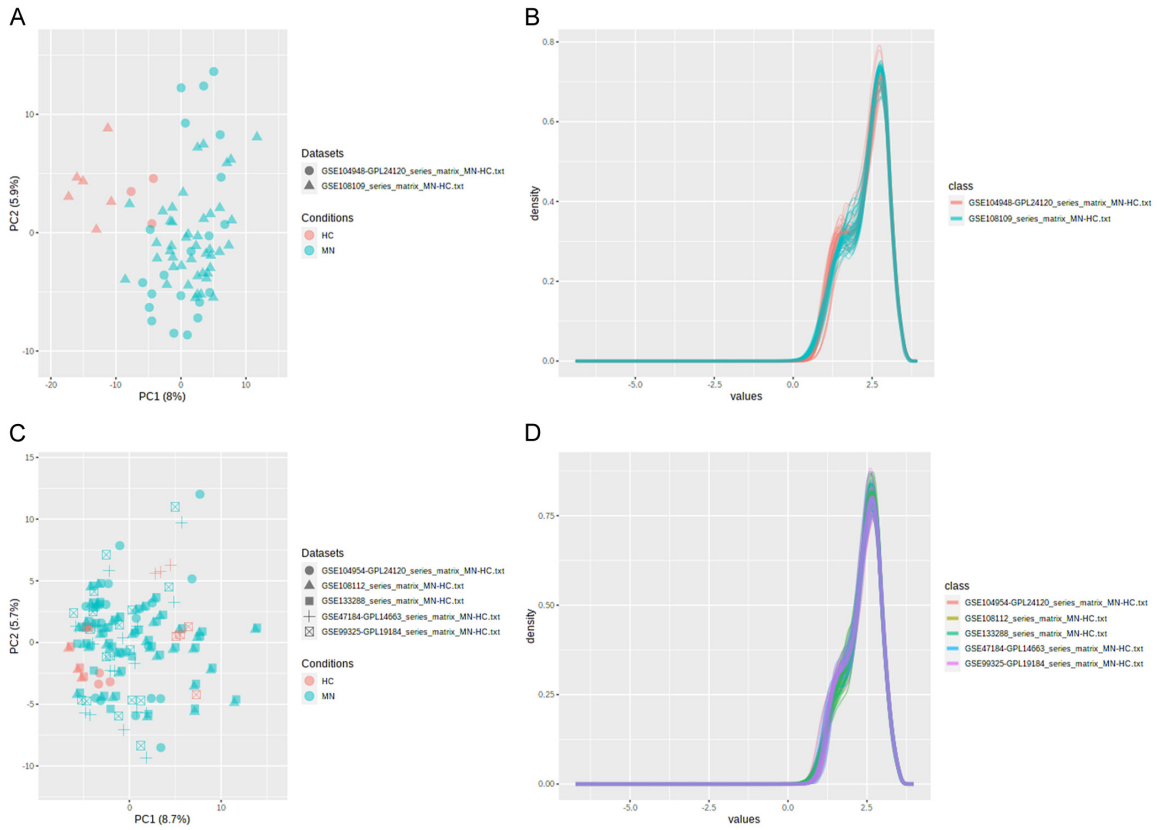

Supplementary Figure 1. PCA plots and density plots. NetworkAnalyst was used to integrate gene expression profiles, and PCA plot (A) and density plot (B) of glomerulus, and PCA plot (C) and density plot (D) of renal tubules were drawn. The farther the distance between points or lines in the graph, the greater the difference between the suggested data.

Supplementary Table 1. The DEGs in the glomerulus, renal tubules and PBMCs of MN

Position	Gene	Gene title
Glomerulus	ECM1	extracellular matrix protein 1
	MYOZ2	myozenin 2
	BMP2	bone morphogenetic protein 2
	FSCN1	fascin actin-bundling protein 1
	ZYX	zyxin
	TCIM	transcriptional and immune response regulator
	CCND1	cyclin D1
	ARPC1B	actin related protein 2/3 complex subunit 1B
	IGFBP2	insulin like growth factor binding protein 2
	TMOD1	tropomodulin 1
	RAB31	RAB31, member RAS oncogene family
	LRP10	LDL receptor related protein 10
	ADM	adrenomedullin
	PLD3	phospholipase D family member 3
	WFS1	wolframin ER transmembrane glycoprotein
	ADGRE5	adhesion G protein-coupled receptor E5
	ARHGEF15	Rho guanine nucleotide exchange factor 15
	AXL	AXL receptor tyrosine kinase
	PLEKHO1	pleckstrin homology domain containing O1
	KIAA0040	KIAA0040
	DAAM2	dishevelled associated activator of morphogenesis 2
	TBXA2R	thromboxane A2 receptor
	HLX	H2.0 like homeobox
	PGAP6	post-glycosylphosphatidylinositol attachment to proteins 6
	APLNR	apelin receptor
	DOCK6	dedicator of cytokinesis 6
	BAMBI	BMP and activin membrane bound inhibitor
	MYO1C	myosin IC
	TNFRSF12A	TNF receptor superfamily member 12A
	TMEM39B	transmembrane protein 39B
	RRBP1	ribosome binding protein 1
	LRRC32	leucine rich repeat containing 32
	SEMA7A	semaphorin 7A (John Milton Hagen blood group)
	NES	nestin
	TRPC6	transient receptor potential cation channel subfamily C member 6
	H2BC21	H2B clustered histone 21
	KDELR3	KDEL endoplasmic reticulum protein retention receptor 3
	ANXA1	annexin A1
	JCAD	junctional cadherin 5 associated
	RUSC2	RUN and SH3 domain containing 2
	HDAC5	histone deacetylase 5
	MCAM	melanoma cell adhesion molecule
	GATA3	GATA binding protein 3
	KIRREL1	kirre like nephrin family adhesion molecule 1
	BGN	biglycan
	SDC3	syndecan 3
	TMEM45A	transmembrane protein 45A
	ELK3	ETS transcription factor ELK3
	ATP13A2	ATPase cation transporting 13A2
	HBB	hemoglobin subunit beta
	GPR4	G protein-coupled receptor 4

	TIMP1	TIMP metallopeptidase inhibitor 1
	RELA	RELA proto-oncogene, NF-κB subunit
	GADD45A	growth arrest and DNA damage inducible alpha
	CAVIN1	caveolae associated protein 1
	HK2	hexokinase 2
	FGFR1	fibroblast growth factor receptor 1
	NOTCH1	notch receptor 1
	KCTD12	potassium channel tetramerization domain containing 12
	BST2	bone marrow stromal cell antigen 2
	GNA11	G protein subunit alpha 11
	MYO9B	myosin IXB
	CENPB	centromere protein B
	PEA15	proliferation and apoptosis adaptor protein 15
	OAS1	2'-5'-oligoadenylate synthetase 1
	FCER1G	Fc fragment of IgE receptor Ig
	SLC35F6	solute carrier family 35 member F6
	EFNB1	ephrin B1
	SEMA4G	semaphorin 4G
	ST3GAL2	ST3 beta-galactoside alpha-2,3-sialyltransferase 2
	MAP4K2	mitogen-activated protein kinase kinase kinase kinase 2
	TAPBP	TAP binding protein
	SLC9A3R2	SLC9A3 regulator 2
	ENC1	ectodermal-neural cortex 1
	STN1	STN1 subunit of CST complex
	CCDC85C	coiled-coil domain containing 85C
	TAGLN2	transgelin 2
	MFNG	MFNG O-fucosylpeptide 3-beta-N-acetylglucosaminyltransferase
	CD151	CD151 molecule (Raph blood group)
	TGFB1	transforming growth factor beta 1
	NFATC1	nuclear factor of activated T cells 1
	CDK2AP2	cyclin dependent kinase 2 associated protein 2
	DDA1	DET1 and DDB1 associated 1
	SYT11	synaptotagmin 11
	JPT1	Jupiter microtubule associated homolog 1
	SPN	sialophorin
	PRAF2	PRA1 domain family member 2
	DAG1	dystroglycan 1
	CRELD2	cysteine rich with EGF like domains 2
	ITGA5	integrin subunit alpha 5
	TMEM184B	transmembrane protein 184B
	ADAM15	ADAM metallopeptidase domain 15
	IQSEC1	IQ motif and Sec7 domain ArfGEF 1
	TP53	tumor protein p53
	SLC37A4	solute carrier family 37 member 4
	ZNF189	zinc finger protein 189
	SRSF5	serine and arginine rich splicing factor 5
	MAOA	monoamine oxidase A
	OGT	O-linked N-acetylglucosamine (GlcNAc) transferase
	AASS	aminoadipate-semialdehyde synthase
	FRAS1	Fraser extracellular matrix complex subunit 1
	CYP27B1	cytochrome P450 family 27 subfamily B member 1
	PDK4	pyruvate dehydrogenase kinase 4
Tubules	HBB	hemoglobin subunit beta

SLC29A3	solute carrier family 29 member 3
FZD1	frizzled class receptor 1
MYLIP	myosin regulatory light chain interacting protein
CAPN3	calpain 3
B4GALT5	beta-1,4-galactosyltransferase 5
FHL3	four and a half LIM domains 3
ABCG1	ATP binding cassette subfamily G member 1
AKR7A3	aldo-keto reductase family 7 member A3
NREP	neuronal regeneration related protein
LIME1	Lck interacting transmembrane adaptor 1
CCND1	cyclin D1
FMO1	flavin containing dimethylaniline monoxygenase 1
ABHD6	abhydrolase domain containing 6, acylglycerol lipase
PIPOX	pipecolic acid and sarcosine oxidase
CITED2	Cbp/p300 interacting transactivator with Glu/Asp rich carboxy-terminal domain 2
PIK3R3	phosphoinositide-3-kinase regulatory subunit 3
DAO	D-amino acid oxidase
HNF1B	HNF1 homeobox B
RBM47	RNA binding motif protein 47
PCK2	phosphoenolpyruvate carboxykinase 2, mitochondrial
PDZD2	PDZ domain containing 2
XPNPEP2	X-prolyl aminopeptidase 2
CYP4F2	cytochrome P450 family 4 subfamily F member 2
KDM4A	lysine demethylase 4A
FAM168B	family with sequence similarity 168 member B
HMGCL	3-hydroxy-3-methylglutaryl-CoA lyase
GLYAT	glycine-N-acyltransferase
KMO	kynurenine 3-monooxygenase
DDC	dopa decarboxylase
CROT	carnitine O-octanoyltransferase
MXD4	MAX dimerization protein 4
FBP1	fructose-bisphosphatase 1
NR2F2	nuclear receptor subfamily 2 group F member 2
FABP1	fatty acid binding protein 1
PAH	phenylalanine hydroxylase
SLC22A2	solute carrier family 22 member 2
CRCP	CGRP receptor component
ILVBL	ilvB acetolactate synthase like
C1orf56	chromosome 1 open reading frame 56
CCDC51	coiled-coil domain containing 51
HADH	hydroxyacyl-CoA dehydrogenase
GATM	glycine amidinotransferase
DDX10	DEAD-box helicase 10
AMOT	angiomotin
METTL7A	methyltransferase like 7A
IDH1	isocitrate dehydrogenase (NADP(+)) 1
LGALS1	galectin 1
ECHDC3	enoyl-CoA hydratase domain containing 3
TRIAP1	TP53 regulated inhibitor of apoptosis 1
COLEC11	collectin subfamily member 11
ALDOB	aldolase, fructose-bisphosphate B
GUCY1B1	guanylate cyclase 1 soluble subunit beta 1
C2CD2	C2 calcium dependent domain containing 2

CTDSP1	CTD small phosphatase 1
AQP1	aquaporin 1 (Colton blood group)
HPD	4-hydroxyphenylpyruvate dioxygenase
SCARB1	scavenger receptor class B member 1
GOLPH3L	golgi phosphoprotein 3 like
GNPDA1	glucosamine-6-phosphate deaminase 1
FLRT3	fibronectin leucine rich transmembrane protein 3
NAT8B	N-acetyltransferase 8B (putative, gene/pseudogene)
UBN1	ubinuclein 1
AKR7A2	aldo-keto reductase family 7 member A2
MSRB1	methionine sulfoxide reductase B1
PTH1R	parathyroid hormone 1 receptor
CALML4	calmodulin like 4
VAV3	vav guanine nucleotide exchange factor 3
HAO2	hydroxyacid oxidase 2
NQO2	N-ribosyldihydronicotinamide:quinone reductase 2
CST3	cystatin C
LPCAT3	lysophosphatidylcholine acyltransferase 3
TNFSF10	TNF superfamily member 10
GPD1	glycerol-3-phosphate dehydrogenase 1
RNH1	ribonuclease/angiogenin inhibitor 1
GATAD2A	GATA zinc finger domain containing 2A
NPR3	natriuretic peptide receptor 3
TDP2	tyrosyl-DNA phosphodiesterase 2
ZGPAT	zinc finger CCCH-type and G-patch domain containing
STAP2	signal transducing adaptor family member 2
GJB1	gap junction protein beta 1
PLXNB1	plexin B1
UPB1	beta-ureidopropionase 1
TMEM242	transmembrane protein 242
CD320	CD320 molecule
FUT3	fucosyltransferase 3 (Lewis blood group)
GCHFR	GTP cyclohydrolase I feedback regulator
EPHX2	epoxide hydrolase 2
GPX4	glutathione peroxidase 4
G6PC	glucose-6-phosphatase catalytic subunit 1
QDPR	quinoid dihydropteridine reductase
ATP6V0E2	ATPase H+ transporting V0 subunit e2
RETSAT	retinol saturase
ALDH3A2	aldehyde dehydrogenase 3 family member A2
ACOT13	acyl-CoA thioesterase 13
CRYL1	crystallin lambda 1
COL3A1	collagen type III alpha 1 chain
RNPEPL1	arginyl aminopeptidase like 1
DGLUCY	D-glutamate cyclase
ASS1	argininosuccinate synthase 1
LRRC8D	leucine rich repeat containing 8 VRAC subunit D
TMEM159	lipid droplet assembly factor 1
HDAC5	histone deacetylase 5
MRPL57	mitochondrial ribosomal protein L57
BPHL	biphenyl hydrolase like
PATZ1	POZ/BTB and AT hook containing zinc finger 1
MASP1	MBL associated serine protease 1

