

Supplementary Material I. Shortest path analysis R script

```
read.table("Ezrin siRNA PPI network.txt")->files
library(igraph)
graph.data.frame(files,directed=F)->PPIN
g1<-"EZR"
g2<-c("ATF3")
shortestpath<-get.all.shortest.paths(PPIN, g1, g2)
for(i in 1:length(shortestpath[[1]])){
print(V(PPIN)[shortestpath[[1]][[i]]])
}
```

Supplementary Material II. Differentially expressed genes from the mRNA profile following Ezrin knockdown in ESCC

Gene symbol	Official Full Name	Fold change
Upregulated genes		
IFI44	interferon-induced protein 44	14
C9ORF152	chromosome 9 open reading frame 152	10
WAPAL	wings apart-like homolog (Drosophila)	9.8
MGA	MAX gene associated	9.4
FEZF2	FEZ family zinc finger 2	9.2
OASL	2'-5'-oligoadenylate synthetase-like	8.4
GTDC1	glycosyltransferase-like domain containing 1	8
ATP13A5	ATPase type 13A5	7.8
LOC284561	uncharacterized LOC284561	7.6
AGAP1	ArfGAP with GTPase domain, ankyrin repeat and PH domain 1	7.4
MOBKL2B	MOB1, Mps One Binder kinase activator-like 2B (yeast)	7.2
PCCA	propionyl Coenzyme A carboxylase, alpha polypeptide	7.2
DDX58	DEAD (Asp-Glu-Ala-Asp) box polypeptide 58	7
NAPEPLD	N-acyl phosphatidylethanolamine phospholipase D	7
TM4SF4	transmembrane 4 L six family member 4	7
CARD16	caspase recruitment domain family, member 16	6.8
PLEKHH1	pleckstrin homology domain containing, family H (with MyTH4 domain) member 1	6.8
CSPG4	chondroitin sulfate proteoglycan 4	6.4
KIR3DL2	killer cell immunoglobulin-like receptor, three domains, long cytoplasmic tail, 2	6.4
LOC284408	hypothetical protein LOC338758	6.4
SEMA3F	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3F	6.4
C17ORF77	chromosome 17 open reading frame 77	6.2
GRIN2C	glutamate receptor, ionotropic, N-methyl D-aspartate 2C	6
OTUD1	OTU domain containing 1	6
ATAD2B	ATPase family, AAA domain containing 2B	5.6
C14ORF182	chromosome 14 open reading frame 182	5.6
STC1	stanniocalcin 1	5.6
ASMT	acetylserotonin O-methyltransferase	5.4
PTGS2	prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)	5.4
QKI	quaking homolog, KH domain RNA binding (mouse)	5.4
OSTBETA	organic solute transporter beta	5.2
STK35	serine/threonine kinase 35	5.2
KCNQ4	potassium voltage-gated channel, KQT-like subfamily, member 4	5
TNKS	tankyrase, TRF1-interacting ankyrin-related ADP-ribose	5

	polymerase	
C7ORF60	chromosome 7 open reading frame 60	4.8
CLEC2B	C-type lectin domain family 2, member B	4.8
TBC1D3C	TTBC1 domain family, member 3C	4.8
TBC1D3F	TBC1 domain family, member 3F	4.8
DDX60	DEAD (Asp-Glu-Ala-Asp) box polypeptide 60	4.6
HSPC047	HSPC047	4.6
C1QBP	complement component 1, q subcomponent binding protein	4.2
FLJ10213	hypothetical protein FLJ10213	4.2
ISG15	ISG15 ubiquitin-like modifier	4.2
IFIT2	interferon-induced protein with tetratricopeptide repeats 2	4
UBD	ubiquitin D	4
BMP2	bone morphogenetic protein 2	3.8
H6PD	hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase)	3.8
RWDD2A	RWD domain containing 2A	3.8
SPINK6	serine peptidase inhibitor, Kazal type 6	3.8
VWA5B2	von Willebrand factor A domain containing 5B2	3.8
ZNF93	zinc finger protein 93	3.8
PFKFB4	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 4	3.6
TRAF3IP3	TRAF3 interacting protein 3	3.6
CSNK1D	casein kinase 1, delta	3.4
EGLN3	egl nine homolog 3 (C. elegans)	3.4
FAM13A	family with sequence similarity 13, member A	3.4
KCNH5	potassium voltage-gated channel, subfamily H (eag-related), member 5	3.4
POU5F1	POU class 5 homeobox 1	3.4
CA9	carbonic anhydrase IX	3.2
DHRS3	dehydrogenase/reductase (SDR family) member 3	3.2
IFIT1	interferon-induced protein with tetratricopeptide repeats 1	3.2
KAL1	Kallmann syndrome 1 sequence	3.2
MAP2K6	mitogen-activated protein kinase kinase 6	3.2
SPAG4	sperm associated antigen 4	3.2
C5ORF41	chromosome 5 open reading frame 41	3
GPR126	G protein-coupled receptor 126	3
IGFBP3	insulin-like growth factor binding protein 3	3
IL15	interleukin 15	3
LOX	lysyl oxidase	3
MTHFD1	methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1	3
NDRG1	N-myc downstream regulated 1	3
NFIL3	nuclear factor, interleukin 3 regulated	3
PRDM1	PR domain containing 1, with ZNF domain	3
SLCO1B3	solute carrier organic anion transporter family, member 1B3	3
TMEM45A	transmembrane protein 45A	3

BDKRB2	bradykinin receptor B2	2.8
BHLHE40	basic helix-loop-helix family, member e40	2.8
CNOT2	CCR4-NOT transcription complex, subunit 2	2.8
CYLD	cylindromatosis (turban tumor syndrome)	2.8
FOS	v-fos FBJ murine osteosarcoma viral oncogene homolog	2.8
ISG20	interferon stimulated exonuclease gene 20kDa	2.8
MAFF	v-maf musculoaponeurotic fibrosarcoma oncogene homolog F (avian)	2.8
NR4A2	nuclear receptor subfamily 4, group A, member 2	2.8
PDK1	pyruvate dehydrogenase kinase, isozyme 1	2.8
PPFIA4	protein tyrosine phosphatase, receptor type, f polypeptide (PTPRF), interacting protein (liprin), alpha 4	2.8
PROS1	protein S (alpha)	2.8
SORBS2	sorbin and SH3 domain containing 2	2.8
AKAP12	A kinase (PRKA) anchor protein 12	2.6
ANKZF1	ankyrin repeat and zinc finger domain containing 1	2.6
CTH	cystathionase (cystathionine gamma-lyase)	2.6
EFNA1	ephrin-A1	2.6
FOSL2	FOS-like antigen 2	2.6
FZD10	frizzled homolog 10 (Drosophila)	2.6
KIAA1539	KIAA1539	2.6
MXI1	MAX interactor 1	2.6
NEAT1	non-protein coding RNA 84	2.6
PDE4D	phosphodiesterase 4D	2.6
PTPRB	protein tyrosine phosphatase, receptor type, B	2.6
SNED1	sushi, nidogen and EGF-like domains 1	2.6
STC2	stanniocalcin 2	2.6
TBX3	T-box 3	2.6
ABCA5	ATP-binding cassette, sub-family A (ABC1), member 5	2.4
AK3L1	adenylate kinase 3-like 2; adenylate kinase 3-like 1	2.4
BNIP3	BCL2/adenovirus E1B 19kDa interacting protein 3	2.4
BNIP3L	BCL2/adenovirus E1B 19kDa interacting protein 3-like	2.4
C4ORF3	chromosome 4 open reading frame 3	2.4
CA12	carbonic anhydrase XII	2.4
CEBPZ	CCAAT/enhancer binding protein (C/EBP), zeta	2.4
CHST2	carbohydrate (N-acetylglucosamine-6-O) sulfotransferase 2	2.4
DEPDC6	DEP domain containing 6	2.4
ENO2	enolase 2 (gamma, neuronal)	2.4
FLCN	folliculin	2.4
HK2	hexokinase 2 pseudogene; hexokinase 2	2.4
IL20RB	interleukin 20 receptor beta	2.4
KLF9	Kruppel-like factor 9	2.4
LOC338758	hypothetisches Protein LOC338758	2.4
LOXL2	lysyl oxidase-like 2	2.4

NID2	nidogen 2 (osteonidogen)	2.4
PAPPA2	pappalysin 2	2.4
PDE1A	phosphodiesterase 1A, calmodulin-dependent	2.4
PLOD2	procollagen-lysine, 2-oxoglutarate 5-dioxygenase 2	2.4
PPP1R3B	protein phosphatase 1, regulatory (inhibitor) subunit 3B	2.4
QSOX1	quiescin Q6 sulfhydryl oxidase 1	2.4
SLC6A6	solute carrier family 6 (neurotransmitter transporter, taurine), member 6	2.4
SPINK1	serine peptidase inhibitor, Kazal type 1	2.4
TMEM27	transmembrane protein 27	2.4
TNFAIP3	tumor necrosis factor, alpha-induced protein 3	2.4
UBE2O	ubiquitin-conjugating enzyme E2O	2.4
WIPI1	WD repeat domain, phosphoinositide interacting 1	2.4
ZNF292	zinc finger protein 292	2.4
ZNF395	zinc finger protein 395	2.4
ATF3	activating transcription factor 3	2.2
ATP1B3	ATPase, Na ⁺ /K ⁺ transporting, beta 3 polypeptide	2.2
CASP9	caspase 9, apoptosis-related cysteine peptidase	2.2
CDKN1A	cyclin-dependent kinase inhibitor 1A (p21, Cip1)	2.2
DNER	delta/notch-like EGF repeat containing	2.2
FOXP3	forkhead box N3	2.2
FUT11	fucosyltransferase 11 (alpha (1,3) fucosyltransferase)	2.2
GDF15	growth differentiation factor 15	2.2
HIST1H2BC	histone cluster 1, H2bc	2.2
IER3	immediate early response 3	2.2
IGFBP1	insulin-like growth factor binding protein 1	2.2
INSIG2	insulin induced gene 2	2.2
IQSEC2	IQ motif and Sec7 domain 2	2.2
ITGA5	integrin, alpha 5 (fibronectin receptor, alpha polypeptide)	2.2
ITM2C	integral membrane protein 2C	2.2
KDM3A	lysine (K)-specific demethylase 3A	2.2
KRT17	keratin 17; keratin 17 pseudogene 3	2.2
LOC285831	hypothetical protein LOC285831	2.2
PDK4	pyruvate dehydrogenase kinase, isozyme 4	2.2
PLEKHG1	pleckstrin homology domain containing, family G (with RhoGef domain) member 1	2.2
RCBTB2	regulator of chromosome condensation (RCC1) and BTB (POZ) domain containing protein 2	2.2
SLC2A13	solute carrier family 2 (facilitated glucose transporter), member 13	2.2
SLC7A11	solute carrier family 7, (cationic amino acid transporter, y ⁺ system) member 11	2.2
SMOX	spermine oxidase	2.2
TMIE	transmembrane inner ear	2.2

WSB1	WD repeat and SOCS box-containing 1	2.2
ZDHHC11	zinc finger, DHHC-type containing 11	2.2
ZNF652	zinc finger protein 652	2.2
AFF1	AF4/FMR2 family, member 1	2
ALDOC	aldolase C, fructose-bisphosphate	2
ANK3	ankyrin 3, node of Ranvier (ankyrin G)	2
ANKRD37	ankyrin repeat domain 37	2
C11ORF86	chromosome 11 open reading frame 86	2
C22ORF31	chromosome 22 open reading frame 31	2
CCNB2	cyclin B2	2
CD83	CD83 molecule	2
EFNA3	ephrin-A3	2
ERO1L	ERO1-like (<i>S. cerevisiae</i>)	2
FAM117B	family with sequence similarity 117, member B	2
GBE1	glucan (1,4-alpha-), branching enzyme 1	2
HILPDA	histone cluster 1, H2ac	2
HIST1H2AC	histone cluster 1, H2ac	2
HIST1H2AG	histone cluster 1, H2ag	2
HIST2H2AA3	histone cluster 2, H2aa3; histone cluster 2, H2aa4	2
IFIT3	interferon-induced protein with tetratricopeptide repeats 3	2
ITGAV	integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)	2
KYNU	kynureninase (L-kynurenine hydrolase)	2
MAP3K2	mitogen-activated protein kinase kinase kinase 2	2
NAPB	N-ethylmaleimide-sensitive factor attachment protein, beta	2
NOTCH3	Notch homolog 3 (<i>Drosophila</i>)	2
PABPC4L	poly(A) binding protein, cytoplasmic 4-like	2
PDGFA	platelet-derived growth factor alpha polypeptide	2
PGK1	phosphoglycerate kinase 1	2
PHF21A	PHD finger protein 21A	2
PPARGC1A	peroxisome proliferator-activated receptor gamma, coactivator 1 alpha	2
RASSF9	Ras association (RalGDS/AF-6) domain family (N-terminal) member 9	2
SLC16A6	solute carrier family 16, member 6 (monocarboxylic acid transporter 7); similar to solute carrier family 16, member 6	2
SLC17A5	solute carrier family 17 (anion/sugar transporter), member 5	2
SLC7A1	solute carrier family 7 (cationic amino acid transporter, y+ system), member 1	2
SMOC1	SPARC related modular calcium binding 1	2
SNX14	sorting nexin 14	2
SREBF1	sterol regulatory element binding transcription factor 1	2
SYT12	synaptotagmin XII	2
TANC2	tetratricopeptide repeat, ankyrin repeat and coiled-coil	2

	containing 2		
TGM2	transglutaminase 2 (C polypeptide, protein-glutamine-gamma-glutamyltransferase)		2
TMEM47	transmembrane protein 47		2
USP37	ubiquitin specific peptidase 37		2
ZNF48	zinc finger protein 48		2
Downregulated genes			
ABCA13	ATP-binding cassette, sub-family A (ABC1), member 13		-2
C14ORF126	chromosome 14 open reading frame 126		-2
CYR61	cysteine-rich, angiogenic inducer, 61		-2
DHDPSL	N-acetylneuraminase pyruvate lyase 2 (putative)		-2
GPR56	G protein-coupled receptor 56		-2
KLHDC7A	kelch domain containing 7A		-2
LOC133926	hypothetical protein LOC133926		-2
NRG1	neuregulin 1		-2
KITLG	KIT ligand		-2.2
CXORF48	similar to chromosome X open reading frame 48; chromosome X open reading frame 48		-2.4
MDFIC	MyoD family inhibitor domain containing		-2.4
MPP7	membrane protein, palmitoylated 7 (MAGUK p55 subfamily member 7)		-2.4
EDIL3	EGF-like repeats and discoidin I-like domains 3		-2.6
PPP3CA	protein phosphatase 3 (formerly 2B), catalytic subunit, alpha isoform		-2.6
SDC2	syndecan 2		-2.6
CYB561	cytochrome b-561		-2.8
OLFML2B	olfactomedin-like 2B		-2.8
MUC12	mucin 12, cell surface associated; similar to mucin 11		-3
OLFML1	olfactomedin-like 1		-3
MT1E	metallothionein 1E		-3.2
CTGF	connective tissue growth factor		-3.6
TAGLN	transgelin		-3.6
ALG10	asparagine-linked glycosylation 10, alpha-1,2-glucosyltransferase homolog (<i>S. pombe</i>)		-4
ANXA9	annexin A9		-4
SPRED1	sprouty-related, EVH1 domain containing 1		-4.2
DCN	decorin		-4.4
PAGE1	P antigen family, member 1 (prostate associated)		-5.2
FAM179A	family with sequence similarity 179, member A		-5.4
HEATR7B2	HEAT repeat family member 7B2		-5.4
ZNF277	zinc finger protein 277		-5.4
ZNF610	zinc finger protein 610		-5.4
PLXNA2	plexin A2		-5.6
CPS1	carbamoyl-phosphate synthetase 1, mitochondrial		-6.2

VDAC3	voltage-dependent anion channel 3	-6.2
KRT4	keratin 4	-6.4
MUC12	mucin 12, cell surface associated; similar to mucin 11	-6.4
DPY19L2	dpy-19-like 2 (C. elegans)	-6.6
ARL4D	ADP-ribosylation factor-like 4D	-7
KIAA0226	KIAA0226	-7
CLGN	calmegin	-7.6
HSPA9	heat shock 70kDa protein 9 (mortalin)	-7.6
NCRNA00032	non-protein coding RNA 32	-8.4
C6ORF162	chromosome 6 open reading frame 162	-8.6
A2BP1	ataxin 2-binding protein 1	-9
SGOL1	shugoshin-like 1 (S. pombe)	-11

Supplementary Material III. Ezrin siRNA PPI network

ADAM19 pp A2M
HSPA5 pp A2M
KLK3 pp A2M
LRP1 pp A2M
MMP2 pp A2M
PDGFA pp A2M
ABL1 pp ABL1
BCAR1 pp ABL1
CDK1 pp ABL1
EPHB2 pp ABL1
KIT pp ABL1
PRKDC pp ABL1
TP53 pp ABL1
BDKRB2pp ACE
NDRG1 pp ACSL3
ABL1 pp ACTA1
ACTA1 pp ACTA1
CLIC5 pp ACTA1
DLG1 pp ACTA1
EGFR pp ACTA1
HCLS1 pp ACTA1
PRKCA pp ACTA1
PRKCD pp ACTA1
PRKCE pp ACTA1
RAC1 pp ACTA1
TAGLN pp ACTA1
TMSB4Xpp ACTA1
TP53 pp ACTA1
ACTB pp ACTB
ACTG1 pp ACTB
EZRpp ACTB
GAPDH pp ACTB
HSD17B4 pp ACTB
LMNA pp ACTB
LYNpp ACTB
PLD2 pp ACTB
PRKCD pp ACTB
PTNpp ACTB
RAC1 pp ACTB
SMAD3 pp ACTB
TGM2 pp ACTB
TMSB4Xpp ACTB
ACTB pp ACTC1

EZR pp ACTC1
PRKCE pp ACTC1
ACTG1 pp ACTG1
NDRG1 pp ACTG1
SUMO4 pp ACTG1
TMSB4X pp ACTG1
BMP2 pp ACVR1
ENG pp ACVR1
SMAD9 pp ACVR1
BMP2 pp ACVR2B
EPHA3 pp ADAM10
FURIN pp ADAM19
CLGN pp ADAM2
AP2M1 pp ADRA1B
EZR pp ADRA1B
GNA11 pp ADRA1B
NOS1 pp ADRA1B
PRKCA pp ADRA1B
STAT1 pp ADRA1B
AKAP12 pp ADRB2
AKAP5 pp ADRB2
ARRB2 pp ADRB2
GNA11 pp ADRB2
GRK5 pp ADRB2
GRK6 pp ADRB2
NOS1 pp ADRB2
PRKCD pp ADRB2
SLC9A3R1 pp ADRB2
SLC9A3R2 pp ADRB2
AGTR1 pp ADRBK1
AKAP12 pp ADRBK1
CAPN2 pp ADRBK1
CAV1 pp ADRBK1
EGFR pp ADRBK1
GIT1 pp ADRBK1
MAPK3 pp ADRBK1
PRKACA pp ADRBK1
PRKCA pp ADRBK1
PRKCB pp ADRBK1
PRKCD pp ADRBK1
PRKCG pp ADRBK1
AGTR1 pp ADRBK2
GIT1 pp ADRBK2
PRDM1 pp AES

