

| List of IPA genetic networks in the proximal nerve stumps at 0.5 h, 1 h, 3 h, 6 h, 9 h, 1 d, 4 d, 7 d, and 14 d after nerve injury | | | | |
|--|---|-------|-----------------|--|
| 0.5 hour | | | | |
| ID | Molecules in Network | Score | Focus molecules | Top diseases and functions |
| 1 | A2M, ADCY, ADCY2, Akt, B3GAT1, Cg, Collagen type I, Collagen type II, CXCL3, elastase, ERK, ERK1/2, Fibrinogen, GSTA1, IL6, IL1/IL6/TNF, Jnk, LDL, MAP2K1/2, Mmp, MMP8, NFkB (complex), P38 MAPK, PGLYRP4, PI3K (complex), PPP2R5E, PRSS2, PRSS38, RGS9, SYT1, TGF beta, TGF 尾-伪 2M, trypsin, Vegf, XPNPEP2 | 24 | 11 | Endocrine System Development and Function, Lipid Metabolism, Small Molecule Biochemistry |
| 2 | ABCD4, AGTPBP1, CFI, CHRN4, CLDN2, CREB1, CTNNB1, FOS, GUCY1A2, Gucy1b2, GUCY2C, Gucy2d, GUCY2F, HNMT, HPGD, KLRB1, MAP2K1, MAPK8, mir-127, miR-18a-5p (and other miRNAs w/seed AAGGUGC), NUDT19, P2RY6, PCDH19, PDGF-AA, PRLH, S1PR3, S1PR4, SEMA4A, SLC22A2, SLC39A14, STMN3, TGFB1, TPSD1, USF1, VTCN1 | 19 | 9 | Inflammatory Response, Cardiovascular System Development and Function, Organ Development |
| 3 | ABHD3, AGT, APP, Calmodulin, CCDC106, DMXL2, DYNC1H1, ESR1, EXOC6B, FAM114A2, FASTKD1, FOCAD, LPAR3, LRIF1, LRP11, MAGEE1, MAS1, NEU3, NPAS2, NTRK1, PLAA, PON3, PTGER1, RAB43, RALGAPB, SCN1B, SCN2B, SCN9A, TBCD, UBE3C, USP7, VLDL, WARS, WDR7, ZNF609 | 19 | 9 | Neurological Disease, Organismal Injury and Abnormalities, Psychological Disorders |
| 4 | RAE1, TMEM60 | 3 | 1 | Molecular Transport, RNA Trafficking, Cell Death and Survival |
| 5 | DHRS7C, RDH | 3 | 1 | Cancer, Organismal Injury and Abnormalities, |

| | | | | |
|--------|---|-------|-----------------|---|
| | | | | Reproductive System Disease |
| 6 | CDC37, EZH2, KLHL31 | 2 | 1 | Organismal Injury and Abnormalities, Cancer, Cell Cycle |
| 7 | Akr1b10, Aldose Reductase, indanol dehydrogenase, NADP-retinol dehydrogenase, retinal dehydrogenase | 2 | 1 | Visual System Development and Function, Lipid Metabolism, Small Molecule Biochemistry |
| 8 | AGAP2, DLGAP1, DMD, GPHN, IQSEC3, MAGI2, UTRN | 2 | 1 | Embryonic Development, Organ Development, Organismal Development |
| 9 | GATA4, PAX1, PAX3, PAX7, PAX9, RIPPLY2, SNAI2, TBX18, TLE3, TLX3 | 2 | 1 | Embryonic Development, Organismal Development, Connective Tissue Development and Function |
| 1 hour | | | | |
| ID | Molecules in Network | Score | Focus molecules | Top diseases and functions |

| | | | | |
|---|---|----|----|---|
| 1 | A2M, Ap1, AQP4, BANK1, calpain, CCL20, CD2, Collagen type II, CXCL3, CXCL13, DUSP3, elastase, ERK1/2, Fcer1, Fibrinogen, ICOS, IgG, IgG2a, Igm, IL1, IL23, IL12 (complex), IL12 (family), Immunoglobulin, KMO, LDL, MAP2K1/2, Mmp, MMP12, Muc4, P38 MAPK, PDGF BB, Pro-inflammatory Cytokine, STAT5a/b, TGF beta | 26 | 12 | Cell Signaling, Molecular Transport, Vitamin and Mineral Metabolism |
| 2 | ABCC8, ABCD4, ALOX12B, ASB14, BRCA1, Cyst, EED, EPC2, EZH1, EZH2, FFAR2, FKHR, GALK1, GPX4, GZMK, HOXC12, IGF1R, IL18R1, KLHL31, MAL2, MIR101, miR-101-3p (and other miRNAs w/seed ACAGUAC), miR-24-3p (and other miRNAs w/seed GGCUCAG), MYCN, NAA15, NPC2, OBSCN, PHB2, PROM1, SOCS5, SOD2, STAT3, STMN3, USH2A, WARS | 23 | 11 | Cellular Development, Embryonic Development, Cellular Movement |
| 3 | 26s Proteasome, ACTC1, Actin, ADCY, Akt, CD3, Cg, chemokine, Creb, ERK, F Actin, GPR32, GSTA1, HPF1, HTR4, IGF2BP3, IL6, IL1/IL6/TNF, Insulin, Jnk, Mapk, NFkB (complex), OBSCN, p85 (pik3r), PGLYRP4, PI3K (complex), Pka, Pkc(s), PRG4, Rac, RBFOX1, SRXN1, TCR, TTN, Vegf | 21 | 10 | Cellular Assembly and Organization, Cellular Development, Cellular Growth and Proliferation |
| 4 | KMT2D, Larp1b | 3 | 1 | Developmental Disorder, Hereditary Disorder, Neurological Disease |
| 5 | RAE1, TMEM60 | 3 | 1 | Molecular Transport, RNA Trafficking, Cell Death and Survival |
| 6 | FIBIN, TWIST1 | 3 | 1 | Cancer, Cell Death and Survival, Cell-To-Cell Signaling and Interaction |