COBL	cordon-bleu WH2 repeat protein
MYDGF	myeloid derived growth factor
HDAC6	histone deacetylase 6
MID1IP1	MID1 interacting protein 1
FUT6	fucosyltransferase 6
STX7	syntaxin 7
CUBN	cubilin
DHTKD1	dehydrogenase E1 and transketolase domain containing 1
SLC7A9	solute carrier family 7 member 9
PEPD	peptidase D
GTF2H5	general transcription factor IIH subunit 5
CYP4A11	cytochrome P450 family 4 subfamily A member 11
AGPAT1	1-acylglycerol-3-phosphate O-acyltransferase 1
OAZ2	ornithine decarboxylase antizyme 2
KHK	ketohexokinase
MMUT	methylmalonyl-CoA mutase
REXO4	REX4 homolog, 3'-5' exonuclease
TRAM2	translocation associated membrane protein 2
PPP6R1	protein phosphatase 6 regulatory subunit 1
CBR4	carbonyl reductase 4
OGG1	8-oxoguanine DNA glycosylase
GLDC	glycine decarboxylase
GUCY1A1	guanylate cyclase 1 soluble subunit alpha 1
CCNG2	cyclin G2
PCGF2	polycomb group ring finger 2
DOLPP1	dolichyldiphosphatase 1
MAN2B1	mannosidase alpha class 2B member 1
FKBP2	FKBP prolyl isomerase 2
PLG	plasminogen
APOM	apolipoprotein M
ECI2	enoyl-CoA delta isomerase 2
PGAP2	post-GPI attachment to proteins 2
ZNF106	zinc finger protein 106
FOLR1	folate receptor alpha
TCTN1	tectonic family member 1
STX5	syntaxin 5
PNP	purine nucleoside phosphorylase
CLDN10	claudin 10
CFDP1	craniofacial development protein 1
TBC1D17	TBC1 domain family member 17
RBKS	ribokinase
TNFRSF11B	TNF receptor superfamily member 11b
LIAS	lipoic acid synthetase
EPHB4	EPH receptor B4
C1S	complement C1s
SERPINE2	serpin family E member 2
NFIX	nuclear factor I X
VEGFB	vascular endothelial growth factor B
KEAP1	kelch like ECH associated protein 1
EXTL2	exostosin like glycosyltransferase 2
SMUG1	single-strand-selective monofunctional uracil-DNA glycosylase 1
IL10RB	interleukin 10 receptor subunit beta
POP5	POP5 homolog, ribonuclease P/MRP subunit

SHMT1	serine hydroxymethyltransferase 1
BEND5	BEN domain containing 5
RIDA	reactive intermediate imine deaminase A homolog
KLHL24	kelch like family member 24
STX3	syntaxin 3
IGFBP4	insulin like growth factor binding protein 4
TTC38	tetratricopeptide repeat domain 38
ZNF302	zinc finger protein 302
NECAP2	NECAP endocytosis associated 2
RMND1	required for meiotic nuclear division 1 homolog
HIBCH	3-hydroxyisobutyryl-CoA hydrolase
RFXANK	regulatory factor X associated ankyrin containing protein
ACE2	angiotensin converting enzyme 2
DNASE1L3	deoxyribonuclease 1 like 3
POLE3	DNA polymerase epsilon 3, accessory subunit
ABAT	4-aminobutyrate aminotransferase
OGDHL	oxoglutarate dehydrogenase L
TMEM63A	transmembrane protein 63A
SLC22A6	solute carrier family 22 member 6
HOMER3	homer scaffold protein 3
CDK4	cyclin dependent kinase 4
PHYH	phytanoyl-CoA 2-hydroxylase
PPIL2	peptidylprolyl isomerase like 2
BGN	biglycan
ALAD	aminolevulinate dehydratase
DTX4	deltex E3 ubiquitin ligase 4
CAT	catalase
SUGCT	succinyl-CoA: glutarate-CoA transferase
SPOP	speckle type BTB/POZ protein
TGFBRAP1	transforming growth factor beta receptor associated protein 1
ARPC1B	actin related protein 2/3 complex subunit 1B
ALDH5A1	aldehyde dehydrogenase 5 family member A1
FBXO17	F-box protein 17
GNG11	G protein subunit gamma 11
GM2A	GM2 ganglioside activator
EHMT2	euchromatic histone lysine methyltransferase 2
NIT2	nitrilase family member 2
TNFRSF21	TNF receptor superfamily member 21
MAPT	microtubule associated protein tau
MAN1B1	mannosidase alpha class 1B member 1
SSR4	signal sequence receptor subunit 4
S100A1	S100 calcium binding protein A1
PSPH	phosphoserine phosphatase
GLS	glutaminase
GLE1	GLE1 RNA export mediator
TPGS2	tubulin polyglutamylase complex subunit 2
NAT8	N-acetyltransferase 8 (putative)
LEPROT	leptin receptor overlapping transcript
CD151	CD151 molecule (Raph blood group)
MGAT4B	alpha-1,3-mannosyl-glycoprotein 4-beta-N-acetylglucosaminyltransferase B
ABCA1	ATP binding cassette subfamily A member 1
ENAH	ENAH actin regulator
MSRA	methionine sulfoxide reductase A

KDELR1	KDEL endoplasmic reticulum protein retention receptor 1
COL18A1	collagen type XVIII alpha 1 chain
KCNJ15	potassium inwardly rectifying channel subfamily J member 15
RAB32	RAB32, member RAS oncogene family
ISCA1	iron-sulfur cluster assembly 1
PRRC2A	proline rich coiled-coil 2A
FMO4	flavin containing dimethylaniline monoxygenase 4
EHHADH	enoyl-CoA hydratase and 3-hydroxyacyl CoA dehydrogenase
NUPR1	nuclear protein 1, transcriptional regulator
TBC1D19	TBC1 domain family member 19
C2orf42	chromosome 2 open reading frame 42
PXMP2	peroxisomal membrane protein 2
CAMK2G	calcium/calmodulin dependent protein kinase II gamma
ARMT1	acidic residue methyltransferase 1
KDM6B	lysine demethylase 6B
TP53	tumor protein p53
IGFBP6	insulin like growth factor binding protein 6
GBA3	glucosylceramidase beta 3 (gene/pseudogene)
ATP6V1B2	ATPase H+ transporting V1 subunit B2
NOP2	NOP2 nucleolar protein
PC	pyruvate carboxylase
ABHD10	abhydrolase domain containing 10, depalmitoylase
ATF7IP	activating transcription factor 7 interacting protein
CAPG	capping actin protein, gelsolin like
INTS1	integrator complex subunit 1
PEBP1	phosphatidylethanolamine binding protein 1
PLEKHJ1	pleckstrin homology domain containing J1
THBS1	thrombospondin 1
PALB2	partner and localizer of BRCA2
DNAJB2	DnaJ heat shock protein family (Hsp40) member B2
NAXD	NAD(P)HX dehydratase
APOC1	apolipoprotein C1
NDUFS7	NADH: ubiquinone oxidoreductase core subunit S7
ANK3	ankyrin 3
SORBS2	sorbin and SH3 domain containing 2
HDHD5	haloacid dehalogenase like hydrolase domain containing 5
PTOV1	PTOV1 extended AT-hook containing adaptor protein
DNAJC6	DnaJ heat shock protein family (Hsp40) member C6
GPR137B	G protein-coupled receptor 137B
TRIM8	tripartite motif containing 8
CA4	carbonic anhydrase 4
ADI1	acireductone dioxygenase 1
CLCN5	chloride voltage-gated channel 5
NMRK1	nicotinamide riboside kinase 1
RNASEL	ribonuclease L
HCFC1R1	host cell factor C1 regulator 1
DEXI	Dexi homolog
SLC47A1	solute carrier family 47 member 1
PPP1R3C	protein phosphatase 1 regulatory subunit 3C
SLC25A38	solute carrier family 25 member 38
RAB2A	RAB2A, member RAS oncogene family
MPDZ	multiple PDZ domain crumbs cell polarity complex component
HOXB7	homeobox B7

PDZD3	PDZ domain containing 3
RNF167	ring finger protein 167
BRD3OS	BRD3 opposite strand
ALDH2	aldehyde dehydrogenase 2 family member
RENBP	renin binding protein
ZNF816	zinc finger protein 816
ZFP36L1	ZFP36 ring finger protein like 1
SLC25A1	solute carrier family 25 member 1
FAN1	FANCD2 and FANCI associated nuclease 1
PDK2	pyruvate dehydrogenase kinase 2
MAOB	monoamine oxidase B
ZYX	zyxin
POLR3B	RNA polymerase III subunit B
DIO1	iodothyronine deiodinase 1
CBX6	chromobox 6
SLC22A13	solute carrier family 22 member 13
PPCS	phosphopantothenoylcysteine synthetase
SUOX	sulfite oxidase
FAM174C	family with sequence similarity 174 member C
ARL6IP5	ADP ribosylation factor like GTPase 6 interacting protein 5
RRAGC	Ras related GTP binding C
SLC2A5	solute carrier family 2 member 5
SIVA1	SIVA1 apoptosis inducing factor
EHD2	EH domain containing 2
PPDPF	pancreatic progenitor cell differentiation and proliferation factor
FAM98A	family with sequence similarity 98 member A
LLGL2	LLGL scribble cell polarity complex component 2
ZNF592	zinc finger protein 592
NEU1	neuraminidase 1
AMBRA1	autophagy and beclin 1 regulator 1
AMZ2	archaelysin family metallopeptidase 2
PTER	phosphotriesterase related
DYRK1B	dual specificity tyrosine phosphorylation regulated kinase 1B
DIP2C	disco interacting protein 2 homolog C
MTMR4	myotubularin related protein 4
SERPINI1	serpin family I member 1
AKR1A1	aldo-keto reductase family 1 member A1
MLXIP	MLX interacting protein
WLS	Wnt ligand secretion mediator
MAZ	MYC associated zinc finger protein
TNFSF15	TNF superfamily member 15
PBLD	phenazine biosynthesis like protein domain containing
SLC25A10	solute carrier family 25 member 10
TIMM13	translocase of inner mitochondrial membrane 13
ADH5	alcohol dehydrogenase 5 (class III), chi polypeptide
ACADM	acyl-CoA dehydrogenase medium chain
MAFF	MAF bZIP transcription factor F
PLPP3	phospholipid phosphatase 3
APH1B	aph-1 homolog B, gamma-secretase subunit
VAMP5	vesicle associated membrane protein 5
FADS3	fatty acid desaturase 3
CDKN1C	cyclin dependent kinase inhibitor 1C
CYP51A1	cytochrome P450 family 51 subfamily A member 1

GSDMD	gasdermin D
SPAG4	sperm associated antigen 4
C3	complement C3
PSMB9	proteasome 20S subunit beta 9
STARD13	StAR related lipid transfer domain containing 13
SLC20A1	solute carrier family 20 member 1
DOP1A	DOP1 leucine zipper like protein A
BHLHE40	basic helix-loop-helix family member e40
TRMT11	tRNA methyltransferase 11 homolog
P3H2	prolyl 3-hydroxylase 2
NFASC	neurofascin
CDK2AP1	cyclin dependent kinase 2 associated protein 1
MON2	MON2 homolog, regulator of endosome-to-Golgi trafficking
TBC1D8	TBC1 domain family member 8
RARRES2	retinoic acid receptor responder 2
SERPINE1	serpin family E member 1
RALGAPA1	Ral GTPase activating protein catalytic subunit alpha 1
SLC31A2	solute carrier family 31 member 2
PDCD6IP	programmed cell death 6 interacting protein
ADM	adrenomedullin
TAS2R3	taste 2 receptor member 3
CHD1	chromodomain helicase DNA binding protein 1
MIR22HG	MIR22 host gene
TAP1	transporter 1, ATP binding cassette subfamily B member
FKBP1B	FKBP prolyl isomerase 1B
TRIP10	thyroid hormone receptor interactor 10
SLC2A3	solute carrier family 2 member 3
FLOT2	flotillin 2
RAP1GDS1	Rap1 GTPase-GDP dissociation stimulator 1
TGFBR3	transforming growth factor beta receptor 3
HILPDA	hypoxia inducible lipid droplet associated
SLC52A2	solute carrier family 52 member 2
ZP2	zona pellucida glycoprotein 2
PTGER3	prostaglandin E receptor 3
IFNAR2	interferon alpha and beta receptor subunit 2
PRSS22	serine protease 22
MTNR1A	melatonin receptor 1A
NR0B2	nuclear receptor subfamily 0 group B member 2
SOX9	SRY-box transcription factor 9
EPB41L5	erythrocyte membrane protein band 4.1 like 5
ABCC5	ATP binding cassette subfamily C member 5
PHC2	polyhomeotic homolog 2
TACC2	transforming acidic coiled-coil containing protein 2
BTN2A2	butyrophilin subfamily 2 member A2
PTPN1	protein tyrosine phosphatase non-receptor type 1
SQLE	squalene epoxidase
LBP	lipopolysaccharide binding protein
RPH3AL	rabphilin 3A like (without C2 domains)
S100A8	S100 calcium binding protein A8
YAF2	YY1 associated factor 2
SCML1	Scm polycomb group protein like 1
UAP1	UDP-N-acetylglucosamine pyrophosphorylase 1
ARG2	arginase 2

LRP10	LDL receptor related protein 10
SASH1	SAM and SH3 domain containing 1
TNFAIP3	TNF alpha induced protein 3
GAS2L1	growth arrest specific 2 like 1
TMED3	transmembrane p24 trafficking protein 3
TNIP2	TNFAIP3 interacting protein 2
KIF16B	kinesin family member 16B
SECTM1	secreted and transmembrane 1
CYBC1	cytochrome b-245 chaperone 1
DNM1L	dynamin 1 like
NR1H4	nuclear receptor subfamily 1 group H member 4
KIF13B	kinesin family member 13B
FLOT1	flotillin 1
NR1H2	nuclear receptor subfamily 1 group H member 2
SRSF4	serine and arginine rich splicing factor 4
ADIPOR2	adiponectin receptor 2
VWA5A	von Willebrand factor A domain containing 5A
HNRNPDL	heterogeneous nuclear ribonucleoprotein D like
HECA	hdc homolog, cell cycle regulator
CCNH	cyclin H
IER3	immediate early response 3
GYG1	glycogenin 1
APCS	amyloid P component, serum
IDH3A	isocitrate dehydrogenase (NAD(+)) 3 catalytic subunit alpha
SPSB1	splA/ryanodine receptor domain and SOCS box containing 1
AHI1	Abelson helper integration site 1
FKBP5	FKBP prolyl isomerase 5
MAP3K14	mitogen-activated protein kinase kinase kinase 14
TOB1	transducer of ERBB2, 1
ARAP2	ArfGAP with RhoGAP domain, ankyrin repeat and PH domain 2
HMGCR	3-hydroxy-3-methylglutaryl-CoA reductase
SHFL	shiftless antiviral inhibitor of ribosomal frameshifting
SLC66A2	solute carrier family 66 member 2
SCAPER	S-phase cyclin A associated protein in the ER
BIRC3	baculoviral IAP repeat containing 3
IVNS1ABP	influenza virus NS1A binding protein
PAX8	paired box 8
RAB20	RAB20, member RAS oncogene family
ZNF184	zinc finger protein 184
TCP11L1	t-complex 11 like 1
FERMT2	FERM domain containing kindlin 2
LTN1	listerin E3 ubiquitin protein ligase 1
ZDHHC6	zinc finger DHHC-type palmitoyltransferase 6
EIF2AK3	eukaryotic translation initiation factor 2 alpha kinase 3
NPC1	NPC intracellular cholesterol transporter 1
FNBP4	formin binding protein 4
MALT1	MALT1 paracaspase
ZBTB16	zinc finger and BTB domain containing 16
IARS1	isoleucyl-tRNA synthetase 1
ZNF189	zinc finger protein 189
WARS1	tryptophanyl-tRNA synthetase 1
MTCP1	mature T cell proliferation 1
CDH6	cadherin 6

