Supporting Information for:

Quantitative Proteomics Reveals Transforming growth factor beta Receptor targeted by Resveratrol and Hesperetin Coformulation in Endothelial Cells

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Running title: tRES+HESP modulates endothelial cell proteome

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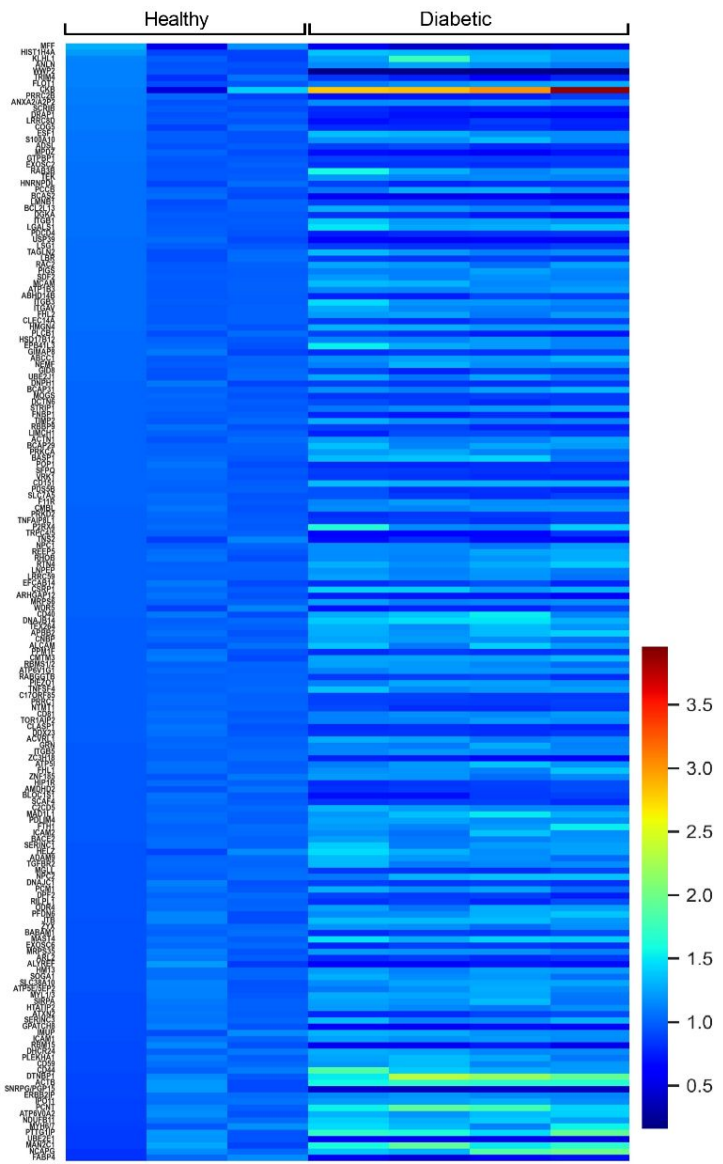
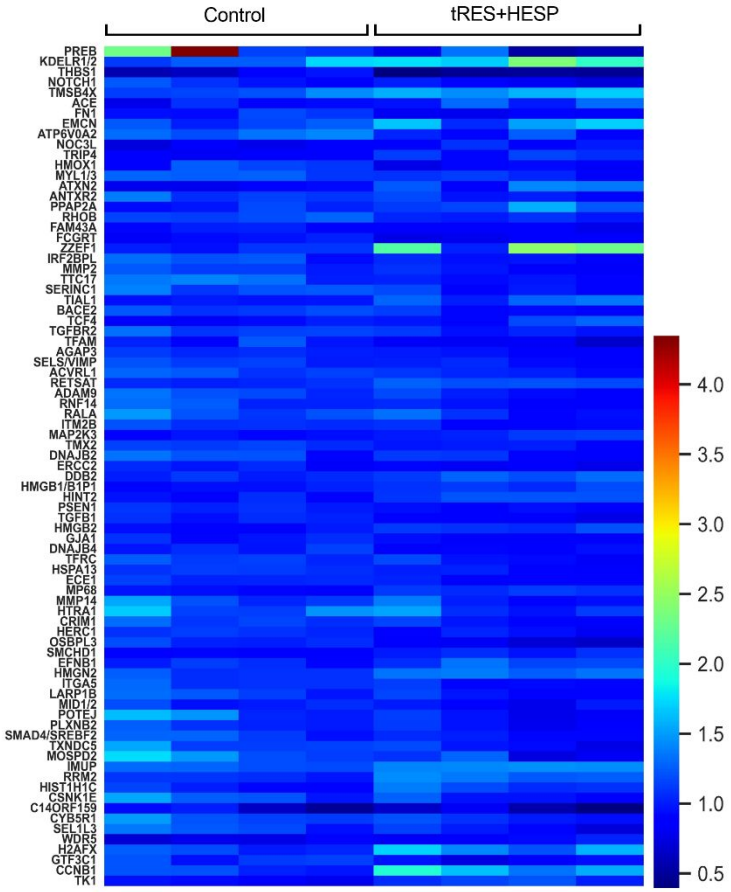
Supplemental Figure 1



Supplemental Figure 1. Heatmap of 179 differentially expressed proteins and their abundance pattern in endothelial

Supplemental Figure 2



Supplemental Figure 2. Heatmap of 81 differentially expressed proteins and their abundance pattern in endothelial cells (ECs) from diabetic controls (n =4) vs. diabetic ECs with tRES+HESP treatment (n = 4).

Supplemental Table 1. The mean and medium for the coefficient of variation (CV) for the normalized protein ratio for each of the 3666 proteins for the 3 groups of samples (healthy controls, diabetic controls, and diabetic controls with tRES+HESP).

	Healthy controls	Diabetic controls	Diabetic tRES+HESP
Mean	0.05	0.06	0.06
Medium	0.04	0.05	0.05

Supplemental Table 2. DAVID analysis for the 179 proteins with significant differences between healthy and diabetic ECs.

DISEASE	Count	PValue	Genes
Type 2 Diabetes| edema | rosiglitazone	35	0.004164	ACVRL1, ITGB1, GRN, CD40, ITGB5, ITGB3, F11R, GPATCH8, LMNB1, ICAM1, ALCAM, LGALS1, TIMP2, ITGAV, MPDZ, LBR, CLASP1, ABCC1, ANXA2, SCAF4, TGFBR2, BACE2, P2RX4, FABP4, NPC1, REEP5, NPC2, TNFSF4, MYL3, PCCB, ZYX, PRKD2, CD44, MGLL, MYH6
Stroke	11	0.030749	DNAJC1, ATP6V1G1, REEP5, TRPC4, ITGB3, DTNBP1, RBMS1, TEK, PLCB1, CD44, ICAM1
CARDIOVASCULAR	57	0.006438	ACVRL1, ITGB1, CD40, C2CD5, MAST4, ITGB3, FHL2, CLEC14A, SOGA1, GPATCH8, LMNB1, ICAM1, TIMP2, BCAP29, PIEZO1, SIRPA, ITGAV, ABCC1, TRPC5, TRPC4, ACTN1, VRK1, CMBL, MRPS6, RHOB, TGFBR2, BACE2, NPC1, RILPL1, MYL3, RBMS1, ADAM9, MYH6, MAD1L1, MGLL, MYH7, DCTN6, HSD17B12, RTN4, ARHGAP12, ATXN2, PRRC1, EPB41L3, APBB2, MPDZ, CLASP1, PLEKHA1, KLHL1, DTNBP1, LNPEP, WWP2, P2RX4, FABP4, REEP5, TNFSF4, SERINC1, TEK
PHARMACOGENOMIC	40	0.007252	ACVRL1, ITGB1, GRN, CD40, ITGB5, CD81, ITGB3, F11R, GPATCH8, LMNB1, ICAM1, ALCAM, LGALS1, TIMP2, ITGAV, MPDZ, LBR,

			CLASP1, S100A10, ABCC1, ANXA2, DTNBP1, SCAF4, TGFBR2, SLC7A5, BACE2, P2RX4, FABP4, NPC1, REEP5, NPC2, TNFSF4, MYL3, PCCB, ZYX, PRKD2, TEK, CD44, MGLL, MYH6
Molecular function	Count	P Value	Genes
integrin binding	13	5.64E-08	ITGB1, CD151, ITGB5, CD81, ITGB3, ACTN1, ICAM2, PRKCA, F11R, ICAM1, TIMP2, ADAM9, ITGAV
protein complex binding	25	1.76E-07	ACVRL1, ITGB1, DCTN6, CD151, ITGB5, CD81, ITGB3, ICAM2, HSD17B12, F11R, ICAM1, TIMP2, ITGAV, CLASP1, ZNF185, ACTN1, HIP1R, PRKCA, SCAF4, TGFBR2, ADAM9, CD44, MYH6, MAD1L1, MYH7
cell adhesion molecule binding	21	2.23E-07	ITGB1, LRRC59, CD151, ITGB5, ANXA2, CD81, TRPC4, ITGB3, ACTN1, ICAM2, PRKCA, SCRIB, F11R, RTN4, ICAM1, ANLN, P2RX4, TIMP2, ADAM9, ITGAV, TAGLN2
protein binding	161	4.75E-06	RAB3B, IPO11, POP1, CD81, ICAM2, F11R, ACTB, GPATCH8, ICAM1, HMGN4, LGALS1, ALCAM, BASP1, FTH1, DPF2, PIEZO1, SIRPA, H4C1, TNS2, ATP6V1G1, FNBP1, LIMCH1, COG5, ACTN1, UBE2E1, VRK1, DNAJB14, PRKCA, SCRIB, ATP1B3, GTPBP1, MYL3, SNRPG, ADAM9, JTB, PRKD2, TAGLN2, MAD1L1, LRRC59, CD151, NDUFB11, TEX264, TOR1AIP2, ARL2, NCAPG, PDS5B, PTTG1IP, RTN4, UBE2J1, STRIP1, BCL2L13, ATXN2, PRRC1, HNRNPDL,

			BLOC1S1, AMDHD2, EPB41L3, ATP6V0A2, ZC3H18, MPDZ, ATP5ME, S100A10, ALYREF, LNPEP, DHCR24, HELZ, PRRC2B, DRAP1, ANLN, REEP5, TNFSF4, SERINC1, ANXA2P2, SERINC3, PIGS, ACVRL1, ITGB1, CD40, ITGB5, ITGB3, FHL1, FHL2, CLEC14A, USP39, DNPH1, LMNB1, BABAM1, PCM1, TRIM4, CSRP1, NTMT1, TNFAIP8L1, WDR5, TIMP2, FLOT1, RAC2, ITGAV, SDF2, LBR, BCAS2, HTATIP2, TRPC5, ADSL, RBM15, ANXA2, TRPC4, ABHD14B, RABGGTB, MRPS6, RHOB, TGFBR2, SLC7A5, BACE2, SFPQ, DNAJC1, NPC1, NPC2, RILPL1, PCCB, RBMS1, NCBP3, PLCB1, MYH6, MGLL, CD44, PFDN6, MYH7, DCTN6, GRN, HM13, DDX23, HSD17B12, MFF, PPM1F, LRRC8D, RBBP9, APBB2, CD59, CKB, PCNT, EXOSC2, PDLIM4, CLASP1, BCAP31, ZNF185, CMTM3, PLEKHA1, CNBP, KLHL1, HIP1R, DTNBP1, ERBIN, WWP2, ATP5F1E, SCAF4, FABP4, P2RX4, GID8, ZYX, PDCD4, TEK
macromolecular complex binding	32	6.27E-06	ACVRL1, ITGB1, DCTN6, CD151, ITGB5, CD81, ITGB3, ICAM2, HSD17B12, F11R, ACTB, ICAM1, HMGN4, TIMP2, ITGAV, CLASP1, ATP5ME, BCAP31, ZNF185, ACTN1, HIP1R, PRKCA, VRK1, SCAF4, TGFBR2, NEMF, SNRPG, ADAM9, CD44, MYH6, MAD1L1, MYH7
virus receptor activity	8	8.19E-06	ITGB1, NPC1, ITGB5, CD81, ITGB3, ITGAV, F11R, ICAM1
extracellular matrix binding	7	2.3E-05	ITGB1, LGALS1, ANXA2, ITGB3, ADAM9, ITGAV, CLEC14A

enzyme binding	41	3.35E-05	ACVRL1, ITGB1, IPO11, CD40, HM13, ITGB3, TOR1AIP2, RTN4, ACTB, UBE2J1, LMNB1, STRIP1, FLOT1, TIMP2, RAC2, ATP6V0A2, SIRPA, ITGAV, CKB, PDLIM4, TNS2, ATP6V1G1, TRPC5, ANXA2, PRKCA, VRK1, ATP1B3, DHCR24, RABGGTB, SCAF4, RHOB, TGFBR2, SFPQ, NPC2, JTB, ADAM9, PRKD2, SERINC1, ANXA2P2, PLCB1, MYH6
ATPase coupled ion transmembrane transporter activity	7	0.000118	ABCC1, ATP6V1G1, ATP6V0A2, ATP1B3, ATP5F1EP2, ATP5F1E, ATP5ME
binding	176	0.00031	RAB3B, IPO11, POP1, CD81, DGKA, ICAM2, F11R, ACTB, GPATCH8, GIMAP8, ICAM1, HMGN4, LGALS1, ALCAM, BASP1, FTH1, DPF2, PIEZO1, SIRPA, H4C1, TNS2, ATP6V1G1, FNBP1, LIMCH1, COG5, ACTN1, UBE2E1, VRK1, DNAJB14, PRKCA, SCRIB, ATP1B3, GTPBP1, MYL1, MYL3, SNRPG, ADAM9, JTB, PRKD2, TAGLN2, MAD1L1, LRRC59, CD151, NDUFB11, TEX264, TOR1AIP2, ARL2, NCAPG, PDS5B, PTTG1IP, RTN4, UBE2J1, STRIP1, BCL2L13, ATXN2, PRRC1, HNRNPDL, BLOC1S1, AMDHD2, EPB41L3, ATP6V0A2, ZC3H18, MPDZ, ATP5ME, S100A10, ALYREF, LNPEP, DHCR24, HELZ, PRRC2B, DRAP1, ANLN, REEP5, TNFSF4, SERINC1, ANXA2P2, SERINC3, PIGS, ACVRL1, ITGB1, C2CD5, CD40, ITGB5, MAST4, ITGB3, FHL1, FHL2, EFCAB14, CLEC14A, USP39, DNPH1, LMNB1, BABAM1, PCM1, TRIM4, CSRP1, NTMT1, TNFAIP8L1,

			WDR5, TIMP2, FLOT1, RAC2, ITGAV, MAN2C1, SDF2, LBR, BCAS2, HTATIP2, ABCC1, TRPC5, ADSL, RBM15, ANXA2, TRPC4, ABHD14B, RABGGTB, MRPS6, RHOB, TGFBR2, SLC7A5, BACE2, SFPQ, LSG1, DNAJC1, NPC1, NEMF, NPC2, RILPL1, PCCB, RBMS1, NCBP3, SNRPGP15, PLCB1, MYH6, RBMS2, MGLL, CD44, PFDN6, MYH7, DCTN6, GRN, MRPS35, HM13, DDX23, HSD17B12, MFF, PPM1F, EXOSC6, LRRC8D, RBBP9, APBB2, CD59, CKB, PCNT, EXOSC2, PDLIM4, CLASP1, BCAP31, ZNF185, CMTM3, PLEKHA1, CNBP, KLHL1, HIP1R, DTNBP1, ERBIN, WWP2, ATP5F1E, SCAF4, FABP4, P2RX4, GID8, ZYX, PDCD4, ESF1, TEK
RNA binding	36	0.000485	LRRC59, GRN, MRPS35, POP1, DDX23, GPATCH8, RTN4, EXOSC6, ATXN2, LGALS1, HNRNPDL, CSRP1, ZC3H18, H4C1, LBR, EXOSC2, RBM15, ANXA2, CNBP, ALYREF, ACTN1, HELZ, MRPS6, GTPBP1, PRRC2B, SCAF4, SFPQ, NEMF, SNRPG, ZYX, PDCD4, RBMS1, ESF1, NCBP3, SNRPGP15, RBMS2
ATPase activity, coupled to transmembrane movement of ions, rotational mechanism	5	0.000513	ATP6V1G1, ATP6V0A2, ATP5F1EP2, ATP5F1E, ATP5ME
cation-transporting ATPase activity	6	0.000555	ATP6V1G1, ATP6V0A2, ATP1B3, ATP5F1EP2, ATP5F1E, ATP5ME

hydrolase activity, acting on acid anhydrides, catalyzing transmembrane movement of substances	7	0.001294	ABCC1, ATP6V1G1, ATP6V0A2, ATP1B3, ATP5F1EP2, ATP5F1E, ATP5ME
ATPase activity, coupled to transmembrane movement of substances	7	0.001294	ABCC1, ATP6V1G1, ATP6V0A2, ATP1B3, ATP5F1EP2, ATP5F1E, ATP5ME
P-P-bond-hydrolysis-driven transmembrane transporter activity	7	0.001404	ABCC1, ATP6V1G1, ATP6V0A2, ATP1B3, ATP5F1EP2, ATP5F1E, ATP5ME
primary active transmembrane transporter activity	7	0.001461	ABCC1, ATP6V1G1, ATP6V0A2, ATP1B3, ATP5F1EP2, ATP5F1E, ATP5ME
actin binding	13	0.001717	ITGB1, TRPC5, ZNF185, LIMCH1, ACTN1, HIP1R, KLHL1, ANLN, EPB41L3, MYL3, PDLIM4, MYH6, MYH7
ATPase activity, coupled to movement of substances	7	0.001776	ABCC1, ATP6V1G1, ATP6V0A2, ATP1B3, ATP5F1EP2, ATP5F1E, ATP5ME
active ion transmembrane transporter activity	7	0.002301	ABCC1, ATP6V1G1, ATP6V0A2, ATP1B3, ATP5F1EP2, ATP5F1E, ATP5ME
protease binding	7	0.002385	ITGB1, ANXA2, ITGB3, FLOT1, TIMP2, ITGAV, ANXA2P2

cadherin binding	10	0.004897	ITGB1, LRRC59, ANLN, P2RX4, ANXA2, TRPC4, TAGLN2, SCRIB, F11R, RTN4
ion transmembrane transporter activity	18	0.005035	ABCC1, ATP6V1G1, TRPC5, ANXA2, TRPC4, SLC38A10, ATP1B3, ATP5F1E, SLC7A5, P2RX4, ATP6V0A2, LRRC8D, PIEZO1, ITGAV, ANXA2P2, SERINC3, ATP5F1EP2, ATP5ME
cation transmembrane transporter activity	15	0.005055	ATP6V1G1, TRPC5, ANXA2, TRPC4, ATP1B3, ATP5F1E, SLC7A5, P2RX4, ATP6V0A2, PIEZO1, ITGAV, ANXA2P2, SERINC3, ATP5F1EP2, ATP5ME
calcium channel activity	6	0.006177	TRPC5, P2RX4, ANXA2, TRPC4, ITGAV, ANXA2P2
substrate-specific transporter activity	21	0.006391	ABCC1, ATP6V1G1, TRPC5, IPO11, ANXA2, TRPC4, SLC38A10, ATP1B3, ATP5F1E, SLC7A5, P2RX4, FABP4, NPC1, ATP6V0A2, LRRC8D, PIEZO1, ITGAV, ANXA2P2, SERINC3, ATP5F1EP2, ATP5ME
nucleoside-triphosphatase activity	18	0.006951	RAB3B, ABCC1, ATP6V1G1, DDX23, ARL2, ATP1B3, HELZ, GTPBP1, ATP5F1E, RHOB, LSG1, MYL3, RAC2, ATP6V0A2, ATP5F1EP2, MYH6, ATP5ME, MYH7
calcium ion transmembrane transporter activity	6	0.010281	TRPC5, P2RX4, ANXA2, TRPC4, ITGAV, ANXA2P2

cytoskeletal protein binding	19	0.010763	ITGB1, RAB3B, TRPC5, ZNF185, ANXA2, LIMCH1, ACTN1, HIP1R, KLHL1, ACTB, ANLN, CSRP1, EPB41L3, MYL3, ANXA2P2, PDLIM4, CLASP1, MYH6, MYH7
alcohol binding	5	0.010944	TRPC5, NPC1, NPC2, TRPC4, CD81
protein kinase binding	15	0.011115	ITGB1, ACVRL1, ITGB3, VRK1, ACTB, RHOB, TGFBR2, STRIP1, RAC2, ADAM9, JTB, SIRPA, ITGAV, PRKD2, MYH6
substrate-specific transmembrane transporter activity	18	0.011212	ABCC1, ATP6V1G1, TRPC5, ANXA2, TRPC4, SLC38A10, ATP1B3, ATP5F1E, SLC7A5, P2RX4, ATP6V0A2, LRRC8D, PIEZO1, ITGAV, ANXA2P2, SERINC3, ATP5F1EP2, ATP5ME
ATPase binding	5	0.012234	TRPC5, ATP6V1G1, ATP6V0A2, TOR1AIP2, ATP1B3
pyrophosphatase activity	18	0.012433	RAB3B, ABCC1, ATP6V1G1, DDX23, ARL2, ATP1B3, HELZ, GTPBP1, ATP5F1E, RHOB, LSG1, MYL3, RAC2, ATP6V0A2, ATP5F1EP2, MYH6, ATP5ME, MYH7
hydrolase activity, acting on acid anhydrides	18	0.012666	RAB3B, ABCC1, ATP6V1G1, DDX23, ARL2, ATP1B3, HELZ, GTPBP1, ATP5F1E, RHOB, LSG1, MYL3, RAC2, ATP6V0A2, ATP5F1EP2, MYH6, ATP5ME, MYH7
hydrolase activity, acting on acid anhydrides, in	18	0.012666	RAB3B, ABCC1, ATP6V1G1, DDX23, ARL2, ATP1B3, HELZ, GTPBP1, ATP5F1E, RHOB, LSG1, MYL3, RAC2, ATP6V0A2, ATP5F1EP2, MYH6, ATP5ME, MYH7

phosphorus-containing anhydrides			
kinase binding	16	0.012806	ITGB1, ACVRL1, ITGB3, VRK1, ACTB, RHOB, TGFBR2, STRIP1, RAC2, ADAM9, JTB, SIRPA, ITGAV, PRKD2, TNS2, MYH6
inorganic cation transmembrane transporter activity	12	0.015629	TRPC5, ATP6V1G1, P2RX4, ANXA2, TRPC4, ATP6V0A2, ATP1B3, ITGAV, ANXA2P2, ATP5F1EP2, ATP5F1E, ATP5ME
transporter activity	21	0.021286	ABCC1, ATP6V1G1, TRPC5, IPO11, ANXA2, TRPC4, SLC38A10, ATP1B3, ATP5F1E, SLC7A5, P2RX4, FABP4, NPC1, ATP6V0A2, LRRC8D, PIEZO1, ITGAV, ANXA2P2, SERINC3, ATP5F1EP2, ATP5ME
hydrogen ion transmembrane transporter activity	5	0.022007	ATP6V1G1, ATP6V0A2, ATP5F1EP2, ATP5F1E, ATP5ME
anion binding	40	0.023063	ACVRL1, RAB3B, C2CD5, MAST4, DGKA, DDX23, ARL2, HSD17B12, GIMAP8, ACTB, UBE2J1, RAC2, CKB, LBR, CLASP1, ABCC1, TRPC5, PLEKHA1, ANXA2, TRPC4, HIP1R, UBE2E1, PRKCA, HELZ, VRK1, DHCR24, GTPBP1, SCAF4, RHOB, TGFBR2, LSG1, P2RX4, FABP4, PCCB, PRKD2, TEK, ANXA2P2, PLCB1, MYH6, MYH7
small molecule binding	36	0.024806	ACVRL1, RAB3B, MAST4, CD81, DGKA, DDX23, ARL2, GIMAP8, ACTB, UBE2J1, RAC2, CKB, LBR, CLASP1, ABCC1, TRPC5, TRPC4,

			UBE2E1, PRKCA, HELZ, VRK1, DHCR24, GTPBP1, SCAF4, RHOB, TGFBR2, LSG1, P2RX4, FABP4, NPC1, NPC2, PCCB, PRKD2, TEK, MYH6, MYH7
phosphatidylinositol bisphosphate binding	5	0.029031	PLEKHA1, ANXA2, HIP1R, ANXA2P2, PLCB1
divalent inorganic cation transmembrane transporter activity	6	0.031456	TRPC5, P2RX4, ANXA2, TRPC4, ITGAV, ANXA2P2
ATPase activity, coupled	7	0.033435	ABCC1, ATP6V1G1, ATP6V0A2, ATP1B3, ATP5F1EP2, ATP5F1E, ATP5ME
transmembrane transporter activity	18	0.034437	ABCC1, ATP6V1G1, TRPC5, ANXA2, TRPC4, SLC38A10, ATP1B3, ATP5F1E, SLC7A5, P2RX4, ATP6V0A2, LRRC8D, PIEZO1, ITGAV, ANXA2P2, SERINC3, ATP5F1EP2, ATP5ME
purine ribonucleoside triphosphate binding	27	0.03964	ACVRL1, RAB3B, MAST4, DGKA, DDX23, ARL2, GIMAP8, ACTB, UBE2J1, RAC2, CKB, CLASP1, ABCC1, UBE2E1, PRKCA, HELZ, VRK1, GTPBP1, RHOB, TGFBR2, LSG1, P2RX4, PCCB, PRKD2, TEK, MYH6, MYH7
hydrolase activity	36	0.039654	RAB3B, POP1, HM13, DDX23, ARL2, USP39, DNPH1, PPM1F, AMDHD2, RAC2, ATP6V0A2, RBBP9, MAN2C1, ATP5F1EP2, EXOSC2, TNS2, ATP5ME, ABCC1, ATP6V1G1, ABHD14B, HELZ,

			MOGS, ATP1B3, LNPEP, CMBL, GTPBP1, ATP5F1E, RHOB, BACE2, LSG1, MYL3, ADAM9, PLCB1, MGLL, MYH6, MYH7
identical protein binding	30	0.041909	HM13, ITGB3, FHL2, F11R, MFF, DNPH1, RTN4, ACTB, PCM1, ALCAM, LGALS1, TRIM4, FTH1, TNFAIP8L1, PDLIM4, TNS2, S100A10, ADSL, ANXA2, FNBP1, ACTN1, HIP1R, DRAP1, SFPQ, P2RX4, GID8, TEK, PLCB1, MGLL, MAD1L1
growth factor binding	5	0.049447	ACVRL1, ITGB3, ITGAV, TEK, TGFBR2
Biological process	Count	PValue	Genes
positive regulation of cell adhesion	21	4.81E-08	CD81, ITGB3, ARL2, PRKCA, HSD17B12, F11R, PPM1F, ACTB, TGFBR2, ICAM1, LGALS1, TNFSF4, FLOT1, ADAM9, PIEZO1, SIRPA, ITGAV, PRKD2, TEK, CD44, S100A10
cell adhesion	39	6.42E-08	ACVRL1, ITGB1, CD151, ITGB5, CD81, ITGB3, ICAM2, ARL2, HSD17B12, F11R, PPM1F, ACTB, ICAM1, ALCAM, LGALS1, CSRP1, FLOT1, RAC2, SIRPA, PIEZO1, ITGAV, CLASP1, S100A10, ANXA2, LIMCH1, MCAM, ACTN1, ERBIN, PRKCA, SCRIB, RHOB, TGFBR2, TNFSF4, ZYX, ADAM9, PRKD2, TEK, CD44, MAD1L1
biological adhesion	39	7.2E-08	ACVRL1, ITGB1, CD151, ITGB5, CD81, ITGB3, ICAM2, ARL2, HSD17B12, F11R, PPM1F, ACTB, ICAM1, ALCAM, LGALS1, CSRP1, FLOT1, RAC2, SIRPA, PIEZO1, ITGAV, CLASP1, S100A10, ANXA2,

			LIMCH1, MCAM, ACTN1, ERBIN, PRKCA, SCRIB, RHOB, TGFBR2, TNFSF4, ZYX, ADAM9, PRKD2, TEK, CD44, MAD1L1
actin cytoskeleton organization	25	8.53E-08	ITGB1, ITGB5, F11R, PPM1F, ACTB, ICAM1, ARHGAP12, STRIP1, CSRP1, EPB41L3, RAC2, PDLIM4, CLASP1, S100A10, LIMCH1, ACTN1, HIP1R, KLHL1, DTNBP1, RHOB, ANLN, ZYX, TEK, MYH6, MYH7
actin filament-based process	27	9.29E-08	ITGB1, ITGB5, ITGB3, F11R, PPM1F, ACTB, ICAM1, ARHGAP12, STRIP1, CSRP1, EPB41L3, RAC2, PDLIM4, CLASP1, S100A10, LIMCH1, ACTN1, HIP1R, KLHL1, DTNBP1, RHOB, ANLN, MYL1, ZYX, TEK, MYH6, MYH7
regulation of cell adhesion	27	1.23E-07	ACVRL1, CD81, ITGB3, ARL2, HSD17B12, F11R, PPM1F, ACTB, ICAM1, LGALS1, FLOT1, RAC2, SIRPA, PIEZO1, ITGAV, CLASP1, S100A10, LIMCH1, PRKCA, SCRIB, TGFBR2, TNFSF4, ADAM9, PRKD2, TEK, CD44, MAD1L1
positive regulation of epithelial cell migration	13	1.57E-07	GRN, CD40, ITGB3, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, P2RX4, ADAM9, PRKD2, TEK, CLASP1
cellular component organization or biogenesis	102	1.89E-07	RAB3B, CD81, F11R, ACTB, ICAM1, HMGN4, LGALS1, ALCAM, DPF2, PIEZO1, SIRPA, H4C1, LIMCH1, COG5, ACTN1, UBE2E1, VRK1, DNAJB14, PRKCA, SCRIB, ATP1B3, SNRPG, ADAM9, JTB, PRKD2, MAD1L1, CD151, NDUFB11, TEX264, TOR1AIP2, ARL2,

			NCAPG, PDS5B, RTN4, ARHGAP12, STRIP1, ATXN2, BLOC1S1, EPB41L3, MPDZ, S100A10, DHCR24, ANLN, REEP5, SERINC1, ACVRL1, ITGB1, C2CD5, CD40, ITGB5, MAST4, ITGB3, FHL1, USP39, DNPH1, LMNB1, BABAM1, PCM1, CSRP1, NTMT1, WDR5, FLOT1, RAC2, ITGAV, ABCC1, TRPC5, ANXA2, RHOB, SFPQ, LSG1, NPC1, NEMF, RILPL1, SNRPGP15, PLCB1, MYH6, CD44, PFDN6, MYH7, DCTN6, GRN, DDX23, HSD17B12, MFF, PPM1F, EXOSC6, LRRC8D, APBB2, PCNT, EXOSC2, PDLIM4, CLASP1, BCAP31, PLEKHA1, KLHL1, HIP1R, DTNBP1, ERBIN, SCAF4, ZYX, ESF1, TEK
response to wounding	23	2.82E-07	ITGB1, ACVRL1, GRN, CD40, CD151, ANXA2, CD81, MCAM, DGKA, ITGB3, DTNBP1, PRKCA, SCRIB, F11R, ACTB, TGFBR2, P2RX4, LGALS1, CSRP1, CD59, CD44, CLASP1, S100A10
actomyosin structure organization	13	4.12E-07	ITGB1, ITGB5, LIMCH1, F11R, PPM1F, ANLN, CSRP1, EPB41L3, ZYX, CLASP1, MYH6, S100A10, MYH7
cell-matrix adhesion	14	4.59E-07	ITGB1, ACVRL1, ITGB5, LIMCH1, ITGB3, ACTN1, PPM1F, ZYX, ADAM9, ITGAV, TEK, CD44, CLASP1, S100A10
wound healing	20	4.96E-07	ITGB1, ACVRL1, CD40, CD151, ANXA2, CD81, MCAM, DGKA, ITGB3, DTNBP1, PRKCA, SCRIB, F11R, ACTB, TGFBR2, CSRP1, CD59, CD44, CLASP1, S100A10

epithelial cell migration	17	5.02E-07	ITGB1, ACVRL1, GRN, CD40, ITGB3, PRKCA, CLEC14A, PPM1F, RTN4, RHOB, TGFBR2, ANLN, P2RX4, ADAM9, PRKD2, TEK, CLASP1
epithelium migration	17	5.6E-07	ITGB1, ACVRL1, GRN, CD40, ITGB3, PRKCA, CLEC14A, PPM1F, RTN4, RHOB, TGFBR2, ANLN, P2RX4, ADAM9, PRKD2, TEK, CLASP1
single organism cell adhesion	24	5.93E-07	ITGB1, ITGB5, CD81, ITGB3, PRKCA, SCRIB, F11R, PPM1F, ACTB, TGFBR2, ICAM1, LGALS1, CSRP1, TNFSF4, FLOT1, RAC2, ADAM9, PIEZO1, SIRPA, ITGAV, TEK, CD44, MAD1L1, S100A10
cell-substrate adhesion	17	6.2E-07	ITGB1, ACVRL1, ITGB5, LIMCH1, ITGB3, ACTN1, ARL2, HSD17B12, PPM1F, LGALS1, ZYX, ADAM9, ITGAV, TEK, CD44, CLASP1, S100A10
tissue migration	17	6.88E-07	ITGB1, ACVRL1, GRN, CD40, ITGB3, PRKCA, CLEC14A, PPM1F, RTN4, RHOB, TGFBR2, ANLN, P2RX4, ADAM9, PRKD2, TEK, CLASP1
cell junction assembly	14	8.36E-07	ACVRL1, LIMCH1, ITGB3, ACTN1, ARL2, PRKCA, F11R, PPM1F, ACTB, EPB41L3, FLOT1, TEK, CLASP1, S100A10
cellular component organization	98	9.36E-07	RAB3B, CD81, F11R, ACTB, ICAM1, HMGN4, LGALS1, ALCAM, DPF2, PIEZO1, SIRPA, H4C1, LIMCH1, COG5, ACTN1, UBE2E1, VRK1, DNAJB14, PRKCA, SCRIB, ATP1B3, SNRPG, ADAM9, JTB,

			PRKD2, MAD1L1, CD151, NDUFB11, TEX264, TOR1AIP2, ARL2, NCAPG, PDS5B, RTN4, ARHGAP12, STRIP1, ATXN2, BLOC1S1, EPB41L3, MPDZ, S100A10, DHCR24, ANLN, REEP5, ACVRL1, ITGB1, C2CD5, CD40, ITGB5, MAST4, ITGB3, FHL1, USP39, DNPH1, LMNB1, BABAM1, PCM1, CSRP1, NTMT1, WDR5, FLOT1, RAC2, ITGAV, ABCC1, TRPC5, ANXA2, RHOB, SFPQ, NPC1, NEMF, RILPL1, SNRPGP15, PLCB1, MYH6, CD44, PFDN6, MYH7, DCTN6, GRN, DDX23, HSD17B12, MFF, PPM1F, LRRC8D, APBB2, PCNT, EXOSC2, PDLIM4, CLASP1, BCAP31, PLEKHA1, KLHL1, HIP1R, DTNBP1, ERBIN, SCAF4, ZYX, TEK
localization	95	1.03E-06	ACVRL1, ITGB1, RAB3B, CD40, C2CD5, IPO11, ITGB5, CD81, ITGB3, FHL1, CLEC14A, F11R, ACTB, LMNB1, ICAM1, PCM1, ODR4, FTH1, FLOT1, RAC2, BCAP29, PIEZO1, SIRPA, ITGAV, H4C1, ATP5F1EP2, HTATIP2, ABCC1, TRPC5, ATP6V1G1, ANXA2, FNBP1, TRPC4, LIMCH1, COG5, ACTN1, PRKCA, SCRIB, ATP1B3, RHOB, TGFBR2, SLC7A5, SFPQ, LSG1, DNAJC1, NPC1, NEMF, NPC2, RILPL1, ADAM9, PRKD2, NCBP3, PLCB1, MAD1L1, CD44, GRN, CD151, NDUFB11, HM13, TOR1AIP2, ARL2, SLC38A10, PTTG1IP, MFF, PPM1F, RTN4, UBE2J1, ARHGAP12, ATXN2, BLOC1S1, EPB41L3, ATP6V0A2, LRRC8D, PCNT, EXOSC2, CLASP1, ATP5ME, S100A10, BCAP31, PLEKHA1, MCAM, ALYREF, HIP1R, DTNBP1, ERBIN,

			WWP2, DHCR24, ATP5F1E, ANLN, P2RX4, FABP4, REEP5, ANXA2P2, TEK, SERINC3
single-organism organelle organization	41	1.18E-06	ITGB1, C2CD5, ITGB5, TEX264, ARL2, NCAPG, PDS5B, F11R, MFF, PPM1F, RTN4, ACTB, ICAM1, ARHGAP12, STRIP1, PCM1, CSRP1, EPB41L3, DPF2, RAC2, PCNT, PDLIM4, CLASP1, S100A10, ANXA2, LIMCH1, ACTN1, HIP1R, KLHL1, DTNBP1, ERBIN, VRK1, RHOB, ANLN, SFPQ, RILPL1, ZYX, TEK, MYH6, MAD1L1, MYH7
single organismal cell-cell adhesion	22	1.28E-06	ITGB1, ITGB5, CD81, ITGB3, PRKCA, SCRIB, F11R, PPM1F, ACTB, TGFBR2, ICAM1, LGALS1, CSRP1, TNFSF4, FLOT1, RAC2, ADAM9, PIEZO1, SIRPA, ITGAV, CD44, MAD1L1
endomembrane system organization	24	1.61E-06	ITGB1, RAB3B, C2CD5, TRPC5, ANXA2, COG5, CD81, DTNBP1, TOR1AIP2, ATP1B3, PRKCA, VRK1, SCRIB, F11R, RTN4, ACTB, LMNB1, REEP5, BLOC1S1, RILPL1, EPB41L3, FLOT1, CLASP1, S100A10
single-organism cellular process	142	3.77E-06	RAB3B, CD81, DGKA, F11R, ACTB, GIMAP8, ICAM1, LGALS1, ALCAM, BASP1, FTH1, DPF2, PIEZO1, SIRPA, BCAP29, H4C1, TNS2, ATP6V1G1, LIMCH1, ACTN1, VRK1, DNAJB14, MOGS, PRKCA, SCRIB, ATP1B3, GTPBP1, MYL1, ADAM9, JTB, PRKD2, TAGLN2, MAD1L1, CD151, NDUFB11, TEX264, TOR1AIP2, ARL2, NCAPG, PDS5B, PTTG1IP, RTN4, UBE2J1, ARHGAP12, STRIP1, BCL2L13, ATXN2, BLOC1S1, AMDHD2, EPB41L3, ATP6V0A2, ATP5ME,