| | | | | |
|----|---|---|---|--|
| 7 | CABCOCO1, IFNA17, MOB3C, VSIG8 | 2 | 1 | Infectious Diseases, Cellular Development, Hematological System Development and Function |
| 8 | Akr1b10, Aldose Reductase, indanol dehydrogenase, NADP-retinol dehydrogenase, retinal dehydrogenase | 2 | 1 | Visual System Development and Function, Lipid Metabolism, Small Molecule Biochemistry |
| 9 | CAPN8, CEP83, DCAF10, FANCD2, JRKL, LETMD1, TIGD2 | 2 | 1 | Developmental Disorder, Hereditary Disorder, Nephrosis |
| 10 | 14-3-3, ACTN2, ACTR1B, ATG16L1, ATP9A, BAZ1A, CCT2, CCT6A, CDK6, CEP152, Filamin, FLNC, FUBP3, ILK, IPO13, MAP1LC3A, MAP1LC3B, MYH9, NVL, PLK4, PNPLA8, POLK, PTDSS1, RBFOX2, SDF4, SFN, SQSTM1, STK39, STX7, SYNPO2, UBE2V2, VPS16, VPS18, WNK1, ZYX | 1 | 1 | Cellular Assembly and Organization, Cell Morphology, Cellular Function and Maintenance |
| 11 | AKT1, CBX1, CCDC94, CDKN1A, CREBBP, HIST2H3C, HISTONE, Histone h3, HMOX2, HOXA9, HOXC12, ING4, ING5, JADE1, KAT5, KAT7, MEAF6, NPHP4, NR3C1, PAX8, PFDN1, PKD1, POU5F1, RPRD1B, SEPT8, SIAH1, SMN1/SMN2, SUPT5H, TCF3, TK1, TMPO, UBE2E1, UBE2H, UBE3A, VHL | 1 | 1 | Cell Cycle, Gene Expression, Post-Translational Modification |
| 12 | ATP11C, CAND2, CDS1, COG1, COG3, COG4, COMMD2, COQ5, EIF2B3, EXOC6B, FAM114A2, FAM118B, FASTKD1, FOCAD, GSDME, INTS2, ITPK1, KIAA0391, KNTC1, PLAA, RBFA, RFT1, RRP1, SAAL1, SCN1A, SCN1B, SCN2B, SLC25A24, SLC25A51, SLC39A11, TBCD, THADA, TNR, UTP20, voltage-gated sodium channel | 1 | 1 | Hereditary Disorder, Neurological Disease, Organismal Injury and Abnormalities |

| 3 hours | | | | |
|---------|--|-------|-----------------|--|
| ID | Molecules in Network | Score | Focus molecules | Top diseases and functions |
| 1 | ADCY, ADCY2, Akt, Alp, Alpha catenin, AMPK, AREG, ARHGEF9, Cg, Creb, F Actin, FSH, Growth hormone, HTR4, Iga, IgG, IgG1, IgG2a, Immunoglobulin, Insulin, Lh, Mapk, PDGF BB, Pka, PRDM1, Proinsulin, Pzp, Ras, REG3G, S100A8, SHROOM3, SRXN1, STAT5a/b, TRH, TSH | 25 | 11 | Hair and Skin Development and Function, Organ Development, Connective Tissue Development and Function |
| 2 | Ap1, CAMP, CCL20, Collagen type II, CSF3, CXCL3, elastase, ERK1/2, Fcer1, Fcgr3, Fibrinogen, GDNF, HLA-DR, IFN Beta, Ige, IL1, IL23, IL-1R, IL12 (complex), IL17a dimer, IL17R, IL1RL2, IL1RN, LDL, MAP2K1/2, Mmp, MMP8, Nos, P38 MAPK, PROK2, SAA, SERPINB2, Sod, SYK/ZAP, TGF beta | 22 | 10 | Cell-To-Cell Signaling and Interaction, Cellular Movement, Immune Cell Trafficking |
| 3 | CEBPE, GATA2, Retnlg, Stfa2/Stfa2l1 | 5 | 2 | Cellular Development, Cellular Growth and Proliferation, Hematological System Development and Function |
| 4 | BPI, caspase, CD300LD, chemokine, Ddx58, ERK, Focal adhesion kinase, GRAMD4, GSTA1, Hdac, Histone h3, Histone h4, IL6, IL1/IL6/TNF, II17d, Interferon alpha, IRAK1BP1, Jnk, LILRA4, miR-191-5p (and other miRNAs w/seed AACGGAA), MMP28, NFkB (complex), | 3 | 2 | Antimicrobial Response, Inflammatory Response, |

