

**Supplementary Table 9. The immune-related genes integrated by two databases.**

**Gene**

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AZGP1

B2M

CALR

CANX

CD1A

CD1B

CD1C

CD1D

CD1E

CD4

CD8A

CD8B

CD74

CREB1

CTSB

CTSE

CTSL

CTSS

FCER1G

FCGRT

PDIA3

HFE

HLA-A

HLA-B

HLA-C

HLA-DMA

HLA-DMB

HLA-DOA

HLA-DOB

HLA-DPA1

HLA-DPB1

HLA-DQA1

HLA-DQA2

HLA-DQB1

HLA-DRA

HLA-DRB1

HLA-DRB3

HLA-DRB4

HLA-DRB5

HLA-E  
HLA-F  
HLA-G  
HLA-H  
MR1  
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HSPA1B  
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HSPA5  
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HSP90AB1  
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IFNA4  
IFNA5  
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IFNA7  
IFNA8  
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IFNA13  
IFNA14  
IFNA16  
IFNA17  
IFNA21  
IFNG  
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KIR2DL3  
KIR2DL4  
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KIR2DS3  
KIR2DS4  
KIR2DS5  
KIR3DL1  
KIR3DL2  
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KLRC2  
KLRC3  
KLRD1  
LTA  
CIITA  
MICA  
MICB  
NFYA  
NFYB  
NFYC  
LGMN  
PSMB8  
PSMC1  
PSMC2  
PSMC3  
PSMC4  
PSMC5  
PSMC6  
PSMD1  
PSMD2  
PSMD3  
PSMD4  
PSMD5  
PSMD7  
PSMD8  
PSMD10  
PSMD11  
PSMD13  
PSME1  
PSME2  
RELB  
RFX5  
RFXAP  
SLC10A2  
TAP1  
TAP2  
TAPBP  
THBS1  
SEM1  
KLRC4  
AP3B1

RFXANK  
PSMD6  
PSME3  
PSMD14  
CLEC4M  
IFI30  
PROCR  
ADRM1  
ECPAS  
TRPC4AP  
CD209  
UBXN1  
ERAP1  
TAPBPL  
KIR2DL5A  
ERAP2  
ULBP3  
ULBP2  
ULBP1  
KIR3DL3  
RAET1E  
RAET1L  
UBR1  
RAET1G  
PDIA2  
HAMP  
PI3  
CAMP  
DEFB4A  
PPBP  
REG3G  
CXCL14  
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SLPI  
CXCL8  
CXCL10  
CXCL9  
CXCL5  
CXCL11  
CXCL6  
CXCL1

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PF4  
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CXCL3  
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BPI  
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LCN8  
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CELA1  
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MMP12  
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LEAP2  
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DEFB106B  
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LMBR1L

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AZU1  
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DEFB108F  
DEFB131C

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PLTP  
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SFTPA2  
LPA  
LBP  
RBP4  
NOX4  
LTF



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FABP3  
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FABP4  
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CRABP1  
RBP7  
DUOX1  
OBP2B  
RBP2  
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CETP  
FABP12  
FABP9  
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C8G  
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ORM1  
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MAPK1  
PML  
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CYBB  
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NOX3  
DUOX2  
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LRP1  
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STAT1  
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SEMG1  
TNFSF10  
CCL20  
SOCS1  
RNASEL  
IRF1  
IL15  
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PLAAT4  
CHIT1  
CD40  
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ZYX  
NLRX1  
PGC  
VEGFA  
IKBKE  
ISG15  
DHX58  
TNFAIP3  
TFR2  
FCN2  
MUC4

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DMBT1  
STING1  
SKIV2L  
SEMG2  
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LIMS1  
LALBA  
APOBEC3H  
TMPRSS6  
SPINK5

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ACKR4  
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CCR4

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RAC3  
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PPP3CB



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IKBKG  
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EDN2  
EDN3  
FGF10  
LECT2  
PPBPP1  
PROK2  
SAA1  
SAA2  
SBDS  
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SEMA5B  
SEMA6A  
SEMA6B