			S100A10, MCAM, ALYREF, LNPEP, DHCR24, HELZ, PRRC2B, ANLN, REEP5, TNFSF4, SERINC1, SERINC3, PIGS, ACVRL1, ITGB1, C2CD5, CD40, ITGB5, ITGB3, FHL1, FHL2, CLEC14A, USP39, DNPH1, LMNB1, BABAM1, PCM1, CSRP1, NTMT1, TNFAIP8L1, WDR5, TIMP2, FLOT1, RAC2, ITGAV, ATP5F1EP2, LBR, HTATIP2, ABCC1, TRPC5, ADSL, RBM15, ANXA2, TRPC4, ABHD14B, RHOB, TGFBR2, SLC7A5, BACE2, SFPQ, DNAJC1, NPC1, RILPL1, PCCB, PLCB1, MYH6, MGLL, CD44, PFDN6, MYH7, DCTN6, GRN, HM13, HSD17B12, MFF, PPM1F, EXOSC6, LRRC8D, RBBP9, APBB2, CKB, PCNT, EXOSC2, PDLIM4, CLASP1, BCAP31, PLEKHA1, KLHL1, HIP1R, DTNBP1, ERBIN, WWP2, ATP5F1E, SCAF4, FABP4, P2RX4, GID8, ZYX, PDCD4, TEK
cytoskeleton organization	34	4.56E-06	ITGB1, DCTN6, MAST4, ITGB5, ITGB3, ARL2, F11R, PPM1F, ACTB, ICAM1, ARHGAP12, STRIP1, PCM1, CSRP1, NTMT1, EPB41L3, RAC2, PCNT, MPDZ, PDLIM4, CLASP1, S100A10, LIMCH1, ACTN1, HIP1R, KLHL1, DTNBP1, ERBIN, RHOB, ANLN, ZYX, TEK, MYH6, MYH7
regulation of epithelial cell migration	14	5.29E-06	ACVRL1, GRN, CD40, ITGB3, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, P2RX4, ADAM9, PRKD2, TEK, CLASP1
cell junction organization	14	5.29E-06	ACVRL1, LIMCH1, ITGB3, ACTN1, ARL2, PRKCA, F11R, PPM1F, ACTB, EPB41L3, FLOT1, TEK, CLASP1, S100A10

viral entry into host cell	10	7.57E-06	ITGB1, LGALS1, NPC1, ITGB5, CD81, ITGB3, WWP2, ITGAV, F11R, ICAM1
single-organism membrane organization	24	7.91E-06	ITGB1, RAB3B, ABCC1, C2CD5, TRPC5, ANXA2, CD81, HIP1R, TOR1AIP2, ATP1B3, PRKCA, VRK1, SCRIB, F11R, MFF, RTN4, ACTB, LMNB1, NPC1, REEP5, RILPL1, EPB41L3, FLOT1, S100A10
entry into host cell	10	8.99E-06	ITGB1, LGALS1, NPC1, ITGB5, CD81, ITGB3, WWP2, ITGAV, F11R, ICAM1
entry into host	10	8.99E-06	ITGB1, LGALS1, NPC1, ITGB5, CD81, ITGB3, WWP2, ITGAV, F11R, ICAM1
entry into cell of other organism involved in symbiotic interaction	10	8.99E-06	ITGB1, LGALS1, NPC1, ITGB5, CD81, ITGB3, WWP2, ITGAV, F11R, ICAM1
entry into other organism involved in symbiotic interaction	10	9.5E-06	ITGB1, LGALS1, NPC1, ITGB5, CD81, ITGB3, WWP2, ITGAV, F11R, ICAM1
macromolecule localization	53	1.08E-05	ITGB1, RAB3B, C2CD5, IPO11, CD81, ITGB3, F11R, ACTB, LMNB1, PCM1, ODR4, FLOT1, RAC2, BCAP29, ITGAV, H4C1, ABCC1, ANXA2, COG5, SCRIB, ATP1B3, RHOB, TGFBR2, SFPQ, LSG1, DNAJC1, NPC1, NPC2, RILPL1, ADAM9, NCBP3, MAD1L1, HM13, TOR1AIP2, ARL2, PTTG1IP, MFF, PPM1F, RTN4, UBE2J1, ATXN2, EPB41L3, PCNT,

			EXOSC2, S100A10, BCAP31, PLEKHA1, ALYREF, ERBIN, WWP2, DHCR24, P2RX4, FABP4
establishment of localization	74	1.28E-05	ITGB1, RAB3B, C2CD5, IPO11, CD81, ITGB3, FHL1, F11R, ACTB, LMNB1, ICAM1, PCM1, FTH1, FLOT1, RAC2, BCAP29, PIEZO1, SIRPA, ITGAV, ATP5F1EP2, HTATIP2, ABCC1, TRPC5, ATP6V1G1, ANXA2, FNBP1, TRPC4, COG5, SCRIB, ATP1B3, RHOB, TGFBR2, SLC7A5, SFPQ, LSG1, DNAJC1, NPC1, NEMF, NPC2, RILPL1, ADAM9, NCBP3, MAD1L1, GRN, CD151, NDUFB11, HM13, SLC38A10, PTTG1IP, MFF, PPM1F, UBE2J1, ARHGAP12, ATXN2, BLOC1S1, ATP6V0A2, LRRC8D, PCNT, CLASP1, ATP5ME, S100A10, BCAP31, PLEKHA1, ALYREF, HIP1R, DTNBP1, ERBIN, WWP2, ATP5F1E, P2RX4, FABP4, REEP5, ANXA2P2, SERINC3
positive regulation of cell migration	19	1.29E-05	ITGB1, GRN, CD40, CD151, MCAM, ITGB3, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, ICAM1, P2RX4, RAC2, ADAM9, ITGAV, PRKD2, TEK, CLASP1
regulation of response to stress	35	1.42E-05	ITGB1, GRN, CD40, CD81, PTTG1IP, F11R, RTN4, ACTB, UBE2J1, BABAM1, LGALS1, DPF2, FLOT1, SIRPA, CD59, CLASP1, S100A10, BCAP31, ABCC1, ANXA2, DTNBP1, ERBIN, PRKCA, SCRIB, TGFBR2, SFPQ, FABP4, TNFSF4, ZYX, PDCD4, TEK, PLCB1, SERINC3, CD44, MGLL

membrane organization	27	1.48E-05	ITGB1, RAB3B, C2CD5, CD81, TOR1AIP2, F11R, MFF, RTN4, ACTB, LMNB1, ARHGAP12, EPB41L3, FLOT1, RAC2, S100A10, ABCC1, TRPC5, ANXA2, HIP1R, PRKCA, VRK1, SCRIB, ATP1B3, DHCR24, NPC1, REEP5, RILPL1
ameboidal-type cell migration	17	1.61E-05	ITGB1, ACVRL1, GRN, CD40, ITGB3, PRKCA, CLEC14A, PPM1F, RTN4, RHOB, TGFBR2, ANLN, P2RX4, ADAM9, PRKD2, TEK, CLASP1
cellular localization	52	1.61E-05	ITGB1, RAB3B, C2CD5, IPO11, CD81, ITGB3, F11R, ACTB, LMNB1, PCM1, FTH1, FLOT1, RAC2, BCAP29, H4C1, ATP5F1EP2, HTATIP2, ANXA2, SCRIB, ATP1B3, RHOB, SFPQ, LSG1, NPC1, NEMF, NPC2, RILPL1, NCBP3, MAD1L1, NDUFB11, HM13, TOR1AIP2, ARL2, PTTG1IP, MFF, PPM1F, RTN4, UBE2J1, BLOC1S1, EPB41L3, PCNT, EXOSC2, CLASP1, ATP5ME, S100A10, BCAP31, ALYREF, DTNBP1, ERBIN, ATP5F1E, P2RX4, REEP5
anatomical structure formation involved in morphogenesis	29	1.72E-05	ACVRL1, ITGB1, GRN, CD40, ITGB5, CD81, ITGB3, FHL2, CLEC14A, RTN4, CSRP1, EPB41L3, FLOT1, ITGAV, CLASP1, HTATIP2, RBM15, ANXA2, MCAM, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, ADAM9, PRKD2, TEK, MYH6, MYH7

positive regulation of cell motility	19	2.38E-05	ITGB1, GRN, CD40, CD151, MCAM, ITGB3, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, ICAM1, P2RX4, RAC2, ADAM9, ITGAV, PRKD2, TEK, CLASP1
single-organism cellular localization	26	2.44E-05	ITGB1, RAB3B, C2CD5, IPO11, NDUFB11, CD81, PTTG1IP, F11R, ACTB, PCM1, BLOC1S1, EPB41L3, FLOT1, ATP5F1EP2, ATP5ME, S100A10, ANXA2, DTNBP1, SCRIB, ATP1B3, ATP5F1E, SFPQ, NPC1, NPC2, RILPL1, NCBP3
cell-cell adhesion	25	2.5E-05	ITGB1, ITGB5, CD81, ITGB3, ICAM2, F11R, PPM1F, ACTB, ICAM1, ALCAM, LGALS1, CSRP1, FLOT1, RAC2, SIRPA, PIEZO1, ITGAV, ANXA2, PRKCA, SCRIB, TGFBR2, TNFSF4, ADAM9, CD44, MAD1L1
transport	71	2.67E-05	ITGB1, RAB3B, C2CD5, IPO11, CD81, ITGB3, FHL1, F11R, ACTB, ICAM1, PCM1, FTH1, FLOT1, RAC2, BCAP29, PIEZO1, SIRPA, ITGAV, ATP5F1EP2, HTATIP2, ABCC1, TRPC5, ATP6V1G1, ANXA2, FNBP1, TRPC4, COG5, SCRIB, ATP1B3, RHOB, TGFBR2, SLC7A5, SFPQ, LSG1, DNAJC1, NPC1, NEMF, NPC2, RILPL1, ADAM9, NCBP3, GRN, CD151, NDUFB11, HM13, SLC38A10, PTTG1IP, MFF, PPM1F, UBE2J1, ARHGAP12, ATXN2, BLOC1S1, ATP6V0A2, LRRC8D, PCNT, CLASP1, ATP5ME, S100A10, BCAP31, ALYREF, HIP1R, DTNBP1, ERBIN, WWP2, ATP5F1E, P2RX4, FABP4, REEP5, ANXA2P2, SERINC3

immune system process	51	2.87E-05	ITGB1, RAB3B, CD40, CD81, ITGB3, F11R, ACTB, ICAM1, BABAM1, ALCAM, LGALS1, TRIM4, FTH1, DPF2, FLOT1, RAC2, SIRPA, H4C1, LBR, RBM15, ANXA2, ACTN1, PRKCA, SCRIB, GTPBP1, TGFBR2, SLC7A5, SFPQ, ADAM9, PRKD2, NCBP3, PLCB1, MAD1L1, CD44, GRN, CD151, RTN4, UBE2J1, EXOSC6, ATP6V0A2, CD59, CMTM3, PLEKHA1, ERBIN, LNPEP, ANLN, P2RX4, TNFSF4, ZYX, TEK, SERINC3
anatomical structure morphogenesis	49	3.19E-05	ACVRL1, ITGB1, CD40, ITGB5, CD81, ITGB3, FHL1, FHL2, CLEC14A, F11R, ACTB, ICAM1, ALCAM, CSRP1, BASP1, FLOT1, RAC2, ITGAV, HTATIP2, TRPC5, RBM15, ANXA2, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, RILPL1, MYL3, ADAM9, PRKD2, MYH6, CD44, MYH7, GRN, CD151, MFF, RTN4, ARHGAP12, STRIP1, EPB41L3, CLASP1, S100A10, PLEKHA1, MCAM, DTNBP1, PDCD4, TEK
positive regulation of cellular component movement	19	3.46E-05	ITGB1, GRN, CD40, CD151, MCAM, ITGB3, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, ICAM1, P2RX4, RAC2, ADAM9, ITGAV, PRKD2, TEK, CLASP1
positive regulation of response to stimulus	45	3.51E-05	ACVRL1, ITGB1, LRRC59, GRN, CD40, CD81, ITGB3, F11R, MFF, PPM1F, RTN4, ACTB, ICAM1, BABAM1, EXOSC6, LGALS1, DPF2, FLOT1, TIMP2, RAC2, CD59, ITGAV, S100A10, BCAP31, ABCC1, PLEKHA1, CMTM3, ANXA2, HIP1R, ERBIN, PRKCA, TGFBR2,

			SLC7A5, SFPQ, P2RX4, FABP4, TNFSF4, GID8, PDCD4, ADAM9, PRKD2, TEK, PLCB1, SERINC3, CD44
interaction with host	11	3.75E-05	ITGB1, LGALS1, NPC1, ITGB5, CD81, ITGB3, WWP2, ITGAV, SCRIB, F11R, ICAM1
positive regulation of angiogenesis	11	4.06E-05	ITGB1, ACVRL1, GRN, CD40, ITGB3, PRKD2, PRKCA, TEK, RTN4, RHOB, TGFBR2
cell-substrate junction assembly	8	4.15E-05	ACVRL1, LIMCH1, ACTN1, ITGB3, TEK, CLASP1, PPM1F, S100A10
positive regulation of locomotion	19	4.41E-05	ITGB1, GRN, CD40, CD151, MCAM, ITGB3, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, ICAM1, P2RX4, RAC2, ADAM9, ITGAV, PRKD2, TEK, CLASP1
cell death	41	5.27E-05	ITGB1, GRN, CD40, ITGB3, FHL2, PTTG1IP, MFF, GIMAP8, PPM1F, RTN4, ACTB, ICAM1, BCL2L13, LGALS1, EPB41L3, TNFAIP8L1, DPF2, BCAP29, ITGAV, HTATIP2, BCAP31, TRPC5, ACTN1, HIP1R, DTNBP1, PRKCA, SCRIB, DHCR24, RHOB, TGFBR2, SLC7A5, SFPQ, P2RX4, NPC1, RILPL1, PDCD4, JTB, PRKD2, TEK, SERINC3, CD44
protein localization to plasma membrane	12	5.71E-05	ITGB1, RAB3B, C2CD5, ANXA2, RILPL1, CD81, EPB41L3, FLOT1, ATP1B3, SCRIB, F11R, S100A10

organelle organization	64	6.3E-05	ITGB1, C2CD5, MAST4, ITGB5, ITGB3, F11R, ACTB, LMNB1, ICAM1, BABAM1, HMGN4, PCM1, CSRP1, NTMT1, WDR5, DPF2, RAC2, H4C1, ANXA2, LIMCH1, COG5, ACTN1, UBE2E1, VRK1, PRKCA, RHOB, SFPQ, RILPL1, JTB, PRKD2, PLCB1, MYH6, MAD1L1, MYH7, DCTN6, GRN, NDUFB11, TEX264, TOR1AIP2, ARL2, NCAPG, PDS5B, MFF, PPM1F, RTN4, ARHGAP12, STRIP1, ATXN2, BLOC1S1, EPB41L3, PCNT, MPDZ, PDLIM4, CLASP1, S100A10, BCAP31, KLHL1, HIP1R, DTNBP1, ERBIN, ANLN, REEP5, ZYX, TEK
movement of cell or subcellular component	41	6.35E-05	ACVRL1, ITGB1, GRN, CD40, CD151, ITGB5, CD81, ITGB3, CLEC14A, F11R, PPM1F, RTN4, ACTB, ICAM1, PCM1, ALCAM, BLOC1S1, RAC2, SIRPA, ITGAV, CLASP1, ABCC1, LIMCH1, MCAM, ACTN1, DTNBP1, PRKCA, SCRIB, RHOB, TGFBR2, ANLN, SFPQ, P2RX4, MYL1, ADAM9, PRKD2, TEK, PLCB1, CD44, MYH6, MYH7
cell migration	32	6.41E-05	ACVRL1, ITGB1, GRN, CD40, CD151, ITGB5, CD81, ITGB3, CLEC14A, F11R, PPM1F, RTN4, ICAM1, PCM1, RAC2, SIRPA, ITGAV, CLASP1, ABCC1, LIMCH1, MCAM, PRKCA, SCRIB, RHOB, TGFBR2, ANLN, P2RX4, ADAM9, PRKD2, TEK, PLCB1, CD44
regulation of cell junction assembly	8	6.43E-05	ACVRL1, LIMCH1, FLOT1, TEK, F11R, CLASP1, PPM1F, S100A10

regulation of cell-substrate adhesion	11	7.15E-05	ACVRL1, LGALS1, LIMCH1, ITGB3, RAC2, ARL2, TEK, HSD17B12, CLASP1, PPM1F, S100A10
protein localization to cell periphery	13	8.12E-05	ITGB1, RAB3B, C2CD5, ANXA2, CD81, ATP1B3, SCRIB, F11R, ACTB, RILPL1, EPB41L3, FLOT1, S100A10
cellular macromolecule localization	37	8.21E-05	ITGB1, RAB3B, C2CD5, IPO11, CD81, HM13, TOR1AIP2, ARL2, PTTG1IP, F11R, MFF, RTN4, ACTB, UBE2J1, LMNB1, PCM1, EPB41L3, FLOT1, RAC2, BCAP29, H4C1, PCNT, EXOSC2, S100A10, BCAP31, ANXA2, ALYREF, ERBIN, SCRIB, ATP1B3, RHOB, SFPQ, LSG1, NPC1, RILPL1, NCBP3, MAD1L1
cell adhesion mediated by integrin	7	8.66E-05	ITGB1, ITGB5, ITGB3, ADAM9, PIEZO1, ITGAV, ICAM1
regulation of anatomical structure morphogenesis	26	9.41E-05	ACVRL1, ITGB1, GRN, CD40, ITGB3, F11R, MFF, RTN4, ICAM1, STRIP1, BASP1, EPB41L3, FLOT1, RAC2, CLASP1, S100A10, HTATIP2, TRPC5, DTNBP1, PRKCA, RHOB, TGFBR2, ADAM9, PRKD2, TEK, CD44
positive regulation of vasculature development	11	0.000108	ITGB1, ACVRL1, GRN, CD40, ITGB3, PRKD2, PRKCA, TEK, RTN4, RHOB, TGFBR2
organic substance transport	45	0.000112	ITGB1, RAB3B, C2CD5, IPO11, CD81, HM13, ITGB3, SLC38A10, PTTG1IP, MFF, PPM1F, ACTB, UBE2J1, ATXN2, PCM1, FLOT1, RAC2, BCAP29, LRRC8D, ITGAV, PCNT, BCAP31, ABCC1, ANXA2, COG5,

			TRPC4, ALYREF, DTNBP1, ERBIN, SCRIB, WWP2, RHOB, TGFBR2, SLC7A5, SFPQ, DNAJC1, LSG1, P2RX4, FABP4, NPC1, NPC2, RILPL1, ADAM9, NCBP3, SERINC3
supramolecular fiber organization	21	0.000114	ITGB1, ITGB5, ANXA2, LIMCH1, ACTN1, HIP1R, ARL2, F11R, PPM1F, RHOB, ICAM1, ARHGAP12, PCM1, CSRP1, ZYX, RAC2, CLASP1, PFDN6, MYH6, S100A10, MYH7
positive regulation of transport	23	0.000126	ITGB1, RAB3B, BCAP31, C2CD5, CD151, ANXA2, CD81, FHL1, HIP1R, DTNBP1, ATP1B3, MFF, ACTB, SLC7A5, PCM1, P2RX4, FLOT1, RAC2, ADAM9, SIRPA, PCNT, CLASP1, S100A10
plasma membrane organization	14	0.000136	ITGB1, RAB3B, C2CD5, TRPC5, ANXA2, CD81, ATP1B3, SCRIB, F11R, ACTB, RILPL1, EPB41L3, FLOT1, S100A10
single-organism localization	51	0.000139	ITGB1, RAB3B, C2CD5, IPO11, CD81, ITGB3, FHL1, F11R, ACTB, PCM1, FTH1, FLOT1, RAC2, SIRPA, ITGAV, ATP5F1EP2, ABCC1, ATP6V1G1, ANXA2, TRPC4, SCRIB, ATP1B3, SLC7A5, SFPQ, DNAJC1, NPC1, NPC2, RILPL1, ADAM9, NCBP3, MAD1L1, NDUFB11, ARL2, SLC38A10, PTTG1IP, ARHGAP12, ATXN2, BLOC1S1, EPB41L3, ATP6V0A2, LRRC8D, CLASP1, ATP5ME, S100A10, HIP1R, DTNBP1, WWP2, ATP5F1E, P2RX4, FABP4, SERINC3
regulation of cell-cell adhesion	16	0.000151	CD81, PRKCA, SCRIB, F11R, PPM1F, ACTB, TGFBR2, ICAM1, LGALS1, TNFSF4, FLOT1, RAC2, PIEZO1, SIRPA, CD44, MAD1L1

positive regulation of organelle organization	19	0.000152	GRN, C2CD5, ANXA2, LIMCH1, HIP1R, ARL2, NCAPG, MFF, PPM1F, ICAM1, SFPQ, WDR5, RAC2, PRKD2, TEK, PLCB1, CLASP1, MAD1L1, S100A10
receptor-mediated endocytosis	12	0.000152	ITGB1, ATXN2, ANXA2, CD81, ITGB3, HIP1R, FLOT1, DTNBP1, ITGAV, SCRIB, ACTB, TGFBR2
cellular protein localization	36	0.000161	ITGB1, RAB3B, C2CD5, IPO11, CD81, HM13, TOR1AIP2, ARL2, PTTG1IP, F11R, MFF, RTN4, ACTB, UBE2J1, LMNB1, PCM1, EPB41L3, FLOT1, RAC2, BCAP29, H4C1, PCNT, S100A10, BCAP31, ANXA2, ALYREF, ERBIN, SCRIB, ATP1B3, RHOB, SFPQ, LSG1, NPC1, RILPL1, NCBP3, MAD1L1
regulation of cell death	34	0.000172	ITGB1, GRN, CD40, ITGB3, FHL2, PTTG1IP, MFF, GIMAP8, PPM1F, RTN4, ACTB, ICAM1, BCL2L13, LGALS1, TNFAIP8L1, ITGAV, HTATIP2, BCAP31, ACTN1, HIP1R, DTNBP1, PRKCA, SCRIB, DHCR24, RHOB, SLC7A5, SFPQ, NPC1, RILPL1, PDCD4, PRKD2, TEK, SERINC3, CD44
regulation of cellular component organization	47	0.000183	ACVRL1, ITGB1, GRN, C2CD5, CD151, ITGB3, FHL1, ARL2, NCAPG, F11R, MFF, DNPH1, PPM1F, RTN4, ACTB, ICAM1, STRIP1, ATXN2, LGALS1, EPB41L3, WDR5, DPF2, FLOT1, RAC2, SIRPA, PIEZO1, ITGAV, MPDZ, EXOSC2, CLASP1, S100A10, TRPC5, ANXA2,

			LIMCH1, HIP1R, DTNBP1, SCAF4, RHOB, ANLN, SFPQ, ADAM9, PRKD2, TEK, PLCB1, CD44, PFDN6, MAD1L1
cellular component morphogenesis	25	0.000192	ITGB1, ITGB3, F11R, MFF, RTN4, ACTB, ICAM1, ALCAM, CSRP1, EPB41L3, FLOT1, RAC2, ITGAV, CLASP1, S100A10, TRPC5, ACTN1, DTNBP1, SCRIB, RHOB, RILPL1, TEK, CD44, MYH6, MYH7
establishment of localization in cell	39	0.000215	ITGB1, RAB3B, C2CD5, IPO11, NDUFB11, CD81, HM13, ITGB3, PTTG1IP, MFF, ACTB, UBE2J1, LMNB1, PCM1, BLOC1S1, RAC2, BCAP29, ATP5F1EP2, PCNT, CLASP1, ATP5ME, HTATIP2, BCAP31, ANXA2, ALYREF, DTNBP1, ERBIN, SCRIB, ATP5F1E, RHOB, SFPQ, LSG1, P2RX4, NPC1, NEMF, NPC2, RILPL1, NCBP3, MAD1L1
protein localization	44	0.000216	ITGB1, RAB3B, C2CD5, IPO11, CD81, HM13, TOR1AIP2, ARL2, PTTG1IP, F11R, MFF, PPM1F, RTN4, ACTB, UBE2J1, LMNB1, PCM1, ODR4, EPB41L3, FLOT1, RAC2, BCAP29, H4C1, PCNT, S100A10, BCAP31, PLEKHA1, ANXA2, COG5, ALYREF, ERBIN, SCRIB, ATP1B3, WWP2, DHCR24, RHOB, SFPQ, DNAJC1, LSG1, NPC1, RILPL1, ADAM9, NCBP3, MAD1L1
angiogenesis	17	0.000233	ITGB1, ACVRL1, GRN, CD40, RBM15, ANXA2, MCAM, ITGB3, PRKCA, CLEC14A, RTN4, RHOB, TGFBR2, ITGAV, PRKD2, TEK, HTATIP2

programmed cell death	37	0.000235	ITGB1, GRN, CD40, FHL2, PTTG1IP, MFF, GIMAP8, PPM1F, RTN4, ACTB, ICAM1, BCL2L13, LGALS1, EPB41L3, TNFAIP8L1, DPF2, BCAP29, ITGAV, HTATIP2, BCAP31, TRPC5, ACTN1, HIP1R, PRKCA, SCRIB, DHCR24, RHOB, TGFBR2, SLC7A5, SFPQ, P2RX4, PDCD4, JTB, PRKD2, TEK, SERINC3, CD44
positive regulation of cellular component organization	29	0.000262	ITGB1, GRN, C2CD5, CD151, ITGB3, ARL2, NCAPG, MFF, PPM1F, ICAM1, WDR5, FLOT1, RAC2, SIRPA, PIEZO1, CLASP1, S100A10, TRPC5, ANXA2, LIMCH1, HIP1R, DTNBP1, ANLN, SFPQ, ADAM9, PRKD2, TEK, PLCB1, MAD1L1
regulation of response to external stimulus	22	0.000267	ABCC1, GRN, ANXA2, CD81, PRKCA, SCRIB, F11R, PPM1F, TGFBR2, P2RX4, LGALS1, FABP4, TNFSF4, ZYX, PDCD4, RAC2, SIRPA, CD59, PRKD2, TEK, CLASP1, MGLL
morphogenesis of an epithelial sheet	6	0.00027	ITGB1, ACVRL1, CD151, CD44, CLASP1, ARHGAP12
adherens junction organization	8	0.000278	ACVRL1, LIMCH1, ACTN1, TEK, CLASP1, ACTB, PPM1F, S100A10
cellular developmental process	65	0.000279	ACVRL1, ITGB1, ITGB5, CD81, ITGB3, FHL1, FHL2, F11R, DNPH1, ACTB, ICAM1, PCM1, ALCAM, LGALS1, CSRP1, BASP1, TIMP2, WDR5, DPF2, FLOT1, RAC2, BCAP29, PIEZO1, ITGAV, H4C1, LBR, HTATIP2, TRPC5, RBM15, ANXA2, TRPC4, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, BACE2, RILPL1, ADAM9, TAGLN2, PLCB1,

			MYH6, CD44, MYH7, GRN, MFF, RTN4, UBE2J1, BLOC1S1, EPB41L3, RBBP9, CLASP1, S100A10, PLEKHA1, ALYREF, KLHL1, DTNBP1, PRRC2B, ANLN, P2RX4, FABP4, TNFSF4, PDCD4, TEK
cell differentiation	63	0.000279	ACVRL1, ITGB1, ITGB5, CD81, ITGB3, FHL1, FHL2, F11R, DNPH1, ACTB, ICAM1, PCM1, ALCAM, LGALS1, CSRP1, BASP1, TIMP2, WDR5, DPF2, FLOT1, RAC2, BCAP29, PIEZO1, ITGAV, H4C1, LBR, HTATIP2, TRPC5, RBM15, ANXA2, TRPC4, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, BACE2, RILPL1, ADAM9, TAGLN2, PLCB1, MYH6, MYH7, GRN, RTN4, UBE2J1, BLOC1S1, EPB41L3, RBBP9, CLASP1, S100A10, PLEKHA1, ALYREF, KLHL1, DTNBP1, PRRC2B, ANLN, P2RX4, FABP4, TNFSF4, PDCD4, TEK
cell-cell junction organization	11	0.000285	ACVRL1, LIMCH1, ACTN1, EPB41L3, ARL2, PRKCA, TEK, CLASP1, ACTB, PPM1F, S100A10
heterotypic cell-cell adhesion	6	0.000291	ITGB1, ITGB3, FLOT1, SIRPA, ITGAV, CD44
positive regulation of endothelial cell migration	8	0.000304	GRN, CD40, P2RX4, ITGB3, PRKD2, PRKCA, TEK, RHOB
blood coagulation	10	0.000326	CD40, CSRP1, ANXA2, DGKA, ITGB3, DTNBP1, CD59, PRKCA, F11R, ACTB

endothelial cell migration	11	0.000338	ITGB1, ACVRL1, GRN, CD40, P2RX4, ITGB3, PRKD2, PRKCA, CLEC14A, TEK, RHOB
regulation of cell migration	23	0.000346	ITGB1, ACVRL1, GRN, CD40, CD151, CD81, LIMCH1, MCAM, ITGB3, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, ICAM1, P2RX4, RAC2, ADAM9, ITGAV, PRKD2, TEK, PLCB1, CLASP1
cell activation	25	0.000347	ITGB1, GRN, CD40, CD151, CD81, DGKA, ITGB3, F11R, ACTB, ICAM1, EXOSC6, LGALS1, CSRP1, RAC2, SIRPA, PRKCA, SCRIB, TGFBR2, BACE2, P2RX4, TNFSF4, ADAM9, PLCB1, CD44, MAD1L1
positive regulation of signaling	34	0.000348	ACVRL1, ITGB1, RAB3B, LRRC59, CD40, CD81, ITGB3, F11R, MFF, RTN4, ICAM1, LGALS1, FLOT1, TIMP2, ITGAV, BCAP31, CMTM3, ANXA2, HIP1R, DTNBP1, ERBIN, PRKCA, SCRIB, TGFBR2, SFPQ, P2RX4, GID8, PDCD4, ADAM9, PRKD2, TEK, PLCB1, SERINC3, CD44
wound healing, spreading of cells	5	0.000391	ITGB1, ACVRL1, CD151, CD44, CLASP1
epiboly involved in wound healing	5	0.000391	ITGB1, ACVRL1, CD151, CD44, CLASP1
localization of cell	33	0.000395	ACVRL1, ITGB1, GRN, CD40, CD151, ITGB5, CD81, ITGB3, CLEC14A, F11R, PPM1F, RTN4, ACTB, ICAM1, PCM1, RAC2, SIRPA, ITGAV,

			CLASP1, ABCC1, LIMCH1, MCAM, PRKCA, SCRIB, RHOB, TGFBR2, ANLN, P2RX4, ADAM9, PRKD2, TEK, PLCB1, CD44
cell motility	33	0.000395	ACVRL1, ITGB1, GRN, CD40, CD151, ITGB5, CD81, ITGB3, CLEC14A, F11R, PPM1F, RTN4, ACTB, ICAM1, PCM1, RAC2, SIRPA, ITGAV, CLASP1, ABCC1, LIMCH1, MCAM, PRKCA, SCRIB, RHOB, TGFBR2, ANLN, P2RX4, ADAM9, PRKD2, TEK, PLCB1, CD44
nitrogen compound transport	38	0.000409	ITGB1, RAB3B, C2CD5, IPO11, CD81, HM13, SLC38A10, PTTG1IP, MFF, PPM1F, ACTB, UBE2J1, ATXN2, PCM1, FLOT1, RAC2, BCAP29, LRRC8D, PCNT, BCAP31, ABCC1, COG5, TRPC4, ALYREF, DTNBP1, ERBIN, SCRIB, WWP2, RHOB, TGFBR2, SLC7A5, SFPQ, DNAJC1, LSG1, RILPL1, ADAM9, NCBP3, SERINC3
single-organism metabolic process	60	0.000417	PIGS, ITGB1, CD40, CD81, DGKA, ITGB3, SOGA1, DNPH1, ICAM1, TIMP2, WDR5, RAC2, SIRPA, ITGAV, MAN2C1, ATP5F1EP2, LBR, TNS2, ABCC1, ADSL, ANXA2, COG5, ABHD14B, MOGS, PRKCA, DNAJB14, GTPBP1, NPC1, NPC2, PCCB, ADAM9, PRKD2, PLCB1, MYH6, CD44, MGLL, PFDN6, MYH7, GRN, NDUFB11, TEX264, HM13, ARL2, HSD17B12, UBE2J1, EXOSC6, ATXN2, BLOC1S1, AMDHD2, ATP5ME, BCAP31, PLEKHA1, DTNBP1, DHCR24, ATP5F1E, TNFSF4, PDCD4, SERINC1, TEK, SERINC3

regulation of cell-substrate junction assembly	6	0.000418	ACVRL1, LIMCH1, TEK, CLASP1, PPM1F, S100A10
regulation of focal adhesion assembly	6	0.000418	ACVRL1, LIMCH1, TEK, CLASP1, PPM1F, S100A10
hemostasis	10	0.000419	CD40, CSRP1, ANXA2, DGKA, ITGB3, DTNBP1, CD59, PRKCA, F11R, ACTB
stress fiber assembly	7	0.000427	ITGB5, LIMCH1, ZYX, F11R, CLASP1, PPM1F, S100A10
contractile actin filament bundle assembly	7	0.000427	ITGB5, LIMCH1, ZYX, F11R, CLASP1, PPM1F, S100A10
coagulation	10	0.000431	CD40, CSRP1, ANXA2, DGKA, ITGB3, DTNBP1, CD59, PRKCA, F11R, ACTB
epiboly	5	0.000434	ITGB1, ACVRL1, CD151, CD44, CLASP1
regulation of biological quality	60	0.000477	ACVRL1, ITGB1, RAB3B, CD40, CD81, DGKA, ITGB3, FHL1, F11R, ACTB, ICAM1, LGALS1, CSRP1, FTH1, FLOT1, RAC2, PIEZO1, ITGAV, TNS2, ABCC1, TRPC5, ATP6V1G1, ANXA2, TRPC4, PRKCA, SCRIB, ATP1B3, RHOB, SLC7A5, BACE2, NPC1, NPC2, MYL3, MYH6, MAD1L1, PFDN6, MYH7, GRN, ARL2, HSD17B12, RTN4, BLOC1S1, EPB41L3, ATP6V0A2, ZC3H18, LRRC8D, APBB2, CD59, CKB,

			BCAP31, PLEKHA1, CNBP, HIP1R, DTNBP1, ERBIN, LNPEP, WWP2, P2RX4, FABP4, TEK
regulation of adherens junction organization	6	0.000547	ACVRL1, LIMCH1, TEK, CLASP1, PPM1F, S100A10
anatomical structure development	80	0.000554	ACVRL1, ITGB1, CD40, ITGB5, CD81, ITGB3, FHL1, FHL2, CLEC14A, F11R, DNPH1, ACTB, ICAM1, BABAM1, PCM1, ALCAM, LGALS1, CSRP1, BASP1, TIMP2, WDR5, DPF2, FLOT1, RAC2, PIEZO1, ITGAV, H4C1, LBR, TNS2, HTATIP2, TRPC5, RBM15, ANXA2, TRPC4, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, BACE2, RILPL1, MYL3, ADAM9, PRKD2, TAGLN2, PLCB1, MYH6, MAD1L1, CD44, MYH7, GRN, CD151, HM13, SLC38A10, MFF, RTN4, UBE2J1, ARHGAP12, EXOSC6, STRIP1, BLOC1S1, EPB41L3, RBBP9, CKB, PDLIM4, CLASP1, S100A10, CMTM3, PLEKHA1, MCAM, KLHL1, HIP1R, DTNBP1, DHCR24, ANLN, P2RX4, TNFSF4, PDCD4, TEK
apoptotic process	34	0.000569	ITGB1, GRN, CD40, FHL2, PTTG1IP, MFF, GIMAP8, PPM1F, RTN4, ICAM1, BCL2L13, LGALS1, EPB41L3, DPF2, BCAP29, ITGAV, HTATIP2, BCAP31, TRPC5, HIP1R, PRKCA, SCRIB, DHCR24, RHOB, TGFBR2, SLC7A5, SFPQ, P2RX4, PDCD4, JTB, PRKD2, TEK, SERINC3, CD44

muscle structure development	18	0.000595	ITGB1, CD81, ACTN1, FHL1, FHL2, ACTB, TGFBR2, LGALS1, CSRP1, BASP1, MYL3, FLOT1, PDCD4, PIEZO1, PLCB1, PDLIM4, MYH6, MYH7
intracellular transport	32	0.000596	C2CD5, IPO11, NDUFB11, CD81, HM13, PTTG1IP, MFF, ACTB, UBE2J1, PCM1, BLOC1S1, RAC2, BCAP29, ATP5F1EP2, PCNT, ATP5ME, HTATIP2, BCAP31, ANXA2, ALYREF, DTNBP1, ERBIN, SCRIB, ATP5F1E, RHOB, SFPQ, LSG1, NPC1, NEMF, NPC2, RILPL1, NCBP3
regulation of apoptotic process	30	0.0006	ITGB1, GRN, CD40, FHL2, PTTG1IP, MFF, GIMAP8, PPM1F, RTN4, ACTB, ICAM1, BCL2L13, LGALS1, TNFAIP8L1, ITGAV, HTATIP2, BCAP31, ACTN1, HIP1R, PRKCA, SCRIB, DHCR24, RHOB, SLC7A5, SFPQ, PDCD4, PRKD2, TEK, SERINC3, CD44
positive regulation of biological process	85	0.000621	ACVRL1, ITGB1, RAB3B, CD40, C2CD5, CD81, ITGB3, FHL1, F11R, DNPH1, ACTB, ICAM1, BABAM1, PCM1, LGALS1, BASP1, TIMP2, WDR5, DPF2, FLOT1, RAC2, PIEZO1, SIRPA, ITGAV, HTATIP2, ABCC1, TRPC5, RBM15, ANXA2, LIMCH1, ACTN1, ABHD14B, PRKCA, SCRIB, ATP1B3, GTPBP1, RHOB, TGFBR2, SLC7A5, SFPQ, JTB, ADAM9, PRKD2, PLCB1, MAD1L1, CD44, LRRC59, GRN, CD151, ARL2, NCAPG, HSD17B12, PTTG1IP, MFF, PPM1F, RTN4, EXOSC6, BCL2L13, PRRC1, RBBP9, APBB2, CD59, PCNT, EXOSC2, CLASP1, S100A10, BCAP31, CMTM3, PLEKHA1, CNBP, MCAM, ALYREF,