KLF8	Kruppel like factor 8
NFIL3	nuclear factor, interleukin 3 regulated
UBE2L6	ubiquitin conjugating enzyme E2 L6
TEAD4	TEA domain transcription factor 4
PNMA2	PNMA family member 2
IMPDH1	inosine monophosphate dehydrogenase 1
GOLGA3	golgin A3
F3	coagulation factor III, tissue factor
P4HA1	prolyl 4-hydroxylase subunit alpha 1
IFI35	interferon induced protein 35
TKT	transketolase
TACC1	transforming acidic coiled-coil containing protein 1
DBF4	DBF4 zinc finger
MCL1	MCL1 apoptosis regulator, BCL2 family member
SLCO4A1	solute carrier organic anion transporter family member 4A1
TSPYL2	TSPY like 2
CXCL2	C-X-C motif chemokine ligand 2
WTAP	WT1 associated protein
CREM	cAMP responsive element modulator
RCL1	RNA terminal phosphate cyclase like 1
RARRES1	retinoic acid receptor responder 1
TFRC	transferrin receptor
UBAP1	ubiquitin associated protein 1
LEFTY1	left-right determination factor 1
TSC22D2	TSC22 domain family member 2
TRIM13	tripartite motif containing 13
JUND	JunD proto-oncogene, AP-1 transcription factor subunit
IFRD1	interferon related developmental regulator 1
CARHSP1	calcium regulated heat stable protein 1
GPR3	G protein-coupled receptor 3
DUSP6	dual specificity phosphatase 6
AASS	aminoadipate-semialdehyde synthase
FAM131A	family with sequence similarity 131 member A
F12	coagulation factor XII
LRRFIP2	LRR binding FLII interacting protein 2
CGA	glycoprotein hormones, alpha polypeptide
DDX5	DEAD-box helicase 5
FOSB	FosB proto-oncogene, AP-1 transcription factor subunit
C1RL	complement C1r subcomponent like
IGFLR1	IGF like family receptor 1
ABCA5	ATP binding cassette subfamily A member 5
ISG20	interferon stimulated exonuclease gene 20
GABARAPL1	GABA type A receptor associated protein like 1
IL1RL1	interleukin 1 receptor like 1
REG1B	regenerating family member 1 beta
CEMIP2	cell migration inducing hyaluronidase 2
IL6R	interleukin 6 receptor
ZNF331	zinc finger protein 331
PDE4D	phosphodiesterase 4D
S100A9	S100 calcium binding protein A9
KLF9	Kruppel like factor 9
DEPP1	DEPP1 autophagy regulator
HIVEP2	HIVEP zinc finger 2

SOD2	superoxide dismutase 2
JUN	Jun proto-oncogene, AP-1 transcription factor subunit
BTG2	BTG anti-proliferation factor 2
SLC38A2	solute carrier family 38 member 2
C1R	complement C1r
VMP1	vacuole membrane protein 1
SMARCD3	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 3
RBBP8	RB binding protein 8, endonuclease
PPARGC1A	PPARG coactivator 1 alpha
STAT1	signal transducer and activator of transcription 1
SLC39A14	solute carrier family 39 member 14
RIOX1	ribosomal oxygenase 1
RHOB	ras homolog family member B
KLF6	Kruppel like factor 6
PPP2R3A	protein phosphatase 2 regulatory subunit B"alpha
ETS2	ETS proto-oncogene 2, transcription factor
HES1	hes family bHLH transcription factor 1
SERPINA3	serpin family A member 3
CISH	cytokine inducible SH2 containing protein
LIPG	lipase G, endothelial type
CHI3L1	chitinase 3 like 1
NR4A3	nuclear receptor subfamily 4 group A member 3
SRSF5	serine and arginine rich splicing factor 5
IFIT5	interferon induced protein with tetratricopeptide repeats 5
ATF3	activating transcription factor 3
JUNB	JunB proto-oncogene, AP-1 transcription factor subunit
GADD45A	growth arrest and DNA damage inducible alpha
RGS2	regulator of G protein signaling 2
TSC22D3	TSC22 domain family member 3
NR4A1	nuclear receptor subfamily 4 group A member 1
SLC19A2	solute carrier family 19 member 2
TMEM100	transmembrane protein 100
PDK4	pyruvate dehydrogenase kinase 4
RGS3	regulator of G protein signaling 3
SOCS2	suppressor of cytokine signaling 2
LDLR	low density lipoprotein receptor
ELL2	elongation factor for RNA polymerase II 2
CEBPD	CCAAT enhancer binding protein delta
EFNA1	ephrin A1
AKAP13	A-kinase anchoring protein 13
APOLD1	apolipoprotein L domain containing 1
NEDD9	neural precursor cell expressed, developmentally down-regulated 9
GPX2	glutathione peroxidase 2
NFKBIA	NFKB inhibitor alpha
CCNL1	cyclin L1
CEBPB	CCAAT enhancer binding protein beta
PPP2R1B	protein phosphatase 2 scaffold subunit Abeta
FOS	Fos proto-oncogene, AP-1 transcription factor subunit
EGR1	early growth response 1
RETREG1	reticulophagy regulator 1
ZFP36	ZFP36 ring finger protein
TUBGCP3	tubulin gamma complex associated protein 3

	SGK1	serum/glucocorticoid regulated kinase 1
	GADD45B	growth arrest and DNA damage inducible beta
	DUSP1	dual specificity phosphatase 1
	TIPARP	TCDD inducible poly (ADP-ribose) polymerase
	ZFAND5	zinc finger AN1-type containing 5
PBMCs	GOLGA6L5P	golgin A6 family like 5, pseudogene
	ZDHHC22	zinc finger DHHC-type palmitoyltransferase 22
	COTL1	coactosin like F-actin binding protein 1
	DICER1-AS1	DICER1 antisense RNA 1
	ARL6IP1	ADP ribosylation factor like GTPase 6 interacting protein 1
	HNRNPA1	heterogeneous nuclear ribonucleoprotein A1
	FZD5	frizzled class receptor 5
	MAP4K4	mitogen-activated protein kinase kinase kinase kinase 4
	GALE	UDP-galactose-4-epimerase
	MXRA8	matrix remodeling associated 8
	PRKCB	protein kinase C beta
	RNASE4	ribonuclease A family member 4
	MTDH	metadherin
	CECR5	haloacid dehalogenase like hydrolase domain containing 5
	USP34	ubiquitin specific peptidase 34
	MTMR9	myotubularin related protein 9
	GNA12	G protein subunit alpha 12
	MAEA	macrophage erythroblast attacher, E3 ubiquitin ligase
	TNPO3	transportin 3
	TEX11	testis expressed 11
	XPOT	exportin for tRNA
	METTL9	methyltransferase like 9
	RYK	receptor like tyrosine kinase
	NFKB1	nuclear factor kappa B subunit 1
	DEPDC7	DEP domain containing 7
	ZNF211	zinc finger protein 211
	HMGN5	high mobility group nucleosome binding domain 5
	TMEM43	transmembrane protein 43
	RRAGC	Ras related GTP binding C
	FAM57A	TLC domain containing 3A
	DOHH	deoxyhypusine hydroxylase
	TMSB4Y	thymosin beta 4 Y-linked
	ANKRD11	ankyrin repeat domain 11
	FEM1A	fem-1 homolog A
	ZNF230	zinc finger protein 230
	QARS	glutamyl-prolyl-tRNA synthetase 1
	PPP6R2	protein phosphatase 6 regulatory subunit 2
	RABGGTB	Rab geranylgeranyltransferase subunit beta
	FAM221A	family with sequence similarity 221 member A
	ANXA7	annexin A7
	RCSD1	RCSD domain containing 1
	LARP7	La ribonucleoprotein 7, transcriptional regulator
	ARV1	ARV1 homolog, fatty acid homeostasis modulator
	RAP1GAP2	RAP1 GTPase activating protein 2
	CDK1	cyclin dependent kinase 1
	HPS1	HPS1 biogenesis of lysosomal organelles complex 3 subunit 1
	MAP3K4	mitogen-activated protein kinase kinase kinase 4
	CLK3	CDC like kinase 3

USP31	ubiquitin specific peptidase 31
OPTN	optineurin
PARG	poly (ADP-ribose) glycohydrolase
CBR3	carbonyl reductase 3
NDRG3	NDRG family member 3
FMN1	formin 1
CASD1	CAS1 domain containing 1
INO80C	INO80 complex subunit C
PICALM	phosphatidylinositol binding clathrin assembly protein
SRP68	signal recognition particle 68
BTBD10	BTB domain containing 10
APC	APC regulator of WNT signaling pathway
BTF3P11	basic transcription factor 3 pseudogene 11
HBP1	HMG-box transcription factor 1
ITLN1	intelectin 1
ABCC5	ATP binding cassette subfamily C member 5
EFS	embryonal Fyn-associated substrate
MED22	mediator complex subunit 22
BACE2	beta-secretase 2
MFAP1	microfibril associated protein 1
ST13	ST13 Hsp70 interacting protein
GOLGA5	golgin A5
LONRF1	LON peptidase N-terminal domain and ring finger 1
ESCO2	establishment of sister chromatid cohesion N-acetyltransferase 2
NGRN	neugrin, neurite outgrowth associated
NEB	nebulin
UBE2G1	ubiquitin conjugating enzyme E2 G1
TRIM64	tripartite motif containing 64
BCAR3	BCAR3 adaptor protein, NSP family member
ADORA2A	adenosine A2a receptor
SERPIND1	serpin family D member 1
CCM2L	CCM2 like scaffold protein
ANAPC13	anaphase promoting complex subunit 13
RPAP3	RNA polymerase II associated protein 3
HNRNPA1L2	heterogeneous nuclear ribonucleoprotein A1 like 2
GMCL1	germ cell-less 1, spermatogenesis associated
WNK1	WNK lysine deficient protein kinase 1
ATP2C1	ATPase secretory pathway Ca^{2+} transporting 1
HHEX	hematopoietically expressed homeobox
CLEC4E	C-type lectin domain family 4 member E
PPID	peptidylprolyl isomerase D
MRFAP1L1	Morf4 family associated protein 1 like 1
SNIP1	Smad nuclear interacting protein 1
CDH1	cadherin 1
PPM1A	protein phosphatase, Mg^{2+}/Mn^{2+} dependent 1A
DYX1C1	dynein axonemal assembly factor 4
TDRKH	tudor and KH domain containing
DNAJA4	DnaJ heat shock protein family (Hsp40) member A4
THAP11	THAP domain containing 11
ITGAD	integrin subunit alpha D
LAMP2	lysosomal associated membrane protein 2
NSUN3	NOP2/Sun RNA methyltransferase 3
TMEM204	transmembrane protein 204

PHF10	PHD finger protein 10
SOX4	SRY-box transcription factor 4
POC5	POC5 centriolar protein
BRIX1	biogenesis of ribosomes BRX1
HNRNPH2	heterogeneous nuclear ribonucleoprotein H2
MKRN1	makorin ring finger protein 1
KCTD18	potassium channel tetramerization domain containing 18
RNF146	ring finger protein 146
TDRD12	tudor domain containing 12
INPP5F	inositol polyphosphate-5-phosphatase F
MRM2	mitochondrial rRNA methyltransferase 2
UBE2M	ubiquitin conjugating enzyme E2 M
IRS2	insulin receptor substrate 2
CDHR3	cadherin related family member 3
PCOLCE2	procollagen C-endopeptidase enhancer 2
PDCL3	phosducin like 3
ATP1A4	ATPase Na^+/K^+ transporting subunit alpha 4
METTL3	methyltransferase 3, N6-adenosine-methyltransferase complex catalytic subunit
ALDH18A1	aldehyde dehydrogenase 18 family member A1
VMP1	vacuole membrane protein 1
COQ8A	coenzyme Q8A
AJUBA	ajuba LIM protein
KISS1R	KISS1 receptor
KDM3A	lysine demethylase 3A
TPRG1L	tumor protein p63 regulated 1 like
CHRD	chordin
C1orf229	long intergenic non-protein coding RNA 2897
TEPP	testis, prostate and placenta expressed
CSNK1A1	casein kinase 1 alpha 1
MTERF3	mitochondrial transcription termination factor 3
FEN1	flap structure-specific endonuclease 1
DKFZP586I1420	uncharacterized protein DKFZp586I1420
NFKBIZ	NFKB inhibitor zeta
FAM69A	divergent protein kinase domain 1A
MTMR12	myotubularin related protein 12
ERP44	endoplasmic reticulum protein 44
HNRNPH3	heterogeneous nuclear ribonucleoprotein H3
CTSE	cathepsin E
SMCHD1	structural maintenance of chromosomes flexible hinge domain containing 1
NEUROG1	neurogenin 1
PLPP3	phospholipid phosphatase 3
FAM71E1	family with sequence similarity 71 member E1
CUL3	cullin 3
TRIP12	thyroid hormone receptor interactor 12
INTS5	integrator complex subunit 5
CTNNAL1	catenin alpha like 1
CCDC34	coiled-coil domain containing 34
PCMT1	protein-L-isoaspartate (D-aspartate) O-methyltransferase
RAB27A	RAB27A, member RAS oncogene family
PLIN3	perilipin 3
ZNF487	zinc finger protein 487
PJA1	praja ring finger ubiquitin ligase 1
DYNC2H1	dynein cytoplasmic 2 heavy chain 1

UNC50	unc-50 inner nuclear membrane RNA binding protein
VSTM2A	V-set and transmembrane domain containing 2A
SLC2A3	solute carrier family 2 member 3
PAGE5	PAGE family member 5
ATCAY	ATCAY kinesin light chain interacting caytaxin
EGFEM1P	EGF like and EMI domain containing 1, pseudogene
IFRD1	interferon related developmental regulator 1
CCDC82	coiled-coil domain containing 82
TBC1D14	TBC1 domain family member 14
PSMC6	proteasome 26S subunit, ATPase 6
ELF1	E74 like ETS transcription factor 1
CAND1	cullin associated and neddylation dissociated 1
HGF	hepatocyte growth factor
ATP10D	ATPase phospholipid transporting 10D (putative)
KRAS	KRAS proto-oncogene, GTPase
EDEM1	ER degradation enhancing alpha-mannosidase like protein 1
PRRC1	proline rich coiled-coil 1
HMCES	5-hydroxymethylcytosine binding, ES cell specific
AFG3L2	AFG3 like matrix AAA peptidase subunit 2
CLK1	CDC like kinase 1
DNAJB6	DnaJ heat shock protein family (Hsp40) member B6
SNX17	sorting nexin 17
RABEP1	rabaptin, RAB GTPase binding effector protein 1
API5	apoptosis inhibitor 5
ZNF285	zinc finger protein 285
GTF2B	general transcription factor IIB
MORF4L1	mortality factor 4 like 1
TM2D3	TM2 domain containing 3
GIT2	GIT ArfGAP 2
PRKAR1A	protein kinase cAMP-dependent type I regulatory subunit alpha
RAB28	RAB28, member RAS oncogene family
KCTD15	potassium channel tetramerization domain containing 15
MRFAP1	Morf4 family associated protein 1
STEAP3	STEAP3 metalloreductase
CNPY4	canopy FGF signaling regulator 4
VTA1	vesicle trafficking 1
TARDBP	TAR DNA binding protein
ATAD3C	ATPase family AAA domain containing 3C
LPCAT1	lysophosphatidylcholine acyltransferase 1
CCDC126	coiled-coil domain containing 126
FAM118A	family with sequence similarity 118 member A
CAMTA1	calmodulin binding transcription activator 1
TFCP2	transcription factor CP2
BORCS8-MEF2B	BORCS8-MEF2B readthrough
RNF114	ring finger protein 114
NEK7	NIMA related kinase 7
PPP2CA	protein phosphatase 2 catalytic subunit alpha
RAD51AP1	RAD51 associated protein 1
APMAP	adipocyte plasma membrane associated protein
SURF6	surfeit 6
ANP32A	acidic nuclear phosphoprotein 32 family member A
CFDP1	craniofacial development protein 1
EMC2	ER membrane protein complex subunit 2