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SEMA7A  
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SLIT2  
TNC  
TYMP  
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CCRL2  
CMKLR1  
CX3CR1  
CXCR3  
CXCR5  
ACKR3  
CYSLTR1  
CYSLTR2  
ACKR1  
EDNRA  
EDNRB  
FPR1  
FPR2  
GPR17  
GPR32  
GPR33  
PTGDR2  
C5AR2  
CXCR2  
LTB4R2  
PLAUR  
PLXNA1  
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PLXNB2  
PLXNB3  
PLXNC1  
PLXND1  
PTAFR  
ROBO1



ROBO2  
RXFP3  
XCR1  
ADM  
ADM2  
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AGT  
AMBN  
AMELX  
AMH  
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ANGPTL7  
APLN  
AREG  
MANF  
CDNF  
ARTN  
AVP  
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CCK  
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ADA2  
CER1  
CGA

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CLEC11A  
CMTM1  
CMTM2  
CMTM3  
CMTM4  
CMTM5  
CMTM6  
CMTM7  
CMTM8  
CNTF  
CORT  
CRH  
CSF1  
CSF2  
CSF3  
CSH1  
CSH2  
CSHL1  
CSPG5  
CTF1  
CCN2  
DKK1  
EBI3  
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EREG  
ESM1  
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FGF7  
FGF8  
FGF9  
VEGFD  
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FLT3LG  
FSHB  
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GALP  
GAST  
GCG  
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GDF11  
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GDF3  
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GH2  
GHRH  
GHRL

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GMFG  
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GNRH2  
GPHA2  
GPHB5  
GPI  
GREM1  
GREM2  
GRP  
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IL36G  
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IL5  
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IL7  
IL9  
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INHBA  
INHBB  
INHBC  
INHBE  
INS  
INS-IGF2  
INSL3  
INSL4  
INSL5  
INSL6  
JAG1  
JAG2  
FGF7P6  
FGF7P3  
KITLG  
KL  
LACRT  
LEFTY1  
LEFTY2  
LHB  
LIF  
LRSAM1  
LTB  
LTBP2  
LTBP3  
LTBP4  
MDK  
MIA

MLN  
MSTN  
NAMPT  
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NPPB  
NPPC  
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NTF3  
NTF4  
NTS  
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OGN  
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OSM  
OSTN  
OXT  
ENDOU  
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PDGFC  
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PGF  
PMCH  
PNOC  
POMC  
PPBPP2  
PPY  
PRL

PRLH  
PROK1  
PSPN  
PTH  
PTH2  
PTHLH  
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PYY  
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RLN2  
RLN3  
SCG2  
SCGB3A1  
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SLURP1  
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TNFSF9  
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TRH  
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TSLP  
TXLNA  
UCN  
UCN2  
UCN3  
UTS2  
UTS2B  
VEGFB  
VEGFC  
VGF  
VIP  
ACVR1B  
ACVR1C  
ACVR2A  
ACVR2B  
ACVRL1  
ADCYAP1R1  
ADIPOR1  
ADIPOR2  
ADRB1  
ADRB2  
AGTR1  
AGTR2  
AMHR2  
ANGPT1  
ANGPT4  
ANGPTL1  
ANGPTL2  
ANGPTL3  
ANGPTL4  
ANGPTL6  
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AR  
AVPR1A  
AVPR1B



AVPR2  
BMPR1A  
BMPR1B  
BMPR2  
BRD8  
C3AR1  
CALCR  
CALCRL  
CNTFR  
CRHR1  
CRHR2  
CRIM1  
CRLF1  
CRLF2  
CRLF3  
CSF1R  
CSF2RA  
CSF2RB  
CSF3R  
EGFR  
ENG  
EPOR  
ESR1  
ESR2  
ESRRA  
ESRRB  
ESRRG  
FGFR1  
FGFR2  
FGFR3  
FGFR4  
FGFRL1  
FLT1  
FLT3  
FLT4  
FSHR  
GALR2  
GALR3  
GCGR  
GHR  
GHRHR