			HIP1R, DTNBP1, ERBIN, WWP2, DRAP1, ANLN, P2RX4, FABP4, TNFSF4, GID8, PDCD4, TEK, SERINC3
regulation of immune system process	30	0.00063	GRN, CD40, CD81, ITGB3, RTN4, ACTB, UBE2J1, ICAM1, EXOSC6, LGALS1, DPF2, FLOT1, RAC2, SIRPA, CD59, H4C1, RBM15, PLEKHA1, CMTM3, ERBIN, PRKCA, SCRIB, TGFBR2, SLC7A5, SFPQ, P2RX4, TNFSF4, PRKD2, PLCB1, MAD1L1
locomotion	35	0.000733	ACVRL1, ITGB1, GRN, CD40, CD151, ITGB5, CD81, ITGB3, CLEC14A, F11R, PPM1F, RTN4, ACTB, ICAM1, PCM1, ALCAM, RAC2, SIRPA, ITGAV, CLASP1, ABCC1, CMTM3, LIMCH1, MCAM, PRKCA, SCRIB, RHOB, TGFBR2, ANLN, P2RX4, ADAM9, PRKD2, TEK, PLCB1, CD44
regulation of cell motility	23	0.000766	ITGB1, ACVRL1, GRN, CD40, CD151, CD81, LIMCH1, MCAM, ITGB3, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, ICAM1, P2RX4, RAC2, ADAM9, ITGAV, PRKD2, TEK, PLCB1, CLASP1
regulation of programmed cell death	30	0.000772	ITGB1, GRN, CD40, FHL2, PTTG1IP, MFF, GIMAP8, PPM1F, RTN4, ACTB, ICAM1, BCL2L13, LGALS1, TNFAIP8L1, ITGAV, HTATIP2, BCAP31, ACTN1, HIP1R, PRKCA, SCRIB, DHCR24, RHOB, SLC7A5, SFPQ, PDCD4, PRKD2, TEK, SERINC3, CD44
regulation of localization	46	0.000914	ACVRL1, ITGB1, RAB3B, GRN, C2CD5, CD40, CD151, CD81, ITGB3, FHL1, MFF, PPM1F, RTN4, ACTB, UBE2J1, ICAM1, ATXN2, PCM1, FLOT1, RAC2, SIRPA, ITGAV, PCNT, CLASP1, S100A10, BCAP31,

			ANXA2, LIMCH1, MCAM, ACTN1, HIP1R, DTNBP1, PRKCA, ATP1B3, WWP2, RHOB, TGFBR2, SLC7A5, DNAJC1, P2RX4, REEP5, ADAM9, PRKD2, TEK, PLCB1, MAD1L1
positive regulation of response to external stimulus	12	0.000926	GRN, ABCC1, P2RX4, LGALS1, FABP4, CD81, TNFSF4, PDCD4, RAC2, PRKD2, PRKCA, PPM1F
regulation of cellular component movement	24	0.000931	ITGB1, ACVRL1, GRN, CD40, CD151, CD81, LIMCH1, MCAM, ITGB3, ACTN1, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, ICAM1, P2RX4, RAC2, ADAM9, ITGAV, PRKD2, TEK, PLCB1, CLASP1
single-organism transport	46	0.00094	ITGB1, RAB3B, C2CD5, IPO11, NDUFB11, CD81, ITGB3, FHL1, SLC38A10, PTTG1IP, ACTB, ARHGAP12, ATXN2, PCM1, BLOC1S1, FLOT1, RAC2, ATP6V0A2, SIRPA, LRRC8D, ITGAV, ATP5F1EP2, CLASP1, ATP5ME, S100A10, ABCC1, ATP6V1G1, ANXA2, TRPC4, HIP1R, DTNBP1, SCRIB, ATP1B3, WWP2, ATP5F1E, SLC7A5, SFPQ, DNAJC1, P2RX4, FABP4, NPC1, NPC2, RILPL1, ADAM9, NCBP3, SERINC3
viral process	18	0.000966	ITGB1, CD40, ITGB5, CD81, ITGB3, ALYREF, MOGS, WWP2, SCRIB, F11R, ICAM1, LGALS1, NPC1, NPC2, TNFSF4, ITGAV, NCBP3, SERINC3
actin filament bundle assembly	8	0.000999	ITGB5, LIMCH1, ACTN1, ZYX, F11R, CLASP1, PPM1F, S100A10

heart morphogenesis	10	0.001008	ACVRL1, RBM15, MYL3, PDCD4, FHL2, TEK, MYH6, RTN4, MYH7, TGFBR2
positive regulation of cell-cell adhesion	11	0.001038	LGALS1, CD81, TNFSF4, FLOT1, PIEZO1, SIRPA, F11R, CD44, ACTB, ICAM1, TGFBR2
positive regulation of intracellular signal transduction	23	0.001048	ITGB1, BCAP31, LRRC59, CD40, CD81, ITGB3, ERBIN, PRKCA, F11R, RTN4, ICAM1, SFPQ, P2RX4, LGALS1, TIMP2, PDCD4, ADAM9, ITGAV, PRKD2, TEK, PLCB1, SERINC3, CD44
adherens junction assembly	6	0.001056	ACVRL1, ACTN1, TEK, ACTB, PPM1F, S100A10
blood vessel morphogenesis	17	0.001084	ITGB1, ACVRL1, GRN, CD40, RBM15, ANXA2, MCAM, ITGB3, PRKCA, CLEC14A, RTN4, RHOB, TGFBR2, ITGAV, PRKD2, TEK, HTATIP2
regulation of vasculature development	13	0.0011	ITGB1, ACVRL1, GRN, CD40, ITGB3, PRKCA, RTN4, RHOB, TGFBR2, PDCD4, PRKD2, TEK, HTATIP2
positive regulation of signal transduction	30	0.001102	ACVRL1, ITGB1, LRRC59, CD40, CD81, ITGB3, F11R, MFF, RTN4, ICAM1, LGALS1, FLOT1, TIMP2, ITGAV, BCAP31, CMTM3, HIP1R, ERBIN, PRKCA, TGFBR2, SFPQ, P2RX4, GID8, PDCD4, ADAM9, PRKD2, TEK, PLCB1, SERINC3, CD44
actin filament bundle organization	8	0.001147	ITGB5, LIMCH1, ACTN1, ZYX, F11R, CLASP1, PPM1F, S100A10

single-organism developmental process	83	0.001175	ACVRL1, ITGB1, CD40, ITGB5, CD81, ITGB3, FHL1, FHL2, CLEC14A, F11R, DNPH1, ACTB, ICAM1, BABAM1, PCM1, ALCAM, LGALS1, CSRP1, BASP1, TIMP2, WDR5, DPF2, FLOT1, RAC2, BCAP29, PIEZO1, ITGAV, H4C1, LBR, TNS2, HTATIP2, TRPC5, RBM15, ANXA2, TRPC4, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, BACE2, RILPL1, MYL3, ADAM9, PRKD2, TAGLN2, PLCB1, MYH6, MAD1L1, CD44, MYH7, GRN, CD151, HM13, SLC38A10, MFF, RTN4, UBE2J1, ARHGAP12, EXOSC6, BLOC1S1, EPB41L3, RBBP9, CKB, PDLIM4, CLASP1, S100A10, CMTM3, PLEKHA1, MCAM, ALYREF, KLHL1, HIP1R, DTNBP1, DHCR24, PRRC2B, ANLN, P2RX4, FABP4, TNFSF4, PDCD4, TEK
integrin-mediated signaling pathway	7	0.001182	ITGB1, ITGB5, ITGB3, ERBIN, ZYX, ADAM9, ITGAV
developmental process	84	0.001214	ACVRL1, ITGB1, CD40, ITGB5, CD81, ITGB3, FHL1, FHL2, CLEC14A, F11R, DNPH1, ACTB, ICAM1, BABAM1, PCM1, ALCAM, LGALS1, CSRP1, BASP1, TIMP2, WDR5, DPF2, FLOT1, RAC2, BCAP29, PIEZO1, ITGAV, H4C1, LBR, TNS2, HTATIP2, TRPC5, RBM15, ANXA2, TRPC4, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, BACE2, RILPL1, MYL3, ADAM9, PRKD2, TAGLN2, PLCB1, MYH6, MAD1L1, CD44, MYH7, GRN, CD151, HM13, SLC38A10, MFF, RTN4, UBE2J1, ARHGAP12, EXOSC6, STRIP1, BLOC1S1, EPB41L3, RBBP9, CKB, PDLIM4, CLASP1, S100A10, CMTM3, PLEKHA1, MCAM, ALYREF,

			KLHL1, HIP1R, DTNBP1, DHCR24, PRRC2B, ANLN, P2RX4, FABP4, TNFSF4, PDCD4, TEK
regulation of developmental process	44	0.001249	ACVRL1, ITGB1, GRN, CD40, ITGB3, F11R, MFF, RTN4, ACTB, ICAM1, STRIP1, EXOSC6, PCM1, LGALS1, BASP1, EPB41L3, WDR5, DPF2, FLOT1, TIMP2, RAC2, PIEZO1, ITGAV, H4C1, CLASP1, S100A10, HTATIP2, TRPC5, RBM15, ANXA2, DTNBP1, PRKCA, RHOB, TGFBR2, SLC7A5, P2RX4, TNFSF4, PDCD4, ADAM9, PRKD2, TEK, PLCB1, CD44, MYH6
response to stress	59	0.001254	ACVRL1, ITGB1, CD40, CD81, DGKA, ITGB3, F11R, ACTB, ICAM1, BABAM1, LGALS1, TRIM4, CSRP1, DPF2, FLOT1, SIRPA, ABCC1, ADSL, ANXA2, VRK1, PRKCA, SCRIB, DNAJB14, RHOB, TGFBR2, SLC7A5, SFPQ, ADAM9, NCBP3, PLCB1, MYH6, CD44, MGLL, MYH7, GRN, CD151, MRPS35, HM13, PDS5B, PTTG1IP, RTN4, UBE2J1, LRRC8D, CD59, CLASP1, S100A10, BCAP31, PLEKHA1, MCAM, DTNBP1, ERBIN, DHCR24, P2RX4, FABP4, TNFSF4, ZYX, PDCD4, TEK, SERINC3
cardiac chamber morphogenesis	7	0.001283	RBM15, MYL3, FHL2, TEK, MYH6, MYH7, TGFBR2

multi-organism cellular process	18	0.001292	ITGB1, CD40, ITGB5, CD81, ITGB3, ALYREF, MOGS, WWP2, SCRIB, F11R, ICAM1, LGALS1, NPC1, NPC2, TNFSF4, ITGAV, NCBP3, SERINC3
tissue morphogenesis	16	0.001301	ITGB1, ACVRL1, RBM15, CD151, ITGB3, SCRIB, ACTB, RHOB, TGFBR2, ARHGAP12, MYL3, PRKD2, CD44, CLASP1, MYH6, MYH7
regulation of receptor-mediated endocytosis	7	0.001336	ATXN2, ANXA2, ITGB3, HIP1R, FLOT1, DTNBP1, ITGAV
positive regulation of programmed cell death	16	0.001361	ITGB1, BCAP31, GRN, CD40, HIP1R, SCRIB, MFF, PPM1F, RHOB, ICAM1, BCL2L13, SFPQ, LGALS1, PDCD4, SERINC3, HTATIP2
positive regulation of cell communication	32	0.001405	ACVRL1, ITGB1, RAB3B, LRRC59, CD40, CD81, ITGB3, F11R, MFF, RTN4, ICAM1, LGALS1, FLOT1, TIMP2, ITGAV, BCAP31, CMTM3, HIP1R, DTNBP1, ERBIN, PRKCA, TGFBR2, SFPQ, P2RX4, GID8, PDCD4, ADAM9, PRKD2, TEK, PLCB1, SERINC3, CD44
circulatory system development	24	0.001435	ITGB1, ACVRL1, GRN, CD40, RBM15, ANXA2, MCAM, ITGB3, FHL2, PRKCA, CLEC14A, RTN4, RHOB, TGFBR2, BASP1, MYL3, PDCD4, ITGAV, PRKD2, TEK, PDLIM4, MYH6, MYH7, HTATIP2
endocytosis	18	0.001459	ITGB1, CD151, ANXA2, FNBP1, CD81, ITGB3, HIP1R, DTNBP1, SCRIB, ACTB, TGFBR2, ARHGAP12, ATXN2, NPC1, FLOT1, RAC2, SIRPA, ITGAV

leukocyte cell-cell adhesion	13	0.001482	ITGB1, CD81, SCRIB, F11R, ACTB, TGFBR2, ICAM1, LGALS1, TNFSF4, RAC2, SIRPA, CD44, MAD1L1
platelet activation	7	0.001504	CD40, CSRP1, DGKA, ITGB3, PRKCA, F11R, ACTB
regulation of cell-matrix adhesion	7	0.001504	ACVRL1, LIMCH1, ITGB3, TEK, CLASP1, PPM1F, S100A10
protein localization to membrane	15	0.001526	ITGB1, RAB3B, C2CD5, ANXA2, CD81, ATP1B3, SCRIB, F11R, MFF, ACTB, NPC1, RILPL1, EPB41L3, FLOT1, S100A10
single-organism process	156	0.001533	RAB3B, IPO11, CD81, DGKA, F11R, SOGA1, ACTB, GIMAP8, ICAM1, LGALS1, ALCAM, BASP1, FTH1, DPF2, PIEZO1, SIRPA, BCAP29, H4C1, TNS2, ATP6V1G1, FNBP1, LIMCH1, COG5, ACTN1, VRK1, DNAJB14, MOGS, PRKCA, SCRIB, ATP1B3, GTPBP1, MYL1, MYL3, ADAM9, JTB, PRKD2, TAGLN2, MAD1L1, LRRC59, CD151, NDUFB11, TEX264, TOR1AIP2, ARL2, SLC38A10, NCAPG, PDS5B, PTTG1IP, RTN4, UBE2J1, ARHGAP12, STRIP1, BCL2L13, ATXN2, BLOC1S1, AMDHD2, EPB41L3, ATP6V0A2, ATP5ME, S100A10, MCAM, ALYREF, LNPEP, DHCR24, HELZ, PRRC2B, ANLN, REEP5, TNFSF4, SERINC1, SERINC3, PIGS, ACVRL1, ITGB1, C2CD5, CD40, ITGB5, MAST4, ITGB3, FHL1, FHL2, CLEC14A, USP39, DNPH1, LMNB1, BABAM1, PCM1, CSRP1, NTMT1, TNFAIP8L1, WDR5, TIMP2, FLOT1, RAC2, ITGAV, MAN2C1, ATP5F1EP2, LBR, HTATIP2, ABCC1, TRPC5, ADSL, RBM15, ANXA2, TRPC4, ABHD14B, RHOB,

			TGFBR2, SLC7A5, BACE2, SFPQ, DNAJC1, NPC1, NPC2, RILPL1, PCCB, NCBP3, PLCB1, MYH6, MGLL, CD44, PFDN6, MYH7, DCTN6, GRN, HM13, HSD17B12, MFF, PPM1F, EXOSC6, LRRC8D, RBBP9, APBB2, CD59, CKB, PCNT, EXOSC2, PDLIM4, CLASP1, BCAP31, CMTM3, PLEKHA1, CNBP, KLHL1, HIP1R, DTNBP1, ERBIN, WWP2, ATP5F1E, SCAF4, FABP4, P2RX4, GID8, ZYX, PDCD4, TEK
actin filament organization	13	0.001537	ITGB5, LIMCH1, ACTN1, HIP1R, F11R, PPM1F, RHOB, ICAM1, ARHGAP12, ZYX, RAC2, CLASP1, S100A10
regulation of organelle organization	27	0.001551	GRN, C2CD5, ITGB3, ARL2, NCAPG, F11R, MFF, PPM1F, ACTB, ICAM1, ATXN2, WDR5, DPF2, RAC2, MPDZ, CLASP1, S100A10, ANXA2, LIMCH1, HIP1R, RHOB, ANLN, SFPQ, PRKD2, TEK, PLCB1, MAD1L1
positive regulation of catalytic activity	25	0.001564	ITGB1, GRN, CD40, CD81, ITGB3, TOR1AIP2, F11R, PPM1F, ICAM1, BCL2L13, PRRC1, TIMP2, S100A10, BCAP31, HIP1R, SCRIB, ATP1B3, TGFBR2, MYL3, JTB, ADAM9, PRKD2, SERINC1, TEK, CD44
regulation of defense response	18	0.00158	ABCC1, GRN, CD40, CD81, ERBIN, SCRIB, RTN4, SFPQ, LGALS1, FABP4, TNFSF4, FLOT1, ZYX, PDCD4, SIRPA, CD59, TEK, MGLL
tissue development	34	0.00158	ACVRL1, ITGB1, CD151, ITGB5, CD81, ITGB3, FHL2, F11R, DNPH1, RTN4, ACTB, ICAM1, ARHGAP12, CSRP1, BASP1, FLOT1, RBBP9, ITGAV, CLASP1, RBM15, SCRIB, DHCR24, RHOB, TGFBR2, RILPL1,

			MYL3, PDCD4, ADAM9, PRKD2, TAGLN2, PLCB1, CD44, MYH6, MYH7
regulation of angiogenesis	12	0.001603	ITGB1, ACVRL1, GRN, CD40, ITGB3, PRKD2, PRKCA, TEK, RTN4, RHOB, TGFBR2, HTATIP2
cell development	37	0.00167	ITGB1, GRN, ITGB3, FHL2, F11R, RTN4, ACTB, UBE2J1, ICAM1, PCM1, ALCAM, LGALS1, CSRP1, BLOC1S1, EPB41L3, WDR5, FLOT1, TIMP2, RAC2, ITGAV, S100A10, TRPC5, ANXA2, ACTN1, KLHL1, DTNBP1, SCRIB, TGFBR2, SLC7A5, BACE2, P2RX4, RILPL1, PDCD4, TEK, PLCB1, MYH6, MYH7
cation transport	24	0.001747	ITGB1, RAB3B, ATP6V1G1, TRPC5, ANXA2, NDUFB11, TRPC4, ITGB3, FHL1, SLC38A10, ATP1B3, WWP2, ATP5F1E, ICAM1, SLC7A5, P2RX4, FTH1, ATP6V0A2, PIEZO1, ITGAV, ANXA2P2, SERINC3, ATP5F1EP2, ATP5ME
regulation of endothelial cell migration	9	0.00175	ACVRL1, GRN, CD40, P2RX4, ITGB3, PRKD2, PRKCA, TEK, RHOB
regulation of locomotion	23	0.001828	ITGB1, ACVRL1, GRN, CD40, CD151, CD81, LIMCH1, MCAM, ITGB3, PRKCA, PPM1F, RTN4, RHOB, TGFBR2, ICAM1, P2RX4, RAC2, ADAM9, ITGAV, PRKD2, TEK, PLCB1, CLASP1

symbiosis, encompassing mutualism through parasitism	18	0.001847	ITGB1, CD40, ITGB5, CD81, ITGB3, ALYREF, MOGS, WWP2, SCRIB, F11R, ICAM1, LGALS1, NPC1, NPC2, TNFSF4, ITGAV, NCBP3, SERINC3
regulation of transport	32	0.001865	ITGB1, RAB3B, C2CD5, CD151, CD81, ITGB3, FHL1, MFF, PPM1F, ACTB, UBE2J1, ICAM1, ATXN2, PCM1, FLOT1, RAC2, SIRPA, ITGAV, PCNT, CLASP1, S100A10, BCAP31, ANXA2, HIP1R, DTNBP1, ATP1B3, WWP2, SLC7A5, DNAJC1, P2RX4, REEP5, ADAM9
positive regulation of developmental process	28	0.001946	ACVRL1, ITGB1, GRN, CD40, ITGB3, F11R, MFF, RTN4, ACTB, EXOSC6, BASP1, DPF2, FLOT1, TIMP2, PIEZO1, CLASP1, S100A10, TRPC5, PRKCA, RHOB, TGFBR2, SLC7A5, P2RX4, TNFSF4, ADAM9, PRKD2, TEK, PLCB1
viral life cycle	12	0.001983	ITGB1, LGALS1, NPC1, ITGB5, CD81, ITGB3, ALYREF, MOGS, WWP2, ITGAV, F11R, ICAM1
interspecies interaction between organisms	18	0.002151	ITGB1, CD40, ITGB5, CD81, ITGB3, ALYREF, MOGS, WWP2, SCRIB, F11R, ICAM1, LGALS1, NPC1, NPC2, TNFSF4, ITGAV, NCBP3, SERINC3
homotypic cell-cell adhesion	6	0.002228	LGALS1, CSRP1, ITGB3, PRKCA, F11R, ACTB
endothelium development	7	0.002263	ACVRL1, PRKD2, F11R, PLCB1, RTN4, RHOB, ICAM1

phosphorus metabolic process	48	0.002352	ACVRL1, PIGS, CD40, MAST4, NDUFB11, CD81, DGKA, ITGB3, ARL2, HSD17B12, DNPH1, PPM1F, ACTB, ICAM1, PRRC1, AMDHD2, FLOT1, TIMP2, SIRPA, ITGAV, CKB, ATP5F1EP2, TNS2, ATP5ME, HTATIP2, ADSL, TRPC5, ANXA2, LIMCH1, DTNBP1, ABHD14B, PRKCA, VRK1, GTPBP1, ATP5F1E, TGFBR2, FABP4, PDCD4, JTB, ADAM9, PRKD2, SERINC1, TEK, PLCB1, SERINC3, CD44, MYH6, MYH7
vasculature development	18	0.002435	ITGB1, ACVRL1, GRN, CD40, RBM15, ANXA2, MCAM, ITGB3, PRKCA, CLEC14A, RTN4, RHOB, TGFBR2, PDCD4, ITGAV, PRKD2, TEK, HTATIP2
cardiovascular system development	18	0.002435	ITGB1, ACVRL1, GRN, CD40, RBM15, ANXA2, MCAM, ITGB3, PRKCA, CLEC14A, RTN4, RHOB, TGFBR2, PDCD4, ITGAV, PRKD2, TEK, HTATIP2
muscle cell differentiation	13	0.002493	ITGB1, CD81, ACTN1, FHL2, ACTB, LGALS1, CSRP1, FLOT1, PDCD4, PIEZO1, PLCB1, MYH6, MYH7
regulation of hydrolase activity	22	0.002581	ITGB1, BCAP31, GRN, CD40, ANXA2, HIP1R, TOR1AIP2, ARL2, ATP1B3, DHCR24, SCRIB, F11R, PPM1F, ICAM1, ARHGAP12, BCL2L13, MYL3, TIMP2, PRKD2, CD44, MYH6, S100A10
regulation of response to stimulus	59	0.002705	ACVRL1, ITGB1, CD40, CD81, ITGB3, FHL2, F11R, ACTB, ICAM1, BABAM1, LGALS1, TIMP2, TNFAIP8L1, DPF2, FLOT1, RAC2, SIRPA,

			ITGAV, TNS2, ABCC1, ANXA2, PRKCA, SCRIB, TGFBR2, SLC7A5, SFPQ, ADAM9, PRKD2, PLCB1, CD44, MGLL, MYH7, LRRC59, GRN, PTTG1IP, MFF, PPM1F, RTN4, UBE2J1, ARHGAP12, EXOSC6, CD59, CLASP1, S100A10, BCAP31, CMTM3, PLEKHA1, HIP1R, DTNBP1, ERBIN, WWP2, P2RX4, FABP4, TNFSF4, GID8, ZYX, PDCD4, TEK, SERINC3
cortical cytoskeleton organization	5	0.002755	STRIP1, ANLN, EPB41L3, RAC2, RHOB
positive regulation of immune system process	22	0.00307	CD40, PLEKHA1, CMTM3, CD81, ITGB3, ERBIN, PRKCA, RTN4, ACTB, TGFBR2, ICAM1, SLC7A5, EXOSC6, SFPQ, P2RX4, LGALS1, TNFSF4, FLOT1, RAC2, SIRPA, CD59, PRKD2
mitotic cell cycle process	17	0.003228	ITGB1, DCTN6, FHL1, NCAPG, PRKCA, VRK1, PDS5B, ACTB, RHOB, BABAM1, ANLN, DPF2, JTB, PLCB1, PCNT, CLASP1, MAD1L1
positive regulation of cellular process	75	0.003272	ACVRL1, ITGB1, RAB3B, CD40, C2CD5, CD81, ITGB3, F11R, DNPH1, ACTB, ICAM1, BABAM1, LGALS1, TIMP2, WDR5, DPF2, FLOT1, RAC2, PIEZO1, SIRPA, ITGAV, HTATIP2, TRPC5, RBM15, ANXA2, LIMCH1, ACTN1, ABHD14B, PRKCA, SCRIB, ATP1B3, GTPBP1, RHOB, TGFBR2, SLC7A5, SFPQ, JTB, ADAM9, PRKD2, PLCB1, MAD1L1, CD44, LRRC59, GRN, CD151, ARL2, NCAPG, PTTG1IP, MFF, PPM1F, RTN4, EXOSC6, BCL2L13, PRRC1, APBB2, EXOSC2, CLASP1, S100A10, BCAP31, CMTM3, CNBP, MCAM, ALYREF,

			HIP1R, DTNBP1, ERBIN, WWP2, DRAP1, ANLN, P2RX4, TNFSF4, GID8, PDCD4, TEK, SERINC3
positive regulation of apoptotic process	15	0.003274	ITGB1, BCAP31, GRN, CD40, HIP1R, SCRIB, MFF, PPM1F, RHOB, ICAM1, BCL2L13, SFPQ, LGALS1, PDCD4, SERINC3
positive regulation of cellular protein metabolic process	29	0.003376	ACVRL1, GRN, CD40, CD81, ITGB3, PTTG1IP, PPM1F, ICAM1, BCL2L13, PRRC1, WDR5, FLOT1, TIMP2, S100A10, BCAP31, TRPC5, ANXA2, LIMCH1, CNBP, HIP1R, DTNBP1, PRKCA, TGFBR2, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44
blood vessel development	17	0.003433	ITGB1, ACVRL1, GRN, CD40, RBM15, ANXA2, MCAM, ITGB3, PRKCA, CLEC14A, RTN4, RHOB, TGFBR2, ITGAV, PRKD2, TEK, HTATIP2
regulation of vesicle-mediated transport	14	0.00354	RAB3B, C2CD5, CD151, ANXA2, ITGB3, HIP1R, DTNBP1, ATXN2, FLOT1, RAC2, SIRPA, ITGAV, CLASP1, S100A10
positive regulation of cell death	16	0.003588	ITGB1, BCAP31, GRN, CD40, HIP1R, SCRIB, MFF, PPM1F, RHOB, ICAM1, BCL2L13, SFPQ, LGALS1, PDCD4, SERINC3, HTATIP2
mitotic cell cycle	19	0.003606	ITGB1, DCTN6, FHL1, NCAPG, PRKCA, VRK1, SCRIB, PDS5B, ACTB, RHOB, BABAM1, ANLN, TIMP2, DPF2, JTB, PLCB1, PCNT, CLASP1, MAD1L1

positive regulation of defense response	12	0.003621	GRN, SFPQ, ABCC1, CD40, LGALS1, FABP4, CD81, TNFSF4, PDCD4, FLOT1, ERBIN, RTN4
positive regulation of protein metabolic process	30	0.003662	ACVRL1, GRN, CD40, CD81, ITGB3, PTTG1IP, PPM1F, ICAM1, BCL2L13, PRRC1, WDR5, FLOT1, TIMP2, S100A10, BCAP31, TRPC5, ANXA2, LIMCH1, CNBP, HIP1R, DTNBP1, PRKCA, WWP2, TGFBR2, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44
positive regulation of response to wounding	6	0.00369	ITGB1, GRN, ANXA2, F11R, TGFBR2, S100A10
regulation of multicellular organismal process	48	0.003717	ACVRL1, ITGB1, GRN, CD40, CD81, ITGB3, F11R, PPM1F, RTN4, ACTB, UBE2J1, ICAM1, EXOSC6, PCM1, LGALS1, BASP1, WDR5, DPF2, FLOT1, TIMP2, SIRPA, ITGAV, H4C1, CLASP1, S100A10, HTATIP2, TRPC5, RBM15, ANXA2, HIP1R, DTNBP1, ERBIN, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, P2RX4, TNFSF4, MYL3, PDCD4, ADAM9, PRKD2, TEK, PLCB1, MGLL, MYH6, MYH7
regulation of multicellular organismal development	35	0.003752	ACVRL1, ITGB1, GRN, CD40, ITGB3, F11R, RTN4, ACTB, EXOSC6, PCM1, LGALS1, BASP1, WDR5, DPF2, FLOT1, TIMP2, H4C1, CLASP1, S100A10, HTATIP2, TRPC5, RBM15, ANXA2, DTNBP1, PRKCA, RHOB, TGFBR2, SLC7A5, P2RX4, TNFSF4, PDCD4, PRKD2, TEK, PLCB1, MYH6

multicellular organism development	70	0.003828	ACVRL1, ITGB1, CD40, ITGB5, CD81, ITGB3, FHL1, FHL2, CLEC14A, F11R, ACTB, ICAM1, BABAM1, PCM1, ALCAM, LGALS1, BASP1, TIMP2, WDR5, DPF2, FLOT1, RAC2, ITGAV, H4C1, LBR, TNS2, HTATIP2, TRPC5, RBM15, ANXA2, TRPC4, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, BACE2, MYL3, ADAM9, PRKD2, PLCB1, MYH6, MAD1L1, CD44, MYH7, GRN, HM13, SLC38A10, RTN4, EXOSC6, BLOC1S1, EPB41L3, RBBP9, CKB, PDLIM4, CLASP1, S100A10, CMTM3, PLEKHA1, MCAM, KLHL1, HIP1R, DTNBP1, DHCR24, ANLN, P2RX4, TNFSF4, PDCD4, TEK
cell-substrate adherens junction assembly	5	0.003851	ACVRL1, ACTN1, TEK, PPM1F, S100A10
focal adhesion assembly	5	0.003851	ACVRL1, ACTN1, TEK, PPM1F, S100A10
small GTPase mediated signal transduction	12	0.003869	ITGB1, LRRC59, FLOT1, TIMP2, RAC2, ERBIN, ITGAV, DHCR24, F11R, RTN4, RHOB, ARHGAP12
regulation of actin cytoskeleton organization	11	0.00398	LIMCH1, ITGB3, HIP1R, RAC2, TEK, F11R, CLASP1, PPM1F, RHOB, ICAM1, S100A10
phosphate-containing compound metabolic process	46	0.00402	ACVRL1, PIGS, CD40, MAST4, NDUFB11, CD81, DGKA, ITGB3, ARL2, DNPH1, PPM1F, ACTB, ICAM1, PRRC1, FLOT1, TIMP2, SIRPA, ITGAV, CKB, ATP5F1EP2, TNS2, ATP5ME, HTATIP2, ADSL, TRPC5, ANXA2, LIMCH1, DTNBP1, ABHD14B, PRKCA, VRK1, GTPBP1,

			ATP5F1E, TGFBR2, FABP4, PDCD4, JTB, ADAM9, PRKD2, SERINC1, TEK, PLCB1, SERINC3, CD44, MYH6, MYH7
positive regulation of hydrolase activity	15	0.004116	ITGB1, BCAP31, GRN, CD40, HIP1R, TOR1AIP2, ATP1B3, SCRIB, F11R, PPM1F, ICAM1, BCL2L13, MYL3, PRKD2, S100A10
cell morphogenesis	20	0.004169	ITGB1, TRPC5, ITGB3, ACTN1, DTNBP1, SCRIB, F11R, RTN4, ACTB, RHOB, ICAM1, ALCAM, RILPL1, EPB41L3, FLOT1, RAC2, ITGAV, TEK, CD44, S100A10
regulation of cell proliferation	30	0.004175	ACVRL1, ITGB1, GRN, CD40, CD81, ITGB3, PDS5B, RTN4, ACTB, FTH1, TIMP2, RAC2, RBBP9, ITGAV, TNS2, TRPC5, ANXA2, CNBP, PRKCA, SCRIB, DHCR24, TGFBR2, SLC7A5, TNFSF4, GID8, PDCD4, JTB, PRKD2, TEK, MAD1L1
amino acid transport	7	0.004208	ITGB1, SLC7A5, TRPC4, DTNBP1, SLC38A10, LRRC8D, SERINC3
single-organism intracellular transport	17	0.004258	IPO11, ANXA2, NDUFB11, DTNBP1, SCRIB, PTTG1IP, ATP5F1E, ACTB, PCM1, SFPQ, NPC1, NPC2, BLOC1S1, RILPL1, NCBP3, ATP5F1EP2, ATP5ME
regulation of catalytic activity	38	0.004318	ITGB1, GRN, CD40, CD81, ITGB3, TOR1AIP2, ARL2, F11R, PPM1F, ACTB, ICAM1, ARHGAP12, BCL2L13, PRRC1, TIMP2, RAC2, SIRPA, S100A10, BCAP31, ANXA2, HIP1R, DTNBP1, SCRIB, ATP1B3,

			DHCR24, TGFBR2, FABP4, MYL3, PDCD4, JTB, ADAM9, PRKD2, SERINC1, TEK, ANXA2P2, PLCB1, CD44, MYH6
cellular component biogenesis	48	0.004337	ACVRL1, ITGB1, CD40, ITGB5, NDUFB11, ITGB3, DDX23, ARL2, USP39, F11R, PPM1F, RTN4, ACTB, LMNB1, ICAM1, EXOSC6, ATXN2, PCM1, CSRP1, EPB41L3, FLOT1, RAC2, LRRC8D, PIEZO1, H4C1, PCNT, EXOSC2, CLASP1, S100A10, ANXA2, LIMCH1, ACTN1, HIP1R, PRKCA, DNAJB14, ANLN, LSG1, NEMF, RILPL1, SNRPG, ZYX, ESF1, SERINC1, SNRPGP15, TEK, MYH6, PFDN6, MYH7
positive regulation of cell proliferation	20	0.004344	ITGB1, ACVRL1, GRN, TRPC5, CD40, ANXA2, CD81, CNBP, ITGB3, PRKCA, RTN4, ACTB, TGFBR2, SLC7A5, TNFSF4, GID8, RAC2, ITGAV, PRKD2, TEK
ion transport	29	0.004556	ITGB1, RAB3B, NDUFB11, ITGB3, FHL1, SLC38A10, ICAM1, FTH1, ATP6V0A2, LRRC8D, PIEZO1, ITGAV, ATP5F1EP2, ATP5ME, ABCC1, ATP6V1G1, TRPC5, ANXA2, TRPC4, DTNBP1, ATP1B3, WWP2, ATP5F1E, SLC7A5, P2RX4, FABP4, NPC2, ANXA2P2, SERINC3
regulation of intracellular signal transduction	31	0.004671	ITGB1, LRRC59, CD40, CD81, ITGB3, FHL2, PTTG1IP, F11R, RTN4, ICAM1, ARHGAP12, LGALS1, TNFAIP8L1, FLOT1, TIMP2, SIRPA, ITGAV, BCAP31, PLEKHA1, DTNBP1, ERBIN, PRKCA, SFPQ, P2RX4, PDCD4, ADAM9, PRKD2, TEK, PLCB1, SERINC3, CD44

single-multicellular organism process	81	0.004711	ACVRL1, ITGB1, CD40, ITGB5, CD81, DGKA, ITGB3, FHL1, FHL2, CLEC14A, F11R, ACTB, ICAM1, BABAM1, PCM1, ALCAM, LGALS1, CSRP1, BASP1, TIMP2, WDR5, DPF2, FLOT1, RAC2, BCAP29, SIRPA, ITGAV, H4C1, LBR, TNS2, HTATIP2, TRPC5, RBM15, ANXA2, TRPC4, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, BACE2, NPC1, MYL3, ADAM9, PRKD2, PLCB1, MYH6, MAD1L1, CD44, MYH7, GRN, HM13, SLC38A10, PPM1F, RTN4, UBE2J1, EXOSC6, BLOC1S1, EPB41L3, RBBP9, APBB2, CD59, CKB, PDLIM4, CLASP1, S100A10, CMTM3, PLEKHA1, MCAM, ALYREF, KLHL1, HIP1R, DTNBP1, ERBIN, DHCR24, ANLN, P2RX4, TNFSF4, PDCD4, TEK
regulation of inflammatory response	12	0.004848	GRN, ABCC1, LGALS1, FABP4, CD81, TNFSF4, PDCD4, ZYX, SIRPA, CD59, TEK, MGLL
response to endogenous stimulus	29	0.004957	ACVRL1, ITGB1, C2CD5, CD40, ITGB5, CD81, ITGB3, FHL2, SOGA1, ACTB, ICAM1, TIMP2, TNS2, ABCC1, ANXA2, ERBIN, DHCR24, TGFBR2, SLC7A5, P2RX4, NPC1, TNFSF4, ZYX, PDCD4, ADAM9, PRKD2, TEK, PLCB1, CD44
cellular component assembly involved in morphogenesis	6	0.005167	ITGB1, CSRP1, EPB41L3, MYH6, CLASP1, MYH7

cation transmembrane transport	19	0.005185	ITGB1, ATP6V1G1, TRPC5, ANXA2, NDUFB11, TRPC4, ITGB3, FHL1, ATP1B3, WWP2, ATP5F1E, SLC7A5, P2RX4, ATP6V0A2, PIEZO1, ITGAV, ANXA2P2, ATP5F1EP2, ATP5ME
chemical homeostasis	23	0.005204	BCAP31, ATP6V1G1, GRN, TRPC5, CD40, TRPC4, CNBP, ITGB3, FHL1, ATP1B3, RTN4, ICAM1, BACE2, P2RX4, LGALS1, FABP4, NPC1, NPC2, FTH1, ATP6V0A2, LRRC8D, ITGAV, CKB
cellular extravasation	5	0.005209	ITGB1, SIRPA, F11R, PLCB1, ICAM1
positive regulation of protein phosphorylation	20	0.005209	ACVRL1, TRPC5, CD40, ANXA2, CD81, LIMCH1, ITGB3, DTNBP1, PRKCA, TGFBR2, ICAM1, PRRC1, FLOT1, TIMP2, ADAM9, JTB, PRKD2, TEK, PLCB1, CD44
regulation of response to wounding	8	0.005356	ITGB1, GRN, ANXA2, PRKCA, F11R, CLASP1, TGFBR2, S100A10
cardiac chamber development	7	0.005638	RBM15, MYL3, FHL2, TEK, MYH6, MYH7, TGFBR2
system development	65	0.005846	ACVRL1, ITGB1, CD40, CD81, ITGB3, FHL1, FHL2, CLEC14A, ACTB, ICAM1, BABAM1, PCM1, ALCAM, LGALS1, BASP1, TIMP2, WDR5, DPF2, FLOT1, RAC2, ITGAV, H4C1, LBR, TNS2, HTATIP2, TRPC5, RBM15, ANXA2, TRPC4, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, BACE2, MYL3, ADAM9, PRKD2, PLCB1, MYH6, MAD1L1, CD44, MYH7, GRN, SLC38A10, RTN4, EXOSC6, BLOC1S1, EPB41L3,

