06	0.000188439	0.4614981
FB vs AS	HTRA1	0.00154457	0.0176314	0.9022634
FB vs AS	HTRA3	1.062E-05	0.000257564	-1.408274

FB vs AS	IDUA	0.000189552	0.00303611	-1.063484
FB vs AS	IFI27	0.000104001	0.00185238	2.820052
FB vs AS	IFI44	1.18606E-05	0.000283941	1.237786
FB vs AS	IFI44L	0.000432062	0.00611922	1.962189
FB vs AS	IFRD2	0.000796103	0.0101748	-0.4061033
FB vs AS	IGF2	6.27342E-07	2.10349E-05	3.23667
FB vs AS	IGFBP2	1.38833E-10	9.65929E-09	0.8285404
FB vs AS	IGHMBP2	2.56337E-09	1.3988E-07	-1.5692
FB vs AS	IGSF10	0.000256482	0.00395452	-1.880065
FB vs AS	IKBIP	0.0034104	0.0335877	0.9161922
FB vs AS	IKBKB	0	0	-1.539927
FB vs AS	IL17RE	0.0020309	0.0220997	-0.4564504
FB vs AS	IL32	8.00573E-07	2.59095E-05	0.7826818
FB vs AS	IL34	1.55431E-15	2.1902E-13	1.631178
FB vs AS	ILKAP	7.16235E-06	0.00018329	-1.077723
FB vs AS	INHBA	0.000579527	0.00782502	1.742614
FB vs AS	INMT	4.26042E-07	1.47748E-05	1.381422
FB vs AS	INO80E	1.12903E-05	0.000272043	-0.9852128
FB vs AS	INPP4A	0.00183619	0.0205019	-0.8303343
FB vs AS	INPP5K	0.00245749	0.0257112	-0.510384
FB vs AS	INPPL1	2.25467E-08	1.02445E-06	-1.142182
FB vs AS	IP6K2	1.05582E-08	5.20062E-07	-1.276843
FB vs AS	IRF3	1.19636E-08	5.70492E-07	-0.6841847
FB vs AS	ISM1	6.66134E-16	9.75711E-14	-5.192177
FB vs AS	ITFG1	9.00562E-10	5.50827E-08	0.6507983
FB vs AS	ITGA5	0	0	-2.443305
FB vs AS	ITGA9	0.000350379	0.00516464	-0.9551983
FB vs AS	ITGB1BP1	2.14648E-05	0.000469443	0.4827426
FB vs AS	ITGB2	0.00012542	0.0021546	0.7025761
FB vs AS	ITGBL1	6.3598E-12	5.57459E-10	1.327069
FB vs AS	ITIH4	0	0	-2.60729
FB vs AS	ITLN1	0.00084633	0.0107061	1.566177
FB vs AS	ITM2B	1.11671E-05	0.000269657	0.8994781
FB vs AS	ITM2C	0.000661754	0.00873861	-1.180376
FB vs AS	ITPKB	9.85923E-06	0.000242816	-0.5725669
FB vs AS	IVNS1ABP	0.00149312	0.0171709	0.4931391
FB vs AS	JMJD7-PLA2G4B	6.12498E-06	0.00015968	-1.979963
FB vs AS	JPH1	0.000426789	0.00606771	-2.164706
FB vs AS	KALRN	0	0	-1.779362
FB vs AS	KANK2	9.37623E-07	2.99931E-05	-0.8535925
FB vs AS	KANSL1	1.47841E-06	4.49663E-05	-1.47134
FB vs AS	KANSL3	9.58143E-08	3.85056E-06	-0.8851714
FB vs AS	KAT5	0.0042026	0.0395798	-0.4341403
FB vs AS	KBTBD13	0.00548463	0.0483794	-0.8672618
FB vs AS	KCNE1	0.00163213	0.0184643	-3.067204
FB vs AS	KCNK9	0.0038666	0.0369785	-2.182013
FB vs AS	KCNMB3	0.000954778	0.0118784	-1.087167

FB vs AS	KCTD13	0.00290057	0.0294878	-0.9732005
FB vs AS	KCTD8	0.000691084	0.00904013	-1.220227
FB vs AS	KDELC2	4.08209E-08	1.76131E-06	0.7441179
FB vs AS	KDM2A	0.00514185	0.0460491	-1.087448
FB vs AS	KDM3A	3.24746E-07	1.15286E-05	-0.6283871
FB vs AS	KDM5C	0.00185326	0.0206305	-0.7283317
FB vs AS	KIAA0513	0.000707751	0.0092227	-1.78481
FB vs AS	KIAA0754	0.00163004	0.0184594	-0.4003069
FB vs AS	KIAA0895L	1.03164E-05	0.000252956	-1.553818
FB vs AS	KIAA0907	0.00465086	0.0426469	-0.8259271
FB vs AS	KIAA1456	0.00457158	0.0420933	-1.609324
FB vs AS	KIAA1614	0.00372913	0.0359417	-0.8972391
FB vs AS	KIAA1683	4.70177E-07	1.61544E-05	-0.9112821
FB vs AS	KIF5C	0.000986296	0.0122266	-1.595374
FB vs AS	KIF7	7.13288E-06	0.000182957	-1.496896
FB vs AS	KIFC2	3.0668E-07	1.10128E-05	-1.811068
FB vs AS	KIFC3	1.70208E-05	0.000388436	-0.9888176
FB vs AS	KL	5.62876E-05	0.0010822	1.476737
FB vs AS	KLC1	0.000604199	0.00806469	-0.83658
FB vs AS	KLF10	0.00317659	0.0318288	1.552827
FB vs AS	KLF15	0.000229939	0.00360011	-2.044
FB vs AS	KLF2	2.1361E-05	0.000469443	1.305589
FB vs AS	KLHDC4	0	0	-1.611539
FB vs AS	KLHL3	1.31361E-06	4.07328E-05	-1.02256
FB vs AS	KLHL42	5.28835E-05	0.00102382	-1.485079
FB vs AS	KMT2C	0.000746021	0.00962306	-1.119814
FB vs AS	KMT5A	0	0	-0.9859334
FB vs AS	KRBA1	6.17209E-06	0.000160158	-1.499524
FB vs AS	KRT16	0.00150708	0.0172957	1.465669
FB vs AS	KRT7	5.05178E-05	0.000990077	2.707937
FB vs AS	KY	0.00501449	0.0452235	-1.150958
FB vs AS	L3MBTL1	5.96454E-07	2.00596E-05	-1.822404
FB vs AS	LAMA5	1.06204E-12	1.00192E-10	-1.414153
FB vs AS	LAMC2	5.71468E-05	0.00109683	-1.876753
FB vs AS	LAMP1	3.18912E-11	2.44836E-09	0.6521115
FB vs AS	LAT	0.000294631	0.00446235	-1.2898
FB vs AS	LDLRAD3	0.00436473	0.0407277	1.086847
FB vs AS	LEMD2	0.000822096	0.010447	-0.822916
FB vs AS	LIMA1	1.82204E-05	0.000410586	-0.6696733
FB vs AS	LIMS2	0.00113372	0.0136144	-0.5808296
FB vs AS	LMBR1	0.000128427	0.00219271	-0.8828815
FB vs AS	LMBR1L	2.91675E-05	0.000608038	-1.030883
FB vs AS	LMO2	0.00249152	0.0259211	-1.652848
FB vs AS	LOC100505585	1.00364E-13	1.04416E-11	-1.12093
FB vs AS	LOC100506403	0	0	1.559863
FB vs AS	LOC100996693	0	0	-2.799733
FB vs AS	LOC101928160	0.00143834	0.0166788	-0.971