BRMS1L	BRMS1 like transcriptional repressor
RBM7	RNA binding motif protein 7
DNAJA1	DnaJ heat shock protein family (Hsp40) member A1
GFM2	GTP dependent ribosome recycling factor mitochondrial 2
RNPEP	arginyl aminopeptidase
GNB1	G protein subunit beta 1
ADH5	alcohol dehydrogenase 5 (class III), chi polypeptide
PDIA6	protein disulfide isomerase family A member 6
PPP3CA	protein phosphatase 3 catalytic subunit alpha
STIP1	stress induced phosphoprotein 1
SESN1	sestrin 1
NME7	NME/NM23 family member 7
TNXB	tenascin XB
AP2A2	adaptor related protein complex 2 subunit alpha 2
ELMO2	engulfment and cell motility 2
UTP6	UTP6 small subunit processome component
RUBCN	rubicon autophagy regulator
ARHGEF37	Rho guanine nucleotide exchange factor 37
TMEM9B	TMEM9 domain family member B
MYCBP	MYC binding protein
RPL7	ribosomal protein L7
IGF2R	insulin like growth factor 2 receptor
ADNP	activity dependent neuroprotector homeobox
C1orf116	chromosome 1 open reading frame 116
RAB9BP1	RAB9B, member RAS oncogene family pseudogene 1
TCERG1	transcription elongation regulator 1
FBXO3	F-box protein 3
PSEN1	presenilin 1
ADD2	adducin 2
KIAA0232	KIAA0232
ZNF681	zinc finger protein 681
RNF20	ring finger protein 20
PER3	period circadian regulator 3
SAT1	spermidine/spermine N1-acetyltransferase 1
RILP	Rab interacting lysosomal protein
FOXJ2	forkhead box J2
SLC1A1	solute carrier family 1 member 1
RCC1L	RCC1 like
FAM135A	family with sequence similarity 135 member A
E2F3	E2F transcription factor 3
CDK8	cyclin dependent kinase 8
BLOC1S6	biogenesis of lysosomal organelles complex 1 subunit 6
ZNF263	zinc finger protein 263
FAM120C	family with sequence similarity 120C
BEX4	brain expressed X-linked 4
TMCO1	transmembrane and coiled-coil domains 1
PAGE2	PAGE family member 2
HERC2	HECT and RLD domain containing E3 ubiquitin protein ligase 2
HAT1	histone acetyltransferase 1
LINC01123	long intergenic non-protein coding RNA 1123
ACAT1	acetyl-CoA acetyltransferase 1
SCP2	sterol carrier protein 2
RWDD4	RWD domain containing 4

CD59	CD59 molecule (CD59 blood group)
LHX1	LIM homeobox 1
PAIP2	poly(A) binding protein interacting protein 2
TECPR2	tectonin beta-propeller repeat containing 2
DNAJA2	DnaJ heat shock protein family (Hsp40) member A2
KDELC1	protein O-glucosyltransferase 2
PCID2	PCI domain containing 2
DAPK1	death associated protein kinase 1
ZNF827	zinc finger protein 827
ALDH5A1	aldehyde dehydrogenase 5 family member A1
TSNAX	translin associated factor X
C9orf78	chromosome 9 open reading frame 78
ASAH1	N-acylsphingosine amidohydrolase 1
BMX	BMX non-receptor tyrosine kinase
PRTN3	proteinase 3
NPBWR1	neuropeptides B and W receptor 1
IDH3A	isocitrate dehydrogenase (NAD(+)) 3 catalytic subunit alpha
CRK	CRK proto-oncogene, adaptor protein
KCNE2	potassium voltage-gated channel subfamily E regulatory subunit 2
NAP1L4	nucleosome assembly protein 1 like 4
ZNF282	zinc finger protein 282
GPR20	G protein-coupled receptor 20
PAN3	poly(A) specific ribonuclease subunit PAN3
TMEM245	transmembrane protein 245
TIFA	TRAF interacting protein with forkhead associated domain
SPON1	spondin 1
SHQ1	SHQ1, H/ACA ribonucleoprotein assembly factor
TMC5	transmembrane channel like 5
PAPPA2	pappalysin 2
GALNT5	polypeptide N-acetylgalactosaminyltransferase 5
FRMD4A	FERM domain containing 4A
SLTM	SAFB like transcription modulator
RPL22	ribosomal protein L22
ATP6V1E1	ATPase H+ transporting V1 subunit E1
ETS1	ETS proto-oncogene 1, transcription factor
LOC100422526	proteasome activator subunit 3 pseudogene
BRD7P3	bromodomain containing 7 pseudogene 3
JMJD1C	jumonji domain containing 1C
KRTAP4-1	keratin associated protein 4-1
EIF4E	eukaryotic translation initiation factor 4E
ZMAT4	zinc finger matrin-type 4
FAM168B	family with sequence similarity 168 member B
SEC23B	SEC23 homolog B, COPII coat complex component
CAPZA2	capping actin protein of muscle Z-line subunit alpha 2
HSP90AA1	heat shock protein 90 alpha family class A member 1
HSD3B1	hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 1
CLP1	cleavage factor polyribonucleotide kinase subunit 1
SOX17	SRY-box transcription factor 17
XRN2	5'-3' exoribonuclease 2
RIPK4	receptor interacting serine/threonine kinase 4
CORIN	corin, serine peptidase
CUTC	cutC copper transporter
CEACAM6	CEA cell adhesion molecule 6

ATPAF1	ATP synthase mitochondrial F1 complex assembly factor 1
HRASLS2	phospholipase A and acyltransferase 2
RFX4	regulatory factor X4
FCER1A	Fc fragment of IgE receptor Ia
MAFG-AS1	MAFG divergent transcript
HMGCS1	3-hydroxy-3-methylglutaryl-CoA synthase 1
CAND2	cullin associated and neddylation dissociated 2 (putative)
PSEN2	presenilin 2
ANXA3	annexin A3
UBFD1	ubiquitin family domain containing 1
SUPT16H	SPT16 homolog, facilitates chromatin remodeling subunit
EFNA1	ephrin A1
FA2H	fatty acid 2-hydroxylase
SYF2	SYF2 pre-mRNA splicing factor
CCDC115	coiled-coil domain containing 115
WBP4	WW domain binding protein 4
RAD17	RAD17 checkpoint clamp loader component
MRGPRF	MAS related GPR family member F
MSANTD2	Myb/SANT DNA binding domain containing 2
PAQR9	progestin and adipoQ receptor family member 9
TMEM232	transmembrane protein 232
GCH1	GTP cyclohydrolase 1
NUPL2	nucleoporin 42
TTC33	tetratricopeptide repeat domain 33
TPMT	thiopurine S-methyltransferase
MINOS1P1	MICOS10 pseudogene 1
HEPACAM2	HEPACAM family member 2
RBMX2	RNA binding motif protein X-linked 2
SNAP23	synaptosome associated protein 23
ATRNL1	attractin like 1
PSMD10	proteasome 26S subunit, non-ATPase 10
SPTA1	spectrin alpha, erythrocytic 1
LOC101928068	uncharacterized LOC101928068
B4GALNT3	beta-1,4-N-acetyl-galactosaminyltransferase 3
ZNF12	zinc finger protein 12
CACUL1	CDK2 associated cullin domain 1
SDHC	succinate dehydrogenase complex subunit C
TMEM167B	transmembrane protein 167B
HCFC1	host cell factor C1
IQCC	IQ motif containing C
FOXJ1	forkhead box J1
CYB5B	cytochrome b5 type B
ARL13B	ADP ribosylation factor like GTPase 13B
KRT1	keratin 1
DKK3	dickkopf WNT signaling pathway inhibitor 3
AXIN2	axin 2
MAF	MAF bZIP transcription factor
SARAF	store-operated calcium entry associated regulatory factor
DYNC2LI1	dynein cytoplasmic 2 light intermediate chain 1
FOXB1	forkhead box B1
EIF2S1	eukaryotic translation initiation factor 2 subunit alpha
LAMTOR3	late endosomal/lysosomal adaptor, MAPK and MTOR activator 3
UBE2Q2	ubiquitin conjugating enzyme E2 Q2

MTM1	myotubularin 1
RAB1A	RAB1A, member RAS oncogene family
ADAR	adenosine deaminase RNA specific
SLC35B3	solute carrier family 35 member B3
GFPT2	glutamine-fructose-6-phosphate transaminase 2
GLDC	glycine decarboxylase
KARS	lysyl-tRNA synthetase 1
HSPB9	heat shock protein family B (small) member 9
CD1D	CD1d molecule
ASPHD1	aspartate beta-hydroxylase domain containing 1
LRP3	LDL receptor related protein 3
FAM173B	ATP synthase c subunit lysine N-methyltransferase
TGFA	transforming growth factor alpha
KLF5	Kruppel like factor 5
GPR31	G protein-coupled receptor 31
WDTC1	WD and tetratricopeptide repeats 1
MSTN	myostatin
BTNL3	butyrophilin like 3
CLPSL2	colipase like 2
NLGN4Y	neuroligin 4 Y-linked
IFI27	interferon alpha inducible protein 27
LHB	luteinizing hormone subunit beta
ACER1	alkaline ceramidase 1
ENC1	ectodermal-neural cortex 1
PLCXD2	phosphatidylinositol specific phospholipase C X domain containing 2
TAPBP	TAP binding protein
LINC00476	long intergenic non-protein coding RNA 476

Supplementary Table 2. Detailed results of DEGs functional enrichment

Names	total	elements
Glom PBMC Tub	48	positive regulation of transferase activity
		negative regulation of cellular component organization
		actin filament-based process
		Endometrial cancer
		hemostasis
		regeneration
		glial cell differentiation
		regulation of cell adhesion
		negative regulation of protein modification process
		MAPK signaling pathway
		liver development
		Pathways in cancer
		regulation of kinase activity
		regulation of body fluid levels
		regulation of protein serine/threonine kinase activity
		regulation of protein kinase activity
		positive regulation of kinase activity
		Pancreatic cancer
		response to inorganic substance
		blood vessel morphogenesis
		actin cytoskeleton organization
		lymphocyte activation

		blood coagulation
		response to wounding
		negative regulation of catalytic activity
		negative regulation of catabolic process
		regulation of neuron death
		cellular response to nitrogen compound
		Melanoma
		pattern specification process
		Corticotropin-releasing hormone signaling pathway
		blood vessel development
		VEGFA-VEGFR2 signaling pathway
		positive regulation of protein phosphorylation
		hepaticobiliary system development
		positive regulation of protein kinase activity
		cellular component disassembly
		viral process
		cellular response to peptide
		wound healing
		coagulation
		Neural crest differentiation
		Non-small cell lung cancer
		Pancreatic adenocarcinoma pathway
		regulation of cell-cell adhesion
		gland development
		Glioma
		cellular response to organonitrogen compound
Glom Tub	272	positive regulation of cell activation
		regulation of viral process
		regulation of epithelial cell differentiation
		muscle organ development
		regulation of angiogenesis
		muscle cell differentiation
		cellular response to environmental stimulus
		regulation of steroid biosynthetic process
		DNA damage response
		connective tissue development
		nephron epithelium development
		cellular response to peptide hormone stimulus
		response to oxidative stress
		regulation of transforming growth factor beta receptor signaling pathway
		leukocyte cell-cell adhesion
		vasculogenesis
		negative regulation of response to external stimulus
		regulation of cellular ketone metabolic process
		mononuclear cell differentiation
		epithelial tube morphogenesis
		cytokine-mediated signaling pathway
		Spinal cord injury
		kidney development
		regulation of cytokine production
		mesenchymal cell differentiation
		nephron tubule development

positive regulation of cell death
positive regulation of angiogenesis
hormone biosynthetic process
Notch signaling pathway
pyruvate metabolic process
T-cell activation SARS-CoV-2
Gastrin signaling pathway
endothelial cell migration
regulation of tissue remodeling
Chagas disease (American trypanosomiasis)
taxis
regulation of epithelial cell proliferation
animal organ regeneration
regulation of apoptotic signaling pathway
T-cell receptor (TCR) signaling pathway
negative regulation of cell differentiation
Folate metabolism
regulation of steroid metabolic process
positive regulation of pri-miRNA transcription by RNA polymerase II
Transcriptional Regulation by VENTX
response to BMP
regulation of epithelial cell migration
cellular ketone metabolic process
Signaling by Interleukins
Measles
fat cell differentiation
response to steroid hormone
glucose metabolic process
adenylate cyclase-modulating G protein-coupled receptor signaling pathway
in utero embryonic development
regulation of defense response
tissue morphogenesis
multi-multicellular organism process
cellular response to growth factor stimulus
Epstein-Barr virus infection
MAPK cascade
regulation of inflammatory response
regulation of endothelial cell migration
muscle structure development
regulation of neuron apoptotic process
cellular response to insulin stimulus
skeletal muscle organ development
tissue migration
osteoblast differentiation
regulation of cellular response to growth factor stimulus
AGE-RAGE signaling pathway in diabetic complications
cellular response to molecule of bacterial origin
Integrated breast cancer pathway
positive regulation of cell-cell adhesion
cell growth
Cell cycle
mesenchyme development
insulin receptor signaling pathway

autophagy of mitochondrion
response to estradiol
p53 signaling pathway
response to ketone
mitochondrion disassembly
positive regulation of programmed cell death
Cytokine Signaling in Immune system
regulation of chemotaxis
skeletal system development
cell migration involved in sprouting angiogenesis
axon development
response to decreased oxygen levels
Colorectal cancer
renal system process
Senescence and autophagy in cancer
HTLV-I infection
regulation of cell activation
negative regulation of proteolysis
Breast cancer
female pregnancy
positive regulation of cellular component movement
cellular response to abiotic stimulus
renal tubule development
response to lipopolysaccharide
embryonic organ development
Interleukin-4 and Interleukin-13 signaling
lymphocyte proliferation
positive regulation of apoptotic process
epithelial cell migration
positive regulation of cellular component biogenesis
Chromosomal and microsatellite instability in colorectal cancer
neuron death
urogenital system development
renal system development
protein kinase B signaling
Chronic myeloid leukemia
purine ribonucleotide metabolic process
response to growth factor
negative regulation of cellular component movement
response to reactive oxygen species
cellular response to lipopolysaccharide
embryonic morphogenesis
regulation of vasculature development
leukocyte differentiation
skeletal muscle tissue development
RHOA GTPase cycle
rhythmic process
Metabolism of carbohydrates
reactive oxygen species metabolic process
T cell proliferation
response to mechanical stimulus
tissue remodeling
hexose metabolic process

response to vitamin
response to nutrient levels
transmembrane receptor protein serine/threonine kinase signaling pathway
embryo development ending in birth or egg hatching
Leishmania infection
negative regulation of endothelial cell migration
regulation of lipid metabolic process
PI3K-Akt signaling pathway
negative regulation of small molecule metabolic process
embryonic epithelial tube formation
Hepatitis C and hepatocellular carcinoma
negative regulation of cell motility
positive regulation of leukocyte activation
response to transforming growth factor beta
Vitamin D receptor pathway
positive regulation of apoptotic signaling pathway
hormone metabolic process
Prolactin signaling pathway
neuron apoptotic process
reproductive structure development
G1 to S cell cycle control
monosaccharide metabolic process
regulation of hormone biosynthetic process
organelle disassembly
secretion by cell
positive regulation of vasculature development
Diseases of metabolism
ameboidal-type cell migration
second-messenger-mediated signaling
regulation of hormone metabolic process
PID AP1 PATHWAY
carbohydrate biosynthetic process
response to nutrient
response to glucocorticoid
endocytosis
endocrine system development
response to molecule of bacterial origin
epithelial cell proliferation
cellular response to lipid
RHOC GTPase cycle
cellular response to hormone stimulus
Hair follicle development: cytodifferentiation-part 3 of 3
DNA damage response (only ATM dependent)
IL-18 signaling pathway
regulation of endocytosis
Thyroid cancer
regulation of transmembrane receptor protein serine/threonine kinase signaling pathway
transmembrane receptor protein tyrosine kinase signaling pathway
response to oxygen levels
viral life cycle
transforming growth factor beta receptor signaling pathway
positive regulation of locomotion
response to alcohol