			RBBP9, CKB, PDLIM4, S100A10, PLEKHA1, MCAM, KLHL1, HIP1R, DTNBP1, DHCR24, ANLN, P2RX4, TNFSF4, PDCD4, TEK
ion transmembrane transport	22	0.005871	ITGB1, ABCC1, ATP6V1G1, TRPC5, ANXA2, NDUFB11, TRPC4, ITGB3, FHL1, SLC38A10, ATP1B3, WWP2, ATP5F1E, SLC7A5, P2RX4, ATP6V0A2, LRRC8D, PIEZO1, ITGAV, ANXA2P2, ATP5F1EP2, ATP5ME
positive regulation of small GTPase mediated signal transduction	5	0.005995	LRRC59, ERBIN, ITGAV, F11R, RTN4
negative regulation of endocytosis	5	0.005995	ATXN2, ANXA2, ITGB3, SIRPA, ITGAV
intracellular signal transduction	40	0.006093	ITGB1, LRRC59, CD40, MAST4, CD81, DGKA, ITGB3, FHL2, PTTG1IP, F11R, PPM1F, RTN4, ICAM1, ARHGAP12, LGALS1, TNFAIP8L1, FLOT1, TIMP2, RAC2, SIRPA, APBB2, ITGAV, TNS2, CLASP1, BCAP31, PLEKHA1, DTNBP1, ERBIN, PRKCA, DHCR24, RHOB, SFPQ, P2RX4, PDCD4, ADAM9, PRKD2, TEK, PLCB1, SERINC3, CD44
blood vessel endothelial cell migration	7	0.006116	ITGB1, ACVRL1, CD40, P2RX4, PRKD2, PRKCA, CLEC14A

epithelium development	22	0.006142	ITGB1, ACVRL1, RBM15, CD151, SCRIB, F11R, DNPH1, RTN4, ACTB, RHOB, TGFBR2, ICAM1, ARHGAP12, BASP1, RILPL1, ADAM9, RBBP9, PRKD2, TAGLN2, PLCB1, CD44, CLASP1
regulation of cellular localization	19	0.006167	ITGB1, RAB3B, BCAP31, C2CD5, ANXA2, CD81, ITGB3, DTNBP1, MFF, PPM1F, RTN4, ACTB, UBE2J1, PCM1, P2RX4, REEP5, RAC2, PCNT, MAD1L1
enzyme linked receptor protein signaling pathway	19	0.006482	ACVRL1, C2CD5, PLEKHA1, ITGB5, ITGB3, HIP1R, ERBIN, CLEC14A, LNPEP, SOGA1, RTN4, TGFBR2, ZYX, PDCD4, ADAM9, PRKD2, TEK, PLCB1, TNS2
RNA localization	8	0.0065	SFPQ, ATXN2, LSG1, ALYREF, FLOT1, NCBP3, EXOSC2, TGFBR2
cellular response to lipopolysaccharide	8	0.0065	SLC7A5, CD40, TNFSF4, PDCD4, ADAM9, SIRPA, PRKCA, ICAM1
cell cycle process	22	0.006596	ITGB1, DCTN6, FHL1, ARL2, NCAPG, PRKCA, VRK1, PDS5B, ACTB, RHOB, BABAM1, ANLN, PCM1, SFPQ, NTMT1, DPF2, JTB, APBB2, PLCB1, PCNT, CLASP1, MAD1L1
inorganic cation transmembrane transport	17	0.006831	ITGB1, ATP6V1G1, TRPC5, ANXA2, NDUFB11, TRPC4, ITGB3, FHL1, ATP1B3, WWP2, ATP5F1E, P2RX4, ATP6V0A2, ITGAV, ANXA2P2, ATP5F1EP2, ATP5ME

Ras protein signal transduction	10	0.007146	ITGB1, LRRC59, FLOT1, TIMP2, RAC2, ERBIN, DHCR24, F11R, RTN4, RHOB
regulation of leukocyte cell-cell adhesion	11	0.007289	LGALS1, CD81, TNFSF4, RAC2, SIRPA, SCRIB, CD44, MAD1L1, ACTB, ICAM1, TGFBR2
positive regulation of intracellular protein transport	7	0.007596	BCAP31, PCM1, C2CD5, CD81, RAC2, MFF, PCNT
regulation of endocytosis	9	0.007607	ATXN2, CD151, ANXA2, ITGB3, HIP1R, FLOT1, DTNBP1, SIRPA, ITGAV
inflammatory response	16	0.007939	ABCC1, GRN, CD40, CD81, F11R, RTN4, ICAM1, LGALS1, FABP4, TNFSF4, PDCD4, SIRPA, CD59, TEK, CD44, MGLL
carboxylic acid transport	10	0.008118	ITGB1, SLC7A5, ABCC1, P2RX4, FABP4, TRPC4, DTNBP1, SLC38A10, LRRC8D, SERINC3
immune system development	19	0.008188	ITGB1, CD40, RBM15, ANXA2, CD81, ACTN1, PRKCA, ACTB, TGFBR2, BABAM1, ANLN, EXOSC6, LGALS1, TNFSF4, DPF2, TEK, H4C1, LBR, MAD1L1
regulation of cell morphogenesis	12	0.008281	STRIP1, TRPC5, ITGB3, EPB41L3, RAC2, DTNBP1, F11R, CD44, RTN4, RHOB, ICAM1, S100A10

organic acid transport	10	0.008472	ITGB1, SLC7A5, ABCC1, P2RX4, FABP4, TRPC4, DTNBP1, SLC38A10, LRRC8D, SERINC3
positive regulation of cell-substrate adhesion	6	0.008486	ITGB3, ARL2, TEK, HSD17B12, PPM1F, S100A10
negative regulation of cellular component organization	17	0.008524	ACVRL1, TRPC5, ANXA2, ITGB3, HIP1R, DTNBP1, F11R, RTN4, SCAF4, ATXN2, LGALS1, WDR5, SIRPA, ITGAV, CLASP1, PFDN6, MAD1L1
cellular response to molecule of bacterial origin	8	0.008587	SLC7A5, CD40, TNFSF4, PDCD4, ADAM9, SIRPA, PRKCA, ICAM1
regulation of actin filament-based process	11	0.008635	LIMCH1, ITGB3, HIP1R, RAC2, TEK, F11R, CLASP1, PPM1F, RHOB, ICAM1, S100A10
mRNA metabolic process	15	0.008697	RBM15, ANXA2, ALYREF, DDX23, USP39, GTPBP1, SCAF4, EXOSC6, SFPQ, SNRPG, NCBP3, SNRPGP15, EXOSC2, BCAS2, S100A10
regulation of protein phosphorylation	25	0.00899	ACVRL1, CD40, CD81, ITGB3, PPM1F, ACTB, ICAM1, PRRC1, FLOT1, TIMP2, SIRPA, TRPC5, ANXA2, LIMCH1, DTNBP1, PRKCA, TGFBR2, FABP4, PDCD4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44
positive regulation of production of molecular mediator of immune response	6	0.009018	SLC7A5, EXOSC6, CD40, CD81, TNFSF4, RTN4

cellular chemical homeostasis	17	0.009158	BCAP31, ATP6V1G1, GRN, TRPC5, CD40, TRPC4, ITGB3, ATP1B3, RTN4, ICAM1, P2RX4, LGALS1, FTH1, ATP6V0A2, LRRC8D, ITGAV, CKB
regulation of production of molecular mediator of immune response	7	0.009243	SLC7A5, EXOSC6, CD40, CD81, TNFSF4, RTN4, UBE2J1
positive regulation of molecular function	27	0.0095	ITGB1, GRN, CD40, CD81, ITGB3, TOR1AIP2, F11R, PPM1F, ICAM1, BCL2L13, PRRC1, FLOT1, TIMP2, S100A10, BCAP31, ANXA2, HIP1R, SCRIB, ATP1B3, TGFBR2, MYL3, JTB, ADAM9, PRKD2, SERINC1, TEK, CD44
vesicle-mediated transport	26	0.009513	ITGB1, RAB3B, C2CD5, CD151, CD81, ITGB3, ACTB, ARHGAP12, ATXN2, BLOC1S1, FLOT1, RAC2, SIRPA, BCAP29, ITGAV, CLASP1, S100A10, BCAP31, ANXA2, FNBP1, COG5, HIP1R, DTNBP1, SCRIB, TGFBR2, NPC1
positive regulation of multicellular organismal process	30	0.009568	ACVRL1, ITGB1, GRN, CD40, CD81, ITGB3, F11R, PPM1F, RTN4, ACTB, ICAM1, EXOSC6, BASP1, DPF2, FLOT1, TIMP2, CLASP1, TRPC5, ANXA2, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, P2RX4, TNFSF4, ADAM9, PRKD2, TEK, PLCB1
regulation of wound healing	7	0.009949	ITGB1, ANXA2, PRKCA, F11R, CLASP1, TGFBR2, S100A10

positive regulation of cytoskeleton organization	8	0.01016	LIMCH1, HIP1R, ARL2, TEK, CLASP1, PPM1F, ICAM1, S100A10
positive regulation of phosphorylation	20	0.010295	ACVRL1, TRPC5, CD40, ANXA2, CD81, LIMCH1, ITGB3, DTNBP1, PRKCA, TGFBR2, ICAM1, PRRC1, FLOT1, TIMP2, ADAM9, JTB, PRKD2, TEK, PLCB1, CD44
regulation of immune effector process	11	0.010314	SLC7A5, EXOSC6, GRN, CD40, CD81, TNFSF4, RAC2, CD59, SCRIB, RTN4, UBE2J1
RNA transport	7	0.010383	SFPQ, ATXN2, LSG1, ALYREF, FLOT1, NCBP3, TGFBR2
nucleic acid transport	7	0.010383	SFPQ, ATXN2, LSG1, ALYREF, FLOT1, NCBP3, TGFBR2
regulation of small GTPase mediated signal transduction	9	0.010409	ITGB1, LRRC59, FLOT1, TIMP2, ERBIN, ITGAV, F11R, RTN4, ARHGAP12
positive regulation of intracellular transport	8	0.010591	BCAP31, PCM1, C2CD5, ANXA2, CD81, RAC2, MFF, PCNT
cell proliferation	31	0.010655	ACVRL1, ITGB1, GRN, CD40, CD151, CD81, ITGB3, PDS5B, RTN4, ACTB, BABAM1, PCM1, FTH1, TIMP2, RAC2, ITGAV, TNS2, TRPC5, ANXA2, CNBP, PRKCA, SCRIB, DHCR24, TGFBR2, SLC7A5, TNFSF4, GID8, PDCD4, PRKD2, TEK, MAD1L1

establishment of RNA localization	7	0.01122	SFPQ, ATXN2, LSG1, ALYREF, FLOT1, NCBP3, TGFBR2
cell morphogenesis involved in differentiation	15	0.011593	ITGB1, TRPC5, ITGB3, ACTN1, DTNBP1, SCRIB, RTN4, ACTB, ALCAM, RILPL1, FLOT1, RAC2, ITGAV, TEK, S100A10
regulation of molecular function	44	0.011821	ITGB1, GRN, CD40, CD81, ITGB3, FHL1, TOR1AIP2, ARL2, F11R, PPM1F, ACTB, ICAM1, ARHGAP12, BCL2L13, PRRC1, FLOT1, TIMP2, RAC2, SIRPA, ITGAV, S100A10, BCAP31, ANXA2, HIP1R, DTNBP1, ERBIN, SCRIB, ATP1B3, WWP2, DHCR24, TGFBR2, FABP4, TNFSF4, MYL3, PDCD4, JTB, ADAM9, PRKD2, SERINC1, TEK, ANXA2P2, PLCB1, CD44, MYH6
cellular component assembly	43	0.011953	ACVRL1, ITGB1, CD40, ITGB5, NDUFB11, ITGB3, DDX23, ARL2, USP39, F11R, PPM1F, RTN4, ACTB, LMNB1, ICAM1, ATXN2, PCM1, CSRP1, EPB41L3, FLOT1, RAC2, LRRC8D, PIEZO1, H4C1, PCNT, CLASP1, S100A10, ANXA2, LIMCH1, ACTN1, HIP1R, PRKCA, DNAJB14, ANLN, NEMF, RILPL1, SNRPG, ZYX, SNRPGP15, TEK, MYH6, PFDN6, MYH7
cellular homeostasis	18	0.01239	BCAP31, ATP6V1G1, GRN, TRPC5, CD40, TRPC4, ITGB3, ATP1B3, RTN4, ICAM1, P2RX4, LGALS1, FTH1, ATP6V0A2, LRRC8D, ITGAV, CKB, TNS2

regulation of cytoskeleton organization	13	0.012401	LIMCH1, ITGB3, HIP1R, ARL2, F11R, PPM1F, RHOB, ICAM1, RAC2, TEK, MPDZ, CLASP1, S100A10
positive regulation of wound healing	5	0.012833	ITGB1, ANXA2, F11R, TGFBR2, S100A10
purine nucleotide metabolic process	12	0.01303	ADSL, NDUFB11, TIMP2, ARL2, ABHD14B, ATP5F1EP2, GTPBP1, DNPH1, MYH6, ATP5F1E, MYH7, ATP5ME
regulation of Ras protein signal transduction	7	0.013069	ITGB1, LRRC59, FLOT1, TIMP2, ERBIN, F11R, RTN4
morphogenesis of an epithelium	12	0.013363	ITGB1, ACVRL1, CD151, RBM15, PRKD2, SCRIB, CD44, CLASP1, ACTB, RHOB, ARHGAP12, TGFBR2
organophosphate metabolic process	20	0.01375	PIGS, ADSL, NDUFB11, CD81, DGKA, ABHD14B, ARL2, GTPBP1, DNPH1, ATP5F1E, TIMP2, SERINC1, CKB, TEK, PLCB1, SERINC3, ATP5F1EP2, MYH6, ATP5ME, MYH7
regulation of phosphorylation	26	0.013866	ACVRL1, CD40, CD81, ITGB3, ARL2, PPM1F, ACTB, ICAM1, PRRC1, FLOT1, TIMP2, SIRPA, TRPC5, ANXA2, LIMCH1, DTNBP1, PRKCA, TGFBR2, FABP4, PDCD4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44
positive regulation of protein modification process	22	0.013878	ACVRL1, TRPC5, CD40, ANXA2, CD81, LIMCH1, ITGB3, DTNBP1, PRKCA, PTTG1IP, TGFBR2, ICAM1, PRRC1, FLOT1, TIMP2, WDR5, ADAM9, JTB, PRKD2, TEK, PLCB1, CD44

intracellular protein transport	19	0.014191	BCAP31, C2CD5, IPO11, CD81, ALYREF, HM13, ERBIN, PTTG1IP, MFF, RHOB, UBE2J1, LSG1, PCM1, SFPQ, RILPL1, RAC2, BCAP29, NCBP3, PCNT
regulation of stress fiber assembly	5	0.014232	LIMCH1, F11R, CLASP1, PPM1F, S100A10
cellular response to biotic stimulus	8	0.014929	SLC7A5, CD40, TNFSF4, PDCD4, ADAM9, SIRPA, PRKCA, ICAM1
apoptotic signaling pathway	13	0.015291	BCAP31, HIP1R, PRKCA, PTTG1IP, MFF, PPM1F, ICAM1, SFPQ, P2RX4, DPF2, ITGAV, SERINC3, CD44
leukocyte migration	10	0.015306	ITGB1, P2RX4, CD81, ITGB3, RAC2, SIRPA, F11R, PLCB1, RTN4, ICAM1
regulation of body fluid levels	10	0.015486	CD40, CSRP1, ANXA2, DGKA, ITGB3, DTNBP1, CD59, PRKCA, F11R, ACTB
heart development	13	0.015997	ITGB1, ACVRL1, RBM15, FHL2, RTN4, TGFBR2, BASP1, MYL3, PDCD4, TEK, PDLIM4, MYH6, MYH7
mitotic nuclear division	9	0.016058	DCTN6, ANLN, DPF2, NCAPG, PDS5B, PCNT, CLASP1, MAD1L1, ACTB

T cell activation	12	0.016071	CD151, LGALS1, CD81, TNFSF4, RAC2, SIRPA, SCRIB, CD44, MAD1L1, ACTB, ICAM1, TGFBR2
purine nucleoside monophosphate metabolic process	9	0.016262	ADSL, NDUFB11, ARL2, ATP5F1EP2, DNPH1, MYH6, ATP5F1E, MYH7, ATP5ME
positive regulation of leukocyte cell-cell adhesion	8	0.01655	LGALS1, CD81, TNFSF4, SIRPA, CD44, ACTB, ICAM1, TGFBR2
positive regulation of cellular component biogenesis	13	0.016915	LIMCH1, HIP1R, ARL2, PRKCA, PPM1F, ICAM1, ANLN, FLOT1, RAC2, PIEZO1, TEK, CLASP1, S100A10
protein phosphorylation	29	0.017335	ACVRL1, CD40, MAST4, CD81, ITGB3, PPM1F, ACTB, ICAM1, PRRC1, FLOT1, TIMP2, SIRPA, ITGAV, HTATIP2, TRPC5, ANXA2, LIMCH1, DTNBP1, PRKCA, VRK1, TGFBR2, FABP4, PDCD4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44
inorganic ion transmembrane transport	17	0.017474	ITGB1, ATP6V1G1, TRPC5, ANXA2, NDUFB11, TRPC4, ITGB3, FHL1, ATP1B3, WWP2, ATP5F1E, P2RX4, ATP6V0A2, ITGAV, ANXA2P2, ATP5F1EP2, ATP5ME
cellular response to endogenous stimulus	22	0.019536	ITGB1, ACVRL1, ABCC1, C2CD5, ITGB5, CD81, ITGB3, SOGA1, ACTB, TGFBR2, ICAM1, SLC7A5, P2RX4, NPC1, TNFSF4, ZYX, PDCD4, ADAM9, PRKD2, PLCB1, CD44, TNS2

regulation of intracellular protein transport	8	0.019994	BCAP31, PCM1, C2CD5, CD81, RAC2, MFF, PCNT, UBE2J1
positive regulation of cellular protein localization	9	0.020211	BCAP31, ITGB1, PCM1, C2CD5, CD81, RAC2, MFF, PCNT, RTN4
receptor metabolic process	6	0.020429	ITGB1, ATXN2, ANXA2, CD81, DTNBP1, SCRIB
hematopoietic or lymphoid organ development	17	0.020439	ITGB1, RBM15, ANXA2, CD81, ACTN1, PRKCA, ACTB, TGFBR2, BABAM1, ANLN, LGALS1, TNFSF4, DPF2, TEK, H4C1, LBR, MAD1L1
growth	17	0.020614	ITGB1, ACVRL1, TRPC5, PLEKHA1, CD81, FHL1, DNPH1, PPM1F, RTN4, TGFBR2, ALCAM, BASP1, EPB41L3, PLCB1, EXOSC2, TNS2, MYH6
receptor internalization	5	0.021394	ITGB1, ATXN2, ANXA2, CD81, DTNBP1
regulation of actin filament bundle assembly	5	0.021394	LIMCH1, F11R, CLASP1, PPM1F, S100A10
positive regulation of epithelial cell proliferation	7	0.021425	ACVRL1, GRN, ITGB3, PRKD2, PRKCA, TEK, RTN4
leukocyte activation involved in immune response	8	0.021434	EXOSC6, GRN, CD40, LGALS1, CD81, TNFSF4, RAC2, ICAM1

purine-containing compound metabolic process	12	0.021474	ADSL, NDUFB11, TIMP2, ARL2, ABHD14B, ATP5F1EP2, GTPBP1, DNPH1, MYH6, ATP5F1E, MYH7, ATP5ME
cell cycle	26	0.02153	ITGB1, DCTN6, FHL1, ARL2, NCAPG, PDS5B, USP39, ACTB, BABAM1, PCM1, NTMT1, DPF2, TIMP2, APBB2, PCNT, CLASP1, PRKCA, VRK1, SCRIB, RHOB, ANLN, SFPQ, PDCD4, JTB, PLCB1, MAD1L1
establishment of protein localization	28	0.021662	RAB3B, C2CD5, IPO11, CD81, HM13, PTTG1IP, MFF, PPM1F, UBE2J1, PCM1, RAC2, BCAP29, PCNT, BCAP31, PLEKHA1, COG5, ALYREF, ERBIN, SCRIB, WWP2, RHOB, SFPQ, DNAJC1, LSG1, NPC1, RILPL1, ADAM9, NCBP3
protein folding	7	0.021763	GRN, DNAJC1, ARL2, MOGS, DNAJB14, SDF2, PFDN6
positive regulation of supramolecular fiber organization	7	0.021763	LIMCH1, HIP1R, ARL2, CLASP1, PPM1F, ICAM1, S100A10
transmembrane transport	24	0.021793	ITGB1, ABCC1, ATP6V1G1, C2CD5, TRPC5, ANXA2, NDUFB11, TRPC4, ITGB3, FHL1, SLC38A10, ATP1B3, WWP2, ATP5F1E, ACTB, SLC7A5, P2RX4, ATP6V0A2, LRRC8D, PIEZO1, ITGAV, ANXA2P2, ATP5F1EP2, ATP5ME

regulation of signal transduction	42	0.022095	ACVRL1, ITGB1, LRRC59, CD40, CD81, ITGB3, FHL2, PTTG1IP, F11R, MFF, RTN4, ICAM1, ARHGAP12, LGALS1, TNFAIP8L1, FLOT1, TIMP2, SIRPA, ITGAV, TNS2, BCAP31, PLEKHA1, CMTM3, ANXA2, HIP1R, DTNBP1, ERBIN, PRKCA, SCRIB, WWP2, TGFBR2, SFPQ, P2RX4, GID8, PDCD4, ADAM9, PRKD2, TEK, PLCB1, SERINC3, CD44, MGLL
protein processing	8	0.022129	BACE2, ANXA2, HM13, ADAM9, MOGS, DHCR24, CD59, S100A10
organic anion transport	11	0.022677	ITGB1, SLC7A5, ABCC1, P2RX4, FABP4, NPC2, TRPC4, DTNBP1, SLC38A10, LRRC8D, SERINC3
cell activation involved in immune response	8	0.022848	EXOSC6, GRN, CD40, LGALS1, CD81, TNFSF4, RAC2, ICAM1
positive regulation of inflammatory response	6	0.022922	ABCC1, LGALS1, FABP4, CD81, TNFSF4, PDCD4
regulation of intracellular transport	11	0.022948	BCAP31, PCM1, C2CD5, REEP5, ANXA2, CD81, RAC2, DTNBP1, MFF, PCNT, UBE2J1
regulation of protein transport	12	0.023714	BCAP31, PCM1, C2CD5, DNAJC1, CD81, RAC2, ADAM9, WWP2, MFF, PCNT, PPM1F, UBE2J1
negative regulation of cell differentiation	15	0.023829	ITGB1, ACVRL1, TRPC5, RBM15, ITGB3, DTNBP1, RTN4, ACTB, PCM1, LGALS1, TNFSF4, PDCD4, DPF2, ITGAV, H4C1

response to external stimulus	37	0.024009	GRN, CD40, CD81, ITGB3, F11R, PPM1F, ICAM1, ALCAM, LGALS1, RAC2, SIRPA, PIEZO1, RBBP9, CD59, ITGAV, CLASP1, ABCC1, ADSL, CMTM3, ANXA2, ERBIN, PRKCA, SCRIB, TGFBR2, SLC7A5, P2RX4, FABP4, NPC2, TNFSF4, ZYX, PDCD4, ADAM9, PRKD2, NCBP3, TEK, SERINC3, MGLL
positive regulation of phosphate metabolic process	20	0.024608	ACVRL1, TRPC5, CD40, ANXA2, CD81, LIMCH1, ITGB3, DTNBP1, PRKCA, TGFBR2, ICAM1, PRRC1, FLOT1, TIMP2, ADAM9, JTB, PRKD2, TEK, PLCB1, CD44
positive regulation of phosphorus metabolic process	20	0.024608	ACVRL1, TRPC5, CD40, ANXA2, CD81, LIMCH1, ITGB3, DTNBP1, PRKCA, TGFBR2, ICAM1, PRRC1, FLOT1, TIMP2, ADAM9, JTB, PRKD2, TEK, PLCB1, CD44
positive regulation of endothelial cell proliferation	5	0.024642	ACVRL1, ITGB3, PRKD2, PRKCA, TEK
positive regulation of macromolecule metabolic process	46	0.024948	ACVRL1, GRN, CD40, CD81, ITGB3, PTTG1IP, PPM1F, ACTB, ICAM1, BABAM1, BCL2L13, EXOSC6, PRRC1, WDR5, DPF2, FLOT1, TIMP2, RBBP9, APBB2, S100A10, HTATIP2, BCAP31, TRPC5, RBM15, ANXA2, LIMCH1, CNBP, ALYREF, ACTN1, HIP1R, DTNBP1, ABHD14B, PRKCA, SCRIB, WWP2, GTPBP1, TGFBR2, DRAP1, SFPQ, TNFSF4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44

mitochondrial transport	8	0.02514	BCAP31, NDUFB11, HIP1R, RAC2, MFF, ATP5F1EP2, ATP5F1E, ATP5ME
negative regulation of biological process	71	0.025467	ACVRL1, ITGB1, ITGB3, FHL1, FHL2, F11R, SOGA1, ACTB, ICAM1, BABAM1, PCM1, LGALS1, BASP1, FTH1, TIMP2, TNFAIP8L1, WDR5, DPF2, SIRPA, ITGAV, H4C1, TNS2, HTATIP2, TRPC5, RBM15, ANXA2, LIMCH1, ACTN1, PRKCA, SCRIB, GTPBP1, RHOB, TGFBR2, SLC7A5, BACE2, SFPQ, DNAJC1, NPC1, PLCB1, MAD1L1, CD44, PFDN6, GRN, ARL2, PDS5B, PTTG1IP, PPM1F, RTN4, UBE2J1, ARHGAP12, EXOSC6, ATXN2, APBB2, CD59, EXOSC2, CLASP1, PLEKHA1, CNBP, HIP1R, DTNBP1, ERBIN, WWP2, DHCR24, HELZ, SCAF4, DRAP1, P2RX4, FABP4, TNFSF4, PDCD4, TEK
regulation of leukocyte migration	7	0.025556	P2RX4, CD81, ITGB3, RAC2, PLCB1, RTN4, ICAM1
MAPK cascade	15	0.025605	CD40, CD81, ITGB3, DTNBP1, PRKCA, ICAM1, TIMP2, PDCD4, ADAM9, SIRPA, ITGAV, PRKD2, TEK, PLCB1, CD44
signal transduction by protein phosphorylation	15	0.025605	CD40, CD81, ITGB3, DTNBP1, PRKCA, ICAM1, TIMP2, PDCD4, ADAM9, SIRPA, ITGAV, PRKD2, TEK, PLCB1, CD44
regulation of cell activation	14	0.025825	GRN, CD40, CD81, PRKCA, SCRIB, F11R, ACTB, TGFBR2, EXOSC6, LGALS1, TNFSF4, RAC2, SIRPA, MAD1L1

peptide transport	27	0.0259	RAB3B, C2CD5, IPO11, CD81, HM13, PTTG1IP, MFF, PPM1F, UBE2J1, PCM1, RAC2, BCAP29, PCNT, BCAP31, ABCC1, COG5, ALYREF, ERBIN, SCRIB, WWP2, RHOB, SFPQ, DNAJC1, LSG1, RILPL1, ADAM9, NCBP3
carbohydrate derivative metabolic process	20	0.026073	PIGS, ADSL, NDUFB11, ABHD14B, ARL2, MOGS, GTPBP1, DNPH1, ATP5F1E, UBE2J1, BACE2, NPC1, AMDHD2, TIMP2, PLCB1, ATP5F1EP2, CD44, MYH6, ATP5ME, MYH7
response to lipopolysaccharide	9	0.026104	SLC7A5, CD40, TNFSF4, PDCD4, ERBIN, ADAM9, SIRPA, PRKCA, ICAM1
striated muscle cell differentiation	8	0.026311	ITGB1, CSRP1, CD81, FHL2, FLOT1, PIEZO1, MYH6, MYH7
regulation of cellular protein localization	12	0.026399	BCAP31, ITGB1, PCM1, C2CD5, CD81, RAC2, MFF, PCNT, RTN4, ACTB, PPM1F, UBE2J1
nucleoside monophosphate metabolic process	9	0.026522	ADSL, NDUFB11, ARL2, ATP5F1EP2, DNPH1, MYH6, ATP5F1E, MYH7, ATP5ME
establishment or maintenance of cell polarity	7	0.026582	ITGB1, RAC2, ERBIN, SCRIB, CLASP1, ACTB, RHOB

regulation of cytokine production involved in immune response	5	0.026726	SLC7A5, CD81, TNFSF4, RTN4, UBE2J1
regulation of neurotransmitter transport	5	0.026726	ITGB1, RAB3B, ITGB3, FLOT1, DTNBP1
cytokine production involved in immune response	5	0.026726	SLC7A5, CD81, TNFSF4, RTN4, UBE2J1
regulation of catabolic process	16	0.026926	ITGB1, BCAP31, ATP6V1G1, ANXA2, CD81, ARL2, WWP2, PTTG1IP, SOGA1, GTPBP1, UBE2J1, SLC7A5, NPC1, TIMP2, ATP6V0A2, ADAM9
purine ribonucleotide metabolic process	11	0.026985	ADSL, NDUFB11, TIMP2, ARL2, ABHD14B, ATP5F1EP2, GTPBP1, MYH6, ATP5F1E, MYH7, ATP5ME
regulation of T cell activation	9	0.028407	LGALS1, CD81, TNFSF4, RAC2, SIRPA, SCRIB, MAD1L1, ACTB, TGFBR2
hemopoiesis	16	0.028539	ITGB1, RBM15, ANXA2, CD81, ACTN1, PRKCA, ACTB, TGFBR2, BABAM1, ANLN, LGALS1, TNFSF4, DPF2, TEK, H4C1, LBR
regulation of MAPK cascade	14	0.028854	CD40, CD81, ITGB3, DTNBP1, PRKCA, ICAM1, TIMP2, PDCD4, ADAM9, SIRPA, PRKD2, TEK, PLCB1, CD44

regulation of lymphocyte proliferation	7	0.029044	CD40, CD81, TNFSF4, RAC2, SCRIB, MAD1L1, TGFBR2
homeostatic process	28	0.029598	GRN, CD40, ITGB3, FHL1, RTN4, ACTB, ICAM1, LGALS1, FTH1, RAC2, ATP6V0A2, LRRC8D, APBB2, ITGAV, CKB, TNS2, BCAP31, ATP6V1G1, TRPC5, TRPC4, CNBP, PRKCA, ATP1B3, BACE2, P2RX4, FABP4, NPC1, NPC2
endothelial cell differentiation	5	0.029665	ACVRL1, F11R, PLCB1, RTN4, ICAM1
positive regulation of cellular metabolic process	46	0.029748	ACVRL1, GRN, CD40, CD81, ITGB3, PTTG1IP, PPM1F, ACTB, ICAM1, BABAM1, BCL2L13, EXOSC6, PRRC1, WDR5, DPF2, FLOT1, TIMP2, APBB2, S100A10, HTATIP2, BCAP31, TRPC5, RBM15, ANXA2, LIMCH1, CNBP, ALYREF, ACTN1, HIP1R, DTNBP1, ABHD14B, PRKCA, SCRIB, WWP2, GTPBP1, TGFBR2, DRAP1, SFPQ, P2RX4, TNFSF4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44
response to oxygen levels	9	0.029836	ACVRL1, SLC7A5, ATP6V1G1, ADSL, ATP6V0A2, TEK, RTN4, ICAM1, TGFBR2
lymphocyte proliferation	8	0.030214	CD40, CD151, CD81, TNFSF4, RAC2, SCRIB, MAD1L1, TGFBR2
peptidyl-threonine phosphorylation	5	0.030428	TRPC5, VRK1, PRKD2, PRKCA, TGFBR2

regulation of protein localization	16	0.030966	ITGB1, BCAP31, C2CD5, CD81, ITGB3, WWP2, MFF, PPM1F, RTN4, ACTB, UBE2J1, PCM1, DNAJC1, RAC2, ADAM9, PCNT
regulation of mononuclear cell proliferation	7	0.031108	CD40, CD81, TNFSF4, RAC2, SCRIB, MAD1L1, TGFBR2
nucleobase-containing compound transport	7	0.031108	SFPQ, ATXN2, LSG1, ALYREF, FLOT1, NCBP3, TGFBR2
protein transport	26	0.03128	RAB3B, C2CD5, IPO11, CD81, HM13, PTTG1IP, MFF, PPM1F, UBE2J1, PCM1, RAC2, BCAP29, PCNT, BCAP31, COG5, ALYREF, ERBIN, SCRIB, WWP2, RHOB, SFPQ, DNAJC1, LSG1, RILPL1, ADAM9, NCBP3
regulation of cell differentiation	28	0.031634	ACVRL1, ITGB1, GRN, ITGB3, F11R, RTN4, ACTB, PCM1, LGALS1, DPF2, FLOT1, TIMP2, PIEZO1, ITGAV, H4C1, CLASP1, S100A10, TRPC5, RBM15, ANXA2, DTNBP1, PRKCA, TGFBR2, SLC7A5, P2RX4, TNFSF4, PDCD4, PLCB1
regulation of establishment of protein localization	12	0.032098	BCAP31, PCM1, C2CD5, DNAJC1, CD81, RAC2, ADAM9, WWP2, MFF, PCNT, PPM1F, UBE2J1
regulation of T cell proliferation	6	0.032367	CD81, TNFSF4, RAC2, SCRIB, MAD1L1, TGFBR2
mononuclear cell proliferation	8	0.032381	CD40, CD151, CD81, TNFSF4, RAC2, SCRIB, MAD1L1, TGFBR2

amide transport	27	0.032399	RAB3B, C2CD5, IPO11, CD81, HM13, PTTG1IP, MFF, PPM1F, UBE2J1, PCM1, RAC2, BCAP29, PCNT, BCAP31, ABCC1, COG5, ALYREF, ERBIN, SCRIB, WWP2, RHOB, SFPQ, DNAJC1, LSG1, RILPL1, ADAM9, NCBP3
regulation of cytokine production	15	0.032604	CD40, CD81, ERBIN, SCRIB, F11R, RTN4, UBE2J1, SLC7A5, TNFSF4, FLOT1, PDCD4, SIRPA, ITGAV, PRKD2, PLCB1
ribonucleotide metabolic process	11	0.033245	ADSL, NDUFB11, TIMP2, ARL2, ABHD14B, ATP5F1EP2, GTPBP1, MYH6, ATP5F1E, MYH7, ATP5ME
cardiac ventricle development	5	0.033597	RBM15, MYL3, MYH6, MYH7, TGFBR2
regulation of peptide transport	12	0.034067	BCAP31, PCM1, C2CD5, DNAJC1, CD81, RAC2, ADAM9, WWP2, MFF, PCNT, PPM1F, UBE2J1
response to molecule of bacterial origin	9	0.034221	SLC7A5, CD40, TNFSF4, PDCD4, ERBIN, ADAM9, SIRPA, PRKCA, ICAM1
positive regulation of MAPK cascade	11	0.03432	CD40, CD81, ITGB3, TIMP2, ADAM9, PRKD2, PRKCA, TEK, PLCB1, CD44, ICAM1
hydrogen ion transmembrane transport	6	0.034526	ATP6V1G1, NDUFB11, ATP6V0A2, ATP5F1EP2, ATP5F1E, ATP5ME

transmembrane receptor protein tyrosine kinase signaling pathway	12	0.036121	C2CD5, PLEKHA1, ITGB3, HIP1R, ERBIN, PRKD2, CLEC14A, TEK, PLCB1, SOGA1, RTN4, TNS2
cellular response to oxygen-containing compound	19	0.036644	ABCC1, C2CD5, CD40, PLEKHA1, ITGB3, PRKCA, SOGA1, ACTB, RHOB, ICAM1, SLC7A5, P2RX4, LGALS1, TNFSF4, PDCD4, ADAM9, SIRPA, PLCB1, TNS2
purine nucleoside monophosphate biosynthetic process	5	0.036952	ADSL, NDUFB11, ATP5F1EP2, ATP5F1E, ATP5ME
purine ribonucleoside monophosphate biosynthetic process	5	0.036952	ADSL, NDUFB11, ATP5F1EP2, ATP5F1E, ATP5ME
regulation of protein metabolic process	44	0.037017	ACVRL1, GRN, CD40, CD81, ITGB3, PTTG1IP, PPM1F, RTN4, ACTB, UBE2J1, ICAM1, BCL2L13, ATXN2, PRRC1, WDR5, FLOT1, TIMP2, SIRPA, CD59, ITGAV, S100A10, BCAP31, TRPC5, ANXA2, LIMCH1, CNBP, HIP1R, DTNBP1, PRKCA, WWP2, DHCR24, TGFBR2, BACE2, DNAJC1, FABP4, NEMF, PDCD4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44, PFDN6
purine ribonucleoside triphosphate metabolic process	8	0.037286	NDUFB11, ARL2, ATP5F1EP2, GTPBP1, MYH6, ATP5F1E, MYH7, ATP5ME

lymphocyte activation	15	0.037483	ITGB1, CD40, CD151, CD81, SCRIB, ACTB, TGFBR2, ICAM1, EXOSC6, LGALS1, TNFSF4, RAC2, SIRPA, CD44, MAD1L1
leukocyte activation	17	0.037635	ITGB1, GRN, CD40, CD151, CD81, SCRIB, ACTB, TGFBR2, ICAM1, EXOSC6, LGALS1, TNFSF4, RAC2, ADAM9, SIRPA, CD44, MAD1L1
ERK1 and ERK2 cascade	8	0.03781	ITGB3, SIRPA, ITGAV, PRKD2, PRKCA, TEK, CD44, ICAM1
peptidyl-threonine modification	5	0.03782	TRPC5, VRK1, PRKD2, PRKCA, TGFBR2
muscle cell development	6	0.037868	ITGB1, CSRP1, ACTN1, FHL2, MYH6, MYH7
phosphorylation	32	0.038153	ACVRL1, CD40, MAST4, CD81, DGKA, ITGB3, ARL2, PPM1F, ACTB, ICAM1, PRRC1, FLOT1, TIMP2, SIRPA, ITGAV, CKB, HTATIP2, TRPC5, ANXA2, LIMCH1, DTNBP1, PRKCA, VRK1, TGFBR2, FABP4, PDCD4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44
cellular ion homeostasis	13	0.038273	BCAP31, ATP6V1G1, GRN, TRPC5, CD40, TRPC4, ITGB3, ATP1B3, P2RX4, FTH1, ATP6V0A2, ITGAV, CKB
regulation of DNA recombination	5	0.038699	EXOSC6, CD40, TNFSF4, ALYREF, ACTB
RNA splicing, via transesterification reactions	8	0.039288	SFPQ, RBM15, ALYREF, DDX23, SNRPG, SNRPGP15, USP39, BCAS2

with bulged adenosine as nucleophile			
mRNA splicing, via spliceosome	8	0.039288	SFPQ, RBM15, ALYREF, DDX23, SNRPG, SNRPGP15, USP39, BCAS2
purine nucleoside triphosphate metabolic process	8	0.039968	NDUFB11, ARL2, ATP5F1EP2, GTPBP1, MYH6, ATP5F1E, MYH7, ATP5ME
ribose phosphate metabolic process	11	0.04006	ADSL, NDUFB11, TIMP2, ARL2, ABHD14B, ATP5F1EP2, GTPBP1, MYH6, ATP5F1E, MYH7, ATP5ME
catabolic process	34	0.040478	ITGB1, CD81, TEX264, POP1, HM13, ARL2, PTTG1IP, DNPH1, SOGA1, UBE2J1, EXOSC6, AMDHD2, TIMP2, ATP6V0A2, MAN2C1, EXOSC2, BCAP31, ABCC1, ATP6V1G1, ANXA2, UBE2E1, LNPEP, DNAJB14, WWP2, GTPBP1, SLC7A5, NPC1, NEMF, GID8, PCCB, ADAM9, PLCB1, CD44, MGLL
ribonucleoside triphosphate metabolic process	8	0.040971	NDUFB11, ARL2, ATP5F1EP2, GTPBP1, MYH6, ATP5F1E, MYH7, ATP5ME
cellular response to chemical stimulus	40	0.041027	ACVRL1, ITGB1, C2CD5, CD40, ITGB5, CD81, ITGB3, SOGA1, PPM1F, RTN4, ACTB, ICAM1, LGALS1, FLOT1, RAC2, ATP6V0A2, SIRPA, TNS2, ABCC1, ATP6V1G1, RBM15, PLEKHA1, ERBIN, PRKCA,

