

Table S2. 5023 EMTAGs used in this study

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|----------|----------|----------|----------|----------|----------|----------|---------|----------|----------|----------|----------|----------|----------|----------|-----------|---------|----------|----------|-----------|
| ABI3BP | ACTA2 | ADAM12 | ANPEP | APLP1 | AREG | BASP1 | BDNF | BGN | BMP1 | CADM1 | CALD1 | CALU | CAP2 | CAPG | CCN1 | CCN2 | CD44 | CD59 | CDH11 |
| CDH2 | CDH6 | COL11A1 | COL12A1 | COL16A1 | COL1A1 | COL1A2 | COL3A1 | COL4A1 | COL4A2 | COL5A1 | COL5A2 | COL5A3 | COL6A2 | COL6A3 | COL7A1 | COL8A2 | COLGAL1 | COMP | COPA |
| CRLF1 | CTHRC1 | CXCL1 | CXCL12 | CXCL6 | CXCL8 | DAB2 | DCN | DKK1 | DPYSL3 | DST | ECM1 | ECM2 | EDIL3 | EFEMP2 | ELN | EMP3 | ENO2 | FAP | FAS |
| FBLN1 | FBLN2 | FBLN5 | FBN1 | FBN2 | FERMT2 | FGF2 | FLNA | FMOD | FN1 | FOXC2 | FSTL1 | FSTL3 | FUCA1 | FZD8 | GADD45A | GADD45B | GAS1 | GEM | GJA1 |
| GLIPR1 | GPC1 | GPX7 | GREM1 | HTRA1 | ID2 | IGFBP2 | IGFBP3 | IGFBP4 | IL15 | IL32 | IL6 | INHBA | ITGA2 | ITGA5 | ITGAV | ITGB1 | ITGB3 | ITGB5 | JUN |
| LAMA1 | LAMA2 | LAMA3 | LAMC1 | LAMC2 | LGALS1 | LOX | LOXL1 | LOXL2 | LRP1 | LRRIC15 | LUM | MAGEE1 | MATN2 | MATN3 | MCM7 | MEST | MFAP5 | MGP | MMP1 |
| MMP14 | MMP2 | MMP3 | MSX1 | MXRA5 | MYL9 | MYLK | NID2 | NNMT | NOTCH2 | NT5E | NTM | OXTR | P3H1 | PCOLCE | PCOLCE2 | PDGFRB | PDLIM4 | PFN2 | PLAUR |
| PLOD1 | PLOD2 | PLOD3 | PMEP1 | PMP22 | POSTN | PIIB | PRRX1 | PRSS2 | PTHLH | PTX3 | PVR | QSOX1 | RGS4 | RHOB | SAT1 | SCG2 | SDC1 | SDC4 | SERPINE1 |
| SERPINE2 | SERPINH1 | SFRP1 | SFRP4 | SGCB | SGCD | SGCG | SLC6A8 | SLIT2 | SLIT3 | SNAI2 | SNTB1 | SPARC | SPOCK1 | SPP1 | TAGLN | TFPI2 | TGFB1 | TGFB1 | TGFBR3 |
| TGM2 | THBS1 | THBS2 | THY1 | TIMP1 | TIMP3 | TNC | TNFAIP3 | TNFRSF11 | TNFRSF12 | TPM1 | TPM2 | TPM4 | VCAM1 | VCAN | VEGFA | VEGFC | VIM | WIPF1 | WNT5A |
| SNAI1 | ZEB1 | CDH1 | TWIST1 | CTNNB1 | STAT3 | HIF1A | AKT1 | MIR200C | ZEB2 | SMAD3 | EGFR | MIR200B | SMAD2 | MIR200A | NOTCH1 | MIR21 | ILK | GSK3B | NFKB1 |
| HMGA2 | CXCR4 | TP53 | EGF | MTDH | MAPK1 | BM11 | PTEN | MTOR | RAC1 | MMP9 | GLI1 | MET | SMAD4 | KLF4 | MYC | SMAD7 | SIRT1 | CTGF | CCR7 |
| PROM1 | TGFB2 | PIK3CA | MIR34A | RHOA | AR | CD274 | FOXM1 | YAP1 | SRC | MIR30A | MIR205 | MALAT1 | JAK2 | WWTR1 | TNF | RELA | MAPK3 | MIR221 | MIR145 |
| HGF | TWIST2 | TP63 | NANOG | SP1 | S100A4 | PTK2 | MAPK7 | MUC1 | HMGB1 | EZH2 | ESR1 | HOTAIR | CAV1 | SOX2 | BMP7 | BMP4 | SHH | PTGS2 | POU5F1 |
| KRAS | ID1 | H19 | FGFR1 | FOXQ1 | MTA1 | GRHL2 | TRPS1 | ADAM17 | T | AURKA | BMP2 | CCL18 | CCL2 | ROCK1 | MIR429 | ESRP1 | PPARG | NTRK2 | EPCAM |
| MIR93 | MIR204 | MIR203A | MIR186 | MIR155 | MIR148A | HDAC1 | KDM1A | AGER | NUMB | WNT1 | EZR | TLR4 | TCF3 | STK11 | UCA1 | CCL21 | CCL20 | LEF1 | PAX2 |
| DDR2 | YBX1 | MCAM | MIR26B | MIR23A | MIR214 | MIR19A | MIR150 | MIR141 | MIR124-1 | MIR101-1 | LCN2 | IL17A | IL1B | IGF1R | IGF1 | HSF1 | HNF4A | FOXA1 | ERBB2 |
| EGR1 | KLF8 | NES | LINC-ROR | MIR300 | NUAK1 | DCLK1 | CLDN1 | RUNX2 | TET1 | TP73 | THBD | TGFB2 | TGFB3 | STIM1 | SRF | BRCA1 | SOX9 | SOX4 | FSCN1 |
| SIX1 | SATB1 | BCL2L1 | OVOL2 | MKL1 | NDRG2 | EIF5A2 | PARD3 | PRKCI | AXL | FBXW7 | TRIM33 | PAK1 | OSM | ROR2 | MSX2 | MIR9-1 | MIR30C2 | MIR30C1 | MIR29C |
| MIR29B1 | MIR26A1 | MIR137 | MIR130B | MIR10B | MIR106B | MIR106A | MIRLET7 | LEP | LICAM | RHOC | CYR61 | BIRC5 | HSPA5 | HOXA13 | ANXA2 | PDCD4 | GATA3 | ALK | FLOT2 |
| FOXO3 | FOXC1 | FGFR2 | AKT2 | EPAS1 | DNMT1 | CUX1 | CTNND1 | CTBP1 | MAPK14 | NLRP3 | CYTOR | AGR2 | NDRG1 | CDKN1B | CD24 | TNFSF15 | GDF15 | TP53INP1 | TM4SF5 |
| WNT3A | WISP2 | NRP1 | ACTL6A | CUL4A | FZD7 | FOSL1 | PDGFD | VASH2 | TBL1XR1 | TNFAIP8 | YWHAQ | YY1 | XBP1 | WT1 | VDR | CCR2 | MIR655 | NR2C2 | TIMP2 |
| TGFB1 | TGFA | TERT | MIR630 | MIR590 | TCF4 | BSG | SPRR2A | SKIL | SMURF2 | SFRP2 | CXCL5 | CCL5 | BCL2 | RB1 | PTPN11 | MIR491 | MIR485 | CEMP1 | SALL4 |
| TMPRSS4 | MAPK8 | PRKCA | MEG3 | TUG1 | SEMA4C | PIN1 | PGF | SERPINF1 | GOLM1 | PAWR | MIR375 | MIR361 | NODAL | ATM | MUC4 | MMP7 | FOXO4 | MAP3K4 | MAP3K3 |
| MDM2 | MIR96 | MIR31 | MIR222 | MIR218-1 | MIR181A1 | MIR194-1 | MIR185 | MIR182 | MIR181A2 | MIR17 | MIR143 | MIR130A | MIR128-1 | MIR10A | JUNB | IGFBP7 | HSPB1 | HSPA4 | HOXB7 |
| FOXA2 | HMOX1 | HDGF | HAS2 | SENP1 | RGCC | NEAT1 | GPC3 | USP22 | FOXO1 | EFEMP1 | VWCE | F2R | ELF5 | EPHA2 | EDN1 | JAG1 | DLX2 | CTSL | PARP1 |
| CRKL | TXNIP | SPRY2 | ADAM10 | TRIM28 | NAMPT | MIR1271 | HDAC6 | ZBTB33 | CDC42 | HS3ST3B1 | SETDB1 | HDAC4 | UBE3C | BAG3 | MAGED1 | CD36 | ABCG2 | NTN1 | ADIPOQ |
| RNF8 | ACVR1 | CCNA2 | SQSTM1 | SPHK1 | HDAC3 | WISP3 | NRP2 | RUNX3 | STC2 | RUNX1 | TNFSF11 | BHLHE40 | LGR5 | HAVCR2 | AFAP1L2 | DYRK2 | PITPNM3 | AXIN2 | AXIN1 |