ossification
regulation of DNA-templated transcription in response to stress
regulation of reactive oxygen species metabolic process
response to extracellular stimulus
leukocyte proliferation
positive regulation of reactive oxygen species metabolic process
Hepatitis C
cellular response to chemical stress
response to corticosteroid
T cell activation
Adipogenesis
Breast cancer pathway
tube formation
Herpes simplex infection
negative regulation of cell migration
cellular response to reactive oxygen species
Hemostasis
cellular response to ionizing radiation
Endocrine resistance
cellular response to transforming growth factor beta stimulus
RHOB GTPase cycle
negative regulation of cell cycle
pri-miRNA transcription by RNA polymerase II
Signaling by NOTCH
kidney morphogenesis
reproductive system development
regulation of lipid biosynthetic process
positive regulation of cell motility
carbohydrate metabolic process
regulation of pri-miRNA transcription by RNA polymerase II
regulation of growth
sprouting angiogenesis
positive regulation of endocytosis
epithelium migration
GPCR downstream signalling
regulation of viral life cycle
negative regulation of cell population proliferation
cellular response to biotic stimulus
cellular response to hydrogen peroxide
negative regulation of apoptotic signaling pathway
response to peptide hormone
negative regulation of cell-cell adhesion
Viral carcinogenesis
response to ionizing radiation
chordate embryonic development
Tuberculosis
regulation of glucose metabolic process
Platelet activation, signaling and aggregation
morphogenesis of an epithelium
PID REG GR PATHWAY
heart morphogenesis
chemotaxis
regulation of leukocyte cell-cell adhesion

		response to bacterium
		cellular response to BMP stimulus
		positive regulation of cytokine production
		response to radiation
		small molecule biosynthetic process
		positive regulation of cell migration
		regulation of small molecule metabolic process
		response to insulin
		angiogenesis
		response to hypoxia
		apoptotic signaling pathway
		blood vessel endothelial cell migration
		smooth muscle cell differentiation
		Overlap between signal transduction pathways contributing to LMNA laminopathies
		Small cell lung cancer
		regulation of carbohydrate metabolic process
		cellular response to external stimulus
		aging
		mononuclear cell proliferation
		Transcriptional regulation by RUNX2
		negative regulation of cell adhesion
		TGF-beta signaling pathway
		nephron development
		response to hydrogen peroxide
		regulation of cellular response to transforming growth factor beta stimulus
		heart development
		regulation of cell growth
		epithelial cell differentiation
		response to peptide
		gastrulation
		positive regulation of cell adhesion
		developmental growth
		cellular response to oxidative stress
		regulation of leukocyte activation
Glom PBMC	25	cell junction organization
		cell-cell signaling by wnt
		regulation of canonical Wnt signaling pathway
		canonical Wnt signaling pathway
		cell morphogenesis involved in differentiation
		determination of left/right symmetry
		regulation of MAP kinase activity
		membrane protein proteolysis
		regulation of Wnt signaling pathway
		positive regulation of canonical Wnt signaling pathway
		Wnt signaling pathway
		positive regulation of MAP kinase activity
		positive regulation of Wnt signaling pathway
		Sphingolipid signaling pathway
		positive regulation of protein binding
		regulation of cellular component size
		forebrain development
		cell surface receptor signaling pathway involved in cell-cell signaling
		positive regulation of binding

		Prostate cancer
		Wnt signaling
		regulation of binding
		Head and neck squamous cell carcinoma
		positive regulation of protein serine/threonine kinase activity
		regulation of anatomical structure size
PBMC Tub	81	head development
		inclusion body assembly
		anterior/posterior pattern specification
		Cellular responses to stimuli
		amyloid-beta metabolic process
		regulation of lipid localization
		Neutrophil degranulation
		Metabolism of lipids
		Autophagy-animal
		Butanoate metabolism
		Nuclear receptors meta-pathway
		response to temperature stimulus
		lipid catabolic process
		positive regulation of protein transport
		Hypertrophy model
		cognition
		regulation of organic acid transport
		negative regulation of phosphorus metabolic process
		learning or memory
		regulation of protein transport
		Transport of small molecules
		PIP3 activates AKT signaling
		Intracellular signaling by second messengers
		regulation of cellular amide metabolic process
		PID HIF2PATHWAY
		positive regulation of protein secretion
		regulation of establishment of protein localization
		negative regulation of transferase activity
		positive regulation of catabolic process
		import into cell
		Signaling by Receptor Tyrosine Kinases
		positive regulation of amino acid transport
		B cell receptor signaling pathway
		glutamate metabolic process
		dicarboxylic acid transport
		lipid biosynthetic process
		macromolecule methylation
		Cellular responses to stress
		negative regulation of cysteine-type endopeptidase activity
		protein processing
		macroautophagy
		lipid modification
		regulation of proteolysis
		Bladder cancer
		process utilizing autophagic mechanism
		Signaling by NTRK1 (TRKA)
		alcohol metabolic process

		response to amine
		response to topologically incorrect protein
		regulation of protein stability
		protein maturation
		negative regulation of kinase activity
		endomembrane system organization
		positive regulation of protein catabolic process
		methylation
		Insulin signaling
		protein stabilization
		autophagy
		steroid biosynthetic process
		PTEN Regulation
		vesicle organization
		Regulation of autophagy
		negative regulation of protein phosphorylation
		regulation of protein catabolic process
		regionalization
		steroid metabolic process
		Vesicle-mediated transport
		metanephros morphogenesis
		negative regulation of autophagy
		negative regulation of cellular catabolic process
		positive regulation of lipid storage
		positive regulation of cellular catabolic process
		negative regulation of phosphate metabolic process
		Focal adhesion: PI3K-Akt-mTOR-signaling pathway
		regulation of autophagy
		negative regulation of phosphorylation
		PID CMYB PATHWAY
		astrocyte development
		Signaling by NTRKs
		import across plasma membrane
		PID P53 DOWNSTREAM PATHWAY
Glom	360	tissue regeneration
		Extracellular matrix organization
		Development of ureteric collection system
		CD4-positive, alpha-beta T cell differentiation
		regulation of cell cycle G1/S phase transition
		positive regulation of transmembrane receptor protein serine/threonine kinase signaling pathway
		tumor necrosis factor superfamily cytokine production
		mononuclear cell migration
		cellular component assembly involved in morphogenesis
		negative regulation of T cell activation
		regulation of cytokine production involved in immune response
		histone deacetylation
		alpha-beta T cell differentiation
		heart valve development
		Pre-NOTCH Expression and Processing
		actin filament organization
		ion homeostasis
		Central carbon metabolism in cancer
		chondrocyte differentiation

Fcgamma receptor (FCGR) dependent phagocytosis
regulation of nervous system development
regulation of exocytosis
positive regulation of immune effector process
regulation of anoikis
axon guidance
Hypertrophic cardiomyopathy (HCM)
epithelial cell differentiation involved in kidney development
regulation of lymphocyte activation
extracellular matrix assembly
receptor metabolic process
muscle organ morphogenesis
negative regulation of chemotaxis
positive regulation of hemopoiesis
positive regulation of calcium ion transport
negative regulation of cell development
cartilage development
regulation of CD4-positive, alpha-beta T cell differentiation
Initiation of transcription and translation elongation at the HIV-1 LTR
regulation of tumor necrosis factor production
mucopolysaccharide metabolic process
cell activation involved in immune response
cell cycle G1/S phase transition
neural crest cell differentiation
cellular response to radiation
NABA MATRISOME ASSOCIATED
positive regulation of gliogenesis
positive regulation of extracellular matrix organization
regulation of Notch signaling pathway
positive regulation of cell development
negative regulation of neuron death
Cytokine-cytokine receptor interaction
GPCR ligand binding
cellular ion homeostasis
muscle cell development
oligodendrocyte differentiation
negative regulation of cell growth
positive regulation of transcription from RNA polymerase II promoter involved in cellular response to chemical stimulus
positive regulation of leukocyte cell-cell adhesion
Proteoglycans in cancer
regulation of adaptive immune response
phagocytosis
angiogenesis involved in wound healing
integrin-mediated signaling pathway
negative regulation of nervous system development
negative regulation of DNA metabolic process
Pre-NOTCH Transcription and Translation
regulation of extracellular matrix organization
morphogenesis of an epithelial sheet
protein deacylation
bone mineralization
T cell differentiation

regulation of G1/S transition of mitotic cell cycle
actomyosin structure organization
negative regulation of cell cycle G1/S phase transition
Th17 cell differentiation
regulation of cytoskeleton organization
cell part morphogenesis
regulation of muscle cell differentiation
positive regulation of T cell activation
BMP signaling pathway
regulation of epithelial to mesenchymal transition
endocardial cushion formation
Glioblastoma signaling pathways
regulation of cell shape
regulation of viral genome replication
external encapsulating structure organization
regulation of vesicle-mediated transport
regulation of T cell activation
regulation of biomineralization
regulation of protein-containing complex assembly
regulation of CD4-positive, alpha-beta T cell activation
negative regulation of growth
plasma membrane bounded cell projection morphogenesis
regulation of gliogenesis
Hepatitis B
cardiac ventricle morphogenesis
negative regulation of G1/S transition of mitotic cell cycle
epithelial to mesenchymal transition
extracellular matrix organization
blood vessel remodeling
T cell differentiation involved in immune response
Signaling by TGFB family members
glycosaminoglycan metabolic process
positive regulation of epithelial cell migration
Regulation of Insulin-like Growth Factor (IGF) transport and uptake by Insulin-like Growth Factor Binding Proteins (IGFBPs)
negative regulation of locomotion
cellular response to interferon-gamma
Amoebiasis
Epithelial to mesenchymal transition in colorectal cancer
Osteoblast differentiation and related diseases
negative regulation of biomineral tissue development
Elastic fibre formation
Primary focal segmental glomerulosclerosis (FSGS)
cellular metal ion homeostasis
cardiac ventricle development
positive regulation of neuron differentiation
negative regulation of immune effector process
regulation of histone methylation
Hippo-Merlin signaling dysregulation
lymphocyte activation involved in immune response
morphogenesis of a branching epithelium
regulation of ossification
regulation of alpha-beta T cell activation

regulation of tumor necrosis factor superfamily cytokine production
cell differentiation involved in kidney development
cardiac muscle tissue morphogenesis
regulation of lymphocyte proliferation
alpha-beta T cell activation involved in immune response
negative regulation of cellular response to growth factor stimulus
positive regulation of MAPK cascade
regulation of vascular permeability
positive regulation of cytoskeleton organization
response to estrogen
cardiac chamber morphogenesis
CD4-positive, alpha-beta T cell activation
apoptotic mitochondrial changes
negative regulation of cytokine production
Th1 and Th2 cell differentiation
Parasite infection
Ras protein signal transduction
negative regulation of cell migration involved in sprouting angiogenesis
biomineral tissue development
biomineralization
cytokine production involved in immune response
positive regulation of lymphocyte activation
cation homeostasis
Glycosaminoglycan metabolism
morphogenesis of a branching structure
RAC1 GTPase cycle
negative regulation of epithelial cell migration
regulation of Ras protein signal transduction
positive regulation of glial cell differentiation
negative regulation of leukocyte cell-cell adhesion
ventricular septum development
mitochondrial membrane organization
ECM proteoglycans
positive regulation of histone modification
Shigellosis
gliogenesis
tumor necrosis factor production
protein deacetylation
regulation of membrane permeability
positive regulation of leukocyte proliferation
regulation of alpha-beta T cell differentiation
cardiac septum development
CD4-positive, alpha-beta T cell differentiation involved in immune response
regulation of cytosolic calcium ion concentration
Thyroid hormones production and peripheral downstream signaling effects
leukocyte activation involved in immune response
regulation of adaptive immune response based on somatic recombination of immune receptors built from immunoglobulin superfamily domains
immune effector process
regulation of cell migration involved in sprouting angiogenesis
endocardial cushion development
T-helper 1 type immune response
Platelet degranulation

regulation of leukocyte differentiation
negative regulation of anoikis
receptor internalization
Non-integrin membrane-ECM interactions
vesicle fusion
Cell surface interactions at the vascular wall
divalent inorganic cation homeostasis
developmental maturation
peptidyl-tyrosine phosphorylation
NABA ECM GLYCOPROTEINS
cell surface receptor signaling pathway involved in heart development
extracellular structure organization
regulation of production of molecular mediator of immune response
semi-lunar valve development
Leishmania phagocytosis
Response to elevated platelet cytosolic Ca^{2+}
endocardial cushion morphogenesis
cardiac septum morphogenesis
inorganic ion homeostasis
positive regulation of T cell proliferation
positive regulation of production of molecular mediator of immune response
vascular associated smooth muscle cell differentiation
alpha-beta T cell activation
metal ion homeostasis
cell projection morphogenesis
defense response to bacterium
regulation of blood vessel endothelial cell migration
response to interferon-alpha
aminoglycan metabolic process
positive regulation of protein-containing complex assembly
Signaling by GPCR
PID NOTCH PATHWAY
Heart development
Transcriptional regulation by RUNX3
cell-substrate adhesion
exocytosis
neural crest cell migration
lymphocyte differentiation
positive regulation of epithelial to mesenchymal transition
Inflammatory bowel disease (IBD)
Nervous system development
mesenchymal cell development
negative regulation of Wnt signaling pathway
NABA ECM AFFILIATED
extracellular matrix disassembly
cellular divalent inorganic cation homeostasis
heart valve morphogenesis
negative regulation of striated muscle cell differentiation
regulation of small GTPase mediated signal transduction
adaptive immune response based on somatic recombination of immune receptors built from immunoglobulin superfamily domains
T-helper 1 cell differentiation
cell-cell junction organization

negative regulation of lymphocyte activation
negative regulation of leukocyte activation
extrinsic apoptotic signaling pathway
positive regulation of T cell differentiation
T cell activation involved in immune response
neural crest cell development
adenylate cyclase-activating G protein-coupled receptor signaling pathway
Notch signaling pathway (Netpath)
endothelial cell proliferation
negative regulation of neurogenesis
miRNA regulation of DNA damage response
negative regulation of cell activation
positive regulation of lymphocyte differentiation
cell cycle phase transition
regulation of T cell proliferation
regulation of actin cytoskeleton organization
regulation of extrinsic apoptotic signaling pathway
Factors involved in megakaryocyte development and platelet production
response to interferon-gamma
positive regulation of nervous system development
positive regulation of stress-activated protein kinase signaling cascade
stem cell differentiation
regulation of cell development
neuron projection morphogenesis
Burn wound healing
peptidyl-tyrosine modification
organelle membrane fusion
T-helper 2 cell differentiation
regulation of mononuclear cell proliferation
cellular cation homeostasis
regulation of histone modification
positive regulation of organelle organization
calcium ion homeostasis
regulation of immune effector process
ear development
regulation of phagocytosis
response to X-ray
inner ear development
B cell activation
positive regulation of epithelial cell proliferation
anatomical structure maturation
negative regulation of blood vessel endothelial cell migration
negative regulation of transmembrane receptor protein serine/threonine kinase signaling pathway
neuron projection guidance
histone modification
alpha-beta T cell differentiation involved in immune response
regulation of oligodendrocyte differentiation
regulation of receptor signaling pathway via STAT
regulation of protein kinase B signaling
positive regulation of endothelial cell migration
regulation of type 2 immune response
aortic valve development
lymphocyte migration