FB vs AS	LOC101928168	3.02404E-09	1.60002E-07	1.895004
FB vs AS	LOC105371397	0	0	-1.519428
FB vs AS	LOX	4.45163E-06	0.000120867	1.474259
FB vs AS	LPIN1	1.191E-05	0.000284028	-0.5582589
FB vs AS	LPIN3	0.000257492	0.00395912	-1.450511
FB vs AS	LPXN	0.00403141	0.0382915	-1.274457
FB vs AS	LRP11	0.00211912	0.0228808	1.486325
FB vs AS	LRP8	0.000553502	0.00750498	-1.686903
FB vs AS	LRRRC37A2	1.7939E-12	1.62355E-10	-2.295347
FB vs AS	LRRRC37A3	0.00044967	0.00635244	-1.928177
FB vs AS	LRRRC37B	5.39535E-11	4.00407E-09	-0.9950965
FB vs AS	LRRFIP1	0.00247278	0.0258227	-0.4902079
FB vs AS	LRRFIP2	0.000771007	0.00989948	-1.096867
FB vs AS	LRSAM1	0.000176972	0.00288441	-0.8566677
FB vs AS	LSM14B	0.00103854	0.0127185	-0.5292526
FB vs AS	LSP1	0.0010699	0.0130023	0.5161185
FB vs AS	LSS	3.2705E-07	1.15578E-05	-1.107521
FB vs AS	LTB4R2	0.000231873	0.00361009	-0.9803348
FB vs AS	LTBP1	5.82179E-06	0.000153574	0.5176228
FB vs AS	LTBP4	0	0	0.5646512
FB vs AS	LUM	3.50293E-06	9.84714E-05	2.010085
FB vs AS	LZTR1	2.83998E-05	0.000596503	-1.051256
FB vs AS	LZTS3	0.00120336	0.014327	-0.7110334
FB vs AS	MACF1	0.00163004	0.0184594	-0.401531
FB vs AS	MAD1L1	0.0026619	0.0274119	-0.7459635
FB vs AS	MADD	0.00442155	0.04112	-0.622156
FB vs AS	MAFG	0.0024788	0.0258613	-1.310065
FB vs AS	MAGEC3	1.3577E-06	4.18668E-05	-1.317482
FB vs AS	MAGI1	0.000764054	0.00982154	-0.6430426
FB vs AS	MAMLD1	1.63072E-07	6.19563E-06	-0.5418621
FB vs AS	MAP3K10	9.03722E-14	9.49078E-12	-1.801164
FB vs AS	MAP3K11	9.29434E-05	0.00168509	-0.8365704
FB vs AS	MAP4K2	0.000521795	0.00713589	-1.362255
FB vs AS	MAP7	3.66921E-05	0.000734635	-1.783735
FB vs AS	MAP7D3	4.60667E-08	1.95731E-06	-0.9311937
FB vs AS	MAP9	0.000313796	0.00470144	0.5831121
FB vs AS	MAPK12	1.42154E-10	9.74889E-09	-1.962827
FB vs AS	MAPK4	0.0012837	0.0151219	-1.451081
FB vs AS	MAPK8IP3	0	0	-1.843769
FB vs AS	MAPKAPK5	0.00468753	0.0429125	-0.4182363
FB vs AS	MAPKBP1	9.45524E-08	3.81361E-06	-1.295955
FB vs AS	MAPRE2	0.00232992	0.0245846	1.026409
FB vs AS	MAPRE3	9.04654E-08	3.6754E-06	-0.8801744
FB vs AS	MARCH3	0.00100422	0.0124073	-2.872772
FB vs AS	MARCKSL1	0.00255978	0.0265321	2.120088
FB vs AS	MASP1	1.08708E-08	5.28442E-07	3.611672
FB vs AS	MATN2	2.05114E-11	1.65458E-09	1.706164

FB vs AS	MAU2	7.52608E-07	2.47871E-05	-1.088259
FB vs AS	MBD1	0	0	-0.975631
FB vs AS	MBD6	1.09159E-09	6.49816E-08	-1.247377
FB vs AS	MCCC1	5.50197E-05	0.00105965	-0.8554475
FB vs AS	MCF2L	0	0	-3.323654
FB vs AS	MDM1	0.00168066	0.0189363	-0.8513554
FB vs AS	MDM4	2.22045E-16	3.38603E-14	-0.9538968
FB vs AS	MED15	1.72204E-05	0.00039122	-0.9089984
FB vs AS	MED22	2.45383E-08	1.10591E-06	-1.246044
FB vs AS	MED24	1.47722E-05	0.000342592	-0.789445
FB vs AS	MED25	0.00298084	0.0301387	-0.4652802
FB vs AS	MEIS1	2.44209E-05	0.000523803	-1.245603
FB vs AS	MEIS2	1.53286E-06	4.64954E-05	-0.3939376
FB vs AS	MEN1	2.34035E-13	2.36843E-11	-1.227562
FB vs AS	MEOX2	0.00213852	0.0230144	1.983599
FB vs AS	MET	1.5361E-07	5.89651E-06	2.441395
FB vs AS	METTL17	2.02961E-08	9.29777E-07	-0.7191851
FB vs AS	METTL22	3.4861E-14	3.95993E-12	-0.9047843
FB vs AS	MFAP2	0.00453627	0.0419069	-1.057642
FB vs AS	MGAM	0.0035819	0.0349769	2.20035
FB vs AS	MGAT4B	7.57316E-10	4.76296E-08	-0.4962563
FB vs AS	MGAT4C	0.00173234	0.0194989	4.035847
FB vs AS	MGLL	0.00013557	0.00229008	1.023871
FB vs AS	MIB2	0.00564476	0.0492457	-0.7214227
FB vs AS	MICA	0.000354367	0.00520424	-1.80178
FB vs AS	MICAL3	2.88658E-15	3.91871E-13	-1.883477
FB vs AS	MICALCL	0.000293477	0.00445093	-1.910469
FB vs AS	MICALL2	6.66134E-16	9.75711E-14	-1.30157
FB vs AS	MIGA2	0.000582027	0.00782502	-1.36581
FB vs AS	MINK1	0.000653236	0.00864664	-0.6141737
FB vs AS	MKL2	0.00157498	0.0179454	-0.8966314
FB vs AS	MLLT4	2.77156E-07	1.00499E-05	-0.8193305
FB vs AS	MMP2	2.64457E-08	1.17288E-06	0.9258338
FB vs AS	MMP9	1.87914E-05	0.000420898	2.740444
FB vs AS	MOB2	0.00190548	0.0210994	-0.768126
FB vs AS	MOV10	0.00444332	0.0412782	-1.160335
FB vs AS	MPP3	0.00470841	0.0430405	-1.39641
FB vs AS	MROH7	0.000508264	0.0070056	-0.7713075
FB vs AS	MRPL38	1.15347E-09	6.79389E-08	-0.7226384
FB vs AS	MSL3	0.000162	0.00268361	-0.5777437
FB vs AS	MSTO1	0.000509621	0.0070056	-0.9456398
FB vs AS	MT2A	0.000581083	0.00782502	-0.7036942
FB vs AS	MTA1	8.89124E-10	5.46836E-08	-1.273664
FB vs AS	MTHFR	2.0157E-11	1.63787E-09	-2.018826
FB vs AS	MTMR11	5.05518E-07	1.7262E-05	-0.5210586
FB vs AS	MTSS1L	0.00157848	0.0179486	-1.087084
FB vs AS	MUS81	1.11203E-08	5.36351E-07	-1.143289



