

Supplementary Table 1. Clinical features of patients and controls.

assay	donors of healthy control samples					Untreated glioma patients					dex-treated glioma patients				
	n	M:F	mean age [range]	WHO 2021 diagnosis	histological diagnosis	n	M:F	mean age [range]	WHO 2021 diagnosis	histological diagnosis	n	M:F	mean age [range]	WHO 2021 diagnosis	histological diagnosis
PBDCs by flow cytometry	12	7:5	47 [25-69]		healthy donors	12	7:5	54,6 [36-74]	astrocytoma, IDH mutant (n=2) glioblastoma, IDH wildtype (n=10)	anaplastic astrocytoma (n=1) glioblastoma (n=1) anaplastic astrocytoma (n=4) glioblastoma (n=6)	11	6:5	61,5 [43-74]	astrocytoma, IDH mutant (n=1) glioblastoma, IDH wildtype (n=10)	anaplastic astrocytoma (n=1) glioblastoma (n=10)
TIDCs by flow cytometry	3	2:1	59,3 [53-69]	ganglioglioma (n=1) astrocytoma, IDH mutant (n=1) glioblastoma, IDH-wildtype (n=1)	healthy tissue	5	3:2	52,4 [41-71]	astrocytoma, IDH mutant (n=1) glioblastoma, IDH wildtype (n=4)	anaplastic astrocytoma (n=1) anaplastic astrocytoma (n=1) glioblastoma (n=3)	5	2:3	64 [48-74]	oligodendroglioma, IDH-mutant and 1p/19q-codeleted glioblastoma, IDH wildtype (n=4)	anaplastic oligodendroglioma (n=1) glioblastoma (n=4)
TIDCs by scRNA-seq	2	1:1	53 [53-53]	glioblastoma, IDH-wildtype (n=2)	anaplastic astrocytoma	5	3:3	54,25 [41-71]	astrocytoma, IDH mutant (n=2) glioblastoma, IDH wildtype (n=1) glioblastoma, IDH wildtype (n=2)	anaplastic astrocytoma (n=2) anaplastic astrocytoma (n=1) glioblastoma (n=2)	2	1:1	68 [67-71]	glioblastoma, IDH wildtype (n=2)	glioblastoma (n=2)

Supplementary Table 2. List of monoclonal antibodies and reagents used for the analysis of DC subsets by flow cytometry

Marker	Description	Fluorochrome	Clone	Company
Fixable Viability Stain 780	Viability marker	APC-Cy7		BD Biosciences
CD45	Leukocyte common antigen	AF700	HI30	BD Biosciences
CD3	Lineage marker—T cells	FITC	HIT3A	Biolegend
CD14	Lineage marker—monocytes	BV570	M5E2	Biolegend
CD16	Lineage marker—NK cells and granulocytes	BUV496	3G8	BD Biosciences
CD19	Lineage marker—B cells	FITC	4G7	BD Biosciences
CD20	Lineage marker—B cells	FITC	2H7	BD Biosciences
CD56	Lineage marker—NK cells	FITC	NCAM 16,2	BD Biosciences
HLA-DR	Major histocompatibility complex class II molecule	BUV661	G46-6	BD Biosciences
CD123	pDC marker	PE-Cy7	7G3	BD Biosciences
CD11c	cDC marker	PE-Cy5	B-ly6	BD Biosciences
CD141 (BDCA-3)	DC1 marker	BV605	M80	Biolegend
CD1c (BDCA-1)	cDC2 marker	BV421	L161	Biolegend
M-DC8 (anti-slan)	slanDC marker	APC	DD-1	Milteny Biotec
CD1a	moDC marker	BUV395	HI149	BD Biosciences
CD40	Costimulatory molecule	BV650	5C3	BD Biosciences
CD80	Costimulatory molecule	BV510	L307	BD Biosciences
CD86	Costimulatory molecule	BUV737	2331	BD Biosciences
CD274 (PD-L1)	Inhibitory molecule	PE-CF594	MIH1	BD Biosciences
CD85j (ILT2)	Inhibitory molecule	PE	GHI/75	Biolegend
CD366 (TIM-3)	Inhibitory molecule	BV711	7D3	BD Biosciences

Supplementary Table 3. DEGs between cluster 19 and other clusters.

Gene	RNA cell type specificity
AREG	Group enriched (eosinophil, basophil, NK-cell)
FCER1A	Cell type enriched (basophil)
HLA-DQA1	Cell type enhanced (myeloid DC)
HLA-DPB1	Cell type enhanced (myeloid DC)
LYZ	Cell type enhanced (classical monocyte, myeloid DC)
IL1R2	Cell type enriched (neutrophil)
VIM	Low cell type specificity
S100A6	Low cell type specificity
HLA-DQB1	Group enriched (myeloid DC, naive B-cell, memory B-cell, classical monocyte, intermediate monocyte, plasmacytoid DC)
C1orf162	Low cell type specificity
HLA-DRB5	Cell type enhanced (myeloid DC)
HLA-DRA	Group enriched (naive B-cell, memory B-cell, intermediate monocyte, classical monocyte, plasmacytoid DC, non-classical monocyte)
FCGR2B	Cell type enhanced (basophil, memory B-cell)
MS4A6A	Group enriched (classical monocyte, myeloid DC, plasmacytoid DC, intermediate monocyte, basophil)
GAPT	Cell type enriched (eosinophil)
LSP1	Low cell type specificity
CD163	Group enriched (classical monocyte, myeloid DC)
HLA-DPA1	Group enriched (myeloid DC, intermediate monocyte, memory B-cell, naive B-cell, non-classical monocyte, plasmacytoid DC, classical monocyte)
S100A10	Low cell type specificity
S100A4	Low cell type specificity
AKR1C3	Cell type enhanced (basophil, gdT-cell)
HLA-DRB1	Cell type enhanced (myeloid DC)
CLEC10A	Cell type enriched (myeloid DC)
JAML	Cell type enhanced (eosinophil)
CD1C	Group enriched (myeloid DC, memory B-cell)
CST3	Group enriched (myeloid DC, intermediate monocyte, classical monocyte, plasmacytoid DC, non-classical monocyte)
PLAC8	Cell type enhanced (plasmacytoid DC)
ANXA2	Low cell type specificity
CD1E	Cell type enriched (myeloid DC)
IFITM3	Cell type enriched (myeloid DC)
STK2B	Low cell type specificity
PPA1	Low cell type specificity
RNASE6	Cell type enhanced (plasmacytoid DC)
TMSB10	Low cell type specificity
TGFBI	Group enriched (plasmacytoid DC, classical monocyte, myeloid DC, intermediate monocyte, non-classical monocyte)
RPS18	Low cell type specificity
CSTA	Group enriched (classical monocyte, myeloid DC, intermediate monocyte, neutrophil, non-classical monocyte)
LGALS1	Low cell type specificity
RPS2	Low cell type specificity
PSTPIP2	Cell type enhanced (eosinophil)
GPR183	Low cell type specificity
PKIB	Cell type enriched (myeloid DC)
ANXA1	Low cell type specificity
SNX3	Low cell type specificity
RPL4	Low cell type specificity
CD74	Group enriched (naive B-cell, memory B-cell, myeloid DC, intermediate monocyte, plasmacytoid DC, classical monocyte, non-classical monocyte)
RPL18A	Low cell type specificity
CLEC4A	Group enriched (classical monocyte, myeloid DC, neutrophil, intermediate monocyte, basophil, non-classical monocyte)
TAGLN2	Low cell type specificity
RPS24	Low cell type specificity

Lymphocyte migration	348E-06	-4.79	ITGAL,PLAUCOS,PRKQJ,HNRP1,IL16,RASGRP1,MYH9,DOCK8,STAT3,CCR4,CD8A,HMGB1,IL7R,CBLB,LYT11,CTP2,LAG3,ZAP70,S1PR1,RA2,IL2,CCL5,CLTC,ERZ,SRPD1,IAK1,CD69,ANXA1,CD47,NRAS,BATF,RAF1,BITG4A,EVL,ETS1,FAS,STK4,SKAP1,SEMA40,MAPK14,IFI1R,IRFNG,ITGAE,RICTOR,PKSR1,RA2,CAQ3,ICP1,PFN,INPP5D,ITK,PLCB3,HS90AA1,CCR2,GPRI32,STM2,CD58,BCL11B,TNFSF14,MAP3K14,MYB,NR1H2,ARCC1,POCD1,CD44,PYCARD,SGS1,ARHGEP1,BCL2,XCL1,SH2D1A,CD2
Cell movement of lymphocytes	520E-06	-4.65	ITGAL,PLAUCOS,PRKQJ,HNRP1,IL16,RASGRP1,MYH9,DOCK8,STAT3,CCR4,CD8A,HMGB1,IL7R,CBLB,LYT11,CTP2,ACTN4,LAG3,ZAP70,S1PR1,RA2,IL2,CCL5,CLTC,ERZ,SRPD1,IAK1,CD69,ANXA1,CD47,NRAS,BATF,RAF1,BITG4A,EVL,ETS1,FAS,STK4,SKAP1,SEMA40,C9orf103,MAPK14,IFI1R,IRFNG,ITGAE,RICTOR,WIP1,PKSR1,RA2,CAQ3,ICP1,PFN,INPP5D,ITK,PLCB3,HS90AA1,PTD,CCR2,GPRI32,STM2,BCL11B,CD58,TNFSF14,MAP3K14,MYB,NR1H2,ARCC1,POCD1,CD44,PYCARD,SGS1,ARHGEP1,BCL2,XCL1,SH2D1A,CD2
Differentiation of T lymphocytes	1,31E-10	-4.56	IRF1,ICOS,CDKN2A,IL2,RLCK,CHB,HMGB1,IL7R,IL2,SMAD2,CD44,SOC2,PTGER4,MAPK,PRDM1,GBA,KLBD1,USP15,STT1,DNAH3,BATF,STAT5B,ETS1,BH01,HMG1,ZBTB16,RICTOR,PTPN22,NDRP1,ITPK9,STAT5,CD3D,NCOR1,PRDX2,CCR2,STAT4,NOTCH1,BCL11B,CD3,GMAP3K14,IMP6,GIMAP1,PARP1,CD40LG,BCL2,SP3,TNFRSF18,PARP1,TRK2,1,DSIP1,ITGAL,PRKQJ,CARF9,GATA3,MALT1,STAT3,STAT5A,CD8A,CBLB,ZAP70,NKAZ2,IL18R1,CYLD,GRAP2,CD3E,DNAH3,CCL5,ZEB1,IAK1,CD69,OR8A3,SH2D2,CA,HD,ANXA1,BH01,C9orf103,MAPK14,IFI1R,IRFNG,ITGAE,RICTOR,WIP1,DEFB1,DEFB1,ITK,TOX,SLAMF6,PRKDC,HS90AA1,GADD45G,CD8B,PREX1,ATM,PPP3C1B,SLA,PCD1,IRF2,THEM5,TNFAIP3,SOC1,PTPRC,CD247,SH2D1A
Maturation of leukocytes	1,58E-03	-4.33	IRF1,BH01,HUNG,ICOS,CDKN2A,PKSR1,RASGRP1,PHC1,ICP1,EF1,STAT3,CCR4,PFN,INPP5D,HMGB1,STAT5A,IL7R,IL2,CTK,ITK,LAG3,ITK,DGQZ,PTP1,CCR2,CD3E,IL2,CCL5,NOTCH1,GPRI32,TNFSF14,ATM,SRSF2,MAP3K14,PRDM1,CD44,CD47,CD40LG,RGS1,PTPRC,FAS,CD247,TRK21
Homing of mononuclear leukocytes	8,99E-03	-4.33	ITGAL,ITGAE,WIPF1,PLA2G6,IL16,RAC2,ICP1,F2R,STAT3,CCR4,PFN,HMGB1,C9orf103,ITK,AN06,PBRK,LYT11,PTD,RR,HEBP1,S1PR1,CCR2,IL2,CCL5,TNFSF14,PTP,ROJAK1,FBY,CD44,ANXA1,RGS1,BCL2,BATF,RAF1,BITG4A,XCL1,STK4
Binding of leukocytes	1,45E-02	-4.27	ITGAL,FAF4H18,PLAUCOS,PRKQJ,RASGRP1,STK2,CCR4,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Quantity of hematopoietic progenitor cells	9,15E-12	-4.21	IRF1,AKAP13,CDKN2A,FCER1,G,RASGRP1,IL2,IRG,CCR4,IL7R,IL2,CTK,ITK,LAG3,ITK,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Quantity of lymphoid tissue	3,20E-11	-4.20	IRF1,ICOS,CDKN2A,FCER1,G,RASGRP1,IL2,IRG,CCR4,IL7R,IL2,CTK,ITK,LAG3,ITK,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Adhesion of immune cells	1,51E-02	-4.18	ITGAL,FAF4H18,PLAUCOS,PRKQJ,RASGRP1,STK2,CCR4,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Quantity of thymocytes	1,07E-12	-4.07	IRF1,PRKQJ,CDKN2A,FCER1,G,RASGRP1,IL2,IRG,STAT3,CCR4,CD8A,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Quantity of thymus gland	4,60E-13	-3.91	IRF1,PRKQJ,CDKN2A,FCER1,G,RASGRP1,IL2,IRG,STAT3,CCR4,CD8A,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Quantity of natural killer T lymphocytes	5,61E-11	-3.89	IRF1,BH01,ITGAL,ITGAE,ITGAE,ITGAE,AP3H1,PRKQJ,RICTOR,IL2,RLCK,ITK,LAG3,ITK,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Maturation of mononuclear leukocytes	3,84E-04	-3.86	BH01,HUNG,ICOS,CDKN2A,RASGRP1,PHC1,ICP1,EF1,STAT3,CCR4,PFN,INPP5D,HMGB1,STAT5A,IL7R,IL2,CTK,ITK,DGQZ,LAG3,ITK,DGQZ,PTP1,CCR2,CD3E,IL2,NOTCH1,GPRI32,ATM,SRSF2,MAP3K14,PRDM1,CD44,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,SH2D1A,CD2,STK4,SKAP1
Interaction of mononuclear leukocytes	6,26E-04	-3.84	ITGAL,HUNG,PLAUCOS,RICTOR,CD6,RAC2,RASGRP1,B4GALT1,CCR4,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Differentiation of B lymphocytes	1,15E-03	-3.82	ICOS,IL2,RG,PHC1,MALT1,EF1,SPK1,STAT3,CCR4,PKSR1,IL7R,IL2,CTK,ITK,LAG3,ITK,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Cell viability of T lymphocytes	3,17E-09	-3.81	CSK1,ICOS,PRKQJ,RICTOR,IL2,RLCK,ITK,LAG3,ITK,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Adhesion of T lymphocytes	1,14E-05	-3.79	ITGAL,HUNG,PLAUCOS,RICTOR,CD6,RAC2,RASGRP1,CCR4,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,SH2D1A,CD2,STK4,SKAP1
Interaction of T lymphocytes	2,17E-05	-3.77	ITGAL,HUNG,PLAUCOS,RICTOR,CD6,RAC2,RASGRP1,CCR4,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,SH2D1A,CD2,STK4,SKAP1
Proliferation of lymphocytes	9,98E-18	-3.77	IRF1,AKAP13,CDKN2A,FCER1,G,RASGRP1,IL2,IRG,CCR4,IL7R,IL2,CTK,ITK,LAG3,ITK,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Proliferation of mononuclear leukocytes	2,86E-17	-3.73	IRF1,AKAP13,CDKN2A,FCER1,G,RASGRP1,IL2,IRG,CCR4,IL7R,IL2,CTK,ITK,LAG3,ITK,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Binding of mononuclear leukocytes	2,13E-04	-3.72	ITGAL,HUNG,PLAUCOS,RICTOR,CD6,RAC2,RASGRP1,B4GALT1,CCR4,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Interaction of lymphocytes	3,55E-04	-3.71	ITGAL,HUNG,PLAUCOS,RICTOR,CD6,RAC2,RASGRP1,CCR4,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2
Binding of T lymphocytes	2,82E-06	-3.66	ITGAL,HUNG,PLAUCOS,RICTOR,CD6,RAC2,RASGRP1,CCR4,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,SH2D1A,CD2,STK4,SKAP1
Maturation of lymphocytes	1,49E-03	-3.63	BH01,HUNG,ICOS,CDKN2A,RASGRP1,PHC1,ICP1,EF1,STAT3,CCR4,PFN,INPP5D,HMGB1,STAT5A,IL7R,IL2,CTK,ITK,DGQZ,LAG3,ITK,DGQZ,PTP1,CCR2,CD3E,IL2,NOTCH1,ATM,SRSF2,MAP3K14,PRDM1,CD44,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,SH2D1A,CD2,STK4,SKAP1
Adhesion of lymphocytes	1,16E-04	-3.62	ITGAL,HUNG,PLAUCOS,RICTOR,CD6,RAC2,RASGRP1,CCR4,IL7R,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,SH2D1A,CD2,STK4,SKAP1
Proliferation of immune cells	3,92E-16	-3.61	IRF1,AKAP13,CDKN2A,FCER1,G,RASGRP1,IL2,IRG,CCR4,IL7R,IL2,CTK,ITK,LAG3,ITK,IL2,CTK,ITK,CBLB,RA2,IL2,P2RY8,CCL5,TLN1,ERZ,IAK1,PTGER4,ANXA1,CD47,ADGRES,RAF1,BITG4A,EVL,FAS,KNAP,STK4,SKAP1,SEMA40,IFI1R,IRFNG,RICTOR,PTPN22,PLA2G6,CD6,RAC2,B4GALT1,PFN,INPP5D,ITK,MGAT5,PLCB3,PRDX2,HS90AA1,PAK2,ANGPT2,PREX1,CD58,MSN,MAP3K14,MYB,IMP6,CD44,CD40LG,RGS1,ARHGEP1,PTPRC,TNIP1,SH2D1A,STK4,CD2