GHSR  
GIPR  
GLP1R  
GLP2R  
GNRHR  
GPER1  
HNF4A  
HNF4G  
HTR3A  
HTR3B  
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IFNGR2  
IGF1R  
IGF2R  
IL10RA  
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IL12RB1  
IL12RB2  
IL13RA1  
IL13RA2  
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IL17RA  
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IL17RD  
IL17RE  
IL18R1  
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IL1R1  
IL1R2  
IL1RAP  
IL1RL1  
IL1RL2  
IL20RA  
IL20RB  
IL21R  
IL22RA1

IL22RA2  
IL23R  
IL27RA  
IL2RA  
IL2RG  
IL31RA  
IL3RA  
IL4R  
IL5RA  
IL6R  
IL9R  
INSR  
KDR  
LEPR  
LGR4  
LGR5  
LGR6  
LHCGR  
LIFR  
LTBR  
MC1R  
MC2R  
MC3R  
MC4R  
MCHR1  
MCHR2  
MET  
MLNR  
MPL  
MTNR1A  
MTNR1B  
NGFR  
NMBR  
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NPR3  
NR0B1  
NR0B2  
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NR1D2  
NR1H2  
NR1H3

NR1H4  
NR1I2  
NR1I3  
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NRP2  
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OPRD1  
OPRK1  
OPRL1  
OPRM1  
OSMR  
OXTR  
PGR  
PGRMC2  
PPARA  
PPARD  
PRLHR  
PRLR  
PTGER1  
PTGER2  
PTGER3  
PTGER4  
PTGFR  
PTH1R  
PTH2R  
RARA

RARB  
RARG  
RORA  
RORB  
RORC  
RXFP1  
RXFP2  
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SDC1  
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SDC4  
SORT1  
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TACR1  
TEK  
TGFBR1  
TGFBR2  
TGFBR3  
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THRB  
TIE1  
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TNFRSF9  
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VIPR1  
VIPR2  
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TYROBP  
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FCGR3B  
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NCR3  
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SHC3  
SHC1  
GRB2  
SOS1  
SOS2  
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BRAF  
RAF1

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GZMB  
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CD3G  
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PAK5  
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CBLB  
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PDK1  
PRKCQ  
TRAC

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TRAJ2  
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TRAJ6  
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TRBD2  
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TRBV19

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TRBV29-1  
TRBV30  
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TRDD3  
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TRDJ3  
TRDJ4  
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TRDV2  
TRDV3  
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TRGV8  
TRGV5  
TRGV4  
TRGV3  
TRGV2  
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TRGJP1  
TRGJP  
TRGJ2  
TRGJ1  
TRGC2  
TRGC1  
TRAV6  
Id2  
Iltifb  
PRKRA  
DDX3X  
MIR136  
Mir146  
EFTUD2  
Tlr9  
Atf3

Nlrp3  
IL29  
TRAF6  
Myd88  
IFIT5  
Stat2  
Ticam1  
Casp2  
Pcbp2  
Ube2i  
Baiap211  
CASP1  
PELI3  
Atf7  
MIR223  
CLEC4E  
Usp25  
ITGB1  
DDX60L  
HDAC2  
TET2

5-Mar

Bnip31  
Bnip3  
Cdkn1a  
Nfia  
JMJD6  
PRMT1  
TMEM173  
Nrip1  
Bcl11b  
Card9  
Nlrc5  
C2  
C4B  
Mir485  
Cd47  
SKP2  
IFI27  
Clec4n  
IFIT3

MIR146A  
HACE1  
Retnla  
Mrc1  
Ezh2  
Irf8  
Sppl3  
Ahr  
Lgals3  
Trpm5  
Mb21d1  
TLR5  
Stat6  
Dhcr7  
Sc4mol  
Idi1  
Srebf2  
Mir342  
LGALS1  
Aim2  
Clec4d  
Mtap1s  
Nlrp6  
Atg5  
MIR29A  
Trim12c  
Dhx15  
Ern1  
CEACAM8  
Zbp1  
Hs2st1  
Zfp36  
Dusp1  
Nfkb2  
Ybx1  
AIP  
Ticam2  
Tirap  
DHX33  
MIR362  
Uvrag