positive regulation of neurogenesis
skin development
type 2 immune response
negative regulation of biomineralization
regulation of neurogenesis
HIF-1 signaling pathway
small GTPase mediated signal transduction
regulation of leukocyte apoptotic process
Ebola virus pathway in host
gland morphogenesis
NABA CORE MATRISOME
PID LYSOPHOSPHOLIPID PATHWAY
negative regulation of immune system process
cardiac chamber development
cell morphogenesis involved in neuron differentiation
mesenchyme morphogenesis
sensory organ development
Lung fibrosis
Diseases of glycosylation
macromolecule deacylation
regulation of neuron differentiation
Dilated cardiomyopathy
regulation of hemopoiesis
response to light stimulus
myotube differentiation
regulation of actin filament-based process
response to UV
Neovascularisation processes
regulation of leukocyte proliferation
Basal cell carcinoma
hematopoietic progenitor cell differentiation
regulation of biomineral tissue development
muscle tissue morphogenesis
Axon guidance
negative regulation of transforming growth factor beta receptor signaling pathway
muscle adaptation
negative regulation of mitotic cell cycle
PID THROMBIN PAR1 PATHWAY
regulation of mitochondrial membrane permeability
MicroRNAs in cancer
regulation of glial cell differentiation
regulation of extracellular matrix assembly
FCGR3A-mediated phagocytosis
axonogenesis
negative regulation of protein catabolic process
cellular response to vascular endothelial growth factor stimulus
cell fate commitment
regulation of lymphocyte differentiation
Regulation of actin dynamics for phagocytic cup formation
positive regulation of cytosolic calcium ion concentration
positive regulation of endothelial cell proliferation
positive regulation of leukocyte differentiation
aortic valve morphogenesis

		stem cell development
		regulation of protein binding
		positive regulation of ERK1 and ERK2 cascade
		anoikis
		T-helper cell differentiation
		platelet activation
		thyroid hormone signaling pathway
		negative regulation of muscle cell differentiation
		Acute viral myocarditis
		positive regulation of stress-activated MAPK cascade
		regulation of bone mineralization
		leukocyte apoptotic process
		Deubiquitination
		atrioventricular valve development
		leukocyte migration
		cellular component morphogenesis
		striated muscle cell differentiation
		G alpha (q) signalling events
		regulation of endothelial cell proliferation
		positive regulation of protein kinase B signaling
		regulation of MAPK cascade
		cellular calcium ion homeostasis
		G1/S transition of mitotic cell cycle
		positive regulation of blood vessel endothelial cell migration
		regulation of neural precursor cell proliferation
		cardiac epithelial to mesenchymal transition
		regulation of striated muscle cell differentiation
Tub	1008	Ovarian infertility
		regulation of amino acid import across plasma membrane
		detoxification
		Defects in cobalamin (B12) metabolism
		Citrate cycle (TCA cycle)
		Neural crest cell migration in cancer
		response to zinc ion
		PID AVB3 OPN PATHWAY
		energy derivation by oxidation of organic compounds
		negative regulation of viral process
		p53 transcriptional gene network
		amino sugar metabolic process
		MyD88 dependent cascade initiated on endosome
		plasma lipoprotein particle organization
		regulation of ion transport
		aspartate family amino acid metabolic process
		Regulation of TLR by endogenous ligand
		regulation of nuclear-transcribed mRNA poly(A) tail shortening
		deoxyribose phosphate metabolic process
		Transmission across Chemical Synapses
		chronic inflammatory response
		negative regulation of macrophage derived foam cell differentiation
		Tryptophan metabolism
		glucan metabolic process
		Glutamate Neurotransmitter Release Cycle
		carboxylic acid transmembrane transport

supramolecular fiber organization
negative regulation of ion transport
cholesterol storage
response to xenobiotic stimulus
regulation of phospholipid metabolic process
catecholamine biosynthetic process
NIK/NF-kappaB signaling
fatty acid biosynthetic process
NF-kappaB signaling pathway
regulation of transcription from RNA polymerase II promoter in response to stress
Initial triggering of complement
renal vesicle development
alpha-amino acid metabolic process
alpha-amino acid catabolic process
response to salt stress
regulation of biological process involved in symbiotic interaction
peptide secretion
SREBF and miR33 in cholesterol and lipid homeostasis
organophosphate ester transport
interleukin-5 production
deoxyribonucleotide metabolic process
PID P38 ALPHA BETA DOWNSTREAM PATHWAY
alpha-amino acid biosynthetic process
establishment of protein localization to extracellular region
Oxidative Stress Induced Senescence
Signaling by Nuclear Receptors
Carbon metabolism
positive regulation of cysteine-type endopeptidase activity involved in apoptotic process
organic hydroxy compound biosynthetic process
endothelium development
positive regulation of sterol transport
fatty acid oxidation
nitrogen cycle metabolic process
regulation of sterol transport
regulation of endopeptidase activity
MECP2 regulates neuronal receptors and channels
pteridine-containing compound metabolic process
negative regulation of response to wounding
NR1H3 & NR1H2 regulate gene expression linked to cholesterol transport and efflux
Proximal tubule transport
primary alcohol metabolic process
positive regulation of neuron death
ABC transporters
protein-lipid complex subunit organization
peptidyl-proline modification
positive regulation of heart contraction
cellular modified amino acid metabolic process
receptor-mediated endocytosis
negative regulation of mitochondrion organization
oligosaccharide metabolic process
regulation of cholesterol transport
aspartate family amino acid catabolic process
regulation of nucleotide metabolic process

cardiocyte differentiation
NR1H2 and NR1H3-mediated signaling
MAPK targets/Nuclear events mediated by MAP kinases
phospholipid biosynthetic process
positive regulation of glucose transmembrane transport
regulation of ATP metabolic process
glycosyl compound catabolic process
regulation of system process
lipid homeostasis
response to arsenic-containing substance
neutral lipid biosynthetic process
leukocyte migration involved in inflammatory response
sphingolipid metabolic process
regulation of peptidase activity
nucleic acid phosphodiester bond hydrolysis
PID P75 NTR PATHWAY
serine family amino acid catabolic process
Staphylococcus aureus infection
protein localization to membrane
Longevity regulating pathway
Thyroid stimulating hormone (TSH) signaling pathway
behavior
Defects in vitamin and cofactor metabolism
thioester metabolic process
cellular response to toxic substance
TP53 Regulates Transcription of DNA Repair Genes
cellular response to interleukin-4
response to cold
toll-like receptor 4 signaling pathway
regulation of coagulation
positive regulation of response to wounding
platelet-derived growth factor receptor signaling pathway
positive regulation of leukocyte chemotaxis
regulation of type B pancreatic cell proliferation
regulation of ketone biosynthetic process
positive regulation of fatty acid oxidation
cellular response to lipoprotein particle stimulus
ATP generation from ADP
regulation of generation of precursor metabolites and energy
nucleoside phosphate metabolic process
PID ATF2 PATHWAY
organelle fusion
regulation of cellular carbohydrate metabolic process
GABA biosynthesis, eukaryotes, putrescine ≥ GABA
Toll-like receptor signaling pathway
regulation of interleukin-5 production
regulation of cholesterol efflux
positive regulation of blood coagulation
protein dephosphorylation
T cell apoptotic process
maintenance of gastrointestinal epithelium
catecholamine metabolic process
response to organophosphorus

positive regulation of macrophage activation
protein peptidyl-prolyl isomerization
lipid localization
Cholesterol biosynthesis
folic acid transport
macrophage derived foam cell differentiation
cellular response to growth hormone stimulus
Proximal tubule bicarbonate reclamation
fatty acid catabolic process
MyD88: MAL (TIRAP) cascade initiated on plasma membrane
metanephric epithelium development
protein localization to extracellular region
Resolution of Abasic Sites (AP sites)
Alanine, aspartate and glutamate metabolism
protein secretion
regulation of hemostasis
Alanine and aspartate metabolism
activation of cysteine-type endopeptidase activity involved in apoptotic process
smooth muscle cell proliferation
amino acid import
fatty acid metabolic process
regulation of secretion
monosaccharide biosynthetic process
NAD metabolic process
Estrogen receptor pathway
metanephric nephron development
response to mineralocorticoid
Ethanol effects on histone modifications
Regulation of toll-like receptor signaling pathway
high-density lipoprotein particle remodeling
glycogen metabolic process
circadian entrainment
positive regulation of immune response
release of cytochrome c from mitochondria
Protein localization
cholesterol homeostasis
negative regulation of myeloid cell differentiation
cellular response to reactive nitrogen species
programmed necrotic cell death
SLC-mediated transmembrane transport
Transcriptional misregulation in cancer
regulation of phosphatidylinositol 3-kinase activity
G1/S Transition
nephron epithelium morphogenesis
sterol transport
regulation of toll-like receptor 3 signaling pathway
intracellular cholesterol transport
nucleoside diphosphate metabolic process
reverse cholesterol transport
Toll Like Receptor 10 (TLR10) Cascade
Golgi to endosome transport
negative regulation of plasminogen activation
protein homotetramerization

Oxysterols derived from cholesterol
PID NFKAPPAB CANONICAL PATHWAY
vitamin transport
Interferon Signaling
Citrate cycle (TCA cycle, Krebs cycle)
regulation of peptide hormone secretion
mesonephric epithelium development
PID MYC REPRESS PATHWAY
macrophage activation
I-kappaB kinase/NF-kappaB signaling
regulation of lipoprotein particle clearance
regulation of transmembrane transport
positive regulation of digestive system process
positive regulation of coagulation
neutral lipid metabolic process
carbohydrate derivative catabolic process
Metabolism of amino acids and derivatives
urea metabolic process
aromatic amino acid family metabolic process
Gluconeogenesis, oxaloacetate ≥ fructose-6P
regulation of kidney development
Defective Intrinsic Pathway for Apoptosis
positive regulation of branching involved in ureteric bud morphogenesis
positive regulation of cellular response to transforming growth factor beta stimulus
cellular response to amino acid starvation
regulation of protein processing
positive regulation of lipid transport
tertiary alcohol metabolic process
Cholesterol metabolism with Bloch and Kandutsch-Russell pathways
Glycolysis/Gluconeogenesis
response to cAMP
regulation of epidermal cell differentiation
amide transport
Phenylalanine metabolism
oligosaccharide catabolic process
myeloid leukocyte activation
TGF-beta receptor signaling
acute inflammatory response
Growth hormone receptor signaling
Vitamin digestion and absorption
glucosamine-containing compound metabolic process
Aberrant regulation of mitotic G1/S transition in cancer due to RB1 defects
intracellular sterol transport
regulation of cholesterol storage
regulation of epidermis development
negative regulation of tissue remodeling
NOD-like receptor signaling pathway
positive regulation of peptidase activity
response to endoplasmic reticulum stress
vitamin transmembrane transport
nucleoside phosphate biosynthetic process
Influenza A
PID HIF1 TFPATHWAY

Toll Like Receptor 7/8 (TLR7/8) Cascade
Starch and sucrose metabolism
2-oxoglutarate metabolic process
vascular process in circulatory system
nucleotide phosphorylation
vascular wound healing
PID RB 1PATHWAY
regulation of DNA-templated transcription, initiation
regulation of smooth muscle cell proliferation
SA G1 AND S PHASES
regulation of phosphatidylcholine catabolic process
glycoprotein metabolic process
generation of precursor metabolites and energy
amine biosynthetic process
Circadian rhythm genes
cholesterol metabolic process
multicellular organismal homeostasis
PID TAP63 PATHWAY
Statin inhibition of cholesterol production
L-phenylalanine catabolic process
protein-containing complex remodeling
Toll Like Receptor TLR1:TLR2 Cascade
purine nucleoside bisphosphate metabolic process
dephosphorylation
Transcriptional Regulation by E2F6
positive regulation of smooth muscle cell proliferation
Toll Like Receptor 2 (TLR2) Cascade
Cellular response to chemical stress
regulation of triglyceride biosynthetic process
nucleotide-binding oligomerization domain containing signaling pathway
regulation of nuclear-transcribed mRNA catabolic process, deadenylation-dependent decay
erythrose 4-phosphate/phosphoenolpyruvate family amino acid catabolic process
positive regulation of lipid metabolic process
Glyoxylate metabolism and glycine degradation
inositol lipid-mediated signaling
regulation of bone remodeling
positive regulation of organic acid transport
Endochondral ossification
steroid hormone biosynthetic process
mesonephric tubule development
response to aluminum ion
myeloid leukocyte migration
bone resorption
regulation of protein maturation
pentose-phosphate shunt
negative regulation of peptidase activity
Pertussis
zymogen activation
cellular response to starvation
Apoptosis
glycerolipid catabolic process
cellular response to extracellular stimulus
Jak-STAT signaling pathway

sterol homeostasis
otic vesicle development
ribonucleotide metabolic process
plasminogen activation
labyrinthine layer development
Scavenging by Class A Receptors
viral transcription
catechol-containing compound biosynthetic process
Glucocorticoid receptor pathway
regulation of cysteine-type endopeptidase activity
insulin secretion
response to hexose
Arginine biosynthesis
membrane fusion
carboxylic acid biosynthetic process
PID SMAD2 3NUCLEAR PATHWAY
hormone secretion
regulation of T cell apoptotic process
Immune response to tuberculosis
regulation of gonad development
organic anion transport
positive regulation of blood pressure
FOXO-mediated transcription of oxidative stress, metabolic and neuronal genes
blood vessel diameter maintenance
PID RXR VDR PATHWAY
N-acetylglucosamine metabolic process
regulation of leukocyte chemotaxis
Mitochondrial Fatty Acid Beta-Oxidation
viral gene expression
carbohydrate derivative transport
nucleoside bisphosphate metabolic process
cellular response to glucocorticoid stimulus
notochord development
PID FOXO PATHWAY
regulation of mitochondrial fusion
cellular response to glucose stimulus
tricarboxylic acid metabolic process
regulation of macrophage activation
negative regulation of nucleotide metabolic process
cellular lipid catabolic process
Photodynamic therapy-induced HIF-1 survival signaling
TRIF (TICAM1)-mediated TLR4 signaling
Malonate semialdehyde pathway, propanoyl-CoA ≥ acetyl-CoA
TNF signaling pathway
cellular response to corticosteroid stimulus
Urea cycle and metabolism of amino groups
peptidyl-cysteine S-nitrosylation
glycerolipid metabolic process
cellular aldehyde metabolic process
cellular response to inorganic substance
blood circulation
phospholipid efflux
Orexin receptor pathway

cellular amino acid catabolic process
defense response to symbiont
sterol metabolic process
NAD biosynthetic process
phosphate ion transport
Glutathione metabolism
glucose homeostasis
Peroxisomal protein import
cellular response to xenobiotic stimulus
cholesterol transport
L-alpha-amino acid transmembrane transport
positive regulation of proteolysis
regulation of I-kappaB kinase/NF-kappaB signaling
amino acid transport
Fatty acid biosynthesis
regulation of bone resorption
MECP2 and associated Rett syndrome
Phenylalanine and tyrosine metabolism
lipoprotein metabolic process
regulation of carbohydrate catabolic process
Apoptosis-related network due to altered Notch3 in ovarian cancer
Pyruvate metabolism
regulation of peptide transport
doxorubicin metabolic process
carbohydrate derivative biosynthetic process
polyketide metabolic process
type B pancreatic cell proliferation
mesoderm development
negative regulation of glycolytic process
positive regulation of inflammatory response
positive regulation of steroid metabolic process
2'-deoxyribonucleotide metabolic process
response to fatty acid
circadian regulation of gene expression
PPAR signaling pathway
intracellular lipid transport
positive regulation of cysteine-type endopeptidase activity
PPARA activates gene expression
renal water homeostasis
medium-chain fatty acid metabolic process
Complement and coagulation cascades
ER-nucleus signaling pathway
Nonalcoholic fatty liver disease
beta-Alanine metabolism
Pentose phosphate pathway
plasma lipoprotein particle assembly
protein-lipid complex remodeling
Cyclin D associated events in G1
phenol-containing compound metabolic process
Oxytocin signaling pathway
TRAF6 mediated induction of NFκB and MAP kinases upon TLR7/8 or 9 activation
amino acid transmembrane transport
regulation of lipid storage