| | | | | |
|----|---|---|---|---|
| | NLRC3, PGLYRP2, PGLYRP3, PGLYRP4, PI3K (complex), Pkc(s), Pro-inflammatory Cytokine, Rxr, S100A12, SCIMP, Tnfrsf22/Tnfrsf23, Vegf, Wfdc17 | | | Gastrointestinal Disease |
| 5 | Ly49s3, MHC Class I (complex) | 3 | 1 | Inflammatory Response |
| 6 | DHRS7C, RDH | 3 | 1 | Cancer, Organismal Injury and Abnormalities, Reproductive System Disease |
| 7 | CDC37, EZH2, KLHL31 | 2 | 1 | Organismal Injury and Abnormalities, Cancer, Cell Cycle |
| 8 | FABP, FABP9, KPNA2, LIPE, LTA | 2 | 1 | Cell Morphology, Organ Morphology, Reproductive System Development and Function |
| 9 | GUCY, GUCY1A2, GUCY1A3, Gucy1b2, GUCY1B3, GUCY2C, Gucy2d, GUCY2D, GUCY2F, RD3 | 2 | 1 | Nucleic Acid Metabolism, Small Molecule Biochemistry, Cardiovascular Disease |
| 10 | AFAP1L1, GADD45G, HRAS, MMP9, MYL2, NCK2, SP1, SP3, TERT, TRIP6, VAV2 | 2 | 1 | Cardiac Enlargement, Cardiovascular Disease, Cardiovascular System |

| | | | | Development and Function |
|---------|---|-------|-----------------|--|
| 6 hours | | | | |
| ID | Molecules in Network | Score | Focus molecules | Top diseases and functions |
| 1 | CAMP, CCL20, Ciap, Collagen type II, Cr3, CSF3, CXCL3, cyclooxygenase, elastase, EREG, ERK1/2, Fcgr3, Fibrinogen, HLA-DR, Ikb, IL-17f dimer, IL-1R, IL17a dimer, IL17R, IL1A, IL1RL2, IL1RN, Lymphotoxin, MMP8, MMP12, Nos, Pdgf Ab, PDGF-AA, secreted MMP, TLR7/8, Tnf receptor, UCN2, UGT, UGT1A1, UGT2A1 | 29 | 13 | Hematological System Development and Function, Tissue Morphology, Cellular Movement |
| 2 | Alpha catenin, Ap1, AREG, Cg, Collagen type I, Collagen(s), Creb, CYP24A1, ERK, estrogen receptor, Fcer1, FSH, GDNF, Hdac, Kng1/Kng2, Laminin (complex), Lh, MAP2K1/2, Mapk, Mmp, MMP3, NFkB (complex), Nppb, PAK1, PDGF BB, Pirb, Pka, PLC, Pro-inflammatory Cytokine, Ras, Rxr, SERPINB2, TRH, TSH, Vegf | 21 | 10 | Skeletal and Muscular Disorders, Cellular Movement, Cell-To-Cell Signaling and Interaction |
| 3 | ADCY, ADRB, Akt, AMPK, BCR (complex), CLEC4D, CYP, CYP1A1, GCLM, GOT, hemoglobin, IFN Beta, Iga, Ige, IgG, IgG1, IgG2a, Igm, IL1, IL23, IL12 (complex), Immunoglobulin, Interferon alpha, LDL, PARP, PI3K (family), PRDM1, REG3G, SAA, SELL, SRC (family), SRXN1, STAT5a/b, SYK/ZAP, TGF beta | 14 | 7 | Protein Synthesis, Connective Tissue Disorders, Hematological Disease |
| 4 | ANXA5, CHI3L1, COPZ1, CYP11A1, DIS3, E2F2, EED, EMG1, FOXA1, GATA2, GDNF, Gm5416, HGD, HNF4A, HNRNPA0, KIF20A, KRT8, MTPP, NEK9, NR2F2, ORMDL1, PKP2, PRSS2, REG1A, RNASE2, SF3A3, SNX3, Stfa2/Stfa2i1, STOM, TFR2, UBE2W, UGT1A6, UROS, WTAP, XIRP2 | 9 | 5 | Organ Morphology, Tissue Morphology, Cell Morphology |
| 5 | 26s Proteasome, caspase, CCL3L1, CD3, chemokine, EGFR ligand, F Actin, FFAR2, Focal adhesion kinase, GPR119, Histone h3, Histone h4, IL6, Insulin, Jnk, Metalloprotease, | 3 | 2 | Antimicrobial Response, |