| NCOA3 | ACTN4 | ESRP2 | PEAK1 | CA9 | YWHAZ | KDM6A | TUFT1 | TPBG | TP53BP2 | TLE1 | TIAM1 | TGFB1I1 | TEAD1 | TCF21 | MIR616 | MIR612 | MAP3K7 | STAT5B | STAT5A |
| STAT1 | BRAF | SRI | SOX5 | BMP6 | SKP2 | SIM2 | SDC2 | CCL19 | CEACAM | RPS6KB1 | ALX4 | RNH1 | CNDN1 | KDM5A | RAF1 | CIP2A | MTA3 | MIR506 | MIR497 |
| MIR494 | MIR489 | PBXIP1 | PAK5 | CTNNBIP | KLK6 | PRSS8 | PROP1 | MAP2K1 | ERBIN | BTBD7 | PRKAA1 | TRIM62 | RNF111 | IL17RD | PKD1 | CDK14 | SUFU | IL23A | MAGEC2 |
| HOOK1 | PDCD1 | CRIM1 | EGFL7 | PCBP1 | F11R | FURIN | PEBP1 | P2RY2 | NFKBIA | NF1 | NCL | CEACAM | MIR196B | MIR373 | MIR135B | ZFAS1 | ASCL1 | MGAT3 | MDK |
| MCL1 | MIR34C | MIR33A | MIR30D | MIR301A | MIR27A | MIR24-1 | MIR224 | MIR223 | MIR218-2 | MIR206 | MIR20A | MIR199A1 | MIR193A | MIR191 | MIR187 | MIR183 | MIR16-1 | MIR15B | MIR15A |
| MIR153-1 | MIR146A | MIR135A1 | MIR134 | MIR132 | MIR124-3 | MIR124-2 | MIR122 | MIR101-2 | MIR100 | LMNA | LGALS3 | LASP1 | LAMA5 | KIT | CD82 | JARID2 | ITGB4 | ITGA3 | AQP5 |
| AQP3 | IL11 | CXCR2 | MACC1 | HES1 | PRMT1 | HRAS | HOXB9 | HOXA10 | HMGB3 | HIC1 | HDAC2 | H2AFX | GSN | UHRF1 | CPS1-IT1 | HIPK2 | GRN | GPR32 | ANG |
| GLI2 | GJB1 | NOX1 | LRIG1 | SLC39A6 | FZD2 | FUT4 | BRD4 | SIRT3 | DICER1 | SATB2 | BOP1 | EPB41L3 | KDM4B | FGF9 | FGF1 | ETV4 | ESRRA | ESR2 | ERG |
| EPS8 | EPO | EPHB2 | GKN2 | TET3 | AHR | E2F1 | HBEGF | DLX4 | DAB2IP | PAQR3 | CTS2 | GLIPR2 | SLC30A7 | RBFOX3 | CSNK2B | CRYAB | LINC0026 | CRK | CREB1 |
| CLDN7 | CLDN4 | CLU | UHRF2 | EHMT2 | PROKR1 | WASF3 | CFTR | KHDRBS1 | TRIM16 | CEBPB | CEBPA | HOXB13 | TACC3 | CDX2 | FAM3C | CDKN2A | CDK5 | NPTN-IT1 | SPRY4-IT1 |
| ZEB2-AS1 | MIR1236 | MIR675 | FGF19 | RBM8A | MRC2 | GAB2 | CD151 | HDAC9 | SEMA3E | VGLL4 | CD63 | MICAL2 | ISG15 | PITPNM1 | CXCL14 | ONECUT2 | ROCK2 | RASAL2 | EIF2AK3 |
| MAP4K4 | QKI | HAND1 | CYP7B1 | MUC16 | FOXP2 | ZFYVE9 | SLC9A3R | KL | LHX2 | IGSF8 | NREP | CD14 | NOG | LRRFIP1 | MARVELIAR | HGF2 | SMC3 | LATS1 | NMI |
| AOC4P | PSTPIP1 | SOCS3 | HS6ST2 | CCNG2 | CDKL2 | BTRC | CCND2 | TIMELES | NR1I2 | KAT2B | INPP4B | SCEL | TNFRSF11 | TNFSF10 | TNFSF12 | CBR1 | EED | ABCC3 | CBLB |
| EIF3I | IRS2 | SCIN | IKBK | PIK3R3 | AJUBA | PPM1D | GEMIN2 | USMG5 | SEMA7A | LOXL3 | HINT2 | SPZ1 | TEAD2 | FOXN1 | CUL3 | KAT8 | SPOP | MARVELI | ITCH |
| YPEL3 | CAPZA1 | CAPNS1 | SMC1A | USP9X | VANGL1 | TRIM11 | WNT5B | IFT88 | SETD7 | PTP4A2 | MED28 | ELL3 | NUBPL | FBXO11 | MICALL2 | LIN28A | TRPM8 | DDR1 | ZYX |
| ZNF217 | PCGF2 | ZNF143 | MIR802 | MIR454 | MZF1 | ZFP36 | WNT1 | WNT6 | VTN | VSNL1 | VHL | VCP | UCP2 | UCHL3 | TYRO3 | TYMS | TXN | TUFM | C5AR1 |
| PHLDA2 | TSC2 | TSC1 | MIR663A | TRPC5 | ACTG2 | TP53BP1 | TNXB | TNS1 | TLN1 | TLE4 | TJP1 | NR2F2 | TFPC2 | TDGF1 | MIR92B | MIR646 | MIR639 | MIR638 | TCF7 |
| MIR573 | TBX3 | TBX2 | TAZ | KLF5 | ST14 | SREBF1 | SOX3 | SON | SOD2 | MIR487B | STK33 | SLC2A1 | SKP1 | SKI | ST8SIA1 | ST6GAL1 | SLAH2 | SLAH1 | SHC1 |
| CPEB1 | AKTIP | SFTPC | SOX17 | SEMA4A | ELSPBP1 | GOLPH3 | CX3CL1 | CCL25 | CCL22 | CCL3 | SERPINB4 | ATXN1 | SALL1 | S100P | S100A9 | S100A8 | S100A6 | S100A2 | ROS1 |
| RORC | EXOC4 | BCL6 | RGS3 | RDX | HAS2-AS1 | RBP2 | SENP2 | NTN4 | RASA1 | PRUNE1 | CXCL16 | PTPRZ1 | NKX3-2 | PTPN14 | PTPN6 | SCUBE2 | EPB41L5 | PTN | STIM2 |
| MTUS1 | MKL2 | MIR522 | MIR517C | MIR520G | MIR452 | RAB22A | CAMK1D | TBX20 | POGLUT1 | PROX1 | AJAP1 | PRKCQ | HDAC8 | PAG1 | KDM3A | FOXJ2 | PRKCE | PRKAA2 | FERMT1 |
| MIR449A | LGR4 | BRF2 | IMP3 | PTPA | PPP1R8 | GIPC2 | POMC | ERRFI1 | MBD3 | PLS3 | PLAGL2 | PLA2G4A | PIK3R1 | SERPINI1 | ABCBI | STK26 | WWOX | UIMC1 | CYB5R1 |

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| ACKR4 | PDGFB | LIMA1 | PRRX2 | PDE4A | UBR5 | PLAC8 | TDFP3 | PCSK1 | ING4 | ANGPTL4 | PCMT1 | GMNN | PCDH9 | PBX3 | PARD6A | NEUROG1 | IL22 | PRDX1 | DUXAP9 |
| OPRM1 | MIR424 | MIR382 | MIR381 | NUCB2 | ROR1 | NTRK3 | NPPA | NOV | NOTCH4 | NOTCH3 | NME1 | NKX6-1 | NFIL3 | NFIC | MYL2 | MYD88 | MYCN | MYBL2 | MYB |
| TRIM37 | MUC2 | MST1R | MSN | MIR345 | MIR331 | MIR326 | MMP19 | MMP13 | MMP11 | MMP8 | MLLT3 | ASCL2 | MITF | CXCL9 | MEF2D | MDM4 | ART1 | SMAD9 | ARRB1 |
| MIR7-1 | MIR30E | MIR30B | MIR302A | MIR29A | MIR26A2 | MIR25 | MIR24-2 | MIR23B | MIR217 | MIR216A | MIR211 | MIR208A | MIR199A2 | MIR190A | MIR181B1 | MIR153-2 | MIR152 | MIR149 | MIR144 |
| MIR136 | MIR129-1 | MIR125B1 | MIRLET7 | MIRLET7 | MIRLET7 | ILYN | LTBP1 | LRP6 | LMNB1 | LIMS1 | LIF | LGALS9 | USP17 | L9PRHOG | NANOG | PKRT19 | KMT5A | KRT18 | KRT17 |
| KRT8 | KRT7 | KIF5B | KDR | KCNN4 | KCNH1 | JAK3 | JAG2 | ITGB6 | IRS1 | IRF6 | AQP9 | ITGA6 | FOKK2 | IL18 | IL6R | IL4 | MCRIP1 | IRGM | NANOS3 |
| IDH2 | IDH1 | IRF8 | RAB43 | HTN1 | HSP90AA | HSPB2 | BIRC2 | HRG | HPGD | HOXD9 | APBB1 | HOXA9 | HNRNP | PA1NR4A1 | HK2 | HIP1 | EHD2 | ANXA5 | H2AFZ |