Mir125a  
CTSK  
Mir328  
Nlrp12  
DEFB4  
Trem14  
SPHK1  
Peli1  
FCN3  
Icosl  
Smpd13b  
Ctnnb1  
Gsk3a  
UBE2V2  
UBE2N  
UBE2W  
OAS3  
Pycard  
Psen2  
Stmn1  
MAP3K7  
IRAK1  
TIFA  
IFRD1  
PDE12  
PQBP1  
IFI16  
Pten  
Sqstm1  
TREM1  
Dnase2a  
PPARGC1A  
MIR130A  
Tollip  
Pik3c3  
Cav1  
Mir199a-1  
DR1  
CASP4  
Myo18a  
CAPRIN1

G3BP1  
ULK1  
Nfil3  
Anpep  
WFDC12  
Ctnd1  
Ly6g  
HAVCR2  
HIF1A  
Traf2  
Cfp  
Hc  
Wdfy1  
Ear11  
Atm  
ZBTB16  
IL1RAPL1  
IL1F7  
Sf3a1  
CLEC6A  
Cd200r1  
Cd200  
ANO6  
P2RX7  
Zfp423  
Rel  
SLC22A3  
TPP2  
RPS6KA5  
IFITM3  
INSIG1  
AMFR  
Eif4ebp2  
Eif4ebp1  
Anxa1  
Sirpa  
Itgam  
Clec7a  
Irak4  
Tmem126a  
TP53



Atg7  
Arl5b  
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Cebpa  
TLR6  
Adam17  
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Il28ra  
Nlr4  
SMAD4  
SMAD3  
MIR181A2  
Ripk3  
ATF2  
ADCY8  
SCN5A  
ECSIT  
USP2  
Myc  
ARG1  
Rab8a  
PRKX  
PRKACA  
CCNA2  
MIR124-1  
MIR203  
SAMHD1  
Adrbk1  
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hsa-mir-146a  
RIPK2  
IRF4  
Ptges  
MFF  
DNM1L  
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MAPK9  
MAP2K7  
Kdm4a  
Nlrp1a  
Prdm1

MYH9  
HNRNPL  
IFIT1  
TRIM14  
Mir149  
Sykb  
TXNIP  
Krt16  
Cd51  
MIR208B  
MIR499A  
IL28B  
Fscn1  
AICDA  
PARD3  
Cd36  
BGN  
Rheb  
Tsc1  
Mtor  
Mir126  
Stat4  
ARF6  
Dusp16  
CTSL1  
GNB2L1  
ELF4  
TNK1  
SLX4  
Bcl2l1  
Bcl2  
Gata3  
EGLN2  
HIF1AN  
Ifi202b  
CRKL  
Numb  
XRCC5  
XRCC6  
PRKDC  
Mfn2

CEBPB  
IL28A  
Nfe2l2  
Keap1  
TRIM25  
RNF135  
Traf5  
Mertk  
Axl  
Tyro3  
LGALS9  
HDAC11  
MIR145  
PARK2  
POLR2F  
MIR141  
PIAS3  
MIR21  
UCP2  
MIR133A1  
RNF125  
Zbtb20  
ASCC3  
WNT9B  
WNT2B  
VPS45  
Sarm1  
ANKRD17  
UCHL1  
Klf4  
Coch  
MIR15B  
Ppp1cc  
Ppp1ca  
MIR517C  
MIR517A  
Mfge8  
MIR3148  
Plunc  
Serpib2  
SFTPA1B;SFTPA1

TRIM63  
TRIM61  
TRIM60  
TRIM55  
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TRIM45  
TRIM42  
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TRIM7  
MUL1  
Gabarap  
MIRLET7B  
Mir135b  
Scaf11  
Naip5  
Fer  
Rad23a  
Lum  
Siglecg

CNOT8  
Chat  
COX5B  
Abl1  
Prked  
Tbx21  
Mir212  
Mir132  
hsa-mir-132  
Cryab  
Drd2  
Tph1  
ITGB3  
Fcnb  
Fena  
Glrx  
Mir497  
MOV10  
Daglb  
MIR187  
TRIM62  
Mir466l  
AI607873  
Pydc3  
Pyhin1  
BC094916  
Gm4955  
TRIM28  
CALCOCO2  
MAP1LC3C  
Foxo3  
VTRNA2-1  
Tnfaip8l2  
Abca1  
Mir467b  
Trp73  
TP73  
MIR10B  
Mcpt4  
Tlr13  
Nlrc3