| | | | | |
|---------|--|-------|-----------------|---|
| | P38 MAPK, PGLYRP2, PGLYRP3, PGLYRP4, PI3K (complex), Pkc(s), Proinsulin, Ras homolog, RNA polymerase II, RNASE6, S100A8, S1PR4, SAA4, SCIMP, SLC5A2, Sod, TCR, Tnf (family), TPST1 | | | Inflammatory Response, Gastrointestinal Disease |
| 6 | FIBIN, TWIST1 | 3 | 1 | Cancer, Cell Death and Survival, Cell-To-Cell Signaling and Interaction |
| 7 | RBP4, Stra6l | 3 | 1 | Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry |
| 9 hours | | | | |
| ID | Molecules in Network | Score | Focus molecules | Top diseases and functions |
| 1 | CAMP, Ccl9, CCL20, Ciap, Collagen type II, Cr3, CSF3, CXCL3, cyclooxygenase, elastase, EREG, ERK1/2, Fcgr3, Fibrinogen, HLA-DR, Ige, Ikb, IL-17f dimer, IL-1R, IL17a dimer, IL17R, IL1A, IL1RL2, IL1RN, Lymphotoxin, MMP8, MMP12, Nos, Pdgf Ab, PDGF-AA, PROK2, secreted MMP, TLR7/8, Tnf receptor, UCN2 | 27 | 13 | Cellular Movement, Hematological System Development and Function, Immune Cell Trafficking |
| 2 | ADCY, ADRB, Alpha catenin, Ap1, AREG, Cg, Collagen(s), Creb, CYP24A1 estrogen receptor, Fcer1, FSH, GDNF, Hdac, HPF1, Kng1/Kng2, LDB2, Lh, MAP2K1/2, Mapk, Mmp, NFkB (complex), Nppb, PDGF BB, PI3K (family), Pirb, PLC, PTH, Ras, Rxr, SERPINB2, TRH, TSH, Vegf, VitaminD3-VDR-RXR | 22 | 11 | Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry |

| | | | | |
|---|--|----|----|---|
| 3 | Akt, Alp, BCR (complex), C/ebp, CLEC4D, CYP, CYP1A1, GCLM, GOT, GSTA1, HAL, hemoglobin, IFN Beta, Iga, IgG, IgG1, IgG2a, Igm, IL1, IL23, IL12 (complex), Immunoglobulin, LDL, Ngf, PRDM1, Pro-inflammatory Cytokine, REG3G, S100A8, SAA, Sod, SRXN1, STAT5a/b, SYK/ZAP, TGF beta, VGF | 20 | 10 | Protein Synthesis, Cancer, Organismal Injury and Abnormalities |
| 4 | 26s Proteasome, ACTC1, AMPK, caspase, CD3, chemokine, Collagen type I, Ddx58, EGFR ligand, ERK, F Actin, Focal adhesion kinase, GPR32, Histone h3, Histone h4, IL6, Insulin, Interferon alpha, Jnk, LPAR3, Metalloprotease, MMP3, P38 MAPK, PGLYRP4, PI3K (complex), Pka, Pkc(s), Proinsulin, Ras homolog, RNA polymerase II, SELL, SHROOM3, SRC (family), TCR, Tnf (family) | 10 | 6 | Cardiovascular Disease, Developmental Disorder, Neurological Disease |
| 5 | AGTPBP1, ARHGEF5, BTC, CHI3L1, CMA1, COL17A1, DEFB103A/DEFB103B, DEGS1, DOCK10, EGFR, ERBB, EREG, FRK, GABRA3, GATA2, GLRB, Gm5416, GPER1, IQGAP3, LAMC2, MS4A2, NRG1, NRG (family), PI3K p85, Plc beta, PYGM, RAC1, RAPGEF1, ROR1, S1PR2, SAAL1, SMTNL1, ST6GAL1, Stfa2/Stfa2i1, WASF3 | 10 | 6 | Cellular Movement, Cellular Compromise, Cell-To-Cell Signaling and Interaction |
| 6 | KMT2D, Larp1b | 2 | 1 | Developmental Disorder, Hereditary Disorder, Neurological Disease |
| 7 | TCF7L2, TMEM163 | 2 | 1 | Cell-To-Cell Signaling and Interaction, Developmental Disorder, Digestive System Development and Function |
| 8 | ANKRD1, DYSF, EED, FLNC, KRT4, LRRK2, MEF2A, NEB, NEBL, NEK9, NSMAF, RAD21, UBC, XIRP2 | 2 | 1 | Cancer, Organismal Injury and Abnormalities, |

| | | | | |
|-------|--|-------|-----------------|--|
| | | | | Reproductive System Disease |
| 9 | ATMIN, CAPN13, DIDO1, EIF4E2, EWSR1, PPP1R10, P RRC2A, SAFB, SAFB2, SF1, SFSWAP, SHARPIN, TJP2, ZC3H4 | 2 | 1 | DNA Replication, Recombination, and Repair, Cell Morphology, Cell-To-Cell Signaling and Interaction |
| | | | | |
| 1 day | | | | |
| ID | Molecules in Network | Score | Focus molecules | Top diseases and functions |
| 1 | ACPP, Alp, Ap1, C/ebp, CCL20, Collagen type II, CRP, CYP, CYP1A1, CYP1A2, ERK1/2, Fibrinogen, GCLM, GOT, GSTA1, IFN Beta, IL1, IL11, IL23, IL-1R, IL12 (complex), IL1RL2, IL1RN, LDL, MEP1A, MMP12, Nos, Par, Pro-inflammatory Cytokine, PTH, Sod, SRXN1, TGF beta, Tnf (family), UCN2 | 30 | 15 | Dermatological Diseases and Conditions, Organismal Injury and Abnormalities, Skeletal and Muscular System Development and Function |
| 2 | ADCY, Akt, Alpha catenin, AMPK, AREG, Cg, Collagen type I, Collagen(s), Creb, Cyp2a12/Cyp2a22, estrogen receptor, Fcer1, FSH, GDNF, Growth hormone, Hdac, Kng1/Kng2, Lh, LIPF, LOC259246 (includes others), Mapk, N-cor, Nppb, PDGF BB, PDYN, PI3K (family), Pkc(s), PLEKHA1, Ras, S100A8, SIX3, TRH, TSH, Vegf, VGF | 25 | 13 | Skeletal and Muscular Disorders, Endocrine System Development and Function, Small Molecule Biochemistry |