			DNAJB14, CMBL, RHOB, TGFBR2, SLC7A5, SFPQ, P2RX4, FABP4, NPC1, TNFSF4, ZYX, PDCD4, ADAM9, PRKD2, PLCB1, CD44
positive regulation of protein transport	8	0.041523	BCAP31, PCM1, C2CD5, CD81, RAC2, ADAM9, MFF, PCNT
RNA splicing, via transesterification reactions	8	0.041523	SFPQ, RBM15, ALYREF, DDX23, SNRPG, SNRPGP15, USP39, BCAS2
regulation of apoptotic signaling pathway	9	0.041752	BCAP31, SFPQ, HIP1R, ITGAV, PTTG1IP, MFF, SERINC3, CD44, ICAM1
regulation of supramolecular fiber organization	9	0.041752	LIMCH1, HIP1R, ARL2, F11R, CLASP1, PFDN6, PPM1F, ICAM1, S100A10
regulation of leukocyte proliferation	7	0.041966	CD40, CD81, TNFSF4, RAC2, SCRIB, MAD1L1, TGFBR2
organelle fission	11	0.042112	DCTN6, ANLN, DPF2, NCAPG, PDS5B, MFF, PLCB1, PCNT, CLASP1, MAD1L1, ACTB
positive regulation of immune effector process	7	0.042617	SLC7A5, EXOSC6, CD40, CD81, TNFSF4, RAC2, RTN4

regulation of phosphate metabolic process	26	0.042945	ACVRL1, CD40, CD81, ITGB3, ARL2, PPM1F, ACTB, ICAM1, PRRC1, FLOT1, TIMP2, SIRPA, TRPC5, ANXA2, LIMCH1, DTNBP1, PRKCA, TGFBR2, FABP4, PDCD4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44
purine ribonucleoside monophosphate metabolic process	8	0.04374	ADSL, NDUFB11, ARL2, ATP5F1EP2, MYH6, ATP5F1E, MYH7, ATP5ME
regulation of phosphorus metabolic process	26	0.044105	ACVRL1, CD40, CD81, ITGB3, ARL2, PPM1F, ACTB, ICAM1, PRRC1, FLOT1, TIMP2, SIRPA, TRPC5, ANXA2, LIMCH1, DTNBP1, PRKCA, TGFBR2, FABP4, PDCD4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44
response to hormone	15	0.044894	C2CD5, ANXA2, ITGB3, FHL2, DHCR24, SOGA1, TGFBR2, ICAM1, NPC1, TNFSF4, TIMP2, ADAM9, TEK, PLCB1, TNS2
negative regulation of cellular process	65	0.045308	ACVRL1, ITGB1, ITGB3, FHL1, FHL2, F11R, SOGA1, ACTB, ICAM1, BABAM1, PCM1, LGALS1, BASP1, FTH1, TIMP2, TNFAIP8L1, WDR5, DPF2, SIRPA, ITGAV, H4C1, TNS2, HTATIP2, TRPC5, RBM15, ANXA2, LIMCH1, ACTN1, PRKCA, SCRIB, RHOB, TGFBR2, SLC7A5, BACE2, SFPQ, DNAJC1, NPC1, PLCB1, MAD1L1, CD44, PFDN6, GRN, PDS5B, PTTG1IP, PPM1F, RTN4, UBE2J1, ARHGAP12, ATXN2, APBB2, CD59, CLASP1, PLEKHA1, CNBP, HIP1R, DTNBP1, ERBIN, WWP2, DHCR24, SCAF4, DRAP1, FABP4, TNFSF4, PDCD4, TEK

lymphocyte activation involved in immune response	6	0.045353	EXOSC6, CD40, LGALS1, CD81, TNFSF4, ICAM1
protein maturation	8	0.045494	BACE2, ANXA2, HM13, ADAM9, MOGS, DHCR24, CD59, S100A10
regulation of immune response	16	0.045762	GRN, CD40, PLEKHA1, CMTM3, CD81, ERBIN, RTN4, UBE2J1, SLC7A5, EXOSC6, SFPQ, TNFSF4, FLOT1, RAC2, CD59, PRKD2
negative regulation of developmental process	18	0.047134	ITGB1, ACVRL1, TRPC5, RBM15, ITGB3, DTNBP1, RTN4, ACTB, TGFBR2, PCM1, LGALS1, TNFSF4, PDCD4, DPF2, ITGAV, TEK, H4C1, CLASP1
T cell proliferation	6	0.047737	CD151, CD81, TNFSF4, SCRIB, MAD1L1, TGFBR2
peptidyl-serine modification	8	0.04787	MAST4, NTMT1, VRK1, PRKD2, PRKCA, CD44, PPM1F, TGFBR2
leukocyte proliferation	8	0.04787	CD40, CD151, CD81, TNFSF4, RAC2, SCRIB, MAD1L1, TGFBR2
nucleus organization	5	0.048054	TOR1AIP2, VRK1, PRKCA, RTN4, LMNB1
epithelial cell apoptotic process	5	0.049142	CD40, PDCD4, TEK, ICAM1, TGFBR2
regulation of protein modification process	27	0.049307	ACVRL1, CD40, CD81, ITGB3, PTTG1IP, PPM1F, ACTB, ICAM1, PRRC1, WDR5, FLOT1, TIMP2, SIRPA, TRPC5, ANXA2, LIMCH1, DTNBP1, PRKCA, TGFBR2, FABP4, PDCD4, JTB, ADAM9, PRKD2, TEK, PLCB1, CD44

positive regulation of growth	7	0.049972	TRPC5, BASP1, PLCB1, EXOSC2, DNPH1, PPM1F, TGFBR2
Pathway	Count	P Value	Genes
Adrenergic signaling in cardiomyocytes	6	0.028093	MYL3, ATP1B3, PRKCA, PLCB1, MYH6, MYH7
Arrhythmogenic right ventricular cardiomyopathy	5	0.011379	ITGB1, ITGB5, ITGB3, ITGAV, ACTB
Cell adhesion molecules	7	0.008903	ITGB1, CD40, ALCAM, ICAM2, ITGAV, F11R, ICAM1
Dilated cardiomyopathy	8	0.000104	ITGB1, ITGB5, ITGB3, MYL3, ITGAV, MYH6, ACTB, MYH7
ECM-receptor interaction	5	0.017845	ITGB1, ITGB5, ITGB3, ITGAV, CD44
Focal adhesion	9	0.002008	ITGB1, ITGB5, ACTN1, ITGB3, RAC2, ZYX, ITGAV, PRKCA, ACTB
Hypertrophic cardiomyopathy	8	6.91E-05	ITGB1, ITGB5, ITGB3, MYL3, ITGAV, MYH6, ACTB, MYH7
Leukocyte transendothelial migration	7	0.001856	ITGB1, ACTN1, RAC2, PRKCA, F11R, ACTB, ICAM1
Phagosome	7	0.007645	ITGB1, ATP6V1G1, ITGB5, ITGB3, ATP6V0A2, ITGAV, ACTB
Proteoglycans in cancer	8	0.008743	ITGB1, ITGB5, ITGB3, PDCD4, ITGAV, PRKCA, CD44, ACTB
Rap1 signaling pathway	8	0.009912	ITGB1, ITGB3, RAC2, PRKD2, PRKCA, TEK, PLCB1, ACTB

Regulation of actin cytoskeleton	7	0.037922	ITGB1, ITGB5, ACTN1, ITGB3, RAC2, ITGAV, ACTB
Thyroid hormone signaling pathway	8	0.000439	ITGB3, ATP1B3, ITGAV, PRKCA, PLCB1, MYH6, ACTB, MYH7
Tight junction	6	0.043519	ITGB1, ACTN1, SCRIB, F11R, MPDZ, ACTB
Viral myocarditis	6	0.000576	CD40, RAC2, MYH6, ACTB, MYH7, ICAM1
Cell junction organization	5	0.021146	ITGB1, CD151, ACTN1, F11R, ACTB
Cell surface interactions at the vascular wall	9	0.000186	ITGB1, SLC7A5, ITGB3, SIRPA, ATP1B3, ITGAV, TEK, F11R, CD44
Cell-Cell communication	6	0.016928	ITGB1, CD151, ACTN1, SIRPA, F11R, ACTB
Extracellular matrix organization	13	0.000188	ITGB1, CD151, ITGB5, ITGB3, ACTN1, ICAM2, PRKCA, F11R, ICAM1, TIMP2, ADAM9, ITGAV, CD44
Hemostasis	21	2.8E-05	ITGB1, ANXA2, TEX264, DGKA, ITGB3, ACTN1, ATP1B3, PRKCA, F11R, ACTB, RHOB, SLC7A5, P2RX4, RAC2, SIRPA, ITGAV, TAGLN2, TEK, CD44, MGLL, S100A10
Integrin cell surface interactions	8	5.51E-05	ITGB1, ITGB5, ITGB3, ICAM2, ITGAV, F11R, CD44, ICAM1

L1CAM interactions	5	0.049246	ITGB1, ALCAM, ITGB3, ITGAV, ACTB
M Phase	12	0.009113	PCM1, UBE2E1, NCAPG, VRK1, PRKCA, PDS5B, H4C1, PCNT, LBR, CLASP1, MAD1L1, LMNB1
Non-integrin membrane-ECM interactions	6	0.000584	ITGB1, ITGB5, ACTN1, ITGB3, ITGAV, PRKCA
Platelet activation, signaling and aggregation	9	0.011334	TEX264, DGKA, ACTN1, ITGB3, RAC2, TAGLN2, PRKCA, MGLL, RHOB
RAC2 GTPase cycle	5	0.01894	ITGB1, MCAM, RAC2, ERBIN, LBR
RHO GTPase cycle	18	1.56E-05	ITGB1, BCAP31, FNBP1, MCAM, ACTN1, ERBIN, WWP2, SCRIB, ACTB, LMNB1, RHOB, ARHGAP12, ANLN, BASP1, FLOT1, RAC2, CKB, LBR
RHOA GTPase cycle	6	0.027919	BCAP31, ANLN, MCAM, FLOT1, ERBIN, LBR
RHOB GTPase cycle	5	0.008724	ANLN, MCAM, FLOT1, ERBIN, RHOB
RHOC GTPase cycle	5	0.010568	ANLN, MCAM, FLOT1, ERBIN, LBR
RHOD GTPase cycle	5	0.003466	MCAM, ACTN1, LBR, LMNB1, ARHGAP12
RHOF GTPase cycle	6	0.000116	BASP1, MCAM, ACTN1, ACTB, LMNB1, ARHGAP12

Signaling by Rho GTPases	22	5.67E-05	ITGB1, BCAP31, FNBP1, MCAM, ACTN1, ERBIN, PRKCA, WWP2, SCRIB, ACTB, LMNB1, RHOB, ARHGAP12, ANLN, BASP1, FLOT1, RAC2, CKB, H4C1, LBR, CLASP1, MAD1L1
Signaling by Rho GTPases, Miro GTPases and RHOBTB3	22	7.82E-05	ITGB1, BCAP31, FNBP1, MCAM, ACTN1, ERBIN, PRKCA, WWP2, SCRIB, ACTB, LMNB1, RHOB, ARHGAP12, ANLN, BASP1, FLOT1, RAC2, CKB, H4C1, LBR, CLASP1, MAD1L1
Signaling by TGFB family members	8	0.00043	ITGB1, DRAP1, ACVRL1, ITGB5, ITGB3, ITGAV, F11R, TGFBR2
Signaling by TGF-beta Receptor Complex	6	0.003674	ITGB1, ITGB5, ITGB3, ITGAV, F11R, TGFBR2
Syndecan interactions	6	1.26E-05	ITGB1, ITGB5, ACTN1, ITGB3, ITGAV, PRKCA
TGF-beta receptor signaling activates SMADs	5	0.00192	ITGB1, ITGB5, ITGB3, ITGAV, TGFBR2

Supplemental Table 3. DAVID analysis for the 81 proteins with significant differences between diabetic tRES+HESP treatment vs. diabetic controls.

DIESEASE	Count	P Value	Genes
Abortion, Spontaneous	5	0.002716	TGFB1, RRM2, TFRC, HMOX1, H1-2
Alzheimer's Disease	6	0.002912	BACE2, ACE, HTRA1, HMOX1, TFAM, PSEN1
Alzheimer's disease	5	0.038235	TGFB1, ACE, ERCC2, TFAM, PSEN1
Alzheimer's disease	12	0.011394	BACE2, TGFB1, ACE, HINT2, MMP2, HTRA1, ADAM9, HMOX1, TFAM, ECE1, NOC3L, PSEN1
Arthritis, Rheumatoid|Rheumatoid Arthritis	5	0.014459	MAP2K3, TGFB1, ACE, HTRA1, HMOX1
atherosclerosis	9	0.000463	TGFB1, ACE, SELENOS, MMP2, HTRA1, HMOX1, ECE1, THBS1, SREBF2
bladder cancer	8	0.022349	H2AX, TGFB1, ACE, TFRC, MMP2, ERCC2, HMOX1, DDB2
breast cancer	11	0.001073	H2AX, CCNB1, TGFB1, ACE, TFRC, MMP2, ERCC2, HMOX1, CSNK1E, TGFBR2, DDB2

Chorioamnionitis|Fetal Membranes, Premature Rupture|Infection of amniotic sac and membranes	6	0.003123	MMP14, TGFB1, ACE, MMP2, FN1, THBS1
Chorioamnionitis|Fetal Membranes, Premature Rupture|Infection of amniotic sac and membranes|Obstetric Labor, Premature|Pre-Eclampsia|Premature Birth	6	0.003195	MMP14, TGFB1, ACE, MMP2, FN1, THBS1
Cleft Lip|Cleft Palate	8	0.004995	MMP14, GJA1, SMAD4, TGFB1, MMP2, ERCC2, FN1, TGFBR2
colorectal cancer	8	0.007474	TGFB1, ACE, SELENOS, TFRC, MMP2, ERCC2, THBS1, TGFBR2
depression	5	0.007838	TGFB1, ACE, TCF4, CSNK1E, PSEN1
esophageal adenocarcinoma	6	0.039245	MMP14, CCNB1, TGFB1, MMP2, ERCC2, THBS1
Hepatopulmonary Syndrome|Liver Cirrhosis	8	6.42E-07	ACVRL1, SMAD4, TGFB1, ACE, MMP2, HMOX1, ECE1, THBS1
Kidney Failure, Chronic	5	0.012872	TGFB1, ACE, MMP2, HMOX1, TGFBR2
lung cancer	8	0.038253	TGFB1, ACE, TFRC, MMP2, ERCC2, FN1, HMOX1, DDB2

Obesity|POF - Premature ovarian failure|POLYCYSTIC OVARIAN SYNDROME|Polycystic Ovary Syndrome|Primary Ovarian Insufficiency|Puberty, Delayed|Puberty, Precocious|Thrombophilia|Tobacco Use Disorder	5	0.044471	ACVRL1, SMAD4, ACE, SREBF2, TGFBR2
stomach cancer	6	0.000157	TGFB1, ACE, MMP2, ERCC2, HSPA13, TGFBR2
Stomach Neoplasms	6	0.000336	SMAD4, TGFB1, ACE, ERCC2, HMOX1, ECE1
Type 2 diabetes	6	0.041299	TGFB1, NOTCH1, ACE, TFRC, MMP2, HMOX1
Type 2 Diabetes| edema | rosiglitazone	21	0.009209	ACVRL1, SMAD4, TGFB1, ACE, TFRC, MMP2, HTRA1, FN1, ECE1, CSNK1E, THBS1, SREBF2, TGFBR2, BACE2, CYB5R1, MMP14, GJA1, ERCC2, MYL3, HMOX1, TK1
AGING	11	0.02797	DNAJB2, TGFB1, NOTCH1, ACE, ERCC2, FN1, HMOX1, TCF4, PSEN1, TXNDC5, H1-2
DEVELOPMENTAL	17	0.004665	SMAD4, TGFB1, ACE, NOTCH1, MMP2, FN1, PSEN1, MID1, RHOB, TGFBR2, MMP14, GJA1, EMCN, MYL1, ERCC2, SERINC1, ITGA5

IMMUNE	25	0.017774	ACVRL1, TFRC, HTRA1, HMGB1, ANTXR2, ATXN2, FCGRT, HMOX1, FAM43A, TXNDC5, MAP2K3, SMAD4, TGFB1, ACE, MMP2, NOC3L, RHOB, TGFBR2, TTC17, DDB2, BACE2, MMP14, EMCN, SELENOS, ERCC2
METABOLIC	37	0.03417	ACVRL1, RALA, NOTCH1, TFRC, HTRA1, MOSPD2, ECE1, PSEN1, AGAP3, THBS1, HSPA13, SEL1L3, GJA1, ATXN2, SMCHD1, WDR5, ATP6V0A2, HMOX1, FAM43A, SMAD4, TGFB1, ACE, MMP2, OSBPL3, CRIM1, SREBF2, MID2, RHOB, TGFBR2, TTC17, DDB2, BACE2, EMCN, SELENOS, ERCC2, TFAM, TCF4
PHARMACOGENOMIC	22	0.04156	ACVRL1, SMAD4, TGFB1, ACE, TFRC, MMP2, HTRA1, FN1, ECE1, CSNK1E, THBS1, SREBF2, TGFBR2, IRF2BPL, BACE2, CYB5R1, MMP14, GJA1, ERCC2, MYL3, HMOX1, TK1
RENAL	14	0.034583	TGFB1, ACE, NOTCH1, OSBPL3, MMP2, FN1, ECE1, THBS1, RHOB, TGFBR2, MMP14, ATXN2, ERCC2, HMOX1
REPRODUCTION	17	3.32E-05	H2AX, SMAD4, TGFB1, RRM2, ACE, TFRC, MMP2, HMGB2, FN1, THBS1, TGFBR2, H1-2, MMP14, SELENOS, ERCC2, TFAM, HMOX1

VISION	9	0.029581	ATXN2, TGFB1, ACE, HERC1, MMP2, ERCC2, HTRA1, TCF4, PSEN1
Molecular function	**Count**	**PValue**	**Genes**
enzyme binding	26	2.07E-06	H2AX, ACVRL1, RALA, NOTCH1, TFRC, RNF14, HMGB1, PSEN1, DNAJB2, CCNB1, TMSB4X, ATP6V0A2, HMOX1, MAP2K3, TGFB1, ACE, FN1, TRIP4, MID1, MID2, RHOB, TGFBR2, SELENOS, ADAM9, PREB, SERINC1
damaged DNA binding	5	0.000308	H2AX, ERCC2, HMGB2, HMGB1, DDB2
macromolecular complex binding	16	0.000597	ACVRL1, SMAD4, TGFB1, TFRC, FN1, HMGB1, THBS1, TGFBR2, DDB2, H1-2, DNAJB2, MMP14, FCGRT, ADAM9, ITGA5, HMGN2
integrin binding	6	0.000654	MMP14, FN1, ADAM9, HMGB1, ITGA5, THBS1
protein binding	73	0.000896	H2AX, ACVRL1, TFRC, RNF14, KDELR1, HMGB2, ECE1, HMGB1, ANTXR2, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, FCGRT, TMSB4X, WDR5, TK1, HMGN2, MAP2K3, MMP2, CSNK1E, MID1, MID2, SREBF2, RHOB, TGFBR2, DDB2, BACE2, MMP14, TMX2, SELENOS, MYL3, ADAM9, TFAM, PREB, ITGA5, GTF3C1, RALA, NOTCH1, HTRA1, MOSPD2, PSEN1, AGAP3, THBS1, HSPA13, DNAJB2, EFNB1, CYB5R1, ATXN2, CCNB1, DNAJB4,

			DGLUCY, ATP6V0A2, HMOX1, FAM43A, TXNDC5, SMAD4, TGFB1, RRM2, ACE, OSBPL3, FN1, CRIM1, TRIP4, ZZEF1, H1-2, TTC17, ERCC2, PLXNB2, TCF4, SERINC1, ITM2B
receptor binding	18	0.001011	RALA, TGFB1, ACE, NOTCH1, RNF14, HMGB2, FN1, TRIP4, HMGB1, PSEN1, THBS1, TGFBR2, EFNB1, MMP14, ATXN2, CCNB1, ADAM9, ITGA5
protein complex binding	11	0.001155	DNAJB2, ACVRL1, MMP14, SMAD4, FCGRT, FN1, ADAM9, HMGB1, ITGA5, THBS1, TGFBR2
metalloendopeptidase activity	5	0.001715	MMP14, ACE, MMP2, ADAM9, ECE1
metallopeptidase activity	6	0.001739	MMP14, ACE, TFRC, MMP2, ADAM9, ECE1
transcription factor activity, protein binding	9	0.00222	GTF3C1, NOTCH1, RNF14, HMGB2, TFAM, TRIP4, HMGB1, MID2, IRF2BPL
catalytic activity	39	0.00315	ACVRL1, RALA, RETSAT, TFRC, RNF14, HTRA1, ECE1, HMGB1, PSEN1, AGAP3, HSPA13, IRF2BPL, CYB5R1, SMCHD1, HINT2, HERC1, DGLUCY, WDR5, ATP6V0A2, HMOX1, TK1, TXNDC5, MAP2K3, RRM2, ACE, MMP2, CRIM1, CSNK1E, MID1, MID2, RHOB, TGFBR2, DDB2, BACE2, MMP14, TMX2, ERCC2, MYL3, ADAM9

growth factor binding	5	0.003321	ACVRL1, CRIM1, HTRA1, THBS1, TGFBR2
endopeptidase activity	8	0.00431	BACE2, MMP14, ACE, MMP2, HTRA1, ADAM9, ECE1, PSEN1
peptidase activity, acting on L-amino acid peptides	9	0.006749	BACE2, MMP14, ACE, TFRC, MMP2, HTRA1, ADAM9, ECE1, PSEN1
transcription coactivator activity	6	0.007676	NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, MID2
peptidase activity	9	0.008442	BACE2, MMP14, ACE, TFRC, MMP2, HTRA1, ADAM9, ECE1, PSEN1
protein C-terminus binding	5	0.011947	ATXN2, ERCC2, FN1, TCF4, SREBF2
protein kinase binding	9	0.012671	MAP2K3, ACVRL1, CCNB1, ACE, TFRC, ADAM9, TRIP4, RHOB, TGFBR2
binding	79	0.013511	H2AX, ACVRL1, TFRC, RNF14, KDELR1, HMGB2, ECE1, HMGB1, ANTXR2, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, FCGRT, TMSB4X, WDR5, TK1, HMGN2, HMGB1P1, MAP2K3, MMP2, CSNK1E, MID1, MID2, SREBF2, RHOB, TGFBR2, DDB2, BACE2, MMP14, EMCN, TMX2, SELENOS, MYL1, MYL3, ADAM9, TFAM, PREB, KDELR2, ITGA5, GTF3C1, RALA, NOTCH1, HTRA1, MOSPD2, PSEN1, AGAP3, THBS1, HSPA13, DNAJB2,

			EFNB1, CYB5R1, ATXN2, CCNB1, DNAJB4, DGLUCY, ATP6V0A2, HMOX1, FAM43A, TXNDC5, SMAD4, TGFB1, RRM2, ACE, OSBPL3, FN1, CRIM1, TRIP4, NOC3L, ZZEF1, H1-2, TTC17, ERCC2, PLXNB2, TCF4, SERINC1, ITM2B
enzyme activator activity	8	0.014077	DNAJB2, CCNB1, TGFB1, DNAJB4, FN1, PREB, HMGB1, AGAP3
protein dimerization activity	11	0.018338	H2AX, SMCHD1, SMAD4, RRM2, TFRC, HMOX1, ECE1, TCF4, MID1, SREBF2, MID2
kinase binding	9	0.023519	MAP2K3, ACVRL1, CCNB1, ACE, TFRC, ADAM9, TRIP4, RHOB, TGFBR2
transcription cofactor activity	7	0.023709	NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, MID2, IRF2BPL
transcription factor activity, transcription factor binding	7	0.023905	NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, MID2, IRF2BPL
cell adhesion molecule binding	7	0.026552	MMP14, FN1, ADAM9, HMGB1, ITGA5, PSEN1, THBS1
protein homodimerization activity	8	0.031898	SMCHD1, SMAD4, RRM2, TFRC, HMOX1, ECE1, MID1, MID2
zinc ion binding	9	0.031903	MMP14, ACE, MMP2, TRIP4, ECE1, TK1, MID1, MID2, ZZEF1

hydrolase activity	19	0.034938	RALA, ACE, TFRC, MMP2, HTRA1, ECE1, AGAP3, PSEN1, HSPA13, RHOB, BACE2, MMP14, SMCHD1, HINT2, ERCC2, MYL3, ATP6V0A2, ADAM9, HMOX1
identical protein binding	16	0.040349	SMAD4, TGFB1, RRM2, NOTCH1, TFRC, HTRA1, FN1, ECE1, THBS1, MID1, MID2, SMCHD1, TMX2, HMOX1, TCF4, TK1
heterocyclic compound binding	36	0.04907	H2AX, ACVRL1, GTF3C1, RALA, NOTCH1, TFRC, HMGB2, HMGB1, AGAP3, HSPA13, LARP1B, TIAL1, CYB5R1, ATXN2, SMCHD1, HINT2, TMSB4X, HMOX1, TK1, HMGN2, HMGB1P1, MAP2K3, SMAD4, ACE, CSNK1E, NOC3L, SREBF2, RHOB, TGFBR2, DDB2, H1-2, ERCC2, TFAM, PREB, TCF4, ITM2B
ubiquitin-like protein ligase binding	5	0.049338	DNAJB2, RALA, CCNB1, TRIP4, MID1
Biological process	**Count**	**P Value**	**Genes**
anatomical structure formation involved in morphogenesis	23	4.76E-09	ACVRL1, RALA, SMAD4, TGFB1, ACE, NOTCH1, MMP2, HTRA1, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, MMP14, GJA1, EMCN, HERC1, ERCC2, PLXNB2, ADAM9, HMOX1, ITGA5

response to oxygen levels	14	6.46E-09	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, THBS1, TGFBR2, MMP14, CCNB1, ERCC2, ATP6V0A2, HMOX1
response to hypoxia	13	1.41E-08	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, THBS1, TGFBR2, MMP14, CCNB1, ERCC2, HMOX1
response to decreased oxygen levels	13	2.35E-08	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, THBS1, TGFBR2, MMP14, CCNB1, ERCC2, HMOX1
positive regulation of cellular metabolic process	37	9.28E-08	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, ECE1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, DNAJB2, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, FN1, TRIP4, CSNK1E, MID1, SREBF2, MID2, TGFBR2, H1-2, MMP14, ERCC2, PLXNB2, TFAM, ADAM9, TCF4, ITGA5
ameboidal-type cell migration	14	1.04E-07	MAP2K3, ACVRL1, TGFB1, NOTCH1, FN1, HMGB1, THBS1, RHOB, TGFBR2, EFNB1, GJA1, TMSB4X, ADAM9, HMOX1
circulatory system development	21	1.15E-07	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, MMP2, FN1, ECE1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, MMP14, GJA1, CCNB1, EMCN, MYL3, HMOX1, ITGA5

positive regulation of cell migration	15	1.37E-07	MAP2K3, TGFB1, NOTCH1, MMP2, MOSPD2, FN1, HMGB1, THBS1, RHOB, TGFBR2, MMP14, TMSB4X, ADAM9, HMOX1, ITGA5
positive regulation of metabolic process	38	1.85E-07	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, ECE1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, DNAJB2, GJA1, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, FN1, TRIP4, CSNK1E, MID1, SREBF2, MID2, TGFBR2, H1-2, MMP14, ERCC2, PLXNB2, TFAM, ADAM9, TCF4, ITGA5
regulation of cell migration	19	2.15E-07	MAP2K3, ACVRL1, TGFB1, ACE, NOTCH1, MMP2, MOSPD2, FN1, HMGB1, THBS1, RHOB, TGFBR2, MMP14, GJA1, TMSB4X, PLXNB2, ADAM9, HMOX1, ITGA5
positive regulation of cell motility	15	2.41E-07	MAP2K3, TGFB1, NOTCH1, MMP2, MOSPD2, FN1, HMGB1, THBS1, RHOB, TGFBR2, MMP14, TMSB4X, ADAM9, HMOX1, ITGA5
positive regulation of macromolecule metabolic process	36	2.45E-07	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, ECE1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, DNAJB2, GJA1, SMCHD1, CCNB1, WDR5, MAP2K3, SMAD4, TGFB1, ACE, FN1, TRIP4, CSNK1E, MID1, SREBF2, MID2, TGFBR2,

			H1-2, MMP14, ERCC2, PLXNB2, TFAM, ADAM9, TCF4, ITGA5
regulation of locomotion	20	2.86E-07	MAP2K3, ACVRL1, TGFB1, ACE, NOTCH1, MMP2, MOSPD2, FN1, HMGB1, THBS1, MID2, RHOB, TGFBR2, MMP14, GJA1, TMSB4X, PLXNB2, ADAM9, HMOX1, ITGA5
positive regulation of developmental process	23	3.26E-07	ACVRL1, RALA, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB2, FN1, HMGB1, CSNK1E, PSEN1, THBS1, RHOB, TGFBR2, MMP14, GJA1, CCNB1, PLXNB2, ADAM9, HMOX1, TCF4, ITGA5
positive regulation of cellular component movement	15	3.4E-07	MAP2K3, TGFB1, NOTCH1, MMP2, MOSPD2, FN1, HMGB1, THBS1, RHOB, TGFBR2, MMP14, TMSB4X, ADAM9, HMOX1, ITGA5
positive regulation of locomotion	15	4.26E-07	MAP2K3, TGFB1, NOTCH1, MMP2, MOSPD2, FN1, HMGB1, THBS1, RHOB, TGFBR2, MMP14, TMSB4X, ADAM9, HMOX1, ITGA5
regulation of epithelial cell migration	11	4.42E-07	MAP2K3, ACVRL1, TGFB1, NOTCH1, TMSB4X, ADAM9, HMOX1, HMGB1, THBS1, RHOB, TGFBR2
locomotion	26	4.53E-07	ACVRL1, RALA, NOTCH1, HMGB2, MOSPD2, ECE1, HMGB1, PSEN1, THBS1, EFNB1, GJA1, TMSB4X, HMOX1,

			MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, MID2, RHOB, TGFBR2, MMP14, PLXNB2, ADAM9, ITGA5
negative regulation of cellular component organization	17	5.06E-07	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB1, PSEN1, THBS1, MID1, H1-2, DNAJB2, MMP14, ATXN2, CCNB1, TMSB4X, WDR5
regulation of cell motility	19	5.14E-07	MAP2K3, ACVRL1, TGFB1, ACE, NOTCH1, MMP2, MOSPD2, FN1, HMGB1, THBS1, RHOB, TGFBR2, MMP14, GJA1, TMSB4X, PLXNB2, ADAM9, HMOX1, ITGA5
response to fluid shear stress	6	6.4E-07	GJA1, TGFB1, ACE, MMP2, ADAM9, SREBF2
embryo development	19	6.41E-07	ACVRL1, RALA, SMAD4, TGFB1, RRM2, ACE, NOTCH1, MMP2, FN1, ECE1, PSEN1, TGFBR2, EFNB1, MMP14, GJA1, CCNB1, ERCC2, PLXNB2, ITGA5
positive regulation of epithelial cell migration	9	8.86E-07	MAP2K3, TGFB1, TMSB4X, ADAM9, HMOX1, HMGB1, THBS1, RHOB, TGFBR2
positive regulation of protein metabolic process	24	9E-07	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, RNF14, FN1, HMGB1, CSNK1E, PSEN1, THBS1, MID1, LARP1B, TGFBR2, DNAJB2, MMP14, GJA1, CCNB1, WDR5, PLXNB2, ADAM9, ITGA5

positive regulation of nitrogen compound metabolic process	27	9.05E-07	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, SMCHD1, CCNB1, TMSB4X, WDR5, MAP2K3, SMAD4, TGFB1, TRIP4, CSNK1E, SREBF2, MID2, H1-2, ERCC2, PLXNB2, TFAM, TCF4
cell migration	22	1.17E-06	MAP2K3, ACVRL1, TGFB1, ACE, NOTCH1, MMP2, HMGB2, MOSPD2, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, EFNB1, MMP14, GJA1, TMSB4X, PLXNB2, ADAM9, HMOX1, ITGA5
endoderm development	7	1.43E-06	MMP14, SMAD4, TGFB1, NOTCH1, MMP2, FN1, ITGA5
positive regulation of cellular protein metabolic process	23	1.46E-06	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, RNF14, FN1, HMGB1, CSNK1E, PSEN1, THBS1, MID1, LARP1B, TGFBR2, DNAJB2, MMP14, CCNB1, WDR5, PLXNB2, ADAM9, ITGA5
regulation of cellular component movement	19	1.62E-06	MAP2K3, ACVRL1, TGFB1, ACE, NOTCH1, MMP2, MOSPD2, FN1, HMGB1, THBS1, RHOB, TGFBR2, MMP14, GJA1, TMSB4X, PLXNB2, ADAM9, HMOX1, ITGA5
heart development	14	1.8E-06	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, MMP2, FN1, ECE1, PSEN1, TGFBR2, GJA1, CCNB1, MYL3

response to abiotic stimulus	19	2.07E-06	H2AX, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, THBS1, RHOB, TGFBR2, DDB2, MMP14, GJA1, CCNB1, DNAJB4, ERCC2, ATP6V0A2, HMOX1
morphogenesis of an epithelium	13	2.23E-06	ACVRL1, RALA, SMAD4, TGFB1, NOTCH1, MMP2, PSEN1, RHOB, TGFBR2, MMP14, GJA1, PLXNB2, ITGA5
tube development	14	2.62E-06	ACVRL1, RALA, SMAD4, TGFB1, ACE, NOTCH1, ECE1, HMGB1, PSEN1, RHOB, TGFBR2, MMP14, CCNB1, PLXNB2
tissue morphogenesis	14	2.67E-06	ACVRL1, RALA, SMAD4, TGFB1, NOTCH1, MMP2, PSEN1, RHOB, TGFBR2, MMP14, GJA1, MYL3, PLXNB2, ITGA5
positive regulation of cellular process	46	2.72E-06	H2AX, ACVRL1, RALA, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, MOSPD2, ECE1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, DNAJB2, EFNB1, GJA1, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, TRIP4, CSNK1E, MID1, SREBF2, MID2, RHOB, TGFBR2, H1-2, MMP14, ERCC2, PLXNB2, TFAM, ADAM9, TCF4, ITGA5
positive regulation of multicellular organismal process	24	3.02E-06	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB2, FN1, HMGB1, CSNK1E, PSEN1, THBS1, RHOB, TGFBR2, MMP14, GJA1, CCNB1, TMSB4X, PLXNB2, ADAM9, HMOX1, TCF4, ITGA5

epithelial cell migration	11	3.25E-06	MAP2K3, ACVRL1, TGFB1, NOTCH1, TMSB4X, ADAM9, HMOX1, HMGB1, THBS1, RHOB, TGFBR2
regulation of blood vessel endothelial cell migration	8	3.41E-06	MAP2K3, ACVRL1, TGFB1, NOTCH1, TMSB4X, HMOX1, HMGB1, THBS1
epithelium migration	11	3.49E-06	MAP2K3, ACVRL1, TGFB1, NOTCH1, TMSB4X, ADAM9, HMOX1, HMGB1, THBS1, RHOB, TGFBR2
tissue migration	11	4.02E-06	MAP2K3, ACVRL1, TGFB1, NOTCH1, TMSB4X, ADAM9, HMOX1, HMGB1, THBS1, RHOB, TGFBR2
regulation of binding	11	4.31E-06	DNAJB2, SMAD4, TGFB1, ACE, TMSB4X, ERCC2, HMGB2, HMOX1, HMGB1, CSNK1E, PSEN1
cellular response to chemical stimulus	31	4.35E-06	ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, MOSPD2, HMGB1, PSEN1, AGAP3, THBS1, HSPA13, GJA1, CCNB1, TMSB4X, ATP6V0A2, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, CRIM1, TRIP4, CSNK1E, SREBF2, RHOB, TGFBR2, SELENOS, ADAM9, ITGA5
blood vessel development	15	4.4E-06	ACVRL1, TGFB1, ACE, NOTCH1, MMP2, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, MMP14, EMCN, HMOX1, ITGA5

response to stress	37	4.45E-06	H2AX, ACVRL1, NOTCH1, TFRC, HMGB2, HTRA1, HMGB1, PSEN1, AGAP3, THBS1, HSPA13, TIAL1, DNAJB2, GJA1, SMCHD1, CCNB1, DNAJB4, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CSNK1E, MID1, SREBF2, MID2, RHOB, TGFBR2, DDB2, MMP14, SELENOS, ERCC2, ADAM9, ITGA5
positive regulation of cell proliferation	17	4.86E-06	ACVRL1, SMAD4, TGFB1, NOTCH1, TFRC, MMP2, HMGB2, HTRA1, FN1, HMGB1, THBS1, TGFBR2, TIAL1, EFNB1, GJA1, CCNB1, HMOX1
embryo development ending in birth or egg hatching	14	5.35E-06	ACVRL1, RALA, SMAD4, TGFB1, RRM2, ACE, NOTCH1, ECE1, PSEN1, TGFBR2, MMP14, CCNB1, ERCC2, PLXNB2
regulation of endothelial cell migration	9	5.94E-06	MAP2K3, ACVRL1, TGFB1, NOTCH1, TMSB4X, HMOX1, HMGB1, THBS1, RHOB
multicellular organism development	43	6.42E-06	H2AX, ACVRL1, RALA, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, IRF2BPL, EFNB1, GJA1, SMCHD1, CCNB1, HERC1, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, CRIM1, CSNK1E, MID1, RHOB, TGFBR2, BACE2, MMP14, EMCN, TMX2, ERCC2, MYL3, PLXNB2, ADAM9, TCF4, ITGA5, ITM2B

blood vessel morphogenesis	14	6.54E-06	ACVRL1, TGFB1, ACE, NOTCH1, MMP2, FN1, HMGB1, THBS1, RHOB, TGFBR2, MMP14, EMCN, HMOX1, ITGA5
system development	41	6.82E-06	H2AX, ACVRL1, RALA, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, IRF2BPL, EFNB1, GJA1, SMCHD1, CCNB1, HERC1, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CRIM1, CSNK1E, RHOB, TGFBR2, BACE2, MMP14, EMCN, TMX2, ERCC2, MYL3, PLXNB2, ADAM9, TCF4, ITGA5, ITM2B
blood vessel endothelial cell migration	8	7.95E-06	MAP2K3, ACVRL1, TGFB1, NOTCH1, TMSB4X, HMOX1, HMGB1, THBS1
angiogenesis	13	8.25E-06	ACVRL1, ACE, NOTCH1, MMP2, FN1, HMGB1, THBS1, RHOB, TGFBR2, MMP14, EMCN, HMOX1, ITGA5
cardiovascular system development	15	8.27E-06	ACVRL1, TGFB1, ACE, NOTCH1, MMP2, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, MMP14, EMCN, HMOX1, ITGA5
vasculature development	15	8.27E-06	ACVRL1, TGFB1, ACE, NOTCH1, MMP2, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, MMP14, EMCN, HMOX1, ITGA5
nervous system development	27	9.7E-06	H2AX, RALA, NOTCH1, HMGB2, ECE1, HMGB1, PSEN1, IRF2BPL, EFNB1, GJA1, HERC1, WDR5, SMAD4, TGFB1,