MLLT1 pp AFF1
PPFIA4 pp AGTPBP1
ARRB2 pp AGTR1
BDKRB2pp AGTR1
NOS3 pp AGTR1
RAB5A pp AGTR1
STC2 pp AIFM1
GABRB1pp AKAP5
FNBP1 pp AKAP9
PKN1 pp AKAP9
PPP1CA pp AKAP9
AKT1 pp AKT1
BCL10 pp AKT1
CASP3 pp AKT1
ILK pp AKT1
PKN2 pp AKT1
PPP2CA pp AKT1
PRKCZ pp AKT1
RPS6KB1 pp AKT1
TSC1 pp AKT1
VEGFA pp AKT1
ALDOA pp ALDOA
PLD2 pp ALDOA
SUMO4 pp ALDOA
TGM2 pp ALDOA
TUBB pp ALDOA
PLD2 pp ALDOC
ANGPT1 pp ANGPT1
KCNC1 pp ANK3
SCN2A pp ANK3
SCNN1B pp ANK3
SMAD2 pp ANK3
SMAD3 pp ANK3
SPTBN4 pp ANK3
TGM2 pp ANXA1
AP1G1 pp AP1G1
AP1M2 pp AP1G1
NDRG1 pp AP1M2
AP2M1 pp AP2M1
ARRB2 pp AP2M1
NDRG1 pp AP2M1
CTGF pp AP3D1
CASP9 pp APAF1
FAS pp APAF1

HIP1 pp APAF1
PPP1CA pp APAF1
APOA1 pp APOA1
AES pp AR
AKT1 pp AR
AR pp AR
ATF2 pp AR
CALM1 pp AR
CAV1 pp AR
CDK1 pp AR
CREBBP pp AR
EGFR pp AR
HDAC1 pp AR
HIF1A pp AR
KAT5 pp AR
MAPK1 pp AR
MED1 pp AR
MYBBP1A pp AR
NCOA1 pp AR
NISCH pp AR
NR0B1 pp AR
PIAS4 pp AR
POU5F1 pp AR
RUNX1 pp AR
SMAD3 pp AR
SMAD4 pp AR
SP1 pp AR
SUMO1 pp AR
TSG101 pp AR
UBE2I pp AR
ARAF pp ARAF
MAP2K2 pp ARAF
YWHAG pp ARAF
AP3D1 pp ARF6
RHOA pp ARHGAP5
CASP3 pp ARHGDIB
ANXA9 pp ARHGEF10L
SCN2A pp ARHGEF10L
TLE1 pp ARL4D
ARF6 pp ARRB2
CLTC pp ARRB2
CSNK2A1 pp ARRB2
CSNK2A2 pp ARRB2
FLNA pp ARRB2

MAP3K5 pp ARRB2
MAPK1 pp ARRB2
RAF1 pp ARRB2
TGFBR3 pp ARRB2
ASCL1 pp ASCL1
BMP2 pp ASCL1
UBQLN1 pp ASCL1
ATF2 pp ATF2
CEBPG pp ATF2
FOS pp ATF2
GTF2F2 pp ATF2
JUN pp ATF2
MAPK13 pp ATF2
MAPK14 pp ATF2
MAPK8 pp ATF2
RB1 pp ATF2
RUVBL2 pp ATF2
SMAD3 pp ATF2
SMAD4 pp ATF2
UBE2I pp ATF2
ATF3 pp ATF3
BATF3 pp ATF3
ATF2 pp ATF7
A2M pp ATF7IP
ACTB pp ATF7IP
ACTG1 pp ATF7IP
CSPG4 pp ATF7IP
FLT4 pp ATF7IP
GMEB1 pp ATF7IP
HSPG2 pp ATF7IP
LAMC1 pp ATF7IP
PAPPA2 pp ATF7IP
POLR2C pp ATF7IP
EGFR pp ATP1A1
MAPK3 pp ATP1A1
NDRG1 pp ATP1A1
CASK pp ATP2B4
DLG1 pp ATP2B4
DLG3 pp ATP2B4
DLG4 pp ATP2B4
NOS1 pp ATP2B4
AKT1 pp ATXN1
ATXN1 pp ATXN1
CDK6 pp ATXN1

PRDM1 pp ATXN1
PSMC3 pp ATXN1
PTGDS pp ATXN1
UBQLN4pp ATXN1
YWHAE pp ATXN1
AZGP1 pp AZGP1
SLC7A11 pp BAAT
CSNK1Dpp BACE1
FURIN pp BACE1
ITM2C pp BACE1
AKT1 pp BAD
EWSR1 pp BAD
HRK pp BAD
MAPK8 pp BAD
MCL1 pp BAD
PIM1 pp BAD
PPP1CA pp BAD
PPP3CA pp BAD
PRKACA pp BAD
RAF1 pp BAD
RPS6KA1 pp BAD
YWHAE pp BAD
ATXN1 pp BAT2
C1QBP pp BAT2
EIF3E pp BAT2
PSMA3 pp BAT2
UBAP2L pp BAT2
BATF pp BATF
DDIT3 pp BATF
PGRpp BATF3
CASP3 pp BCAR1
ESR1 pp BCAR1
HSPA5 pp BCAR1
PTK2 pp BCAR1
TUBA4App BCAR1
YWHAZ pp BCAR1
PTNpp BCCIP
BCL10 pp BCL10
MAP3K7pp BCL10
BAD pp BCL2
BCL2 pp BCL2
BCL2L1 pp BCL2
BNIP3 pp BCL2
BNIP3L pp BCL2

CASP3 pp BCL2
FKBP8 pp BCL2
HRK pp BCL2
MAPK1 pp BCL2
MAPK8 pp BCL2
NLRP1 pp BCL2
PARP1 pp BCL2
PPP1CA pp BCL2
PPP2CA pp BCL2
PPP2R5A pp BCL2
PRKCA pp BCL2
RAF1 pp BCL2
TP53 pp BCL2
APAF1 pp BCL2L1
BAD pp BCL2L1
BCL2L1 pp BCL2L1
BNIP3 pp BCL2L1
BNIP3L pp BCL2L1
CASP9 pp BCL2L1
FKBP8 pp BCL2L1
HRK pp BCL2L1
MCL1 pp BCL2L1
NLRP1 pp BCL2L1
PPP1CA pp BCL2L1
PSEN2 pp BCL2L1
COPS5 pp BCL3
CREBBP pp BCL3
FOS pp BCL3
JUN pp BCL3
KAT5 pp BCL3
NCOA1 pp BCL3
NFKB1 pp BCL3
RXRA pp BCL3
TBP pp BCL3
ADRBK1 pp BDKRB2
ADRBK2 pp BDKRB2
GNA11 pp BDKRB2
GRK4 pp BDKRB2
GRK5 pp BDKRB2
GRK6 pp BDKRB2
NOS1 pp BDKRB2
NOS3 pp BDKRB2
PRKCD pp BDKRB2
PTPN11 pp BDKRB2

DIABLO pp BIRC2
IKBKG pp BIRC2
TRAF2 pp BIRC2
CASP9 pp BIRC3
DIABLO pp BIRC3
TRAF2 pp BIRC3
BIRC5 pp BIRC5
BIRC6 pp BIRC5
CDK1 pp BIRC5
DIABLO pp BIRC5
HSP90AA1 pp BIRC5
XIAP pp BIRC5
CASP9 pp BIRC8
BMP2 pp BMP2
BMPER pp BMP2
BMPR1A pp BMP2
BMPR1Bpp BMP2
BMPR2 pp BMP2
CHRDL2pp BMP2
COL2A1 pp BMP2
ENG pp BMP2
GREM2 pp BMP2
MGP pp BMP2
NOG pp BMP2
SOSTDC1 pp BMP2
TGFB1 pp BMP2
TGFB2 pp BMP2
BMPR1A pp BMPR1A
BMPR1Bpp BMPR1A
BMPR1Bpp BMPR1B
TRAF6 pp BMPR1B
BMPR1A pp BMPR2
BMPR1Bpp BMPR2
BMPR2 pp BMPR2
LIMK1 pp BMPR2
BNIP3 pp BNIP3
BNIP3 pp BNIP3L
BNIP3L pp BNIP3L
EWSR1 pp BNIP3L
STEAP3 pp BNIP3L
QKI pp C10orf10
CA12 pp C15orf29
ENO2 pp C16orf45
PPP3CA pp C16orf74

ATF3 pp C1orf103
C1orf103 pp C1orf103
CDC42 pp C1orf103
FAS pp C1orf103
HMGB1 pp C1orf103
MLLT3 pp C1orf103
MNAT1 pp C1orf103
POLR2C pp C1orf103
POLR3F pp C1orf103
PRMT1 pp C1orf103
PSMD2 pp C1orf103
RPLP1 pp C1orf103
TK1 pp C1orf103
VIM pp C1orf103
CDKN1A pp C1orf123
C1QBP pp C1QA
CSPG4 pp C1QA
DCN pp C1QA
FN1 pp C1QA
C1QBP pp C1QBP
EXOSC6 pp C1QBP
GAB1 pp C1QBP
GABRB1 pp C1QBP
HABP4 pp C1QBP
HRK pp C1QBP
MAPK3 pp C1QBP
MMP14 pp C1QBP
NFYB pp C1QBP
PRKD1 pp C1QBP
SFRS9 pp C1QBP
TOP3B pp C1QBP
YWHAB pp C1QBP
YWHAG pp C1QBP
BMP2 pp C4BPA
PROS1 pp C4BPA
ENO2 pp C6orf47
CDKN1A pp C7orf20
EEF1G pp C7orf20
KAT5 pp C7orf20
ATP5C1 pp CA12
CA12 pp CA12
CABIN1 pp CABIN1
AKAP5 pp CALM1
CABIN1 pp CALM1

CALM1 pp CALM1
CCND1 pp CALM1
CCNE1 pp CALM1
CSNK2A1 pp CALM1
CSNK2A2 pp CALM1
DDX5 pp CALM1
DLG3 pp CALM1
EGFR pp CALM1
ESR1 pp CALM1
ESR2 pp CALM1
ESRRG pp CALM1
EWSR1 pp CALM1
FAS pp CALM1
GRK4 pp CALM1
HSP90AA1 pp CALM1
KCNQ3 pp CALM1
NR3C1 pp CALM1
PDE1A pp CALM1
PLCD1 pp CALM1
RELA pp CALM1
SNCA pp CALM1
YWHAE pp CALM1
AR pp CALR
CALR pp CALR
F5 pp CALR
F8 pp CALR
FBN1 pp CALR
ITGAV pp CALR
NR3C1 pp CALR
PDIA3 pp CALR
PLP1 pp CALR
SUMO4 pp CALR
TF pp CALR
THBS1 pp CALR
CFTR pp CANX
F8 pp CANX
HLA-A pp CANX
ITGB1 pp CANX
MTNR1B pp CANX
NDRG1 pp CANX
PDIA3 pp CANX
PLP1 pp CANX
TF pp CANX
CASP9 pp CAPN2

CARD8 pp CARD8
STC2 pp CARHSP1
CASK pp CASK
DLG1 pp CASK
DLG4 pp CASK
F11R pp CASK
CASP10 pp CASP10
CASP9 pp CASP10
FADD pp CASP10
AIFM1 pp CASP3
APAF1 pp CASP3
AR pp CASP3
BIRC2 pp CASP3
BIRC3 pp CASP3
BIRC5 pp CASP3
BIRC6 pp CASP3
BIRC7 pp CASP3
CASP10 pp CASP3
CASP3 pp CASP3
CASP9 pp CASP3
DCTN1 pp CASP3
GZMB pp CASP3
HCLS1 pp CASP3
HIP1 pp CASP3
MET pp CASP3
ABL1 pp CASP9
AKT1 pp CASP9
BCL10 pp CASP9
BIRC2 pp CASP9
BIRC5 pp CASP9
BIRC6 pp CASP9
BIRC7 pp CASP9
CARD8 pp CASP9
CASP9 pp CASP9
GMEB1 pp CASP9
GZMB pp CASP9
HIP1 pp CASP9
ILK pp CASP9
LYNpp CASP9
MAP2K1pp CASP9
MAP2K2pp CASP9
MAPK1 pp CASP9
MAPK3 pp CASP9
NLRP1 pp CASP9

NOD1 pp CASP9
PRKCZ pp CASP9
SRF pp CASP9
CASP3 pp CAST
ABL1 pp CAV1
CAV1 pp CAV1
CSNK2A1 pp CAV1
CSNK2A2 pp CAV1
EGFR pp CAV1
IGF1R pp CAV1
IGFBP3 pp CAV1
LRP1 pp CAV1
MAPK1 pp CAV1
MMP14 pp CAV1
PLD2 pp CAV1
RAC1 pp CAV1
TRAF2 pp CAV1
CBFA2T3 pp CBFA2T2
SIN3A pp CBFA2T2
ZNF652 pp CBFA2T2
CBFA2T3 pp CBFA2T3
ZNF652 pp CBFA2T3
IFIT3 pp CCDC67
C10orf10 pp CCDC85B
CCDC67 pp CCDC85B
CDKN1A pp CCDC85B
COPS4 pp CCDC85B
HMG20B pp CCDC85B
KIAA1539 pp CCDC85B
KRT17 pp CCDC85B
KRT6A pp CCDC85B
MCM10 pp CCDC85B
PKN1 pp CCDC85B
SMARCD1 pp CCDC85B
CCNA1 pp CCNA1
CDC6 pp CCNA2
TAF1 pp CCNA2
TP53 pp CCNA2
FLNA pp CCNB1
GADD45B pp CCNB1
GADD45G pp CCNB1
KAT5 pp CCNB1
MAP4 pp CCNB1
PCNA pp CCNB1

RUNX2 pp CCNB1
TGFBR2 pp CCNB1
TSC1 pp CCNB1
AR pp CCND1
CDK6 pp CCND1
GSK3B pp CCND1
KAT2B pp CCND1
MCM10 pp CCND1
NCOA1 pp CCND1
PCNA pp CCND1
PRKACA pp CCND1
RB1 pp CCND1
RUNX1 pp CCND1
SP1 pp CCND1
TAF1 pp CCND1
THRA pp CCND1
THRB pp CCND1
CDKN1A pp CCND2
RUNX1 pp CCND2
ATP5C1 pp CCND3
CDK14 pp CCND3
CDK6 pp CCND3
MCM10 pp CCND3
PCNA pp CCND3
RUNX1 pp CCND3
AR pp CCNE1
CDK2 pp CCNE1
COIL pp CCNE1
FBXW7 pp CCNE1
GSK3B pp CCNE1
SMARCD3 pp CCNE1
CDKN1C pp CCNE2
SUMO2 pp CCNE2
SUMO3 pp CCNE2
CD44 pp CD44
COL14A1 pp CD44
COL1A1 pp CD44
COL1A2 pp CD44
EGFR pp CD44
ERBB4 pp CD44
EZR pp CD44
FGF2 pp CD44
IGFBP3 pp CD44
LCK pp CD44

MMP1 pp CD44
MMP7 pp CD44
NF2 pp CD44
SPP1 pp CD44
TGFB1 pp CD44
TGFB2 pp CD44
BNIP3 pp CD47
UBQLN1 pp CD47
ADAM2 pp CD9
KIT pp CD9
PRKCA pp CD9
ARHGDIB pp CDC42
CASP3 pp CDC42
CSPG4 pp CDC42
FLNA pp CDC42
KAT5 pp CDC42
MAP3K4 pp CDC42
PAK4 pp CDC42
PIK3R1 pp CDC42
PRKCA pp CDC42
PRKCG pp CDC42
PRKCZ pp CDC42
RPS6KB1 pp CDC42
TBC1D3F pp CDC42
TNK2 pp CDC42
MCM10 pp CDC45L
YWHAG pp CDC5L
CDK2 pp CDC6
MCM10 pp CDC6
CDK2 pp CDC7
MCM10 pp CDC7
CA9 pp CDH1
CASP3 pp CDH1
CDH1 pp CDH1
CSNK2A1 pp CDH1
CTNNA1 pp CDH1
GSK3B pp CDH1
HDAC1 pp CDH1
HDAC2 pp CDH1
NDRG1 pp CDH1
PPP1CA pp CDH1
PSEN1 pp CDH1
EPHA2 pp CDH5
BIRC6 pp CDK1

CCNA1 pp CDK1
CCNA2 pp CDK1
CCNB1 pp CDK1
CCNB2 pp CDK1
CCNE1 pp CDK1
CDK1 pp CDK1
GADD45A pp CDK1
GADD45B pp CDK1
GADD45G pp CDK1
KAT5 pp CDK1
LYNpp CDK1
MYC pp CDK1
PCNA pp CDK1
PPP2R1A pp CDK1
PPP2R1B pp CDK1
TLE1 pp CDK1
TP53 pp CDK1
ACVR1 pp CDK14
BMPR1Bpp CDK14
RB1 pp CDK14
BCL2 pp CDK2
CCNA1 pp CDK2
CCNA2 pp CDK2
CCNB2 pp CDK2
CCNE2 pp CDK2
CDK2 pp CDK2
HIST1H1B pp CDK2
LYNpp CDK2
PCNA pp CDK2
CCNA2 pp CDK3
CCNE1 pp CDK3
CCNE2 pp CDK3
CDK3 pp CDK3
BIRC5 pp CDK4
BMPR1Bpp CDK4
CCND1 pp CDK4
CCND2 pp CDK4
CCND3 pp CDK4
CDC45L pp CDK4
CDC7 pp CDK4
CDKN1C pp CDK4
PPP2R1B pp CDK4
ABL1 pp CDK5
CCND2 pp CDK5