| | | | | |
|---|---|----|----|--|
| 3 | caspase, Ccl9, CD3, CD8A, chemokine, cytochrome C, F Actin, Gpcr, GRIA2, HAL, hemoglobin, Histone h3, Histone h4, HPF1, Iga, IgG, IL6, Immunoglobulin, Interferon alpha, Jnk, Mmp, NFkB (complex), NLRP4, P38 MAPK, PI3K (complex), Pirb, Pka, REG3G, RNA polymerase II, SERPINB2, SHROOM3, SLC5A1, SRC (family), STAT, ZMAT4 | 25 | 13 | Digestive System Development and Function, Cell Morphology, Cellular Assembly and Organization |
| 4 | 4930486L24Rik, ABAT, AGXT, APP, AR, ATP2B2, Ca2 ATPase, Clca3a1/Clca3a2, CSRP3, EED, EMG1, ERMN, FOXO1, GSTA1, HS1BP3, JUN, MARCH7, MYOZ2, NRAP, NRM, ORMDL1, OSTC, PIGO, RAB7B, REG1A, RHOT2, RPS4Y1, SCAVENGER receptor CLASS A, TBXAS1, TP73, TRABD, UBC, UCN2, WARS, XIRP2 | 18 | 10 | Organ Morphology, Skeletal and Muscular System Development and Function, Tissue Morphology |
| 5 | CMKLR1, CNR2, Cyp2c12, DEFB104A/DEFB104B, ERK, ERRFI1, FABP9, FFAR1, FFAR2, FGF7, GALP, GALR1, GHSR, GIPR, GPR119, GPR132, HYDIN, IL1A, Insulin, Krt10, LPAR2, LPAR3, LTA, P2RY6, PCLO, PTGER2, RBP4, RHCG, S1PR4, SAA2, Stfa2/Stfa2l1, Stra6l, TCF7L2, TMEM163, UMOD | 16 | 9 | Nutritional Disease, Psychological Disorders, Cellular Function and Maintenance |
| 6 | ABCC5, ABCG8, Abcg5/Abcg8, ADGRL3, CAPN13, CEACAM5, CLCA1, EGFR, EGFR ligand, ESR1, EWSR1, EZH2, Hdac, HOXD11, HPCAL4, KLHL31, KRAS, LPAR3, MAZ, miR-181a-5p (and other miRNAs w/seed ACAUUCA), miR-18a-5p (and other miRNAs w/seed AAGGUGC), Muc2, Mucin, OXTR, PADI2, RAB20, SAAL1, SNAI2, SNX16, SPDL1, TBX18, TFF3, TMEM2, ZC3H4, ZMYM4 | 16 | 9 | Cellular Development, Reproductive System Development and Function, Cellular Movement |
| 7 | KMT2D, Larp1b | 2 | 1 | Developmental Disorder, Hereditary Disorder, Neurological Disease |

| | | | | |
|--------|---|-------|-----------------|--|
| 8 | HSF2, MITF, PIF1, PPIF, SSSCA1 | 2 | 1 | Cellular Function and Maintenance, Cellular Growth and Proliferation, Gastrointestinal Disease |
| 9 | GUCY, GUCY1A2, GUCY1A3, Gucy1b2, GUCY1B3, GUCY2C, Gucy2d, GUCY2D, GUCY2F, RD3 | 2 | 1 | Nucleic Acid Metabolism, Small Molecule Biochemistry, Cardiovascular Disease |
| 4 days | | | | |
| ID | Molecules in Network | Score | Focus molecules | Top diseases and functions |
| 1 | C/ebp, CCL20, Collagen type II, cyclooxygenase, CYP, CYP1A1, elastase, ERK1/2, Fibrinogen, Growth hormone, GSTA1, HDL, Hmga2, IFN Beta, IFNE, IGFBP3, Ikb, IL1, IL23, IL-1R, IL17a dimer, IL1A, IL1RN, LDL, Lymphotoxin, MAPK13, MMP7, MMP12, Nos, Pro-inflammatory Cytokine, SAA, Tnf (family), Tnf receptor, TNFSF11, TNN | 26 | 13 | Tissue Morphology, Cellular Movement, Immune Cell Trafficking |
| 2 | ABCA1, ACP, ADCY, Akt, AQP4, AREG, calpain, CD8A, Cg, CHRNA3, Creb, Fcer1, FSH, GOT, JINK1/2, Lh, Ly49s3, MAP2K1/2, MHC Class I (complex), Muc4, N-cor, Par, PDGF BB, PI3K (family), Pka, PLC, Ptk, PTPase, Rxr, SRXN1, SST, TGF beta, TRH, TSH, TYRP1 | 24 | 12 | Molecular Transport, Small Molecule Biochemistry, Amino Acid Metabolism |
| 3 | AQP11, Art2b, BCL6, BTN3A1, Calc, CD96, CD160, CD80/CD86, CFI, Clca3a1/Clca3a2, CLEC10A, CSMD1, FAM111A, GNA14, GSTA1, | 19 | 10 | Cellular Development, Hematological System |