FB vs AS	MUSTN1	1.60002E-07	6.0998E-06	-2.434544
FB vs AS	MX1	0.000200209	0.00317936	1.164971
FB vs AS	MXD1	4.52597E-05	0.000891737	-1.065744
FB vs AS	MXD3	0.000225317	0.0035377	-1.398482
FB vs AS	MXRA5	4.22993E-09	2.15998E-07	3.009399
FB vs AS	MYC	0.00298066	0.0301387	0.7983143
FB vs AS	MYH1	0.000627839	0.00836017	2.012051
FB vs AS	MYH13	6.96312E-05	0.00131157	1.825496
FB vs AS	MYH2	0.000462146	0.00649572	2.816444
FB vs AS	MYH4	0.00542576	0.0478982	2.850941
FB vs AS	MYH6	0.0051531	0.0460758	1.246727
FB vs AS	MYH8	0.0035886	0.034981	2.713186
FB vs AS	MYLK	0.000364204	0.00530343	-0.5890378
FB vs AS	MYO15B	0.00416935	0.0392999	-0.8004571
FB vs AS	MYO1D	1.88022E-07	7.04734E-06	0.8329564
FB vs AS	MYO1E	0.00501716	0.0452235	-0.6005304
FB vs AS	MYO5B	2.86283E-05	0.00059936	-1.329346
FB vs AS	MYO6	0.000182032	0.00295822	-0.8989372
FB vs AS	NAA40	3.20293E-05	0.00065663	-1.40337
FB vs AS	NADSYN1	2.35856E-07	8.60835E-06	-0.9465475
FB vs AS	NASP	0	0	-1.12082
FB vs AS	NAT1	0.00328166	0.0326465	1.012262
FB vs AS	NAT9	1.05826E-05	0.000257217	-1.254975
FB vs AS	NAV1	0.000189368	0.00303611	-1.008722
FB vs AS	NAV2	9.54792E-15	1.18097E-12	-2.016627
FB vs AS	NCOA5	0.00286929	0.02925	-1.041902
FB vs AS	NDRG1	0.00323716	0.0323194	0.9239827
FB vs AS	NDUFS2	0.00112201	0.0134883	-0.5014994
FB vs AS	NECAB3	2.16338E-11	1.73107E-09	-2.082309
FB vs AS	NECTIN3	0.00499626	0.045123	0.3898437
FB vs AS	NEIL1	0.00095501	0.0118784	-1.262788
FB vs AS	NEK8	0.00492186	0.0446537	-1.553058
FB vs AS	NELFA	2.61147E-12	2.34442E-10	-0.8119906
FB vs AS	NEXN	0	0	-0.5782607
FB vs AS	NFATC2IP	0.000351469	0.0051685	-1.529577
FB vs AS	NFATC4	0	0	-1.761388
FB vs AS	NFKB2	0.00525739	0.0468202	-0.5359679
FB vs AS	NGEF	8.61235E-05	0.00158206	2.06141
FB vs AS	NIN	0.00191542	0.0211322	-0.4759154
FB vs AS	NINL	4.92391E-06	0.000131132	-1.653409
FB vs AS	NKAIN2	0.00303185	0.0305988	5.432061
FB vs AS	NKD1	0.00124756	0.0147585	-1.456083
FB vs AS	NLGN4Y	0.0012868	0.0151228	0.8638706
FB vs AS	NLRP3	0.000356333	0.00522089	1.138843
FB vs AS	NME7	0.00183886	0.0205112	0.5200894
FB vs AS	NOV	8.02249E-06	0.000201595	1.680573
FB vs AS	NOVA1	3.83699E-07	1.35119E-05	-1.718298

FB vs AS	NOX4	0.000127824	0.00218577	0.8701803
FB vs AS	NPAS2	2.82996E-09	1.52189E-07	-1.554691
FB vs AS	NPC2	0.000466368	0.0065468	0.5783332
FB vs AS	NPEPPS	0.000498938	0.00691678	-0.8184886
FB vs AS	NPHP3	0.00327218	0.0326397	-0.7416664
FB vs AS	NPIPA2	0.000837546	0.0106191	-1.177629
FB vs AS	NPIPB4	2.29674E-06	6.65816E-05	-1.670151
FB vs AS	NPR3	1.2269E-07	4.82611E-06	1.441955
FB vs AS	NR2C1	2.97124E-06	8.48098E-05	-0.912412
FB vs AS	NR3C1	1.29347E-09	7.49943E-08	0.8396166
FB vs AS	NRG1	1.59866E-05	0.000366933	2.964251
FB vs AS	NRXN3	0.000293076	0.00445091	0.7698917
FB vs AS	NSMF	4.75362E-06	0.000127512	-1.485134
FB vs AS	NTN1	6.48026E-05	0.00122893	-2.041885
FB vs AS	NTRK3	0	0	-0.9945891
FB vs AS	NUAK1	0.00138893	0.0161732	1.534377
FB vs AS	NUDCD3	0.00448074	0.0415317	-0.7031553
FB vs AS	NUP88	0.00259797	0.0268529	-0.6392239
FB vs AS	NVL	4.97143E-06	0.000131861	-0.8854312
FB vs AS	OAS1	0.000494597	0.00688232	1.970625
FB vs AS	OAT	3.96437E-06	0.000110605	0.633848
FB vs AS	ODF2L	0.00333259	0.0330351	-0.9705883
FB vs AS	OGN	1.12686E-09	6.67244E-08	1.446003
FB vs AS	OMD	1.04153E-05	0.000254742	2.203284
FB vs AS	OTUD5	0.00560474	0.0490118	-0.4459417
FB vs AS	OXTR	0.0005179	0.00710007	2.342446
FB vs AS	PABPC1L	2.96462E-05	0.000614905	-1.361234
FB vs AS	PAK1	0.0035351	0.0345806	-0.4824906
FB vs AS	PAK3	0.000506673	0.00699787	-1.330476
FB vs AS	PAM	0	0	0.4506702
FB vs AS	PAM16	0.00145699	0.0168521	-0.9874229
FB vs AS	PAMR1	0.00174252	0.0195739	2.956296
FB vs AS	PANK4	5.24051E-08	2.20141E-06	-1.247902
FB vs AS	PAPSS2	0.00198894	0.0217067	1.735887
FB vs AS	PARD3	0.000550901	0.00748795	-0.7460139
FB vs AS	PAWR	6.76203E-05	0.00127585	-1.094108
FB vs AS	PBX2	0.00527151	0.0469084	-0.7563249
FB vs AS	PCDH10	0.000381143	0.0055174	1.529398
FB vs AS	PCDH11Y	0.0057223	0.0497661	-1.129976
FB vs AS	PCDH15	0.00038505	0.00555229	-2.267647
FB vs AS	PCDH20	8.80314E-05	0.00160914	-1.844663
FB vs AS	PCDHB12	0.00190972	0.0210994	-0.5107666
FB vs AS	PCNT	0.000132241	0.00224065	-1.204192
FB vs AS	PCSK5	0.00016259	0.00268939	-1.315386
FB vs AS	PCSK7	0.0024564	0.0257112	-0.9148172
FB vs AS	PDE4DIP	0	0	-0.9805267
FB vs AS	PDE8B	1.92096E-10	1.2882E-08	-1.206825

FB vs AS	PDIA3	4.33712E-05	0.000857564	0.7273857
FB vs AS	PDK1	0.00181872	0.0203273	1.092686
FB vs AS	PDK4	1.28604E-05	0.00030331	-1.783218
FB vs AS	PDPN	0.000243354	0.00377301	-2.432836
FB vs AS	PDXDC2P	8.50474E-06	0.000211328	-1.66736
FB vs AS	PDZD2	0.00023164	0.00361009	-1.847552
FB vs AS	PEAK1	1.58678E-06	4.78699E-05	1.020873
FB vs AS	PER1	1.02004E-07	4.08454E-06	-0.8213666
FB vs AS	PFKFB3	0	0	-1.299319
FB vs AS	PGF	1.10212E-06	3.46578E-05	2.563141
FB vs AS	PHACTR1	3.35456E-11	2.55774E-09	-1.53189
FB vs AS	PHC1	1.38193E-07	5.34154E-06	-1.071316
FB vs AS	PHF21A	0.000117402	0.00204422	-1.166669
FB vs AS	PHF21B	0.000383189	0.00553263	-3.177381
FB vs AS	PHLDB1	0	0	-1.177853
FB vs AS	PHYHD1	4.39285E-08	1.87361E-06	-1.584762
FB vs AS	PI15	0.000708355	0.0092227	-2.162571
FB vs AS	PIAS3	0	0	-0.8109583
FB vs AS	PICK1	0.000230681	0.00360665	-1.170402
FB vs AS	PIGK	0.000194152	0.00309199	0.9825207
FB vs AS	PIK3C2B	9.4776E-05	0.00171552	-1.524037
FB vs AS	PIK3R3	0.00384259	0.036862	-1.250766
FB vs AS	PILRA	7.06957E-05	0.00132937	-1.160572
FB vs AS	PIP4K2A	0.00390883	0.0372863	-0.7551793
FB vs AS	PLA2G4B	6.12498E-06	0.00015968	-1.396827
FB vs AS	PLA2G6	1.30522E-07	5.08032E-06	-1.552634
FB vs AS	PLAT	0.000734624	0.00951968	-0.4344082
FB vs AS	PLCB4	0.00542083	0.0478926	-0.4718232
FB vs AS	PLCD3	8.25701E-06	0.000206092	-0.9657701
FB vs AS	PLCG1	0.00322827	0.0322595	-0.6927005
FB vs AS	PLCXD1	0.00359263	0.0349896	-1.176639
FB vs AS	PLD4	0.000735441	0.00951968	2.827734
FB vs AS	PLD5	1.15815E-06	3.63169E-05	-1.087939
FB vs AS	PLEKHA4	2.72869E-10	1.78369E-08	-0.8547729
FB vs AS	PLXDC2	0.00059049	0.00790065	0.8215965
FB vs AS	PLXNA4	0.00371085	0.0358587	-1.039089
FB vs AS	PLXNB1	0	0	-1.758603
FB vs AS	PNCK	1.33061E-06	4.11455E-05	-1.772329
FB vs AS	PNKP	9.1031E-10	5.53747E-08	-1.335305
FB vs AS	PNN	0.00195513	0.0214429	-0.9101296
FB vs AS	PODNL1	2.87131E-06	8.23799E-05	2.758533
FB vs AS	POLD4	3.44129E-11	2.60602E-09	-0.9013274
FB vs AS	POLR2J3	7.13651E-13	6.90815E-11	-1.166224
FB vs AS	POLR3E	0.00064823	0.0085906	-1.27815
FB vs AS	PON2	0.000126763	0.00217431	-0.7858763
FB vs AS	POR	7.81406E-11	5.64845E-09	-0.7679621
FB vs AS	POU2F1	2.12023E-05	0.000468155	-1.159108