Binding of lymphocytes	754E-05	-3.60	ITGAL,PLAU,IFNG,ICOS,RICTOR,CD6,RAC2,RASGRP1,CXCR4,IL7R,ITK,IRLBP,HS90AA1,IL18R1,RA2,AIL2,CCL5,CD58,MSN,EZRAK1,FYB1,MDM6,CD44,ANXA1,CD47,RGS1,ARHGEP1,RAP1,ITGA4,FAS,SH2D1,ANKP,CD2,STK4,SKAP1
Adhesion of mononuclear leukocytes	2.88E-04	-3.59	ITGAL,PLAU,IFNG,ICOS,RICTOR,RAC2,RASGRP1,CXCR4,IL7R,ITK,IRLBP,HS90AA1,RA2,AIL2,ANGPT2,CD58,EZR,JAK1,FYB1,CD44,ANXA1,CD47,CD40LG,RGS1,ARHGEP1,RAP1,ITGA4,FAS,SH2D1,ANKP,CD2,SKAP1
Cell cycle progression	5.12E-07	-3.58	ITGAL,IFNG,ATG5,CDKN2A,CD320,IKZF1,IKZF1,STAT3,INPP5D,STAT5,AIL7,RLCK,LAG3,ZAP70,SKL,KRAS,IL2,STAT4,ATM,ANBP1,IKBKKR,CD40LG,NDK,CDKN1B,ICL2,SOC51,PTPRC,ICL2L1,STAT5B
Cell viability of B lymphocytes	3.70E-04	-3.52	SEMA4D,RICTOR,WIPF1,MALT1,SYK,INPP5D,TSC22D3,ITPKB,STAT5,AIL7,PRKCB,IKKAS,SH3BP1,NAIP1,MAP3K14,LAX1,IKBKB,LY9,PRDM1,CD44,GIMAP1,CD40LG,NAIP2,ICL2,FCMR,ICL2L1,STAT5B
T cell migration	2.88E-04	-3.51	ITGAL,IFNG,PLAU,ICOS,PRKQ,ITGAE,HNRNP1,PKR1,IL16,RAC2,AQP3,LC1,MYH9,DOCK8,STAT3,CXCR4,FYN,INPP5D,ITK,PLCB1,LAT,LAG3,HS90AA1,ZAP70,S1PR1,CCR2,ICL2,CCL5,ICL11B,TNFSF14,MAP3K14,EZR,SMFPD1,JAK1,FYB1,NR1H2,ABCC1,PDCC1,CD69,CD44,CD47,RGS1,ICL2,BATE,ITGA4,XCL1,STK4
Quantity of CD8+ T lymphocyte	6.75E-11	-3.50	IRF1,PRKQ,P2RX5,CDKN2A,PRKACB,RASGRP1,IL2RG,MALT1,DOCK8,STING1,ARHGEP6,CDRA1,CK,PRKCH,LAG3,CYLD,GRAP2,CD3E,IL2,TXNIP,SMFPD1,PRF1,ZEB1,HUST,TAPBP,PPARD,ST11,BATF,GNLY,BCLAF1,ETS1,STAT5B,STK4,RHOH,IFNG,IL2R,PTPN22,RAC2,TAP1,ELK4,GRP18,STAT5A,CD3D,ITK,TOX,TRIB2,KRAS,CCR2,CD8B,CD5,ICL11B,MAP3K14,IKBKG1,PDCC1,THEM8,HLA-A,BCL2,PTPRC,TNFSF18,CD247,SH2D1A,CASP9
Cell proliferation of T lymphocytes	6.73E-16	-3.49	IRF1,NCOR2,ZAKAP13,FTL,ICOS,CDKN2A,FCER1G,GNRNPI,RASBP1,IL2RG,ELF1,STING1,CXCR4,BIND,HMGB1,IL7,RLCK,LAG3,LAT,TRAF1,LAG3,NCK1,SKL,IL2,IL2,TXNIP,TLN1,DLG1,TCF7,CD46,PTGER4,PRDM1,KLRD1,CD47,ST11,DNAJ3,BTN3A1,BATF,BCLAF1,PCBP2,ICL2L1,ETS1,STAT5B,FAS,STK4,CBP,RIH0H,MARCH7,SAMF1,WBP2,IFNG,CREB1,D,OKZ,ZBTB16,RICTOR,CBLA,PTPN22,NRIP1,WIPF1,KZF3,LC1,OPR17,FYN,STAT5A,PD4D,CDK2,RRD2,WWP2,CD27,CCR2,RAS2,STAT4,NOTCH1,MER,CDS,CD3,MAP3K14,LY9,ANAPC1,PPP3CA,PP2R,PARP1,CD40LG,BCL2,ARHGEP1,TNFSF18,ICL1,CD2,P,GAIP3,AINAK,DISP10,IFZAK2,ITGAL,WASHC1,ATG5,PLA1,IRL2,PRKQ,PPP2R5C,G,AT3A,MALT1,DOCK8,IFNG,IKK5,SYK,STAT3,ARHGEP6,CDNA,ANOG,GNB1,PRKCB,CTTP,ZAP70,SGS2L3,CD3,GRAP2,CD3E,PAG1,CCL5,PRF1,SMFPD1,IKBKB,MY1,CD69,SH2D2,ANXA1,PPARD,IRAP,CDK6,IRK2,ICL2,ICL1,CD2,MAP3K14,STK17B,SNAP1,ZSK3B,MAP2K7,MAPK14,S1PR4,IKBBI,IL2RB,SELENOK,PRKCI,CD6,RAC2,ICK3,ICK3,INPP5D,TSC22D3,DEF6,ITK,PAF1,NG,AT5,TOX,HEH,IKC3H2,TNFSF14,ATM,MSN,PPP3R1,TGTR,NR1,ICL2,PDCC1,CD44,IFZ2,THEM8,NCSTN,TNFAIP3,MAP3K8,BUNN3,IMBASH3A,SOC51,PTPRC,CD247,SH2D1A,CASP9,TBC1D10C
Activation of natural killer cells	8.04E-03	-3.49	FLT3LG,IL2,ITGAL,STAT4,TXNIP,IFNG,KLRB1,PRF1,SOC52,RASGRP1,NCR1,MALT1,HLA-A,KLR2C,STAT5B,SH2D1A,CASP9,LYST,HEBP1,IL18R1
Differentiation of helper T lymphocytes	1.19E-04	-3.34	IRF1,MAPK14,ITGAL,IFNG,ICOS,PRKQ,RICTOR,IL2RB,NDP1F1,GRB9,CD6,MALT1,GATA3,STAT3,DEF6,HMGB1,STAT5A,ITK,CBLB,GAD45,QL1,BHL,NRA2,IL2,STAT4,DNAJ11,CCL5,NOTCH1,SMAD2,MAP3K14,SOC52,PTGER4,PRDM1,MAP,CD69,ROR,SH2D2,ANXA1,KLRD1,ISPF15,ST11,CD40LG,CDKN1B,BATF,ETS1,TNFSF18,SH2D1A,PGAP3,TRK21
Transmigration of mononuclear leukocytes	1.07E-02	-3.29	CCR2,F1R,ITGAL,IFNG,CCL5,CD99,RAC2,CD44,AQP3,MYH9,CD47,CD40LG,ITK,ITGA4,HS90AA1,ZAP70
NK cell homeostasis	3.67E-05	-3.24	FLT3LG,IRF1,SLAMF1,HECTD1,IL2RB,PRDM1,TAPBP,IL2RG,IRF2,IKZF1,GATA3,STAT3,INPP5D,STAT5A,SP3,TOX,SLAMF6,KAT7,PTPRC,STAT5B,ETS1,TRK21
Expansion of lymphocytes	7.36E-07	-3.21	IRF1,ICOS,SYK,STING1,STAT3,HMGB1,IL7,RLAT,LAG3,ZAP70,S1PR1,GRAP2,CD3E,IL2,CCND2,PRF1,IKBKB,PI3K,CD69,BRAF,CDKN1B,ICL2L1,ETS1,STAT5B,FAS,CREB1,IFNG,ZBTB16,IL2RB,PTPN22,LC1,IKZF1,CCND3,DEF6,STAT5,ITK,TOX,CD27,SGRR,STAT4,MYBL1,LY9,NR1H2,PDCC1,IRF2,PARP1,CD40LG,TNFAIP3,ICL2,SOC51,PTPRC,TNFSF18
Flux of Ca2+	1.01E-03	-3.20	ICOS,PRKRI,RAC2,SYK,CXCR4,INPP5D,ITK,PLCB1,NM2,DOGKLAT,RACE1,HEBP1,CD3E,PAG1,CCL5,GRP132,DLG1,STM2,CD5,EZR,WDR37,LAX1,ANXA1,PARP1,FAS,BINB
Maturation of T lymphocytes	2.88E-05	-3.19	RHOH,IL2,CD3E,NOTCH1,ATM,SRSP2,CDKN2A,RASGRP1,ELF1,CXCR4,FYN,IL7,RLCK,ITK,RINX3,PTPRC,DOGKLAT,CD247,TRK21
Generation of helper T lymphocytes	2.39E-03	-3.19	IL2,STAT4,IFNG,ICOS,CD5,SMAD2,PRKQ,PNKQ,MAP3K14,PPP3CA,ROR,GA,GATA3,STAT3,STAT5A,ITK,TRK21,S1PR1
Expansion of T lymphocytes	5.27E-05	-3.16	IRF1,CREB1,IFNG,ICOS,ZBTB16,PTPN22,IKZF1,LC1,SYK,STAT3,STING1,DEF6,HMGB1,IL7R,ITK,TOX,LAT,LAG3,CD27,ZAP70,GRAP2,CD3E,IL2,STAT4,PRF1,IKBKB,LY9,NR1H2,PI3K,PDCC1,CD69,IRF2,PARP1,IRAP,CD40LG,CDKN1B,ICL2,TNFSF18,STAT5B,FAS
Activation of leukocytes	2.97E-09	-3.13	NCOR2,MTND5,ICOS,NC1F,FCER1G,IL16,RASGRP1,IL2RG,STARD7,STING1,HMGB1,TLXN1,ALCK,PRKCB,LAT,TRAF1,LAG3,SIRPC,NCK1,ITLSH,IKBP1,IL2,TXNIP,TLN1,DLG1,CD46,LAX1,SOC52,PTGER4,PRDM1,GRAP2,GRZ,KLRD1,CD47,ST11,BTN3A1,GNLY,AZ2,BCLAF1,ICL2L1,BAK,ETS1,STAT5B,FAS,FLT3LG,RIH0H,SLAMF1,IFNG,FOXP1,PTPN22,NDP1F1,RA,HA,FYN,ITPKB,STAT5A,DOGKLAT,CD27,MSA1,IKK2,STAT4,NOTCH1,MER,CDS,CD5,ICL11B,CD3D,CAMBA,KLRD1,PPP3CA,INDB9,PPCABD,HLA,CD40LG,CD27,ZMBA,BCL2,VTI1B,TNFSF18,CD27,LYST,AHNAK,ITGAL,ATG5,PRKQ,PRKCB,IL2RB,IRK2,CD69,IRF2,PARP1,CD40LG,CD3E,PAG1,CCL5,PRF1,SMFPD1,IKBKB,MGST1,RIH0A,ABH1,SH2D2,ANXA1,ABR1,ICL2,CD3,IL2,STAT4,NOTCH1,MER,CDS,CD5,ICL11B,CD3D,CAMBA,KLRD1,PPP3CA,INDB9,PPCABD,HLA,CD40LG,CD27,ZMBA,BCL2,VTI1B,TNFSF18,CD27,LYST,AHNAK,ITGAL,ATG5,PRKQ,PRKCB,IL2RB,IRK2,CD69,IRF2,PARP1,CD40LG,CD3E,PAG1,CCL5,PRF1,SMFPD1,IKBKB,MGST1,SH2D2,ANXA1,CDKN1B,HSF11,SEMA4D,MAPK14,PKR3,CD247,SH2D1A,CASP9,TBC1D10C
Quantity of double-positive thymocyte	7.88E-09	-3.13	IRF1,H0H,PRKQ,IL2RB,CDKN2A,IL2RG,IKZF1,CCND3,CXCR4,CD8A,ITK,IRLBP,RLCK,ITK,NM2,PRKCH,LAT,PRKDC,CTE44,ZAP70,CYLD,CD3E,GRAP2,IL2,CDS,ICL11B,ATM,ZBTB16,THEM8,PPARD,CD40LG,ST11,CDKN1B,CD7,BCL2,PTPRC,MTZ,ETS1,CD247,STK17B
Clonal expansion of lymphocytes	3.78E-04	-3.12	GRAP2,IL2,PARP1,SYK,STAT4,HMGB1,IFNG,LAT,CD27,ZAP70,S1PR1
Clonal expansion of T lymphocytes	6.12E-04	-3.12	GRAP2,IL2,PARP1,SYK,STAT4,HMGB1,IFNG,LAT,CD27,ZAP70
Activation of mononuclear leukocytes	4.92E-13	-3.10	NCOR2,ICOS,NC1F,FCER1G,RASGRP1,IL2RG,STING1,HMGB1,TLXN1,ALCK,PRKCB,LAT,TRAF1,SIRPC,LAG3,NCK1,IL2,SH3BP1,TXNIP,TLN1,DLG1,CD46,LAX1,SOC52,PTGER4,PRDM1,KLRD1,CD47,ST11,BTN3A1,BCLAF1,AZ2,ICL2L1,BAK,STAT5B,FAS,FLT3LG,RIH0H,SLAMF1,IFNG,FOXP1,PTPN22,NDP1F1,RA,HA,FYN,ITPKB,STAT5A,DOGKLAT,CD27,MSA1,IKK2,STAT4,NOTCH1,MER,CDS,CD5,ICL11B,CD3D,CAMBA,KLRD1,PPP3CA,PPCABD,HLA,CD40LG,CD27,ZMBA,BCL2,VTI1B,TNFSF18,CD27,LYST,AHNAK,ITGAL,ATG5,PRKQ,PRKCB,IL2RB,IRK2,CD69,IRF2,PARP1,CD40LG,CD3E,PAG1,CCL5,PRF1,SMFPD1,IKBKB,MGST1,SH2D2,ANXA1,CDKN1B,HSF11,SEMA4D,MAPK14,PKR3,CD247,SH2D1A,CASP9,TBC1D10C
Expansion of mononuclear leukocytes	5.10E-07	-3.07	IRF1,ICOS,SYK,STING1,STAT3,HMGB1,IL7,RLAT,LAG3,ZAP70,S1PR1,GRAP2,CD3E,IL2,CCND2,PRF1,IKBKB,PI3K,CD69,BRAF,CDKN1B,ICL2L1,STAT5B,ETS1,FAS,FLT3LG,IFNG,CREB1,ZBTB16,IL2RB,PTPN22,LC1,IKZF1,CCND3,DEF6,STAT5,ATK,TOX,CD27,SGRR,STAT4,MYBL1,LY9,NR1H2,SENP1,PDCC1,IRF2,PARP1,CD40LG,TNFAIP3,ICL2,SOC51,PTPRC,C,TNFSF18
Development of B lymphocytes	2.43E-03	-2.99	FLT3LG,ITGAL,IFNG,ICOS,PLEKH2,RICTOR,TAB2,PKR1,IL2RG,PHC1,CCND3,DOCK8,SYK,CXCR4,INPP5D,FYN,ITPKB,STAT5,AIL7R,ITR,IL2,EP300,IKBKB,PRDM1,CD69,ROR,NCSTN,CD40LG,BCL2,ITGA4,ICL2L1
Transmigration of T lymphocytes	1.66E-02	-2.98	CD47,CCL5,IFNG,ITK,HS90AA1,RAC2,CD44,AQP3,ZAP70,MYH9
NK cell development	1.18E-06	-2.95	FLT3LG,IRF1,SLAMF1,HECTD1,IL2RB,TAPBP,IL2RG,IRF2,IKZF1,GATA3,STAT3,INPP5D,STAT5A,SP3,TOX,SLAMF6,KAT7,PTPRC,STAT5B,ETS1,TRK21