			ACE, MMP2, FN1, CRIM1, CSNK1E, TGFBR2, BACE2, MMP14, TMX2, ERCC2, PLXNB2, TCF4, ITM2B
positive regulation of gene expression	25	9.76E-06	ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, GJA1, CCNB1, WDR5, MAP2K3, SMAD4, TGFB1, FN1, TRIP4, SREBF2, MID2, H1-2, MMP14, PLXNB2, TFAM, TCF4
wound healing	12	9.93E-06	ACVRL1, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, FN1, HMOX1, HMGB1, ITGA5, THBS1, TGFBR2
regulation of cell adhesion	15	1.01E-05	ACVRL1, TGFB1, NOTCH1, TFRC, MMP2, FN1, HMGB1, THBS1, TGFBR2, EFNB1, MMP14, EMCN, PLXNB2, ADAM9, ITGA5
embryonic morphogenesis	13	1.05E-05	RALA, SMAD4, TGFB1, NOTCH1, MMP2, FN1, ECE1, PSEN1, TGFBR2, MMP14, GJA1, PLXNB2, ITGA5
movement of cell or subcellular component	25	1.07E-05	ACVRL1, NOTCH1, HMGB2, MOSPD2, ECE1, HMGB1, PSEN1, THBS1, EFNB1, GJA1, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, RHOB, TGFBR2, MMP14, MYL1, PLXNB2, ADAM9, ITGA5
regulation of stem cell proliferation	7	1.17E-05	TIAL1, GJA1, TGFB1, NOTCH1, ACE, HMGB2, TGFBR2

localization of cell	22	1.17E-05	MAP2K3, ACVRL1, TGFB1, ACE, NOTCH1, MMP2, HMGB2, MOSPD2, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, EFNB1, MMP14, GJA1, TMSB4X, PLXNB2, ADAM9, HMOX1, ITGA5
cell motility	22	1.17E-05	MAP2K3, ACVRL1, TGFB1, ACE, NOTCH1, MMP2, HMGB2, MOSPD2, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, EFNB1, MMP14, GJA1, TMSB4X, PLXNB2, ADAM9, HMOX1, ITGA5
epithelial tube morphogenesis	10	1.3E-05	ACVRL1, MMP14, SMAD4, RALA, TGFB1, NOTCH1, PLXNB2, PSEN1, RHOB, TGFBR2
regulation of protein metabolic process	32	1.34E-05	ACVRL1, NOTCH1, TFRC, RNF14, ECE1, HMGB1, PSEN1, THBS1, LARP1B, TIAL1, DNAJB2, GJA1, ATXN2, CCNB1, HINT2, WDR5, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, TRIP4, CSNK1E, MID1, TGFBR2, BACE2, MMP14, PLXNB2, ADAM9, ITGA5, ITM2B
tissue remodeling	8	1.51E-05	ACVRL1, MMP14, GJA1, TGFB1, ACE, TFRC, MMP2, HMGB1
cellular component assembly	30	1.52E-05	H2AX, ACVRL1, RALA, NOTCH1, TFRC, HMGB2, HMGB1, PSEN1, THBS1, DNAJB2, GJA1, ATXN2, SMCHD1, CCNB1,

			TMSB4X, TK1, SMAD4, TGFB1, RRM2, ACE, FN1, TTC17, H1-2, MMP14, ERCC2, PLXNB2, TFAM, PREB, TCF4, ITGA5
anatomical structure development	45	1.53E-05	H2AX, ACVRL1, RALA, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, IRF2BPL, TIAL1, EFNB1, GJA1, SMCHD1, CCNB1, HERC1, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, CRIM1, TRIP4, CSNK1E, MID1, RHOB, TGFBR2, BACE2, MMP14, EMCN, TMX2, ERCC2, MYL3, PLXNB2, ADAM9, TCF4, ITGA5, ITM2B
response to lipid	16	1.59E-05	MAP2K3, TGFB1, ACE, NOTCH1, TFRC, RNF14, MMP2, HMGB2, TRIP4, HMGB1, THBS1, TGFBR2, GJA1, CCNB1, SELENOS, ADAM9
regulation of DNA binding	7	1.61E-05	TGFB1, TMSB4X, ERCC2, HMGB2, HMOX1, HMGB1, PSEN1
response to wounding	13	1.72E-05	ACVRL1, SMAD4, TGFB1, NOTCH1, MMP2, FN1, HMGB1, THBS1, TGFBR2, GJA1, CCNB1, HMOX1, ITGA5
regulation of localization	29	1.77E-05	ACVRL1, RALA, NOTCH1, TFRC, MOSPD2, HMGB1, PSEN1, THBS1, DNAJB2, GJA1, ATXN2, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CSNK1E,

			SREBF2, RHOB, TGFBR2, MMP14, SELENOS, PLXNB2, ADAM9, PREB, ITGA5
positive regulation of blood vessel endothelial cell migration	6	1.82E-05	MAP2K3, TGFB1, TMSB4X, HMOX1, HMGB1, THBS1
response to chemical	38	1.86E-05	ACVRL1, RALA, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, MOSPD2, ECE1, HMGB1, PSEN1, AGAP3, THBS1, HSPA13, DNAJB2, EFNB1, GJA1, CCNB1, DNAJB4, TMSB4X, ATP6V0A2, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, CRIM1, TRIP4, CSNK1E, SREBF2, RHOB, TGFBR2, MMP14, SELENOS, PLXNB2, ADAM9, ITGA5
regulation of cellular metabolic process	49	1.89E-05	H2AX, ACVRL1, TFRC, RNF14, HMGB2, ECE1, HMGB1, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, TMSB4X, WDR5, HMGB1P1, MAP2K3, CSNK1E, MID1, MID2, SREBF2, TGFBR2, BACE2, MMP14, SELENOS, ADAM9, TFAM, ITGA5, NOTCH1, HTRA1, PSEN1, THBS1, DNAJB2, ATXN2, CCNB1, ATP6V0A2, HMOX1, SMAD4, TGFB1, ACE, FN1, CRIM1, TRIP4, H1-2, ERCC2, PLXNB2, TCF4, ITM2B

regulation of anatomical structure morphogenesis	17	1.97E-05	ACVRL1, RALA, SMAD4, TGFB1, NOTCH1, TFRC, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, GJA1, PLXNB2, ADAM9, HMOX1, ITGA5
chordate embryonic development	13	2.06E-05	ACVRL1, RALA, SMAD4, TGFB1, RRM2, NOTCH1, ECE1, PSEN1, TGFBR2, MMP14, CCNB1, ERCC2, PLXNB2
endothelial cell migration	9	2.17E-05	MAP2K3, ACVRL1, TGFB1, NOTCH1, TMSB4X, HMOX1, HMGB1, THBS1, RHOB
positive regulation of endothelial cell migration	7	2.17E-05	MAP2K3, TGFB1, TMSB4X, HMOX1, HMGB1, THBS1, RHOB
aging	10	2.26E-05	H2AX, MAP2K3, SMAD4, TGFB1, ACE, TFRC, MMP2, ERCC2, PSEN1, TGFBR2
cellular response to organic substance	26	2.31E-05	ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, HSPA13, GJA1, CCNB1, TMSB4X, MAP2K3, SMAD4, TGFB1, ACE, MMP2, CRIM1, TRIP4, CSNK1E, SREBF2, TGFBR2, SELENOS, ADAM9, ITGA5
cell proliferation	23	2.44E-05	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, HMGB2, HTRA1, FN1, HMGB1, PSEN1, THBS1, TGFBR2, TIAL1, DNAJB2, EFNB1, MMP14, GJA1, CCNB1, ERCC2, PLXNB2, HMOX1

epithelial cell proliferation	11	2.67E-05	ACVRL1, MMP14, GJA1, TGFB1, NOTCH1, HTRA1, HMGB2, HMOX1, HMGB1, PSEN1, THBS1
cellular component biogenesis	31	2.69E-05	H2AX, ACVRL1, RALA, NOTCH1, TFRC, HMGB2, HMGB1, PSEN1, THBS1, DNAJB2, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, TK1, SMAD4, TGFB1, RRM2, ACE, FN1, TTC17, H1-2, MMP14, ERCC2, PLXNB2, TFAM, PREB, TCF4, SERINC1, ITGA5
response to steroid hormone	10	2.78E-05	TGFB1, NOTCH1, ACE, RNF14, HMGB2, ADAM9, TRIP4, HMGB1, THBS1, TGFBR2
response to organic substance	30	2.8E-05	ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, HSPA13, DNAJB2, GJA1, CCNB1, DNAJB4, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, CRIM1, TRIP4, CSNK1E, SREBF2, TGFBR2, MMP14, SELENOS, ADAM9, ITGA5
positive regulation of nucleobase-containing compound metabolic process	23	3.03E-05	H2AX, MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, TFRC, RNF14, HMGB2, TRIP4, HMGB1, PSEN1, SREBF2, MID2, IRF2BPL, H1-2, SMCHD1, CCNB1, TMSB4X, ERCC2, WDR5, TFAM, TCF4
response to endogenous stimulus	21	3.07E-05	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, RNF14, MMP2, CRIM1, HMGB2, HTRA1, TRIP4, HMGB1, CSNK1E, PSEN1,

			THBS1, SREBF2, TGFBR2, GJA1, SELENOS, ADAM9, HMOX1
apoptotic process	22	3.08E-05	SMAD4, TGFB1, ACE, NOTCH1, TFRC, KDELR1, MMP2, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, TIAL1, GJA1, HINT2, SELENOS, ERCC2, HMOX1, ITGA5, TXNDC5
tube morphogenesis	10	3.21E-05	ACVRL1, MMP14, SMAD4, RALA, TGFB1, NOTCH1, PLXNB2, PSEN1, RHOB, TGFBR2
single-organism developmental process	46	4.1E-05	H2AX, ACVRL1, RALA, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, IRF2BPL, TIAL1, EFNB1, GJA1, SMCHD1, CCNB1, HERC1, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, CRIM1, TRIP4, CSNK1E, NOC3L, MID1, RHOB, TGFBR2, BACE2, MMP14, EMCN, TMX2, ERCC2, MYL3, PLXNB2, ADAM9, TCF4, ITGA5, ITM2B
cellular response to endogenous stimulus	18	4.18E-05	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, RNF14, MMP2, CRIM1, HTRA1, TRIP4, CSNK1E, PSEN1, THBS1, SREBF2, TGFBR2, GJA1, SELENOS, ADAM9
positive regulation of biological process	46	5.66E-05	H2AX, ACVRL1, RALA, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, MOSPD2, ECE1, HMGB1, PSEN1, THBS1, LARP1B,

			IRF2BPL, TIAL1, DNAJB2, EFNB1, GJA1, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, TRIP4, CSNK1E, MID1, SREBF2, MID2, RHOB, TGFBR2, H1-2, MMP14, ERCC2, PLXNB2, TFAM, ADAM9, TCF4, ITGA5
anatomical structure morphogenesis	27	5.73E-05	ACVRL1, RALA, NOTCH1, TFRC, HTRA1, ECE1, HMGB1, PSEN1, THBS1, EFNB1, GJA1, HERC1, HMOX1, SMAD4, TGFB1, ACE, MMP2, FN1, RHOB, TGFBR2, MMP14, EMCN, ERCC2, MYL3, PLXNB2, ADAM9, ITGA5
regulation of cardiac muscle tissue development	6	5.75E-05	GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, TGFBR2
single-multicellular organism process	46	6.07E-05	H2AX, ACVRL1, RALA, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, IRF2BPL, EFNB1, GJA1, SMCHD1, CCNB1, HERC1, TMSB4X, POTEJ, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, CRIM1, CSNK1E, MID1, RHOB, TGFBR2, BACE2, MMP14, EMCN, TMX2, SELENOS, ERCC2, MYL3, PLXNB2, ADAM9, TCF4, ITGA5, ITM2B
developmental process	46	6.41E-05	H2AX, ACVRL1, RALA, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, IRF2BPL, TIAL1, EFNB1, GJA1, SMCHD1, CCNB1, HERC1, WDR5, HMOX1,

			MAP2K3, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, CRIM1, TRIP4, CSNK1E, NOC3L, MID1, RHOB, TGFBR2, BACE2, MMP14, EMCN, TMX2, ERCC2, MYL3, PLXNB2, ADAM9, TCF4, ITGA5, ITM2B
regulation of multicellular organismal process	30	6.47E-05	ACVRL1, NOTCH1, TFRC, HMGB2, ECE1, HMGB1, PSEN1, THBS1, GJA1, CCNB1, TMSB4X, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CRIM1, CSNK1E, RHOB, TGFBR2, MMP14, SELENOS, MYL3, PLXNB2, ADAM9, TCF4, ITGA5
positive regulation of response to stimulus	25	6.64E-05	H2AX, ACVRL1, NOTCH1, TFRC, HMGB2, MOSPD2, HMGB1, PSEN1, THBS1, TIAL1, GJA1, SMCHD1, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, FN1, CSNK1E, MID1, MID2, TGFBR2, ADAM9, ITGA5
chemotaxis	12	6.64E-05	EFNB1, SMAD4, RALA, TGFB1, NOTCH1, TMSB4X, MOSPD2, HMGB2, PLXNB2, ECE1, HMGB1, THBS1
positive regulation of vasculature development	8	6.96E-05	ACVRL1, NOTCH1, HMOX1, HMGB1, ITGA5, THBS1, RHOB, TGFBR2
regulation of primary metabolic process	47	7.01E-05	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, DNAJB2, GJA1, ATXN2, SMCHD1, CCNB1, HINT2,

			TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, TRIP4, CSNK1E, MID1, SREBF2, MID2, TGFBR2, H1-2, BACE2, MMP14, SELENOS, ERCC2, PLXNB2, TFAM, ADAM9, TCF4, ITGA5, ITM2B
taxis	12	7.02E-05	EFNB1, SMAD4, RALA, TGFB1, NOTCH1, TMSB4X, MOSPD2, HMGB2, PLXNB2, ECE1, HMGB1, THBS1
neurogenesis	20	7.07E-05	SMAD4, TGFB1, ACE, NOTCH1, MMP2, HMGB2, FN1, ECE1, HMGB1, CSNK1E, PSEN1, BACE2, EFNB1, MMP14, GJA1, HERC1, ERCC2, WDR5, PLXNB2, TCF4
negative regulation of cellular process	41	7.8E-05	H2AX, ACVRL1, NOTCH1, TFRC, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, IRF2BPL, TIAL1, DNAJB2, GJA1, ATXN2, SMCHD1, CCNB1, HINT2, HERC1, TMSB4X, WDR5, HMOX1, TXNDC5, MAP2K3, SMAD4, TGFB1, ACE, MMP2, CRIM1, CSNK1E, MID1, SREBF2, MID2, RHOB, TGFBR2, H1-2, BACE2, MMP14, SELENOS, PLXNB2, ITGA5, ITM2B
negative regulation of transport	11	7.95E-05	ATXN2, GJA1, TGFB1, NOTCH1, ACE, SELENOS, TMSB4X, HMOX1, HMGB1, THBS1, SREBF2
response to external stimulus	26	8.57E-05	RALA, NOTCH1, TFRC, HMGB2, HTRA1, MOSPD2, ECE1, HMGB1, THBS1, EFNB1, GJA1, CCNB1, TMSB4X, HMOX1,

			HMGN2, MAP2K3, SMAD4, TGFB1, ACE, MMP2, SREBF2, TGFBR2, MMP14, SELENOS, PLXNB2, ADAM9
stem cell proliferation	7	8.63E-05	TIAL1, GJA1, TGFB1, NOTCH1, ACE, ERCC2, PLXNB2
programmed cell death	22	9.05E-05	SMAD4, TGFB1, ACE, NOTCH1, TFRC, KDELR1, MMP2, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, TIAL1, GJA1, HINT2, SELENOS, ERCC2, HMOX1, ITGA5, TXNDC5
positive regulation of protein modification process	17	0.0001	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB1, PSEN1, THBS1, MID1, TGFBR2, DNAJB2, CCNB1, WDR5, ADAM9, ITGA5
regulation of macromolecule metabolic process	47	0.000101	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, DNAJB2, GJA1, ATXN2, SMCHD1, CCNB1, HINT2, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, TRIP4, CSNK1E, MID1, SREBF2, MID2, TGFBR2, H1-2, BACE2, MMP14, SELENOS, ERCC2, PLXNB2, TFAM, ADAM9, TCF4, ITGA5, ITM2B
muscle cell proliferation	8	0.000101	GJA1, CCNB1, TGFB1, NOTCH1, MMP2, HMOX1, THBS1, TGFBR2

positive regulation of protein phosphorylation	15	0.000107	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB1, PSEN1, THBS1, MID1, TGFBR2, CCNB1, ADAM9, ITGA5
response to organic cyclic compound	15	0.000108	TGFB1, ACE, NOTCH1, RNF14, MMP2, HMGB2, TRIP4, HMGB1, THBS1, TGFBR2, MMP14, GJA1, CCNB1, ADAM9, HMOX1
response to carbohydrate	8	0.000119	MAP2K3, GJA1, SMAD4, TGFB1, ACE, SELENOS, THBS1, TGFBR2
positive regulation of smooth muscle cell proliferation	6	0.000127	GJA1, TGFB1, MMP2, HMOX1, THBS1, TGFBR2
regulation of metabolic process	49	0.000141	H2AX, ACVRL1, TFRC, RNF14, HMGB2, ECE1, HMGB1, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, TMSB4X, WDR5, HMGB1P1, MAP2K3, CSNK1E, MID1, MID2, SREBF2, TGFBR2, BACE2, MMP14, SELENOS, ADAM9, TFAM, ITGA5, NOTCH1, HTRA1, PSEN1, THBS1, DNAJB2, ATXN2, CCNB1, ATP6V0A2, HMOX1, SMAD4, TGFB1, ACE, FN1, CRIM1, TRIP4, H1-2, ERCC2, PLXNB2, TCF4, ITM2B
gastrulation	7	0.000148	MMP14, GJA1, SMAD4, MMP2, FN1, ITGA5, TGFBR2

epithelium development	16	0.00015	ACVRL1, RALA, SMAD4, TGFB1, NOTCH1, MMP2, ECE1, PSEN1, RHOB, TGFBR2, MMP14, GJA1, ERCC2, PLXNB2, ADAM9, ITGA5
positive regulation of signal transduction	19	0.000158	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, TFRC, FN1, HMGB1, CSNK1E, PSEN1, THBS1, MID1, MID2, TGFBR2, TIAL1, GJA1, ADAM9, HMOX1, ITGA5
positive regulation of phosphate metabolic process	16	0.000159	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB1, PSEN1, THBS1, MID1, TGFBR2, CCNB1, TMSB4X, ADAM9, ITGA5
positive regulation of phosphorus metabolic process	16	0.000159	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB1, PSEN1, THBS1, MID1, TGFBR2, CCNB1, TMSB4X, ADAM9, ITGA5
positive regulation of transmembrane receptor protein serine/threonine kinase signaling pathway	6	0.000161	ACVRL1, SMAD4, TGFB1, NOTCH1, THBS1, TGFBR2
cellular developmental process	35	0.000162	H2AX, ACVRL1, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, TIAL1, EFNB1, GJA1, CCNB1, HERC1, WDR5, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CRIM1, TRIP4, CSNK1E, NOC3L, RHOB,

			TGFBR2, BACE2, MMP14, ERCC2, PLXNB2, ADAM9, TCF4, ITGA5
response to lipopolysaccharide	9	0.000164	MAP2K3, GJA1, TGFB1, NOTCH1, ACE, SELENOS, HMGB2, ADAM9, HMGB1
regulation of cellular component biogenesis	15	0.000171	ACVRL1, RALA, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB1, THBS1, DNAJB2, MMP14, ATXN2, GJA1, TMSB4X, PREB
positive regulation of molecular function	19	0.000177	MAP2K3, TGFB1, ACE, TFRC, HMGB2, FN1, HMGB1, AGAP3, PSEN1, THBS1, MID2, TGFBR2, DNAJB2, CCNB1, TMSB4X, ERCC2, MYL3, ADAM9, SERINC1
DNA metabolic process	15	0.000178	H2AX, ACVRL1, TGFB1, RRM2, TFRC, HMGB2, HMGB1, CSNK1E, NOC3L, DDB2, H1-2, GJA1, SMCHD1, ERCC2, TK1
positive regulation of cell differentiation	15	0.00018	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, HMGB2, FN1, HMGB1, CSNK1E, PSEN1, TGFBR2, MMP14, GJA1, PLXNB2, TCF4
regulation of developmental process	26	0.000187	ACVRL1, RALA, NOTCH1, TFRC, HMGB2, HMGB1, PSEN1, THBS1, GJA1, CCNB1, WDR5, HMOX1, SMAD4, TGFB1,

			ACE, FN1, CRIM1, TRIP4, CSNK1E, RHOB, TGFBR2, MMP14, PLXNB2, ADAM9, TCF4, ITGA5
regulation of cellular component organization	26	0.000194	ACVRL1, RALA, NOTCH1, TFRC, HMGB1, PSEN1, THBS1, DNAJB2, GJA1, ATXN2, CCNB1, TMSB4X, WDR5, SMAD4, TGFB1, ACE, FN1, CRIM1, MID1, SREBF2, RHOB, H1-2, MMP14, PLXNB2, ADAM9, PREB
endothelial cell proliferation	7	0.000195	ACVRL1, MMP14, GJA1, HMGB2, HMOX1, HMGB1, THBS1
negative regulation of biological process	42	0.000197	H2AX, ACVRL1, NOTCH1, TFRC, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, IRF2BPL, TIAL1, DNAJB2, GJA1, ATXN2, SMCHD1, CCNB1, HINT2, HERC1, TMSB4X, WDR5, HMOX1, TXNDC5, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CRIM1, CSNK1E, MID1, SREBF2, MID2, RHOB, TGFBR2, H1-2, BACE2, MMP14, SELENOS, PLXNB2, ITGA5, ITM2B
regulation of molecular function	28	0.000199	NOTCH1, TFRC, HMGB2, HMGB1, PSEN1, AGAP3, THBS1, DNAJB2, GJA1, CCNB1, HERC1, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, CSNK1E, MID2, TGFBR2, ERCC2, MYL3, PLXNB2, ADAM9, PREB, SERINC1

positive regulation of signaling	20	0.000211	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, TFRC, FN1, ECE1, HMGB1, CSNK1E, PSEN1, THBS1, MID1, MID2, TGFBR2, TIAL1, GJA1, ADAM9, HMOX1, ITGA5
positive regulation of phosphorylation	15	0.000214	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB1, PSEN1, THBS1, MID1, TGFBR2, CCNB1, ADAM9, ITGA5
regulation of transmembrane receptor protein serine/threonine kinase signaling pathway	8	0.000216	ACVRL1, SMAD4, TGFB1, NOTCH1, CRIM1, HTRA1, THBS1, TGFBR2
transforming growth factor beta receptor signaling pathway	7	0.000223	ACVRL1, SMAD4, TGFB1, HTRA1, ADAM9, THBS1, TGFBR2
cardiac ventricle morphogenesis	5	0.000229	SMAD4, TGFB1, NOTCH1, MYL3, TGFBR2
cellular response to growth factor stimulus	12	0.000232	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, CRIM1, HTRA1, ADAM9, CSNK1E, ITGA5, THBS1, TGFBR2
response to molecule of bacterial origin	9	0.000237	MAP2K3, GJA1, TGFB1, NOTCH1, ACE, SELENOS, HMGB2, ADAM9, HMGB1
transmembrane receptor protein serine/threonine kinase signaling pathway	9	0.000237	ACVRL1, SMAD4, TGFB1, NOTCH1, CRIM1, HTRA1, ADAM9, THBS1, TGFBR2

cell junction organization	8	0.000245	ACVRL1, MMP14, GJA1, TGFB1, ACE, FN1, ITGA5, THBS1
cellular response to stress	21	0.000248	H2AX, MAP2K3, NOTCH1, MMP2, HMGB2, HMGB1, CSNK1E, AGAP3, PSEN1, THBS1, MID1, HSPA13, SREBF2, RHOB, DDB2, DNAJB2, SMCHD1, CCNB1, SELENOS, ERCC2, HMOX1
animal organ development	30	0.00027	H2AX, ACVRL1, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, EFNB1, GJA1, SMCHD1, CCNB1, HERC1, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CSNK1E, TGFBR2, MMP14, TMX2, ERCC2, MYL3, PLXNB2, ADAM9
cell death	22	0.000271	SMAD4, TGFB1, ACE, NOTCH1, TFRC, KDELR1, MMP2, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, TIAL1, GJA1, HINT2, SELENOS, ERCC2, HMOX1, ITGA5, TXNDC5
regulation of cellular protein metabolic process	28	0.000276	ACVRL1, NOTCH1, TFRC, RNF14, HMGB1, PSEN1, THBS1, LARP1B, TIAL1, DNAJB2, ATXN2, CCNB1, HINT2, WDR5, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, TRIP4, CSNK1E, MID1, TGFBR2, MMP14, PLXNB2, ADAM9, ITGA5

regulation of multicellular organismal development	22	0.000278	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB2, FN1, HMGB1, CSNK1E, PSEN1, THBS1, RHOB, TGFBR2, MMP14, GJA1, CCNB1, WDR5, PLXNB2, HMOX1, TCF4, ITGA5
positive regulation of angiogenesis	7	0.000287	ACVRL1, HMOX1, HMGB1, ITGA5, THBS1, RHOB, TGFBR2
response to glucose	7	0.000287	GJA1, SMAD4, TGFB1, ACE, SELENOS, THBS1, TGFBR2
generation of neurons	18	0.000307	SMAD4, TGFB1, ACE, NOTCH1, MMP2, HMGB2, FN1, ECE1, HMGB1, CSNK1E, PSEN1, EFNB1, GJA1, HERC1, ERCC2, WDR5, PLXNB2, TCF4
negative regulation of blood vessel endothelial cell migration	5	0.000312	ACVRL1, TGFB1, NOTCH1, HMGB1, THBS1
localization	44	0.000316	ACVRL1, RALA, NOTCH1, TFRC, KDELR1, HMGB2, MOSPD2, HMGB1, PSEN1, ANTXR2, THBS1, DNAJB2, EFNB1, CYB5R1, GJA1, ATXN2, CCNB1, FCGRT, TMSB4X, ATP6V0A2, HMOX1, ATP5MJ, TXNDC5, MAP2K3, SMAD4, TGFB1, ACE, MMP2, OSBPL3, FN1, TRIP4, CSNK1E, MID1, SREBF2, MID2, RHOB, TGFBR2, MMP14, SELENOS, PLXNB2, ADAM9, PREB, KDELR2, ITGA5

response to growth factor	12	0.000329	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, CRIM1, HTRA1, ADAM9, CSNK1E, ITGA5, THBS1, TGFBR2
response to oxygen-containing compound	19	0.000332	MAP2K3, SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, HMGB2, HMGB1, AGAP3, PSEN1, THBS1, RHOB, TGFBR2, GJA1, CCNB1, SELENOS, ADAM9, HMOX1
regeneration	7	0.000332	CCNB1, TGFB1, NOTCH1, ACE, MMP2, HMOX1, TGFBR2
positive regulation of catalytic activity	16	0.000333	MAP2K3, TGFB1, ACE, HMGB2, FN1, HMGB1, AGAP3, PSEN1, THBS1, TGFBR2, DNAJB2, CCNB1, TMSB4X, MYL3, ADAM9, SERINC1
positive regulation of apoptotic process	11	0.000339	SMAD4, TGFB1, NOTCH1, ACE, MMP2, HTRA1, HMOX1, HMGB1, PSEN1, THBS1, RHOB
response to hexose	7	0.00034	GJA1, SMAD4, TGFB1, ACE, SELENOS, THBS1, TGFBR2
respiratory system development	7	0.00034	SMCHD1, MMP14, TGFB1, NOTCH1, ACE, HMGB1, TGFBR2
negative regulation of cell adhesion	8	0.000342	ACVRL1, MMP14, TGFB1, NOTCH1, MMP2, PLXNB2, HMGB1, THBS1
cellular response to lipid	11	0.000343	MAP2K3, CCNB1, TGFB1, ACE, SELENOS, RNF14, MMP2, HMGB2, ADAM9, TRIP4, HMGB1

developmental process involved in reproduction	12	0.000363	TIAL1, MMP14, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, ACE, MMP2, HTRA1, HMGB2, IRF2BPL
organic cyclic compound biosynthetic process	34	0.000366	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, CYB5R1, GJA1, HINT2, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, OSBPL3, CRIM1, TRIP4, SREBF2, MID2, H1-2, ERCC2, TFAM, TCF4
positive regulation of programmed cell death	11	0.000373	SMAD4, TGFB1, NOTCH1, ACE, MMP2, HTRA1, HMOX1, HMGB1, PSEN1, THBS1, RHOB
regulation of epithelial cell proliferation	9	0.000375	ACVRL1, GJA1, TGFB1, NOTCH1, HTRA1, HMGB2, HMOX1, HMGB1, THBS1
regulation of signal transduction	27	0.000376	ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, TIAL1, GJA1, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, FN1, CRIM1, CSNK1E, MID1, SREBF2, MID2, TGFBR2, MMP14, SELENOS, ADAM9, ITGA5
regulation of protein modification process	20	0.000378	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, FN1, HMGB1, PSEN1, THBS1, MID1, TGFBR2, DNAJB2, CCNB1, HINT2, WDR5, PLXNB2, ADAM9, ITGA5

positive regulation of epithelial cell proliferation	7	0.000382	ACVRL1, TGFB1, NOTCH1, HTRA1, HMGB2, HMOX1, HMGB1
regulation of catabolic process	13	0.000392	SMAD4, RNF14, HMGB1, CSNK1E, PSEN1, SREBF2, MID2, DNAJB2, GJA1, HERC1, ATP6V0A2, ADAM9, HMOX1
cell development	22	0.0004	SMAD4, TGFB1, ACE, NOTCH1, MMP2, HMGB2, FN1, ECE1, HMGB1, CSNK1E, PSEN1, TGFBR2, TIAL1, BACE2, EFNB1, GJA1, CCNB1, HERC1, ERCC2, WDR5, PLXNB2, TCF4
cell differentiation	33	0.000418	ACVRL1, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, TIAL1, EFNB1, GJA1, CCNB1, HERC1, WDR5, SMAD4, TGFB1, ACE, MMP2, FN1, CRIM1, TRIP4, CSNK1E, NOC3L, RHOB, TGFBR2, BACE2, MMP14, ERCC2, PLXNB2, ADAM9, TCF4, ITGA5
inflammatory response	12	0.000418	MAP2K3, GJA1, TGFB1, NOTCH1, ACE, SELENOS, TFRC, HMGB2, FN1, HMOX1, HMGB1, THBS1
myeloid leukocyte activation	7	0.000419	TGFB1, ADAM9, HMOX1, HMGB1, PSEN1, THBS1, TGFBR2
regulation of biological quality	32	0.000425	ACVRL1, NOTCH1, RETSAT, TFRC, KDELR1, HMGB2, ECE1, HMGB1, PSEN1, THBS1, DNAJB2, GJA1, TMSB4X, POTEJ, ATP6V0A2, HMOX1, HMGN2, SMAD4, TGFB1,

			ACE, MMP2, FN1, SREBF2, MID2, RHOB, BACE2, EMCN, SELENOS, ERCC2, MYL3, PLXNB2, KDELR2
response to monosaccharide	7	0.000429	GJA1, SMAD4, TGFB1, ACE, SELENOS, THBS1, TGFBR2
blood circulation	10	0.000447	MAP2K3, ACVRL1, GJA1, TGFB1, ACE, MYL1, MMP2, MYL3, HMOX1, ECE1
positive regulation of cellular biosynthetic process	21	0.000453	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, PSEN1, THBS1, SREBF2, MID2, LARP1B, IRF2BPL, H1-2, TMSB4X, WDR5, PLXNB2, TFAM, TCF4
regulation of striated muscle tissue development	6	0.000468	GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, TGFBR2
proteolysis	19	0.000469	TGFB1, ACE, RNF14, MMP2, CRIM1, HTRA1, FN1, TRIP4, ECE1, HMGB1, CSNK1E, AGAP3, PSEN1, THBS1, DNAJB2, BACE2, MMP14, SELENOS, ADAM9
response to mechanical stimulus	7	0.000469	MMP14, GJA1, CCNB1, TGFB1, MMP2, THBS1, TGFBR2
animal organ regeneration	5	0.000473	TGFB1, NOTCH1, ACE, HMOX1, TGFBR2

regulation of protein phosphorylation	17	0.000474	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, FN1, HMGB1, PSEN1, THBS1, MID1, TGFBR2, CCNB1, PLXNB2, ADAM9, ITGA5
regulation of cell proliferation	19	0.000478	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, HMGB2, HTRA1, FN1, HMGB1, THBS1, TGFBR2, TIAL1, DNAJB2, EFNB1, GJA1, CCNB1, HMOX1
negative regulation of locomotion	9	0.00048	ACVRL1, GJA1, TGFB1, NOTCH1, HMOX1, HMGB1, THBS1, MID2, RHOB
regulation of signaling	29	0.000488	ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, TIAL1, GJA1, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, CSNK1E, MID1, SREBF2, MID2, TGFBR2, MMP14, SELENOS, ADAM9, ITGA5
DNA recombination	8	0.000503	H2AX, SMCHD1, TGFB1, TFRC, ERCC2, HMGB2, HMGB1, H1-2
circulatory system process	10	0.00051	MAP2K3, ACVRL1, GJA1, TGFB1, ACE, MYL1, MMP2, MYL3, HMOX1, ECE1
regulation of muscle tissue development	6	0.000526	GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, TGFBR2

regulation of muscle organ development	6	0.000526	GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, TGFBR2
protein localization to organelle	13	0.000528	RALA, SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, PSEN1, MID1, SREBF2, MID2, GJA1, TMSB4X, KDELR2
positive regulation of macromolecule biosynthetic process	20	0.00054	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, PSEN1, THBS1, SREBF2, MID2, LARP1B, IRF2BPL, H1-2, WDR5, PLXNB2, TFAM, TCF4
BMP signaling pathway	6	0.000541	ACVRL1, SMAD4, TGFB1, NOTCH1, CRIM1, HTRA1
cardiac muscle tissue development	7	0.000546	GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, MYL3, TGFBR2
regulation of gene expression	37	0.000556	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, TRIP4, CSNK1E, SREBF2, MID2, TGFBR2, H1-2, MMP14, PLXNB2, TFAM, TCF4
regulation of cellular response to growth factor stimulus	8	0.000578	ACVRL1, SMAD4, TGFB1, NOTCH1, CRIM1, HTRA1, ITGA5, THBS1

positive regulation of cell communication	19	0.000587	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, TFRC, FN1, HMGB1, CSNK1E, PSEN1, THBS1, MID1, MID2, TGFBR2, TIAL1, GJA1, ADAM9, HMOX1, ITGA5
positive regulation of biosynthetic process	21	0.000587	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, PSEN1, THBS1, SREBF2, MID2, LARP1B, IRF2BPL, H1-2, TMSB4X, WDR5, PLXNB2, TFAM, TCF4
negative regulation of cellular metabolic process	27	0.000591	H2AX, ACVRL1, NOTCH1, HMGB2, HMGB1, PSEN1, THBS1, IRF2BPL, TIAL1, DNAJB2, GJA1, ATXN2, SMCHD1, CCNB1, HINT2, HERC1, WDR5, HMOX1, SMAD4, TGFB1, CRIM1, SREBF2, MID2, H1-2, BACE2, SELENOS, ITM2B
amyloid precursor protein metabolic process	5	0.000609	BACE2, ADAM9, CSNK1E, PSEN1, ITM2B
negative regulation of multicellular organismal process	16	0.000613	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, MMP2, CRIM1, FN1, HMGB1, PSEN1, THBS1, TGFBR2, GJA1, SELENOS, TMSB4X, HMOX1
tissue development	20	0.000639	ACVRL1, RALA, SMAD4, TGFB1, NOTCH1, MMP2, FN1, ECE1, PSEN1, RHOB, TGFBR2, EFNB1, MMP14, GJA1, CCNB1, ERCC2, MYL3, PLXNB2, ADAM9, ITGA5

negative regulation of binding	6	0.00064	DNAJB2, ACE, TMSB4X, HMOX1, CSNK1E, PSEN1
cell junction assembly	7	0.000647	ACVRL1, MMP14, GJA1, ACE, FN1, ITGA5, THBS1
catabolic process	23	0.000649	SMAD4, TGFB1, ACE, NOTCH1, RNF14, MMP2, TRIP4, ECE1, HMGB1, CSNK1E, AGAP3, PSEN1, SREBF2, MID2, DNAJB2, MMP14, GJA1, HINT2, SELENOS, HERC1, ATP6V0A2, ADAM9, HMOX1
regulation of growth	11	0.000699	DNAJB2, ACVRL1, MMP14, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, CRIM1, FN1, TGFBR2
cell adhesion	17	0.000713	ACVRL1, TGFB1, NOTCH1, TFRC, MMP2, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, EFNB1, MMP14, EMCN, PLXNB2, ADAM9, ITGA5
negative regulation of endothelial cell migration	5	0.000714	ACVRL1, TGFB1, NOTCH1, HMGB1, THBS1
biological adhesion	17	0.000748	ACVRL1, TGFB1, NOTCH1, TFRC, MMP2, FN1, HMGB1, PSEN1, THBS1, RHOB, TGFBR2, EFNB1, MMP14, EMCN, PLXNB2, ADAM9, ITGA5
response to BMP	6	0.000751	ACVRL1, SMAD4, TGFB1, NOTCH1, CRIM1, HTRA1
cellular response to BMP stimulus	6	0.000751	ACVRL1, SMAD4, TGFB1, NOTCH1, CRIM1, HTRA1