CDK5 pp CDK5
CSNK1D pp CDK5
GSK3B pp CDK5
PCNA pp CDK5
SET pp CDK5
SYNJ1 pp CDK5
AR pp CDK6
CDK6 pp CDK6
CTNNB1 pp CDK6
MCM10 pp CDK6
RB1 pp CDK6
RUNX1 pp CDK6
AKT1 pp CDKN1A
BCCIP pp CDKN1A
CASP3 pp CDKN1A
CCNA1 pp CDKN1A
CCNA2 pp CDKN1A
CCNB1 pp CDKN1A
CCNB2 pp CDKN1A
CCND1 pp CDKN1A
CCND3 pp CDKN1A
CCNE1 pp CDKN1A
CCNE2 pp CDKN1A
CDC45L pp CDKN1A
CDC5L pp CDKN1A
CDC6 pp CDKN1A
CDC7 pp CDKN1A
CDK1 pp CDKN1A
CDK14 pp CDKN1A
CDK2 pp CDKN1A
CDK3 pp CDKN1A
CDK4 pp CDKN1A
CDK6 pp CDKN1A
CDKN1A pp CDKN1A
CIZ1 pp CDKN1A
DAPK3 pp CDKN1A
ESR1 pp CDKN1A
GADD45A pp CDKN1A
GADD45B pp CDKN1A
GADD45G pp CDKN1A
MAPK8 pp CDKN1A
MCM10 pp CDKN1A
PARP1 pp CDKN1A
PCNA pp CDKN1A

PIM1 pp CDKN1A
POLD2 pp CDKN1A
PSMA3 pp CDKN1A
RB1 pp CDKN1A
RNF144B pp CDKN1A
SET pp CDKN1A
TK1 pp CDKN1A
TSG101 pp CDKN1A
XRCC6 pp CDKN1A
LIMK1 pp CDKN1C
NR4A2 pp CDKN1C
ATF2 pp CEBPA
CDK2 pp CEBPA
CDK4 pp CEBPA
CDKN1A pp CEBPA
CEBPA pp CEBPA
GSK3B pp CEBPA
HNF1A pp CEBPA
MYC pp CEBPA
NR3C1 pp CEBPA
RB1 pp CEBPA
RUNX1 pp CEBPA
SOX10 pp CEBPA
SOX8 pp CEBPA
SUMO3 pp CEBPA
CEBPG pp CEBPG
DDIT3 pp CEBPG
FOS pp CEBPG
GTF2F2 pp CEBPG
CFTR pp CFTR
PPP2R1B pp CFTR
PRKACA pp CFTR
PRKCA pp CFTR
SLC9A3R1 pp CFTR
SLC9A3R2 pp CFTR
BMP2 pp CHR1
AKT1 pp CHUK
BCL10 pp CHUK
CHUK pp CHUK
CREBBP pp CHUK
IKBK1 pp CHUK
MAP3K7 pp CHUK
NFKB1 pp CHUK
NFKBIA pp CHUK

NOTCH3pp CHUK
PRKCB pp CHUK
PRKDC pp CHUK
PTPN11 pp CHUK
TRAF2 pp CHUK
AP1G1 pp CLTC
CLTC pp CLTC
HIP1 pp CLTC
KIT pp CLTC
NDRG1 pp CLTC
TNK2 pp CLTC
XRCC6 pp CLTC
YWHAG pp CLTC
CNDP2 pp CNDP2
NDRG1 pp CNDP2
CNOT1 pp CNOT2
CNOT1 pp CNOT3
CNOT2 pp CNOT3
CNOT8 pp CNOT3
CREBBP pp CNOT3
CNOT1 pp CNOT8
CNOT2 pp CNOT8
CNTN1 pp CNTN1
ATXN1 pp COIL
C1QBP pp COIL
CDK2 pp COIL
COIL pp COIL
CSNK2B pp COIL
KPNA3 pp COIL
PRMT1 pp COIL
COL13A1 pp COL13A1
FN1 pp COL13A1
HSPG2 pp COL13A1
NID1 pp COL13A1
NID2 pp COL13A1
SPARC pp COL13A1
DCN pp COL14A1
ITGA5 pp COL18A1
MMP2 pp COL18A1
DCN pp COL1A1
FN1 pp COL1A1
IGFBP3 pp COL1A1
ITGA5 pp COL1A1
MMP2 pp COL1A1

NID1 pp COL1A1
P4HB pp COL1A1
SPARC pp COL1A1
THBS1 pp COL1A1
DCN pp COL1A2
FN1 pp COL1A2
ITGB3 pp COL1A2
P4HB pp COL1A2
SPARC pp COL1A2
C1QA pp COL2A1
COL2A1 pp COL2A1
FN1 pp COL2A1
MMP1 pp COL2A1
SPARC pp COL2A1
TGFB1 pp COL2A1
THBS1 pp COL2A1
COL4A1 pp COL4A1
DCN pp COL4A1
FN1 pp COL4A1
NID1 pp COL4A1
DCN pp COL4A3
FN1 pp COL4A3
DCN pp COL4A4
FN1 pp COL4A4
DCN pp COL5A1
THBS1 pp COL5A1
NDRG1 pp COPB2
COPS4 pp COPS4
RCBTB2 pp COPS4
COPS4 pp COPS5
ESR1 pp COPS5
HNF4A pp COPS5
NR4A2 pp COPS5
PPARG pp COPS5
SMAD2 pp COPS5
ARAF pp CPS1
ACVR1 pp CREBBP
CEBPA pp CREBBP
CREBBP pp CREBBP
ELK1 pp CREBBP
ETS1 pp CREBBP
ETS2 pp CREBBP
HIF1A pp CREBBP
HNF4A pp CREBBP

HSF1 pp CREBBP
IKBKG pp CREBBP
KAT2B pp CREBBP
KAT5 pp CREBBP
MAML1 pp CREBBP
MYC pp CREBBP
NCOA1 pp CREBBP
NFE2 pp CREBBP
NFE2L2 pp CREBBP
PRKCD pp CREBBP
RPS6KA1 pp CREBBP
SREBF1 pp CREBBP
SREBF2 pp CREBBP
STAT1 pp CREBBP
THRA pp CREBBP
TP73 pp CREBBP
YWHAB pp CRTC2
CSF2 pp CSF2
KITLG pp CSF2
SDC2 pp CSF2
AKAP9 pp CSNK1D
ARFGAP1 pp CSNK1D
DVL1 pp CSNK1D
PER1 pp CSNK1D
PER3 pp CSNK1D
PPP1R14A pp CSNK1D
ATF2 pp CSNK2A1
CDK1 pp CSNK2A1
CDKN1A pp CSNK2A1
CREBBP pp CSNK2A1
CSNK2A1 pp CSNK2A1
CSNK2B pp CSNK2A1
DVL1 pp CSNK2A1
DVL3 pp CSNK2A1
EEF1D pp CSNK2A1
FGF2 pp CSNK2A1
FOS pp CSNK2A1
NCL pp CSNK2A1
YWHAB pp CSNK2A1
ATF2 pp CSNK2A2
CREBBP pp CSNK2A2
FGF2 pp CSNK2A2
FOS pp CSNK2A2
HSP90AA1 pp CSNK2A2

MAPK14pp CSNK2A2
NCL pp CSNK2A2
ARAF pp CSNK2B
CDK1 pp CSNK2B
CDKN1A pp CSNK2B
CSNK2A2 pp CSNK2B
CSNK2Bpp CSNK2B
LYNpp CSNK2B
MAPK14pp CSNK2B
PRKCZ pp CSNK2B
RPS6KB1 pp CSNK2B
SHMT2 pp CSNK2B
BCAR1 pp CSPG4
MPDZ pp CSPG4
TNK2 pp CSPG4
ERBB4 pp CTGF
HSPG2 pp CTGF
NOV pp CTGF
TGFB1 pp CTGF
TGFB2 pp CTGF
TGFB3 pp CTGF
VEGFA pp CTGF
CTH pp CTH
CA9pp CTNNA1
CDH5 pp CTNNA1
CTNNB1pp CTNNA1
AR pp CTNNB1
BCL3 pp CTNNB1
CA9pp CTNNB1
CASP3 pp CTNNB1
CCND1 pp CTNNB1
CDH1 pp CTNNB1
CDH5 pp CTNNB1
CEBPA pp CTNNB1
CHUK pp CTNNB1
CREBBPpp CTNNB1
CSNK1Dpp CTNNB1
CSNK2A1 pp CTNNB1
CSNK2Bpp CTNNB1
DVL1 pp CTNNB1
DVL3 pp CTNNB1
EGFR pp CTNNB1
ERBB2 pp CTNNB1
ESR1 pp CTNNB1

EZR pp CTNNB1
GSK3B pp CTNNB1
HNF1A pp CTNNB1
IKBKB pp CTNNB1
MITF pp CTNNB1
NDRG1 pp CTNNB1
NF2 pp CTNNB1
PECAM1 pp CTNNB1
PIK3R1 pp CTNNB1
SLC9A3R1 pp CTNNB1
SMAD2 pp CTNNB1
SMAD3 pp CTNNB1
SMAD4 pp CTNNB1
SPN pp CTNNB1
TGFB1 pp CTNNB1
FN1 pp CTSD
PSAP pp CTSD
SLC2A4 pp CTSD
F5 pp CTSG
LRP1 pp CTSG
PPBP pp CTSG
THBS1 pp CTSG
COL18A1 pp CTSL1
CTSL1 pp CTSL1
RXRA pp CTSL1
CA12 pp CUX1
CDK1 pp CUX1
CREBBP pp CUX1
CTSL1 pp CUX1
HMGB1 pp CUX1
KAT2B pp CUX1
RB1 pp CUX1
AGTPBP1 pp CYCS
APAF1 pp CYCS
BCL2 pp CYCS
BCL2L1 pp CYCS
CASP9 pp CYCS
RNF7 pp CYCS
SNCA pp CYCS
TRAF6 pp CYLD
ITGB5 pp CYR61
DAPK3 pp DAPK3
MET pp DAPK3
ADORA2B pp DCC

CASP3 pp DCC
CASP9 pp DCC
MAPK3 pp DCC
PTK2 pp DCC
SIAH1 pp DCC
SIAH2 pp DCC
AHSG pp DCN
COL4A5 pp DCN
COL4A6 pp DCN
DPT pp DCN
EGFR pp DCN
ELN pp DCN
FBN1 pp DCN
FLNA pp DCN
FN1 pp DCN
MMP2 pp DCN
MMP3 pp DCN
MMP7 pp DCN
PLA2G2A pp DCN
SFTPD pp DCN
TGFB1 pp DCN
THBS1 pp DCN
TNF pp DCN
WISP1 pp DCN
DCTN1 pp DCTN1
GSK3B pp DCTN1
ATF3 pp DDIT3
CSNK2A1 pp DDIT3
FOS pp DDIT3
JUN pp DDIT3
JUND pp DDIT3
MAPK14 pp DDIT3
NDRG1 pp DDX1
DDX24 pp DDX24
EIF3E pp DDX24
FADD pp DDX24
HSPA5 pp DDX24
VDAC3 pp DDX24
CREBBP pp DDX5
NDRG1 pp DDX5
PRKCA pp DDX5
SMAD3 pp DDX5
CYLD pp DDX58
MAVS pp DDX58

BIRC6 pp DIABLO
BIRC7 pp DIABLO
CASP9 pp DIABLO
DIABLO pp DIABLO
AKAP5 pp DLG1
CTNNA1 pp DLG1
DLG1 pp DLG1
DLGAP1 pp DLG1
MAPK12 pp DLG1
DLG1 pp DLG3
DLG4 pp DLG3
ERBB4 pp DLG3
AKAP5 pp DLG4
DLG4 pp DLG4
DLGAP1 pp DLG4
ADAM10 pp DLL1
DLL1 pp DLL1
NDRG1 pp DLST
AP1G1 pp DNER
BNIP3L pp DOK5
CCDC85B pp DOK5
LOX pp DPT
NFIL3 pp DR1
CASP10 pp DSP
CASP9 pp DSP
CDH5 pp DSP
DSP pp DSP
PECAM1 pp DSP
PRKACA pp DSP
VIM pp DSP
MAPK3 pp DUSP3
STAT1 pp DUSP3
DVL1 pp DVL1
SMAD2 pp DVL1
CSNK1D pp DVL3
DVL1 pp DVL3
DVL3 pp DVL3
CDK1 pp EEF1D
EEF1D pp EEF1D
EEF1G pp EEF1D
PRKCA pp EEF1D
RPS6KA1 pp EEF1D
CDC42 pp EEF1G
EEF1G pp EEF1G

NDRG1 pp EEF1G
SKIL pp EEF1G
SNAPIN pp EEF1G
EEF2 pp EEF2
NDRG1 pp EEF2
PPP2CA pp EEF2
PPP2R1A pp EEF2
PPP2R1B pp EEF2
TP53 pp EEF2
ADAM10 pp EFNA1
EEF1G pp EFNA1
EPHA4 pp EFNA1
EPHA5 pp EFNA1
EPHA6 pp EFNA1
EPHA8 pp EFNA1
KAT5 pp EFNA1
EPHA4 pp EFNA3
EPHA7 pp EFNA3
ADAM12 pp EGF
ADRBK1 pp EGF
DUSP3 pp EGF
EGFpp EGF
EGFR pp EGF
ERBB2 pp EGF
ERBB3 pp EGF
LMNA pp EGF
NRG1 pp EGF
AGTR1 pp EGFR
ANXA1 pp EGFR
ATP5C1 pp EGFR
CDH1 pp EGFR
EGFR pp EGFR
ERBB3 pp EGFR
ESR1 pp EGFR
HTTpp EGFR
ITGA5 pp EGFR
KRT17 pp EGFR
KRT7 pp EGFR
PIK3R1 pp EGFR
PRKACA pp EGFR
PRKCA pp EGFR
PRKCD pp EGFR
PTK2 pp EGFR
PTPN11 pp EGFR

RIPK1 pp EGFR
TNC pp EGFR
TNK2 pp EGFR
XRCC6 pp EGFR
YWHAZ pp EGFR
EPAS1 pp EGLN3
HIF1A pp EGLN3
HIF3A pp EGLN3
OS9 pp EGLN3
EIF2B3 pp EIF2B3
STC2 pp EIF2B3
NDRG1 pp EIF2S3
EPAS1 pp EIF3E
NDRG1 pp EIF3E
MAP2K1 pp ELK1
MAPK14 pp ELK1
MAPK3 pp ELK1
SRF pp ELK1
TAOK2 pp ELK1
SRF pp ELK4
FBN1 pp ELN
LOX pp ELN
NID2 pp ELN
SPINK1 pp ELN
ENG pp ENG
TGFB1 pp ENG
TGFB2 pp ENG
TGFB3 pp ENG
TGFB1 pp ENG
TGFB2 pp ENG
TGFB3 pp ENG
ANXA11 pp ENO2
SUMO4 pp ENO2
ENO2 pp ENSA
PRKD1 pp EPAS1
SMAD3 pp EPAS1
EFNA1 pp EPHA1
EFNA1 pp EPHA2
EFNA3 pp EPHA2
EGFR pp EPHA2
EPHA2 pp EPHA2
PTK2 pp EPHA2
EFNA1 pp EPHA3
EPHA3 pp EPHA3

PIM1 pp EPHA3
TP53 pp EPHA3
EPHA4 pp EPHA4
EFNA3 pp EPHA5
EFNA1 pp EPHA7
EPHA7 pp EPHA7
EPHA8 pp EPHA8
EFNA1 pp EPHB1
EPHB1 pp EPHB1
EPHB2 pp EPHB2
MMP2 pp EPHB2
SYNJ1 pp EPHB2
VEGFA pp EPHB2
EPOR pp EPOR
GNB2L1 pp EPOR
KIT pp EPOR
KITLG pp EPOR
KLK3 pp EPOR
LYNpp EPOR
MAPK1 pp EPOR
MAPK3 pp EPOR
PIK3R1 pp EPOR
PTPN11 pp EPOR
CAV1 pp ERBB2
DLG4 pp ERBB2
EGFR pp ERBB2
ERBB2 pp ERBB2
ERBB3 pp ERBB2
ERBB4 pp ERBB2
ESR1 pp ERBB2
ITGA5 pp ERBB2
NF2 pp ERBB2
PIK3R1 pp ERBB2
PTK2 pp ERBB2
CDK5 pp ERBB3
ERBB3 pp ERBB3
ERBB4 pp ERBB3
PTK2 pp ERBB3
DLG1 pp ERBB4
DLG4 pp ERBB4
EGFR pp ERBB4
ERBB4 pp ERBB4
ERC2 pp ERC2
PPFIA4 pp ERC2

ERO1L pp ERO1L
PDIA3 pp ERO1L
PDILT pp ERO1L
ERO1L pp ERP44
AKT1 pp ESR1
AR pp ESR1
CAV1 pp ESR1
CCND1 pp ESR1
CHUK pp ESR1
COBRA1pp ESR1
CREBBPpp ESR1
CSNK2Bpp ESR1
DDX5 pp ESR1
ESR1 pp ESR1
ESR2 pp ESR1
GADD45B pp ESR1
GADD45G pp ESR1
HSP90AA1 pp ESR1
JUNpp ESR1
LCK pp ESR1
MAPK1 pp ESR1
MAPK14pp ESR1
MED1 pp ESR1
MNAT1 pp ESR1
NCOA1 pp ESR1
NCOR2 pp ESR1
NR1H4 pp ESR1
PGRpp ESR1
PIK3R1 pp ESR1
PPARGC1A pp ESR1
RBM9 pp ESR1
RPS6KA1 pp ESR1
SMAD2 pp ESR1
SMARCD3 pp ESR1
TBPpp ESR1
TP53 pp ESR1
XBP1 pp ESR1
AKT1 pp ESR2
ESR2 pp ESR2
LCK pp ESR2
MED1 pp ESR2
NCOA1 pp ESR2
NCOR2 pp ESR2
RBM9 pp ESR2

SMAD2 pp ESR2
SMAD4 pp ESR2
SREBF1 pp ESR2
ESR1 pp ESRRRA
ESRRRA pp ESRRRA
ESRRG pp ESRRRA
EXOSC6 pp ESRRRA
NR0B1 pp ESRRRA
ESRRRA pp ESRRG
PPARGC1A pp ESRRG
ETS1 pp ETS1
ETS2 pp ETS1
FOS pp ETS1
JUN pp ETS1
MAF pp ETS1
MAPK1 pp ETS1
MAPK3 pp ETS1
RUNX2 pp ETS1
UBE2I pp ETS1
ETS2 pp ETS2
JUN pp ETS2
POU5F1 pp ETS2
CREBBP pp EWSR1
EWSR1 pp EWSR1
NDRG1 pp EWSR1
POU5F1 pp EWSR1
PRKCA pp EWSR1
TAF1 pp EWSR1
YWHAG pp EWSR1
EXOSC6 pp EXOSC6
ADORA2B pp EZR
ARF6 pp EZR
ARHGDIB pp EZR
CDH1 pp EZR
CDK5 pp EZR
CFTR pp EZR
CLIC5 pp EZR
DLG1 pp EZR
EGFR pp EZR
EZR pp EZR
FAS pp EZR
FASLG pp EZR
ICAM1 pp EZR
ICAM2 pp EZR