FB vs AS	PPAN	1.32881E-07	5.15412E-06	-0.9300742
FB vs AS	PPDPF	6.14492E-06	0.000159825	0.7390832
FB vs AS	PPFIA2	1.08016E-08	5.27384E-07	-1.686568
FB vs AS	PPFIA4	3.88471E-08	1.68267E-06	-2.872781
FB vs AS	PPIL2	1.14411E-07	4.53249E-06	-1.03818
FB vs AS	PPM1N	0.000356439	0.00522089	2.04988
FB vs AS	PPP1R12A	7.68163E-05	0.00142996	-0.6519162
FB vs AS	PPP1R13L	0.00509076	0.0457757	-0.4784323
FB vs AS	PPP1R1A	1.82766E-06	5.38242E-05	-2.266586
FB vs AS	PPP1R37	1.59839E-07	6.0998E-06	-0.8586864
FB vs AS	PPP5C	8.10837E-08	3.34305E-06	-1.497468
FB vs AS	PPP6R2	2.22045E-16	3.38603E-14	-1.13792
FB vs AS	PRDM10	0.00219506	0.023428	-1.133559
FB vs AS	PRDM11	4.35121E-06	0.00011872	-1.18736
FB vs AS	PRDM15	0.00512072	0.0459338	-1.651982
FB vs AS	PRDM16	2.81585E-05	0.000593675	-1.519509
FB vs AS	PRDM2	0.000261153	0.00400434	-0.8033089
FB vs AS	PRELP	0.003977	0.0378392	1.433568
FB vs AS	PRKAR1A	0.0015108	0.0173205	0.3992906
FB vs AS	PRKAR1B	6.46141E-05	0.00122814	0.8440236
FB vs AS	PRKCE	0.0043047	0.0403366	-1.34391
FB vs AS	PROSER3	3.39993E-08	1.48424E-06	-1.572463
FB vs AS	PRPF38B	0.000782558	0.0100247	-1.091757
FB vs AS	PRPF40B	1.80665E-05	0.000407944	-1.41502
FB vs AS	PRR4	2.58682E-13	2.59428E-11	-1.435603
FB vs AS	PRRT2	0.000131819	0.00223881	-1.349569
FB vs AS	PRSS23	0.000779535	0.00999745	1.172483
FB vs AS	PSMD10	5.10243E-05	0.0009947499	0.6430986
FB vs AS	PSRC1	0.00279203	0.0286196	-1.181052
FB vs AS	PSTPIP1	1.30459E-07	5.08032E-06	-1.196612
FB vs AS	PTGIR	6.96909E-12	6.06093E-10	-1.134798
FB vs AS	PTGIS	0.00181117	0.0202836	1.122368
FB vs AS	PTGS1	0	0	2.853011
FB vs AS	PTHLH	0.00105418	0.0128534	-1.092348
FB vs AS	PTPN3	0.00029798	0.00450695	-0.9085953
FB vs AS	PTPRD	1.40598E-06	4.28803E-05	-1.237169
FB vs AS	PUS1	0.0014991	0.0172218	-1.07129
FB vs AS	PXN	1.55431E-15	2.1902E-13	-1.55237
FB vs AS	PXYLP1	0.0041474	0.0391594	0.8839213
FB vs AS	PYCR1	0.002445	0.0256397	2.271062
FB vs AS	QDPR	8.00909E-05	0.00148843	0.8430736
FB vs AS	RAB40C	0.00235355	0.0247167	-1.435117
FB vs AS	RABEP2	0.0021545	0.0230615	-0.8199093
FB vs AS	RABL2A	0.000997071	0.0123327	-1.146834
FB vs AS	RABL3	7.49017E-08	3.09965E-06	0.411851
FB vs AS	RAD51D	0.000759016	0.00976805	-1.42875
FB vs AS	RAD52	1.03424E-06	3.28009E-05	-1.747582

FB vs AS	RAD54L2	3.45637E-06	9.74084E-05	-0.7623317
FB vs AS	RAI1	3.03273E-09	1.60002E-07	-1.151546
FB vs AS	RANBP3	0.000912955	0.0114577	-0.6611434
FB vs AS	RAPGEF5	0.00535723	0.0475571	1.578897
FB vs AS	RAPGEFL1	4.14839E-05	0.000823171	-1.696152
FB vs AS	RASD2	0.00161105	0.018263	-1.916116
FB vs AS	RASGRP2	0	0	-1.540543
FB vs AS	RASL11B	0.000134005	0.00226709	0.776022
FB vs AS	RBM17	1.35049E-05	0.000317751	-0.9903224
FB vs AS	RBM19	0.000130704	0.00222476	-1.160423
FB vs AS	RBM25	2.22045E-16	3.38603E-14	-1.10436
FB vs AS	RBM5	1.07821E-05	0.000260926	-1.15611
FB vs AS	RDH13	0.000317234	0.00474657	-1.262857
FB vs AS	REEP1	7.06479E-12	6.09653E-10	-1.916716
FB vs AS	RERG	1.4877E-14	1.80012E-12	-1.346269
FB vs AS	REXO1	0.00206165	0.0223252	-1.152869
FB vs AS	RGMA	7.28262E-12	6.23616E-10	-1.724413
FB vs AS	RGS3	0	0	-1.361164
FB vs AS	RGS4	5.43146E-05	0.00104789	1.896309
FB vs AS	RHOT2	7.7649E-13	7.45163E-11	-1.364904
FB vs AS	RIMKLB	0.000679394	0.00890476	-0.533097
FB vs AS	RNF149	9.77503E-05	0.00175227	-1.068844
FB vs AS	RNF17	0.00454995	0.0419911	-3.688855
FB vs AS	RNF19A	0.00196196	0.0214966	-0.5752326
FB vs AS	RNF215	0.00276312	0.0284017	-0.8323863
FB vs AS	RNF40	0.00197024	0.0215449	-0.6920108
FB vs AS	ROBO2	3.59026E-05	0.000721421	3.976663
FB vs AS	ROBO4	4.59666E-05	0.000903122	2.285285
FB vs AS	RORA	2.93482E-07	1.06049E-05	-1.300884
FB vs AS	RPA2	0.00013618	0.00229691	1.039777
FB vs AS	RPAIN	0.000954219	0.0118784	-0.6541811
FB vs AS	RPL15	0.000124984	0.00215041	0.6345801
FB vs AS	RPL4	0.00494751	0.0447783	0.4461903
FB vs AS	RPS27L	0	0	0.8332948
FB vs AS	RPS28	0.00255407	0.0265223	1.078902
FB vs AS	RPS6KB2	0.00135773	0.015843	-0.9739406
FB vs AS	RPS6KL1	0.0029777	0.0301387	-1.193383
FB vs AS	RRP1	2.52935E-11	1.96901E-09	-0.9235774
FB vs AS	RSAD1	0.000174336	0.00284562	-0.9152955
FB vs AS	RTEL1	6.58916E-06	0.000169793	-1.697054
FB vs AS	RTEL1-TNFRSF6B	2.26865E-09	1.25023E-07	-1.596497
FB vs AS	RUNX1	0	0	1.621339
FB vs AS	RYR3	2.13301E-07	7.86247E-06	-2.910424
FB vs AS	S100PBP	0.000815921	0.0103804	-0.8071776
FB vs AS	SAMD11	0.000211762	0.00334849	-1.499449
FB vs AS	SAMD14	0.00148643	0.0171117	-1.125562
FB vs AS	SAP18	1.10106E-07	4.3775E-06	0.5370403