FOXO-mediated transcription
acylglycerol metabolic process
Dissolution of Fibrin Clot
Retinoid metabolism and transport
PID TELOMERASE PATHWAY
cellular nitrogen compound catabolic process
acetyl-CoA metabolic process
organophosphate catabolic process
Mitophagy-animal
cellular biogenic amine metabolic process
cholesterol efflux
positive regulation of I-kappaB kinase/NF-kappaB signaling
vasodilation
biological process involved in symbiotic interaction
positive regulation of response to external stimulus
negative regulation of cold-induced thermogenesis
negative regulation of blood coagulation
negative regulation of anion transport
regulation of purine nucleotide metabolic process
protein nitrosylation
regulation of blood coagulation
PID HNF3B PATHWAY
response to osmotic stress
Transcriptional regulation of white adipocyte differentiation
heterocycle catabolic process
NRF2 pathway
Toll Like Receptor TLR6:TLR2 Cascade
metanephric nephron tubule morphogenesis
PID FRA PATHWAY
water-soluble vitamin metabolic process
monocarboxylic acid biosynthetic process
pancreas development
Glycolysis and gluconeogenesis
epithelial cell apoptotic process
cellular response to metal ion
leukocyte aggregation
myeloid cell differentiation
organic acid transport
Arachidonic acid metabolism
low-density lipoprotein particle clearance
cellular biogenic amine biosynthetic process
Glucose metabolism
regulation of anion transmembrane transport
cellular response to hypoxia
PID ERBB1 DOWNSTREAM PATHWAY
response to monosaccharide
regulation of toll-like receptor signaling pathway
negative regulation of protein serine/threonine kinase activity
glucose 6-phosphate metabolic process
digestion
fructose metabolic process
SNARE interactions in vesicular transport
muscle cell proliferation

Biological oxidations
regulation of plasma lipoprotein particle levels
regulation of mitochondrion organization
positive regulation of lipid localization
amino acid import across plasma membrane
STING pathway in Kawasaki-like disease and COVID-19
Influence of laminopathies on Wnt signaling
Asparagine N-linked glycosylation
response to cadmium ion
regulation of phosphatidylcholine metabolic process
RNA Polymerase I Transcription Initiation
G protein-coupled receptor signaling pathway involved in heart process
response to testosterone
PID AURORA A PATHWAY
protein tetramerization
nucleotide biosynthetic process
regulation of systemic arterial blood pressure mediated by a chemical signal
monocarboxylic acid metabolic process
MyD88-independent TLR4 cascade
regulation of branching involved in ureteric bud morphogenesis
regulation of acute inflammatory response
response to calcium ion
fatty acid beta-oxidation
intestinal absorption
Diseases of carbohydrate metabolism
leukocyte chemotaxis
phosphatidylcholine catabolic process
negative regulation of fibrinolysis
erythrose 4-phosphate/phosphoenolpyruvate family amino acid metabolic process
foam cell differentiation
high-density lipoprotein particle assembly
pancreatic juice secretion
neural tube formation
regulation of amino acid transmembrane transport
secondary alcohol metabolic process
C21-steroid hormone biosynthetic process
PID CD40 PATHWAY
positive regulation of cholesterol transport
glycosphingolipid catabolic process
ribose phosphate biosynthetic process
response to toxic substance
Propanoate metabolism
Ferroptosis
Regulation of lipid metabolism by PPARalpha
regulation of macrophage derived foam cell differentiation
Potential therapeutics for SARS
Fatty acid degradation
Photodynamic therapy-induced NFE2L2 (NRF2) survival signaling
acyl-CoA metabolic process
neurotransmitter metabolic process
cell proliferation involved in kidney development
pyridine-containing compound biosynthetic process

signal release
regulation of hormone levels
positive regulation of hemostasis
purine ribonucleoside diphosphate metabolic process
mesonephros development
Wnt signaling pathway and pluripotency
nucleobase-containing small molecule metabolic process
defense response to Gram-negative bacterium
RIPK1-mediated regulated necrosis
growth hormone receptor signaling pathway
lipid storage
positive regulation of muscle tissue development
Nuclear receptors in lipid metabolism and toxicity
Dopaminergic synapse
positive regulation of epithelial cell differentiation
regulation of macroautophagy
NADP metabolic process
astrocyte differentiation
positive regulation of hydrolase activity
nucleotide metabolic process
Osteoclast differentiation
anion transmembrane transport
regulation of cyclin-dependent protein kinase activity
cellular carbohydrate catabolic process
homotypic cell-cell adhesion
carbohydrate homeostasis
negative regulation of viral transcription
amine transport
NADH metabolic process
negative regulation of bone remodeling
regulation of digestive system process
Myometrial relaxation and contraction pathways
PID TOLL ENDOGENOUS PATHWAY
IL-5 signaling pathway
nicotinamide nucleotide biosynthetic process
movement in host environment
negative regulation of macroautophagy
negative regulation of epithelial cell proliferation
epithelial tube formation
entry into host
ETS2-FOS-JUN complex
Leishmaniasis
cellular amino acid biosynthetic process
negative regulation of bone resorption
regulation of homotypic cell-cell adhesion
positive regulation of anion transport
mitochondrion organization
phospholipid homeostasis
regulation of secretion by cell
positive regulation of DNA-binding transcription factor activity
toll-like receptor signaling pathway
DNA Repair
IL-4 signaling pathway

skeletal muscle cell differentiation
smooth muscle tissue development
lymphocyte apoptotic process
negative regulation of protein kinase activity
cellular response to fatty acid
response to activity
DNA repair pathways, full network
Phagosome
ribonucleoside diphosphate metabolic process
Salmonella infection
regulation of fatty acid metabolic process
regulation of progesterone biosynthetic process
autocrine signaling
regulation of fibrinolysis
TCA cycle and deficiency of pyruvate dehydrogenase complex (PDHc)
cold-induced thermogenesis
IRAK4 deficiency (TLR2/4)
catechol-containing compound metabolic process
modulation of process of other organism
response to magnesium ion
Insulin signaling pathway
regulation of protein secretion
c-Fos-c-Jun-SAF-1 complex
positive regulation of secretion
regulation of osteoblast differentiation
cellular carbohydrate metabolic process
negative regulation of amino acid transport
G1 Phase
Copper homeostasis
cellular response to oxygen levels
TGF-beta receptor signaling in skeletal dysplasias
positive regulation of fat cell differentiation
negative regulation of lipid localization
SARS-CoV-2 innate immunity evasion and cell-specific immune response
dicarboxylic acid metabolic process
Lysine degradation
protein-lipid complex assembly
carbohydrate catabolic process
regulation of myeloid cell differentiation
toll-like receptor 3 signaling pathway
positive regulation of nitric-oxide synthase activity
NADPH regeneration
O_2/CO_2 exchange in erythrocytes
Farnesoid X receptor pathway
MyD88 deficiency (TLR2/4)
defense response to virus
glycerophospholipid metabolic process
intrinsic apoptotic signaling pathway
negative regulation of coagulation
response to growth hormone
Defective binding of RB1 mutants to E2F1, (E2F2, E2F3)
L-amino acid transport

Protein digestion and absorption
Vitamin B12 disorders
AMPK signaling pathway
serine family amino acid metabolic process
tricarboxylic acid cycle
phospholipid catabolic process
organic cyclic compound catabolic process
PID HNF3A PATHWAY
regulation of lipid catabolic process
Type I collagen synthesis in the context of osteogenesis imperfecta
maintenance of location
Unfolded Protein Response (UPR)
acetyl-CoA biosynthetic process
Metapathway biotransformation Phase I and II
Cholesterol biosynthesis pathway
ureteric bud development
insulin resistance
Diseases of Immune System
p38MAPK cascade
pyrimidine deoxyribonucleotide catabolic process
deoxyribonucleotide catabolic process
Eicosanoid metabolism via cytochrome P450 monooxygenases (CYP) pathway
ceramide catabolic process
Neuronal System
hormone transport
purine-containing compound metabolic process
Circadian Clock
PPAR-alpha pathway
Sterol regulatory element-binding proteins (SREBP) signaling
regulation of lipid kinase activity
protein localization to plasma membrane
purine nucleotide biosynthetic process
acute-phase response
anion transport
Oncostatin M signaling pathway
regulation of amino acid transport
NADH oxidation
regulation of systemic arterial blood pressure
Photodynamic therapy-induced AP-1 survival signaling
neuroepithelial cell differentiation
bone remodeling
lipid oxidation
hexose biosynthetic process
negative regulation of hydrolase activity
RANKL/RANK signaling pathway
Neuroinflammation and glutamatergic signaling
N-glycan antennae elongation in the medial/trans-Golgi
Amphetamine addiction
RHO GTPase cycle
regulation of peptide secretion
coenzyme A metabolic process
Programmed Cell Death

PID CD8 TCR DOWNSTREAM PATHWAY
Tyrosine metabolism
response to vitamin E
organic hydroxy compound transport
viral entry into host cell
carboxylic acid catabolic process
cellular response to low-density lipoprotein particle stimulus
PID NFAT TFPATHWAY
positive regulation of cellular respiration
regulation of phospholipid catabolic process
SARS-CoV Infections
Plasma lipoprotein assembly, remodeling, and clearance
amyloid fibril formation
negative regulation of lipid storage
thioester biosynthetic process
Erythrocytes take up oxygen and release carbon dioxide
Selenium micronutrient network
regulation of blood pressure
Arginine and proline metabolism
cellular amino acid metabolic process
interleukin-2 production
positive regulation of defense response
glycolytic process
regulation of toll-like receptor 4 signaling pathway
olefinic compound biosynthetic process
organic hydroxy compound metabolic process
Mitochondrial long chain fatty acid beta-oxidation
Fat digestion and absorption
Glycogen storage diseases
positive regulation of cholesterol efflux
quinone metabolic process
negative regulation of T cell apoptotic process
fibrinolysis
cellular response to carbohydrate stimulus
response to lead ion
daunorubicin metabolic process
Angiopoietin-like protein 8 regulatory pathway
organic cation transport
myoblast differentiation
positive regulation of hormone metabolic process
Gluconeogenesis
positive regulation of transcription from RNA polymerase II promoter in response to stress
negative regulation of lipid transport
sulfur compound metabolic process
nicotinamide nucleotide metabolic process
Adipocytokine signaling pathway
beta-Oxidation
PID BCR 5PATHWAY
pyridine nucleotide metabolic process
activation of NF-kappaB-inducing kinase activity
cellular glucan metabolic process
positive regulation of chemotaxis
Apelin signaling pathway

regulation of cysteine-type endopeptidase activity involved in apoptotic process
high-density lipoprotein particle clearance
phosphatidylinositol 3-kinase signaling
amyloid-beta clearance
PID IL6 7 PATHWAY
RAF-independent MAPK1/3 activation
olefinic compound metabolic process
negative regulation of organic acid transport
response to tumor necrosis factor
T-cell antigen receptor (TCR) pathway during Staphylococcus aureus infection
PDGF pathway
cyclic-nucleotide-mediated signaling
activation of immune response
MyD88 cascade initiated on plasma membrane
intracellular receptor signaling pathway
cell chemotaxis
Host-pathogen interaction of human coronaviruses-interferon induction
response to ethanol
regulation of lipid transport
organic acid catabolic process
Fluid shear stress and atherosclerosis
protein complex oligomerization
aromatic amino acid family catabolic process
metanephric tubule development
acyl-CoA biosynthetic process
regulation of phosphatidylinositol 3-kinase signaling
cellular detoxification
thyroid hormone generation
Toll Like Receptor 9 (TLR9) Cascade
regulation of carbohydrate biosynthetic process
triglyceride metabolic process
Metabolism of water-soluble vitamins and cofactors
Erythrocytes take up carbon dioxide and release oxygen
circadian rhythm
cardiac neural crest cell development involved in heart development
Valine, leucine and isoleucine degradation
glycosyl compound metabolic process
positive regulation of fatty acid metabolic process
L-phenylalanine metabolic process
peptide hormone secretion
pyridine nucleotide biosynthetic process
regulation of plasminogen activation
negative regulation of cysteine-type endopeptidase activity involved in apoptotic process
PID ERA GENOMIC PATHWAY
granulocyte migration
acylglycerol biosynthetic process
pyrimidine deoxyribonucleotide metabolic process
muscle system process
regulation of response to wounding
pattern recognition receptor signaling pathway
negative regulation of cholesterol storage
RUNX1 interacts with co-factors whose precise effect on RUNX1 targets is not known
Cellular Senescence

granulocyte chemotaxis
Regulation of PTEN gene transcription
Toll Like Receptor 3 (TLR3) Cascade
positive regulation of transcription from RNA polymerase II promoter in response to endoplasmic reticulum stress
peptide transport
positive regulation of hormone biosynthetic process
plasma lipoprotein particle clearance
muscle tissue development
cellular response to thyroid hormone stimulus
ATM signaling pathway
positive regulation of triglyceride biosynthetic process
Glycerolipid metabolism
response to corticosterone
Histidine metabolism
regulation of transcription initiation from RNA polymerase II promoter
cellular oxidant detoxification
regulation of viral transcription
response to carbohydrate
regulation of fat cell differentiation
regulation of interleukin-2 production
response to interleukin-4
positive regulation of NF-kappaB transcription factor activity
Neuroinflammation
negative regulation of wound healing
positive regulation of neuron apoptotic process
response to glucose
regulation of DNA-binding transcription factor activity
cAMP signaling pathway
progesterone biosynthetic process
gastrulation with mouth forming second
amine metabolic process
androgen metabolic process
regulation of tube diameter
ceramide metabolic process
positive regulation of intrinsic apoptotic signaling pathway
Plasma lipoprotein clearance
neurotransmitter catabolic process
regulation of cold-induced thermogenesis
PGC-1-SRp40-SRp55-SRp75 complex
Endochondral ossification with skeletal dysplasias
Negative regulation of MAPK pathway
Activation of gene expression by SREBF (SREBP)
regulation of neurotransmitter levels
Creation of C4 and C2 activators
PID PDGFRB PATHWAY
progesterone metabolic process
regulation of transcription from RNA polymerase II promoter in response to hypoxia
membrane raft organization
SUMOylation of transcription cofactors
TP53 network
Peroxisomal lipid metabolism
transcription initiation from RNA polymerase II promoter