| ANXA1 | REPIN1 | OLA1 | CARD10 | GSK3A | BRD7 | TBK1 | FHOD1 | GRIN1 | TUSC7 | CAVIN1 | GPI | GOLGA2 | GLRX | GLS | EML4 | GLO1 | GLS2 | AGO2 | DKK3 |
| BBC3 | LYPD3 | GJB2 | AMHR2 | GH1 | GATA6 | GATA1 | GAPDH | SIN3A | LETMD1 | BRMS1 | ARMC8 | TXN2 | SPDEF | FSCN2 | CBY1 | CERS6 | NR5A2 | FSHR | IL27 |
| ZMYND8 | CCNDBP1 | PADI4 | MMD | SCRIB | SUZ12 | NCSTN | ARHGEF1 | NEDD4L | FMR1 | EXOC7 | FLT1 | KDM6B | PLXND1 | PEG10 | SNW1 | ALDOB | CEP164 | FKBP5 | PHLDA1 |
| XRN2 | FHL2 | FHL1 | SCUBE3 | FCN2 | ZEB1-AS1 | FBP1 | FASN | ALDH1A1 | F3 | F2RL2 | F2 | ETV1 | ETS2 | ETS1 | ESRRB | ALAD | ERN1 | ERF | EPHB3 |
| EPHA8 | EPHA4 | EP300 | ENO1 | ENG | FBXO45 | RPL22L1 | ELK3 | ELK1 | CYP4Z1 | ELAVL1 | EIF5A | EIF4G1 | EIF4E | EIF2S1 | RMST | EFNB2 | EEF1D | EDNRA | ECT2 |
| DVL2 | AGTR1 | DNMT3B | DDX5 | DAPK1 | CYP3A5 | PEBP4 | ZNF746 | CYP1B1 | CMTM8 | CSPG4 | CSK | CSF2 | CRP | CRMP1 | FOXR2 | CREBBP | ADM | KLF6 | COL8A1 |
| KLF17 | CNTN1 | MSI2 | CCR6 | CCR5 | CLK2 | LRG1 | CKS2 | BATF2 | CIRBP | MGLL | VSIG4 | EGLN3 | PKP3 | RASSF1 | PTP4A3 | BVES | FOXN3 | PIM2 | EHD1 |
| PPARGC1 | PGRMC1 | HPSE | CCR9 | MTHFD2 | KDM5B | GNA13 | LEFTY1 | PDPN | CXCL13 | CEACAM | FST | MAD2L2 | TAB1 | RACK1 | PAK4 | CDKN1A | SPRY1 | MSLN | PSME3 |
| LINC0118 | CDK3 | G3BP1 | TRAP1 | CDH13 | NR1H3 | MICA | OCN | DNAJB6 | MIR1181 | CDH5 | FRAT1 | PDCD6IP | HDAC5 | MIR124-2 | MIR875 | MIR888 | CDH1 | CDH11 | CLDN2 |
| CLDN4 | DDR2 | EPCAM | ESRP1 | FAP | GLI1 | KRT18 | KRT19 | KRT20 | KRT7 | KRT8 | LUM | MUC1 | PALLD | PDGFRB | PDPN | POSTN | SPARC | TNC | CLDN3 |
| CLDN7 | DSP | FN1 | FOXC2 | MMP2 | MMP3 | SNAI1 | SNAI2 | SOX10 | TWIST1 | TWIST2 | VIM | ZEB1 | ZEB2 | ADH1B | AKR1C2 | AOPEP | CA2 | CADM3 | CD24 |
| CDH1 | CELSR2 | COBL | COL4A2 | CRIP2 | CXADR | CXCL1 | DCN | DKK1 | FBLN5 | FGF2 | FGFBP1 | FN2 | FPR1 | FPR2 | FSTL1 | FXDY3 | GLDC | IGFBP7 | IL1RL1 |
| IL2RA | ITGA10 | KRT15 | MME | PALMD | PCSK1 | PLAT | S100A8 | SERPINA1 | SERPINE2 | SFRP1 | SLC39A8 | SRPX | ST14 | ST6GALN | SULF1 | VCAN | WNT5A | ACKR3 | ATF3 |
| B2M | BCL3 | BMP2 | CCN2 | CD68 | CDH12 | CDH15 | CDH2 | CFH | CHKA | COL6A1 | COL6A2 | CTS2 | CXCL6 | CYP1B1 | CYP2F1 | DUSP1 | EGR2 | F3 | GALK1 |
| GAS1 | GRB7 | HTRA1 | ID2 | ID4 | IFIT1 | IFIT3 | IFITM3 | INHBA | IRF6 | IRF7 | ISG15 | ITPR1 | JUP | KITLG | KLF2 | KRT14 | KRT5 | LEF1 | MMP12 |
| MMP13 | PADI2 | PCOLCE | PDGFRA | PHGDH | PKP1 | PLA2G7 | PLK2 | PMP22 | PTGS1 | RNASET2 | SDC2 | SERPINB5 | SLPI | STAT1 | STAT5A | TGFB3 | TGM2 | THBS1 | TIMP3 |
| UPP1 | ZNF239 | AHNAK | AKT1 | BMP1 | COL1A2 | EGFR | FZD7 | ILK | ITGA5 | ITGB1 | JAG1 | MMP9 | MST1R | NOTCH1 | PTK2 | SMAD2 | STAT3 | STEAP1 | TGFB1 |
| TMEM132 | WNT11 | CDH11 | DKK3 | FZD1 | IGF1 | IGFBP5 | LTBP1 | MMP14 | NRP1 | NRP2 | NXN | PLAU | PRICKLE1 | SFRP2 | SFRP4 | THBS2 | THBS4 | ADGRF1 | ADGRG1 |
| ANKRD22 | ANTXR2 | AP1M2 | AXL | BSPRY | C1ORF11 | CARD6 | CDH3 | CDS1 | CRB3 | ELMO3 | ENPP5 | EPB41L5 | EPHA1 | EPN3 | EPPK1 | ERBB3 | EVPL | F11R | GALNT3 |
| GALNT5 | GRHL1 | GRHL2 | HNMT | ITGB6 | KDF1 | KLC3 | KRTCAP3 | LIX1L | MAL2 | MAPK13 | MPP7 | MPZL2 | PATJ | PPARG | PRR5-ARIP | PRSS22 | PRSS8 | RAB25 | RBMPPMS |
| S100A14 | SCNN1A | SERINC2 | SH3YL1 | SHROOM | SPINT2 | SSH3 | STAP2 | TACSTD2 | TC2N | TJP3 | TMC4 | TMEM125 | TMEM30E | TMEM45E | TNFRSF2 | TSKU | XXYL1T | ECM1 | FBN2 |
| FUCA1 | GPC1 | LAMA2 | LRP1 | PVR | CAV1 | CTNND1 | FSCN1 | MIR-200 | MIR-369-5 | MIR-450A | MIR-542-5 | MIR155 | MIR203A | MIR23B | MIR29C | MIR370 | TCF4 | TGFB2 | GSC |
| TJP1 | ALDH1A1 | ASPA | BMP7 | CTNNB1 | CXCL13 | DAB2IP | ERBB2 | ESR2 | FOXA2 | FOXP3 | FZD4 | GLI3 | GSK3B | IGF1R | IGF2 | ITGA6 | MMP7 | PTCH1 | PTCH2 |
| PTPRN2 | SHH | SOX9 | SRC | TCF3 | WNT5B | ADAM9 | AEBP1 | ANGPTL2 | ASAP1-IT | ATP2B1 | CALM1 | CDKN1A | CLEC11A | COL1A1 | COL3A1 | COL5A1 | COL6A3 | LYR2 | EMILIN1 |
| GNS | HSPG2 | IL13RA1 | LAMA4 | LAMB1 | LIMS1 | LINC0031 | LRRC32 | MAFB | MRC2 | MRPL52 | NID2 | NNMT | PDE8A | PHTF2 | PKD2 | PLIN3 | PLXDC1 | RABGGT | RIPOR1 |
| SEC23A | SEMA5A | SHOX2 | SKAP2 | TGFB1I1 | THY1 | TPP1 | ABCA12 | ABCC4 | ACSL4 | AGPAT5 | AGR2 | AIF1L | ANLN | ANP32E | ANXA1 | ANXA9 | AP1S2 | ARL4A | ARSJ |
| ATCAY | AURKB | BIRC3 | CAMK4 | CCDC82 | CCDC88A | CD83 | CEBPA | CELSR1 | CENPW | CGAS | CHN1 | CIP2A | CKMT1A | CKMT1B | CKS2 | CLDND1 | CLSPN | COMMDD8 | CTNNAL1 |
| DCBLD2 | DDX60 | DDX60L | DKFZP58 | DNAJB4 | DNER | DPH3 | DUBR | E2F7 | ECHDC1 | EFNA1 | ELF3 | ESRP2 | EST_AA2 | EST_AA4 | EST_AA5 | EST_AA6 | EST_A119 | FABP5 | FAM92A |
| FAM92A1 | FLJ32810 | FLJ36445 | GALNT1 | GBP1 | GCA | GGCT | GNAI1 | GOLGA2 | GORAB | GULP1 | HDAC9 | HID1 | HJURP | HMGA2 | ICA1 | IFI44 | IFIT2 | IGF2BP3 | IGSF3 |
| IGSF9 | IKBIP | IMPA1 | KIF21A | KRT8P45 | L2HGDH | LACTB | LAD1 | LIFR | LLGL2 | LNX2 | LOC12698 | LOC20245 | LOC38969 | LOC40158 | LOC44028 | LRRC1 | LYN | LYST | MACC1 |