FB vs AS	SAP30BP	8.83603E-06	0.000218584	-1.341069
FB vs AS	SARAF	9.01018E-07	2.90728E-05	0.7480006
FB vs AS	SBNO2	2.04119E-06	5.99538E-05	-1.306641
FB vs AS	SC5D	0.00223482	0.0236945	0.6713157
FB vs AS	SCAPER	0.00467518	0.0428347	-0.5571806
FB vs AS	SCARA3	0.000992898	0.0122947	-0.4249708
FB vs AS	SCG2	2.01069E-08	9.24916E-07	4.152176
FB vs AS	SCGB3A2	0.00148016	0.0170586	3.625187
FB vs AS	SDC4	9.72344E-06	0.000240003	0.6411972
FB vs AS	SDK1	3.22935E-05	0.000660829	-1.309329
FB vs AS	SDPR	0.000525507	0.00716904	1.853789
FB vs AS	SELK	6.05607E-06	0.000158254	0.5136751
FB vs AS	SELO	2.56637E-05	0.000546248	-0.8175752
FB vs AS	SEMA3D	9.73593E-05	0.00174807	-1.561994
FB vs AS	SEMA3F	0.00268632	0.0276378	1.005426
FB vs AS	SEMA6D	0.000186717	0.00300801	-0.7751188
FB vs AS	SEPT6	0.00178848	0.02007	1.136764
FB vs AS	SEPT9	0.000236301	0.00367388	-0.8949843
FB vs AS	SERPINE2	1.69017E-07	6.39383E-06	1.975695
FB vs AS	SERPINF1	2.22045E-16	3.38603E-14	2.541295
FB vs AS	SERPINH1	1.55431E-15	2.1902E-13	0.879499
FB vs AS	SESN3	0.000273518	0.00417097	1.423558
FB vs AS	SETD1B	6.16597E-05	0.00117735	-1.634486
FB vs AS	SETD5	0	0	-1.032657
FB vs AS	SETDB1	2.43859E-07	8.87138E-06	-0.9466543
FB vs AS	SF1	0.00372439	0.0359271	-0.462196
FB vs AS	SFPQ	0.00528173	0.0469618	-0.8381987
FB vs AS	SFRP4	3.00545E-06	8.53487E-05	1.944337
FB vs AS	SH2D3C	0.00537794	0.0476271	1.769864
FB vs AS	SH3KBP1	7.41188E-05	0.00138438	1.137685
FB vs AS	SH3RF2	1.16743E-10	8.2252E-09	-2.075564
FB vs AS	SHC2	6.49384E-06	0.000167725	-1.134431
FB vs AS	SHC4	2.21659E-06	6.45944E-05	1.625207
FB vs AS	SHISA3	3.29549E-05	0.000671894	2.174241
FB vs AS	SHKBP1	3.08934E-05	0.000635685	-0.7495236
FB vs AS	SHMT1	9.76996E-15	1.19516E-12	-1.391828
FB vs AS	SIK3	4.08817E-06	0.000112927	-0.8276023
FB vs AS	SIRT7	0.000110616	0.00195147	-1.634257
FB vs AS	SKOR1	4.78192E-08	2.02405E-06	-1.353966
FB vs AS	SLC11A1	0.00125311	0.0148085	-2.048529
FB vs AS	SLC26A10	2.94832E-09	1.57037E-07	-1.472939
FB vs AS	SLC26A11	0.000149506	0.00249147	-1.087786
FB vs AS	SLC26A4	0.00148029	0.0170586	1.745777
FB vs AS	SLC26A6	4.10458E-09	2.12522E-07	-1.595833
FB vs AS	SLC27A3	0.00336892	0.0332472	-0.583993
FB vs AS	SLC29A2	0.000784803	0.0100419	-1.614164
FB vs AS	SLC2A1	2.81303E-05	0.000593675	0.9938415

FB vs AS	SLC2A3	0.00133106	0.0155972	1.041265
FB vs AS	SLC35D2	0.000251751	0.00389235	-1.056859
FB vs AS	SLC39A11	2.73995E-10	1.78369E-08	-0.8873571
FB vs AS	SLC3A2	3.77411E-06	0.000105561	-0.4435498
FB vs AS	SLC41A3	3.29044E-05	0.000671894	0.4209783
FB vs AS	SLC44A1	0	0	0.7332075
FB vs AS	SLC4A2	0.000142568	0.00239016	-0.7467118
FB vs AS	SLC4A4	0.00154583	0.0176314	1.165002
FB vs AS	SLC4A7	8.2109E-06	0.000205402	-0.7110633
FB vs AS	SLC7A8	1.65E-06	4.92434E-05	-1.058828
FB vs AS	SLC8B1	1.44008E-05	0.000335377	-0.7870482
FB vs AS	SLFN12	0.000914428	0.0114633	0.74995
FB vs AS	SLX1A-SULT1A3	0.00436394	0.0407277	-1.233701
FB vs AS	SMARCA4	5.37637E-07	1.82469E-05	-1.198093
FB vs AS	SMARCD3	5.41789E-14	5.91293E-12	-0.5967341
FB vs AS	SMIM12	0.00214589	0.0230358	-0.6643212
FB vs AS	SMOX	6.46507E-05	0.00122814	-1.203914
FB vs AS	SMTN	0	0	-1.585279
FB vs AS	SNED1	3.55271E-15	4.70819E-13	-1.431176
FB vs AS	SNRPA1	0.00557025	0.0487868	-0.4376891
FB vs AS	SNRPG	0.00042575	0.00606068	1.03586
FB vs AS	SOCS3	2.78626E-05	0.000589669	2.182638
FB vs AS	SON	0.00265581	0.0273745	-0.5796266
FB vs AS	SOX9	0.00105405	0.0128534	1.513334
FB vs AS	SPCS2	0.00305856	0.0308125	0.4270857
FB vs AS	SPEG	0	0	-2.808273
FB vs AS	SPG7	7.77156E-15	9.831019E-13	-1.265948
FB vs AS	SPIN2B	0.000166088	0.00272888	-0.6596991
FB vs AS	SPNS1	9.2772E-10	5.61271E-08	-0.677797
FB vs AS	SPOCD1	0.000190395	0.00304522	-2.706509
FB vs AS	SPRY1	0.000498029	0.0069128	0.8075566
FB vs AS	SRC	3.55194E-06	9.95974E-05	-1.560154
FB vs AS	SREBF1	0.000895834	0.0112722	-0.841022
FB vs AS	SRPK3	0.00085049	0.0107343	-1.288247
FB vs AS	SRRM2	4.32987E-14	4.8687E-12	-1.361615
FB vs AS	SRRT	1.7031E-10	1.14903E-08	-1.286067
FB vs AS	ST3GAL1	1.63507E-06	4.89289E-05	-1.695046
FB vs AS	ST3GAL4	0.00424083	0.0399043	0.4593767
FB vs AS	ST7	1.71433E-05	0.000390265	0.818269
FB vs AS	ST7L	4.17776E-06	0.000114832	-0.4167124
FB vs AS	ST7-OT3	1.71433E-05	0.000390265	0.7986532
FB vs AS	STAC2	0.00465014	0.0426469	-1.166556
FB vs AS	STARD9	6.39664E-07	2.13836E-05	-1.338816
FB vs AS	STAT6	0.000114244	0.00200363	-0.5572761
FB vs AS	STK32C	0.00358758	0.034981	-1.565417
FB vs AS	STMN4	0.00293674	0.0297739	-2.090059
FB vs AS	STOX2	1.02209E-06	3.25085E-05	-2.350977