negative regulation of hemostasis
Fluoropyrimidine activity
response to metal ion
left/right axis specification
TNF-related weak inducer of apoptosis (TWEAK) signaling pathway
pyrimidine nucleotide catabolic process
regulation of monocyte differentiation
Transport to the Golgi and subsequent modification
Metabolic reprogramming in colon cancer
Metabolism of vitamins and cofactors
positive regulation of cold-induced thermogenesis
Glyoxylate and dicarboxylate metabolism
GABA metabolism (aka GHB)
deoxyribose phosphate catabolic process
cellular amine metabolic process
monocarboxylic acid catabolic process
plasma lipoprotein particle remodeling
glycolipid catabolic process
IL-2 signaling pathway
morphogenesis of embryonic epithelium
lipid transport
positive regulation of wound healing
body fluid secretion
pronephros development
purine-containing compound biosynthetic process
SA B CELL RECEPTOR COMPLEXES
mitophagy
embryonic placenta development
Complement activation
purine nucleoside diphosphate metabolic process
nucleoside diphosphate phosphorylation
aminoglycoside antibiotic metabolic process
regulation of intrinsic apoptotic signaling pathway
Neural crest cell migration during development
Amino acid metabolism
Nuclear Receptor transcription pathway
metanephric nephron tubule development
Genotoxicity pathway
response to purine-containing compound
negative regulation of purine nucleotide metabolic process
positive regulation of lipid biosynthetic process
response to fructose
triglyceride biosynthetic process
kidney epithelium development
Bile secretion
regulation of epithelial cell apoptotic process
cellular response to organic cyclic compound
Lysine degradation, lysine ≥ saccharopine ≥ acetoacetyl-CoA
glycerolipid biosynthetic process
metanephric nephron morphogenesis
Vitamin B12 metabolism
digestive system process
phospholipid transport

regulation of insulin secretion
cellular response to decreased oxygen levels
Binding and Uptake of Ligands by Scavenger Receptors
nephron tubule morphogenesis
Apoptosis modulation and signaling
MAP kinase activation
phospholipid metabolic process
positive regulation of nuclear-transcribed mRNA catabolic process, deadenylation-dependent decay
cardiac neural crest cell differentiation involved in heart development
cellular response to steroid hormone stimulus
hydrogen peroxide metabolic process
modified amino acid transport
ribonucleoside bisphosphate metabolic process
endocrine pancreas development
axis specification
toxin metabolic process
regulation of triglyceride metabolic process
regulation of cyclin-dependent protein serine/threonine kinase activity
lipopolysaccharide-mediated signaling pathway
T cell receptor signaling pathway
negative regulation of endopeptidase activity
Glycine, serine and threonine metabolism
Ectoderm differentiation
glycoside metabolic process
regulation of glycolytic process
Toll Like Receptor 5 (TLR5) Cascade
Oxidative damage response
biological process involved in interaction with host
Interleukin-17 signaling
Peroxisome
Phase I-Functionalization of compounds
amino sugar catabolic process
Regulated Necrosis
cellular response to osmotic stress
neutral amino acid transport
gluconeogenesis
DNA-templated transcription, initiation
temperature homeostasis
cellular polysaccharide metabolic process
Metabolism of amine-derived hormones
Complement cascade
Toll Like Receptor 4 (TLR4) Cascade
cellular carbohydrate biosynthetic process
cellular response to nutrient levels
renal vesicle morphogenesis
regulation of anion transport
cellular response to hexose stimulus
neural tube development
Toll-like Receptor Cascades
regulation of astrocyte differentiation
sterol biosynthetic process
PID PS1 PATHWAY
PID IL2 1PATHWAY

response to selenium ion
regulation of nucleotide biosynthetic process
nucleobase-containing compound catabolic process
organophosphate biosynthetic process
response to electrical stimulus
RNA Polymerase III Transcription Termination
organ growth
striated muscle tissue development
regulation of cellular response to stress
Blood clotting cascade
Regulation of necroptotic cell death
Epithelial cell signaling in Helicobacter pylori infection
Sudden infant death syndrome (SIDS) susceptibility pathways
ribose phosphate metabolic process
positive regulation of small molecule metabolic process
positive regulation of blood circulation
IL-17 signaling pathway
metanephric tubule morphogenesis
Oxidative stress response
Neurotransmitter release cycle
positive regulation of triglyceride metabolic process
positive regulation of nuclear-transcribed mRNA poly(A) tail shortening
Metabolic pathway of LDL, HDL and TG, including diseases
regulation of fatty acid oxidation
Transcriptional Regulation by MECP2
Nuclear Events (kinase and transcription factor activation)
positive regulation of cellular amine metabolic process
positive regulation of transforming growth factor beta receptor signaling pathway
Network map of SARS-CoV-2 signaling pathway
Cobalamin (Cbl, vitamin B12) transport and metabolism
Diseases associated with the TLR signaling cascade
Transcriptional Regulation by TP53
carboxylic acid transport
ESR-mediated signaling
regulation of purine nucleotide biosynthetic process
development of primary sexual characteristics
Biosynthesis of amino acids
regulation of wound healing
organic acid biosynthetic process
Modulators of TCR signaling and T cell activation
Complement system
aromatic compound catabolic process
purine nucleotide metabolic process
cellular response to tumor necrosis factor
NGF-stimulated transcription
adaptive thermogenesis
ADP metabolic process
negative regulation of ATP metabolic process
cellular response to salt stress
phosphatidylinositol-mediated signaling
complement activation
regulation of cholesterol metabolic process
positive regulation of endopeptidase activity

		protein homooligomerization
		cGMP-mediated signaling
		Fatty acid metabolism
		gonad development
		Mitotic G1 phase and G1/S transition
		regulation of tube size
		foxo signaling pathway
		left/right pattern formation
		secondary metabolic process
		glutamine family amino acid metabolic process
		pyridine-containing compound metabolic process
		electron transport chain
		Galanin receptor pathway
		response to starvation
		circulatory system process
		dopamine metabolic process
		negative regulation of intracellular signal transduction
		small molecule catabolic process
		cellular response to monosaccharide stimulus
		metanephric nephron epithelium development
		organic acid transmembrane transport
		glycine metabolic process
		sulfur compound transport
		cellular glucose homeostasis
		positive regulation of steroid biosynthetic process
		nephron morphogenesis
		Antiviral and anti-inflammatory effects of Nrf2 on SARS-CoV-2 pathway
		cellular respiration
		vitamin metabolic process
		animal organ formation
		Transcription factor regulation in adipogenesis
		Interferon alpha/beta signaling
PBMC	252	autophagosome assembly
		Adaptive Immune System
		production of miRNAs involved in gene silencing by miRNA
		Macroautophagy
		sphingoid metabolic process
		spermatogenesis
		regulation of receptor recycling
		protein polyubiquitination
		regulation of translation
		amyloid-beta formation
		Inclusion body myositis
		DNA repair
		dorsal/ventral pattern formation
		Malignant pleural mesothelioma
		regulation of protein ubiquitination
		Membrane Trafficking
		Alzheimer's disease
		positive regulation of telomerase activity
		lncRNA in canonical Wnt signaling and colorectal cancer
		Interleukin-1 induced activation of NF-κB
		Autophagy

protein folding
MAPK family signaling cascades
Cellular response to starvation
protein localization to nucleus
regulation of JUN kinase activity
establishment of vesicle localization
Alzheimer's disease and miRNA effects
sphingosine metabolic process
Ciliary landscape
negative regulation of translation
Nuclear Envelope Breakdown
peptidyl-serine modification
regulation of GTPase activity
male meiotic nuclear division
T41 mutants of beta-catenin aren't phosphorylated
regulation of embryonic development
RNA polymerase II preinitiation complex assembly
H19 action Rb-E2F1 signaling and CDK-Beta-catenin activity
Golgi organization
regulation of vascular endothelial growth factor receptor signaling pathway
negative regulation of protein-containing complex disassembly
Ca^{2+} pathway
nucleobase-containing compound transport
VEGFA-VEGFR2 Pathway
pigment granule transport
S33 mutants of beta-catenin aren't phosphorylated
T cell receptor and co-stimulatory signaling
WNT SIGNALING
Signaling by APC mutants
Disassembly of the destruction complex and recruitment of AXIN to the membrane
mRNA processing
regulation of DNA metabolic process
cell junction assembly
Canonical and non-canonical Notch signaling
Ion transport by P-type ATPases
response to heat
mTORC1-mediated signalling
protein K48-linked ubiquitination
ncRNA metabolic process
Amino acids regulate mTORC1
melanosome transport
amyloid precursor protein catabolic process
mRNA metabolic process
modification-dependent protein catabolic process
cellular response to leukemia inhibitory factor
regulation of chromosome organization
Protein processing in endoplasmic reticulum
Signaling by AMER1 mutants
Fc epsilon receptor (FCERI) signaling
positive regulation of transmembrane transport
pigment granule localization
mRNA splicing, via spliceosome
regulation of mitotic cell cycle

peptidyl-serine phosphorylation
male gamete generation
protein refolding
amyloid precursor protein metabolic process
Antigen processing: Ubiquitination & Proteasome degradation
Factors and pathways affecting insulin-like growth factor (IGF1)-Akt signaling
Cohesin complex-Cornelia de Lange syndrome
positive regulation of protein localization to nucleus
skeletal system morphogenesis
positive regulation of nucleocytoplasmic transport
meiotic cell cycle
determination of bilateral symmetry
positive regulation of cell cycle
PID FAK PATHWAY
S37 mutants of beta-catenin aren't phosphorylated
phospholipid dephosphorylation
vacuole organization
diol metabolic process
import into nucleus
regulation of cellular protein localization
positive regulation of DNA metabolic process
Signaling by GSK3beta mutants
response to leukemia inhibitory factor
Degradation of AXIN
Gastric cancer network 2
PID MET PATHWAY
transport across blood-brain barrier
COPII-coated vesicle budding
negative regulation of transport
fibroblast apoptotic process
regulation of nuclear division
MAPK1/MAPK3 signaling
RNA splicing
regulation of RNA splicing
Regulation of Wnt/B-catenin signaling by small molecule compounds
alcohol biosynthetic process
modulation of chemical synaptic transmission
regulation of trans-synaptic signaling
ubiquitin-dependent protein catabolic process
Energy dependent regulation of mTOR by LKB1-AMPK
nucleus organization
response to unfolded protein
APC truncation mutants have impaired AXIN binding
post-embryonic development
regulation of neuron projection regeneration
glial cell development
specification of symmetry
positive regulation of amyloid precursor protein catabolic process
RHOQ GTPase cycle
metanephros development
Cell Cycle
limbic system development
production of small RNA involved in gene silencing by RNA

RHOJ GTPase cycle
ncRNA processing
proteolysis involved in cellular protein catabolic process
postsynaptic modulation of chemical synaptic transmission
regulation of mitochondrial gene expression
Extracellular vesicle-mediated signaling in recipient cells
vesicle localization
brain development
Cell Cycle, Mitotic
melanosome localization
G2/M Transition
segmentation
Diseases of signal transduction by growth factor receptors and second messengers
MTOR signalling
nuclear membrane organization
positive regulation of telomere maintenance via telomerase
Golgi vesicle transport
regulation of mitochondrial translation
negative regulation of defense response
Class I MHC mediated antigen processing & presentation
Metabolism of RNA
heterotypic cell-cell adhesion
Signaling by the B Cell Receptor (BCR)
L-glutamate import
phosphatidylinositol dephosphorylation
telencephalon development
DARPP-32 events
mitotic cell cycle phase transition
C-type lectin receptors (CLRs)
mitotic cell cycle checkpoint signaling
ncRNAs involved in Wnt signaling in hepatocellular carcinoma
cellular response to DNA damage stimulus
regulation of intracellular transport
EPH-ephrin mediated repulsion of cells
regulation of mRNA metabolic process
G protein signaling pathways
S45 mutants of beta-catenin aren't phosphorylated
PID BETA CATENIN NUC PATHWAY
PCP/CE pathway
regulation of protein import
establishment of pigment granule localization
chorion development
L-glutamate transmembrane transport
mTOR signaling pathway
diol biosynthetic process
Beta-catenin independent WNT signaling
RAF/MAP kinase cascade
PID IL8 CXCR2 PATHWAY
regulation of protein import into nucleus
PIWI-interacting RNA (piRNA) biogenesis
Long-term depression
dsRNA processing
establishment of protein localization to organelle

Signaling by AXIN mutants
receptor recycling
regulation of inclusion body assembly
PTK6 Regulates RHO GTPases, RAS GTPase and MAP kinases
extraembryonic membrane development
response to amphetamine
Regulated proteolysis of p75NTR
negative regulation of organelle organization
positive regulation of protein import into nucleus
RNA splicing, via transesterification reactions with bulged adenosine as nucleophile
RNA splicing, via transesterification reactions
Downstream signaling events of B Cell Receptor (BCR)
Truncations of AMER1 destabilize the destruction complex
positive regulation of protein import
acidic amino acid transport
PID WNT CANONICAL PATHWAY
Kisspeptin/kisspeptin receptor system in the ovary
Synthesis of PIPs at the early endosome membrane
HSP90 chaperone cycle for steroid hormone receptors (SHR) in the presence of ligand
positive regulation of DNA biosynthetic process
gamete generation
vesicle-mediated transport to the plasma membrane
cellular pigmentation
spinal cord development
L-glutamate import across plasma membrane
multivesicular body sorting pathway
Ubiquitin mediated proteolysis
PI Metabolism
MET in type 1 papillary renal cell carcinoma
Chaperone Mediated Autophagy
protein import into nucleus
negative regulation of lipid biosynthetic process
Degradation of beta-catenin by the destruction complex
Mesodermal commitment pathway
nuclear transport
Signaling by WNT
Renal cell carcinoma
Signaling by EGFR in Cancer
proteasomal protein catabolic process
negative regulation of cellular amide metabolic process
astrocyte activation
establishment of melanosome localization
Wnt/beta-catenin signaling pathway in leukemia
regulation of proteolysis involved in cellular protein catabolic process
Mitotic G2-G2/M phases
PID MYC ACTIV PATHWAY
somitogenesis
hyaluronan metabolic process
vesicle budding from membrane
Mitochondrial gene expression
Signaling by CTNNB1 phospho-site mutants
PID BETA CATENIN DEG PATHWAY
PID ECADHERIN KERATINOCYTE PATHWAY

PID ANGIOPOIETIN RECEPTOR PATHWAY
nucleocytoplasmic transport
Rab regulation of trafficking
EGFR tyrosine kinase inhibitor resistance
synaptic vesicle cycle
AXIN missense mutants destabilize the destruction complex
modification-dependent macromolecule catabolic process
protein-containing complex disassembly
positive regulation of establishment of protein localization
protein import
membrane protein ectodomain proteolysis
Sphingolipid pathway
Signaling by WNT in cancer
TCF dependent signaling in response to WNT
regulation of transcription elongation from RNA polymerase II promoter
vascular transport
vesicle cargo loading
Beta-catenin phosphorylation cascade
regulation of cellular protein catabolic process