| MAK16 | MAP3K1 | MAP7D3 | MARVELI | MCAM | MGAT5B | MLPH | MPZL3 | MREG | MSX2 | MYB | MYBL1 | MYH14 | MYO5B | P2NCAPG | NOL8 | OCN | OSTM1 | PAG1 | PBK |
| PDP1 | PIK3R3 | PKP3 | PLEKHF2 | PMAIP1 | PNMA2 | POLK | POT1 | PPM1L | PREX1 | PRKCH | PROM2 | PRR15L | PRXL2A | PTTG1 | PTTG3P | PUM3 | RAD18 | RB1CC1 | RBBP8NL |
| RBM47 | RND3 | RP2 | RP6-213H | SACS | SAMD9 | SAPCD2 | SCML1 | SELENBP | SHTN1 | SLC29A2 | SLC9A3R | SMC5 | SOAT1 | SPDEF | SPDL1 | SPINT1 | STRIP2 | SUSD5 | SYNE2 |
| SYNM | TBC1D30 | TOM1L1 | TPD52 | TSPAN1 | TSPAN13 | TSPAN15 | TTC27 | TTK | UBLCP1 | USP33 | VAMP8 | WDCP | WDR19 | WDR47 | XM_16551 | XM_37463 | XM_49685 | YBX2 | ZG16B |
| ZMYM1 | ZNF788P | ZNF860 | ACP1 | CYP27B1 | CYP4F11 | DDR1 | FADS1 | GNAL | IL1RN | MAP7 | PTPN3 | RGS4 | SNCA | TRIM29 | WWC1 | DAB2 | FMO1 | GBP3 | HIF1A |
| MTHFD2 | PPIC | PROCR | SYTL1 | MMP1 | SDC1 | SMAD3 | ACTA1 | AHNAK | ANGPTL4 | BCL2 | BCL9 | CALCR | CALD1 | CAMK2N | CASP3 | CAV2 | CCNB2 | CCND1 | CD36 |
| CD47 | CDC42 | CLDN12 | CLDN23 | COL5A2 | DACT1 | DES1 | DHFR | DLG1 | DSC2 | EGF | ELANE | ESR1 | EZH1 | EZH2 | FGF1 | FGF5 | FHL1 | FLNA | GADD45A |
| GADD45B | GN11 | HRG | IGFBP4 | ITGAV | ITGB3 | LAMB3 | LOXL2 | MAP1B | MITF | MMP10 | MSN | MTA3 | NLK | NODAL | NPPB | NRG1 | NUDT13 | PARP1 | PDGFB |
| PLEK2 | PLG | PTP4A1 | PXN | RAC1 | RGS2 | SCARB2 | SCRIB | SERPINE1 | SNAI3 | SOX11 | SPPI1 | TFPI1 | TFPI2 | TIMP1 | TMEFF1 | VPS13A | WEE1 | WNT2B | WT1 |
| YWHAG | ACPP | ADAM23 | ADAMTS | ADGRF1 | AFF3 | AGR3 | AK5 | AKAP12 | ALDH3B2 | ALPK2 | ANK3 | ANKRD1 | ANTXR1 | ANXA6 | AOX1 | AQP3 | ARHGAP8 | ARHGDIB | ARMCX1 |
| ATP2C2 | ATP8B2 | ATP8B3 | B3GNT3 | BDNF | BICC1 | BICDL2 | BLNK | BMERB1 | BNC2 | BVES | C11ORF52 | C11ORF21 | C1S | CAP2 | CAVIN1 | CCL2 | CDH4 | CEACAM | CEACAM6 |
| CGN | CLDN11 | CLIP3 | CMTM3 | CNKSRI | CNTNAP2 | COL12A1 | COL4A1 | COLGAL1 | CPA4 | CTAGE4 | CYBRD1 | DAPP1 | DENND2 | IDIO2 | DLC1 | DMKN | DOCK10 | DPYSL3 | EDIL3 |
| EHF | ELF5 | ELOVL2 | EML1 | EMP3 | EPDR1 | ERP27 | EV12A | F2R | FA2H | FAAH2 | FAM110C | FAM171A | FAM83A | FAT4 | FBN1 | FBP1 | FGD2 | FGFR1 | FLRT2 |
| FUT1 | FUT3 | GCNT3 | GFPT2 | GJB6 | GLIPR1 | GLIPR2 | GNB4 | GOLT1A | GPC6 | GPR176 | GPR87 | GPX2 | GRAMD2 | GREM1 | GSDME | HAS2 | HEG1 | HOOK1 | HS3ST1 |

| | | | | | | | | | | | | | | | | | | | |
|---------|----------|----------|----------|-----------|---------|----------|----------|----------|----------|-----------|-----------|-----------|----------|----------|---------|----------|---------|---------|-----------|
| HS3ST3A | HS6ST2 | IL13RA2 | ILDR1 | INAVA | INPP4B | JAM3 | KIRREL1 | KLK10 | KLK5 | KLK6 | KLK8 | KRT16 | LAMA3 | LAMC2 | LCN2 | LCPI | LGALS1 | LHFPL6 | LIPG |
| LOX | LRATD1 | LRATD2 | MARVEL1 | MB | MBNL3 | MISP | MRAS | MSRB3 | MUC20 | MYO5B | NAP1L3 | NAV3 | NDN | NECTIN4 | NEGR1 | NEXN | NID1 | NPNT | NUDT11 |
| OR2A4 | OVOL2 | P3H2 | PAK6 | PAPPA | PDE7B | PLA2G10 | PLAGL1 | POPCD3 | POU2F3 | PPL | PPP1R14C | PRKD1 | PRR15 | PRR16 | PTAFR | PTGIS | PTX3 | RAPGEF5 | RASEF |
| RASGEF1 | RBM24 | RBMS3 | RBPM52 | RECK | RFLNB | RFTN1 | S100A9 | S100P | SCEL | SH2D3A | SIRPA | SLC2A3 | SLC47A1 | SLC6A14 | SORBS2 | SPINK5 | SPRR1A | SPRR1B | SPRR3 |
| SRGN | ST3GAL2 | STEAP4 | STX19 | SYDE1 | SYK | SYT7 | TBXA2R | TMC5 | TMEM158 | TMEM47 | TMPRSS1 | TMPRSS1 | TMPRSS4 | TMSB15A | TNFRSF1 | TOX3 | TRPA1 | TTC22 | TTC28 |
| TTC39A | TTC9 | TTL7 | TUB | TUBA1A | UCHL1 | VTCN1 | WDR72 | WFD2 | WIPF1 | ZCCHC24 | ZFPM2 | A2M | AARD | ABLM1 | ACSS1 | ACTBL2 | ADRA1B | AHNAK2 | ALDH1A1 |
| ARHGEF2 | ARID5B | ARL4D | ARTN | BCAM | BCAR3 | C16ORF7 | CAPG | CARD10 | CD22 | CD274 | CD44 | CDCP1 | CIB1 | CLIP4 | COL13A1 | COL17A1 | COTL1 | CTSB | CXCL8 |
| CYB5B | CYP51A1 | CYSTM1 | DHCR7 | DOCK2 | DSG2 | DTX4 | DUSP7 | DYSF | ECM1 | EFHD2 | EFNB1 | ELK3 | EMP1 | EPHX4 | EPS8 | ETS2 | FAM167B | FAM214B | FAM25A |
| FDFT1 | FGFR2 | FOSL1 | FOXQ1 | FRMD5 | FTSJ1 | FURIN | FUT8 | GAD1 | GALE | GEM | GJB3 | GPR158 | GSTM3 | GSTM4 | GUCY1A1 | HHEX | HHLA1 | HMGA1 | HMGC51 |
| HMOX1 | HMSD | HSD17B7 | IGFBP6 | IL1R2 | IL4R | INSIG1 | IQCN | ISG20 | ITGBL1 | KCNMA1 | KCNM4 | KLF10 | KLF15 | KRT4 | LBH | LEMD1 | LIF | LPCAT1 | LRRD1 |
| LY6E | LYPD1 | MAG | MALL | MAP4K4 | MGLL | MGP | MSMO1 | MT2A | MUC16 | MVD | MCMN | MYOF | NIBAN1 | NOG | NPR3 | NTNG1 | OC1AD2 | PADI1 | PADI3 |
| PCED1B | PCSK9 | PDZK1IP1 | PHLDA1 | PHLDA2 | PIR | PLAUR | PLP2 | PMEFA1 | POTEI | PPM1J | PTHLH | PTPRH | QSOX1 | RAB20 | RAC2 | RHOC | RPS6KA4 | RUNX1 | S100A16 |
| S100A2 | S100A3 | S100A4 | S100A5 | S100A6 | SCARA3 | SERPINB1 | SERPINB2 | SERPINB8 | SFN | SH2D5 | SLC1A4 | SLC37A2 | SMIM29 | SMO | SOCS2 | SOSTDC1 | STRA6 | SYTL2 | TBC1D2 |
| TGFA | TGFB1 | TINAGL1 | TMEM37 | TMPRSS3 | TNFAIP3 | TNFSF9 | TNNC1 | TPBG | ULBP2 | WARS1 | WNT4 | WNT6 | XDH | ZNF185 | CDH2 | HGF | HOXA5 | CXCL10 | IFI16 |