| | | | | |
|---|---|----|---|--|
| | IFNG, IL2, IL26, IL17D, JUN, KLK1, MAP3K8, MFAP4, mir-127, MN1, P2RY6, PGLYRP2, PYGM, SIGLEC1, SLC5A2, TGFB1, TP53, VAX1, VTCN1, ZFHX3 | | | Development and Function, Lymphoid Tissue Structure and Development |
| 4 | 7S NGF, Alp, Alpha catenin, Ap1, ATP1B1, Ccl9, CD3, chemokine, Collagen type I, estrogen receptor, GCLM, Hdac, hemoglobin, Histone h3, Histone h4, HPF1, Ige, IgG, Igm, IL6, IL12 (complex), Immunoglobulin, Interferon alpha, Kng1/Kng2, LIPF, LMNB1, Mapk, NFkB (complex), Nr1h, P38 MAPK, p85 (pik3r), PI3K (complex), Pirb, SRC (family), TCR | 16 | 9 | Cellular Compromise, Neurological Disease, Organismal Injury and Abnormalities |
| 5 | 26s Proteasome, ADAMTS13, AQP4, ATP6V0D2, caspase, CD300LD, Ck2, Collagen(s), DNNT, EGFR ligand, ERK, FOXA2, G6PC2, GIPR, GPR68, GPR119, Insulin, Jnk, Metalloprotease, MIP1, Mmp, MTF1, NPL, OPTC, PCLO, Pkc(s), Proinsulin, Ras homolog, RNA polymerase II, S100A12, S1PR4, SLC18A2, SLC27A2, Vegf, VTCN1 | 14 | 8 | Carbohydrate Metabolism, Cellular Function and Maintenance, Small Molecule Biochemistry |
| 6 | ADGRL3, ADRA1B, AGTR2, AMH, AR, CALCR, CASQ2, CDK14, CDKN1A, CSRP3, GIP, GPER1, GRP, H2AFB3 (includes others), Hdac, HDAC7, HOXB13, HPGD, IGFBP3, KLF10, KNTC1, LHCGR, MEIS1, mir-19, mir-27, mir-30, MYF6, MYOM1, PDIA5, PTHLH, S1PR3, STX8, TFDP1, TRDN, UBE2C | 8 | 5 | Organismal Injury and Abnormalities, Cellular Development, Cellular Growth and Proliferation |
| 7 | KMT2D, Larp1b | 2 | 1 | Developmental Disorder, Hereditary Disorder, Neurological Disease |
| 8 | TCF7L2, TMEM163 | 2 | 1 | Cell-To-Cell Signaling and Interaction, |

| | | | | |
|--------|---|-------|-----------------|---|
| | | | | Developmental Disorder, Digestive System Development and Function |
| 9 | RBP4, Stra6l | 2 | 1 | Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry |
| 10 | sulfotransferase, Sult1c2 (includes others) | 2 | 1 | Post-Translational Modification |
| 11 | CDC37, EZH2, KLHL31 | 2 | 1 | Organismal Injury and Abnormalities, Cancer, Cell Cycle |
| 12 | Akr1b10, Aldose Reductase, indanol dehydrogenase, NADP-retinol dehydrogenase, retinal dehydrogenase | 2 | 1 | Visual System Development and Function, Lipid Metabolism, Small Molecule Biochemistry |
| 7 days | | | | |
| ID | Molecules in Network | Score | Focus molecules | Top diseases and functions |
| 1 | ADCY, ADRA1A, Alpha catenin, AREG, Calmodulin, CAMK2A, CaMKII, Cg, Creb, Cyclin E, ERK, FSH, Gpcr, GRM7, GRP, HPF1, IGFBP2, Kng1/Kng2, Lh, Mapk, NFkB (complex), NLRP4, p70 S6k, PDGF BB, Pirb, Pka, PLC, Rac, Ras, RASGRF1, SST, TRH, TSH, | 27 | 14 | Carbohydrate Metabolism, Molecular Transport, Small Molecule Biochemistry |