FB vs AS	STPG1	3.5644E-05	0.000717522	1.676113
FB vs AS	STRN4	9.54548E-12	7.98949E-10	-0.6670014
FB vs AS	STX10	0	0	-1.066522
FB vs AS	STX18	0.00519027	0.0463337	-1.320011
FB vs AS	STX1A	1.55997E-06	4.71892E-05	-2.011779
FB vs AS	SUGCT	0.00117713	0.014075	1.205426
FB vs AS	SULF1	3.48502E-05	0.000704089	0.682102
FB vs AS	SUPT5H	7.22017E-07	2.38501E-05	-0.7326733
FB vs AS	SYNC	3.75916E-05	0.000751293	-1.365236
FB vs AS	SYNE1	0.00066956	0.00879993	-0.4573942
FB vs AS	SYNE2	4.97991E-09	2.53134E-07	-0.6192864
FB vs AS	SYPL2	0.000511406	0.0070197	-2.0475
FB vs AS	SYT12	5.92859E-14	6.40748E-12	3.991301
FB vs AS	SYTL3	0.0056514	0.0492459	-1.456647
FB vs AS	SZT2	0.000732048	0.00949786	-0.9313878
FB vs AS	TAB1	0.00457024	0.0420933	-0.9054709
FB vs AS	TACC2	0	0	-1.387787
FB vs AS	TAF1	8.49087E-05	0.0015675	-0.8544181
FB vs AS	TAF1C	2.20958E-09	1.22373E-07	-1.415863
FB vs AS	TAF1D	0.000896147	0.0112722	-0.8178437
FB vs AS	TAF6L	0.00530599	0.0471399	-1.132308
FB vs AS	TAF8	0.00192142	0.0211566	-0.70271
FB vs AS	TAOK2	0.000485605	0.00677413	-0.5255391
FB vs AS	TASP1	9.70457E-05	0.00174525	-1.487248
FB vs AS	TBC1D10A	1.05471E-13	1.08713E-11	-1.046229
FB vs AS	TBC1D10B	0.00346449	0.0339794	-0.7308398
FB vs AS	TBC1D22A	0.00409065	0.0387761	-0.4309405
FB vs AS	TBCK	1.84439E-05	0.000414784	-0.4153049
FB vs AS	TBP	0	0	-1.598513
FB vs AS	TBX20	0.000589863	0.00790065	3.715901
FB vs AS	TCERG1	2.33539E-05	0.000505788	-0.8326358
FB vs AS	TCF21	0.000456907	0.00643834	1.656448
FB vs AS	TCF4	0.00427794	0.0401534	0.4498605
FB vs AS	TCFL5	0.000350742	0.00516464	-0.6149555
FB vs AS	TCHP	0.000572769	0.00774776	-1.102049
FB vs AS	TCIRG1	0	0	-1.534613
FB vs AS	TCOF1	2.32705E-08	1.05304E-06	-0.8957996
FB vs AS	TCTN1	0.00308337	0.0310344	0.6876549
FB vs AS	TDG	0.00510433	0.0458607	-0.537322
FB vs AS	TDRD5	0.00361283	0.0351249	-2.432118
FB vs AS	TEAD2	0.00405679	0.0384997	-0.7645598
FB vs AS	TEAD3	0.000224868	0.00353564	-1.523756
FB vs AS	TECPR1	2.28934E-05	0.000497752	-1.249273
FB vs AS	TEKT4P2	6.2164E-09	3.11716E-07	-2.426918
FB vs AS	TELO2	7.39389E-06	0.00018792	-1.289802
FB vs AS	TEP1	0.00282379	0.0288654	-1.040818
FB vs AS	TFAP2A	0.000114292	0.00200363	-3.084204



FB vs AS	TFPI	5.30687E-14	5.84911E-12	1.585393
FB vs AS	TFRC	0.00011974	0.00207301	-0.9492536
FB vs AS	TGFB1I1	0	0	-0.5314213
FB vs AS	TGFB2	0.00100837	0.0124309	1.534752
FB vs AS	TGFBR1	5.18302E-05	0.00100809	0.4734212
FB vs AS	THAP5	0.000361591	0.00527553	0.4876645
FB vs AS	THBS1	0	0	2.868232
FB vs AS	THBS2	5.24628E-05	0.00101745	1.2634
FB vs AS	THOC5	0.00513593	0.0460332	-0.6939241
FB vs AS	THOC7	0.00257126	0.0266263	0.55145
FB vs AS	THY1	0	0	3.390291
FB vs AS	TIMP4	0.00312941	0.0314126	-1.732436
FB vs AS	TLE1	0.0053938	0.0476916	-1.06146
FB vs AS	TMCO4	1.56727E-10	1.06383E-08	-0.9426574
FB vs AS	TMED9	1.22196E-09	7.12192E-08	0.737702
FB vs AS	TMEM120A	0.00187102	0.0208074	-0.751561
FB vs AS	TMEM130	0	0	3.513695
FB vs AS	TMEM175	0.00041418	0.00591868	-0.5682119
FB vs AS	TMEM200A	0.00331813	0.0329505	2.95601
FB vs AS	TMEM45A	0.00173451	0.0195036	1.42839
FB vs AS	TMEM59	1.42748E-10	9.74889E-09	0.6802978
FB vs AS	TMEM62	0.000342945	0.00508344	-1.037363
FB vs AS	TMEM63A	0.00223493	0.0236945	-1.042291
FB vs AS	TMEM94	1.41065E-10	9.74889E-09	-1.283716
FB vs AS	TMOD1	0.000393595	0.00565095	-1.606851
FB vs AS	TMTC1	1.39603E-05	0.00032717	1.252993
FB vs AS	TNC	0	0	-2.147106
FB vs AS	TNFAIP8	2.96626E-05	0.000614905	0.7013391
FB vs AS	TNFRSF10B	7.70474E-07	2.52262E-05	-1.48593
FB vs AS	TNFRSF11B	0.00562396	0.0491027	0.9569744
FB vs AS	TNKS1BP1	0.000107587	0.00190711	-0.8743204
FB vs AS	TNNC1	0.00192365	0.0211602	-2.686208
FB vs AS	TNPO2	0.000301897	0.00456	-0.7163665
FB vs AS	TNRC18	2.77047E-05	0.000587444	-0.8726431
FB vs AS	TNRC6A	0.000368638	0.00535729	-0.7806291
FB vs AS	TNRC6C	0.0053699	0.047624	-0.4932384
FB vs AS	TNS2	2.54652E-05	0.000543063	-0.8955759
FB vs AS	TOM1	0.00110655	0.0133313	-0.6968973
FB vs AS	TOM1L2	0.00360924	0.0351207	-0.5192578
FB vs AS	TOP3A	0.000302858	0.0045645	-0.9541149
FB vs AS	TOP3B	0.000348117	0.00515188	-1.221206
FB vs AS	TOR2A	0.000327514	0.00487417	-1.311837
FB vs AS	TPD52L1	1.38717E-06	4.24231E-05	1.115301
FB vs AS	TPM1	1.16187E-11	9.6522E-10	-0.420563
FB vs AS	TPM3	0.00464556	0.0426469	-0.390541
FB vs AS	TPM4	5.9163E-06	0.000155698	-0.5349116
FB vs AS	TRAF2	0.000675326	0.00886524	-0.7280842