| IFI27 | IFI30 | IFIH1 | IFITM1 | IFITM2 | IRF1 | IRF9 | IRGM | MX1 | OAS1 | OAS2 | OAS3 | PHYN1 | PSME1 | SOCS1 | STAT2 | ABCA1 | ABCA12 | ABHD17C | ABLIM3 |
| ACKR3 | ADAM19 | ADAMTS | ADAMTS | ADAP1 | ADH1A | ADH1C | ADIRF | ADORA2E | AGAP2-A | AKAP1 | AKR1B10 | AKT3 | ALDH3A1 | ALDH3A2 | ALOX5 | AFAMY1C | ANKRD18 | ANKRD2C | ANKRD20A2 |
| ANO6 | AP1S3 | APCDD1 | APOC1 | ARHGAP2 | ARHGAP2 | ARHGAP2 | ARHGAP2 | ARHGEF4 | ARHGEF4 | ASPHD1 | B4GALNT | BBC01 | 7676 | BEND6 | BET1L | BIK | BMF | BPGM | BX004987 |
| C15ORF6 | C17ORF9 | C19ORF3 | C1ORF22 | C2ORF15 | C5AR1 | CA11 | CARHSP1 | CASZ1 | CAVIN2 | CBLC | CBR3 | CCDC57 | CCDC74B | CCDC80 | CCDC84 | CCDC88C | CD9 | CDC42BP | CEP170 |
| CES4A | CFD | CFI | CGB3 | CGNL1 | CHCHD10 | CHDH | CHRNA9 | CHST2 | CHSY1 | CLDN1 | CLMN | CMTM8 | CMTR1 | CNPY4 | COBLL1 | COL16A1 | COL27A1 | COL8A1 | COMTD1 |
| CPEB1 | CPLX1 | CSF1R | CTSC | CTSD | CTSL | CYFIP2 | CYP4X1 | DAPK2 | DBNDD2 | DDAH1 | DEFB103 | EDHRS9 | DIXDC1 | DNAH11 | DNAJB5 | DOK7 | DOP1A | DST | DYRK3 |
| E2F2 | ECHDC2 | ECSCR | EDN1 | EEF1A2 | EIF1AX | ELL3 | ENKUR | ENTPD2 | ENTPD8 | EPB41L4 | EPHA10 | EPS8L1 | EPS8L2 | ETS1 | EVA1A | EXOC6 | EXPH5 | FAAH | FAM114A1 |
| FAM184A | FAM201A | FAM225A | FAM225B | FAM92A1 | FBLIM1 | FBXO32 | FCSK | FDXR | FGFR3 | FILIP1L | FLJ22536 | FLJ25917 | FLJ36031 | FLJ45248 | FNDC4 | FRMD6 | FTL | GABARA1 | GALNT10 |
| GATM | GBP5 | GJA1 | GLB1L2 | GLS2 | GMPR | GNA12 | GNB5 | GPD1L | GPD2 | GPR68 | GRHL3 | GRTP1 | GSE1 | GSN | GSR | HCAR3 | HKDC1 | HRK | HS3ST3B1 |
| HSD11B2 | HSPA4L | ICAM1 | IER3 | IFFO1 | IGFBP2 | IKZF2 | IL18 | IL1R1 | IL20RA | IL24 | IL32 | IL41 | IL6R | INPP5D | IRF5 | ITGB2 | JAG2 | JARID2 | JAZF1 |
| JCAD | KATNALIK | KCNK2 | KCNK5 | KCNQ5-ITK | DEL3 | KIAA1217 | KIF3C | KRTAP19 | LAMA5 | LARP6 | LIMCH1 | LINC0023 | LINC0031 | LINC0208 | LMCD1 | LOC10050 | LRRC15 | LRRC73 | LRRC8C |
| LSR | LTBP2 | LY6D | MAF | MAGED2 | MAN1A1 | 45352 | MCRIP1 | MCUB | MDGA1 | MELTF | MERTK | METTL7 | AMEX3B | MFAP2 | MFS2 | MFS6 | MGC2328 | MGC4294 | MGC4473 |
| MIR31HG | MIR9-3H | CMLLT11 | MROH6 | MSANTD | MSC-AS1 | MXRA7 | MYH16 | MYO5C | NAGK | NAV1 | NCK2 | ND1 | NFIB | NOS1AP | NOXA1 | NPDC1 | NPHS2 | NPR2 | NR6A1 |
| NRCAM | NREP | NRIP3 | NT5E | NUP210 | ODAPH | OFD1 | OLFML2A | OR5L2 | P3H1 | P3H3 | P4HA2 | P4HA3 | PAEP | PAPSS2 | PARD6B | PCP2 | PDE4DIP | PDIA6 | PDLIM3 |
| PDLIM7 | PERP | PGM3 | PHLDB3 | PHOSPHO | PIK3C2B | PIK3CD | PIM3 | PKIG | PKP2 | PLAAT3 | PLAAT4 | PLEKHA6 | PLEKHG4 | PLEKH01 | PLOD2 | PLS1 | PLXNB1 | PM20D2 | PODNL1 |
| PPFIBP2 | PPP1R9A | PPTC7 | PRICKLE2 | PROC | PRODH | PRRG2 | PSCA | PSMD2 | PTGES | PTPN22 | PXDC1 | RAB13 | RAB17 | RAB26 | RAB31 | RAI14 | RCAN2 | RDM1 | RGCC |
| RGS17 | RGS18 | RHOV | RHPN1 | RINL | RNF144B | RNF2 | RNF43 | ROB04 | ROR1 | RP11-3271 | RP11-5511 | RP11-6013 | RP11-849 | RTP4 | RUBCNL | RUNX2 | S1PR4 | SAMD10 | SAMD12 |
| SBK1 | SCG5 | SDR16C5 | SEC14L2 | SEC24A | SEC24D | SELENOM | SERPINB3 | SERPINB4 | SERPINH1 | SH2D2A | SH3RF2 | SHISAL1 | SHISAL2 | SHMT1 | SKIL | SLAMF8 | SLC12A7 | SLC16A5 | SLC22A4 |
| SLC22A5 | SLC25A1 | SLC25A15 | SLC26A2 | SLC27A2 | SLC29A1 | SLC2A14 | SLC30A3 | SLC7A5 | SLCO2A1 | SLIT2 | SLIT3 | SMAD7 | SMARCA | SMIM22 | SMIM3 | SMPDL3B | SNHG12 | SNHG18 | SNTA1 |
| SNTB1 | SOC3 | SORL1 | SORT1 | SPARCL1 | SPHK1 | SPOCD1 | SPRY1 | SPTBN2 | SPTLC3 | ST3GAL1 | ST5 | STAR3D | 3NSTEAP3 | STON1 | SUSD2 | TBC1D8 | TBL1X | TENM2 | TEX29 |
| THEM6 | TLCD4 | TLR2 | TM7SF2 | TMED7-T | TMEM121 | TMEM135 | TNFAIP6 | TOB1 | TPST1 | TPST2 | TRAF4 | TRAK1 | TREM1 | TUBA3C | TUBA4A | TUBA8 | TUBB3 | UNC5B-A | VASN |
| VAV3 | VEGFC | YIF1B | Z83851.1 | ZDHHC11 | ZDHHC14 | ZDHHC23 | ZNF474 | ZNF488 | ZNF697 | ZNF775 | CDK4 | ACTA2 | BCL2A1 | BMPR1A | CASP7 | CASP9 | COL4A3 | EZR | MKI67 |
| ACTN1 | ADAM12 | ALDH1A3 | ALDH5A1 | AMIGO2 | ANKLE2 | APBB2 | AREG | ARFGAP1 | ARHGAP2 | ARNTL | ATP8B1 | BHLHE40 | BMPR2 | C1ORF11 | C3ORF52 | CD59 | CDK14 | CEBPD | CFB |
| CHST11 | CITED2 | COL7A1 | CP | CRLF1 | CYB5A | CYTH1 | DAAM1 | DEFB1 | DEPTOR | DHRS2 | DOCK4 | DSE | DUSP10 | EPAS1 | EPB41L4 | EEPHB2 | EREG | ERMP1 | FERMT2 |
| FHOD3 | FLJ10357 | FLJ14213 | FLJ20273 | FOXDI | FSTL3 | GAL | GASK1B | GDF15 | GPRC5C | GRB10 | HPGD | HRH1 | HSF2BP | IL11 | IMPA2 | INHBB | JUN | JUNB | KCNJ15 |
| KLF7 | MANSC1 | MAP1LC3 | MATN3 | MBOAT2 | MBP | MICAL2 | MN1 | MTUS1 | MYL9 | MYO10 | NCF2 | NEDD9 | NKX3-1 | NR2F2 | NUAK1 | PDGFA | PDGFC | PDK4 | PEA15 |
| PEG10 | PID1 | PODXL | PTPN21 | PTPRK | RAB38 | RALA | SCG2 | SEMA3C | SERPINB1 | SIK1 | SLC16A7 | SLC04A1 | SLN | SMURF2 | SORD | SOX2 | SPOCK1 | SQOR | SRRD |
| STC1 | SULT1A1 | SYBU | TAGLN | TAGLN2 | TBX3 | TFAP2A | TIMP2 | TJP2 | TMCC1 | TNFAIP2 | TNS1 | TP53I3 | TPD52L1 | TPM1 | TPM4 | TUFT1 | VGLL3 | XYLT1 | ZNF365 |