Development of imate lymphoid cells	1.61E-07	-2.93	FLT3LG,IRF1,SLAMF1,ZBTB16,HECTD1,IL2RB,TAPP1,IL2RG,IRF2,JZP1,GATA3,STAT3,INPP5D,STAT5A,SP1,TOX,SLAMF6,KAT7,PTPRC,STAT5R,ETS1,SH2D1A,TRX21
Cell movement of T lymphocytes	5.23E-04	-2.93	IFNG,ICOS,ITGAE,HNRP1,PIK3R1,IL16,RAC2,AQP1,LCF1,MYH9,DOCK8,STAT3,CXCR4,LYN,INPP5D,ITK,PLC,IL2,LAG3,HS90AA1,ZAP70,S1PR1,CCR2,IL2,CCL5,BCL11R,TNFSF14,SMPD1,JA1,LYN1,NR1H2,POCD1,CD69,CD44,CD47,ICOS1,BCL2,BATF,ITGA4,XCL1,STK4
Cell viability of hematopoietic progenitor cells	4.55E-03	-2.93	CD3E,IL2,TCF7,ATM,NABP1,GMAP1,NABP2,RAP9A,BCL2,STAT5A,IL7R,PSMD1,BCL2L1,STAT5B
Quantity of invariant natural killer T cells	6.53E-04	-2.92	NOTCH1,ICOS,ATG5,BCL11R,RICTOR,PTB1,LY9,RASGRP1,ELF1,TNFAIP3,IL7R,BAK,ETS1
Activation of lymphocytes	3.62E-13	-2.88	NCOR2,ICOS,NCF1,FCER1G,RASGRP1,IL2RG,STING1,HMGB1,TXN1,ALCK,PRKCB,LAT,TRAF1,SH2B3,LAG3,NCK1,SH3KBP1,IL2,TKNIP,TLN1,DJL1,CD46,LAX1,SOCS2,PTGER4,PRDM1,KLRD1,CD47,ST1,BTN3A1,BCLAF1,AZ2,BCL2L1,BAX,STAT5B,FASET5,FLT3LG,SLAMF1,IFNG,PTPN22,NDP1,LYN,ITPK8,STAT5A,DGKZ,SLA2,CD27,MS4A1,CCR2,STAT4,MBP,NOTCH1,BCL11R,CD5,CD58,CD3E,CD3G,CAMK4,KIR3C1,PPP3CA,RYR2,CD40LG,CD37,GZMA,BCL2,VT1B,TNFSF18,CD2,LYST,AHNAK1,ITGALATG5,PRKAA1,PLEKH2,PRKQ,RAE29,MAL71,SYK,STAT3,AN06,PUTS,CBLZAP70,NR4A2,IL18R1,CD3E,PAG1,CCL5,PRF1,SMPD1,IKKBR,MGST1,SH2D2A,ANXA1,CDKN3,IL18,SH3P1,SEMA4D,MAPK14,PIK3IP1,TNFAIP3,IL2,KLRB1,IL2RB,TAR2,CD6,INPP5D,DEFB,CLEC2D,IL2RC2,PPP2R3C,ITK,MGAT5,HEBP1,PAR2,TNFSF14,PPP3CB,TIGIT,POCD1,CD44,NCR3,TNFAIP3,SOCS3,PTPRC,CD247,SH2D1A,CASP8,TRC1D10C
Cell death of immune cells	1.54E-10	-2.88	IRF1,ICOS,CDKN2A,FCER1G,IL2RG,ELF1,F2R,CXCR4,STING1,HMGB1,IL7R,IL2K,PRKCB,LAT,TRAF1,LAG3,TLK4,SKIL,TRIS1,PR1,IL2,SH3KBP1,TLN1,TCF7,EZBLAX1,PTGER4,PRDM1,ZC3H8,CD47,DNAH3,CAMK2G,BIRC6,BCL2L1,PCMR,BAX,STAT5B,FASET5,LYWHAZ,STK4,FLT3LG,RHOH,SLC6A6,CREB1,IFNG,FOXO1,ZBTB16,RICTOR,PTPN22,WIPF1,H12,FYN,RAP9A,ITPK8,SG15,STAT5A,WIPF2,CD27,MS4A1,CASP10,STAT4,NOTCH1,GPR132,RAIP1,CD51,BCL11R,CD3E,CD99,NABP1,EP300,MAP3K14,CAMK4,LYN,ACTG2,ALKBH1,RYR2,GMAP1,PARP1,CD40LG,SOAT1,GZMA,BCL2,ARHGAP1,TNFRSF18,DRMDL3,XCL1,CD2,ANZF1,EIF2A2,ITGALATG5,PRKQ,PRKAA1,ICP2,MAL71,DOCK8,SYK,STAT3,NOX2L,PKR3,AP1,IRS2,ZAP70,PRKCE1,CTD,GRAP2,CD3E,CCL5,SMFP1,PIF1,IKKBR,PI3K,SH2D2A,RAI1,ANXA1,CDKN1B,PSMD1,CASP7,STK17B,SEMA4D,OSK3,GMAP4,MAPK14,TNFAIP3,IL2RB,PIK3R1,CD6,RAE2,INPP5D,TSC22D1,DHAP,ITK,MGAT5,PRKDC,GAD65,GSK3A,ANGPT2,ATM,LYN,PPP3CB,POCD1,CD44,CASP8,NABP2,TNFAIP3,MAP3K2,SOCS3,PPP2R2,IL2,PTPRC,CD247,SH2D1A,CASP8,XR8B
Differentiation of Th1 cells	7.17E-03	-2.86	IRF1,IL2,ITGAL,STAT4,IFNG,ICOS,PRKQ,CD6,MAP,SH2D2A,ANXA1,KLRD1,CD40LG,ST1,HMGB1,TRX21,GADD45G,IL18R1
Homing of T lymphocytes	2.86E-03	-2.84	IL2,CCR2,CCL5,TNFSF14,ITGAE,JA1,LYN1,IL16,RAC2,CD44,LCF1,STAT3,CXCR4,LYN,ICOS1,BCL2,ITK,BATF,ITGA4,LAT,XCL1,STK4,S1PR1
Response of lymphocytes	9.03E-05	-2.82	FLT3LG,MAPK34,IFNG,ICOS,SIP1A,IL18R1,PIK3R1,JSD1L1,MAL71,DOCK8,STAT3,LYN,ITPK8,STAT5A,IL7R,ITK,CBLB,CD27,ITK,CD3E,IL2,CD5,SMAD2,LAX1,IKKBR,TIGIT,POCD1,NCR3,RYR2,PARP1,CD40LG,CDKN1B,CASP3,PTPRC,TNFRSF18,STAT5B,ETS1,SH2D1A,PGAP3,TRX21,CASP8
Stimulation of leukocytes	7.72E-03	-2.78	FLT3LG,SLAMF1,IFNG,ICOS,CD3E20,PIK3R1,LYN,TXN1,ALCK,ITK,IL18R1,CD3E,GRAP2,IL2,PAR2,MBP,CD5,TNFSF14,SMAD2,KIR3C1,POCD1,RYR2,CD40LG,CDKN1B,CASP3,PTPRC,TNFRSF18,STAT5B,ETS1,SH2D1A,PGAP3,TRX21,CASP8
Maintenance of leukocytes	2.32E-03	-2.78	GATA3,IL2,CXCR4,ICOS,IL7R,ITK,PRDM1,PIK3C3
Development of helper T lymphocytes	2.39E-03	-2.77	IL2,STAT4,NOTCH1,IFNG,ICOS,CD5,SMAD2,PRKQ,PRKAA1,MAP3K14,PPP3CA,ROB,GATA3,STAT3,STAT5A,ITK,TRX21
Chemotaxis of PBMCs	2.45E-02	-2.75	CCR2,IL2,CXCR4,F2R,CCL5,PLA2G6,ANXA1,LCF1
Quantity of natural killer cells	4.06E-06	-2.71	FLT3LG,IRF1,RHOH,IFNG,P2RX5,IL2RB,FCER1G,SP13,IL2RG,IRF1,GATA3,CXCR4,INPP5D,SG15,STAT5A,TOX,PRKDC,ITK,IL2,ANGPT2,TKNIP,PRF1,HCST,RYR2,TNFAIP3,BCL2,PTPRC,ETS1,DMT2E,STAT5B,CD247,TRX21
Mobilization of Ca ²⁺	8.39E-03	-2.71	PRKQ,WIPF1,PIK3R1,CD6,SLC9A3R1,CXCR4,LYN,DEP1,PIK3AP1,LCCK,ITK,MGAT5,CBLB,LAT,PTGDR,ZAP70,HEBP1,MS4A1,GRAP2,CD3E,CCL5,CD5,SH2D2A,NCR3,PTPRC,CD2
Response of mononuclear leukocytes	1.22E-04	-2.70	FLT3LG,MAPK34,IFNG,ICOS,SIP1A,IL18R1,PIK3R1,JSD1L1,MAL71,DOCK8,STAT3,LYN,ITPK8,STAT5A,IL7R,ITK,CBLB,SLA2,CD27,ITK,CD3E,IL2,CD5,SMAD2,LAX1,IKKBR,TIGIT,POCD1,TAPP1,CD69,NCR3,RYR2,PARP1,CD40LG,CDKN1B,CASP3,PTPRC,BCL2L1,BAX,STAT5B,ETS1,TNFSF18,FA5,SH2D1A,PGAP3,TRX21,CASP8
Quantity of pre-B lymphocytes	8.99E-04	-2.68	FLT3LG,CYLD,XRAS,IL2,NABP1,PIK3R1,PI3K1,IL2RG,IKZF1,SVK,CXCR4,INPP5D,NABP2,BCL2,IL7R,RAP1B,DMT2E,ZBTB7A,STAT5B,ETS1
Quantity of pre-B lymphocytes	9.77E-05	-2.65	FLT3LG,AKAP13,PIK3R1,IKZF1,IL2RG,IKZF1,CCND3,SVK,CXCR4,INPP5D,LYN,PIK3AP1,IL7R,IL2,IL2,IL2,CYLD,MS4A1,XRAS,IL2,ATM,EP300,MAP3K14,NABP1,LYN,PI3K1,MAPK,CD69,GMAP1,NABP2,BCL2,RAIP1B,DMT2E,ZBTB7A,STAT5B,ETS1,SH2D1A,EP515
Contact growth inhibition	3.50E-05	-2.63	IFNG,CDKN1B,ALCK,PTPRC,IKZF3,ZAP70,IKZF1
Cell movement of B lymphocytes	3.18E-03	-2.63	CCR2,IL2,ITGAL,ICOS,MAP3K14,WIPF1,NR1H2,PIK3R1,RAC2,LCF1,CXCR4,INPP5D,ICOS1,HMGB1,ARHGAP1,RAIP1B,STK4,ZAP70,RAIP2A,S1PR1
T cell response	1.07E-07	-2.63	FLT3LG,MAPK34,IFNG,ICOS,SIP1A,PIK3R1,JSD1L1,MAL71,DOCK8,STAT3,LYN,ITPK8,STAT5A,IL7R,ITK,CBLB,CD27,ITK,CD3E,IL2,CD5,SMAD2,LAX1,IKKBR,TIGIT,POCD1,RYR2,PARP1,CD40LG,CDKN1B,CASP3,PTPRC,TNFRSF18,ETS1,STAT5B,SH2D1A,PGAP3,TRX21,CASP8
Differentiation of gamma-delta T lymphocytes	1.27E-05	-2.63	IL2,SYK,NOTCH1,IL7R,IL2K,STAT5A,LAT,PTPRC,STAT5B,IL2RG
Development of hematopoietic system	2.06E-08	-2.62	IRF1,ITGAL,ICOS,RASGRP4,RASGRP1,IL2RG,GATA3,SYK,CXCR4,IL7R,IL2K,ITK,LAT,ZAP70,TR,GRAP2,CD3E,ITK,IKKBR,PI3K1,PRKIP1,ST1,CDKN1B,TRAT1,BAX,ETS1,FLT3LG,CBLB,CREB1,IFNG,RICTOR,IL2RB,PIK3R1,IKZF1,CCND3,LYN,STAT5A,CD3D,ITK,NCOR1,TRAF3IP3,NOTCH1,CD5,CD3G,SENP1,POCD1,THEM5,BCL2,RUNX3,SOCS1,PTPRC
Maintenance of T lymphocytes	5.39E-03	-2.60	GATA3,IL2,CXCR4,ICOS,IL7R,ITK,PIK3C3
Cell death of antigen presenting cells	7.00E-03	-2.60	GSK3H,EIF2AK2,FLT3LG,IRF1,MAPK34,IFNG,CDKN2A,STAT3,STING1,INPP5D,PIK3AP1,HMGB1,SG15,IL2,CCL5,GPR132,SMPD1,DPFA,IKKBR,PTGER4,OTC,RYR2,PARP1,CD40LG,SOAT1,TNFAIP3,CDKN1B,BCL2,CAMK2G,CASP3,BCL2L1,FA5,CASP8,STK4
Apoptosis of antigen presenting cells	7.01E-03	-2.55	GSK3H,EIF2AK2,FLT3LG,IRF1,MAPK34,IFNG,CDKN2A,STAT3,INPP5D,PIK3AP1,HMGB1,SG15,IL2,CCL5,GPR132,SMPD1,DPFA,PTGER4,CD40LG,SOAT1,TNFAIP3,CDKN1B,BCL2,CAMK2G,CASP3,BCL2L1,FA5,CASP8