ICAM3 pp EZR
L1CAM pp EZR
LCK pp EZR
MSN pp EZR
NF2 pp EZR
PALLD pp EZR
PIK3R1 pp EZR
PRKAR2A pp EZR
PRKCA pp EZR
PTK2 pp EZR
PTPRC pp EZR
RDX pp EZR
ROCK1 pp EZR
S100P pp EZR
SCYL3 pp EZR
SDC2 pp EZR
SELL pp EZR
SELP pp EZR
SLC9A3R1 pp EZR
SLC9A3R2 pp EZR
SPN pp EZR
TBC1D10A pp EZR
TMEM8B pp EZR
TSC1 pp EZR
VCAM1 pp EZR
WWOX pp EZR
F10 pp F10
CSNK2A1 pp F11R
F11R pp F11R
PRKCA pp F11R
F2 pp F2
F5 pp F2
F8 pp F2
IGFBP3 pp F2
IGFBP5 pp F2
THBS1 pp F2
CTSG pp F2R
F2 pp F2R
ITGAV pp F2R
PLG pp F2R
CSNK2A1 pp F5
F10 pp F5
F5 pp F5
PROC pp F5

F10 pp F8
ANK3 pp FADD
IKBKG pp FADD
RIPK1 pp FADD
STAT1 pp FADD
TRAF2 pp FADD
ANK3 pp FAS
CD47 pp FAS
EGFR pp FAS
FADD pp FAS
FAS pp FAS
FASLG pp FAS
LCK pp FAS
RIPK1 pp FAS
SUMO1 pp FAS
TNFSF13 pp FAS
UBE2I pp FAS
FADD pp FASLG
FN1 pp FASLG
LCK pp FASLG
MMP7 pp FASLG
PIK3R1 pp FASLG
SUMO1 pp FASLG
EWSR1 pp FASN
FASN pp FASN
NDRG1 pp FASN
LTBP1 pp FBN1
PPARGC1A pp FBXW7
CSNK2B pp FGF2
FGF2 pp FGF2
HSPG2 pp FGF2
PF4 pp FGF2
PRMT1 pp FGF2
EPHA4 pp FGFR2
ITGA5 pp FGFR2
ATF3 pp FGFR3
C6orf47 pp FGFR3
EPHA4 pp FGFR3
FGF2 pp FGFR3
FGFR3 pp FGFR3
FKBP1A pp FKBP1A
TGFB1 pp FKBP1A
YY1 pp FKBP1A
MAPK14 pp FKBP8

AR pp FLNA
CAV1 pp FLNA
ERBB3 pp FLNA
ITGB5 pp FLNA
LMNA pp FLNA
MAP2K4pp FLNA
MAPK14pp FLNA
MTNR1B pp FLNA
PCBP2 pp FLNA
PSEN2 pp FLNA
RAC1 pp FLNA
SMAD3 pp FLNA
TNIP2 pp FLNA
TRAF2 pp FLNA
YWHAG pp FLNA
FLT3LG pp FLT3LG
FLT4 pp FLT4
COL4A5 pp FN1
COL4A6 pp FN1
IGFBP3 pp FN1
ITGA5 pp FN1
ITGB1 pp FN1
ITGB3 pp FN1
ITGB6 pp FN1
KLK3 pp FN1
LTBP1 pp FN1
NOV pp FN1
REG3A pp FN1
SDC2 pp FN1
SPARC pp FN1
TGM2 pp FN1
THBS1 pp FN1
TNC pp FN1
VHL pp FN1
CDC42 pp FNBP1
FASLG pp FNBP1
FNBP1 pp FNBP1
ATF7 pp FOS
BATF pp FOS
COBRA1pp FOS
EEF1D pp FOS
ELK1 pp FOS
ELK4 pp FOS
EPHB2 pp FOS

FOS pp FOS
GATA4 pp FOS
GTF2F2 pp FOS
JUN pp FOS
JUND pp FOS
MAF pp FOS
MAP3K7 pp FOS
MAPK1 pp FOS
NCOA1 pp FOS
NCOR2 pp FOS
NFATC3 pp FOS
OPTN pp FOS
PRKACA pp FOS
PSMC5 pp FOS
RB1 pp FOS
RPS6KA1 pp FOS
RPS6KA4 pp FOS
RUNX2 pp FOS
SCHIP1 pp FOS
SMARCD1 pp FOS
SUMO1 pp FOS
SUMO2 pp FOS
SUMO3 pp FOS
SUMO4 pp FOS
TAF1 pp FOS
TBP pp FOS
TRO pp FOS
TSC22D3 pp FOS
USF2 pp FOS
WDR65 pp FOS
XBP1 pp FOS
AP2M1 pp FURIN
FLNA pp FURIN
FURIN pp FURIN
EGFR pp GAB1
EPOR pp GAB1
MAPK1 pp GAB1
MAPK3 pp GAB1
MET pp GAB1
PTPN11 pp GAB1
PRKCD pp GABRA1
PRKCG pp GABRA1
PRKCB pp GABRB2
GABRG2 pp GABRG2

PRKCA pp GABRG2
PRKCB pp GABRG2
GADD45A pp GADD45A
HIST2H2BE pp GADD45A
PCNA pp GADD45A
PPARA pp GADD45A
RXRA pp GADD45A
GADD45G pp GADD45B
MAP2K7 pp GADD45B
C1orf103 pp GADD45G
EEF1G pp GADD45G
KAT5 pp GADD45G
PIAS4 pp GADD45G
AR pp GAPDH
ATXN1 pp GAPDH
EGFR pp GAPDH
GAPDH pp GAPDH
HTT pp GAPDH
KAT5 pp GAPDH
NR1H4 pp GAPDH
PGK1 pp GAPDH
PLD2 pp GAPDH
SLC2A4 pp GAPDH
SUMO4 pp GAPDH
GDF15 pp GDF15
GIPC1 pp GIPC1
C1orf103 pp GIT1
DDX24 pp GIT1
GIT1 pp GIT1
PPFIA4 pp GIT1
TERF1 pp GIT1
YWHAG pp GIT1
CAV1 pp GJA1
CSNK1D pp GJA1
MAPK1 pp GJA1
MAPK3 pp GJA1
NOV pp GJA1
PRKCA pp GJA1
PRKCB pp GJA1
PRKCE pp GJA1
PRKCG pp GJA1
CREBBP pp GMEB1
GMEB1 pp GMEB1
SMAD3 pp GMEB1

CDKN1A pp GMNN
AR pp GNB2L1
CCNA1 pp GNB2L1
CDKN1A pp GNB2L1
GNB2L1 pp GNB2L1
HABP4 pp GNB2L1
PABPC1 pp GNB2L1
PDE4D pp GNB2L1
PTN pp GNB2L1
RB1 pp GNB2L1
STAT1 pp GNB2L1
SUMO4 pp GNB2L1
TP73 pp GNB2L1
TUBB pp GNB2L1
CSNK2A1 pp GPI
GPI pp GPI
BMP2 pp GREM1
YWHAH pp GREM1
DLG3 pp GRIN2C
DLG4 pp GRIN2C
DLGAP1 pp GRIN2C
IL16 pp GRIN2C
INADL pp GRIN2C
AR pp GRIP1
CSPG4 pp GRIP1
CSPG4 pp GRIP2
AGTR1 pp GRK5
CAV1 pp GRK5
GIT1 pp GRK5
GRK5 pp GRK5
GIT1 pp GRK6
GRK6 pp GRK6
AKT1 pp GSK3B
AR pp GSK3B
BCL3 pp GSK3B
GSK3B pp GSK3B
IKBKG pp GSK3B
MYC pp GSK3B
PPARGC1A pp GSK3B
PRKACA pp GSK3B
PRKCZ pp GSK3B
GSTP1 pp GSTP1
MAPK8 pp GSTP1
SUMO4 pp GSTP1

TGM2 pp GSTP1
AR pp GTF2F2
GTF2F2 pp GTF2F2
TBP pp GTF2F2
FGFR3 pp GTF3C1
GZMB pp GZMB
ENO2 pp HABP4
PRKCA pp HABP4
PRKCB pp HABP4
PRKCD pp HABP4
PRKCG pp HABP4
PRKCZ pp HABP4
PRMT1 pp HABP4
VIM pp HABP4
CREB3 pp HCFC1
HCFC1 pp HCFC1
PPARGC1A pp HCFC1
ZBTB17 pp HCFC1
CSNK2A1 pp HCLS1
LYN pp HCLS1
BCL3 pp HDAC1
CBFA2T3 pp HDAC1
CREBBP pp HDAC1
CSNK2A1 pp HDAC1
CSNK2A2 pp HDAC1
HDAC1 pp HDAC1
HDAC2 pp HDAC1
HIF1A pp HDAC1
KAT5 pp HDAC1
KDM1A pp HDAC1
PHF21A pp HDAC1
PIAS4 pp HDAC1
PPP2R1B pp HDAC1
RBPJ pp HDAC1
RUNX1T1 pp HDAC1
SIN3A pp HDAC1
SMAD2 pp HDAC1
TP53 pp HDAC1
UBE2I pp HDAC1
CDKN1A pp HDAC11
PHYHIP pp HDAC11
CSNK2A1 pp HDAC2
CSNK2A2 pp HDAC2
IKZF4 pp HDAC2

PHF21A pp HDAC2
RCOR1 pp HDAC2
SIN3A pp HDAC2
THRA pp HDAC2
THRB pp HDAC2
TP53 pp HDAC2
FN1 pp HGF
HGF pp HGF
KLKB1 pp HGF
MET pp HGF
SDC2 pp HGF
COPS5 pp HIF1A
CSNK2A1 pp HIF1A
CTNNB1 pp HIF1A
HIF3A pp HIF1A
OS9 pp HIF1A
STAT3 pp HIF1A
HIP1 pp HIP1
LOX pp HIST1H1B
SIRT1 pp HIST1H1B
TFAP2B pp HIST1H2AC
AKT1 pp HIST2H2BE
ATF2 pp HIST2H2BE
ENO2 pp HK1
SLC2A4 pp HK2
ERBB2 pp HLA-A
HLA-A pp HLA-A
KIR3DL2 pp HLA-A
PDIA3 pp HLA-A
PRKCA pp HLA-A
PHF21A pp HMG20B
VIM pp HMG20B
AES pp HMGB1
AR pp HMGB1
CASP3 pp HMGB1
HNRNPK pp HMGB1
NFKB1 pp HMGB1
PLG pp HMGB1
POU5F1 pp HMGB1
PRKCA pp HMGB1
PRKDC pp HMGB1
RB1 pp HMGB1
RELA pp HMGB1
TAF1 pp HMGB1

TBP pp HMGB1
TLE1 pp HMGB1
TLE2 pp HMGB1
TP53 pp HMGB1
TP73 pp HMGB1
PGRpp HMGB2
POU5F1 pp HMGB2
PRKDC pp HMGB2
SET pp HMGB2
TP53 pp HMGB2
CREBBP pp HNF1A
FOS pp HNF1A
HNF1A pp HNF1A
HNF4A pp HNF1A
KAT2B pp HNF1A
TLE1 pp HNF1A
ESR1 pp HNF4A
HNF4A pp HNF4A
MAPK14pp HNF4A
MED1 pp HNF4A
SMAD2 pp HNF4A
SMAD3 pp HNF4A
SMAD4 pp HNF4A
SREBF2 pp HNF4A
NDRG1 pp HNRNPF
SUMO4 pp HNRNPF
HNRNPFpp HNRNPH1
NDRG1 pp HNRNPH1
SUMO4 pp HNRNPH1
YWHAG pp HNRNPH1
DDX1 pp HNRNPK
HNRNPK pp HNRNPK
PCBP2 pp HNRNPK
PRKCD pp HNRNPK
PRMT1 pp HNRNPK
ACTB pp HNRNPU
CASP3 pp HNRNPU
NDRG1 pp HNRNPU
PRMT1 pp HNRNPU
PTPN11 pp HNRNPU
ANK3 pp HOOK1
HOOK1 pp HOOK1
MAFF pp HOXD12
NDRG1 pp HSD17B4

CSNK2A1 pp HSF1
ENO2 pp HSF1
HSF1 pp HSF1
MAPK3 pp HSF1
MAPK8 pp HSF1
PRKDC pp HSF1
STAT1 pp HSF1
SUMO1 pp HSF1
TAF1 pp HSF1
TBP pp HSF1
XRCC5 pp HSF1
XRCC6 pp HSF1
AKT1 pp HSP90AA1
AR pp HSP90AA1
CHUK pp HSP90AA1
CSNK2A1 pp HSP90AA1
ERBB2 pp HSP90AA1
HIF1A pp HSP90AA1
HSP90AA1 pp HSP90AA1
IKBKB pp HSP90AA1
IKBKG pp HSP90AA1
MAPK1 pp HSP90AA1
MYC pp HSP90AA1
NDRG1 pp HSP90AA1
NOS3 pp HSP90AA1
PIM1 pp HSP90AA1
PPARA pp HSP90AA1
PRKDC pp HSP90AA1
RAF1 pp HSP90AA1
RIPK1 pp HSP90AA1
SLC2A4 pp HSP90AA1
TP53 pp HSP90AA1
F8 pp HSPA5
MTNR1B pp HSPA5
NDRG1 pp HSPA5
SUMO4 pp HSPA5
YWHAB pp HSPA5
CASP3 pp HSPD1
CASP9 pp HSPD1
HIST2H2BE pp HSPD1
HSPD1 pp HSPD1
ITGB1 pp HSPD1
PPP2R1A pp HSPD1
PPP2R1B pp HSPD1

PRKACA pp HSPD1
SUMO4 pp HSPD1
YWHAG pp HSPD1
FBN1 pp HSPG2
ITGB1 pp HSPG2
NID2 pp HSPG2
PDGFA pp HSPG2
SPARC pp HSPG2
CSNK2A1 pp HSPH1
CSNK2A2 pp HSPH1
AKT1 pp HTT
CASP3 pp HTT
CREBBP pp HTT
DLG4 pp HTT
GIT1 pp HTT
HIP1 pp HTT
OPTN pp HTT
PIAS4 pp HTT
SIN3A pp HTT
SP1 pp HTT
TBP pp HTT
TGM2 pp HTT
TP53 pp HTT
TUBB pp HTT
XRCC6 pp HTT
EGFR pp ICAM1
ICAM1 pp ICAM1
IL2RG pp ICAM1
MSN pp ICAM1
SPN pp ICAM1
MSN pp ICAM2
RDX pp ICAM2
MSN pp ICAM3
ITGAV pp ICAM4
ITGB1 pp ICAM4
CDK2 pp ID3
ELK1 pp ID3
ELK4 pp ID3
ID3 pp ID3
MAPK1 pp IER3
EIF3E pp IFIT1
IFIT1 pp IFIT3
IFIT2 pp IFIT3
IFIT3 pp IFIT3

IGFALS pp IGF1
NOV pp IGF1
DOK5 pp IGF1R
ESR1 pp IGF1R
GIPC1 pp IGF1R
GNB2L1 pp IGF1R
IGF1 pp IGF1R
IGF1R pp IGF1R
IGF2 pp IGF1R
ITGB1 pp IGF1R
PIK3R1 pp IGF1R
PTPN11 pp IGF1R
STAT3 pp IGF1R
YWHAB pp IGF1R
YWHAE pp IGF1R
YWHAG pp IGF1R
YWHAZ pp IGF1R
NOV pp IGF2
IGF1 pp IGFBP1
IGF2 pp IGFBP1
MMP26 pp IGFBP1
TF pp IGFBP1
ADAM12 pp IGFBP3
CSNK2A1 pp IGFBP3
CTSD pp IGFBP3
CTSG pp IGFBP3
CTSL1 pp IGFBP3
GPI pp IGFBP3
GTF3C1 pp IGFBP3
IGF1 pp IGFBP3
IGF1R pp IGFBP3
IGF2 pp IGFBP3
IGFALS pp IGFBP3
KLK3 pp IGFBP3
KLKB1 pp IGFBP3
KPNB1 pp IGFBP3
LTBP1 pp IGFBP3
MMP1 pp IGFBP3
MMP2 pp IGFBP3
MMP3 pp IGFBP3
PAPPA2 pp IGFBP3
RXRA pp IGFBP3
TF pp IGFBP3
ADAM12 pp IGFBP5

FN1 pp IGFBP5
IGF1 pp IGFBP5
IGF2 pp IGFBP5
IGFALS pp IGFBP5
KPNB1 pp IGFBP5
SPP1 pp IGFBP5
TF pp IGFBP5
THBS1 pp IGFBP5
ATF3 pp IGSF21
IGSF21 pp IGSF21
PRMT1 pp IGSF21
TMSB4Xpp IGSF21
ACVR1 pp IKBKB
AKT1 pp IKBKB
CHUK pp IKBKB
IKBKB pp IKBKB
IKBKG pp IKBKB
MAP3K7pp IKBKB
PRKCB pp IKBKB
PRKCZ pp IKBKB
BCL10 pp IKBKG
CARD8 pp IKBKG
CYLD pp IKBKG
IKBKG pp IKBKG
NFKB1 pp IKBKG
NFKBIA pp IKBKG
RIPK1 pp IKBKG
RNF11 pp IKBKG
TNIP2 pp IKBKG
ZFAND5 pp IKBKG
IKZF4 pp IKZF4
NRG1 pp IKZF4
SIN3A pp IKZF4
SIN3B pp IKZF4
IL15RA pp IL15
TRAF2 pp IL15RA
CASP3 pp IL16
CDK1 pp IL16
CSNK2A1 pp IL16
CSNK2A2 pp IL16
IL16pp IL16
ENO2 pp IL17B
FNDC6 pp IL20
GNB2L1 pp IL2RB

IL15pp IL2RB
IL15RA pp IL2RB
IL2RG pp IL2RB
LCK pp IL2RB
PIK3R1 pp IL2RB
STAT1 pp IL2RB
IL15pp IL2RG
IL15RA pp IL2RG
STAT1 pp IL2RG
NDRG1 pp ILF3
CAV1 pp ILK
GSK3B pp ILK
MAPK12pp INADL
PRDM1 pp IRF4
TRAF2 pp IRF4
ANGPT1 pp ITGA5
ANGPTL3 pp ITGA5
ARHGAP5 pp ITGA5
AUP1 pp ITGA5
CD9pp ITGA5
FLT4 pp ITGA5
GIPC1 pp ITGA5
ITGB1 pp ITGA5
ITGB3 pp ITGA5
ITGB5 pp ITGA5
L1CAM pp ITGA5
NISCH pp ITGA5
PECAM1pp ITGA5
SPP1 pp ITGA5
TNC pp ITGA5
ADAM9 pp ITGAV
ANGPTL3 pp ITGAV
AUP1 pp ITGAV
AZGP1 pp ITGAV
CD47 pp ITGAV
CYR61 pp ITGAV
EDIL3 pp ITGAV
ITGB8 pp ITGAV
L1CAM pp ITGAV
MMP14 pp ITGAV
P2RY2 pp ITGAV
PAK4 pp ITGAV
PLP1 pp ITGAV
PTK2 pp ITGAV