| ACTN1 | ADGRF4 | AFAP1L2 | ARHGEF1 | BEAN1 | BICDL1 | CERCAM | CHST3 | DBN1 | EEPD1 | GALNT2 | KCTD11 | LTBP3 | LTBP4 | MAPRE2 | METRNL | MLXIP | MUC5AC | MUC5B | NCOR2 |
| NKAIN4 | PPP1R13L | PPP1R18 | PXN-AS1 | RHOD | SAMD4A | SHANK3 | TGFB1 | THRB | TRIO | TRMT10A | SPAN2 | WNT7A | ZFP36L1 | BRCA1 | CCL7 | CCT6A | CENPA | CHEK1 | CHRNBI |
| CLU | COL18A1 | CSF1 | DKK | FBLN2 | GATA2 | GLG1 | HMGB1 | LY75 | MAP4 | MCM3 | MPDZ | NCAM1 | NR2F1 | OAT | ODC1 | PAFAH1B | PLA2G4A | PLK4 | PROS1 |
| RBBP6 | RBL1 | RPSA | SMAD1 | SMARCD2 | TEAD2 | TOP1 | TPP2 | TRAF3 | ZFX | CDKN2C | FBLN1 | IGFBP3 | PLPP3 | PRKCA | PTGER2 | SYNE1 | SYT11 | ALDH1A3 | ANXA8 |
| CCN3 | FAM20A | FST | GGT5 | GPM6B | HHIP | IL1B | KRT17 | KRT6A | KRT6B | KRT6C | NTSR1 | PAMR1 | PDGFRL | SAA1 | SNED1 | STXBP6 | SULT1B1 | TP63 | SNAIL |
| ADAM23 | CCN1 | CCT3 | CREG1 | CYP24A1 | DPM1 | FLJ32053 | FY8 | JRKL | KLC2 | LPL | PCNA | P13 | POU2F1 | PRTN3 | PSMG1 | RFNG | STK17A | SVIL | TNFRSF11B |
| TRPM7 | UBN1 | ACOT1 | ADGRA2 | ADPRH | APBB1 | ARHGEF1 | ARL6IP5 | ATP6V1C | B3GNT9 | BCL11A | BLMH | BNIP1 | C11ORF2 | C1QTNF6 | CALML3 | CALU | CCDC102 | CCDC120 | CCL9 |
| CCR2 | CDH13 | CEACAM | CELF4 | CFL2 | CFP | CHRNA1 | CLEC4A | CLIC3 | CSGALN | CYSLTR1 | CYSRT1 | DEDD2 | DNM1 | DOK1 | EFEMP2 | EHBP1L1 | ELOVL7 | ENDOU | ENO3 |
| EPB41L2 | EXPI | F13A1 | FAM83H | FCGR2B | FCGRT | FCRL5 | FKBP7 | FKBP9 | FLNC | FOLR2 | FXYD5 | FZD6 | GAMT | GJB2 | GPR34 | GPR85 | GSDMA | GZMH | HIP1R |

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|---------|----------|---------|---------|-----------|----------|----------|----------|----------|----------|----------|---------|----------|----------|----------|----------|---------|----------|----------|----------|
| HLX | HTRA3 | IDE | IL17RE | ITGB1BP1 | JDP2 | KCNK1 | LOXL1 | LOXL3 | LPAR1 | LRBA | LSP1 | LTC4S | LTF | MARVELJ | MATN2 | MEDAG | MRC1 | MXRA8 | NAAA |
| NBL1 | NEK9 | NFATC1 | NIPAL2 | NRROS | NRTN | OLFM1 | OSR1 | OTUD7B | OVOL1 | PHKA1 | PHLDB1 | PKD1 | PLA2G15 | PLEKHA3 | PLEKHG6 | PLEKHH1 | PLXND1 | POF1B | POFUT2 |
| PPIF | PRRX1 | PRRX2 | PTPRF | RAP1B | RHPN2 | RIPK4 | RNF157 | RRAD | SDR42E1 | SELENON | SEMA7A | SH3GLB1 | SLC5A9 | SNX20 | SNX6 | SNX9 | SPI1 | SPTBN1 | ST8SIA4 |
| STARD10 | STK17B | TFAP2C | TGFBR2 | THRSP | TJAP1 | TMEM184 | TMEM54 | TMEM79 | TMPRSS2 | TNK1 | TRAF1 | TSPAN4 | TTYH2 | VSIG4 | WAS | WNK1 | AP1M2 | ARHGEF5 | CD99L2 |
| CTAGE6 | SLC44A2 | ZNF165 | CD99L2 | 281047401 | ASAP1 | BAZI1A | CAST | D3ERTD2 | DPP8 | EIF5A2 | FAM3C | GNA13 | ITGBA | JAK2 | KIAA1841 | KPNA3 | MLF1 | PHF20L1 | PIP4K2A |
| PKIA | RBMS1 | TCF12 | TMEM167 | TMEM65 | TWSG1 | UBXN2A | ZBTB44 | ZNF266 | YAP1 | ABCC4 | ABR | AQP9 | ARHGEF6 | CCDC50 | CD52 | CD93 | CHST7 | CITED1 | CLGN |
| CORO1A | CSPG4 | CTSH | CXCL12 | CYBA | DPYSL2 | ELMO1 | EPB41L3 | EPHA4 | FGF13 | GDF6 | GYPC | HCK | HEXA | HEY1 | HSD17B1 | ITGA11 | ITM2A | JAM2 | JAML |
| KAT2B | KHDRBS3 | LAMP2 | LDHA | LDHB | LDHC | LIN7B | LY96 | MBNL1 | MDFIC | MET | METRNL | MMP11 | MOXD1 | MYO5A | NCKAP1 | LNDRG1 | NDRG2 | NECTIN3 | NPL |
| NR0B1 | PCDH18 | PHACTR2 | PRDM5 | PRDX1 | PTPRB | PTPRM | RAB27A | RASSF4 | RCN3 | RET | RGL1 | RNF130 | RRAGD | SH3KBP1 | SLC7A8 | SLC9A6 | SMARCA4 | SMARCD5 | SMPD1 |
| SOX17 | ST3GAL6 | STX11 | THBD | TMEM88 | UQCRRF51 | VAV1 | ADGRL2 | AFP | ALB | ANXA2 | ARHGAP4 | ARHGEF7 | BMP4 | CAVIN3 | CCND2 | CCND3 | CDHR5 | CXCR4 | ENG |
| FGF9 | FLRT3 | FOXA3 | FOXP1 | FYN | GLI4 | HEY2 | ID1 | IGF2-AS | ITGB4 | ITGB5 | PTN | RHOBTB3 | SHC1 | SKAP1 | TMSB4X | VIL1 | FOXC1 | BCL2L1 | FGF8 |
| RHOB | VTN | ADAP1 | ALS2CL | ANXA3 | ARRDC1 | BAIAP2L1 | C6ORF132 | CAMSAP3 | CD46 | CHMP4C | CMTM4 | CNNM4 | CRYBG2 | CXCL16 | CYB561 | EPB41L1 | F2RL1 | FAM83B | FAM83F |
| FHDC1 | FOXA1 | FRK | GSTO2 | HDHD3 | HOOK2 | ITPKC | KIAA1211 | KIAA1522 | KIAA1671 | KLF5 | LIPH | LOC10050 | LYPD3 | MYO6 | P2RY2 | PLEKHA7 | PLEKHG3 | PLPP2 | PRKCZ |
| PRRG4 | PWWP2B | RNF39 | SDC4 | SLC12A8 | SLC44A3 | SLC52A3 | STYK1 | SULT2B1 | SYNE4 | USP43 | VGLL1 | VWA1 | AGER | CAV1 | CBR1 | CCN6 | CDKN2A | EDNRA | EGR1 |
| ETV4 | FLT1 | FOXM1 | GATA3 | HBEGF | HOXB7 | HOXB9 | HS6S72 | HSP90AA | IDH2 | KIT | KL | L1CAM | MYC | POU5F1 | PROM1 | PTGS2 | RUNX3 | SIM2 | TCF21 |
| TDGF1 | TGFBR3 | VCAM1 | VDR | VEGFA | VSNL1 | VWCE | ADAM12 | ADAMTS | ADAMTS | AP1G1 | CNOT1 | CNRI1P | COL10A1 | DYNCL1 | OLFML2 | BBAMBI | COMP | LAMC3 | MIR141 |
| MIR200A | MIR200B | MIR200C | MIR429 | MYD88 | TLR4 | ABCF3 | ARHGEF9 | AVPR1A | BMX | CAPN6 | CNIH3 | DIO3 | DLGAP1 | DONSON | EXOC3L2 | GCNA | GNB1 | GUCY2F | HCAR1 |
| HTR2A | IRX3 | MAGEA8 | MIR-346 | MIR-507 | MIR542 | MYPOP | QRFPR | C3ORF52 | CLVS2 | FREM1 | KMO | MIR-30A- | MIR-30A- | MIR-30C | MIR-30E- | MIR-630 | MIR130B | MIR17 | MIR192 |
| MIR193B | MIR215 | MIR30B | MIR30D | MIR30E | PCDHB10 | SCD | SEPTIN14 | SLC17A3 | SLC22A24 | SLC25A25 | ZNF343 | FN1 | ABI3BP | ACTA2 | ANPEP | APLP1 | BASP1 | BGN | CADM1 |