Proliferation of PBMCs	1.39E-02	-2.53	KRAS,SH3BP1,IL2,SLIT1,IL2RB,PLA2G6,PIK3R1,CD6,PODC1,ANKA1,CD40LG,PDYN,BRAF,BCL2,ITK,BATF
Development of hematopoietic progenitor cells	4.45E-08	-2.50	IRF1,ITGA,ICOS,RASGRP4,RASGRP1,IL2RG,GATA3,SYK,CXCR4,IL7R,LCK,IFITM1,LAT,ZAP70,CD3E,GRAP2,IL2,TCF7,IKBKB,IFM1,PRDM1,SH1,CDKN1B,TRAF1,BAK1,ETS1,FLT3LG,CBL,CHEB1,IRNG,RICTOR,IL2RB,PIK3R1,IKZF1,CCND3,PDYN,CD3D,STAT5A,ITK,NCOR1,TRAF3IP1,NOTCH1,CD3G,CD5,PODC1,THEMIS,BCL2,SOC1,PTPRC
Contact growth inhibition of lymphocytes	2.10E-05	-2.45	CDKN1B,LCK,PTPRC,ICP3,ZAP70,IKZF1
Transendothelial migration of T lymphocytes	9.99E-03	-2.43	CD47,ITK,RAC2,AQP3,CD44,ZAP70,MYH9
Proliferation of Th1 cells	1.71E-03	-2.43	KLRD1,IL2,PARP1,CD40LG,ICOS,IFNG,CD6
Maturation of thymocytes	5.98E-03	-2.42	CD3E,CXCR4,NOTCH1,LCK,DGKZ,PTPRC,CD247,RASGRP1
Maturation of hematopoietic progenitor cells	1.84E-02	-2.42	CD3E,CXCR4,NOTCH1,LCK,PTPRC,DGKZ,CD247,RASGRP1,PHC1
Cytolysis	2.45E-02	-2.41	HLA-A,LCK,KLRB1,GNLY,PRF1,PTPRC,SH2D1A,CD69
Quantity of regulatory T lymphocytes	5.67E-05	-2.40	MAPK14,AKT3,TOB1,IFNG,ICOS,PRKCQ,RICTOR,IL2RB,PTPN22,MALT1,STAT3,STAT5A,IL7R,CD27,PTGD,RLTB,CYLD,CCR2,IL2,TRAF3IP3,TKNIP,MHP,TLN1,CD5,MAP3K14,IKBKB,GAMK4,PIK3FYVE,PODC1,CD69,THEMIS,PARP1,CD40LG,BATF,STAT5B,ICL1,STK4
Differentiation of effector T lymphocytes	6.76E-04	-2.40	IL2,STAT3,STAT4,DEF6,ICOS,CDKN1B,RICTOR,IL2RB,CD69
Stimulation of lymphocytes	1.92E-03	-2.37	SLAMF1,IFNG,ICOS,CD320,PIK3R1,PDYN,TLN1,LCK,ITK,IL1B,IR1,GRAP2,CD3E,IL2,PAK2,MIP,CD5,TNFSF14,SMAD2,KLRK1,PODC1,PTPRC,CD40LG,TNFAIP3,CDKN2B,PTPRC,FAS,CD2
Differentiation of naive lymphocytes	8.91E-03	-2.37	IL2,STAT4,IFNG,ICOS,PRKCQ,MAF,GATA3,MALT1,SYK,STAT3,CD40LG,DEF6,BATF,TRX21
Cell cycle progression of leukocytes	3.82E-05	-2.36	KRAS,IL2,ITGA,ITG5,ATM,NABP1,CDKN2A,IKBKB,CD320,STAT3,CD40LG,INPP5D,NABP2,CDKN1B,BCL2,STAT5A,SOC1,BCL2L1,STAT5B,LAG3,SKIL
Cell movement of peripheral blood lymphocytes	7.85E-03	-2.31	CD47,IL2,CXCR4,RGS1,CCL5,CLTC,PLCB3,RYB1,LCF1
Quantity of TREG cells	5.44E-03	-2.30	CCR2,IL2,IFNG,TLN1,ICOS,PRKCQ,RICTOR,IL2RB,GAMK4,PTPN22,PIK3FYVE,CD69,MALT1,STAT3,IL7R,BATF,CD27,STK4
Immune response of leukocytes	2.65E-03	-2.30	FLT3LG,ITGAL,IFNG,PLA2G6,PIK3R1,KLRB1,FCER1G,HSD1L1,MALT1,DOCK8,SYK,F2R,STAT3,GRB1B,HMGB1,BSG15,IL7R,ITK,SLA2,CD27,ABCAT7,BRD2,IL2,BRD3,IKBKB,TIGIT,PODC1,TAPBP,CD69,CD44,NCR3,PCYARD,IBF2,CD47,PARP1,CD40LG,CDKN1B,ITGA4,BCL2L1,BAK,ETS1,FAS,SH2D1A,ERN1,PGAP3,TRX21,CASP8
NK cell proliferation	8.58E-07	-2.28	FLT3LG,IRF1,SLAMF1,ICOS,KLRB1,HECTD1,IL2RB,IL2RG,IKZF1,GATA3,STAT3,INPP5D,STAT5A,TOX,KAT7,SLAMF6,CD27,IL2,TCF7,PRF1,TAPBP,IBF2,TNFAIP3,SP3,SOC1,PTPRC,ETS1,STAT5B,TRX21
Proliferation of CD4+ T-lymphocytes	3.24E-03	-2.24	IL2,S1,PR4,WBP2,ATG5,IFNG,TLN1,CD5,RICTOR,NDP1,RYB1,TIGIT,CD6,PODC1,CD69,PPA2D,STAT3,PARP1,BTN3A1,IL7R,ITK,BCLAF1,PTPRC,CYTD,EBH4
Polarization of T lymphocytes	1.84E-02	-2.24	GSK3B,SLAMF1,STAT4,IFNG,ICOS,MSN,SMPD1,WIPF1,CD6,ICP1,MYH9,CXCR4,PDYN
Migration of mast cells	2.12E-02	-2.21	MS4A4A,PDYN,CCL5,PIK3R1,BAC2
Recruitment of lymphocytes	1.48E-02	-2.21	CCR2,IL2,MAPK14,GPR132,IFNG,CCL5,PRDX1,ITGA6,IL6,PCYARD,CD47,NRAS,CXCR4,CD8A,HMGB1,STAT5A,ETS1,FAS,S1,PR1
Trafficking of leukocytes	1.66E-02	-2.21	CCR2,CCL5,IFNG,TNFSF14,RAPI1B,ITGA4,EVL,AQP3,ANKA1,S1,PR1
Quantity of single positive thymocytes	9.37E-03	-2.21	RHOH,GRAP2,IL2,ATM,PPP3CB,ELK4,IL2RG,THEMIS,BCL2,IL7R,LCK,ITK,NMT2,LAG3,CD247,PRKD,CSTK4
Homeostasis of regulatory T lymphocytes	2.25E-03	-2.20	GATA3,IL2,ICOS,LAG3,TRX21
Cell death of phagocytes	1.00E-02	-2.20	GSK3B,EIF2AK2,FLT3LG,IRF1,MAPK14,IFNG,CDKN2A,FCER1G,SYK,STING1,STAT3,CXCR4,INPP5D,PIK3AP1,HMGB1,BSG15,STAT5A,IL2,ANGPT2,CCL5,GPR132,SMPD1,DPFA,IKBKB,PTGER4,OGT,CD44,ANKA1,PCYARD,PARP1,SOAT3,CD40LG,TNFAIP3,CDKN1B,BCL2,CAMK2G,CASP3,SOC1,BCL2L1,BAK,FAS,CASP8,STK4,XIAP
Differentiation of cytotoxic T cells	1.25E-02	-2.19	IL2,STAT3,CD8A,IL2RB,PRDM1,HSP90AA1
Cell viability of thymocytes	2.45E-02	-2.18	IL2,CD3E,TCF7,RAIP9A,BCL2,ATM,BCL2L1,GIMAP1
Stimulation of T lymphocytes	2.50E-03	-2.17	SLAMF1,IFNG,ICOS,PIK3R1,PDYN,LCK,ITK,IL1B,IR1,CD3E,GRAP2,IL2,PAK2,MIP,CD5,TNFSF14,SMAD2,KLRK1,PODC1,PTPRC,CD40LG,TNFAIP3,CDKN2B,PTPRC,FAS,CD2