THY1 pp ITGAV
ARHGAP5 pp ITGB1
CD9pp ITGB1
FLNA pp ITGB1
FLT4 pp ITGB1
GNB2L1 pp ITGB1
ILK pp ITGB1
ITGAV pp ITGB1
ITGB1 pp ITGB1
ITGB1BP3 pp ITGB1
NF2 pp ITGB1
PRKCA pp ITGB1
PRKCE pp ITGB1
PTK2 pp ITGB1
SLC3A2 pp ITGB1
SPP1 pp ITGB1
TGM2 pp ITGB1
VCAM1 pp ITGB1
YWHAB pp ITGB1
CDKN1A pp ITGB1BP3
AKT1 pp ITGB3
ANGPTL3 pp ITGB3
ILK pp ITGB3
ITGAV pp ITGB3
ITGB3 pp ITGB3
P2RY2 pp ITGB3
PDGFRApp ITGB3
PTK2 pp ITGB3
TGM2 pp ITGB3
THBS1 pp ITGB3
THY1 pp ITGB3
GNB2L1 pp ITGB5
ITGAV pp ITGB5
ITGB5 pp ITGB5
LTBP1 pp ITGB5
P2RY2 pp ITGB5
PAK4 pp ITGB5
ZBTB17 pp ITGB5
ITGAV pp ITGB6
TGFB1 pp ITGB6
FURIN pp ITM2C
MTNR1B pp ITM2C
RNF7 pp ITM2C
STT3A pp ITM2C

ABL1 pp JUN
AR pp JUN
ATF3 pp JUN
BATF pp JUN
COBRA1pp JUN
COPS5 pp JUN
CREBBPpp JUN
CSNK2A1 pp JUN
FBXW7 pp JUN
FOSL2 pp JUN
GTF2F2 pp JUN
HCFC1 pp JUN
HIF1A pp JUN
JUN pp JUN
MAF pp JUN
MAPK3 pp JUN
MAPK8 pp JUN
MYBBP1A pp JUN
NCOA1 pp JUN
PRKD1 pp JUN
PRKDC pp JUN
RB1 pp JUN
RUNX2 pp JUN
SMAD2 pp JUN
SMAD3 pp JUN
SMAD4 pp JUN
SMARCD1 pp JUN
SMARCD3 pp JUN
SOX10 pp JUN
SOX8 pp JUN
SP1 pp JUN
STAT1 pp JUN
STAT4 pp JUN
SUMO1 pp JUN
SUMO2 pp JUN
SUMO3 pp JUN
SUMO4 pp JUN
TAF1 pp JUN
TBP pp JUN
TSC22D3 pp JUN
UBE2I pp JUN
BATF pp JUNB
ESR1 pp JUNB
FOS pp JUNB

FOSL2 pp JUNB
JUNB pp JUNB
MAPK14pp JUNB
MAPK8 pp JUNB
SMAD3 pp JUNB
SMAD4 pp JUNB
ATF3 pp JUND
BATF pp JUND
COPS5 pp JUND
ESR1 pp JUND
FOSL2 pp JUND
MAPK8 pp JUND
NFE2L2 pp JUND
SMAD4 pp JUND
TBP pp JUND
AR pp KAT2B
KAT2B pp KAT2B
SMAD2 pp KAT2B
SMAD3 pp KAT2B
TP73 pp KAT2B
ATXN1 pp KAT5
ESR1 pp KAT5
HABP4 pp KAT5
TP53 pp KAT5
KCNC1 pp KCNC1
ALG10 pp KCNH1
KCNH5 pp KCNH1
ALG10 pp KCNH2
PRKACA pp KCNH2
YWHAE pp KCNH2
KCNQ3 pp KCNQ3
KCNQ3 pp KCNQ4
AR pp KDM1A
PHF21A pp KDM1A
NDRG1 pp KIF5B
YWHAB pp KIF5B
YWHAZ pp KIF5B
KIT pp KIT
KITLG pp KIT
LYNpp KIT
MPDZ pp KIT
PIK3R1 pp KIT
PRKCA pp KIT
PTPN11 pp KIT

SPRED1 pp KIT
CLEC11A pp KITLG
CMA1 pp KITLG
FLT3LG pp KITLG
KITLG pp KITLG
PIK3CD pp KITLG
PGRpp KLF9
KPNB1 pp KPNA3
NFKB1 pp KPNA3
KPNB1 pp KPNB1
PIAS4 pp KPNB1
PLCD1 pp KPNB1
SMAD2 pp KPNB1
SMAD3 pp KPNB1
SNUPN pp KPNB1
KRT6A pp KRT17
DSP pp KRT6A
ATF7IP pp KRT7
KRT17 pp KRT7
LAPTM5pp KRT7
CNTN1 pp L1CAM
CSNK2A1 pp L1CAM
MSN pp L1CAM
RPS6KA1 pp L1CAM
CEBPZ pp LAG3
NID2 pp LAMC1
BCAR1 pp LCK
CDC42 pp LCK
DLG1 pp LCK
HSP90AA1 pp LCK
KIT pp LCK
LCK pp LCK
MAPK1 pp LCK
MAPK3 pp LCK
NR3C1 pp LCK
PECAM1pp LCK
PLD2 pp LCK
PRKACA pp LCK
PRKCA pp LCK
PTPN11 pp LCK
PTPRC pp LCK
RAF1 pp LCK
SH2D2A pp LCK
THY1 pp LCK

LDHA pp LDHA
NDRG1 pp LDHA
CA12 pp LGALS7
LGALS7 pp LGALS7
LIMK1 pp LIMK1
PAK4 pp LIMK1
ROCK1 pp LIMK1
CDK1 pp LMNA
FOS pp LMNA
KAT5 pp LMNA
LMNA pp LMNA
PRKCA pp LMNA
RB1 pp LMNA
SREBF1 pp LMNA
SUMO4 pp LMNA
SMAD9 pp LNPEP
TNKS pp LNPEP
DHDDS pp LOX
HIST1H2BJ pp LOX
LOX pp LOX
BACE1 pp LRP1
C4BPA pp LRP1
CALR pp LRP1
CANX pp LRP1
CTGF pp LRP1
DLG4 pp LRP1
F8 pp LRP1
FURIN pp LRP1
GIPC1 pp LRP1
KAT5 pp LRP1
LRP1 pp LRP1
MMP14 pp LRP1
PRKACA pp LRP1
THBS1 pp LRP1
SGOL1 pp LRRC59
LTBP1 pp LTBP1
TGM2 pp LTBP1
BCAR1 pp LYN
CASP3 pp LYN
DLG4 pp LYN
EGFR pp LYN
HNRNPK pp LYN
IL2RB pp LYN
LYNpp LYN

MAPK3 pp LYN
PECAM1pp LYN
PRKDC pp LYN
PTK2 pp LYN
PTPRC pp LYN
ESR2 pp MAD2L1
MAD2L1pp MAD2L1
UBD pp MAD2L1
CREBBPpp MAF
MAF pp MAF
USF2 pp MAF
MAFF pp MAFF
NFE2 pp MAFF
PSAP pp MAFF
MAML1 pp MAML1
RBPJ pp MAML1
CREBBPpp MAML2
NOTCH3pp MAML2
NOTCH3pp MAML3
MAOA pp MAOA
NDRG1 pp MAOA
ARAF pp MAP2K1
BIRC6 pp MAP2K1
CDK5 pp MAP2K1
EGFR pp MAP2K1
MAP2K1pp MAP2K1
MAP3K4pp MAP2K1
MAPK1 pp MAP2K1
MAPK3 pp MAP2K1
MYC pp MAP2K1
PEBP1 pp MAP2K1
RAF1 pp MAP2K1
TRAF3 pp MAP2K1
DUSP3 pp MAP2K2
MAP2K2pp MAP2K2
RAF1 pp MAP2K2
AKT1 pp MAP2K4
MAP2K4pp MAP2K4
MAP3K2pp MAP2K4
MAP3K4pp MAP2K4
MAP3K7pp MAP2K4
BAD pp MAP2K5
DCTN1 pp MAP2K6
MAP2K6pp MAP2K6

MAP3K4pp MAP2K6
MAP3K7pp MAP2K6
PKN1 pp MAP2K6
PLCB2 pp MAP2K6
RELA pp MAP2K6
SMAD7 pp MAP2K6
TAOK2 pp MAP2K6
MAP2K7pp MAP2K7
MAP3K2pp MAP2K7
TRAF6 pp MAP2K7
MAP2K4pp MAP3K12
MAP2K7pp MAP3K12
MAP2K5pp MAP3K2
NFKBIA pp MAP3K2
SMURF1pp MAP3K2
WNK1 pp MAP3K2
GADD45A pp MAP3K4
GADD45B pp MAP3K4
GADD45G pp MAP3K4
MAP3K4pp MAP3K4
MAPK13pp MAP3K4
RAC1 pp MAP3K4
RUNX2 pp MAP3K4
AKT1 pp MAP3K5
CDKN1A pp MAP3K5
GADD45B pp MAP3K5
IGF1R pp MAP3K5
MAP2K6pp MAP3K5
MAP2K7pp MAP3K5
MAP3K2pp MAP3K5
MAP3K5pp MAP3K5
MAP3K7pp MAP3K5
PPP3R1 pp MAP3K5
YWHAE pp MAP3K5
MAP3K7pp MAP3K7
MAPK14pp MAP3K7
NAIP pp MAP3K7
PEBP1 pp MAP3K7
RELA pp MAP3K7
SMAD7 pp MAP3K7
CDK1 pp MAP4
ENO2 pp MAP4
NR1I3 pp MAP4
RXRB pp MAP4

TUBB pp MAP4
C1QBP pp MAPK1
DUSP3 pp MAPK1
EGFR pp MAPK1
ELK1 pp MAPK1
JUND pp MAPK1
MAP2K2pp MAPK1
MAPK1 pp MAPK1
MAPK14pp MAPK1
MAPK8 pp MAPK1
MITF pp MAPK1
PEBP1 pp MAPK1
PRKCE pp MAPK1
RPS6KA4 pp MAPK1
RPS6KB1 pp MAPK1
SREBF2 pp MAPK1
TNIP1 pp MAPK1
DLG3 pp MAPK12
DLG4 pp MAPK12
MAP2K4pp MAPK12
MAP2K6pp MAPK12
MAPK12pp MAPK12
PKN1 pp MAPK12
MAP2K6pp MAPK13
SMAD4 pp MAPK13
BCL2 pp MAPK14
GADD45A pp MAPK14
MAP2K1pp MAPK14
MAP2K4pp MAPK14
MAP2K6pp MAPK14
MAPK3 pp MAPK14
MAPK8 pp MAPK14
MITF pp MAPK14
SMAD7 pp MAPK14
STAT1 pp MAPK14
TRAF6 pp MAPK14
BCL2 pp MAPK3
BCL3 pp MAPK3
CAV1 pp MAPK3
ESR1 pp MAPK3
GATA4 pp MAPK3
HIF1A pp MAPK3
IER3 pp MAPK3
JUND pp MAPK3

MAP2K2pp MAPK3
MAPK3 pp MAPK3
MAPK8 pp MAPK3
PTPN11 pp MAPK3
RPS6KA4 pp MAPK3
BCL2L1 pp MAPK8
ELK1 pp MAPK8
MAP2K4pp MAPK8
MAP2K7pp MAPK8
MAP3K2pp MAPK8
MAP3K7pp MAPK8
PRKD1 pp MAPK8
SMAD3 pp MAPK8
TP73 pp MAPK8
TRAF6 pp MAPK8
WWOX pp MAPK8
MAP3K7pp MAVS
TICAM1 pp MAVS
TRAF6 pp MAVS
CSNK2A1 pp MAX
EPAS1 pp MAX
HIF1A pp MAX
MAPK14pp MAX
MAX pp MAX
MXI1 pp MAX
MYC pp MAX
SMAD3 pp MAX
SMAD4 pp MAX
ATF7IP pp MBD1
OASL pp MBD1
CASP3 pp MCL1
GSK3B pp MCL1
MAPK1 pp MCL1
MCL1 pp MCL1
CDC5L pp MCM10
CCNB2 pp MCM2
CDC6 pp MCM2
CDC7 pp MCM2
CDK4 pp MCM2
CDK6 pp MCM2
MCM10 pp MCM2
MCM2 pp MCM2
TBP pp MCM2
GATA4 pp MED1

MED1 pp MED1
NR1I3 pp MED1
PPARGC1A pp MED1
THRA pp MED1
THRB pp MED1
CTNNB1 pp MET
EGFR pp MET
FAS pp MET
MET pp MET
PTPN11 pp MET
PTPRB pp MET
FOS pp MITF
GSK3B pp MITF
SUMO1 pp MITF
UBE2I pp MITF
AFF1 pp MLLT3
MLLT3 pp MLLT3
CSNK2B pp MME
LYN pp MME
NDRG1 pp MME
PIK3R1 pp MME
CMA1 pp MMP1
MMP7 pp MMP1
BCAR1 pp MMP14
BACE1 pp MMP2
HSP90AA1 pp MMP2
ITGAV pp MMP2
MMP14 pp MMP2
TGFB1 pp MMP2
THBS1 pp MMP2
MMP3 pp MMP3
PLG pp MMP3
NT5C2 pp MOBKL2B
F11R pp MPDZ
MPDZ pp MPDZ
CA12 pp MRPL9
MSN pp MSN
ROCK1 pp MSN
SELL pp MSN
SLC9A3R1 pp MSN
SPN pp MSN
TSC1 pp MSN
MTHFD1 pp MTHFD1
MTNR1B pp MTNR1B

SMC3 pp MXI1
BCL2 pp MYC
CDC6 pp MYC
CSNK2A1 pp MYC
CSNK2A2 pp MYC
FBXW7 pp MYC
KAT5 pp MYC
MAPK3 pp MYC
MAPK8 pp MYC
MXI1 pp MYC
SMAD2 pp MYC
SMAD3 pp MYC
TFAP2B pp MYC
TP73 pp MYC
TUBA4A pp MYC
YY1 pp MYC
ZBTB17 pp MYC
EWSR1 pp MYOZ2
CASP9 pp NAIP
NAIP pp NAIP
ENO2 pp NAT9
BNIP3 pp NCBP1
HNRNPF pp NCBP1
HNRNPH1 pp NCBP1
RPS6KB1 pp NCBP1
NDRG1 pp NCL
PARP1 pp NCL
PPARGC1A pp NCL
PRKCZ pp NCL
TP53 pp NCL
COPS5 pp NCOA1
DDX5 pp NCOA1
ESRRA pp NCOA1
ESRRG pp NCOA1
HIF1A pp NCOA1
HNF4A pp NCOA1
KAT2B pp NCOA1
MAPK1 pp NCOA1
NCOA1 pp NCOA1
NR1H4 pp NCOA1
NR1I2 pp NCOA1
NR1I3 pp NCOA1
PGR pp NCOA1
PPARG pp NCOA1

PPARGC1A pp NCOA1
PRMT1 pp NCOA1
SUMO1 pp NCOA1
AR pp NCOR2
CBFA2T2 pp NCOR2
CHUK pp NCOR2
HDAC1 pp NCOR2
NFKBIA pp NCOR2
NR1I2 pp NCOR2
RUNX1 pp NCOR2
SKIL pp NCOR2
SNW1 pp NCOR2
SP1 pp NCOR2
THRA pp NCOR2
THRB pp NCOR2
ARL4D pp NDRG1
PHYHIP pp NDRG1
PRKACA pp NDRG1
ANXA9 pp NDUFA4L2
KAT5 pp NDUFA4L2
ARRB2 pp NDUFS7
ENO2 pp NDUFS7
NF2 pp NF2
SCHIP1 pp NF2
JUN pp NFE2L1
JUNB pp NFE2L1
JUND pp NFE2L1
MAFF pp NFE2L1
CASP3 pp NFE2L2
JUN pp NFE2L2
MAFF pp NFE2L2
NFE2 pp NFE2L2
PPARG pp NFE2L2
PRKCD pp NFE2L2
CREB3 pp NFIL3
NFIL3 pp NFIL3
AR pp NFKB1
ATF3 pp NFKB1
CTNNB1 pp NFKB1
ESR1 pp NFKB1
ETS1 pp NFKB1
FOS pp NFKB1
GSK3B pp NFKB1
HDAC1 pp NFKB1

IKBKB pp NFKB1
KAT5 pp NFKB1
NCOA1 pp NFKB1
NCOR2 pp NFKB1
NFKB1 pp NFKB1
PARP1 pp NFKB1
PRKACA pp NFKB1
RIPK1 pp NFKB1
RPS3 pp NFKB1
RXRA pp NFKB1
SIN3A pp NFKB1
TNIP2 pp NFKB1
TSC22D3 pp NFKB1
ARRB2 pp NFKBIA
CAPN2 pp NFKBIA
CSNK2A1 pp NFKBIA
HDAC1 pp NFKBIA
IKBKB pp NFKBIA
LCK pp NFKBIA
NFKB1 pp NFKBIA
NFKBIA pp NFKBIA
PIK3R1 pp NFKBIA
RELA pp NFKBIA
RPS6KA1 pp NFKBIA
SUMO1 pp NFKBIA
SUMO4 pp NFKBIA
TP53 pp NFKBIA
VCPpp NFKBIA
CEBPZ pp NFYB
MYC pp NFYB
SP1 pp NFYB
TBP pp NFYB
TP53 pp NFYB
TP73 pp NFYB
HSPG2 pp NID1
ITGAV pp NID1
ITGB3 pp NID1
LAMC1 pp NID1
NID1 pp NID1
SKIL pp NID1
SKIL pp NID2
APAF1 pp NLRP1
NLRP1 pp NLRP1
NLRP1 pp NOD1

NOD1 pp NOD1
DLG4 pp NOS1
HSP90AA1 pp NOS1
PRKACA pp NOS1
PRKCA pp NOS1
AKT1 pp NOS3
CAV1 pp NOS3
NOS3 pp NOS3
PPP2R5A pp NOS3
SP1 pp NOS3
DLL1 pp NOTCH3
JAG1 pp NOTCH3
JAG2 pp NOTCH3
KAT2B pp NOTCH3
MAML1 pp NOTCH3
PSEN1 pp NOTCH3
SNW1 pp NOTCH3
DLL1 pp NOV
ESR1 pp NR0B1
ESR2 pp NR0B1
NCOR2 pp NR1H4
PPARGC1A pp NR1H4
SMARCD3 pp NR1H4
NR1I2 pp NR1I2
PSMC5 pp NR1I2
AR pp NR3C1
CREBBP pp NR3C1
ETS1 pp NR3C1
ETS2 pp NR3C1
GRIP1 pp NR3C1
HNRNPU pp NR3C1
HSP90AA1 pp NR3C1
JUN pp NR3C1
MAPK1 pp NR3C1
MAPK8 pp NR3C1
NCL pp NR3C1
NCOA1 pp NR3C1
NCOR2 pp NR3C1
NFKB1 pp NR3C1
NR3C1 pp NR3C1
PPARGC1A pp NR3C1
PRKACA pp NR3C1
PRKDC pp NR3C1
RAF1 pp NR3C1