MIR378  
Cfr  
Ahsg  
Olfm4  
Itgax  
Ms4a8a  
MS4A8B  
Casp7  
MIR1275  
MIR200C  
MIRLET7C  
Pura  
Ace2  
Eif4e  
Edil3  
NLRP4  
Zc3h12a  
P2ry14  
Dusp10  
E2f1  
Rb1  
Dok3  
Dicer1  
Tufm  
mmu-mir-29a  
Gnai2  
Lst1  
Scarb1  
Tsc22d3  
Rhbf2  
Ly96  
LILRA2  
Clec9a  
Pacsin1  
Irak3  
Eps8  
Atf4  
Ehmt2  
1700021K19Rik  
KIAA0226  
Tmed7

TMED7;TICAM2

Cd209a

Ntn1

Jak3

Sharnin

Camkk2

WNT3A

Was

MIR16-2

MIR16-1

Frem1

Usp4

Fstl1

Trib2

Apoa1

Hsp90b1

Trpm2

Itch

Lrrk2

Hp

Unc5cl

Cnot4

Serpinb9

Hsf1

Pros1

Gas6

Cd300lf

Cd300a

Rictor

Ifit2

Yy1

mmu-mir-10a

MIR10A

MRGPRX2

Rgs2

Pcbp1

Trp53

Fance

APOBEC3B

Cdkn2a

Dcn

MIR125B2  
MIR125B1  
Dlk1  
Tnip1  
Pklr  
Serp2  
Fadd  
Pla2g4a  
Gzmm  
SELK  
Aire  
Ppargc1b  
Mapkapk2  
Zfpm2  
Zfpm1  
Gata6  
Gata4  
Stub1  
Serpine1  
NAIP  
Naip2  
Trem2  
Ddx41  
Tax1bp1  
Neu1  
Aqp3  
Elf1  
Muc1  
Rpl19  
Il4ra  
mmu-mir-29b-1  
Rag1  
Snca  
F11  
Trem12  
Hspd1  
Pin1  
Notch1  
Hspa14  
Tgtp1  
Igtf



Irgm1  
Gm16379  
Rarres2  
Kcnj8  
Clec1b  
Dhx36  
Ddx21  
Ddx1  
Cd97  
Jam3  
Ubqln1  
Pmaip1  
Ip6k1  
Khsrp  
Tpst1  
Plec  
VENTX  
Vldlr  
MIR23B  
Cflar  
Cdk6  
MIR107  
Gpr77  
Pik3ap1  
Casp8  
SREBF1  
Atg12  
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MIR372  
Akna  
IRAK2  
Gbp10  
Gbp7  
Gbp6  
Gbp1  
Arhgap15  
Tecpr1  
HMGN2  
Map3k5  
Cd46  
FCN1

H2-Ab1  
H2-Aa  
Srxn1  
Gp2  
Hrh4  
Plg  
Impdh2  
C1qc  
C1qb  
C1qa  
Ccbp2  
Xiap  
Birc3  
Birc2  
Defb3  
Raet1c  
Raet1a  
Cops5  
Xbp1  
Trp63  
TP63  
Cltc  
Cebpe  
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CEBPD  
Coro2a  
TBKBP1  
SIAH2  
CD37  
SLC15A4  
SYP  
MAP2K6  
MMP7  
NLRP2  
NLRP9  
NLRP11  
NLRP13  
NLRP8  
NLRP5  
PSMA7  
CDK9

C8A  
SELE  
C4A  
Mbl1  
Apcs  
Cfh  
PTPN2  
RCAN1  
SMAD7  
ABCG1  
SOCS6  
LGALS2  
MAP3K7IP1  
MLST8  
TCEB2  
MEFV  
AMACR;C1QTNF3  
SCARF1  
CLEC4C  
SIGIRR  
C19orf29  
C9  
PIAS4  
SMAD6  
STAP2  
ARRB2  
REST  
RCOR1  
KAT2B  
NLRP1  
MTA1  
IL8  
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SIAH1  
LPCAT2  
ACHE  
MoleculeID 32847  
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TRADD