Expansion of helper T lymphocytes	3.61E-03	-2.16	IL2,PARP1,STAT3,CD40LG,ICOS,IFNG,IL7R,CD69,ICP1
Quantity of B-1 lymphocytes	1.87E-02	-2.11	SEMA4D,CYLD,MS4A1,FLT3LG,KRAS,SMAD2,LY9,CD6,PDCD1,RAC2,IKZF1,GMAP1,MALT1,INPP5D,PIK3AP1,ARHGFP1,IL7R,PRKCB,FCMR,D,RRMD3,FAS
Influx of Ca2+	3.56E-03	-2.06	PARP1,CXCR4,INPP5D,CCL5,DG1,STM2,CD5,ITK,LAT,ANT2,FAS,UNIB
Cell movement of mast cells	1.38E-02	-2.04	SEMA4D,GSX8,MS4A4A,FYN,CCL5,PIAU,RICTOR,PIK3R1,IL16,RAC2
Proliferation of hematopoietic progenitor cells	7.64E-05	-2.03	ATG5,ZBTB16,RICTOR,CDKN2A,HNRNP1,RASGRP1,IL2,RG,IKZF1,LPIN1,SYK,ARHGFP1,IL7R,LCK,ITK,TOX,ZAP70,LTB5,IPRI,CD3E,GRAP2,IL2,PAG1,NOTCH1,MAP3K14,IKKBL,LY9,TNF,FAIP3,DNAJ43,CDKN1B,BCL2,SOCS1,BCL2L1,CD2
Cell cycle progression of lymphocytes	6.03E-05	-2.01	KRAS,IL2,ITGAL,ATG5,ATM,NABP1,CDKN2A,IKKBL,CD320,CD40LG,INPP5D,NABP2,CDKN1B,BCL2,STAT5A,BCL2L1,STAT5B,LAC3,SKIL
Proliferation of peripheral blood lymphocytes	1.12E-02	-2.00	SH3KBP1,IL2,BRAF,FYN,BCL2,BATE,ITK,PLA2G6,PIK3R1,CD6,PDCD1,ANXA1
Activation of thymocytes	5.25E-06	-2.00	CD3E,IL2,FYN,ITPKB,CD58,LCK,PTPN22,LAT,CD247,CD2,IL2RG
Differentiation of natural killer T lymphocytes	4.18E-03	-2.00	ZBTB16,AP3B1,ITK,SLAMF6,SH2D1A,IKZF1
Chemotaxis of peripheral blood lymphocytes	1.04E-02	-2.00	IL2,CXCR4,CCL5,ICP1
Differentiation of effector helper T lymphocyte	1.70E-02	-2.00	IL2,ICOS,RICTO,IL2,IL2RB
Proliferation of thymocytes	9.16E-06	-1.99	ZBTB16,RICTOR,HNRNP1,RASGRP1,IL2,RG,IKZF1,SYK,FYN,IL7R,LCK,ITK,TOX,ZAP70,LTB,IL2,CD3E,GRAP2,PAG1,NOTCH1,MAP3K14,IKKBL,LY9,TNF,FAIP3,DNAJ43,CDKN1B,SOCS1,CD2
Apoptosis of phagocytes	1.39E-02	-1.99	GSX8,EIF2AK2,FLT3LG,IRF1,MAPK14,IFNG,CDKN2A,FCER1G,SYK,STAT3,CXCR4,INPP5D,PIK3AP1,HMGB1,SG15,STAT5A,IL2,CCL5,GPR132,SMPD1,DFFA,PTGER4,ANXA1,SOAT1,CD40LG,TNF,FAIP3,CDKN1B,CAMK2G,BCL2,CASP3,SOCS1,BCL2L1,BAK,FAS,CASP8,XKR8
Clearance of cells	1.08E-03	-1.98	PPARD,CCR2,HMGB1,GPR132,IFNG,CD44,XKR8,ANXA1
Polarization of Th1 cells	1.04E-02	-1.98	STAT4,ICOS,IFNG,CD6
Homeostasis of TREG cells	1.04E-02	-1.98	GATA3,IL2,ICOS,ITK21
Survival of natural killer T lymphocytes	1.70E-02	-1.96	CYLD,ELF1,BCL11,IL2RG
Proliferation of B lymphocytes	5.32E-06	-1.96	RBL2,PLEKHAZ,CDKN2A,CD320,RASGRP1,IL2,RG,MALT1,LPIN1,SYK,ARHGFP1,PIK3AP1,PCYTT1,ATXN,IL7R,PRKCB,IRL,PD1M,LAC3,S1PR1,CD3E,IL2,SH3KBP1,CCND2,EZK,IKKBL,PIM1,PRDM1,CDKN1B,CASP3,BCL2L1,STAT5B,ETS1,FAS,IRN1,FLT3LG,SEMA4D,IFNG,CREB1,IL2,RR,WIP1,PIK3R1,CD6,IKZF1,ICP1,CCND3,LY96,FYN,INPP5D,STAT5A,MS4A1,SGORR,KRAS,MYBL1,STM2,MARK2,ATM,MAP3K14,NABP1,EFP300,LY9,PDCD1,CD44,GMAP1,IRF2,CD40LG,NABP2,TNF,FAIP3,ARHGFP1,BCL2,ACLY,PTPRC,PGAP3,CASP8
Cytotoxicity of T lymphocytes	5.62E-04	-1.96	IL2,STAT4,NOTCH1,IFNG,CCL5,ATG5,PRF1,KLRK1,HLA-F,IL2RB1,HLA-A,CD40LG,G2M,PTFR,CBLB,PTPRC,FAS,XCL1,CD27
Development of body trunk	1.33E-09	-1.93	IRF1,CBFL,ITGAL,CREB1,RASGRP4,RICTOR,IL2RB,PLA2G6,RASGRP1,IL2,RG,IKZF1,GATA3,SYK,CXCR4,CD3D,STAT5A,IL7R,LCK,ITK,NCOR1,LAT,ZAP70,GRAP2,CD3E,IL2,TRAF3IP3,NOTCH1,CD3G,CD5,IKKBL,PIM1,PDOD1,THEMIS,ST1,CDKN1B,TRAT1,BCL2,SOCS1,PTPRC,BAK,ETS1
Cell movement of hematopoietic progenitor cells	1.98E-02	-1.90	CCR2,DCCR8,CXCR4,IGS1,CCL5,HNRNP1,CD69,STK4,S1PR1,ICP1
Inhibition of leukocytes	2.29E-06	-1.87	IL2,AKT3,IFNG,KLRB1,EFP300,SMPD1,PTGER4,CD6,PIM1,PDOD1,GATA3,PARP1,STAT3,HLA-A,FKBP5,CLEC2D,ITGA4,CBLB,DGKZ,TNFRSF18,TRIB21
Quantity of CD4+ T lymphocytes	4.33E-10	-1.83	IRF1,ITGAL,T0B1,ICOS,PRKCQ,CDKN2A,FCER1G,PRKACB,RASGRP1,STARBD7,MALT1,D,DOCK8,STING1,STAT3,ARHGFP1,PIK3AP1,LCK,PRKCB,LAT,PRKCH,ASML1,LAC3,ZAP70,CYLD,GRAP2,CD3E,IL2,CCL5,PRF1,IKKBL,CD69,PPARD,ST1,BATE,GNLY,ETS1,STK17B,STK4,SEMA4D,BHOH,IFNG,ZBTB20,HL3RA1,IL2,RR,PTPN22,ND,PRF1,RAC2,ELK4,FYN,CD3D,ITK,TOX,SLAMF6,PTGD,RRAS,CCR2,GPR132,CD5,ATM,MSN,MAP3K14,SLA,PDOD1,PVCARD,THEMIS,PARP1,HLA-A,CD40LG,BCL2,PTPRC,TNIP1,CD247,SH2D1A,TRIB21,CASP8
Cell movement of peripheral T lymphocyte	5.39E-03	-1.82	CD47,CXCR4,IGS1,CCL5,PLCE3,PYB1,LCP1
Apoptosis of macrophages	1.28E-02	-1.75	EIF2AK2,IRF1,MAPK14,CCL5,GPR132,IFNG,DFPA,CDKN2A,STAT3,INPP5D,SOAT1,PIK3AP1,HMGB1,BCL2,SG15,CAMK2G,CASP3,BCL2L1,FAS,CASP8
Activation of T lymphocytes	2.52E-13	-1.74	NCOR2,ICOS,NCF1,FCER1G,RASGRP1,IL2,RG,HMGB1,LCK,PRKBL,LAT,TRAF1,SRPG,LAG3,NCK1,IL2,TIM1,DJL1,CD46,AX1,PTGER4,PRDM1,KLRD1,CD47,ST1,RTN3A1,BCLAF1,AZ2,BCL2L1,BAK,STAT5B,FAS,ETS1,FLT3LG,SLAMF1,IFNG,PTPN22,NDFP1,FYN,ITPKB,STAT5A,DGKZ,SLA2,CD27,CCR2,STAT4,MIP,NOTCH1,BCL11,ICD5,CD58,CD3G,CAMK4,KLR1,PPP3CA,PCYARD,HLAA,CD40LG,CD7,G2M,BCL2,VTI1B,TNFRSF1B,CD2,AINAK,ITGAL,ATG5,PRKAA1,PRKCQ,RAI29,MALT1,STAT3,AN06,FUT8,CBLB,ZAP70,NR4A2,CD3E,PAG1,CCL5,PRF1,SMF1,PIK3R1,IKKBL,IKKBL,SH2D2A,ANXA1,CDKN1B,HSF1,SEMA4D,MAPK14,PIK3IP1,TNF,FAIP3,IL2,IL2RB,CD6,DEP6,ITK,MAPK14,PPP3CRT,IGT,PDOD1,CD44,SOCS1,PTPRC,CD247,CASP8,TRC1D10C

Production of lymphocytes	1.98E-02	-1.68	ARID4,GATA3,CD40LG,FYN,NOTCH1,RRB2,IL2RB,ITGA4,ETS1,TRX21
Production of leukocytes	1.55E-02	-1.68	ARID4,PLT3LG,GATA3,CD40LG,NP5D,FYN,NOTCH1,RRB2,IL2RB,ITGA4,ETS1,TRX21
Binding of B lymphocytes	1.14E-02	-1.67	CD47,IL2,CXCR4,ITGAL,RS1,RAPI1,ITGA4,SH2D1,AJMD16,KAP2A
Proliferation of alpha-beta T lymphocytes	1.25E-02	-1.67	CD3L,CCR2,SYK,CBLB,PTPRC,ZAP70
Quantity of follicular B lymphocytes	7.72E-03	-1.67	ICOS,PTFN22,WIPF1,IKZF1,IKZF1,MALT1,DOCK8,STAT3,PIK3AP1,ITK,N48P1,TLK4,ITK,CYLD,KRAS,IL2,MAP3K14,EP300,PRDM1,GIMAP1,CD40LG,RS1,ARHGEP1,BCL2,DOCK11,RAPI1B,FCMR,FAS,SH2D1A,CASP8,STK4,EP515
Migration of peripheral blood lymphocytes	1.31E-02	-1.66	CD47,CXCR4,RS1,CCL5,CITC,PLCE3,ICP1
Inhibition of lymphocytes	2.12E-05	-1.65	IL2,AKT3,KLRB1,SMFD1,EP300,PTGER4,PI3K,CD6,PODC1,GATA3,PARP1,HLA-A,CLEC2D,CBLB,DGKZ,TNFRSF18,TRX21
Selection of T lymphocytes	5.81E-07	-1.64	RHOH,CD3E,TRAF3IP3,ATG5,PRKQ,ELK4,ELK1,THEM5,GATA3,ELF1,STT1,ITPR8,TRAT1,CD3D,LCK,ITK,TOX,PTPRC,PRKCH,FAS,ZAP70
Migration of effector memory T lymphocytes	2.10E-05	-1.63	ICOS,ITGAL,ITGA4,ZAP70,MV19,S1PR1
Activation of PBMCs	1.68E-02	-1.63	IL2,IY96,C18C2D,IRNG,SOC51,CD6
Inflammatory response of leukocytes	1.69E-02	-1.63	STAT3,F2R,IFNG,BRD3,ETS1,ERN1,BRD2
Formation of lymphoid tissue	8.23E-09	-1.63	NCOB2,IRF1,CBFB,ITGAL,CREB1,BASGP4,ICTOR1,IL2RB,RASGRP1,IL2RB,IKZF1,GATA3,DOCK8,SYK,CXCR4,CD3D,IL7R,LCK,ITK,NCOB1,LAT,ZAP70,CD3E,GRAP2,IL2,TRAF3IP3,NOTCH1,CD3G,CD5,IKK8B,PI3K,PODC1,THEM5,NCSTN,STT1,CDKN1B,TRAT1,BCL2,SOC51,PTPRC,BAK,ETS1
Formation of thymocytes	1.49E-09	-1.60	IRF1,CBFB,ITGAL,CREB1,BASGP4,ICTOR1,IL2RB,RASGRP1,IL2RB,IKZF1,GATA3,SYK,CXCR4,CD3D,IL7R,LCK,ITK,NCOB1,LAT,ZAP70,CD3E,GRAP2,IL2,TRAF3IP3,NOTCH1,CD3G,CD5,IKK8B,PI3K,PODC1,THEM5,STT1,CDKN1B,TRAT1,BCL2,SOC51,PTPRC,BAK,ETS1
Activation of cytotoxic T cells	2.33E-04	-1.57	MALT1,CCR2,CD40LG,IFNG,GZMA,PRF1,SMFD1,IFITM1B,FAS,CD247,ZAP70
Suppression of leukocytes	2.46E-05	-1.56	IL2,AKT3,IFNG,SMFD1,EP300,PI3K,CD6,PODC1,GATA3,PARP1,STAT3,PRKPS,CBLB,DGKZ,TNFRSF18,TRX21
Cell movement of CD4+ T lymphocytes	9.88E-03	-1.55	STAT3,CXCR4,BATF,ITK,NR1H2,LAG3,PODC1,RAC2,AQP3
Inflammation of organ	2.33E-03	-1.53	NCOB2,IFNG,ZNF331,SELENOK,FCER1G,PDDE4H,HSF2,STAT3,CXCR4,CD18A,HLA-DQB5,ITK,ISG20,NR4A2,PPP2C5A1,PR1,STAT4,ERN1,MIB1,NOTCH1,STIM2,SMAD2,EP300,IKK8B,PRDM1,PODC1,RABGAP1,LDISP2,CD40LG,TNFAIP3,PHF1,BCL2,FAS,TRX21,AHNAK,UNCB
Cell death of macrophages	1.48E-02	-1.51	EIF2AK2,IRF1,MAPK14,IFNG,CDKN2A,STAT3,STING1,NP5D,PIK3AP1,HMG1B,ISG15,CCL5,GPR132,DFFA,OGT,PPICARD,PARP1,SOAT1,TNFAIP3,BCL2,CANX2,G,CASP3,BCL2L1,JAS,CASP8,STK4
Quantity of follicular T helper cells	7.85E-03	-1.49	MALT1,IL2,STAT3,IFNG,ICOS,PRDM1,MAF,TGIT,SH2D1A
Proliferation of activated T lymphocytes	6.77E-03	-1.49	IL2,SLAMF1,ITGAL,NOTCH1,PRKQ,PRDM1,PPICARD,FYN,HMG1B,BTN3A1,CDKN1B,BCL2,STAT5A,TRAF1,STAT5B
Cell-cell contact	2.11E-02	-1.48	F1R1,ITGAL,CCL5,ICOS,MAP3K14,CD44,CXCR4,SYK,CD40LG,ADGRE5,ITGA4,TNIP1,PTPRC
Proliferation of helper T lymphocytes	8.91E-03	-1.46	IL2,IFNG,ICOS,PTFN22,CD6,CD69,KLRD1,GATA3,PARP1,STAT3,CD40LG,IL7R,SOC51,STAT5B
Response of bone marrow-derived macrophages	1.62E-02	-1.43	F2R,IFNG,BRD3,PRKAA1,PLCB3,SOC51,ERN1,BRD2
Accumulation of leukocytes	1.49E-02	-1.41	IRF1,ITGAL,PAFAH1B1,PLAU,ICOS,PRKQ,NCF1,CARD9,RASGRP1,IL2RB,DOCK8,STAT3,PIK3AP1,HMG1B,PNPLA2,LAT,S1PR1,IL2,CCL5,TLN1,IKK8B,SH2D2A,BAD,PPAR,RAF,ADGRE5,ITGA4,FAS,STK4,FLT3LG,IFNG,TNFAIP8,IL2RB,ITGA1,NP5D,TS2D3,DEF6,STAT5A,CD27,KRAS,CCR2,ANGPT2,NOTCH1,CD99,CD44,MMMP7,IP6K1,BCL2,MAPK13,RUNX3,TNFRSF18,CASP8
Cell survival of T lymphocytes	2.74E-05	-1.41	IL2,DEF6,PI3K,IL2RG,PPICARD
Differentiation of alpha-beta T lymphocytes	5.98E-03	-1.40	SYK,BRAF,NOTCH1,ITPKB,BCL11B,NKAP2AP70,ANXA1