| CDH6 | COL11A1 | COL5A3 | COL8A2 | COLGAL1 | COPA | CTHRC1 | ECM2 | ENO2 | FAS | FMOD | FZD8 | GPX7 | IL15 | IL6 | ITGA2 | LAMA1 | LAMC1 | MAGEE1 | MCM7 |
| MEST | MFAP5 | MSX1 | MYLK | MYLK | NOTCH2 | NTM | OXTR | PCOLCE2 | PDLIM4 | PFN2 | PLOD1 | PLOD3 | PIIB | PRSS2 | SAT1 | SGCB | SGCD | SGCW | SLC6A8 |
| SMIM6 | TNFRSF1 | TPM2 | ANK2 | CDH17 | CDH13 | ADAM19 | ARPC4 | CD151 | EIF4EBP1 | FHL2 | FOCAD | HSPB1 | ITGA3 | KIAA1549 | LEFTY2 | MGC1733 | NPC2 | NPTX1 | PAWR |
| PCDH1 | PDLIM2 | PGRMC2 | PIK3IP1 | PLSCR3 | PPP1R14 | BRSU1 | TAX1BP3 | TLL2 | TUBA4B | ADGRE5 | NECTIN1 | NECTIN2 | AFTPH | LNK1 | UROD | ADAMTS1 | ANO1 | APCDD1 | BHLHE41 |
| BST2 | BTBD11 | C5ORF66 | CACNA2I | CCBS | CCDC170 | CD109 | CES3 | COL9A3 | CPLX2 | CRABP2 | CST1 | CYP3A7 | DKK4 | DTX3 | DYNC1I1 | EDAR | EDARADIF | FAM131B | FAM86KP |
| FBXO27 | FGD5 | FGF20 | FIBCD1 | FOXL2 | GGN | GPSM3 | H2AJ | HILPDA | HOXB2 | HOXC10 | HPDL | IGF2BP1 | IL36G | INHBE | ISYNA1 | KRT74 | LINC0269 | LMO2 | LOXL4 |
| MRI1 | MROH8 | MT1A | NAT16 | NOTUM | NPIP9 | NPW | NRN1 | NRSN2 | OBSL1 | PARVB | PAX6 | PCSK1N | PDE3B | PLIN2 | PRF1 | PTP4A3 | RAMP1 | RAPGEF3 | RASA3 |
| RASGRF1 | RBM20 | RIMKLB | SAMD11 | SCN5A | SESN3 | SLC16A6 | SLC17A9 | SLC25A27 | SLC38A5 | SLC5A1 | SLC6A16 | SPRED3 | STC2 | TEX19 | TGFBR3L | TMED7 | TMEM163 | TNFRSF11 | TRPV2 |
| TUBB2B | VPREB3 | ZNF704 | ZSWIM5 | BAD | IKBK | LPAR2 | MAP2K3 | PDPK1 | RAB10 | RAB5C | RIPK3 | SIRT1 | WNT10B | FZD2 | NKD2 | PLCB2 | AHNAK2 | C10ORF95 | CDX1 |
| CDX2 | DDC | GPA33 | MEIS2 | NR1I2 | OPMP22 | TRABD2A | WWTR1 | ACYP1 | ARPC2 | ATOX1 | BCAP29 | BCAP31 | BCAR1 | BCLAF1 | C9ORF78 | CALB2 | CALM3 | CASK | CBX3 |
| CBX5 | CCDC124 | CCT2 | CDC37 | CDV3 | CFDP1 | CHMP4B | CNDP2 | CNN3 | CYCS | DAG1 | DBI | DDX39A | DEK | DHPS | DNAJA1 | DUT | DYNLT1 | EEA1 | EEF1B2 |
| EIF3G | EIF3H | EIF3I | ERAP1 | FARSA | FKBP4 | GANAB | GD1I | GIPC1 | GOLGA4 | GPI | GRB2 | GSPT1 | H4-16 | HDDC2 | HEXIM1 | IFI35 | IMPDH2 | IP008872 | JPT2 |
| KARS1 | KIAA0174 | LRRFP1 | MAP7D1 | MECP2 | MED15 | MTHFS | MYCBP | MYL12B | NAA50 | NRDC | NSFL1C | OGFR | OSTF1 | OXSRI | P4HA1 | PAK2 | PFN1 | POGLUT3 | PPID |
| PRR14L | PSMC4 | PSMC6 | PSMD4 | PSMD9 | RAB11B | RAB6A | RABEP1 | RPL10A | RPL3 | RPLP1 | RPRD1B | RPSAP19 | RTF1 | SAP30BP | SH3GLB2 | SKP1 | SP100 | SRSF1 | STIP1 |
| SUB1 | SUMO1 | TAF1C | TBCB | TCOF1 | TMOD3 | TPD52L2 | TRIP10 | TTC1 | TTLL3 | TXLNA | TXNDC12 | UAP1 | VASP | VBP1 | WBP11 | ZYX | NFKB2 | PDGFD | AK5 |
| AKR1B1 | BCAT1 | CA12 | CH13L1 | COX7A1 | DPYD | DSEL | ENPP1 | ENPP2 | EXT1 | GBE1 | GLT8D2 | GPX8 | GXYLT2 | MGST1 | PAM | PDE1C | PLCB4 | PLPP4 | PTGR1 |
| UGCG | ABCB6 | ABCC6 | ABCG1 | ABL2 | ACADSB | ACBD5 | ACSM3 | ACY1 | ADA | ADARB1 | AHCYL1 | AHR | AIMP1 | AKR1C3 | ALDH3B1 | ALDH6A1 | ALDH7A1 | ALDH9A1 | ANAPC13 |
| ANG | APBA3 | APMAP | ARHGAP4 | ARNT2 | ARRB1 | ARRDC4 | ASB8 | ASH1L-A | ASS1 | ATM | ATP6V0E | ATXN1 | AUH | AVPI1 | AXIN2 | AZIN2 | B4GALT4 | BABAM2 | BATF2 |
| BCAT2 | BCL6 | BICD1 | BIVM | BMP2K | BNIP3 | C1ORF53 | C1R | C1RL | C5 | CABLES1 | CABYR | CACNA1I | CAMK2D | CAPN2 | CBFB | CBL | CD302 | CD3EAP | CDC14B |
| CDC25B | CDC42EP | CDC42SE | CDKN1B | CDPF1 | CDR2L | CEMIP | CEMIP2 | CH13L2 | CLEC18A | CLIC1 | CLN8 | CLUAP1 | CNKSR3 | COL4A4 | COQ7 | COQ8A | CRISPLD2 | CRY1 | CRYL1 |
| CRYZL2P | CSGALN4 | CSRPI | CST7 | CTCFL | CTDSPL | CTPS1 | CTSO | CXCL2 | CXCL3 | CXXC5 | CYP2U1 | DAPK1 | DCBLD1 | DCXR | DDIT4L | DGLUCY | DHRS13 | DHRS3 | DIP2B |
| DIPK1A | DNAJC6 | DPY19L1 | DUSP6 | EBPL | ECH1 | EEF2K | EFEMP1 | EFNB2 | EID3 | EIF4B | EML4 | ENAH | EPHB1 | EPHX2 | ESAM | EVA1C | EXOC3 | FAH | |
| FAM107B | FAM111A | FAM13A | FAM171B | FAM89B | FAM8A1 | FAT3 | FBXO38 | FHL3 | FHOD1 | FLOT1 | FMNL2 | FOXF2 | FUT9 | FYCO1 | GALM | GALT | GCFC2 | GCH1 | GCHFR |
| GCLM | GDA | GLI2 | GLIS3 | GLRX | GLS | GMD5 | GPALPP1 | GPAM | GPAT3 | GPC4 | GPCPD1 | GRAMD2 | GRB14 | GSTA4 | HDHD5 | HECA | HHIPL2 | HIP1 | HMBS |
| HSBP1L1 | HSDL2 | HYAL3 | HY1 | HYKK | IER2 | IFRD1 | IL27RA | ILVBL | IRF2BP2 | JADE2 | JMJD1C | KCNB1 | KCNG1 | KCTD15 | KCTD3 | KCTD6 | KIAA1755 | KMT5B | LANCL1 |
| LAT2 | LETMD1 | LGR4 | LHPP | LIMK2 | LIMS2 | LOC10013 | LOC73010 | LUZP1 | LXN | LY6G6C | LY6G6D | MAOA | MAP2K6 | MAP3K5 | MAST4 | MCEE | MEG3 | MEGF9 | MICALL1 |
| MIR22HG | MIR600H | CMMD | MMUT | MOB3B | MR1 | MRPL54 | MRPS6 | MTAP | MYLIP | MYO1B | NAMPT | NANOS1 | NCALD | NCEH1 | NCOA3 | NEAT1 | NHS | NIPAL3 | NICALL |
| NNT | NQO1 | NRAS | NSMCE4 | NT5DC1 | NUDT16L | ORAI2 | OSR2 | PAXIP1-A | PCDH17 | PCK1 | PCNX1 | PER2 | PGD | PGM2L1 | PHLPP1 | PHTF1 | PIAS1 | PITPNC1 | PKDCC |
| PKIB | PKM | PLCXD1 | PLEKHA8 | PLEKHH2 | PMM1 | PNKD | PNMA1 | POLR2L | PPARA | PPP1R3B | PPP1R9B | PRDX2 | PRKAB2 | PRKAG2 | PRXL2B | PSMB8 | PTGER4 | RAB40B | RAP1GDS1 |