TNIP3  
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BCAR1  
ZMYND11  
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PDCD1LG2  
SMARCE1  
NKIRAS2  
SOCS2  
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CAMK2A  
ANXA4  
RIPK1  
TRAFD1  
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IRF2BP1  
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OTUD5  
LILRA4  
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CARD18  
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Sirt1  
FLI1  
PTCH1  
CTNNAL1  
IL8RB  
AAMP  
COPS8  
LRRFIP1  
NUP214  
GRK5  
GPSM1  
FBXW5

IRAK1BP1  
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RUNX3  
GJA1  
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hsa-mir-146b  
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C4BPA  
Kitl  
Rftn1  
Hspbp1  
Akap10  
Ptges2  
Stim1  
Orai1  
Itpr3  
Itpr1  
Lrrfip2  
Trib3  
Siglech  
Siglece  
Siglec5  
Siglec1  
SIGLEC15  
SIGLEC11  
SIGLEC9  
SIGLEC8  
SIGLEC7  
SIGLEC6  
SIGLEC10  
Rgmb  
4432412L15Rik

Oas2  
Oas1h  
Oas1g  
Oas1f  
Oas1e  
Oas1d  
Oas1c  
Oas1b  
Oas1a  
Lair1  
C8B  
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CARD16  
OTUD7B  
CFB  
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ADAM10  
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NKIRAS1  
KLK1  
C1S  
MAP3K1  
KPNA1  
C1R  
LY9  
EGR1  
ELP2  
F2RL2  
F2RL3  
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HOXA9  
GSTP1  
WDR34  
ACAP1  
Anxa2  
CEACAM1  
Tlr11  
CASP6  
Defa20  
PELI2  
hsa-mir-126

FFAR2  
hsa-mir-98  
CISH  
hsa-let-7e  
HMGB3  
HMGB2  
SIVA1  
SNAP23  
IRF2  
PLK1  
TRAF1  
PKN1  
FXR1  
ERBB2IP  
RBCK1  
RNF31  
PIAS1  
WDR62  
DAB2IP  
YJEFN3  
RP5-1000E10.4  
Trim30  
AZI2  
MAP3K7IP3  
APOBEC3G;APOBEC3F  
hsa-mir-152  
hsa-mir-148b  
hsa-mir-148a  
TRAT1  
FCGR1A  
UBD  
CD300E  
CASP10  
IRF6  
VASP  
IFITM2  
RAD21  
RASGEF1B  
NOXA1  
TRPV2  
CYBA

OPTN  
LGALS4  
LGALS8  
HERC5  
CNPY3  
DHCR24  
MIF;SLC2A11  
ILF3  
ATG9A  
TPSB2  
GAB1  
SLAMF1  
GOPC  
YWHAE  
BTN3A3  
BTN3A2  
BTN3A1  
IFI6  
PTMA  
GNB2  
SPI1  
NLRP7  
GLI1  
TOMM70A  
USP17  
Ace  
ETS1  
RAB11A  
FZD1  
DHX9  
DDIT3  
ATG16L1  
OTUB2  
OTUB1  
Padi4  
XDH  
IFNAR2;IL10RB  
Foxa2  
Defb14  
Fcrl5  
ING4



Calm1  
NXN  
SPON2  
CTCF  
RNF5  
PIAS2  
TCF4  
TLR10  
USP7  
CARD6  
C7  
C6  
BDKRB2  
CTSD  
C1QBP  
SCAMP5  
PSTPIP1  
CTSH  
SMARCA4  
NLRP14  
CCNT1  
MAP2K4  
MAP2K3  
SUGT1  
NCKAP1L  
CD63  
SMARCA2  
BMX  
SERPING1  
PRKCE  
STAT5B  
STAT5A  
SOCS5  
RPS6KA4  
SLAMF8  
SLAMF9  
SLAMF6  
SLAMF7

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