Migration of peripheral T lymphocyte	4.18E-03	-1.39	CD47,CXCR4,RGS1,CCL5,PLCE3,LLCP1
Hematologic cancer of cells	6.11E-03	-1.39	GSK3B,MSA41,CD3E,PAG1,NOTCH1,BUB3,PKC3R1,PIW1,POCD1,PARP1,HTC2,NRAS,CD40LG,HPK3,BCL2,STAT5A,NIBAN1,FCMR,BCL2L1,STAT5B,FASCASP8
Movement of CD4+ T-lymphocytes	1.18E-02	-1.38	IFNG,CCL5,NR1H2,POCD1,AC2A,QF3,CD69,LCPI,STAT3,CXCR4,ITK,BATF,LAG3
Selection of thymocytes	2.86E-07	-1.37	CD3E,RH0H,TRAF3IP3,ATG5,PRKQ,ELK4,ELK1,THEMISG,ATA3,SIT1,TRAT1,ITPK8L,CKC3D3,ITK,TOX,PTPRC,PRKCH,FASZAP70
Apoptosis of hematopoietic progenitor cells	3.24E-03	-1.35	IFNG,CDKN2A,JI1-2,FYNT,SC22D3,LOK,PRKDC,TLK4,DUSP4,ITB,CYL,CD3EJL2,NOTCH1,RAP1G,DS1,BCL11B,ATM,DFFA1,IKKB,BAD,ZC3H8,PARP1,MAP3K2,GZMA,BCL2,ARHGFP1,BIRC6,CASP3,PTPRC,BAX,BCL2L1,ETS1,FASCASP8,XXR8
Shape change of lymphocytes	1.51E-02	-1.35	SEM4D,ITGAL,INPP5D,ICOS,SMFD1,RAP1B,FYB1,CD44,MYH9
Survival of CD4+ T-lymphocytes	2.25E-03	-1.34	PIM1,CASP8,IL2RG,GIMAP1,PVCARD
Expression of protein	8.99E-03	-1.34	IL2,SYK,IFNG,LOK,PRKAA1,FAS
Positive selection of thymocytes	1.05E-07	-1.32	RH0H,TRAF3IP3,PRKQ,ELK4,ELK1,THEMIS,IT1,TRAT1,LOK,ITK,TOX,PRKCH,PTPRC
Cytotoxic T lymphocyte response	3.62E-05	-1.31	IL2,PARP1,CD8A,IFNG,BAX,SH2D1A,HSDL1,PVCARD
Inhibition of mononuclear leukocytes	4.24E-06	-1.31	IL2,AKT3,IFNG,KLRB1,EP300,SMFD1,PTGER4,CD6,PIM1,POCD1,GAT3,PARP1,JI1A-A,CLEC2D,ITGA4,CBL,LDGKZ,TNFRSF18,TBX21
Activation of B lymphocytes	2.76E-03	-1.30	SEM4D,FLT3LG,TNFAIP8L2,IFNG,PLEKHA2,IL2RB,TAB2,RASGRP1,MALT1,STK,STING,INPP5D,CLEC2D,PPP2R3C,TYLNA,PRKCB,ZAP70,MS4A1,SH3KBP1,JI1L2,LAX1,POCD1,CD40LG,TNFAIP3,FASCASP8,TCB1D10C
Differentiation of T _H 2 cells	2.28E-03	-1.28	IRF1,JI1L2,MAPK14,STAT4,IFNG,CCL5,ICOS,PRKQ,RICTOR,S0CS2,GATA3,CDKN1B,STAT5A,ITK,BATF,CBLB,SH2D1A,PGAP3,TBX21
Transcription of RNA	3.61E-03	-1.28	IL2,INPP5D,IFNG,MAP3K14,GTTF2,IKKB,CREBBP,MAF,ZAP70
Inhibition of T lymphocytes	7.63E-05	-1.26	IL2,AKT3,SMFD1,EP300,PTGER4,PIM1,CD6,POCD1,GATA3,PARP1,JI1A-A,CBLB,DGKZ,TNFRSF18,TBX21
Interaction of CD4+ T-lymphocytes	6.68E-03	-1.25	CXCR4,IL7R,FYB1,ANXA1,SKAP1
Emigration of T lymphocytes	2.56E-02	-1.21	CXCR4,IFNG,STK4,S1PR1
Quantity of intraepithelial T lymphocytes	8.59E-05	-1.20	IRF1,LOK,IL7R,PTPRC,TAP1,IL2RG,IKZF1
Maturation of natural killer T lymphocytes	1.03E-02	-1.19	ELF1,JI1L7R,ITK,DGKZ,TBX21
Differentiation of regulatory T lymphocytes	2.54E-02	-1.18	DUSP10,CCR2,JI1L2,MAPK14,ICOS,SMAD2,PRKQ,CD46,MAF,CD69,STAT3,ITK,S0CS1,NCOR1,TNFRSF18,S1PR1
Immune response of T lymphocytes	3.54E-03	-1.16	FLT3LG,IFNG,ICOS,HS1L1,MALT1,DOCK8,STAT3,IL7R,ITK,CD27,JI1L2,IKKB,TIGIT,POCD1,TAPBP,CD69,PVCARD,PARP1,CDKN1B,BAX,BCL2L1,ETS1,SH2D1A,PGAP3,TBX21,CASP8
Mitogenesis of lymphocytes	1.03E-02	-1.15	STAT3,STAT4,IL7R,CDKN2A,IKKB
Exposure of phosphatidylserine	2.56E-02	-1.15	HMGB1,ANOK,FAS,XXR8
Nephritis	4.25E-02	-1.13	NCOR2,CD40LG,CD8A,IFNG,BCL2,EP300,FAS,RABGAP1L,PPP2CA,SG20
Glomerulonephritis	4.92E-02	-1.13	NCOR2,CD40LG,IFNG,BCL2,EP300,FAS,RABGAP1L,SG20,PPP2CA
Expansion of B lymphocytes	8.60E-04	-1.13	SIGIRR,CCND2,MYBL1,LY9L,LCPI,CCND3,TNFAIP3,BCL2,STAT5A,IL7R,BCL2L1,STAT5B,LAG3,S1PR1

Quantity of plasma cells	1.58E-02	-1.11	FLT3LG,IL2,ANGPT2,FNG,ICOSJL2RB,PRDM1,PDCC1,RAC2,RASGRP1,IL2RG,RGS1JL7R,PRKCB,FCMR,ETS1
Cell spreading of lymphocytes	1.31E-02	-1.09	ITGAL,NP95D,ICOS,SMFD1,RAP1B,FYB1,CD44
Accumulation of dendritic cells	1.25E-02	-1.09	FLT3LG,DOCK8,CCR2,DEF6,CD99,RUNX3
Degranulation of leukocytes	3.66E-03	-1.08	FTL,RASGRP1,FCER1G,RASGRP1,STK10,STING1,HMGB1,LAT,LAG3,18FG,QSOX1,LAGP,AT2,IL2LX1,CD47,AGANRRASVIF,ARM3B,COPB1,RAP1B,STAT5B,ETS1,CYBA,SPTAN1,IRN,NBNEAL2,PTPN22,WIPF1,RAB6A,B4GALT1,PTPN4,FYN,HUWEL1,SPAB,STAT5A,DGKZ,GSTP1,ATP9A1,PYGL,CD58,GYG1,PCYARD,VT11B,RAB27A,ORMDL3,1QC,AP1,ITGAL,PLAU,HSP90A1,ARHGAP45,DOX3L,LPIN1,SYK,CD63,AN06,GPI,RAB37,DYNCH11,GHDC,PRF1,MGST1,TMEM30A,ANXA1,LDNAJ,C3,RAB5B,ADGRE5,PSMD1,MAPK14,CAB39,VAMP2,IL1B,ITSPAN1,4,RAC2,TM6,UBR4,NP95D,CPNE1,ITK,SLAMF6,PSMD2,HSP90A1,PTGDR,PAFAH1B2,PAK2,SEK1,NB6A,PI3M1,PDCC1,CD44,KCNS1,NSTN,IST2,TNFAIP5,ALX1,PTPRC,GAND1,TBC1D10C
Accumulation of mononuclear leukocytes	8.22E-04	-1.08	ITGAL,TNFAIP8L2,JFNG,ICOS,PRKQJL2RB,CARD9,RASGRP1,IL2RG,ITGAI,STAT3,TSC22D3,DEF6,PK3AP1,STAT5A,LAT,CD27,S1PR1,KRAS,CCR2,IL2,CCL5,NOTCH1,TLNL1,CD99,IKKKB,SH2D2A,BAD,PPARD,BRAF,BCL2,RUNX3,TNFRSF18,FAS,CASP8,STK4
Killing of leukocytes	1.40E-03	-1.08	IL2,SLAMF1,MAPK14,JFNG,PRF1,LV9,CD47,HLA-A,SLAMF6,BAX,RAB27A,FAS,SH2D1A
Egression of T lymphocytes	1.70E-02	-1.07	CCR2,ITGAL,RAC2S1PR1
Glycolysis	7.89E-03	-1.06	IL2,TRAF3IP3,CRDM,CRBN,JFNG,PLEKHA2,EPAS1,PI3M1,GSTP1,PIK3R1,PDCC1,ANXA1
Differentiation of CD4+ T lymphocytes	3.66E-03	-1.03	MAPK14,JFNG,ICOS,PRKQ,NDPIP1,CARD9,CD6,MAL1,STAT3,CD8A,DEF6,STAT5A,ITK,TOX,NR4A2,CCR2,IL2,STAT4,DNAB1,SMAD2,MAP3K14,SOC2,MAF,PRDM1,CD69,RORA,SH2D2A,USP15,BATF,TNFRSF10,ETS1,TBX21
Activation of peripheral blood lymphocytes	1.70E-02	-1.00	IL2,CLEC2D,SOC1,CD6
Inflammatory response of bone marrow-derived macrophages	2.56E-02	-1.00	F2R,BRD3,ERN1,BRD2
Activation-induced cell death of T lymphocytes	2.12E-05	-0.99	IL2,SLG6A6,JFNG,CREB1,CD5,PRF1,RAC2,CD44,DNAAJ3,TSC22D3,MAP3K2,BCL2,ITK,CASP3,BCL2L1,FAS,CASP8
Lymphocytic cancer	6.16E-03	-0.97	GSK3B,PIK3R1,BTG2,HIPK3,STAT5A,NIBAN1,CD27,MS4A1,CD3E,PAG1,NOTCH1,BUB3,PRF1,PI3M1,PDCC1,CD47,PARP1,NRAS,CD40LG,BCL2,CASP3,FCMR,BCL2L1,STAT5B,FAS,CASP8
Suppression of T lymphocytes	3.72E-04	-0.95	IL2,AKT3,SMFPD1,EP300,PI3M1,CD6,PDCC1,GATA3,PARP1,CBLR,DGKZ,TNFRSF18,TBX21
Expansion of hematopoietic progenitor cells	5.98E-03	-0.94	SYK,ZBTB16,TOX,BCCL2L1,LV9,ZAP70,S1PR1,KZF1
Activation of CD4+ T lymphocytes	1.54E-03	-0.94	IL2,JFNG,TLN1,ATG5,CD46,CAMK4,NDPIP1,PTPN22,CD6,PRDM1,STAT3,HLA-A,PRKCB,AZI2,BCLAF1,DGKZ,CD27,CASP8
Killing of lymphocytes	7.54E-03	-0.93	CD47,IL2,SLAMF1,HLA-A,PRF1,SLAMF6,RAB27A,LV9,FAS,SH2D1A
Expression of RNA	1.33E-03	-0.90	CD47,IL2,NP95D,JFNG,BATF,MAP3K14,GT,F2L,IKKKB,CRBB,MAP3K14,ZAP70
Accumulation of lymphocytes	1.23E-03	-0.89	ITGAL,TNFAIP8L2,JFNG,ICOS,PRKQJL2RB,CARD9,RASGRP1,IL2RG,STAT3,TSC22D3,DEF6,STAT5A,LAT,CD27,S1PR1,KRAS,IL2,CCL5,NOTCH1,TLNL1,CD99,IKKKB,SH2D2A,BAD,PPARD,BRAF,BCL2,RUNX3,TNFRSF18,FAS,CASP8,STK4
Maturation of invariant natural killer T cells	1.04E-02	-0.88	ELF1,IL17R,ITK,DGKZ
Survival of CD8+ T lymphocyte	2.25E-03	-0.88	IL7R,FAS,CASP8,PIK3C3,GIMAP1
Function of leukocytes	7.14E-08	-0.87	IRF1,AKAP13,ICOS,CD85,RASGRP1,FCER1G,IL16,RASGRP1,IL2RG,STK10,LAT,LAG3,S1PR1,IL2,TNIP,DLG1,LAN1,PTTGER4,DUSP2,7,APP,PTGER2,ASH2,BCL2L1,FCMR,STAT5B,NTAN1,ETS1,STK4,FLT3LG,SLAMF1,CRB1,JFNG,DOCK2,PTPN22,WIPF1,TAP1,B4GALT1,LCP1,PTN,STAT5A,DGKZ,SLA2,CD27,CCR2,STAT4,CD3C,FYB1,ABCCL1,PCARD,PARP1,H1AA,CD40LG,GZMA,BCL2,ARHGAP3,TBX21,AHNAK,ITGAL,PLAU,PRKQ,CARD9,MCPH1,MALT,DOCK8,STAT3,ARHGAP6,CDBA,CBLR,DUSP4,PIK3C3,IL18R1,LYLD,CD3E,CCL3,PRF1,SMFD1,PI3M1,PTSP1,LIJ,ST,CD69,BAD,GSK3B,GIMAP4,P11R,TNFAIP8L2,KL,RB1JL13R,A1,SELENOK,PIK3R1,LV96,NP95,DJTK,SLAMF6,M4B1,PRKDC,HSP90A1,PTGDR,GADD45G,SGIR,CRBB,TA11B1,TNFSF14,ATM,PPP3CB,SLA,PDCC1,CD44,CD96,MM7,RGS1,S0CS1,PTPRC,CD247,SH2D21A,CASP8
Hematologic cancer	7.01E-03	-0.86	GSK3B,CDKN2A,PIK3R1,STAT3,BTG2,HIPK3,STAT5A,NIBAN1,CD27,MS4A1,CD3E,PAG1,NOTCH1,BUB3,PRF1,PI3M1,PDCC1,CD47,PARP1,NRAS,CD40LG,BCL2,CASP3,FCMR,BCL2L1,STAT5B,FAS,CASP8
Accumulation of T lymphocytes	2.43E-04	-0.85	ITGAL,JFNG,ICOS,PRKQJL2RB,CARD9,RASGRP1,IL2RG,STAT3,DEF6,STAT5A,LAT,CD27,S1PR1,KRAS,IL2,CCL5,NOTCH1,TLNL1,CD99,IKKKB,SH2D2A,PPARD,BRAF,BCL2,RUNX3,FAS,CASP8,STK4
Synthesis of carbohydrate	8.99E-03	-0.85	INPP5D,PCYT1A,PTPRC,PLA2G6,PIK3R1,ANXA1
Synthesis of phosphatidic acid	1.51E-02	-0.85	INPP5D,PCYT1A,PLA2G6,PIK3R1,ANXA1
Cell death of hematopoietic progenitor cells	5.52E-03	-0.84	IFNG,CDKN2A,H1-2,FYN,TSC22D3,LCK,PRKDC,TLF4,DUSP41,TL,VB,LYLD,CD3E,IL2,NOTCH1,RAIP1,GDS1,BCL11B,ATM,MAP3K14,DFFAJ,IKKKB,BAD,ZC3H8,PARP1,DNAAJ3,MAP3K2,GZMA,ARHGAP1,BCL2,BIRC6,CASP3,PTPRC,BCL2L1,BAK,ETS1,FAS,CASP8,XXR8