| | | | | |
|---|--|----|----|--|
| | TSPAN33, voltage-gated calcium channel | | | |
| 2 | Akt, Alp, AQP4, BCR (complex), calpain, Ccl9, CCR6, CD8A, CHRNA3, Fcer1, Fibrinogen, GOT, Iga, Ige, IgG, Igg3, Igm, Ikb, IL12 (family), Immunoglobulin, Interferon alpha, LDL, MAP2K1/2, Mcpt1, MHC CLASS I (family), Muc4, N-cor, PI3K (family), Ptk, REG3G, Rsk, SLC5A1, SRXN1, TGF beta, TNFSF11 | 20 | 11 | Infectious Diseases, Cell Morphology, Inflammatory Response |
| 3 | AK3, AKT1, AR, Art2b, CD38, CFI, CRISP1, Csn1s1, CYP2B6, FABP9, FFAR1, GCG, GIPR, GLCCI1, GLP1R, Gnm1/LOC100911564, GPR119, GPR161, GPR182, GRP, IL17D, LPAR2, LTA, MC4R, MCHR1, MSMO1, NEU3, OSTN, PPARGC1A, PRKACA, RMDN2, SCT, SLC39A8, UCN2, VEGFD | 18 | 10 | Nucleic Acid Metabolism, Small Molecule Biochemistry, Organismal Development |
| 4 | Actin, AMPK, Ap1, ATP2B2, caspase, CD3, CNGA1, Collagen type I, Collagen(s), CTSW, CYP1A1, cytochrome C, estrogen receptor, Focal adhesion kinase, GSTA1, Hdac, Histone h3, Histone h4, IL6, Insulin, Jnk, LMNB1, Mek, NRP1, P glycoprotein, P38 MAPK, PCLO, PI3K (complex), Pkc(s), Ras homolog, Rb, Rxr, Sod, SRC (family), TCR | 15 | 9 | Endocrine System Development and Function, Lipid Metabolism, Small Molecule Biochemistry |
| 5 | ABCA4, ANXA3, BCL2, CCDC134, CLIC3, DDIAS, ESR1, FAM111A, GUCY, GUCY1A2, GUCY1A3, Gucy1b2, GUCY1B3, Gucy2d, HS1BP3, HYDIN, Keratin II, 6, miR-18a-5p (and other miRNAs w/seed AAGGUGC), miR-19b-3p (and other miRNAs w/seed GUGCAA), MOXD1, Nuclear factor 1, PADI2, SLC6A6, SNAP91, SUMO2, TBXAS1, TFF2, TP53, TP63, UBC, UPK2, UPK1B, VCP, VNN1, XIRP2 | 15 | 9 | Cardiovascular Disease, Connective Tissue Disorders, Organismal Injury and Abnormalities |
| 6 | 26s Proteasome, ADGRA1, ADGRG2, ARAP2, BTN1A1, Ccr2, CD96, chemokine, Ck2, FOXA2, GNRH1, GPR12, GPR19, GPR85, GPR108, GPR119, GPR146, IFNG, LPAR3, LPAR4, MCHR1, Mmp, MUC6, PGLYRP2, PGLYRP3, PGLYRP4, Proinsulin, | 13 | 8 | Organismal Injury and Abnormalities, Digestive System Development and |

| | | | | |
|----|---|----|---|---|
| | RNA polymerase II, SLC18A2, SLC27A2, TACR3, TCF7L2, TMEM163, VAX1, Vegf | | | Function, Gastrointestinal Disease |
| 7 | ALT, C/ebp, collagen, Collagen type II, CXCL11, cyclooxygenase, CYP, ERK1/2, Fcgr3, Growth hormone, HDL, Ifn, IFN Beta, Ifnar, IFNE, IL1, IL23, IL-1R, IL12 (complex), IL17a dimer, IL1RN, Ly49s3, MHC Class I (complex), MHC Class II (complex), MMP7, MMP12, Nos, NRG (family), PEPCK, Pro-inflammatory Cytokine, SAA, Tlr, Tnf (family), Tnf receptor, TNN | 11 | 7 | Cellular Movement, Hematological System Development and Function, Immune Cell Trafficking |
| 8 | ADGRA1, ADGRL3, APP, ATF4, CES2, CSNK2A1, CSRP3, EGFR ligand, ERK1/2, FAM213A, FMO2, GIPR, GLYAT, Gpcr, GPR12, GPR19, GPR32, GPR85, GPR108, GPR146, GPR182, HNF4A, LPAR3, MCHR1, Metalloprotease, MYOM1, NMBR, PYGM, Rasgrf, RXFP3, SOD1, SSTR4, TACR2, TRHR, ZNF300 | 11 | 7 | Cell Signaling, Cellular Function and Maintenance, Small Molecule Biochemistry |
| 9 | RBP4, Stra6l | 2 | 1 | Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry |
| 10 | CACNA1A, CACNA1B, UNC13C | 2 | 1 | Cell-To-Cell Signaling and Interaction, Molecular Transport, Small Molecule Biochemistry |
| 11 | serine C-palmitoyltransferase, SPTLC1, SPTLC2, SPTLC3, SPTSSB | 2 | 1 | Lipid Metabolism, Small Molecule |

| | | | | |
|---------|---|-------|--------------------|---|
| | | | | Biochemistry, Molecular Transport |
| 12 | Akr1b10, Aldose Reductase, indanol dehydrogenase, NADP-retinol dehydrogenase, retinal dehydrogenase | 2 | 1 | Visual System Development and Function, Lipid Metabolism, Small Molecule Biochemistry |
| 14 days | | | | |
| ID | Molecules in Network | Score | Focus molecules | Top diseases and functions |
| 1 | ADCY, ALB, BMP6, C/ebp, CaMKII, Cebp, Cg, CHGA, collagen, Collagen type II, Cr3, Creb, cyclooxygenase, ERK1/2, Fibrinogen, GOT, Growth hormone, GSTA1, LDL, Lh, MAP2K1/2, Mcpt1, MMP12, NRP1, PDGF BB, PDYN, Proinsulin, Rxr, Sod, SRXN1, SST, STAT5a/b, TNN, TRH, TSH | 24 | 12 | Cellular Development, Connective Tissue Development and Function, Skeletal and Muscular System Development and Function |
| 2 | Akt, Alp, BCR (complex), calpain, Ccl9, CCR6, chemokine, CYP, CYP1A1, Fcer1, HDL, hemoglobin, IFN Beta, Iga, Ige, IgG, Igg3, Igm, Ikb, IL1, IL6, IL23, IL12 (complex), IL12 (family), Immunoglobulin, Kng1/Kng2, Muc4, N-cor, PPL, Pro-inflammatory Cytokine, REG3G, TGF beta, Tnf (family), Tnf receptor, TNFSF11 | 17 | 9 | Hematological System Development and Function, Lymphoid Tissue Structure and Development, Tissue Morphology |
| 3 | 26s Proteasome, AADAT, Ap1, ATP2B2, caspase, CD3, CTSW, cytochrome C, ERK, estrogen receptor, Gpcr, Hdac, Histone h3, Histone h4, HPF1, Insulin, | 17 | 9 | Neurological Disease, Organismal Injury and |