RELA pp NR3C1
SMAD3 pp NR3C1
SMARCD1 pp NR3C1
SUMO1 pp NR3C1
SUMO4 pp NR3C1
TBP pp NR3C1
TP53 pp NR3C1
TSG101 pp NR3C1
UBE2I pp NR3C1
RPS6KA1 pp NR4A2
VHL pp NR4A2
MAGI3 pp NRCAM
NRCAM pp NRCAM
MAFF pp NRF1
PPARGC1A pp NRF1
ADAM19 pp NRG1
ERBB3 pp NRG1
ERBB4 pp NRG1
LIMK1 pp NRG1
FGF2 pp NRP1
GIPC1 pp NRP1
NRP1 pp NRP1
NRP2 pp NRP1
NT5C2 pp NT5C2
UBD pp NUB1
ATF3 pp NUF2
PIM1 pp NUMA1
TNKS pp NUMA1
THRA pp OASL
ODF1 pp ODF1
SPAG4 pp ODF1
RNF11 pp OPTN
CD47 pp P2RY2
ERO1L pp P4HB
P4HB pp P4HB
PTN pp P4HB
YWHAG pp P4HB
NDRG1 pp PABPC1
PABPC1 pp PABPC1
YWHAG pp PABPC1
DLST pp PAK4
FGFR2 pp PAK4
PAK4 pp PAK4
YWHAZ pp PAK4

ITGB5 pp PALLD
IGFBP5 pp PAPP2
CTSG pp PARP1
GZMB pp PARP1
PARP1 pp PARP1
PCNA pp PARP1
PRKDC pp PARP1
RBM14 pp PARP1
RXRA pp PARP1
TP53 pp PARP1
XRCC5 pp PARP1
EWSR1 pp PCBP1
HNRNPK pp PCBP1
LMNA pp PCBP1
PABPC1 pp PCBP1
PABPC1 pp PCBP2
PCBP1 pp PCBP2
PCBP2 pp PCBP2
PCBP1 pp PCBP4
QKI pp PCBP4
RNF138 pp PCBP4
PCCB pp PCCA
PCCB pp PCCB
CDC6 pp PCNA
CDK6 pp PCNA
CDKN1C pp PCNA
GADD45B pp PCNA
GADD45G pp PCNA
HDAC1 pp PCNA
MCL1 pp PCNA
MYBBP1A pp PCNA
PCNA pp PCNA
POLD2 pp PCNA
PPP1CA pp PCNA
PRKDC pp PCNA
XRCC5 pp PCNA
APOA1 pp PDE1A
AKAP6 pp PDE4D
PDE4D pp PDE4D
PDE4DIP pp PDE4D
PRKACA pp PDE4D
DUSP3 pp PDGFA
FURIN pp PDGFA
PDAP1 pp PDGFA

PDGFA pp PDGFA
PDGFRApp PDGFA
SPARC pp PDGFA
CAV1 pp PDGFRA
ITGAV pp PDGFRA
PDGFRApp PDGFRA
PIK3R1 pp PDGFRA
PTPN11 pp PDGFRA
SLC9A3R1 pp PDGFRA
STAT3 pp PDGFRA
DLAT pp PDHA1
PDHA1 pp PDHA1
PDK1 pp PDHA1
PDK2 pp PDHA1
PDK4 pp PDHA1
BACE1 pp PDIA3
SUMO4 pp PDIA3
DLAT pp PDK1
PDK2 pp PDK1
AKT1 pp PDK2
DLAT pp PDK2
HTTpp PDK2
PDK2 pp PDK2
DLAT pp PDK4
PDK4 pp PDK4
TRIM63 pp PDK4
STK35 pp PDLIM1
VIMpp PDLIM1
ADRBK1 pp PEBP1
CHUK pp PEBP1
IKBKB pp PEBP1
PEBP1 pp PEBP1
PRKCA pp PEBP1
PRKCB pp PEBP1
PRKCD pp PEBP1
PRKCG pp PEBP1
PRKCZ pp PEBP1
ITGB3 pp PECAM1
PECAM1pp PECAM1
PRKCE pp PECAM1
PTPN11 pp PECAM1
XRCC6 pp PECAM1
HIF1A pp PER1
PER2 pp PER1

PER3 pp PER1
CSNK1Dpp PER2
PER3 pp PER2
PF4 pp PF4
PROC pp PF4
GBE1 pp PGD
HIF1A pp PGK1
HSPH1 pp PGK1
SUMO4 pp PGK1
CCNA2 pp PGR
CSNK2A1 pp PGR
PGRpp PGR
XRCC6 pp PGR
LPXN pp PHF21A
NFE2 pp PHYHIP
PHYHIP pp PHYHIP
COIL pp PIAS4
NR4A2 pp PIAS4
TICAM1 pp PIAS4
PIK3CD pp PIK3CD
ABL1 pp PIK3R1
ADAM12 pp PIK3R1
AKT1 pp PIK3R1
ANK3 pp PIK3R1
ARAF pp PIK3R1
BCAR1 pp PIK3R1
ERBB3 pp PIK3R1
GAB1 pp PIK3R1
LCK pp PIK3R1
MAPK8 pp PIK3R1
MET pp PIK3R1
PECAM1pp PIK3R1
PIK3CD pp PIK3R1
PIK3R1 pp PIK3R1
PTK2 pp PIK3R1
PTPN11 pp PIK3R1
RAC1 pp PIK3R1
TEKpp PIK3R1
TGFBR1 pp PIK3R1
TYRO3 pp PIK3R1
YWHAGpp PIK3R1
ARAF pp PKM2
NDRG1 pp PKM2
PKM2 pp PKM2

TRIM63 pp PKM2
CASP3 pp PKN1
CD44 pp PKN1
PKN1 pp PKN1
CASP3 pp PKN2
MAP3K2pp PKN2
PLA2G2A pp PLA2G2A
SLC9A3R1 pp PLCB2
EGFR pp PLD2
F10 pp PLG
IGF2 pp PLG
IGFBP3 pp PLG
KLK3 pp PLG
LAMA3 pp PLG
MMP7 pp PLG
PLGpp PLG
SERPINF2 pp PLG
SPARC pp PLG
THBS1 pp PLG
PLOD2 pp PLOD2
DHX37 pp PLXNA2
FNBP4 pp PLXNA2
HACE1 pp PLXNA2
IFT80 pp PLXNA2
KIAA1199 pp PLXNA2
UBAP2L pp PLXNA2
ATP5C1 pp POLA2
DDX24 pp POLA2
FGFR3 pp POLA2
IGFBP3 pp POLA2
CDK2 pp POLD2
POLR2C pp POLR2C
STC2 pp POLR2C
KAT5 pp POLR3F
STC2 pp POLR3F
FOXD3 pp POU5F1
MNAT1 pp POU5F1
SOX10 pp POU5F1
SOX2 pp POU5F1
SOX8 pp POU5F1
GADD45B pp PPARA
GADD45G pp PPARA
MAPK1 pp PPARA
MAPK3 pp PPARA

MED1 pp PPARA
NCOA1 pp PPARA
NCOR2 pp PPARA
PPARA pp PPARA
PPARGC1A pp PPARA
RXRA pp PPARA
CNOT1 pp PPARG
GADD45B pp PPARG
GADD45G pp PPARG
MAPK1 pp PPARG
MAPK8 pp PPARG
MED1 pp PPARG
NCOR2 pp PPARG
NR0B1 pp PPARG
PPARG pp PPARG
PPARGC1A pp PPARG
RXRB pp PPARG
SMARCD3 pp PPARG
ESR2 pp PPARGC1A
ESRRA pp PPARGC1A
HNF4A pp PPARGC1A
MAPK14pp PPARGC1A
MYBBP1A pp PPARGC1A
NR1I2 pp PPARGC1A
NR1I3 pp PPARGC1A
THRB pp PPARGC1A
EFNA1 pp PPBP
PPBP pp PPBP
CAST pp PPFIA4
PPHLN1 pp PPHLN1
CDC5L pp PPP1CA
MAPK1 pp PPP1CA
MAPK3 pp PPP1CA
PPP1CA pp PPP1CA
PPP1R8 pp PPP1CA
RB1 pp PPP1CA
SPRED1 pp PPP1CA
TP53 pp PPP1CA
PRKCA pp PPP1R14A
PRKCE pp PPP1R14A
PRKCZ pp PPP1R14A
PRKD1 pp PPP1R14A
CDC5L pp PPP1R8
CSNK2A1 pp PPP1R8

CSNK2A2 pp PPP1R8
HDAC2 pp PPP1R8
LYNpp PPP1R8
PRKACA pp PPP1R8
BMPR1Bpp PPP2CA
DVL3 pp PPP2CA
MAPK1 pp PPP2CA
MAPK3 pp PPP2CA
PPP1CA pp PPP2CA
PPP2R1A pp PPP2CA
PPP2R1B pp PPP2CA
PPP2R2A pp PPP2CA
PPP2R5B pp PPP2CA
PPP2R5Epp PPP2CA
PTNpp PPP2CA
RELA pp PPP2CA
RPS6KB1 pp PPP2CA
SGOL1 pp PPP2CA
SGOL1 pp PPP2CB
SGOL1 pp PPP2R1A
SMAD2 pp PPP2R1A
AKAP9 pp PPP2R1B
PPP2R2A pp PPP2R1B
PPP2R5D pp PPP2R1B
SGOL1 pp PPP2R1B
NDRG1 pp PPP2R2A
PPP2R1A pp PPP2R2A
PPP2R1A pp PPP2R5A
SGOL1 pp PPP2R5A
IER3 pp PPP2R5B
SGOL1 pp PPP2R5B
IER3 pp PPP2R5C
PPP2CA pp PPP2R5C
PPP2R1B pp PPP2R5C
SGOL1 pp PPP2R5C
SGOL1 pp PPP2R5D
PPP2R1B pp PPP2R5E
SGOL1 pp PPP2R5E
AKAP5 pp PPP3CA
ATP2B4 pp PPP3CA
BCL2 pp PPP3CA
CABIN1 pp PPP3CA
CASP3 pp PPP3CA
CRTC2 pp PPP3CA

FKBP1A pp PPP3CA
FKBP8 pp PPP3CA
GABRA1 pp PPP3CA
GABRB2pp PPP3CA
GABRG2 pp PPP3CA
MYOZ2 pp PPP3CA
MYOZ3 pp PPP3CA
PPP3CA pp PPP3CA
PPP3R1 pp PPP3CA
PRKCZ pp PPP3CA
RCAN2 pp PPP3CA
SOD1 pp PPP3CA
SYNJ1 pp PPP3CA
BCL2 pp PRKACA
ESR1 pp PRKACA
SLC9A3R2 pp PRKACA
VIMpp PRKACA
AKAP12 pp PRKAR2A
AKAP5 pp PRKAR2A
AKAP6 pp PRKAR2A
AKAP9 pp PRKAR2A
CBFA2T3 pp PRKAR2A
CFTR pp PRKAR2A
PRKAR2A pp PRKAR2A
AKAP12 pp PRKCA
AKAP5 pp PRKCA
C1QBP pp PRKCA
DLG4 pp PRKCA
FAS pp PRKCA
FLNA pp PRKCA
GNB2L1 pp PRKCA
HSP90AA1 pp PRKCA
PLD2 pp PRKCA
PPARA pp PRKCA
PRKCA pp PRKCA
PRKCZ pp PRKCA
RAC1 pp PRKCA
YWHAG pp PRKCA
YWHAZ pp PRKCA
BMP2 pp PRKCB
GNB2L1 pp PRKCB
GSK3B pp PRKCB
KIT pp PRKCB
PPP2CB pp PRKCB

PRKCB pp PRKCB
YWHAG pp PRKCB
ADAM9 pp PRKCD
C1QBP pp PRKCD
ESRRA pp PRKCD
GNB2L1 pp PRKCD
HSP90AA1 pp PRKCD
IGF1R pp PRKCD
LCK pp PRKCD
LYN pp PRKCD
MAPK1 pp PRKCD
MAPK3 pp PRKCD
PLD2 pp PRKCD
PPARA pp PRKCD
PPP1CA pp PRKCD
PPP2CA pp PRKCD
PPP2R5C pp PRKCD
PRKCD pp PRKCD
PRKCZ pp PRKCD
PRKDC pp PRKCD
RAC1 pp PRKCD
RAF1 pp PRKCD
RUNX2 pp PRKCD
YWHAG pp PRKCD
AKAP9 pp PRKCE
CFTR pp PRKCE
COPB2 pp PRKCE
GNB2L1 pp PRKCE
HK2 pp PRKCE
MAPK3 pp PRKCE
PRKCE pp PRKCE
PRKD1 pp PRKCE
PPP1R14A pp PRKCG
YWHAB pp PRKCG
YWHAG pp PRKCG
C1QBP pp PRKCZ
CASP3 pp PRKCZ
DAPK3 pp PRKCZ
FADD pp PRKCZ
MAP2K1 pp PRKCZ
MAP2K5 pp PRKCZ
MAPK1 pp PRKCZ
MAPK3 pp PRKCZ
PRKCZ pp PRKCZ

RHOA pp PRKCZ
TRAF6 pp PRKCZ
ABL1 pp PRKD1
EGFR pp PRKD1
GNB2L1 pp PRKD1
IGF1R pp PRKD1
PRKD1 pp PRKD1
AKT1 pp PRKDC
CASP3 pp PRKDC
GZMB pp PRKDC
MAPK8 pp PRKDC
PRKDC pp PRKDC
SGOL1 pp PRKDC
SP1 pp PRKDC
XRCC5 pp PRKDC
YWHAG pp PRKDC
AR pp PRMT1
ESR1 pp PRMT1
ILF3 pp PRMT1
PRMT1 pp PRMT1
QKI pp PRMT1
YWHAG pp PRMT1
F2 pp PROC
F8 pp PROC
PROC pp PROC
PROS1 pp PROC
C4BPB pp PROS1
F10 pp PROS1
F2 pp PROS1
F5 pp PROS1
F8 pp PROS1
TYRO3 pp PROS1
MAFF pp PRRX1
SOX10 pp PRRX1
SRF pp PRRX1
ACTG1 pp PRSS23
EFNA3 pp PRSS23
GRK6 pp PRSS23
BACE1 pp PSAP
PSAP pp PSAP
SMAD2 pp PSAP
BACE1 pp PSEN1
BCL2 pp PSEN1
BCL2L1 pp PSEN1

CASP3 pp PSEN1
CDK5 pp PSEN1
CTNNA1pp PSEN1
CTNNB1pp PSEN1
DLL1 pp PSEN1
FBXW7 pp PSEN1
FLNA pp PSEN1
GSK3B pp PSEN1
PIK3R1 pp PSEN1
PRKACA pp PSEN1
PRKCZ pp PSEN1
PSEN1 pp PSEN1
UBQLN1pp PSEN1
CASP3 pp PSEN2
CSNK1Dpp PSEN2
CSNK2A1 pp PSEN2
CTNNB1pp PSEN2
NOTCH3pp PSEN2
UBQLN1pp PSEN2
CSNK2A1 pp PSMA3
NDRG1 pp PSMC2
PSMD2 pp PSMC2
SKIL pp PSMC2
SUMO4 pp PSMC2
TBP pp PSMC2
NDRG1 pp PSMC3
PSMC3 pp PSMC3
PSMC5 pp PSMC3
VHL pp PSMC3
ESR1 pp PSMC5
THRB pp PSMC5
NDRG1 pp PSMD2
PSMD2 pp PSMD2
PTNpp PSMD2
CCDC85B pp PSMF1
QKI pp PSMF1
TRAF2 pp PSMF1
CASP3 pp PTBP1
PCBP1 pp PTBP1
PCBP2 pp PTBP1
PRKACA pp PTBP1
PTBP1 pp PTBP1
PTBP2 pp PTBP2
QKI pp PTBP2

HK2pp PTGDS
BAT5 pp PTGS2
CAV1 pp PTGS2
NUCB1 pp PTGS2
PTGS2 pp PTGS2
CD47 pp PTK2
CSPG4 pp PTK2
EPHB2 pp PTK2
FLT4 pp PTK2
GIT1 pp PTK2
GSK3B pp PTK2
GZMB pp PTK2
LCK pp PTK2
LPXN pp PTK2
PTK2 pp PTK2
ATP5C1 pp PTN
GADD45G pp PTN
GSTP1 pp PTN
KPNB1 pp PTN
MLLT3 pp PTN
PIAS4 pp PTN
PTNpp PTN
CAV1 pp PTPN11
CDH5 pp PTPN11
EPHA2 pp PTPN11
ERBB2 pp PTPN11
FLT4 pp PTPN11
MAP3K4pp PTPN11
PRKCA pp PTPN11
PRKCB pp PTPN11
PTK2 pp PTPN11
CDH5 pp PTPRB
CNTN1 pp PTPRB
CNTNAP1 pp PTPRB
F11R pp PTPRB
MAGI3 pp PTPRB
NRCAM pp PTPRB
TEKpp PTPRB
TNC pp PTPRB
CSNK2A1 pp PTPRC
CSNK2A2 pp PTPRC
PTPRC pp PTPRC
RNF11 pp PTPRC
DAZ4 pp QKI

FUBP3 pp QKI
HCLS1 pp QKI
HNRNPK pp QKI
PCBP1 pp QKI
PCBP2 pp QKI
PTBP1 pp QKI
CDKN1A pp RAB1A
RAB5A pp RAB5A
SDCBP pp RAB5A
TBC1D3C pp RAB5A
TBC1D3F pp RAB5A
AKT1 pp RAC1
ARHGDIB pp RAC1
CASP3 pp RAC1
DVL1 pp RAC1
RAC1 pp RAC1
RPS6KB1 pp RAC1
SET pp RAC1
TBC1D3F pp RAC1
AGTR1 pp RAF1
AKT1 pp RAF1
AR pp RAF1
CPS1 pp RAF1
IL2RB pp RAF1
MAP3K5 pp RAF1
MAPK1 pp RAF1
MAPK3 pp RAF1
MYC pp RAF1
PEBP1 pp RAF1
PKM2 pp RAF1
PRKACA pp RAF1
PRKCA pp RAF1
PRKCE pp RAF1
PRKCZ pp RAF1
RAF1 pp RAF1
RB1 pp RAF1
TSC22D3 pp RAF1
YWHAB pp RAF1
YWHAE pp RAF1
YWHAG pp RAF1
YWHAZ pp RAF1
ABL1 pp RB1
AR pp RB1
CASP10 pp RB1