Cell cycle progression of T lymphocytes	2.75E-04	-0.83	KRASJL2JTGALAT5ATMCDKN2ACDKN1BCL2STAT5ABCL2L1STAT5BLAG3SKL1
Glycolysis of cells	1.04E-02	-0.82	IL2TRAF3IP3CREMCRBNJFNGPLEKHA2EPAS1PIM1GSTP1PDCD1ANXA1
Cell viability of mast cells	1.62E-02	-0.79	GSK3BINPP5DLAX1LATFCER1GPK3R1YWHIAZRA2
Killing of cells	5.15E-03	-0.79	IL2SLAMF1MAPK14JFNGPRF1L1Y9CARD9CD47IY96HLA-A.PRRCB.SLAMF6.RAB27A.BAX.FASS1D21A
Cancer of cells	8.39E-03	-0.73	GSK3B.PIK3R1.BT.G2.HIPK3.AT5A.NIBAN1.CD27.MSA41.CD3E.PAG.1.NOTCH1.BUB3.PRF1.PIM1.PDCD1.CD47.PARP1.NRAS.CD40LG.BCL2.CASP3.FCMR.BCL2L1.STAT5B.FAS.CASP8
Apoptosis of thymocytes	2.01E-03	-0.71	CDKN2A.H1-2.FYN.LCK.PRKDC.TLE4L.TB.CYLD.CD3E.IL2.NOTCH1.RAP1.GDS1.BCL11B.ATM.DFFA1.KKBK.ZC3H8.PARP1.MAP3K2.GZMA.ARH.GEF1.BCL2.BIRC6.CASP3.PTPRCB.AX.BCL2L1.ETS1.FAS.CASP8.XKR8
Selection of lymphocytes	4.84E-08	-0.70	RHOH.ED3E.TRAF3IP3.ATG5.PRKQ.ELK4.TAPBP.ELK1.THEMIS.GATA3.ELF1.SYK.SIT1.JTTPKBLTRAT1.CD3D.LCK.JTK.TOX.PTPRCBAX.PRKCH.FAS.ZAP70
Expansion of thymocytes	8.99E-03	-0.64	SYK.ZBTB16.TOX.LY9.ZAP70.IKZF1
Solid tumor	1.02E-03	-0.64	IFITM1.GNB1.EIF4A2.PIK3R1.ATP6AP1.LCP1.SNRNP200.BTG2.HIPK3.STAT5A.LLCK.SRRM1.NIBAN1.DDX5.NONO.CD3E.PAG.1.BUB3.SRSF2.EP300.PIM1.ANKA1.CALCOCO2.PARP1.NRAS.CD40LG.PTPRCB.STAT5B.CASP8
Function of TREG cells	2.56E-02	-0.63	DLG1.LAT.TBX21.S1PR1
Lymphatic system tumor	1.15E-03	-0.57	GSK3B.CDKN2A.PIK3R1.BT.G2.INPP5D.HIPK3.AT5A.IL7R.LCK.NIBAN1.CD27.MSA41.CD3E.PAG.1.NOTCH1.BUB3.PRF1.PIM1.PDCD1.CD47.PARP1.NRAS.CD40LG.BCL2.CASP3.FCMR.BCL2L1.STAT5B.FAS.CASP8
Lymphocytic neoplasm	1.31E-03	-0.57	GSK3B.CDKN2A.PIK3R1.BT.G2.INPP5D.HIPK3.AT5A.IL7R.NIBAN1.CD27.MSA41.CD3E.PAG.1.NOTCH1.BUB3.PRF1.PIM1.PDCD1.CD47.PARP1.NRAS.CD40LG.BCL2.CASP3.FCMR.BCL2L1.STAT5B.FAS.CASP8
Myeloid or lymphoid neoplasm	2.01E-03	-0.57	GSK3B.CDKN2A.PIK3R1.CD63.STAT3.BTG2.INPP5D.HIPK3.AT5A.IL7R.NIBAN1.CD27.MSA41.CD3E.PAG.1.NOTCH1.BUB3.PRF1.PIM1.PDCD1.CD47.PARP1.NRAS.CD40LG.BCL2.CASP3.FCMR.BCL2L1.STAT5B.FAS.CASP8
Neoplasia of leukocytes	2.06E-03	-0.57	GSK3B.CDKN2A.PIK3R1.CD63.BTG2.INPP5D.HIPK3.AT5A.IL7R.NIBAN1.CD27.MSA41.CD3E.PAG.1.NOTCH1.BUB3.PRF1.PIM1.PDCD1.CD47.PARP1.NRAS.CD40LG.BCL2.CASP3.FCMR.BCL2L1.STAT5B.FAS.CASP8
Malignant solid tumor	2.76E-03	-0.57	IFITM1.GNB1.EIF4A2.PIK3R1.ATP6AP1.LCP1.SNRNP200.BTG2.HIPK3.STAT5A.SRRM1.NIBAN1.DDX5.NONO.CD3E.PAG.1.BUB3.SRSF2.EP300.PIM1.CALCOCO2.PARP1.NRAS.CD40LG.PTPRCB.STAT5B.CASP8
Neoplasia of blood cells	3.09E-03	-0.57	GSK3B.CDKN2A.PIK3R1.CD63.STAT3.BTG2.INPP5D.HIPK3.AT5A.IL7R.NIBAN1.CD27.MSA41.CD3E.PAG.1.NOTCH1.BUB3.PRF1.PIM1.PDCD1.CD47.PARP1.NRAS.CD40LG.BCL2.CASP3.FCMR.BCL2L1.STAT5B.FAS.CASP8
Proliferation of naive T lymphocytes	9.94E-04	-0.55	CD3E.IL2.STAT3.CD40LG.DEF6.CDKN1B.TNFSF14.SOCS1.KKBK.PIM1.CD69
Expansion of natural killer cells	1.51E-02	-0.53	IRF1JL2JL2R8.SOCS1.PTPRC
Hematological or lymphatic system tumor	2.43E-03	-0.51	GSK3B.CDKN2A.PIK3R1.CD63.STAT3.BTG2.INPP5D.HIPK3.AT5A.IL7R.LCK.NIBAN1.CD27.MSA41.CD3E.PAG.1.NOTCH1.BUB3.PRF1.PIM1.PDCD1.CD47.PARP1.NRAS.CD40LG.BCL2.CASP3.FCMR.BCL2L1.STAT5B.FAS.CASP8
Quantity of naive lymphocytes	1.71E-03	-0.49	DOCK8JL2JTGALICOS.CDKN1B.JTK.JKZF3
Tumorigenesis of lymphocytes	2.17E-03	-0.48	GSK3B.CDKN2A.PIK3R1.BT.G2.INPP5D.HIPK3.AT5A.IL7R.NIBAN1.CD27.MSA41.CD3E.PAG.1.BUB3.PRF1.PIM1.PDCD1.CD47.PARP1.NRAS.CD40LG.BCL2.CASP3.FCMR.BCL2L1.STAT5B.CASP8
Cancer	1.07E-03	-0.45	GSK3B.IFITM1.GNB1.CDKN2A.EIF4A2.PIK3R1.ATP6AP1.LCP1.SNRNP200.STAT3.BTG2.HIPK3.STAT5A.SRRM1.NIBAN1.DDX5.CD27.NONO.MSA41.CD3E.PAG.1.NOTCH1.BUB3.SRSF2.PRF1.EP300.PIM1.PDCD1.CD47.CALCOCO2.PARP1.NRAS.CD40LG.BCL2.CASP3.PTPRCB.BCL2L1.FCMR.STAT5B.FAS.CASP8
Hyperplasia of hematopoietic progenitor cells	1.70E-02	-0.45	MAP2K7.PIK3R1.RAC2.IKZF1
Transmembrane potential of mitochondria	1.68E-02	-0.45	CD47.MAPK14.BCL2.BCL2L1.FAS.CD2
Positive selection of lymphocytes	3.70E-09	-0.42	RHOH.TRAF3IP3.PRKQ.ELK4.ELK1.THEMIS.SYK.SIT1.TRAT1.LCK.JTK.TOX.PRKCH.PTPRC.ZAP70
Degranulation of natural killer cells	2.18E-03	-0.41	IL2.TNFAIP3.KLRB1.PRF1.SLAMF6.RAB27A.PTPRC.DGKZ.ETS1.NCR3