FB vs AS	TRAF5	2.11836E-07	7.83441E-06	-0.625291
FB vs AS	TRAFD1	0.00520768	0.0464518	-0.5671937
FB vs AS	TRAP1	7.15219E-05	0.00134263	-0.9343544
FB vs AS	TRIM3	0.000423199	0.00603207	-1.139441
FB vs AS	TRIM33	8.98559E-05	0.00163312	-0.8814772
FB vs AS	TRIM62	0.00160073	0.0181645	-1.663971
FB vs AS	TRIO	0	0	-1.280422
FB vs AS	TRIOBP	0.00117392	0.0140517	-0.6909969
FB vs AS	TRMU	5.93291E-06	0.000155767	-1.217328
FB vs AS	TRO	0	0	-1.049572
FB vs AS	TRPM4	7.78613E-11	5.64845E-09	-1.530652
FB vs AS	TSC22D1	0.00116976	0.0140169	0.5756124
FB vs AS	TSC22D3	0.00231136	0.024435	-0.7741162
FB vs AS	TSC22D4	0.00385648	0.0369452	-0.7888906
FB vs AS	TSEN54	0.000254009	0.00392182	-0.997335
FB vs AS	TSPAN12	0.00220532	0.0234725	1.183859
FB vs AS	TSPAN4	0	0	1.193416
FB vs AS	TTC12	0.00128694	0.0151228	-1.297088
FB vs AS	TTC17	0.0010879	0.0131684	-0.7388144
FB vs AS	TTC39B	0.00228633	0.0242164	-0.5632723
FB vs AS	TTL11	8.19283E-10	5.12374E-08	-0.9825194
FB vs AS	TTL4	0.00386387	0.0369785	-1.111168
FB vs AS	TTYH3	0.00439918	0.0409804	-1.435244
FB vs AS	TUSC5	0.00449368	0.0415825	-0.6632416
FB vs AS	TXNRD2	0.00220864	0.0234828	-1.163967
FB vs AS	TYK2	5.14065E-08	2.16764E-06	-1.334195
FB vs AS	UACA	0.000187927	0.00301876	0.7333364
FB vs AS	UAP1L1	0.00505081	0.0454533	-1.50268
FB vs AS	UBAP1L	0.00118908	0.0141722	-1.898328
FB vs AS	UBE2G2	4.08166E-06	0.000112927	-0.8984872
FB vs AS	UBE2J2	0.00461506	0.0424585	-0.4306189
FB vs AS	UBR4	1.67078E-08	7.81478E-07	-0.9385529
FB vs AS	ULK1	1.27186E-07	4.98535E-06	-1.481108
FB vs AS	ULK3	4.84057E-14	5.38853E-12	-1.128047
FB vs AS	UNK	0.00319978	0.0320323	-1.059974
FB vs AS	UNKL	1.06661E-06	3.36359E-05	-1.500484
FB vs AS	UPF2	0.000138587	0.00233397	-1.59099
FB vs AS	UQCRQ	0.00194651	0.0213694	0.7354838
FB vs AS	URB1	0.00233361	0.0245958	-1.333781
FB vs AS	USP19	0.00157675	0.0179472	-0.471363
FB vs AS	USP31	3.01012E-05	0.000622837	-1.436403
FB vs AS	USP54	1.14822E-05	0.000276069	-1.348616
FB vs AS	UVSSA	4.35545E-08	1.8648E-06	-1.959457
FB vs AS	VAMP1	0.00427406	0.040151	-1.008183
FB vs AS	VAT1	2.61693E-09	1.41416E-07	0.6294964
FB vs AS	VCAM1	0.000943863	0.0117792	1.566774
FB vs AS	VCAN	0	0	1.347129

FB vs AS	VEGFA	5.93176E-05	0.00113653	1.431301
FB vs AS	VEGFB	0.000182714	0.00296498	0.6264813
FB vs AS	VEZT	1.17236E-05	0.000281265	-0.4521974
FB vs AS	VMO1	0.00164516	0.0185739	1.072795
FB vs AS	VTI1A	4.54062E-06	0.000122983	-1.496661
FB vs AS	WDFY1	0.000163004	0.00269223	-0.9394756
FB vs AS	WDR19	0	0	1.328352
FB vs AS	WDR4	0.00413078	0.0390355	-0.8503507
FB vs AS	WDR45	1.93179E-14	2.28773E-12	-0.7576503
FB vs AS	WDR60	0.00336532	0.0332411	-1.354131
FB vs AS	WDR73	4.40253E-07	1.51731E-05	-0.800347
FB vs AS	WDR74	3.18804E-07	1.14113E-05	-0.8585111
FB vs AS	WDR91	8.99302E-05	0.00163312	-1.710662
FB vs AS	WIPF3	0.00103376	0.0126738	0.829819
FB vs AS	WNK2	0.000411021	0.00588866	-1.897323
FB vs AS	WWP2	0.000173963	0.0028437	-0.6057897
FB vs AS	ZBTB16	1.33724E-11	1.10268E-09	-2.379287
FB vs AS	ZCCHC11	1.52283E-05	0.000352435	-0.4677989
FB vs AS	ZCCHC14	3.51793E-05	0.000709448	-0.8503819
FB vs AS	ZFAND2B	0.000155364	0.00258136	-0.522607
FB vs AS	ZFHX4	0.00483996	0.0440904	1.011085
FB vs AS	ZFP36	0.000269822	0.00412129	-0.6066394
FB vs AS	ZGPAT	0.000183346	0.00296658	-1.339967
FB vs AS	ZIC2	0.000143637	0.00240446	-1.214702
FB vs AS	ZMIZ2	2.10192E-08	9.58959E-07	-1.137243
FB vs AS	ZMYM3	0.000118487	0.00205661	-0.7871667
FB vs AS	ZNF148	2.58313E-08	1.15484E-06	0.5088463
FB vs AS	ZNF282	0.00191968	0.0211566	-0.9474721
FB vs AS	ZNF333	0.000160878	0.00266899	-1.075716
FB vs AS	ZNF346	0.000936101	0.0116955	-1.389857
FB vs AS	ZNF395	0.00395399	0.0376525	-0.6541051
FB vs AS	ZNF444	0.00248999	0.0259211	-1.082107
FB vs AS	ZNF469	0.000370807	0.00538178	1.502345
FB vs AS	ZNF500	0.000500054	0.00692363	-1.08719
FB vs AS	ZNF536	2.4949E-08	1.11989E-06	-4.404439
FB vs AS	ZNF580	0.00152074	0.0174165	-0.8756803
FB vs AS	ZNF618	0.000666286	0.00876725	-0.8746958
FB vs AS	ZNF638	6.43929E-15	8.33514E-13	-0.3943209
FB vs AS	ZNF692	1.53139E-05	0.000353681	-0.844219
FB vs AS	ZNF707	0.00143834	0.0166788	-1.024482
FB vs AS	ZNF783	0	0	-1.768951
FB vs AS	ZNF784	0.00205379	0.0222617	-1.171764
FB vs AS	ZSCAN18	1.76269E-09	9.86041E-08	-0.7921283
FB vs AS	ZSWIM8	5.7625E-12	5.09112E-10	-0.9881551



**Supplemental Table V Predicted reg**

<b>GO Biological Signaling Process</b>	<b>Pvalue</b>	<b>Minus_log10_pvalue</b>	<b>Proteins t</b>
transmembrane receptor protein serine/thre	1.03E-10	9.987686	CITED1,D
transforming growth factor beta receptor sig	3.91E-10	9.408047	CITED1,F
androgen receptor signaling pathway	7.37E-10	9.132716	DAXX,DD
cytokine-mediated signaling pathway	3.80E-09	8.420235	AKT1,BTF
intracellular steroid hormone receptor signal	4.64E-08	7.333416	DAXX,DD
androgen receptor signaling pathway	5.49E-06	5.2605	DAXX,FHI
transforming growth factor beta receptor sig	9.25E-06	5.033672	FOS,FOXI
Fc-epsilon receptor signaling pathway	2.24E-05	4.649636	BTRC,CAI
Fc receptor signaling pathway	2.33E-05	4.6325	BTRC,CAI
transmembrane receptor protein serine/thre	3.94E-05	4.404549	FOS,FOXI
androgen receptor signaling pathway	1.42E-10	9.847356	CCNE1,D
intracellular steroid hormone receptor signal	9.26E-09	8.033416	CCNE1,D
transmembrane receptor protein serine/thre	2.85E-08	7.545346	FOS,FOXI
transforming growth factor beta receptor sig	2.88E-08	7.539952	FOS,FOXI
cytokine-mediated signaling pathway	9.50E-08	7.022359	AKT1,BCL
transmembrane receptor protein serine/thre	1.04E-09	8.983305	CITED1,F
transforming growth factor beta receptor sig	6.29E-09	8.2016	CITED1,F
DNA damage response, signal transduction	1.24E-08	7.905001	ATM,CDK
androgen receptor signaling pathway	1.99E-08	7.701319	DAXX,DD
DNA damage response, signal transduction	2.27E-08	7.643491	ATM,CDK