CASP3 pp RB1
CASP9 pp RB1
CCNA1 pp RB1
CCND2 pp RB1
CDK1 pp RB1
CDK2 pp RB1
CDK4 pp RB1
HDAC1 pp RB1
MAPK1 pp RB1
MNAT1 pp RB1
MYC pp RB1
PIK3R1 pp RB1
PRKCB pp RB1
RB1 pp RB1
SNW1 pp RB1
SP1 pp RB1
TAF1 pp RB1
TGM2 pp RB1
QKI pp RBM14
ATXN1 pp RBM9
QKI pp RBM9
RBPMS pp RBM9
HMGB1 pp RBPJ
KAT2B pp RBPJ
NCOR2 pp RBPJ
NOTCH3 pp RBPJ
SNW1 pp RBPJ
ATXN1 pp RBPMS
EWSR1 pp RBPMS
QKI pp RBPMS
RBPMS pp RBPMS
SERF2 pp RBPMS
GSK3B pp RCAN1
MAPK3 pp RCAN1
PPP3CA pp RCAN1
RCBTB2 pp RCBTB2
KDM1A pp RCOR1
PHF21A pp RCOR1
L1CAM pp RDX
ROCK1 pp RDX
SLC9A3R1 pp RDX
SLC9A3R2 pp RDX
AES pp RELA
AR pp RELA

CHUK pp RELA
CREBBP pp RELA
CSNK2A1 pp RELA
DDX1 pp RELA
ESR1 pp RELA
FOS pp RELA
HDAC1 pp RELA
HDAC2 pp RELA
IKBKB pp RELA
JUN pp RELA
KAT2B pp RELA
MYC pp RELA
NCOR2 pp RELA
NFKB1 pp RELA
PARP1 pp RELA
PGR pp RELA
PPARA pp RELA
PPP2R1B pp RELA
PRKACA pp RELA
PRKCZ pp RELA
RELA pp RELA
RXRA pp RELA
SIN3A pp RELA
SIRT1 pp RELA
SP1 pp RELA
SRF pp RELA
TAF1 pp RELA
TBP pp RELA
TGM2 pp RELA
TSC22D3 pp RELA
ARHGDIB pp RHOA
CAV1 pp RHOA
CNTNAP1 pp RHOA
FLNA pp RHOA
PKN1 pp RHOA
PKN2 pp RHOA
PRKACA pp RHOA
PRKCA pp RHOA
RHOA pp RHOA
ROCK1 pp RHOA
SMURF1 pp RHOA
TGM2 pp RHOA
BNIP3L pp RINT1
CCDC50 pp RIPK1

PTK2 pp RIPK1
RIPK1 pp RIPK1
RNF11 pp RIPK1
TNFAIP3pp RIPK1
QKI pp RNF138
CSNK2A1 pp RNF7
CSNK2B pp RNF7
CASP3 pp ROCK1
PTK2 pp ROCK1
ROCK1 pp ROCK1
SMAD2 pp ROCK1
TSG101 pp ROCK1
SGOL1 pp RPL10A
NDRG1 pp RPL24
SGOL1 pp RPL28
SMAD4 pp RPL28
NDRG1 pp RPL3
NDRG1 pp RPL4
RPL7 pp RPL7
SGOL1 pp RPL7
SGOL1 pp RPL7A
PTNpp RPLP1
RPLP1 pp RPLP1
SGOL1 pp RPLP1
XRCC6 pp RPLP1
NDRG1 pp RPN2
NDRG1 pp RPS16
NDRG1 pp RPS20
NDRG1 pp RPS26
NDRG1 pp RPS3
RELA pp RPS3
NDRG1 pp RPS6
RPS6KB1 pp RPS6
MAPK1 pp RPS6KA1
MAPK3 pp RPS6KA1
MITF pp RPS6KA1
RPS6KA1 pp RPS6KA1
MAP2K1pp RPS6KA4
MAPK14pp RPS6KA4
RPS6KA4 pp RPS6KA4
CDK1 pp RPS6KB1
MAPK3 pp RPS6KB1
MAPK8 pp RPS6KB1
PDK1 pp RPS6KB1

NDRG1 pp RPS8
CBFA2T2 pp RUNX1
CBFA2T3 pp RUNX1
FOS pp RUNX1
JUN pp RUNX1
TLE1 pp RUNX1
TLE2 pp RUNX1
CBFA2T3 pp RUNX1T1
HSP90AA1 pp RUNX1T1
ID3 pp RUNX1T1
KPNB1 pp RUNX1T1
NCOR2 pp RUNX1T1
PRKAR2A pp RUNX1T1
RUNX1T1 pp RUNX1T1
SIN3A pp RUNX1T1
ZNF652 pp RUNX1T1
AR pp RUNX2
CDK1 pp RUNX2
RB1 pp RUNX2
SMAD2 pp RUNX2
SMAD3 pp RUNX2
XRCC5 pp RUNX2
XRCC6 pp RUNX2
BCL3 pp RUVBL2
CTNNB1 pp RUVBL2
HDAC1 pp RUVBL2
NDRG1 pp RUVBL2
ACVR1 pp RXRA
CNOT1 pp RXRA
CTNNB1 pp RXRA
ESR1 pp RXRA
GADD45G pp RXRA
MAPK1 pp RXRA
MED1 pp RXRA
NCOA1 pp RXRA
NCOR2 pp RXRA
NR1H4 pp RXRA
NR1I2 pp RXRA
NR1I3 pp RXRA
NR4A2 pp RXRA
PPARG pp RXRA
PPARGC1A pp RXRA
PSMC5 pp RXRA
SMAD2 pp RXRA

SMARCD3 pp RXRA
SP1 pp RXRA
SRF pp RXRA
TBP pp RXRA
THRA pp RXRA
THRB pp RXRA
NCOA1 pp RXRB
NR1I2 pp RXRB
NR4A2 pp RXRB
RXRB pp RXRB
THRA pp RXRB
THRB pp RXRB
COPS5 pp S100A7
EGFR pp S100A7
S100A7 pp S100A7
TGM2 pp S100A7
NDRG1 pp S100B
S100B pp S100B
TNIP1 pp S100B
TP53 pp S100B
S100P pp S100P
INSIG2 pp SCAP
SCAP pp SCAP
SCHIP1 pp SCHIP1
ANK3 pp SCN1B
CNTN1 pp SCNN1B
CASK pp SDC2
EPHB2 pp SDC2
FGF2 pp SDC2
KAL1 pp SDC2
LAMA3 pp SDC2
NF1 pp SDC2
PF4 pp SDC2
PRKCA pp SDC2
PRKCB pp SDC2
PRKCG pp SDC2
REG3A pp SDC2
SDCBP pp SDC2
SPARC pp SDC2
TNFSF13 pp SDC2
TRAPPC4 pp SDC2
EPHB2 pp SDCBP
NF2 pp SDCBP
RNF11 pp SDCBP

SDCBP pp SDCBP
DCTN1 pp SEC23A
NDRG1 pp SEC23A
SELP pp SELP
NRP1 pp SEMA3F
NRP2 pp SEMA3F
QKI pp SERF2
F2 pp SERPINC1
PLG pp SERPINC1
SDC2 pp SERPINC1
SERPINC1 pp SERPINC1
SERPINF2 pp SERPINF2
TGM2 pp SERPINF2
PPP2CA pp SET
PPP2R1B pp SET
SET pp SET
SGOL1 pp SET
C1QBP pp SFRS1
PPARGC1A pp SFRS4
PPARGC1A pp SFRS5
PPARGC1A pp SFRS6
SFRS4 pp SFRS6
SFTPD pp SFTPD
SGOL1 pp SGOL1
CA12 pp SGSM2
EGFR pp SGSM2
PTN pp SGSM2
MAP3K2 pp SH2D2A
A2M pp SHBG
ACTB pp SHBG
COL1A2 pp SHBG
CTSD pp SHBG
FLNA pp SHBG
PKM2 pp SHBG
PTGDS pp SHBG
SEMA3F pp SHBG
SHBG pp SHBG
NDRG1 pp SHMT2
SHMT2 pp SHMT2
AFF1 pp SIAH1
GAPDH pp SIAH1
SIAH1 pp SIAH1
SLC9A3R2 pp SIAH1
AFF1 pp SIAH2

ENO2 pp SIGIRR
SIGIRR pp SIGIRR
HCFC1 pp SIN3A
MXI1 pp SIN3A
HDAC1 pp SIN3B
MXI1 pp SIN3B
HNF4A pp SIRT1
PPARGC1A pp SIRT1
FN1 pp SKIL
LRP1 pp SKIL
PIAS4 pp SKIL
SKIL pp SKIL
SMAD2 pp SKIL
SMAD3 pp SKIL
SMAD4 pp SKIL
XRCC6 pp SKIL
CDKN1A pp SLC25A11
SLC25A11 pp SLC25A11
LNPEP pp SLC2A4
UBE2I pp SLC2A4
EGFR pp SLC3A2
ICAM1 pp SLC3A2
SLC7A11 pp SLC3A2
EGFR pp SLC9A3R1
GRK6 pp SLC9A3R1
NF2 pp SLC9A3R1
TBC1D10A pp SLC9A3R1
ADORA2B pp SLC9A3R2
TBC1D10A pp SLC9A3R2
AKT1 pp SMAD2
ARL4D pp SMAD2
CDK4 pp SMAD2
CREBBP pp SMAD2
MAPK1 pp SMAD2
MAPK3 pp SMAD2
MAPK8 pp SMAD2
OS9 pp SMAD2
PIAS4 pp SMAD2
SMAD2 pp SMAD2
SMAD3 pp SMAD2
SNW1 pp SMAD2
TGFB1 pp SMAD2
TP53 pp SMAD2
AKT1 pp SMAD3

ATF3 pp SMAD3
CDK2 pp SMAD3
CDK4 pp SMAD3
CREBBP pp SMAD3
DVL1 pp SMAD3
ESR1 pp SMAD3
ESR2 pp SMAD3
ETS1 pp SMAD3
FOS pp SMAD3
JUND pp SMAD3
LMNA pp SMAD3
MAP3K7 pp SMAD3
MAPK1 pp SMAD3
MAPK14 pp SMAD3
MBD1 pp SMAD3
PIAS4 pp SMAD3
PPP2R1A pp SMAD3
PRKAR2A pp SMAD3
SMAD3 pp SMAD3
SP1 pp SMAD3
TP53 pp SMAD3
TP73 pp SMAD3
XRCC6 pp SMAD3
AKT1 pp SMAD4
ATF7IP pp SMAD4
COPS5 pp SMAD4
CREBBP pp SMAD4
DVL1 pp SMAD4
ESR1 pp SMAD4
EWSR1 pp SMAD4
FN1 pp SMAD4
MAPK1 pp SMAD4
PAPPA2 pp SMAD4
PIAS4 pp SMAD4
PRKAR2A pp SMAD4
SMAD2 pp SMAD4
SMAD3 pp SMAD4
SMAD4 pp SMAD4
SP1 pp SMAD4
UBE2I pp SMAD4
AKT1 pp SMAD7
BMPR1B pp SMAD7
CTNNB1 pp SMAD7
DVL1 pp SMAD7

MBD1 pp SMAD7
PIAS4 pp SMAD7
SMAD7 pp SMAD7
SMURF1pp SMAD7
XRCC6 pp SMAD7
ACTB pp SMAD9
AFF1 pp SMAD9
EIF3E pp SMAD9
FN1 pp SMAD9
KIAA0226 pp SMAD9
MBD1 pp SMAD9
PPP2R5Epp SMAD9
PSAP pp SMAD9
SMAD2 pp SMAD9
SMAD3 pp SMAD9
SMAD4 pp SMAD9
TERF1 pp SMAD9
UBQLN1pp SMAD9
UBQLN4pp SMAD9
YWHAQpp SMAD9
TNIP2 pp SMARCD1
TP53 pp SMARCD1
ARL4D pp SMURF1
CDK14 pp SMURF1
CSNK2A2 pp SMURF1
SFRS4 pp SMURF1
SFRS5 pp SMURF1
SMAD3 pp SMURF1
CSNK1Dpp SNAPIN
KAT5 pp SNAPIN
LAMC1 pp SNAPIN
MET pp SNAPIN
PRKACA pp SNAPIN
SHBG pp SNAPIN
SMAD2 pp SNAPIN
ADRBK1 pp SNCA
BAD pp SNCA
BCL2L1 pp SNCA
CSNK1Dpp SNCA
CSNK2A1 pp SNCA
CSNK2A2 pp SNCA
ELK1 pp SNCA
GRK5 pp SNCA
GRK6 pp SNCA

LYNpp SNCA
MAPK1 pp SNCA
PRKCE pp SNCA
YWHAB pp SNCA
YWHAE pp SNCA
YWHAH pp SNCA
ENO2 pp SNUPN
HDAC2 pp SNW1
NR0B1 pp SNW1
PGRpp SNW1
SMAD3 pp SNW1
BCL2 pp SOD1
SOD1 pp SOD1
SOSTDC1 pp SOSTDC1
SOX10 pp SOX10
ATF7IP pp SP1
CASP3 pp SP1
CSNK2A1 pp SP1
ESR1 pp SP1
ESR2 pp SP1
ETS1 pp SP1
HCFC1 pp SP1
HDAC1 pp SP1
HDAC2 pp SP1
HIF1A pp SP1
HNF4A pp SP1
MAPK1 pp SP1
MAPK3 pp SP1
MYC pp SP1
PER3 pp SP1
PSMC5 pp SP1
SMAD2 pp SP1
SOX10 pp SP1
SOX8 pp SP1
SP1 pp SP1
SREBF2 pp SP1
TP53 pp SP1
YY1pp SP1
SPAG4 pp SPAG4
SPARC pp SPARC
TGFB1 pp SPARC
TGM2 pp SPARC
THBS1 pp SPARC
VEGFA pp SPARC

CTRC pp SPINK1
NRSN1 pp SPINK1
PRSS7 pp SPINK1
CSNK2A1 pp SPP1
CSNK2A2 pp SPP1
F2 pp SPP1
ITGAV pp SPP1
MMP3 pp SPP1
MMP7 pp SPP1
PRKCA pp SPP1
ATXN1 pp SREBF1
ESR1 pp SREBF1
ID3 pp SREBF1
MAPK1 pp SREBF1
MAPK3 pp SREBF1
NR0B1 pp SREBF1
SMARCD3 pp SREBF1
SP1 pp SREBF1
SREBF1 pp SREBF1
SUMO1 pp SREBF1
TWIST2 pp SREBF1
UBE2I pp SREBF1
YY1pp SREBF1
CASP3 pp SREBF2
INSIG2 pp SREBF2
KPNB1 pp SREBF2
MAPK3 pp SREBF2
SCAP pp SREBF2
SMAD3 pp SREBF2
SREBF2 pp SREBF2
SUMO1 pp SREBF2
UBE2I pp SREBF2
CASP3 pp SRF
CREBBPpp SRF
CSNK2A1 pp SRF
GATA4 pp SRF
NCOA1 pp SRF
NCOR2 pp SRF
PRKDC pp SRF
RPS6KA1 pp SRF
SRF pp SRF
ENO2 pp ST3GAL2
AKT1 pp STAT1
EGFR pp STAT1

FGFR3 pp STAT1
FOS pp STAT1
KIT pp STAT1
LCK pp STAT1
PDGFRA pp STAT1
PRKCD pp STAT1
PRMT1 pp STAT1
PTK2 pp STAT1
PTPN11 pp STAT1
RAC1 pp STAT1
RELA pp STAT1
STAT1 pp STAT1
SUMO4 pp STAT1
UBE2I pp STAT1
AR pp STAT3
CCND1 pp STAT3
CDKN1A pp STAT3
CREBBP pp STAT3
EGFR pp STAT3
EPHA3 pp STAT3
FGFR3 pp STAT3
GNB2L1 pp STAT3
HDAC1 pp STAT3
HDAC2 pp STAT3
HNF1A pp STAT3
HSP90AA1 pp STAT3
IL2RB pp STAT3
JUN pp STAT3
KAT5 pp STAT3
LCK pp STAT3
MAP3K7 pp STAT3
MAPK1 pp STAT3
MAPK3 pp STAT3
MAPK8 pp STAT3
MET pp STAT3
NCOA1 pp STAT3
NFKB1 pp STAT3
NR3C1 pp STAT3
PDIA3 pp STAT3
PRKCD pp STAT3
PTPN11 pp STAT3
RAC1 pp STAT3
RELA pp STAT3
STAT1 pp STAT3

STAT3 pp STAT3
SUMO4 pp STAT3
CREBBP pp STAT4
MAP2K6pp STAT4
MAPK14pp STAT4
STAT3 pp STAT4
STAT4 pp STAT4
ADAM11 pp STC2
ARRB2 pp STC2
PEBP1 pp STC2
PPP1R8 pp STC2
PTNpp STC2
BMPR1Bpp STK35
SMAD4 pp STK35
SMURF1pp STK35
STK35 pp STK35
HTTpp SUMO1
SOX10 pp SUMO1
TP73 pp SUMO1
UBE2I pp SUMO1
PIAS4 pp SUMO2
SOX10 pp SUMO2
SUMO2 pp SUMO2
TRIM63 pp SUMO2
UBE2I pp SUMO2
VIMpp SUMO2
HSF1 pp SUMO3
PIAS4 pp SUMO3
SOX10 pp SUMO3
UBE2I pp SUMO3
VIMpp SUMO3
FNBP4 pp SYNJ1
TAF1 pp TAF1
TBPpp TAF1
PRKCD pp TAGLN
NDRG1 pp TARS
RIPK1 pp TAX1BP1
RNF11 pp TAX1BP1
TAX1BP1 pp TAX1BP1
TBC1D10A pp TBC1D10A
DR1pp TBP
HNRNPK pp TBP
MYC pp TBP
NCOA1 pp TBP