cell-substrate junction assembly	5	0.000771	ACVRL1, MMP14, FN1, ITGA5, THBS1
positive regulation of intracellular signal transduction	14	0.000782	MAP2K3, TGFB1, NOTCH1, TFRC, FN1, HMGB1, PSEN1, THBS1, MID1, MID2, TIAL1, GJA1, ADAM9, HMOX1
negative regulation of growth	7	0.000807	DNAJB2, ACVRL1, GJA1, SMAD4, TGFB1, NOTCH1, TGFBR2
positive regulation of cell death	11	0.00082	SMAD4, TGFB1, NOTCH1, ACE, MMP2, HTRA1, HMOX1, HMGB1, PSEN1, THBS1, RHOB
enzyme linked receptor protein signaling pathway	13	0.000851	ACVRL1, SMAD4, TGFB1, NOTCH1, MMP2, CRIM1, HTRA1, PSEN1, THBS1, TGFBR2, EFNB1, ADAM9, ITGA5
response to oxidative stress	9	0.00087	MMP14, SELENOS, MMP2, ERCC2, ADAM9, HMOX1, AGAP3, PSEN1, RHOB
heart morphogenesis	7	0.000873	ACVRL1, SMAD4, TGFB1, NOTCH1, MYL3, PSEN1, TGFBR2
negative regulation of metabolic process	28	0.000879	H2AX, ACVRL1, NOTCH1, HMGB2, HMGB1, PSEN1, THBS1, IRF2BPL, TIAL1, DNAJB2, GJA1, ATXN2, SMCHD1, CCNB1, HINT2, HERC1, WDR5, HMOX1, SMAD4, TGFB1, ACE, CRIM1, SREBF2, MID2, H1-2, BACE2, SELENOS, ITM2B

negative regulation of cell migration	8	0.000913	ACVRL1, GJA1, TGFB1, NOTCH1, HMOX1, HMGB1, THBS1, RHOB
positive regulation of catabolic process	9	0.000918	DNAJB2, GJA1, RNF14, ADAM9, HMOX1, HMGB1, CSNK1E, PSEN1, MID2
regulation of apoptotic process	17	0.000932	SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, RHOB, GJA1, SELENOS, HMOX1, ITGA5, TXNDC5
head development	12	0.000936	H2AX, MMP14, TGFB1, NOTCH1, ACE, TMX2, HERC1, MMP2, PLXNB2, CSNK1E, PSEN1, TGFBR2
cellular response to biotic stimulus	7	0.00096	MAP2K3, TGFB1, NOTCH1, SELENOS, HMGB2, ADAM9, HMGB1
regulation of cell junction assembly	5	0.000995	ACVRL1, MMP14, GJA1, ACE, THBS1
sprouting angiogenesis	6	0.001016	ACVRL1, NOTCH1, HMOX1, HMGB1, ITGA5, THBS1
regulation of cell communication	28	0.00102	ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, TIAL1, GJA1, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, CSNK1E, MID1, SREBF2, MID2, TGFBR2, MMP14, SELENOS, ADAM9, ITGA5

cellular response to transforming growth factor beta stimulus	7	0.001035	ACVRL1, SMAD4, TGFB1, HTRA1, ADAM9, THBS1, TGFBR2
positive regulation of binding	6	0.001041	TGFB1, ACE, ERCC2, HMGB2, HMGB1, PSEN1
cellular macromolecule biosynthetic process	38	0.001065	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, TMSB4X, WDR5, HMOX1, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, NOC3L, SREBF2, MID2, H1-2, BACE2, SELENOS, ERCC2, PLXNB2, TFAM, TCF4, ITM2B
positive regulation of proteolysis	8	0.001065	DNAJB2, MMP14, RNF14, FN1, ADAM9, HMGB1, CSNK1E, PSEN1
regulation of cellular catabolic process	11	0.001094	DNAJB2, HERC1, RNF14, ATP6V0A2, ADAM9, HMOX1, HMGB1, CSNK1E, PSEN1, SREBF2, MID2
regulation of programmed cell death	17	0.001103	SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, RHOB, GJA1, SELENOS, HMOX1, ITGA5, TXNDC5
regulation of BMP signaling pathway	5	0.001104	ACVRL1, SMAD4, NOTCH1, CRIM1, HTRA1
regulation of endothelial cell proliferation	6	0.001119	ACVRL1, GJA1, HMGB2, HMOX1, HMGB1, THBS1

negative regulation of cell motility	8	0.001148	ACVRL1, GJA1, TGFB1, NOTCH1, HMOX1, HMGB1, THBS1, RHOB
response to transforming growth factor beta	7	0.001156	ACVRL1, SMAD4, TGFB1, HTRA1, ADAM9, THBS1, TGFBR2
response to hormone	12	0.001198	GJA1, TGFB1, NOTCH1, ACE, SELENOS, RNF14, HMGB2, ADAM9, TRIP4, HMGB1, THBS1, TGFBR2
cell activation	14	0.001206	SMAD4, TGFB1, TFRC, KDELR1, FN1, HMGB1, PSEN1, THBS1, TGFBR2, BACE2, EFNB1, MMP14, ADAM9, HMOX1
positive regulation of RNA metabolic process	18	0.001218	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, PSEN1, SREBF2, MID2, IRF2BPL, H1-2, CCNB1, WDR5, TFAM, TCF4
regulation of phosphorylation	17	0.001261	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, FN1, HMGB1, PSEN1, THBS1, MID1, TGFBR2, CCNB1, PLXNB2, ADAM9, ITGA5
negative regulation of epithelial cell migration	5	0.001262	ACVRL1, TGFB1, NOTCH1, HMGB1, THBS1
smooth muscle cell proliferation	6	0.001286	GJA1, TGFB1, MMP2, HMOX1, THBS1, TGFBR2

organic substance biosynthetic process	43	0.001302	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, CYB5R1, GJA1, ATXN2, HINT2, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, OSBPL3, CRIM1, TRIP4, NOC3L, SREBF2, MID2, H1-2, BACE2, SELENOS, ERCC2, PLXNB2, TFAM, TCF4, SERINC1, ITM2B
multicellular organismal process	48	0.001336	H2AX, ACVRL1, RALA, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, IRF2BPL, TIAL1, EFNB1, GJA1, SMCHD1, CCNB1, HERC1, TMSB4X, POTEJ, WDR5, HMOX1, MAP2K3, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, CRIM1, CSNK1E, MID1, RHOB, TGFBR2, BACE2, MMP14, EMCN, TMX2, SELENOS, MYL1, ERCC2, MYL3, PLXNB2, ADAM9, TCF4, ITGA5, ITM2B
macromolecule biosynthetic process	38	0.001344	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, TMSB4X, WDR5, HMOX1, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, NOC3L, SREBF2, MID2, H1-2, BACE2, SELENOS, ERCC2, PLXNB2, TFAM, TCF4, ITM2B
lung development	6	0.001376	MMP14, TGFB1, NOTCH1, ACE, HMGB1, TGFBR2

cellular response to oxygen-containing compound	14	0.001391	MAP2K3, SMAD4, TGFB1, ACE, MMP2, HMGB2, HMGB1, AGAP3, PSEN1, RHOB, GJA1, CCNB1, SELENOS, ADAM9
regulation of smooth muscle cell proliferation	6	0.001407	GJA1, TGFB1, MMP2, HMOX1, THBS1, TGFBR2
regulation of phosphate metabolic process	18	0.001421	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, FN1, HMGB1, PSEN1, THBS1, MID1, TGFBR2, CCNB1, TMSB4X, PLXNB2, ADAM9, ITGA5
protein processing	7	0.001454	BACE2, MMP14, ACE, ADAM9, ECE1, PSEN1, THBS1
regulation of phosphorus metabolic process	18	0.001463	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, FN1, HMGB1, PSEN1, THBS1, MID1, TGFBR2, CCNB1, TMSB4X, PLXNB2, ADAM9, ITGA5
regulation of angiogenesis	8	0.001469	ACVRL1, NOTCH1, HMOX1, HMGB1, ITGA5, THBS1, RHOB, TGFBR2
homeostasis of number of cells	7	0.001479	TGFB1, NOTCH1, EMCN, ERCC2, HMGB2, HMOX1, HMGB1
respiratory tube development	6	0.001504	MMP14, TGFB1, NOTCH1, ACE, HMGB1, TGFBR2
protein metabolic process	41	0.001506	ACVRL1, NOTCH1, TFRC, RNF14, HTRA1, ECE1, HMGB1, PSEN1, AGAP3, THBS1, LARP1B, IRF2BPL, TIAL1, DNAJB2, GJA1, ATXN2, CCNB1, HINT2, HERC1, WDR5,

			MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CRIM1, TRIP4, CSNK1E, MID1, MID2, TGFBR2, DDB2, H1-2, BACE2, MMP14, SELENOS, PLXNB2, ADAM9, ITGA5, ITM2B
positive regulation of cellular catabolic process	8	0.001511	DNAJB2, RNF14, ADAM9, HMOX1, HMGB1, CSNK1E, PSEN1, MID2
mesenchyme development	7	0.00153	ACVRL1, EFNB1, SMAD4, TGFB1, NOTCH1, FN1, TGFBR2
nucleobase-containing compound biosynthetic process	31	0.001628	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, GJA1, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, SREBF2, MID2, H1-2, ERCC2, TFAM, TCF4
cellular component organization or biogenesis	44	0.001642	H2AX, ACVRL1, RALA, NOTCH1, TFRC, HMGB2, ECE1, HMGB1, PSEN1, THBS1, DNAJB2, EFNB1, GJA1, ATXN2, SMCHD1, CCNB1, HERC1, TMSB4X, WDR5, TK1, HMGN2, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, CRIM1, TRIP4, MID1, SREBF2, RHOB, TTC17, DDB2, H1-2, MMP14, ERCC2, PLXNB2, TFAM, ADAM9, PREB, TCF4, SERINC1, ITGA5
negative regulation of macromolecule metabolic process	26	0.001705	H2AX, ACVRL1, NOTCH1, HMGB2, HMGB1, PSEN1, THBS1, IRF2BPL, TIAL1, DNAJB2, GJA1, ATXN2, SMCHD1,

			CCNB1, HINT2, WDR5, SMAD4, TGFB1, ACE, CRIM1, SREBF2, MID2, H1-2, BACE2, SELENOS, ITM2B
cellular component organization	43	0.001835	H2AX, ACVRL1, RALA, NOTCH1, TFRC, HMGB2, ECE1, HMGB1, PSEN1, THBS1, DNAJB2, EFNB1, GJA1, ATXN2, SMCHD1, CCNB1, HERC1, TMSB4X, WDR5, TK1, HMGN2, SMAD4, TGFB1, RRM2, ACE, MMP2, FN1, CRIM1, TRIP4, MID1, SREBF2, RHOB, TTC17, DDB2, H1-2, MMP14, ERCC2, PLXNB2, TFAM, ADAM9, PREB, TCF4, ITGA5
regulation of cellular macromolecule biosynthetic process	33	0.00186	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, BACE2, SELENOS, PLXNB2, TFAM, TCF4, ITM2B
negative regulation of cellular component movement	8	0.00188	ACVRL1, GJA1, TGFB1, NOTCH1, HMOX1, HMGB1, THBS1, RHOB
biosynthetic process	43	0.001882	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, CYB5R1, GJA1, ATXN2, HINT2, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, OSBPL3, CRIM1, TRIP4, NOC3L, SREBF2, MID2, H1-2,

			BACE2, SELENOS, ERCC2, PLXNB2, TFAM, TCF4, SERINC1, ITM2B
cardiac chamber morphogenesis	5	0.001938	SMAD4, TGFB1, NOTCH1, MYL3, TGFBR2
female pregnancy	6	0.001939	GJA1, TGFB1, ACE, MMP2, ITGA5, TGFBR2
regulation of nitrogen compound metabolic process	35	0.001994	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, CSNK1E, SREBF2, MID2, H1-2, SELENOS, ERCC2, PLXNB2, TFAM, TCF4
single-organism metabolic process	30	0.002006	NOTCH1, RETSAT, TFRC, HMGB1, PSEN1, THBS1, DNAJB2, CYB5R1, ATXN2, CCNB1, HINT2, TMSB4X, DGLUCY, WDR5, HMOX1, ATP5MJ, TK1, MAP2K3, SMAD4, TGFB1, RRM2, MMP2, OSBPL3, FN1, MID1, SREBF2, MMP14, SELENOS, ADAM9, SERINC1
positive regulation of nucleic acid-templated transcription	17	0.002024	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, PSEN1, SREBF2, MID2, IRF2BPL, H1-2, WDR5, TFAM, TCF4

positive regulation of transcription, DNA-templated	17	0.002024	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, PSEN1, SREBF2, MID2, IRF2BPL, H1-2, WDR5, TFAM, TCF4
formation of primary germ layer	5	0.002052	MMP14, GJA1, MMP2, FN1, ITGA5
cardiac ventricle development	5	0.002052	SMAD4, TGFB1, NOTCH1, MYL3, TGFBR2
positive regulation of RNA biosynthetic process	17	0.002133	MAP2K3, ACVRL1, SMAD4, TGFB1, NOTCH1, RNF14, HMGB2, TRIP4, HMGB1, PSEN1, SREBF2, MID2, IRF2BPL, H1-2, WDR5, TFAM, TCF4
growth	12	0.002154	DNAJB2, ACVRL1, MMP14, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, ERCC2, CRIM1, FN1, TGFBR2
macromolecular complex subunit organization	19	0.002158	H2AX, SMAD4, TGFB1, RRM2, TFRC, HMGB2, FN1, TRIP4, HMGB1, MID1, TTC17, H1-2, ATXN2, CCNB1, TMSB4X, TFAM, PREB, TCF4, TK1
regulation of response to stimulus	31	0.002161	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, MOSPD2, HMGB1, PSEN1, THBS1, TIAL1, GJA1, SMCHD1, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, CSNK1E, MID1, SREBF2, MID2, TGFBR2, MMP14, SELENOS, ADAM9, ITGA5

neuron projection development	12	0.002171	EFNB1, GJA1, SMAD4, NOTCH1, HERC1, MMP2, WDR5, FN1, PLXNB2, ECE1, HMGB1, PSEN1
regulation of macromolecule biosynthetic process	33	0.002171	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, BACE2, SELENOS, PLXNB2, TFAM, TCF4, ITM2B
heterocycle biosynthetic process	31	0.002202	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, GJA1, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, SREBF2, MID2, H1-2, ERCC2, TFAM, TCF4
neuron differentiation	15	0.002227	SMAD4, NOTCH1, MMP2, FN1, ECE1, HMGB1, CSNK1E, PSEN1, EFNB1, GJA1, HERC1, ERCC2, WDR5, PLXNB2, TCF4
aromatic compound biosynthetic process	31	0.002251	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, GJA1, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, SREBF2, MID2, H1-2, ERCC2, TFAM, TCF4

hematopoietic progenitor cell differentiation	5	0.002421	TGFB1, NOTCH1, ACE, ERCC2, PSEN1
regulation of DNA recombination	5	0.002421	SMCHD1, TGFB1, TFRC, ERCC2, H1-2
maintenance of location	7	0.002473	GJA1, TGFB1, KDELR1, TMSB4X, KDELR2, PSEN1, SREBF2
vesicle-mediated transport	16	0.002507	RALA, TGFB1, NOTCH1, TFRC, KDELR1, HMGB1, CSNK1E, PSEN1, THBS1, TGFBR2, ATXN2, FCGRT, HMOX1, PREB, KDELR2, TXNDC5
DNA conformation change	7	0.002549	H2AX, SMCHD1, CCNB1, ERCC2, HMGB2, HMGB1, H1-2
regulation of cell growth	8	0.002563	DNAJB2, ACVRL1, MMP14, GJA1, SMAD4, TGFB1, CRIM1, FN1
regulation of vasculature development	8	0.002563	ACVRL1, NOTCH1, HMOX1, HMGB1, ITGA5, THBS1, RHOB, TGFBR2
regulation of sprouting angiogenesis	5	0.002621	NOTCH1, HMOX1, HMGB1, ITGA5, THBS1
homeostatic process	18	0.002676	SMAD4, TGFB1, ACE, NOTCH1, TFRC, HMGB2, HMGB1, PSEN1, SREBF2, DNAJB2, BACE2, GJA1, EMCN, SELENOS, POTEJ, ERCC2, ATP6V0A2, HMOX1

cell growth	8	0.002694	DNAJB2, ACVRL1, MMP14, GJA1, SMAD4, TGFB1, FN1, TGFBR2
DNA packaging	6	0.002705	H2AX, SMCHD1, CCNB1, HMGB2, HMGB1, H1-2
cellular macromolecule metabolic process	55	0.002735	H2AX, ACVRL1, TFRC, RNF14, HMGB2, ECE1, HMGB1, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, TMSB4X, WDR5, TK1, HMGB1P1, MAP2K3, MMP2, CSNK1E, MID1, MID2, SREBF2, TGFBR2, DDB2, BACE2, MMP14, SELENOS, ADAM9, TFAM, ITGA5, GTF3C1, NOTCH1, HTRA1, PSEN1, AGAP3, THBS1, DNAJB2, ATXN2, CCNB1, HMOX1, SMAD4, TGFB1, RRM2, ACE, FN1, CRIM1, TRIP4, NOC3L, H1-2, ERCC2, PLXNB2, TCF4, ITM2B
cellular response to lipopolysaccharide	6	0.002808	MAP2K3, TGFB1, SELENOS, HMGB2, ADAM9, HMGB1
regulation of cell-substrate adhesion	6	0.002808	ACVRL1, MMP14, NOTCH1, FN1, ITGA5, THBS1
cell-cell adhesion	12	0.002857	EFNB1, TGFB1, NOTCH1, EMCN, TFRC, FN1, ADAM9, PLXNB2, HMGB1, ITGA5, PSEN1, TGFBR2
macromolecule localization	24	0.00287	RALA, SMAD4, TGFB1, ACE, NOTCH1, TFRC, KDELR1, OSBPL3, CSNK1E, PSEN1, THBS1, MID1, SREBF2, MID2,

			RHOB, TGFBR2, MMP14, ATXN2, GJA1, SELENOS, TMSB4X, ADAM9, PREB, KDELR2
endothelium development	5	0.002906	ACVRL1, GJA1, SMAD4, NOTCH1, RHOB
regulation of cytokine production	11	0.00291	MAP2K3, SMAD4, TGFB1, SELENOS, TMSB4X, HMGB2, FN1, HMOX1, HMGB1, PSEN1, THBS1
transcription, DNA-templated	27	0.002912	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, ERCC2, TFAM, TCF4
macromolecule catabolic process	14	0.002937	SMAD4, TGFB1, NOTCH1, RNF14, MMP2, TRIP4, HMGB1, CSNK1E, AGAP3, PSEN1, DNAJB2, GJA1, SELENOS, ADAM9
regulation of cell death	17	0.002961	SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, RHOB, GJA1, SELENOS, HMOX1, ITGA5, TXNDC5
mesenchymal cell differentiation	6	0.002967	EFNB1, SMAD4, TGFB1, NOTCH1, FN1, TGFBR2
regulation of DNA metabolic process	9	0.003033	H2AX, ACVRL1, SMCHD1, GJA1, TGFB1, TFRC, ERCC2, HMGB1, H1-2

protein maturation	7	0.003173	BACE2, MMP14, ACE, ADAM9, ECE1, PSEN1, THBS1
regulation of leukocyte migration	6	0.003189	MMP14, TGFB1, MOSPD2, HMOX1, HMGB1, THBS1
regulation of catalytic activity	21	0.003218	MAP2K3, TGFB1, ACE, NOTCH1, CRIM1, HMGB2, FN1, HMGB1, AGAP3, PSEN1, THBS1, TGFBR2, DNAJB2, CCNB1, HERC1, TMSB4X, MYL3, PLXNB2, ADAM9, PREB, SERINC1
cell-matrix adhesion	6	0.003247	ACVRL1, MMP14, FN1, ADAM9, ITGA5, THBS1
reproductive structure development	8	0.003344	MMP14, GJA1, SMAD4, NOTCH1, ACE, MMP2, HTRA1, HMGB2
regulation of chemotaxis	6	0.003364	TGFB1, NOTCH1, TMSB4X, MOSPD2, HMGB1, THBS1
stem cell differentiation	6	0.003364	EFNB1, SMAD4, NOTCH1, ACE, ERCC2, FN1
response to unfolded protein	5	0.003371	DNAJB2, SELENOS, DNAJB4, THBS1, HSPA13
multi-multicellular organism process	6	0.003423	GJA1, TGFB1, ACE, MMP2, ITGA5, TGFBR2
reproductive system development	8	0.003504	MMP14, GJA1, SMAD4, NOTCH1, ACE, MMP2, HTRA1, HMGB2
protein catabolic process	12	0.003525	DNAJB2, GJA1, SMAD4, NOTCH1, SELENOS, RNF14, MMP2, ADAM9, TRIP4, AGAP3, CSNK1E, PSEN1

positive regulation of chemotaxis	5	0.003537	TGFB1, TMSB4X, MOSPD2, HMGB1, THBS1
cellular response to molecule of bacterial origin	6	0.003545	MAP2K3, TGFB1, SELENOS, HMGB2, ADAM9, HMGB1
macromolecular complex assembly	17	0.003658	H2AX, SMAD4, TGFB1, RRM2, TFRC, HMGB2, FN1, HMGB1, TTC17, H1-2, ATXN2, CCNB1, TMSB4X, TFAM, PREB, TCF4, TK1
positive regulation of protein catabolic process	6	0.003798	DNAJB2, GJA1, RNF14, ADAM9, CSNK1E, PSEN1
chromatin organization	11	0.004084	H2AX, SMCHD1, SMAD4, CCNB1, TGFB1, WDR5, HMGB2, HMGB1, HMGN2, DDB2, H1-2
regulation of cellular biosynthetic process	33	0.004288	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, BACE2, SELENOS, PLXNB2, TFAM, TCF4, ITM2B
branching morphogenesis of an epithelial tube	5	0.004352	MMP14, SMAD4, TGFB1, NOTCH1, TGFBR2
positive regulation of leukocyte migration	5	0.004352	MMP14, TGFB1, MOSPD2, HMGB1, THBS1

regulation of MAPK cascade	10	0.004391	MAP2K3, SMAD4, TGFB1, NOTCH1, FN1, ADAM9, HMGB1, PSEN1, THBS1, MID1
single-organism process	72	0.0044	H2AX, ACVRL1, TFRC, RNF14, KDELR1, HMGB2, ECE1, HMGB1, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, FCGRT, TMSB4X, POTEJ, WDR5, TK1, MAP2K3, MMP2, CSNK1E, MID1, MID2, SREBF2, RHOB, TGFBR2, BACE2, MMP14, EMCN, TMX2, SELENOS, MYL1, MYL3, ADAM9, PREB, KDELR2, ITGA5, RALA, NOTCH1, RETSAT, HTRA1, MOSPD2, PSEN1, AGAP3, THBS1, DNAJB2, EFNB1, CYB5R1, ATXN2, CCNB1, DGLUCY, ATP6V0A2, HMOX1, ATP5MJ, TXNDC5, SMAD4, TGFB1, RRM2, ACE, OSBPL3, FN1, CRIM1, TRIP4, NOC3L, H1-2, TTC17, ERCC2, PLXNB2, TCF4, SERINC1, ITM2B
cellular biosynthetic process	41	0.004421	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, OSBPL3, CRIM1, TRIP4, NOC3L, SREBF2, MID2, H1-2, BACE2, SELENOS, ERCC2, PLXNB2, TFAM, TCF4, SERINC1, ITM2B

gene expression	41	0.004434	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, ACE, FN1, CRIM1, TRIP4, CSNK1E, SREBF2, MID2, H1-2, BACE2, MMP14, ERCC2, PLXNB2, TFAM, ADAM9, TCF4
positive regulation of cell adhesion	8	0.004538	EFNB1, TGFB1, TFRC, FN1, ADAM9, HMGB1, ITGA5, TGFBR2
negative regulation of cytokine production	7	0.004575	TGFB1, SELENOS, TMSB4X, FN1, HMOX1, HMGB1, THBS1
gamete generation	10	0.004658	TIAL1, H2AX, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, ACE, MMP2, HMGB2
multi-organism process	21	0.004802	H2AX, MAP2K3, SMAD4, TGFB1, ACE, NOTCH1, TFRC, MMP2, HMGB2, HTRA1, FN1, HMGB1, MID2, TGFBR2, TIAL1, GJA1, CCNB1, SELENOS, ADAM9, ITGA5, HMGN2
single-organism localization	24	0.004815	RALA, SMAD4, TGFB1, ACE, NOTCH1, TFRC, KDELR1, OSBPL3, HMGB1, PSEN1, THBS1, SREBF2, ATXN2, GJA1, SELENOS, FCGRT, TMSB4X, ATP6V0A2, ADAM9, HMOX1, PREB, KDELR2, ATP5MJ, TXNDC5

hemopoiesis	11	0.004907	MMP14, TGFB1, NOTCH1, ACE, TFRC, KDELR1, ERCC2, HMGB2, HMGB1, PSEN1, TGFBR2
regulation of proteolysis	10	0.004938	DNAJB2, MMP14, RNF14, CRIM1, FN1, ADAM9, HMGB1, CSNK1E, PSEN1, THBS1
cell-substrate adhesion	7	0.00494	ACVRL1, MMP14, NOTCH1, FN1, ADAM9, ITGA5, THBS1
axon development	8	0.004947	EFNB1, SMAD4, NOTCH1, MMP2, FN1, PLXNB2, ECE1, PSEN1
receptor metabolic process	5	0.005067	ATXN2, TGFB1, TFRC, ECE1, PSEN1
positive regulation of protein kinase activity	8	0.005217	MAP2K3, CCNB1, TGFB1, ACE, ADAM9, PSEN1, THBS1, TGFBR2
regulation of biosynthetic process	33	0.005272	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, BACE2, SELENOS, PLXNB2, TFAM, TCF4, ITM2B
regulation of protein localization	11	0.005286	DNAJB2, MMP14, GJA1, SMAD4, TGFB1, TFRC, TMSB4X, ADAM9, CSNK1E, PSEN1, SREBF2

multicellular organismal reproductive process	11	0.005286	TIAL1, H2AX, MMP14, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, ACE, MMP2, HMGB2
organic substance catabolic process	18	0.005315	SMAD4, TGFB1, ACE, NOTCH1, RNF14, MMP2, TRIP4, ECE1, HMGB1, CSNK1E, AGAP3, PSEN1, DNAJB2, GJA1, HINT2, SELENOS, ADAM9, HMOX1
neural tube development	5	0.005396	RALA, TGFB1, NOTCH1, PLXNB2, PSEN1
positive regulation of neurogenesis	8	0.00544	TGFB1, NOTCH1, ACE, FN1, PLXNB2, TCF4, CSNK1E, PSEN1
nucleic acid-templated transcription	27	0.005466	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, ERCC2, TFAM, TCF4
cardiac chamber development	5	0.005624	SMAD4, TGFB1, NOTCH1, MYL3, TGFBR2
cellular protein metabolic process	36	0.005683	ACVRL1, NOTCH1, TFRC, RNF14, HMGB1, PSEN1, AGAP3, THBS1, LARP1B, IRF2BPL, TIAL1, DNAJB2, ATXN2, CCNB1, HINT2, HERC1, WDR5, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CRIM1, TRIP4, CSNK1E, MID1, MID2, TGFBR2, DDB2, H1-2, MMP14, SELENOS, PLXNB2, ADAM9, ITGA5

response to topologically incorrect protein	5	0.00574	DNAJB2, SELENOS, DNAJB4, THBS1, HSPA13
cell-cell junction organization	6	0.005763	ACVRL1, MMP14, GJA1, TGFB1, ACE, THBS1
regulation of intracellular signal transduction	17	0.005851	MAP2K3, SMAD4, TGFB1, NOTCH1, TFRC, FN1, HMGB1, PSEN1, THBS1, MID1, MID2, TIAL1, GJA1, SELENOS, TMSB4X, ADAM9, HMOX1
central nervous system development	12	0.005872	H2AX, BACE2, TGFB1, NOTCH1, ACE, TMX2, HERC1, ERCC2, PLXNB2, CSNK1E, PSEN1, TGFBR2
RNA biosynthetic process	27	0.006034	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, ERCC2, TFAM, TCF4
multicellular organism reproduction	11	0.006071	TIAL1, H2AX, MMP14, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, ACE, MMP2, HMGB2
regulation of response to external stimulus	11	0.006159	GJA1, TGFB1, NOTCH1, ACE, SELENOS, TMSB4X, HTRA1, MOSPD2, HMGB1, THBS1, TGFBR2
reproductive process	15	0.006241	H2AX, SMAD4, TGFB1, ACE, NOTCH1, MMP2, HMGB2, HTRA1, TGFBR2, IRF2BPL, TIAL1, MMP14, GJA1, CCNB1, ITGA5

reproduction	15	0.006342	H2AX, SMAD4, TGFB1, ACE, NOTCH1, MMP2, HMGB2, HTRA1, TGFBR2, IRF2BPL, TIAL1, MMP14, GJA1, CCNB1, ITGA5
cellular response to stimulus	45	0.006374	H2AX, ACVRL1, RALA, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, MOSPD2, ECE1, HMGB1, PSEN1, AGAP3, THBS1, HSPA13, TIAL1, DNAJB2, EFNB1, GJA1, SMCHD1, CCNB1, TMSB4X, ATP6V0A2, HMOX1, MAP2K3, SMAD4, TGFB1, ACE, MMP2, FN1, CRIM1, TRIP4, CSNK1E, MID1, SREBF2, MID2, RHOB, TGFBR2, DDB2, MMP14, SELENOS, ERCC2, PLXNB2, ADAM9, ITGA5
single organismal cell-cell adhesion	9	0.006378	EFNB1, TGFB1, NOTCH1, TFRC, FN1, ADAM9, HMGB1, ITGA5, TGFBR2
Notch signaling pathway	5	0.006469	MMP14, TGFB1, NOTCH1, PSEN1, TGFBR2
protein phosphorylation	17	0.00648	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, FN1, HMGB1, CSNK1E, PSEN1, THBS1, MID1, TGFBR2, CCNB1, ADAM9, ITGA5
cellular protein localization	17	0.00648	RALA, SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, PSEN1, MID1, SREBF2, MID2, RHOB, MMP14, GJA1, SELENOS, TMSB4X, PREB, KDELR2

multi-organism reproductive process	12	0.006608	TIAL1, H2AX, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, ACE, MMP2, HMGB2, ITGA5, TGFBR2
hematopoietic or lymphoid organ development	11	0.006658	MMP14, TGFB1, NOTCH1, ACE, TFRC, KDELR1, ERCC2, HMGB2, HMGB1, PSEN1, TGFBR2
chromatin assembly	5	0.006726	H2AX, SMCHD1, HMGB2, HMGB1, H1-2
in utero embryonic development	7	0.006777	ACVRL1, SMAD4, CCNB1, RRM2, NOTCH1, ERCC2, TGFBR2
negative regulation of cell proliferation	10	0.006798	TIAL1, DNAJB2, ACVRL1, GJA1, SMAD4, TGFB1, NOTCH1, HMOX1, THBS1, TGFBR2
positive regulation of transferase activity	9	0.006837	MAP2K3, CCNB1, TGFB1, ACE, ADAM9, SERINC1, PSEN1, THBS1, TGFBR2
negative regulation of epithelial cell proliferation	5	0.006856	ACVRL1, GJA1, TGFB1, NOTCH1, THBS1
cellular macromolecule localization	17	0.006896	RALA, SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, PSEN1, MID1, SREBF2, MID2, RHOB, MMP14, GJA1, SELENOS, TMSB4X, PREB, KDELR2

regulation of immune system process	15	0.006905	TGFB1, ACE, NOTCH1, TFRC, HMGB2, HTRA1, MOSPD2, HMGB1, PSEN1, THBS1, TGFBR2, EFNB1, MMP14, SELENOS, HMOX1
regulation of cell differentiation	17	0.006929	ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, CRIM1, HMGB2, FN1, TRIP4, HMGB1, CSNK1E, PSEN1, TGFBR2, MMP14, GJA1, PLXNB2, TCF4
negative regulation of response to stimulus	16	0.006993	MAP2K3, SMAD4, TGFB1, NOTCH1, CRIM1, HMGB2, HTRA1, CSNK1E, PSEN1, THBS1, MMP14, GJA1, SMCHD1, SELENOS, TMSB4X, HMOX1
regulation of nucleobase-containing compound metabolic process	29	0.007054	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, GJA1, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, ERCC2, TFAM, TCF4
negative regulation of cell communication	14	0.007172	MAP2K3, SMAD4, NOTCH1, CRIM1, HMGB2, HTRA1, CSNK1E, PSEN1, THBS1, MMP14, GJA1, SELENOS, TMSB4X, HMOX1
negative regulation of signaling	14	0.007373	MAP2K3, SMAD4, NOTCH1, CRIM1, HMGB2, HTRA1, CSNK1E, PSEN1, THBS1, MMP14, GJA1, SELENOS, TMSB4X, HMOX1

myeloid cell differentiation	7	0.00743	TGFB1, TFRC, ERCC2, HMGB2, HMGB1, PSEN1, TGFBR2
MAPK cascade	10	0.007506	MAP2K3, SMAD4, TGFB1, NOTCH1, FN1, ADAM9, HMGB1, PSEN1, THBS1, MID1
signal transduction by protein phosphorylation	10	0.007506	MAP2K3, SMAD4, TGFB1, NOTCH1, FN1, ADAM9, HMGB1, PSEN1, THBS1, MID1
striated muscle tissue development	7	0.007515	GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, MYL3, TGFBR2
positive regulation of MAPK cascade	8	0.007642	MAP2K3, TGFB1, NOTCH1, ADAM9, HMGB1, PSEN1, THBS1, MID1
neuron development	12	0.007749	EFNB1, GJA1, SMAD4, NOTCH1, HERC1, MMP2, WDR5, FN1, PLXNB2, ECE1, HMGB1, PSEN1
regulation of T cell proliferation	5	0.007818	EFNB1, TGFB1, TFRC, HMGB1, TGFBR2
regulation of protein localization to nucleus	5	0.007818	SMAD4, TGFB1, TFRC, TMSB4X, PSEN1
cellular homeostasis	11	0.007859	DNAJB2, GJA1, SMAD4, TGFB1, ACE, SELENOS, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1
skeletal system development	8	0.007939	ACVRL1, MMP14, GJA1, TGFB1, MMP2, WDR5, PSEN1, TGFBR2

vascular process in circulatory system	5	0.007962	GJA1, TGFB1, ACE, MMP2, ECE1
peptidyl-amino acid modification	13	0.008076	MAP2K3, SMAD4, TGFB1, ACE, TFRC, CSNK1E, PSEN1, TGFBR2, H1-2, CCNB1, HINT2, WDR5, ITGA5
morphogenesis of a branching epithelium	5	0.008108	MMP14, SMAD4, TGFB1, NOTCH1, TGFBR2
cellular response to radiation	5	0.008108	H2AX, TGFB1, MMP2, RHOB, DDB2
cytokine production	10	0.008148	SMAD4, TGFB1, SELENOS, TMSB4X, HMGB2, FN1, HMOX1, HMGB1, PSEN1, THBS1
phosphorylation	19	0.008164	MAP2K3, ACVRL1, SMAD4, TGFB1, ACE, NOTCH1, TFRC, FN1, HMGB1, CSNK1E, PSEN1, THBS1, MID1, TGFBR2, CCNB1, PLXNB2, ADAM9, TK1, ITGA5
regulation of protein targeting	5	0.008406	SMAD4, TGFB1, TMSB4X, PSEN1, SREBF2
regulation of protein catabolic process	7	0.008588	DNAJB2, GJA1, SMAD4, RNF14, ADAM9, CSNK1E, PSEN1
response to corticosteroid	5	0.00871	TGFB1, NOTCH1, ACE, ADAM9, HMGB1
muscle organ development	7	0.008873	GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, MYL3, TGFBR2
nucleic acid metabolic process	36	0.008956	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, GJA1, ATXN2,

			SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, CSNK1E, NOC3L, SREBF2, MID2, DDB2, H1-2, ERCC2, TFAM, TCF4
response to drug	7	0.009164	CCNB1, TGFB1, TFRC, ADAM9, HMOX1, THBS1, TGFBR2
negative regulation of cell growth	5	0.00918	DNAJB2, ACVRL1, GJA1, SMAD4, TGFB1
defense response	16	0.009396	MAP2K3, TGFB1, ACE, NOTCH1, TFRC, HMGB2, HTRA1, FN1, HMGB1, THBS1, MID2, TIAL1, GJA1, SELENOS, TMSB4X, HMOX1
positive regulation of cellular amide metabolic process	5	0.009666	TGFB1, PLXNB2, CSNK1E, THBS1, LARP1B
metal ion homeostasis	9	0.009672	GJA1, SMAD4, TGFB1, ACE, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1
ossification	7	0.009767	MMP14, SMAD4, TGFB1, NOTCH1, MMP2, ERCC2, CRIM1
immune system development	11	0.009905	MMP14, TGFB1, NOTCH1, ACE, TFRC, KDELR1, ERCC2, HMGB2, HMGB1, PSEN1, TGFBR2
regulation of carbohydrate metabolic process	5	0.01	TGFB1, SELENOS, WDR5, HMGB1, PSEN1

positive regulation of MAP kinase activity	5	0.01	MAP2K3, TGFB1, ADAM9, PSEN1, THBS1
negative regulation of signal transduction	13	0.010009	MAP2K3, SMAD4, NOTCH1, CRIM1, HMGB2, HTRA1, CSNK1E, PSEN1, THBS1, MMP14, SELENOS, TMSB4X, HMOX1
muscle tissue development	7	0.010079	GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, MYL3, TGFBR2
chromatin assembly or disassembly	5	0.010169	H2AX, SMCHD1, HMGB2, HMGB1, H1-2
immune system process	22	0.010344	TGFB1, ACE, NOTCH1, TFRC, KDELR1, HMGB2, HTRA1, MOSPD2, HMGB1, PSEN1, THBS1, MID2, TGFBR2, EFNB1, MMP14, SELENOS, FCGRT, ERCC2, ATP6V0A2, ADAM9, HMOX1, HMGN2
positive regulation of nervous system development	8	0.010355	TGFB1, NOTCH1, ACE, FN1, PLXNB2, TCF4, CSNK1E, PSEN1
single-organism transport	22	0.010612	RALA, SMAD4, TGFB1, ACE, NOTCH1, TFRC, OSBPL3, HMGB1, PSEN1, THBS1, SREBF2, ATXN2, GJA1, SELENOS, FCGRT, TMSB4X, ATP6V0A2, ADAM9, HMOX1, PREB, ATP5MJ, TXNDC5
positive regulation of kinase activity	8	0.010632	MAP2K3, CCNB1, TGFB1, ACE, ADAM9, PSEN1, THBS1, TGFBR2

mononuclear cell proliferation	6	0.010705	EFNB1, TGFB1, ACE, TFRC, HMGB1, TGFBR2
regulation of blood pressure	5	0.011044	ACVRL1, GJA1, ACE, HMOX1, ECE1
morphogenesis of a branching structure	5	0.011044	MMP14, SMAD4, TGFB1, NOTCH1, TGFBR2
cellular protein modification process	27	0.011046	ACVRL1, NOTCH1, TFRC, RNF14, HMGB1, PSEN1, THBS1, IRF2BPL, DNAJB2, CCNB1, HINT2, HERC1, WDR5, MAP2K3, SMAD4, TGFB1, ACE, FN1, CSNK1E, MID1, MID2, TGFBR2, DDB2, H1-2, PLXNB2, ADAM9, ITGA5
protein modification process	27	0.011046	ACVRL1, NOTCH1, TFRC, RNF14, HMGB1, PSEN1, THBS1, IRF2BPL, DNAJB2, CCNB1, HINT2, HERC1, WDR5, MAP2K3, SMAD4, TGFB1, ACE, FN1, CSNK1E, MID1, MID2, TGFBR2, DDB2, H1-2, PLXNB2, ADAM9, ITGA5
proteasome-mediated ubiquitin-dependent protein catabolic process	7	0.011058	DNAJB2, SELENOS, RNF14, TRIP4, AGAP3, CSNK1E, PSEN1
leukocyte activation	11	0.011104	EFNB1, MMP14, TGFB1, TFRC, KDELR1, ADAM9, HMOX1, HMGB1, PSEN1, THBS1, TGFBR2
axonogenesis	7	0.011171	EFNB1, SMAD4, NOTCH1, FN1, PLXNB2, ECE1, PSEN1
primary metabolic process	61	0.0112	H2AX, ACVRL1, TFRC, RNF14, HMGB2, ECE1, HMGB1, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, TMSB4X, WDR5, TK1, HMGB1P1, MAP2K3, MMP2,