**ulatory signaling pathways in aortas of MFS patients and mice**

**hat are part of signaling process and upstream regulatory subnetwork**

DX5,FOXH1,JUN,SIRT1,SKI,SMAD1,SMAD2,SMAD3,SMAD4,SMURF1,STUB1,TGFB1I1

OXH1,JUN,SIRT1,SKI,SMAD1,SMAD2,SMAD3,SMAD4,SMURF1

X5,KAT5,PIAS2,PPARGC1A,RB1,RNF4,TGFB1I1

RC,CDKN1A,CEBPA,CHUK,FOXO1,HIF1A,HIST1H3A,HSP90AA1,IRF1,IRF7,IRF8,MYC,NFKB

X5,KAT5,PIAS2,PPARGC1A,RB1,RNF4,TGFB1I1

\_2,RB1,RNF14,RNF4

H1,JUN,SIRT1,SKI,SMAD3

LM1,FOS,JUN,MAPK8,MAPK9,RELA,VAV1

LM1,FOS,JUN,MAPK8,MAPK9,RELA,VAV1

H1,JUN,SIRT1,SKI,SMAD3,STUB1

AXX,FHL2,PIAS2,RB1,RNF14,RNF4,TGFB1I1

AXX,FHL2,PIAS2,RB1,RNF14,RNF4,TGFB1I1

H1,JUN,SIRT1,SKI,SMAD1,SMAD3,SMAD4,STUB1,TGFB1I1

H1,JUN,SIRT1,SKI,SMAD1,SMAD3,SMAD4

.6,BTRC,CEBPA,FOS,FOXO1,FOXO3,IRF1,IRF8,PML,RELA,SIRT1,SMAD4,SMARCA4,SQST

OXH1,JUN,SIRT1,SKI,SMAD1,SMAD2,SMAD3,SMAD4,SMAD7,STUB1,TGFB1I1

OXH1,JUN,SIRT1,SKI,SMAD1,SMAD2,SMAD3,SMAD4

1,CDKN1A,HIPK2,MDM4,NPM1,PLK2,PML,PRMT1

X17,FHL2,PIAS2,RB1,RNF4,TGFB1I1

1,CDKN1A,MDM4,NPM1,PLK2,PML,PRMT1

1,PML,RELA,SIRT1,SMAD4,SMARCA4,SQSTM1,STAT3,TRAF6

M1,STAT3,TRAF6,VAV1

**Supplemental Table VI. BT173 pharmacokinetics**

AUC 0_Last	102.99 ng h/mL
Cmax	24.54 ng/mL
Tmax	1 h
T <sub>1/2</sub>	9.83 h
AUC infinity	216.92 ng h/mL
CL	0.0922 mL/h



**Supplemental Table VII.** Additional metrics from biaxial mechanical testing.

	Ascending Aorta			
	WT VEH <i>n</i> = 8	WT BT173 <i>n</i> = 8	MFS VEH <i>n</i> = 6	MFS BT173 <i>n</i> = 4
<b>Unloaded dimensions</b>				
Wall Thickness, <i>H</i> (μm)	126 ± 7.5	140 ± 5.7	157 ± 9.3 <sup>(1)</sup>	169 ± 9.9 <sup>(1)</sup>
Inner Diameter, <i>2A</i> (μm)	881 ± 21	875 ± 23	1528 ± 154 <sup>(1)(2)</sup>	1018 ± 133 <sup>(3)</sup>
<b><i>In Vivo</i> (Loaded) Axial Stretch, λ<sub>z</sub></b>	1.76 ± 0.02	1.72 ± 0.04	1.59 ± 0.03 <sup>(1)</sup>	1.61 ± 0.09
<b>Dimensions at Diastolic Pressure <i>P</i> (mmHg)</b>				
Wall Thickness, <i>h</i> (μm)	<b><i>P</i> = 74</b>	<b><i>P</i> = 71</b>	<b><i>P</i> = 80</b>	<b><i>P</i> = 81</b>
Inner Diameter, <i>2a</i> (μm)	47 ± 3.2	55 ± 3.2	69 ± 6.0 <sup>(1)</sup>	64 ± 7.5
	1474 ± 32.5	1460 ± 33.1	2343 ± 181.3 <sup>(1)(2)</sup>	1897 ± 194.0
<b>Dimensions at Systolic Pressure <i>P</i> (mmHg)</b>				
Wall Thickness, <i>h</i> (μm)	<b><i>P</i> = 99</b>	<b><i>P</i> = 94</b>	<b><i>P</i> = 105</b>	<b><i>P</i> = 104</b>
Inner Diameter, <i>2a</i> (μm)	43 ± 3.0	51 ± 2.9	68 ± 6.0 <sup>(1)(2)</sup>	63 ± 7.4 <sup>(1)</sup>
	1623 ± 37.0	1595 ± 36.7	2397 ± 183.0 <sup>(1)(2)</sup>	1940 ± 197.2
<b>Distensibility (1/MPa)</b>	30.43 ± 0.95	30.03 ± 0.76	7.05 ± 0.65 <sup>(1)(2)</sup>	7.43 ± 0.37 <sup>(1)(2)</sup>
<b>Additional Metrics at Systolic Pressure</b>				
Circumferential Stretch, λ <sub>θ</sub>	1.66 ± 0.02	1.62 ± 0.04	1.48 ± 0.04 <sup>(1)(2)</sup>	1.70 ± 0.04 <sup>(3)</sup>
Circumferential Cauchy Stress, σ <sub>θ</sub> (kPa)	255 ± 17.3	202 ± 13.8	251 ± 13.6	217 ± 18.4
Axial Cauchy Stress, σ <sub>z</sub> (kPa)	250 ± 16.6	209 ± 13.9	170 ± 11.7 <sup>(1)</sup>	160 ± 16.1 <sup>(1)</sup>
Circumferential Linearized Material Stiffness, $\mathcal{E}_{\theta\theta\theta\theta}$ (MPa)	1.44 ± 0.09	1.22 ± 0.09	4.37 ± 0.31 <sup>(1)(2)</sup>	3.44 ± 0.19 <sup>(1)(2)(3)</sup>
Axial Linearized Material Stiffness, $\mathcal{E}_{zzzz}$ (MPa)	1.23 ± 0.09	1.04 ± 0.06	1.27 ± 0.06	1.17 ± 0.05
Stored Strain Energy Density, <i>W</i> (kPa)	78 ± 5.3	62 ± 4.8	36 ± 3.6 <sup>(1)(2)</sup>	36 ± 4.9 <sup>(1)(2)</sup>
	Ascending Aorta			
	WT VEH <i>n</i> = 8	WT BT173 <i>n</i> = 8	MFS VEH <i>n</i> = 6	MFS BT173 <i>n</i> = 4
<b>Dimensions at Fixed Pressure <i>P</i> (mmHg)</b>				
Wall Thickness, <i>h</i> (μm)	<b><i>P</i> = 100</b>	<b><i>P</i> = 100</b>	<b><i>P</i> = 100</b>	<b><i>P</i> = 100</b>
Inner Diameter, <i>2a</i> (μm)	43 ± 3.0	50 ± 2.9	68 ± 6.0 <sup>(1)(2)</sup>	63 ± 7.4 <sup>(1)</sup>
	1628 ± 37.1	1620 ± 37.1	2389 ± 182.6 <sup>(1)(2)</sup>	1934 ± 196.8
<b>Additional Metrics at Fixed Pressure</b>				
Circumferential Stretch, λ <sub>θ</sub>	<b><i>P</i> = 100</b>	<b><i>P</i> = 100</b>	<b><i>P</i> = 100</b>	<b><i>P</i> = 100</b>
Circumferential Cauchy Stress, σ <sub>θ</sub> (kPa)	1.66 ± 0.02	1.65 ± 0.04	1.48 ± 0.04 <sup>(1)(2)</sup>	1.69 ± 0.04 <sup>(3)</sup>
Axial Cauchy Stress, σ <sub>z</sub> (kPa)	259 ± 17.6	221 ± 15.1	237 ± 12.9	208 ± 17.6
Circumferential Linearized Material Stiffness, $\mathcal{E}_{\theta\theta\theta\theta}$ (MPa)	251 ± 16.7	217 ± 14.4	166 ± 11.6 <sup>(1)</sup>	156 ± 15.8 <sup>(1)</sup>
Axial Linearized Material Stiffness, $\mathcal{E}_{zzzz}$ (MPa)	1.48 ± 0.09	1.42 ± 0.11	3.90 ± 0.28 <sup>(1)(2)</sup>	3.15 ± 0.17 <sup>(1)(2)(3)</sup>
Stored Strain Energy Density, <i>W</i> (kPa)	1.24 ± 0.09	1.10 ± 0.06	1.22 ± 0.06	1.14 ± 0.05
	79 ± 5.4	66 ± 5.0	35 ± 3.5 <sup>(1)(2)</sup>	35 ± 4.8 <sup>(1)(2)</sup>

Means ± standard errors of biaxial biomechanical metrics of the ascending aorta. Superscripted numbers indicate significant differences (*p*<0.05; one-way analysis of variance (ANOVA) followed by Tukey's post-hoc test).