| RASGRP1 | RCL1 | RDH10 | REXO2 | RGS20 | RIMKLA | RNASE4 | RNASEL | RNF141 | RNFT2 | RPL5 | RPLP0 | S100A11 | SALL2 | SASH1 | SAV1 | SCAMP1- | SECTM1 | SEMA3B | SH3BP4 |
| SLC12A2 | SLC18B1 | SLC20A1 | SLC27A3 | SLC2A1 | SLC2A12 | SLC2A8 | SLC35F2 | SLC4A4 | SLC7A1 | SLC7A6 | SMOX | SNAP23 | SOC55 | SOD2 | SPECC1 | SPSB1 | SPTSSA | SSBP2 | STEAP2 |
| STK32B | STMN3 | STX17 | STXBP5 | TBL1XR1 | TCEA3 | TFEB | THSD7A | TIGAR | TMEM106 | TMEM205 | TMEM41 | TMEM97 | TNFRSF14 | TRIM24 | TSGA10 | TSNAX | TSPAN12 | TSPAN7 | TSPAN8 |

| | | | | | | | | | | | | | | | | | | | |
|---------|---------|----------|----------|----------|----------|---------|---------|---------|---------|---------|---------|---------|----------|----------|---------|---------|----------|---------|------------|
| TST | TTC32 | TXNIP | UBASH3 | BUBE2C | UBE2L6 | UBTD1 | ULK1 | UPK1B | USP13 | UTP25 | UTRN | VAMP5 | VAV2 | WDR1 | WWOX | YIPF5 | YOD1 | ZBTB46 | ZC3H12A |
| ZDHC2 | ZMYND1 | ZNF331 | ZNF395 | ZNF585A | AR | ATF2 | BMI1 | CD34 | KLK3 | PECAM1 | PGR | SP1 | BMI1 | QKI | RLN2 | ADTRP | ALOX15 | BANXA8 | L1ARHGAP25 |
| BDKR2 | BIN1 | CA9 | CAMK2B | CCDC92 | COP22 | CREB3 | L1CST6 | CTSV | DEPP1 | DPT | DSG3 | E2F5 | ENOX1 | ERVMER | FADS2 | FAT2 | FLJ20366 | FZD3 | GLYR1 |
| HS3ST2 | IRX4 | KANK2 | KIAA0040 | KIAA0888 | KIZ | KLK7 | KRT81 | LGALS7 | MYO1D | NAIP | NEBL | NEFM | NMU | NUP62CL | OLFML3 | POLR3G | PPM1D | RHBDF2 | RNF128 |
| RPS6KA1 | RTEL1 | S100A7 | SCCDBH | SEPTIN6 | SLC2A9 | SLC6A10 | SLC6A10 | SNX10 | STAC | STARD13 | SYNC | TMEM40 | TNFRSF61 | TNS3 | TRAM2 | TSHZ1 | UGDH | ZBED2 | ZBTB38 |
| MALAT1 | RRAS | RUNDC3 | EABCC3 | ABHD11 | ANK2 | ARHGAP2 | ASPEN | AZGP1 | BCAS1 | C1ORF54 | C4ORF19 | CCL8 | CD163 | CD2AP | CEACAM | CHRD1 | CLEC2B | CLIC4 | COL14A1 |
| COL15A1 | COLEC12 | CORO2A | CRYAB | CSF2RB | CSR2 | CTSK | DHCR24 | FAM174B | FGL2 | FLI1 | FUT2 | FXD6 | GALNT7 | GIMAP4 | GIMAP6 | GPRC5A | GUCY1B1 | GZMK | IL10RA |
| ISLR | KCNJ8 | MEOX2 | MFAP4 | MS4A4A | MS4A6A | MYH10 | NR3C1 | OR7E14P | PALM2A | PDZRN3 | PLLP | PLN | PLXNC1 | PTGDS | PTK6 | PTPRC | RAB11FIP | RAPGEFL | RARRES2 |
| RUNX1T1 | SAMSN1 | SERPINF1 | SERPING1 | SLC22A18 | SLC35A3 | SLC44A4 | SOBP | SPAG1 | SYNE3 | SYNGR2 | TFF1 | TFF3 | TRPC1 | TRPM4 | TUBB6 | ADA | PAFAH1B | PAFAH2 | SRM |
| TNXB | UPP2 | VLDR | ADAM10 | ADAM17 | ADCY1 | ADCY2 | ADCY4 | ADCY5 | ADCY6 | ADCY7 | ADCY8 | ADCY9 | AKT1S1 | AKT2 | AP2A1 | AP2A2 | AP2B1 | AP2M1 | AP2S1 |
| BAD | CALM2 | CHUK | CLTA | CREB1 | CSK | EPN1 | EPS15 | EPS15L1 | FOXO1 | FOXO3 | FOXO4 | GAB1 | GRK2 | GSK3A | HGS | ITPR2 | ITPR3 | KRAS | LRIG1 |
| MAP2K1 | MAP2K2 | MAPK1 | MAPK3 | MAPKAP1 | MDM2 | NR4A1 | PDE1A | PDE1B | PIK3CA | PIK3R1 | PLCG1 | PRKACA | PRKACB | PRKAR1A | PRKAR1B | PRKAR2A | PRKAR2B | PRKCD | PRKCE |
| PTEN | RAF1 | RPS27A | RPS6KB2 | SH3GL2 | SH3KBP1 | SOS1 | SPRY2 | STAM | STAM2 | THEM4 | TRIB3 | TSC22D4 | YWHAB | ACAA1 | ACOT2 | ADGRG3 | ADORA1 | AFAP1 | ALYREF |
| AMOTL1 | APOO | ARAP1 | ARHGAP5 | ARMC9 | ATP5PB | BAZZA | BOK | BRI3BP | BTBD19 | CAND1 | CASP2 | CBX6 | CCDC33 | CCNA2 | CENB1 | CDC48 | CH24 | CENPO | CLEC1A |
| COA7 | COPS3 | COQ2 | COX20 | COX7B | CPD | CPE | CSRN2P | CTDSP2 | CTNNA1 | CYP2E1 | CYP2S1 | DDX23 | DNMBP | DRAM1 | EDEM2 | EEF1E1 | EFCA14 | EHD2 | ERCC6L |
| FAM120B | FAM20C | FLNB | FMNL3 | FN3K | FNBP1 | GLRX3 | GOLPH3 | GPX5 | GTF3C6 | H6PD | HACD2 | HAVCR1 | HERPUD1 | HES2 | HINT3 | HLA-F | HNRNPU | HSDL1 | HYLS1 |
| IDUA | ILF3 | INF2 | IQSEC2 | IRF2BPL | KIAA2026 | KIF11 | KLF3 | KLHL24 | KPNA2 | LIPK | LMNB1 | LRP5 | LSM5 | MACROH | MAD2L1 | MAPKAP1 | MAPRE3 | MBTPS1 | MBTPS2 |
| MCM10 | MCM2 | MCM4 | MFSD14B | MOAP1 | MRM2 | MRPL19 | MRPL48 | MRPS15 | MRT04 | MSR1 | MTCH2 | MTHFD1 | MYBL2 | MYOM3 | MYRF | NAA16 | NCAPH | NDC1 | NDUFAF8 |
| NDUFV2 | NETO2 | NINL | NOL10 | NUDT4 | OIP5 | OPRL1 | OTUD5 | PARK7 | PCMTD2 | PDLIM5 | PGGHG | PLXNB2 | PNRC1 | POGLUT2 | POLA2 | PRPF40B | PSMD5 | PSME3 | PTPN13 |
| RAET1E | RANBP1 | RANBP3 | RAP1GAP | RASSF3 | RBBP7 | RFC3 | RFDW3 | RBBP1 | RRM2 | SAMD9L | SART3 | SCUBE1 | SEMA4C | SEPTIN10 | SH3PXD2 | SLC37A3 | SLC44A1 | SMC1A | SOD1 |
| SPAG5 | SPATA13 | SPATS2L | SSRP1 | STAT6 | STK39 | SUPT16H | SUSD6 | TIGD2 | TIMELES | TK1 | TMA16 | TMEM167 | TMPO | TOMM40 | TRIM32 | TRIM9 | TXNRD1 | UBE2B | UBQLN2 |
| UNC93B1 | USP7 | VAPA | VDAC3 | VEZF1 | VP554 | VWA7 | WDR34 | WDR62 | WFS1 | ZER1 | ZFYVE1 | ZNF517 | ZNF862 | ZWINT | ABCB8 | ABI1 | ACAA1 | ACOX1 | ACSL1 |
| ACSL3 | ACYPI | ADAL | ADAM15 | ADD1 | ADGRG6 | AGAP3 | AGTPBP1 | AHSA2P | AK2 | AKAP11 | AKAP13 | ALG9 | ANAPC16 | ANKHD1 | ANKRD1C | ANXA11 | APH1B | APLP2 | ARFGAP2 |
| ARFIP1 | ARHGAP1 | ARHGAP1 | ARHGEF1 | ARMCX6 | ARMT1 | ARNTL2 | ATG4B | ATP11C | ATP13A2 | ATP13A3 | ATP2C1 | ATXN2 | BAZ2B | BDKP1 | BIRC5 | BNIP2 | BOLA2 | BORA | BRD8 |
| BRD9 | BUD23 | C12ORF4 | CAM2G | C | | | | | | | | | | | | | | | |