			CSNK1E, MID1, MID2, SREBF2, TGFBR2, DDB2, BACE2, MMP14, SELENOS, ADAM9, TFAM, ITGA5, GTF3C1, NOTCH1, RETSAT, HTRA1, PSEN1, AGAP3, THBS1, DNAJB2, CYB5R1, ATXN2, CCNB1, DGLUCY, HMOX1, ATP5MJ, SMAD4, TGFB1, RRM2, ACE, OSBPL3, FN1, CRIM1, TRIP4, NOC3L, H1-2, ERCC2, PLXNB2, TCF4, SERINC1, ITM2B
protein import into nucleus	5	0.011225	SMAD4, TGFB1, NOTCH1, TMSB4X, PSEN1
T cell proliferation	5	0.011225	EFNB1, TGFB1, TFRC, HMGB1, TGFBR2
protein targeting to nucleus	5	0.011225	SMAD4, TGFB1, NOTCH1, TMSB4X, PSEN1
single-organism nuclear import	5	0.011225	SMAD4, TGFB1, NOTCH1, TMSB4X, PSEN1
positive regulation of protein serine/threonine kinase activity	6	0.011251	MAP2K3, CCNB1, TGFB1, ADAM9, PSEN1, THBS1
muscle structure development	9	0.011296	MMP14, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, MYL3, TRIP4, TGFBR2
positive regulation of DNA metabolic process	6	0.011531	H2AX, SMCHD1, TGFB1, TFRC, ERCC2, HMGB1

regulation of transport	16	0.011613	RALA, SMAD4, TGFB1, ACE, NOTCH1, HMGB1, PSEN1, THBS1, SREBF2, ATXN2, GJA1, SELENOS, TMSB4X, ADAM9, HMOX1, PREB
phosphate-containing compound metabolic process	23	0.011771	MAP2K3, ACVRL1, SMAD4, TGFB1, RRM2, ACE, NOTCH1, TFRC, FN1, HMGB1, CSNK1E, PSEN1, THBS1, MID1, TGFBR2, CCNB1, TMSB4X, PLXNB2, ADAM9, SERINC1, ATP5MJ, TK1, ITGA5
cell chemotaxis	6	0.011816	NOTCH1, TMSB4X, MOSPD2, HMGB2, HMGB1, THBS1
regulation of hemopoiesis	7	0.011865	MMP14, TGFB1, NOTCH1, ACE, HMGB2, HMGB1, TGFBR2
organic substance transport	20	0.011871	SMAD4, TGFB1, ACE, NOTCH1, TFRC, KDELR1, OSBPL3, PSEN1, THBS1, SREBF2, RHOB, TGFBR2, CYB5R1, ATXN2, GJA1, SELENOS, TMSB4X, ADAM9, PREB, KDELR2
nuclear import	5	0.011967	SMAD4, TGFB1, NOTCH1, TMSB4X, PSEN1
positive regulation of cell development	8	0.012102	TGFB1, NOTCH1, ACE, FN1, PLXNB2, TCF4, CSNK1E, PSEN1
cellular metabolic process	61	0.012202	H2AX, ACVRL1, TFRC, RNF14, HMGB2, ECE1, HMGB1, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, TMSB4X, WDR5, TK1, HMGB1P1, MAP2K3, MMP2, CSNK1E, MID1, MID2, SREBF2, TGFBR2, DDB2, BACE2,

			MMP14, SELENOS, ADAM9, TFAM, ITGA5, GTF3C1, NOTCH1, RETSAT, HTRA1, PSEN1, AGAP3, THBS1, DNAJB2, ATXN2, CCNB1, DGLUCY, ATP6V0A2, HMOX1, ATP5MJ, SMAD4, TGFB1, RRM2, ACE, OSBPL3, FN1, CRIM1, TRIP4, NOC3L, H1-2, ERCC2, PLXNB2, TCF4, SERINC1, ITM2B
regulation of cellular protein localization	8	0.012205	MMP14, SMAD4, TGFB1, TFRC, TMSB4X, CSNK1E, PSEN1, SREBF2
single organism cell adhesion	9	0.012363	EFNB1, TGFB1, NOTCH1, TFRC, FN1, ADAM9, HMGB1, ITGA5, TGFBR2
gliogenesis	6	0.0124	BACE2, MMP14, TGFB1, NOTCH1, ERCC2, PSEN1
sensory organ development	8	0.012623	ACVRL1, SMCHD1, TGFB1, NOTCH1, ECE1, HMGB1, PSEN1, TGFBR2
nitrogen compound metabolic process	46	0.012745	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, DGLUCY, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, ACE, CRIM1, TRIP4, CSNK1E, NOC3L, SREBF2, MID2, DDB2, H1-2, BACE2, SELENOS, ERCC2, PLXNB2, TFAM, TCF4, SERINC1

cell surface receptor signaling pathway	21	0.012822	ACVRL1, SMAD4, TGFB1, NOTCH1, MMP2, CRIM1, HMGB2, HTRA1, FN1, ECE1, CSNK1E, PSEN1, THBS1, TGFBR2, EFNB1, MMP14, TMSB4X, PLXNB2, ADAM9, HMOX1, ITGA5
embryonic organ development	7	0.013215	MMP14, TGFB1, NOTCH1, ERCC2, ECE1, PSEN1, TGFBR2
cellular nitrogen compound biosynthetic process	34	0.013226	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, SREBF2, MID2, H1-2, ERCC2, PLXNB2, TFAM, TCF4
positive regulation of protein transport	6	0.013468	GJA1, SMAD4, TGFB1, ADAM9, PSEN1, SREBF2
negative regulation of organelle organization	7	0.013602	SMAD4, CCNB1, TFRC, TMSB4X, WDR5, MID1, H1-2
regulation of transcription, DNA-templated	25	0.013682	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, TFAM, TCF4
muscle system process	7	0.013732	MAP2K3, GJA1, SMAD4, NOTCH1, MYL1, MYL3, HMOX1

regulation of nucleic acid-templated transcription	25	0.01377	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, TFAM, TCF4
pattern specification process	7	0.013863	ACVRL1, EFNB1, SMAD4, NOTCH1, PSEN1, MID1, TGFBR2
establishment of localization	31	0.013982	RALA, NOTCH1, TFRC, KDELR1, HMGB1, PSEN1, ANTXR2, THBS1, CYB5R1, GJA1, ATXN2, CCNB1, FCGRT, TMSB4X, ATP6V0A2, HMOX1, ATP5MJ, TXNDC5, SMAD4, TGFB1, ACE, OSBPL3, TRIP4, CSNK1E, SREBF2, RHOB, TGFBR2, SELENOS, ADAM9, PREB, KDELR2
positive regulation of leukocyte activation	7	0.013996	EFNB1, MMP14, TGFB1, TFRC, HMGB1, THBS1, TGFBR2
cell projection organization	14	0.014044	RALA, SMAD4, NOTCH1, MMP2, FN1, ECE1, HMGB1, PSEN1, TTC17, EFNB1, GJA1, HERC1, WDR5, PLXNB2
regulation of RNA metabolic process	26	0.014455	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, CCNB1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, TFAM, TCF4

regulation of RNA biosynthetic process	25	0.014491	H2AX, ACVRL1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, TMSB4X, WDR5, HMOX1, HMGB1P1, MAP2K3, SMAD4, TGFB1, CRIM1, TRIP4, SREBF2, MID2, H1-2, TFAM, TCF4
cellular metal ion homeostasis	8	0.014634	GJA1, SMAD4, TGFB1, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1
cellular response to abiotic stimulus	6	0.014764	H2AX, GJA1, TGFB1, MMP2, RHOB, DDB2
protein localization to nucleus	6	0.014764	SMAD4, TGFB1, NOTCH1, TFRC, TMSB4X, PSEN1
gland development	7	0.014808	SMAD4, TGFB1, NOTCH1, MMP2, HMOX1, PSEN1, TGFBR2
organic cyclic compound metabolic process	40	0.015056	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, CYB5R1, GJA1, ATXN2, SMCHD1, CCNB1, HINT2, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, OSBPL3, CRIM1, TRIP4, CSNK1E, NOC3L, SREBF2, MID2, DDB2, H1-2, ERCC2, TFAM, TCF4
biological regulation	66	0.015162	H2AX, ACVRL1, TFRC, RNF14, KDELR1, HMGB2, ECE1, HMGB1, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, TMSB4X, POTEJ, WDR5, HMGN2, HMGB1P1, MAP2K3, MMP2, CSNK1E, MID1, MID2,

			SREBF2, RHOB, TGFBR2, BACE2, MMP14, EMCN, SELENOS, MYL3, ADAM9, TFAM, PREB, KDELR2, ITGA5, RALA, NOTCH1, RETSAT, HTRA1, MOSPD2, PSEN1, AGAP3, THBS1, DNAJB2, EFNB1, ATXN2, CCNB1, ATP6V0A2, HMOX1, TXNDC5, SMAD4, TGFB1, RRM2, ACE, FN1, CRIM1, TRIP4, H1-2, ERCC2, PLXNB2, TCF4, SERINC1, ITM2B
neuron projection morphogenesis	8	0.015231	EFNB1, GJA1, SMAD4, NOTCH1, FN1, PLXNB2, ECE1, PSEN1
leukocyte proliferation	6	0.015271	EFNB1, TGFB1, ACE, TFRC, HMGB1, TGFBR2
transport	30	0.015453	RALA, NOTCH1, TFRC, KDELR1, HMGB1, PSEN1, ANTXR2, THBS1, CYB5R1, GJA1, ATXN2, FCGRT, TMSB4X, ATP6V0A2, HMOX1, ATP5MJ, TXNDC5, SMAD4, TGFB1, ACE, OSBPL3, TRIP4, CSNK1E, SREBF2, RHOB, TGFBR2, SELENOS, ADAM9, PREB, KDELR2
sexual reproduction	10	0.016092	TIAL1, H2AX, GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, ACE, MMP2, HMGB2
phosphorus metabolic process	23	0.016106	MAP2K3, ACVRL1, SMAD4, TGFB1, RRM2, ACE, NOTCH1, TFRC, FN1, HMGB1, CSNK1E, PSEN1, THBS1, MID1,

			TGFBR2, CCNB1, TMSB4X, PLXNB2, ADAM9, SERINC1, ATP5MJ, TK1, ITGA5
single organism reproductive process	13	0.016193	H2AX, SMAD4, TGFB1, ACE, NOTCH1, MMP2, HMGB2, HTRA1, TGFBR2, TIAL1, MMP14, GJA1, CCNB1
proteasomal protein catabolic process	7	0.016382	DNAJB2, SELENOS, RNF14, TRIP4, AGAP3, CSNK1E, PSEN1
heart contraction	5	0.016609	MAP2K3, GJA1, ACE, MYL1, MYL3
positive regulation of establishment of protein localization	6	0.016861	GJA1, SMAD4, TGFB1, ADAM9, PSEN1, SREBF2
establishment of protein localization to organelle	7	0.016982	SMAD4, RALA, TGFB1, NOTCH1, TMSB4X, PSEN1, SREBF2
positive regulation of hemopoiesis	5	0.017079	MMP14, TGFB1, HMGB2, HMGB1, TGFBR2
glial cell differentiation	5	0.017079	BACE2, TGFB1, NOTCH1, ERCC2, PSEN1
cation homeostasis	9	0.017153	GJA1, SMAD4, TGFB1, ACE, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1
cell projection morphogenesis	8	0.017393	EFNB1, GJA1, SMAD4, NOTCH1, FN1, PLXNB2, ECE1, PSEN1

skeletal system morphogenesis	5	0.017558	MMP14, TGFB1, MMP2, PSEN1, TGFBR2
negative regulation of apoptotic signaling pathway	5	0.017558	SELENOS, HMGB2, HMOX1, PSEN1, THBS1
positive regulation of cell activation	7	0.017911	EFNB1, MMP14, TGFB1, TFRC, HMGB1, THBS1, TGFBR2
axon guidance	5	0.018045	EFNB1, SMAD4, NOTCH1, PLXNB2, ECE1
cellular catabolic process	17	0.018161	TGFB1, ACE, RNF14, TRIP4, ECE1, HMGB1, CSNK1E, AGAP3, PSEN1, SREBF2, MID2, DNAJB2, SELENOS, HERC1, ATP6V0A2, ADAM9, HMOX1
negative regulation of nucleobase-containing compound metabolic process	14	0.018163	H2AX, ACVRL1, SMAD4, TGFB1, NOTCH1, HMGB2, HMGB1, PSEN1, SREBF2, MID2, IRF2BPL, H1-2, GJA1, SMCHD1
neuron projection guidance	5	0.018292	EFNB1, SMAD4, NOTCH1, PLXNB2, ECE1
regulation of autophagy	6	0.018364	HERC1, ATP6V0A2, HMOX1, HMGB1, SREBF2, MID2
response to reactive oxygen species	5	0.018792	MMP2, ADAM9, HMOX1, AGAP3, RHOB
heart process	5	0.019045	MAP2K3, GJA1, ACE, MYL1, MYL3
inorganic ion homeostasis	9	0.019097	GJA1, SMAD4, TGFB1, ACE, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1

regulation of organelle organization	13	0.019282	RALA, SMAD4, TGFB1, TFRC, MID1, SREBF2, RHOB, H1-2, ATXN2, CCNB1, TMSB4X, WDR5, PREB
regulation of lymphocyte proliferation	5	0.0193	EFNB1, TGFB1, TFRC, HMGB1, TGFBR2
regulation of chromatin organization	5	0.0193	SMAD4, CCNB1, TGFB1, WDR5, H1-2
regulation of intracellular transport	7	0.019535	SMAD4, TGFB1, TMSB4X, HMOX1, PREB, PSEN1, SREBF2
regulation of muscle cell differentiation	5	0.019817	MMP14, SMAD4, TGFB1, NOTCH1, TRIP4
cell part morphogenesis	8	0.01991	EFNB1, GJA1, SMAD4, NOTCH1, FN1, PLXNB2, ECE1, PSEN1
cellular component morphogenesis	11	0.020012	EFNB1, GJA1, SMAD4, TGFB1, NOTCH1, ERCC2, FN1, PLXNB2, ECE1, PSEN1, RHOB
gonad development	5	0.020342	MMP14, SMAD4, ACE, MMP2, HMGB2
regulation of mononuclear cell proliferation	5	0.020342	EFNB1, TGFB1, TFRC, HMGB1, TGFBR2
nucleoside monophosphate metabolic process	6	0.020364	CCNB1, TGFB1, TMSB4X, ATP5MJ, TK1, PSEN1
positive regulation of response to external stimulus	6	0.020571	TGFB1, ACE, TMSB4X, MOSPD2, HMGB1, THBS1

negative regulation of macromolecule biosynthetic process	17	0.020867	H2AX, ACVRL1, SMAD4, TGFB1, NOTCH1, HMGB2, HMGB1, PSEN1, SREBF2, MID2, IRF2BPL, H1-2, TIAL1, BACE2, GJA1, SELENOS, ITM2B
brain development	9	0.021061	H2AX, NOTCH1, ACE, TMX2, HERC1, PLXNB2, CSNK1E, PSEN1, TGFBR2
positive regulation of T cell activation	5	0.021418	EFNB1, TGFB1, TFRC, HMGB1, TGFBR2
macromolecule modification	27	0.021474	ACVRL1, NOTCH1, TFRC, RNF14, HMGB1, PSEN1, THBS1, IRF2BPL, DNAJB2, CCNB1, HINT2, HERC1, WDR5, MAP2K3, SMAD4, TGFB1, ACE, FN1, CSNK1E, MID1, MID2, TGFBR2, DDB2, H1-2, PLXNB2, ADAM9, ITGA5
autophagy	7	0.021794	HERC1, ATP6V0A2, HMOX1, HMGB1, PSEN1, SREBF2, MID2
positive regulation of immune system process	11	0.021804	EFNB1, MMP14, TGFB1, TFRC, MOSPD2, HMGB2, HMOX1, HMGB1, PSEN1, THBS1, TGFBR2
macromolecule metabolic process	55	0.021861	H2AX, ACVRL1, TFRC, RNF14, HMGB2, ECE1, HMGB1, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, TMSB4X, WDR5, TK1, HMGB1P1, MAP2K3, MMP2, CSNK1E, MID1, MID2, SREBF2, TGFBR2, DDB2, BACE2, MMP14, SELENOS, ADAM9, TFAM, ITGA5, GTF3C1, NOTCH1, HTRA1, PSEN1, AGAP3, THBS1, DNAJB2,

			ATXN2, CCNB1, HMOX1, SMAD4, TGFB1, RRM2, ACE, FN1, CRIM1, TRIP4, NOC3L, H1-2, ERCC2, PLXNB2, TCF4, ITM2B
negative regulation of developmental process	11	0.02192	ACVRL1, GJA1, SMAD4, TGFB1, NOTCH1, TFRC, CRIM1, HMGB1, PSEN1, THBS1, TGFBR2
development of primary sexual characteristics	5	0.021969	MMP14, SMAD4, ACE, MMP2, HMGB2
regulation of secretion	8	0.022196	GJA1, SMAD4, RALA, TGFB1, NOTCH1, ACE, ADAM9, HMOX1
regulation of cellular localization	10	0.02237	MMP14, SMAD4, TGFB1, TFRC, TMSB4X, HMOX1, PREB, CSNK1E, PSEN1, SREBF2
chromosome organization	12	0.022555	H2AX, SMCHD1, SMAD4, CCNB1, TGFB1, ERCC2, WDR5, HMGB2, HMGB1, HMGN2, DDB2, H1-2
protein localization	19	0.023416	RALA, SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, CSNK1E, PSEN1, MID1, SREBF2, MID2, RHOB, MMP14, GJA1, SELENOS, TMSB4X, ADAM9, PREB, KDELR2
response to bacterium	9	0.023456	MAP2K3, GJA1, TGFB1, NOTCH1, ACE, SELENOS, HMGB2, ADAM9, HMGB1

protein-DNA complex assembly	5	0.023674	H2AX, HMGB2, TCF4, HMGB1, H1-2
secretion	10	0.024353	GJA1, SMAD4, RALA, TGFB1, NOTCH1, ACE, ADAM9, HMOX1, PREB, PSEN1
cellular nitrogen compound metabolic process	43	0.024355	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, THBS1, LARP1B, IRF2BPL, TIAL1, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, ACE, CRIM1, TRIP4, CSNK1E, NOC3L, SREBF2, MID2, DDB2, H1-2, BACE2, ERCC2, PLXNB2, TFAM, TCF4
nucleobase-containing compound metabolic process	37	0.025057	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, CSNK1E, NOC3L, SREBF2, MID2, DDB2, H1-2, ERCC2, TFAM, TCF4
regulation of leukocyte activation	8	0.025346	EFNB1, MMP14, TGFB1, TFRC, HMOX1, HMGB1, THBS1, TGFBR2
developmental growth	8	0.025346	GJA1, SMAD4, CCNB1, TGFB1, NOTCH1, ERCC2, FN1, TGFBR2

secretion by cell	9	0.025569	GJA1, SMAD4, RALA, TGFB1, NOTCH1, ADAM9, HMOX1, PREB, PSEN1
establishment of protein localization	15	0.025699	RALA, SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, PSEN1, SREBF2, RHOB, GJA1, SELENOS, TMSB4X, ADAM9, PREB, KDELR2
regulation of leukocyte proliferation	5	0.025762	EFNB1, TGFB1, TFRC, HMGB1, TGFBR2
cellular cation homeostasis	8	0.02587	GJA1, SMAD4, TGFB1, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1
eye development	6	0.025977	ACVRL1, TGFB1, NOTCH1, HMGB1, PSEN1, TGFBR2
regulation of cell development	10	0.026315	SMAD4, TGFB1, NOTCH1, ACE, HMGB2, FN1, PLXNB2, TCF4, CSNK1E, PSEN1
regulation of I-kappaB kinase/NF-kappaB signaling	5	0.02732	GJA1, TFRC, TMSB4X, HMOX1, MID2
negative regulation of cellular biosynthetic process	17	0.027401	H2AX, ACVRL1, SMAD4, TGFB1, NOTCH1, HMGB2, HMGB1, PSEN1, SREBF2, MID2, IRF2BPL, H1-2, TIAL1, BACE2, GJA1, SELENOS, ITM2B
leukocyte migration	6	0.027458	MMP14, TGFB1, MOSPD2, HMOX1, HMGB1, THBS1

cell morphogenesis	10	0.027785	EFNB1, GJA1, SMAD4, TGFB1, NOTCH1, FN1, PLXNB2, ECE1, PSEN1, RHOB
T cell activation	7	0.027883	EFNB1, TGFB1, TFRC, KDELR1, HMGB1, PSEN1, TGFBR2
negative regulation of immune system process	7	0.028743	TGFB1, NOTCH1, SELENOS, HTRA1, HMOX1, HMGB1, THBS1
positive regulation of leukocyte cell-cell adhesion	5	0.028933	EFNB1, TGFB1, TFRC, HMGB1, TGFBR2
protein import	5	0.028933	SMAD4, TGFB1, NOTCH1, TMSB4X, PSEN1
regulation of neurogenesis	9	0.029155	TGFB1, NOTCH1, ACE, HMGB2, FN1, PLXNB2, TCF4, CSNK1E, PSEN1
cellular ion homeostasis	8	0.029172	GJA1, SMAD4, TGFB1, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1
protein complex subunit organization	12	0.029232	SMAD4, TGFB1, RRM2, TFRC, TMSB4X, FN1, TFAM, PREB, HMGB1, TK1, MID1, TTC17
regulation of blood circulation	5	0.029262	GJA1, ACE, MMP2, MYL3, ECE1
I-kappaB kinase/NF-kappaB signaling	5	0.029594	GJA1, TFRC, TMSB4X, HMOX1, MID2
positive regulation of growth	5	0.029594	MMP14, CCNB1, NOTCH1, FN1, TGFBR2

cellular chemical homeostasis	9	0.029842	GJA1, SMAD4, TGFB1, ACE, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1
response to other organism	11	0.030458	MAP2K3, GJA1, TGFB1, NOTCH1, ACE, SELENOS, HTRA1, HMGB2, ADAM9, HMGB1, HMGN2
protein complex assembly	11	0.030754	SMAD4, TGFB1, RRM2, TFRC, TMSB4X, FN1, TFAM, PREB, HMGB1, TK1, TTC17
protein complex biogenesis	11	0.030754	SMAD4, TGFB1, RRM2, TFRC, TMSB4X, FN1, TFAM, PREB, HMGB1, TK1, TTC17
negative regulation of biosynthetic process	17	0.030772	H2AX, ACVRL1, SMAD4, TGFB1, NOTCH1, HMGB2, HMGB1, PSEN1, SREBF2, MID2, IRF2BPL, H1-2, TIAL1, BACE2, GJA1, SELENOS, ITM2B
ion homeostasis	9	0.030895	GJA1, SMAD4, TGFB1, ACE, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1
response to external biotic stimulus	11	0.030903	MAP2K3, GJA1, TGFB1, NOTCH1, ACE, SELENOS, HTRA1, HMGB2, ADAM9, HMGB1, HMGN2
cell morphogenesis involved in neuron differentiation	7	0.030969	EFNB1, SMAD4, NOTCH1, FN1, PLXNB2, ECE1, PSEN1

positive regulation of lymphocyte activation	6	0.031121	EFNB1, MMP14, TGFB1, TFRC, HMGB1, TGFBR2
response to xenobiotic stimulus	6	0.031393	ACE, TFRC, MMP2, HMOX1, THBS1, TGFBR2
organic substance metabolic process	61	0.031951	H2AX, ACVRL1, TFRC, RNF14, HMGB2, ECE1, HMGB1, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, TMSB4X, WDR5, TK1, HMGB1P1, MAP2K3, MMP2, CSNK1E, MID1, MID2, SREBF2, TGFBR2, DDB2, BACE2, MMP14, SELENOS, ADAM9, TFAM, ITGA5, GTF3C1, NOTCH1, RETSAT, HTRA1, PSEN1, AGAP3, THBS1, DNAJB2, CYB5R1, ATXN2, CCNB1, DGLUCY, HMOX1, ATP5MJ, SMAD4, TGFB1, RRM2, ACE, OSBPL3, FN1, CRIM1, TRIP4, NOC3L, H1-2, ERCC2, PLXNB2, TCF4, SERINC1, ITM2B
signal transduction	35	0.032162	ACVRL1, RALA, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, ECE1, HMGB1, PSEN1, AGAP3, THBS1, TIAL1, EFNB1, GJA1, TMSB4X, HMOX1, MAP2K3, SMAD4, TGFB1, MMP2, FN1, CRIM1, TRIP4, CSNK1E, MID1, SREBF2, MID2, RHOB, TGFBR2, MMP14, SELENOS, PLXNB2, ADAM9, ITGA5
regulation of system process	7	0.032359	GJA1, SMAD4, NOTCH1, ACE, MMP2, MYL3, ECE1

regulation of intracellular protein transport	5	0.032679	SMAD4, TGFB1, TMSB4X, PSEN1, SREBF2
single-organism cellular process	59	0.033771	H2AX, ACVRL1, TFRC, KDELR1, HMGB2, ECE1, HMGB1, TIAL1, GJA1, HINT2, HERC1, TMSB4X, WDR5, TK1, MAP2K3, MMP2, CSNK1E, MID1, RHOB, TGFBR2, BACE2, MMP14, SELENOS, MYL1, ADAM9, PREB, KDELR2, ITGA5, RALA, NOTCH1, RETSAT, HTRA1, MOSPD2, PSEN1, THBS1, DNAJB2, EFNB1, ATXN2, CCNB1, DGLUCY, ATP6V0A2, HMOX1, ATP5MJ, TXNDC5, SMAD4, TGFB1, RRM2, ACE, OSBPL3, FN1, CRIM1, TRIP4, NOC3L, H1-2, TTC17, ERCC2, PLXNB2, TCF4, SERINC1
protein transport	14	0.034096	SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, PSEN1, SREBF2, RHOB, GJA1, SELENOS, TMSB4X, ADAM9, PREB, KDELR2
leukocyte activation involved in immune response	5	0.034108	TGFB1, TFRC, HMOX1, HMGB1, PSEN1
regulation of vesicle-mediated transport	7	0.034273	ATXN2, RALA, TGFB1, NOTCH1, HMOX1, PREB, HMGB1

intracellular signal transduction	19	0.034471	MAP2K3, RALA, SMAD4, TGFB1, NOTCH1, TFRC, FN1, HMGB1, PSEN1, THBS1, MID1, MID2, RHOB, TIAL1, GJA1, SELENOS, TMSB4X, ADAM9, HMOX1
regulation of MAP kinase activity	5	0.034836	MAP2K3, TGFB1, ADAM9, PSEN1, THBS1
DNA repair	7	0.035258	H2AX, SMCHD1, ERCC2, HMGB2, HMGB1, CSNK1E, DDB2
cell activation involved in immune response	5	0.035574	TGFB1, TFRC, HMOX1, HMGB1, PSEN1
regulation of protein transport	7	0.035757	GJA1, SMAD4, TGFB1, TMSB4X, ADAM9, PSEN1, SREBF2
skin development	5	0.03632	SMAD4, NOTCH1, ERCC2, ADAM9, PSEN1
regulation of cell activation	8	0.036839	EFNB1, MMP14, TGFB1, TFRC, HMOX1, HMGB1, THBS1, TGFBR2
ATP metabolic process	5	0.037076	CCNB1, TGFB1, TMSB4X, ATP5MJ, PSEN1
negative regulation of cellular macromolecule biosynthetic process	16	0.03711	H2AX, ACVRL1, SMAD4, TGFB1, NOTCH1, HMGB2, HMGB1, PSEN1, SREBF2, IRF2BPL, H1-2, TIAL1, BACE2, GJA1, SELENOS, ITM2B
cellular response to DNA damage stimulus	9	0.037147	H2AX, SMCHD1, ERCC2, HMGB2, HMOX1, HMGB1, CSNK1E, PSEN1, DDB2

heterocycle metabolic process	37	0.037248	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, CSNK1E, NOC3L, SREBF2, MID2, DDB2, H1-2, ERCC2, TFAM, TCF4
animal organ morphogenesis	10	0.037289	ACVRL1, MMP14, SMAD4, TGFB1, NOTCH1, MMP2, MYL3, HTRA1, PSEN1, TGFBR2
organelle organization	26	0.037482	H2AX, RALA, NOTCH1, TFRC, HMGB2, HMGB1, PSEN1, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, WDR5, HMGN2, SMAD4, TGFB1, TRIP4, MID1, SREBF2, RHOB, TTC17, DDB2, H1-2, ERCC2, TFAM, PREB
negative regulation of cell death	10	0.038406	SMAD4, NOTCH1, SELENOS, TFRC, HMGB2, HMOX1, ITGA5, PSEN1, THBS1, TXNDC5
striated muscle cell differentiation	5	0.039004	MMP14, SMAD4, CCNB1, TGFB1, NOTCH1
response to biotic stimulus	11	0.039357	MAP2K3, GJA1, TGFB1, NOTCH1, ACE, SELENOS, HTRA1, HMGB2, ADAM9, HMGB1, HMGN2
protein-DNA complex subunit organization	5	0.039396	H2AX, HMGB2, TCF4, HMGB1, H1-2

sex differentiation	5	0.039396	MMP14, SMAD4, ACE, MMP2, HMGB2
leukocyte differentiation	7	0.040185	MMP14, TGFB1, TFRC, KDELR1, HMGB1, PSEN1, TGFBR2
developmental maturation	5	0.040188	ACVRL1, CCNB1, TGFB1, MMP2, ERCC2
nitrogen compound transport	16	0.040409	SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, PSEN1, SREBF2, RHOB, TGFBR2, ATXN2, GJA1, SELENOS, TMSB4X, ADAM9, PREB, KDELR2
regulation of secretion by cell	7	0.040456	GJA1, SMAD4, RALA, TGFB1, NOTCH1, ADAM9, HMOX1
regulation of protein kinase activity	8	0.040534	MAP2K3, CCNB1, TGFB1, ACE, ADAM9, PSEN1, THBS1, TGFBR2
cellular localization	20	0.041173	RALA, SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, CSNK1E, PSEN1, MID1, SREBF2, MID2, RHOB, MMP14, GJA1, CCNB1, SELENOS, TMSB4X, HMOX1, PREB, KDELR2
anatomical structure homeostasis	6	0.041255	DNAJB2, TGFB1, NOTCH1, TFRC, POTEJ, PSEN1
chemical homeostasis	11	0.041884	BACE2, GJA1, SMAD4, TGFB1, ACE, TFRC, ATP6V0A2, HMOX1, HMGB1, PSEN1, SREBF2
cellular response to oxidative stress	5	0.042207	SELENOS, MMP2, HMOX1, AGAP3, RHOB

peptide transport	14	0.042256	SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, PSEN1, SREBF2, RHOB, GJA1, SELENOS, TMSB4X, ADAM9, PREB, KDELR2
cellular aromatic compound metabolic process	37	0.042286	H2AX, ACVRL1, GTF3C1, NOTCH1, TFRC, RNF14, HMGB2, HTRA1, HMGB1, PSEN1, IRF2BPL, TIAL1, GJA1, ATXN2, SMCHD1, CCNB1, TMSB4X, WDR5, HMOX1, ATP5MJ, TK1, HMGB1P1, MAP2K3, SMAD4, TGFB1, RRM2, CRIM1, TRIP4, CSNK1E, NOC3L, SREBF2, MID2, DDB2, H1-2, ERCC2, TFAM, TCF4
lymphocyte proliferation	5	0.042618	EFNB1, TGFB1, TFRC, HMGB1, TGFBR2
extracellular matrix organization	5	0.043031	MMP14, TGFB1, NOTCH1, MMP2, ERCC2
metabolic process	62	0.043075	H2AX, ACVRL1, TFRC, RNF14, HMGB2, ECE1, HMGB1, LARP1B, IRF2BPL, TIAL1, GJA1, SMCHD1, HINT2, HERC1, TMSB4X, WDR5, TK1, HMGB1P1, MAP2K3, MMP2, CSNK1E, MID1, MID2, SREBF2, TGFBR2, DDB2, BACE2, MMP14, SELENOS, ADAM9, TFAM, ITGA5, GTF3C1, NOTCH1, RETSAT, HTRA1, PSEN1, AGAP3, THBS1, DNAJB2, CYB5R1, ATXN2, CCNB1, DGLUCY, ATP6V0A2, HMOX1, ATP5MJ, SMAD4, TGFB1, RRM2, ACE, OSBPL3,

			FN1, CRIM1, TRIP4, NOC3L, H1-2, ERCC2, PLXNB2, TCF4, SERINC1, ITM2B
extracellular structure organization	5	0.043446	MMP14, TGFB1, NOTCH1, MMP2, ERCC2
regulation of establishment of protein localization	7	0.043513	GJA1, SMAD4, TGFB1, TMSB4X, ADAM9, PSEN1, SREBF2
leukocyte cell-cell adhesion	6	0.043563	EFNB1, TGFB1, TFRC, HMGB1, ITGA5, TGFBR2
cellular macromolecular complex assembly	11	0.043948	H2AX, ATXN2, SMAD4, TGFB1, TMSB4X, HMGB2, TFAM, TCF4, HMGB1, TTC17, H1-2
spermatogenesis	7	0.044371	H2AX, GJA1, SMAD4, CCNB1, NOTCH1, ACE, HMGB2
regulation of peptide transport	7	0.04524	GJA1, SMAD4, TGFB1, TMSB4X, ADAM9, PSEN1, SREBF2
male gamete generation	7	0.045532	H2AX, GJA1, SMAD4, CCNB1, NOTCH1, ACE, HMGB2
negative regulation of apoptotic process	9	0.045815	NOTCH1, SELENOS, TFRC, HMGB2, HMOX1, ITGA5, PSEN1, THBS1, TXNDC5
response to inorganic substance	7	0.045826	CCNB1, TFRC, MMP2, ADAM9, HMOX1, THBS1, RHOB
positive regulation of cell-cell adhesion	5	0.046416	EFNB1, TGFB1, TFRC, HMGB1, TGFBR2
cellular response to hormone stimulus	7	0.046712	GJA1, TGFB1, NOTCH1, ACE, SELENOS, RNF14, TRIP4

peptidyl-serine phosphorylation	5	0.046849	CCNB1, TGFB1, TFRC, CSNK1E, TGFBR2
transmembrane receptor protein tyrosine kinase signaling pathway	7	0.04701	EFNB1, TGFB1, MMP2, CRIM1, ITGA5, PSEN1, THBS1
regulation of hydrolase activity	10	0.047522	DNAJB2, TMSB4X, MYL3, CRIM1, HMGB2, FN1, PLXNB2, HMGB1, AGAP3, THBS1
endocytosis	8	0.048103	ATXN2, TGFB1, TFRC, HMGB1, CSNK1E, THBS1, TGFBR2, TXNDC5
amide transport	14	0.048591	SMAD4, TGFB1, NOTCH1, TFRC, KDELR1, PSEN1, SREBF2, RHOB, GJA1, SELENOS, TMSB4X, ADAM9, PREB, KDELR2
regulation of ERK1 and ERK2 cascade	5	0.048605	SMAD4, TGFB1, NOTCH1, FN1, HMGB1
single-organism biosynthetic process	12	0.048777	CYB5R1, TGFB1, RRM2, HINT2, SELENOS, TMSB4X, OSBPL3, WDR5, ATP5MJ, SERINC1, TK1, SREBF2
purine ribonucleoside triphosphate metabolic process	5	0.04905	CCNB1, TGFB1, TMSB4X, ATP5MJ, PSEN1
response to radiation	6	0.049129	H2AX, TGFB1, MMP2, ERCC2, RHOB, DDB2
Pathway	**Count**	**P Value**	**Genes**

AGE-RAGE signaling pathway in diabetic complications	5	0.002534	SMAD4, TGFB1, MMP2, FN1, TGFBR2
Colorectal cancer	5	0.001455	SMAD4, RALA, TGFB1, TGFBR2, DDB2
FoxO signaling pathway	5	0.006649	SMAD4, CCNB1, TGFB1, CSNK1E, TGFBR2
Hepatitis B	5	0.013785	MAP2K3, SMAD4, TGFB1, TGFBR2, DDB2
Hepatocellular carcinoma	5	0.01557	SMAD4, TGFB1, HMOX1, TGFBR2, DDB2
Human papillomavirus infection	6	0.040671	NOTCH1, ATP6V0A2, FN1, ITGA5, PSEN1, THBS1
Pancreatic cancer	5	0.000917	SMAD4, RALA, TGFB1, TGFBR2, DDB2
Pathways in cancer	9	0.010105	SMAD4, RALA, TGFB1, NOTCH1, MMP2, FN1, HMOX1, TGFBR2, DDB2
Proteoglycans in cancer	5	0.029797	TGFB1, MMP2, FN1, ITGA5, THBS1
Degradation of the extracellular matrix	6	0.00087	MMP14, MMP2, HTRA1, FN1, ADAM9, PSEN1
Developmental Biology	12	0.033766	H2AX, EFNB1, SMAD4, TGFB1, NOTCH1, MMP2, WDR5, TCF4, ITGA5, PSEN1, SREBF2, RHOB
Extracellular matrix organization	9	0.00018	MMP14, TGFB1, MMP2, HTRA1, FN1, ADAM9, ITGA5, PSEN1, THBS1

Platelet activation, signaling and aggregation	6	0.012826	CYB5R1, TGFB1, TMSB4X, FN1, THBS1, RHOB
Platelet degranulation	5	0.004879	CYB5R1, TGFB1, TMSB4X, FN1, THBS1
Response to elevated platelet cytosolic Ca2+	5	0.00558	CYB5R1, TGFB1, TMSB4X, FN1, THBS1
Signal Transduction	21	0.041367	H2AX, ACVRL1, RALA, SMAD4, TGFB1, NOTCH1, TFRC, MMP2, MOSPD2, FN1, ECE1, CSNK1E, PSEN1, THBS1, RHOB, TGFBR2, TIAL1, GJA1, HINT2, ATP6V0A2, ITGA5
Signaling by Interleukins	7	0.035632	MAP2K3, RALA, TGFB1, MMP2, FN1, HMOX1, HMGB1