RB1 pp TBP
SP1 pp TBP
TBP pp TBP
YWHAE pp TBP
TBX3 pp TBX3
ANGPT1 pp TEK
PTPN11 pp TEK
TEK pp TEK
TNIP2 pp TEK
KPNB1 pp TERF1
POT1 pp TERF1
TERF1 pp TERF1
TNKS pp TERF1
CDKN1A pp TEX11
UBE2I pp TFAP2B
DPT pp TGFB1
ITGAV pp TGFB1
ITGB8 pp TGFB1
SDC2 pp TGFB1
TGFB1 pp TGFB1
TGFB2 pp TGFB1
TGFB1 pp TGFB1
TGFB2 pp TGFB1
TGFB3 pp TGFB1
YWHAE pp TGFB1
TGFB2 pp TGFB2
TGFB3 pp TGFB2
TGFB3 pp TGFB2
TGFB3 pp TGFB3
ACVR1 pp TGFB1
ARL4D pp TGFB1
BMP1B pp TGFB1
CAV1 pp TGFB1
CDK14 pp TGFB1
CDK4 pp TGFB1
CDK6 pp TGFB1
CHUK pp TGFB1
CSNK2A2 pp TGFB1
IKBKB pp TGFB1
MAP3K7 pp TGFB1
PPP2R2A pp TGFB1
RHOA pp TGFB1
SMAD3 pp TGFB1
SMAD4 pp TGFB1

SMAD7 pp TGFBR1
STK35 pp TGFBR1
TGFB2 pp TGFBR1
TGFB3 pp TGFBR1
TGFBR1 pp TGFBR1
TGFBR2 pp TGFBR1
XIAP pp TGFBR1
CCNB2 pp TGFBR2
CDK1 pp TGFBR2
CTNNB1 pp TGFBR2
PIK3R1 pp TGFBR2
SMAD3 pp TGFBR2
SMAD4 pp TGFBR2
SMAD7 pp TGFBR2
TGFB2 pp TGFBR2
TGFB3 pp TGFBR2
TGFBR2 pp TGFBR2
TGFBR3 pp TGFBR2
GIPC1 pp TGFBR3
SDC2 pp TGFBR3
CASP3 pp TGM2
EIF5A pp TGM2
HIST1H2BG pp TGM2
HIST2H2BE pp TGM2
KPNA3 pp TGM2
KPNA4 pp TGM2
MAP3K12 pp TGM2
PLCD1 pp TGM2
PPHLN1 pp TGM2
SMAD2 pp TGM2
SMAD3 pp TGM2
TGM2 pp TGM2
TMSB4X pp TGM2
TUBB pp TGM2
QKI pp THAP1
THAP1 pp THAP1
CD47 pp THBS1
JAG1 pp THBS1
TGFB1 pp THBS1
ESR1 pp THRA
NCOA1 pp THRA
ACVR1 pp THRB
CNOT1 pp THRB
ESR1 pp THRB

NCOA1 pp THR
THR pp THR
THY1 pp THY1
RIPK1 pp TICAM1
TNFAIP3pp TICAM1
TRAF3 pp TICAM1
CDK1 pp TK1
GAPDH pp TK1
PRDM1 pp TLE1
TK1 pp TLE1
TLE1 pp TLE1
TLE2 pp TLE1
PRDM1 pp TLE2
NDRG1 pp TLE3
BNIP3 pp TMEM11
BNIP3L pp TMEM11
SEMA3Fpp TMEM22
ILK pp TMSB4X
CNTN1 pp TNC
ADAM9 pp TNF
TNFpp TNF
TRAF2 pp TNF
CCDC50 pp TNFAIP3
CHUK pp TNFAIP3
IKBKB pp TNFAIP3
IKBKG pp TNFAIP3
LAPTM5pp TNFAIP3
RNF11 pp TNFAIP3
TAX1BP1 pp TNFAIP3
TNFAIP3pp TNFAIP3
TNIP1 pp TNFAIP3
TNIP2 pp TNFAIP3
TRAF1 pp TNFAIP3
TRAF2 pp TNFAIP3
TRAF6 pp TNFAIP3
YWHAB pp TNFAIP3
YWHAE pp TNFAIP3
YWHAG pp TNFAIP3
YWHAZ pp TNFAIP3
FURIN pp TNFSF13
RNF11 pp TNIP1
RELA pp TNIP2
SFRS5 pp TNK2
WWOX pp TNK2

FNBP1 pp TNKS
MCL1 pp TNKS
POT1 pp TNKS
TNKS1BP1 pp TNKS
TNKS2 pp TNKS
VPS33A pp TNKS
TNKS2 pp TNKS1BP1
LNPEP pp TNKS2
TERF1 pp TNKS2
CA12 pp TOE1
SUMO1 pp TOE1
TOE1 pp TOE1
ATF3 pp TP53
BCL2L1 pp TP53
CDC42 pp TP53
CDK2 pp TP53
CDK5 pp TP53
CEBPZ pp TP53
CHUK pp TP53
COPS4 pp TP53
COPS5 pp TP53
CREBBP pp TP53
CSNK1D pp TP53
CSNK2A1 pp TP53
CSNK2B pp TP53
DDX5 pp TP53
GSK3B pp TP53
HABP4 pp TP53
HIF1A pp TP53
HNF4A pp TP53
KAT2B pp TP53
KPNB1 pp TP53
MAPK1 pp TP53
MAPK3 pp TP53
MAPK8 pp TP53
MED1 pp TP53
MNAT1 pp TP53
PIAS4 pp TP53
PPP2CA pp TP53
PRKCA pp TP53
PRKDC pp TP53
PRMT1 pp TP53
PTGS2 pp TP53
PTK2 pp TP53

SIN3A pp TP53
SIRT1 pp TP53
SUMO1 pp TP53
TBP pp TP53
THRB pp TP53
TK1 pp TP53
TP53 pp TP53
TP73 pp TP53
TSG101 pp TP53
UBE2I pp TP53
WWOX pp TP53
YWHAG pp TP53
YWHAZ pp TP53
ABL1 pp TP73
CDK1 pp TP73
CDK2 pp TP73
CEBPZ pp TP73
SMAD2 pp TP73
TP73 pp TP73
WWOX pp TP73
BIRC2 pp TRAF1
BIRC3 pp TRAF1
CASP10 pp TRAF1
CASP3 pp TRAF1
RIPK1 pp TRAF1
TICAM1 pp TRAF1
TRAIP pp TRAF1
ATXN1 pp TRAF2
BCL10 pp TRAF2
CYLD pp TRAF2
GSTP1 pp TRAF2
IKBKB pp TRAF2
MAP3K5 pp TRAF2
PKN1 pp TRAF2
RIPK1 pp TRAF2
SIAH2 pp TRAF2
TRAF1 pp TRAF2
TRAF2 pp TRAF2
TRAIP pp TRAF2
CASP3 pp TRAF3
RIPK1 pp TRAF3
TRAF3 pp TRAF3
TRAF3IP3 pp TRAF3
ABL1 pp TRAF6

CAV1 pp TRAF6
MAP2K1pp TRAF6
MAP2K6pp TRAF6
MAP3K5pp TRAF6
MAP3K7pp TRAF6
PSMC2 pp TRAF6
PSMC3 pp TRAF6
SIGIRR pp TRAF6
TAX1BP1 pp TRAF6
TGFBR1 pp TRAF6
TICAM1 pp TRAF6
TRAF2 pp TRAF6
TRAF6 pp TRAF6
CYLD pp TRAF7
TRAF6 pp TRAF7
TRAF7 pp TRAF7
CYLD pp TRAIIP
PRSS23 pp TRAPPC4
GMEB1 pp TRIM63
TRIM63 pp TRIM63
UBE2I pp TRIM63
CDK1 pp TSC1
NF2 pp TSC1
RDX pp TSC1
YWHAG pp TSC1
TSC22D3 pp TSC22D3
CDKN1A pp TTLL5
EGFR pp TUBA4A
ENO2 pp TUBA4A
HSPH1 pp TUBA4A
RAC1 pp TUBA4A
SIAH1 pp TUBA4A
TAOK2 pp TUBA4A
YWHAG pp TUBA4A
BMP2 pp TUBB
ESR1 pp TUBB
TAOK2 pp TUBB
YWHAB pp TUBB
YWHAG pp TUBB
YWHAZ pp TUBB
CDK1 pp UBA1
HSPH1 pp UBA1
SEMA3F pp UBA1
ATXN1 pp UBAP2L

IGF1R pp UBC
PPARGC1A pp UBC
RNF11 pp UBC
YWHAB pp UBC
YWHAG pp UBC
YWHAZ pp UBC
TGFBR1 pp UBD
ENO2 pp UBE2C
UBE2C pp UBE2C
ATXN1 pp UBE2I
ELK1 pp UBE2I
ESR1 pp UBE2I
GMEB1 pp UBE2I
HABP4 pp UBE2I
HNF4A pp UBE2I
HNRNPK pp UBE2I
LMNA pp UBE2I
SKIL pp UBE2I
SOX10 pp UBE2I
UBE2I pp UBE2I
KITLG pp UBE2V1
SUMO4 pp UBE2V1
HK2pp UBQLN1
P4HB pp UBQLN1
UBQLN1pp UBQLN1
HK2pp UBQLN4
PTNpp UBQLN4
RNF11 pp UBQLN4
RUNX1T1 pp UBQLN4
RXRA pp UBQLN4
SPP1 pp UBQLN4
TRAF2 pp UBQLN4
UBQLN1pp UBQLN4
UBQLN4pp UBQLN4
YWHAQ pp UBQLN4
BAT5 pp UPF1
NDRG1 pp UPF1
PPARGC1A pp USF2
USF2 pp USF2
QKI pp USH1C
USH1C pp USH1C
YWHAG pp USP37
CTSG pp VCAM1
MSN pp VCAM1

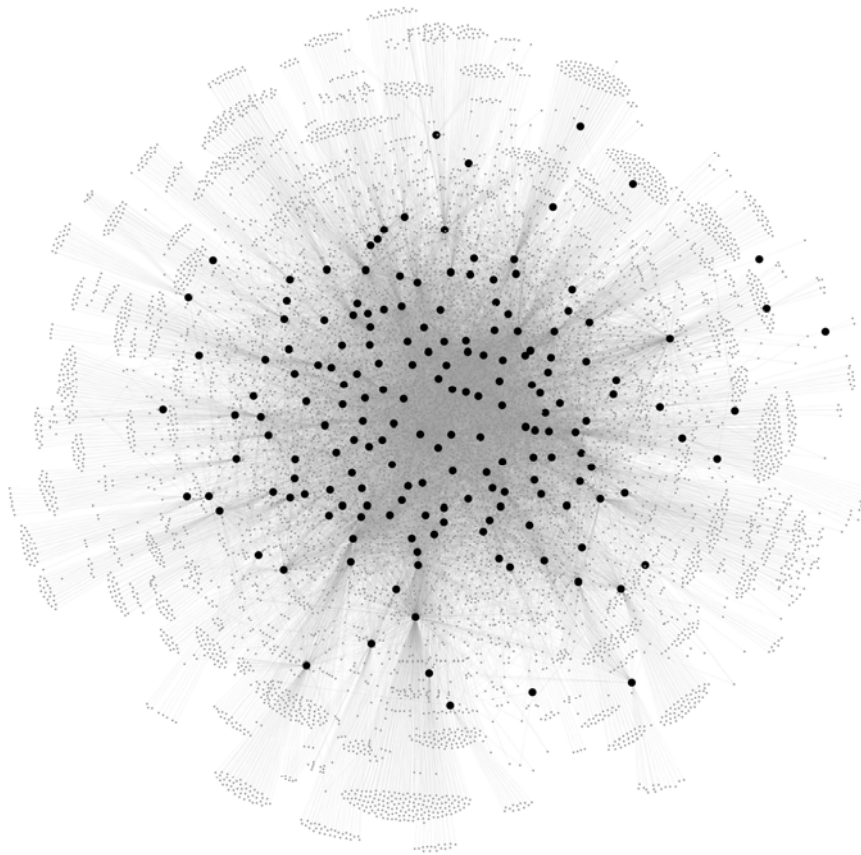
VCAM1 pp VCAM1
NDRG1 pp VCP
SUMO4 pp VCP
VCPpp VCP
NRP1 pp VEGFA
NRP2 pp VEGFA
SEMA3Fpp VEGFA
VEGFA pp VEGFA
EPAS1 pp VHL
FLNA pp VHL
HIF1A pp VHL
HIF3A pp VHL
SP1 pp VHL
CASP3 pp VIM
CASP9 pp VIM
CDH5 pp VIM
CDK1 pp VIM
DCTN1 pp VIM
PIAS4 pp VIM
PKN1 pp VIM
PPHLN1 pp VIM
ROCK1 pp VIM
SMAD3 pp VIM
VIMpp VIM
YWHAE pp VIM
YWHAZ pp VIM
TRAF2 pp WDR65
EGLN3 pp WDR83
AKT1 pp WNK1
YWHAG pp WNK1
XBP1 pp XBP1
AKT1 pp XIAP
CASP3 pp XIAP
CASP9 pp XIAP
DIABLO pp XIAP
MAP3K7pp XIAP
TRAF6 pp XIAP
XIAP pp XIAP
AR pp XRCC5
NDRG1 pp XRCC5
RBM14 pp XRCC5
SGOL1 pp XRCC5
XRCC5 pp XRCC5
ABL1 pp XRCC6

AR pp XRCC6
CCNA1 pp XRCC6
MAPK8 pp XRCC6
PARP1 pp XRCC6
PCNA pp XRCC6
PRKDC pp XRCC6
SGOL1 pp XRCC6
TP53 pp XRCC6
XRCC5 pp XRCC6
ABL1 pp YWHAB
BAD pp YWHAB
CDK14 pp YWHAB
IKBKB pp YWHAB
PRKCD pp YWHAB
PRKCZ pp YWHAB
RPS6KA1 pp YWHAB
TSC1 pp YWHAB
YWHAB pp YWHAB
YWHAG pp YWHAB
ABL1 pp YWHAE
CASP3 pp YWHAE
CDK14 pp YWHAE
HSF1 pp YWHAE
MAP3K2 pp YWHAE
NCOR2 pp YWHAE
PRKCG pp YWHAE
TSC1 pp YWHAE
YWHAB pp YWHAE
YWHAZ pp YWHAE
ABL1 pp YWHAG
BAD pp YWHAG
CRTC2 pp YWHAG
EEF1G pp YWHAG
KIF5B pp YWHAG
MAP3K2 pp YWHAG
PAK4 pp YWHAG
YWHAE pp YWHAG
YWHAG pp YWHAG
ABL1 pp YWHAH
BAD pp YWHAH
CREBBP pp YWHAH
ESR1 pp YWHAH
ESR2 pp YWHAH
KCNH2 pp YWHAH

MAP3K5pp YWHAH
MED1 pp YWHAH
NCOA1 pp YWHAH
NR3C1 pp YWHAH
RAF1 pp YWHAH
THRA pp YWHAH
TNFAIP3pp YWHAH
TSC1 pp YWHAH
YWHAE pp YWHAH
YWHAGpp YWHAH
ABL1 pp YWHAQ
BAD pp YWHAQ
CABIN1 pp YWHAQ
CDK14 pp YWHAQ
CSNK2A1 pp YWHAQ
KIF5B pp YWHAQ
MAP3K5pp YWHAQ
MTNR1B pp YWHAQ
PDK1 pp YWHAQ
PRKD1 pp YWHAQ
TSC1 pp YWHAQ
YWHAGpp YWHAQ
YWHAQpp YWHAQ
ABL1 pp YWHAZ
AKT1 pp YWHAZ
ATXN1 pp YWHAZ
BAD pp YWHAZ
CRTC2 pp YWHAZ
LIMK1 pp YWHAZ
MAP3K2pp YWHAZ
MAP3K5pp YWHAZ
MAPK8 pp YWHAZ
PRKCD pp YWHAZ
TSC1 pp YWHAZ
XRCC6 pp YWHAZ
YWHAZ pp YWHAZ
HDAC2 pp YY1
CREBBPpp ZBTB17
ESR1 pp ZBTB17
ESR2 pp ZBTB17
HK2pp ZBTB17
PGRpp ZBTB17
RIPK1 pp ZFAND5
TNFAIP3pp ZFAND5

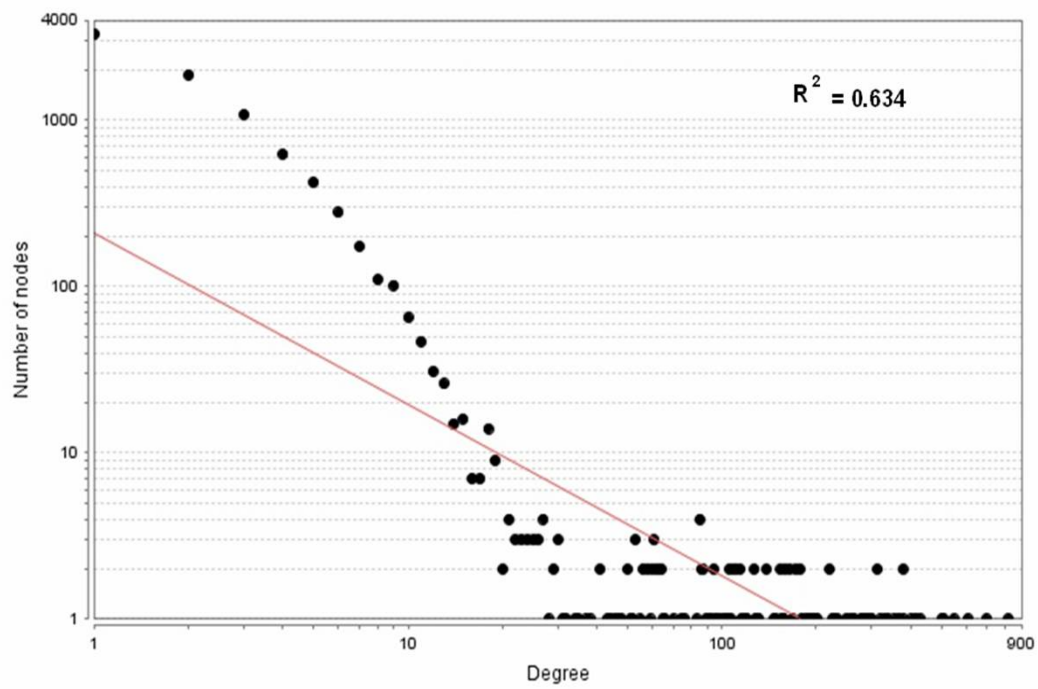
TRAF6 pp ZFAND5
ZFAND5 pp ZFAND5
NDRG1 pp ZNF155
COIL pp ZNF277

Supplementary Material IV. A new DEG PPI network derived from STRING dataset.



Supplementary Material IV. A new DEG PPI network derived from STRING dataset, which contain 8362 nodes (179 DEGs) and 23117 edges. The black nodes present the DEGs, the white small nodes present their interacting proteins.

Supplementary Material V. The distributions of node degree of new DEG network derived from STRING dataset.



Supplementary Material V. Power law distribution of node degree.

Supplementary Material IV. Topological parameters of the total DEG PPI sub-network derived from STRING

PPI sub-network	$y = \beta x^a$	R^2	correlation	clustering coefficient	network centralization	network density
Total DEGs	$y = 209.57x^{-1.033}$	0.634	0.978	0.106	0.097	0.001