| | | | | |
|---|---|----|---|--|
| | LMNB1, Ly49s3, Mapk, MHC Class I (complex), NFkB (complex), Ngf, P glycoprotein, P38 MAPK, PCLO, PI3K (complex), Pkc(s), PPP2R5E, Rac, Ras, Ras homolog, Rb, SLC18A2, SRC (family), TCR | | | Abnormalities, Psychological Disorders |
| 4 | ABCB9, AGPAT1, AMACR, ANXA9, AR, C10orf10, CCL15, CDC42EP2, CES2, Ces2e, CFI, CLIC3, CRISP1, CSMD1, CSR1, CSR3, CUX2, EED, ESR1, FABP, FABP9, GLYAT, GUCY1A3, Gucy1b2, GUCY2C, Gucy2d, HNF4A, LIPE, MAPK15, PNPLA3, PPP1CA, SLC39A8, Slco1a1, SREBF1, XIRP2 | 17 | 9 | Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry |
| 5 | ADGRA1, BTN1A1, CACNA1A, CACNA1I, CCDC88B, Ccr2, CD96, Ck2, EZH2, GNRH1, GPR12, GPR19, GPR85, GPR108, GPR119, GPR146, GPR158, GRM8, Gsk3, HCP5, HRH3, IFNG, Jnk, KLHL31, LPAR3, MCHR1, Pka, RNA polymerase II, SLC27A2, SLC52A2, TACR2, UNC13C, VAX1, Vegf, voltage-gated calcium channel | 12 | 7 | Neurological Disease, Psychological Disorders, Cell Signaling |
| 6 | RBP4, Stra6l | 2 | 1 | Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry |
| 7 | Art2b, CD38, IL10RA, MAP3K8, RET | 2 | 1 | Cell-To-Cell Signaling and Interaction, Inflammatory Response, Immunological Disease |
| 8 | ADGRL3, ASGR2, C3AR1, CLEC2D, FLRT1, FLRT3, Gpcr, HAMP, Hdac, HIST2H3C, IPPK, LPAR1, MIB1, MMP26, NUPR1, ZNF24 | 2 | 1 | Cardiac Dysfunction, Cardiovascular Disease, Dermatological |

| | | | | |
|----|--|---|---|--|
| | | | | Diseases and Conditions |
| 9 | CASKIN1, ERBB2, FUBP1, GLP1R, GTPase, HSF1, MAPK8, MMP11, NKX3-1, SHH, SPCS2, STAT3, STMN3, SYP, TCOF1, TRPC5, UBC, UBQLN1 | 1 | 1 | Cell Morphology, Developmental Disorder, Embryonic Development |
| 10 | ADCYAP1, CASK, CNTN1, CNTN2, CNTNAP2, CTR9, EPB41, EPB41L2, EPB41L3, GRIA1, IQCB1, KCNA2, KCNAB2, MACF1, MEOX2, MPDZ, MYC, SAFB, SAFB2, TSPYL5, ZMIZ1 | 1 | 1 | Neurological Disease, Organismal Injury and Abnormalities, Behavior |
| 11 | BCAP31, CASP1, CCDC103, CDK15, EDC3, FCF1, FTH1, GMCL1, ITGA9, Kallikrein, KLK10, KRT14, L2HGDH, let-7a-5p (and other miRNAs w/seed GAGGUAG), LRIF1, miR-224-5p (miRNAs w/seed AAGUCAC), miR-516a-5p (miRNAs w/seed UCUCGAG), OR6C70, RIF1, Serine Protease, SUS3, TBC1D22B, TNFRSF19, UGT1A7 (includes others), ZSCAN20 | 1 | 1 | Developmental Disorder, Hereditary Disorder, Organismal Injury and Abnormalities |
| 12 | AMY1C (includes others), CELSR1, CELSR2, DHX32, DNM1, DNM2, DNM3, FAT3, FAT4, FREM2, FZD3, HECTD3, HERC1, IFFO1, IGHA1, KIAA0232, LRP4, POLA2, POLE, SORL1, TBC1D17, URI1, WDR62, ZBBX, ZG16B, ZZEF1 | 1 | 1 | Cellular Function and Maintenance, Cellular Assembly and Organization, Nervous System Development and Function |
| 13 | B3GNT2, CEACAM21, CHST8, CSNK2B, DEFA1 (includes others), FAM19A4, GLRX3, GPAA1, GPC3, GPHA2, INSL5, MOXD1, OBP2A, PON2, PTCH1, PTPRK, SCGB1D1, SIAE, SLAMF1, SPCS1, SPPL2B, SUMO2, SUMO3, SUS4, TAZ, TMEM25, WDR5 | 1 | 1 | Cellular Development, Hereditary Disorder, Immunological Disease |