Anergy of lymphocytes	214E-02	-0.39	CD3EJL2,PAG1,NPP5D,CD5,PRKQ,CBLB
Extrapneumatic malignant tumor	846E-04	-0.37	GSK3B,IFITM1,GNB1,CDKN2A,EIF4A2,PIK3R1,LATP6A1,LCP1,SNRNP200,STAT3,BTG2,HIPK3,STAT5A,SRRM1,NIBAN1,DDX5,CD27,NONO,M54A1,CD3E,PAG1,NOTCH1,BUB3,PRF1,PM1,POCD1,CD47,CALCOO2,PARP1,NRAS,CD40LG,BCL2,CASP3,FCMR,BCL2L1,STAT5B,FAS,CASP8
Apoptosis of effector T lymphocytes	350E-05	-0.34	IL2,TLN1,JFNG,CDKN1B,PTPN22,FAS,POCD1
Cell-mediated response	629E-04	-0.30	FLT3LG,IL2,JFNG,ICOS,PRKAA1,ITGIT,POCD1,PYCARD,HSDL1,MALT1,PARP1,STAT3,CD8A,CDKN1B,IL7R,ITK,BAK,SH2D1A,PGAP3,CASP8
Cell death of cytotoxic T cells	405E-03	-0.28	IL2,GZMA,PRKAA1,PRF1,FAS
Conversion of T lymphocytes	221E-02	-0.28	IL2,PARP1,STAT4,TNFAIP3,JFNG,BCL11B
Accumulation of B lymphocytes	221E-02	-0.27	TLN1,DEF6,TSC22D3,ICOS,BCL2,CD99,IKBKB,FAS,BAD
Cell death of thymocytes	227E-03	-0.26	CDKN2A,H1-2,FYN,CLK,PRKCB,LEA1B,CYL10,CD3EJL2,NOTCH1,IAP1,GDS,BC111B,ATM,MAP3K14,DFFA,IKBKB,BAD,ZC3H8,PARP1,DNAJA3,MAP3K2,GZMA,ARHGAP1,BCL2,BIRC6,CASP3,PTPRC,BAX,BCL2L1,ETS1,FAS,CASP8,XKR8
Survival of organism	863E-03	-0.22	NRAS,TNFAIP3,ATG5,JFNG,BCL2,STAT5A,IL7R,NCF1,BCL2L1,STAT5B,CASP8
Suppression of TREG cells	448E-04	-0.20	GATA3,IL2,PARP1,SMFD1,EP300,DGKZ,CD6,PIM1,POCD1
Proliferation of double-negative T lymphocyte	434E-04	-0.16	IL2,TNFAIP3,CDKN1B,MAP3K14,RICTOR,HNRP1,RASGRP1,LTB
Proliferation of granulocytes	102E-02	-0.14	STAT3,MAPK14,ATG5,STAT5A,PTPRC,STAT5B,LAG3,SENP1
Quantity of naive T lymphocytes	151E-02	-0.13	DOCKB,IL2,ITGAL,CDKN1B,ITK
Quantity of germinal center B lymphocytes	411E-03	-0.11	IL2,ICOS,MAP3K14,PRDM1,MALT1,STAT3,CD40LG,ARHGAP1,ITK,FCMR,FAS,MAP1,SH2D1A
Function of lymphocytes	538E-09	-0.10	IRF1,ITGAL,ARAP13,CDK5,ICOS,PRKQ,FCER1G,IL16,IL2RG,STR10,MCPI1,ARHGAP6,CD8A,CBLB,LAT,LAG3,PIK3C3,IL1HR1,S1PR1,CD3E,IL2,TNXP1,DG1,PRF1,LAAX1,HCST,POSTPPI1,TPABP,CD69,BAD,BCL2L1,NTAN1,STAT5B,ETS1,STR4,GSK3B,FLT3LG,GIMAP4,SLAMF1,JFNG,CREB1,TNFAIPB1,IL13RA1,SELENOK,PTPN22,WIP1,PIK3R1,TAP1,FYN,NPP5D,STAT5A,ITK,SLAMF6,PRKDC,CD27,GADD45G,CCEZ,STAT4,CD8B,TAX1BP1,CD3G,TNFSF14,ATM,PPP3CB,PI3K,POCD1,CD44,CD96,JILA-A,CD40LG,ARHGAP1,BCL2,SOCS1,PTPRC,CD247,SH2D1A,PGAP3,TBZ2L1,ARNAK
Extracranial solid tumor	392E-03	-0.09	PAG1,IFITM1,SRSF2,EP300,GNB1,EIF4A2,PIK3R1,LATP6A1,LCP1,ANKA1,SNRNP200,CALCOO2,CLK,SRRM1,PTPRC,DDX5,NONO
Apoptosis of naive T lymphocytes	101E-03	-0.07	IL2,PRF1,FAS,IL2RG
Lymphoproliferative disorder	129E-03	0.00	GSK3B,CDKN2A,PIK3R1,BTG2,NPP5D,HIPK3,STAT5A,IL7R,NIBAN1,LAT,CD27,M54A1,CD3E,PAG1,NOTCH1,BUB3,PRF1,PM1,POCD1,CD47,PARP1,NRAS,CD40LG,BCL2,CASP3,FCMR,BCL2L1,STAT5B,FAS,CASP8
Suppression of regulatory T lymphocytes	612E-04	0.10	GATA3,IL2,PARP1,SMFD1,EP300,DGKZ,TNFRSF10,PIM1,CD6,POCD1
Quantity of effector memory T lymphocytes	131E-02	0.11	MALT1,FLT3LG,ITGAL,ANGPT2,ICOS,SOCS1,SERPINB6
Apoptosis of CD4+ T-lymphocytes	999E-03	0.11	IL2,JFNG,CD5,PRKQ,FAS,CD6,GIMAP1
Apoptosis	115E-08	0.11	IRF1,ICOS,CDKN2A,FCER1G,IL2RG,CXCR4,STING,IJMG8B,IL7R,CLK,PRKCB,TRAF1,TL6,SKIL1,LTB,S1PR1,IL2,TLN1,EZR,PTGER4,ZC3H8,CD47,DNAJA3,CAMK2G,BIRC6,FCMR,BAX,BCL2L1,STAT5B,FASETS1,FLT3LG,RHOH,SLC6A6,CREB1,JFNG,FOXO1,2B7B16,PTPN22,H1-2,FYN,STAT5A,ISG15,CD27,WIP1,CASP10,NOTCH1,GPR13,2R4P1,GDS1,BCL11B,CD5,EP300,OGT,KIB1,CD40LG,STAT5A,ITK,SLAMF6,PRKDC,CD27,GADD45G,CCEZ,STAT4,CD8B,TAX1BP1,CD3G,TNFSF14,ATM,PPP3CB,PI3K,POCD1,CD44,CD96,JILA-A,CD40LG,ARHGAP1,BCL2,SOCS1,PTPRC,CD247,SH2D1A,PGAP3,TBZ2L1,ARNAK,APK14,TNFAIPB1,PIK3R1,CD6,RAC2,NPP5D,TSC22D3,ITK,PRKDC,GADD45G,KRAS,ATM,DFFA,PPP3CB,POCD1,CD44,CASP6,TNFAIP3,MAP3K2,SOCS1,PPP2R2B,PTPRC,CD247,CASP8,XKR8
Conversion of leukocytes	131E-02	0.13	IL2,PARP1,STAT4,TNFAIP3,BACH1,JFNG,BCL11B
Apoptosis of leukocytes	146E-08	0.19	IRF1,ICOS,CDKN2A,FCER1G,IL2RG,CXCR4,STING,IJMG8B,IL7R,CLK,PRKCB,TRAF1,TL6,SKIL1,LTB,S1PR1,IL2,TLN1,EZR,PTGER4,ZC3H8,CD47,DNAJA3,CAMK2G,BIRC6,BCL2L1,LBAX,FCMR,STAT5B,FASETS1,FLT3LG,RHOH,SLC6A6,CREB1,JFNG,FOXO1,2B7B16,PTPN22,H1-2,FYN,STAT5A,ISG15,WIP1,CD27,CASP10,NOTCH1,GPR13,2R4P1,GDS1,BCL11B,CD5,EP300,OGT,KIB1,CD40LG,STAT5A,ITK,SLAMF6,PRKDC,CD27,GADD45G,CCEZ,STAT4,CD8B,TAX1BP1,CD3G,TNFSF14,ATM,PPP3CB,PI3K,POCD1,CD44,CD96,JILA-A,CD40LG,ARHGAP1,BCL2,SOCS1,PTPRC,CD247,SH2D1A,PGAP3,TBZ2L1,ARNAK,NFAIPB1,PIK3R1,CD6,RAC2,NPP5D,TSC22D3,ITK,PRKDC,GADD45G,KRAS,ATM,DFFA,PPP3CB,POCD1,CD44,CASP6,TNFAIP3,MAP3K2,SOCS1,PPP2R2B,PTPRC,CD247,CASP8,XKR8
Quantity of central memory T lymphocyte	104E-02	0.19	MALT1,ITGAL,CD40LG,ICOS
Cell-mediated response of T lymphocytes	289E-03	0.21	FLT3LG,JFNG,ICOS,ITGIT,POCD1,PYCARD,HSDL1,MALT1,PARP1,STAT3,CDKN1B,IL7R,ITK,PGAP3,CASP8

Killing of antigen presenting cells	743E-03	0.22	MAPK14,SLAMF1,IFNG,SLAMF6,BAKL1,Y9,SH2D1A
Killing of phagocytes	743E-03	0.22	MAPK14,SLAMF1,IFNG,SLAMF6,BAKL1,Y9,SH2D1A
Renal cancer	1.33E-03	0.30	SNRN200,CALCOCO2,JFTT M1,SRSF2,SRRM1,GNB1,DOX5,EJF4A2,ATP6A1,NONO1,CP1
Cellular infiltration by leukocytes	2.45E-02	0.34	CRFB,MAPK14,IFNG,CCL5,ICOS,BCL11B,NR1H2,PIK3R1,PRDM1,IL16,POCD1,CD44,CD47,STAT3,BRAF,LAG3,TBX21
Function of T lymphocytes	4.55E-08	0.38	ITGAL,CBX5,ICOS,PRKCG,FCER1G,IL116,STK10,MCPH1,ARHGGE6,CD8A,CBLB,LAT1,LAG3,PK3C3L1,18R1,LS1,PR1,CD3E,IL2,DG,G1,PPF1,LA,IL1,HCST,PTPPI1,TAPPD,CD69,BAD,BCL2L1,NTAN1,STAT5B,STK4,GSK3B,FLT3LG,GIMAP4,SLAMF1,CREB1,IFNG,TNFAIP8L2J1,13RA1,SELENOK,PTPN22,WIPF1,FYN,NPP5D,STAT5A,ITK,SLAMF6,PRKDC,CD27,GADD45G,CCR2,STAT4,CD8B,ITAX1B,PI,CD3G,TNFSF14,ATM,PPP93C,RYB1,POCD1,CD44,HLA-A,CD40LG,BCL2,PTPRC,CD247,SH2D1A,GAP3,TBX21,LAHNAK
Quantity of gamma-delta T lymphocytes	1.83E-03	0.38	RHOJL2,ITGAL,RICTOR,IKZF1,GPR18,ST1,CD8A,CDKN1B,BCL2,IL7R,LCJTK,SOCS1,TNIP1,PTPRC
Differentiation of TREG cells	2.21E-02	0.38	CCR2,IL2,MAPK14,ITK,CD69,S1PR1
Cell death of effector T lymphocytes	2.73E-06	0.44	IL2,TLN1,IFNG,CDKN1B,PRKAA1,SMPD1,PTPN22,FAS,POCD1
Quantity of memory T lymphocytes	5.09E-05	0.53	FLT3LG,IL2,GRAP2,ITGAL,ANGPT2,ICOS,IL2RB,PTPN22,SERPINB6,PIK3R1,IRF2,THEMIS,MALTY1,CD40LG,ITK,SOCS1,BCL2L1,PRKCH,ETS1,CD27,STK17B,TBX21,LTB
Exhaustion of T lymphocytes	8.59E-05	0.54	DOCK8,IFNG,ANDG,IL2RB,TNFRSF18,CD27,POCD1
Quantity of effector T lymphocytes	4.75E-03	0.55	MALT1,FLT3LG,IL2,ITGAL,ANGPT2,ICOS,CDKN1B,SOCS1,SERPINB6
Suppressive capacity of TREG cells	6.39E-04	0.57	PARP1,SMPD1,EP300,DGK2,CD6,PIM1,POCD1
Quantity of double-negative T lymphocyte	1.38E-06	0.57	FLT3LG,RHOH,PRKCG,TAP1,IL2RG,CNDB3,IL7R,LCJTK,LAT,PRKCH,LAG3,ASXL1,PRKDC,GRAP2,IL2,CD3E,BCL11B,ATM,JA,1,PPARD,KAT6A,BCL2,PTPRC,KMT2E,ETS1,FAS,CD247
Cell death of PBMCs	2.14E-02	0.58	GIMAP4,CD40LG,EZR,PTPRC,FASZAP70,GIMAP1
Metabolism of DNA	2.60E-03	0.59	IL2,PARP1,IFNG,CAMK2G,DPFAC,ASP3,FAS
Fragmentation of DNA	2.66E-03	0.59	IL2,PARP1,IFNG,DPFAC,ASP3,FAS
Quantity of helper T lymphocytes	2.25E-03	0.64	IRF1,IFNG,ICOS,T0B1,PRKQJ,113RA1,NDF1P1,TAP1,RASGRP1,GATA3,MALT1,STAT3,PIK3AP1,LCCK,CCR2,IL2,CCL5,KKKB,TIGIT,SERPINB6,PRDM1,MAF,CD69,PVCARD,BATF,TNIP1,TNFRSF18,SH2D1A,TBX21,ATXN1,XXR8
Cell death of effector memory T lymphocytes	1.11E-03	0.64	IL2,IFNG,PRKAA1,SMPD1,FAS
Hyperplasia of leukocytes	4.98E-03	0.65	CYLD,MAP2K7,MAPK14,MAP3K14,CDKN2A,PIK3R1,RAC2,IKZF1,CD40LG,BAX,LAT,TNFRSF18,DIUSP4
Organismal death	6.77E-03	0.68	CD3E,IFNG,MSN,EP300,GNB1,CDKN2A,PRDM1,ATP6A1,LCPI1,TNFAIP3,SOCS1,EJF4A1,DOX5,CASP8,BRD2
Activation of memory T lymphocytes	4.18E-03	0.71	MALT1,IL2,HLA-A,CDKN1B,MGST1,ZAP70
Apoptosis of T lymphocytes	4.28E-13	0.73	ATG5,ICOS,PRKCG,CDKN2A,IL2RG,DOCK8,STING1,STAT3,CKCR4,IL7R,LCJTK,TRAF1,TL4,PK3C3L1,TR,CYLD,GRAP2,CD3E,IL2,CCL5,TLN1,EZR,PRF1,KBKRB,ZH18,CD47,DNAI3,CDKN1B,BIRC6,CASP9,BCL2L1,BAK,F0MR,STAT5B,ETS1,FAS,STK17B,GSK3B,RHOH,SLGAG,IFNG,CREB1,TNFAIP8L2,ZBTB16,PTPN22,PIK3R1,CD6,RAC2,H1-2,FYNTSC22D3,STAT5A,ITK,PRKDC,WWP2,CD27,KRAS,CASP10,NOTCH1,GPR132,RAF1,GDS1,CD5,BCL11B,ATM,EP300,PPP3CB,DPFAC,OGT,KLRCL,POCD1,CD44,GIMAP1,CASP6,PARP1,MAP3K2,G2MA,ARHGGEF1,BCL2,PPP2R2B,SOCS1,PTPRC,TNFRSF18,CD247,XCL1,CD2,CASP8,XXR8,ANKZF1
Apoptosis of TREG cells	1.48E-04	0.75	IL2,TLN1,EP300,PTPN22,POCD1
Killing of natural killer cells	1.68E-02	0.83	SLAMF1,HLA-A,PRF1,SLAMF6,RAB27A,LY9
Apoptosis of regulatory T lymphocytes	4.00E-07	0.94	IL2,TLN1,STAT5A,EP300,PTPN22,FAS,STAT5B,POCD1
Cell death of naive T lymphocytes	7.54E-05	0.98	IL2,FYN,LCJL7R,PRF1,CASP3,FAS,IL2RG
Hyperplasia of T lymphocytes	1.08E-03	1.00	MAP2K7,MAPK14,MAP3K14,LAT,BAX,TNFRSF18,DIUSP4,IKZF1

B-cell neoplasm	248E-03	1.00	MS4A1,GSKB,PAG1,BUB3,PRF1,CDKN2A,PI3K,POCD1,CD47,PARP1,BTG2,CD40LG,INPP5D,HIPK3,BCL2,IL7R,CASP3,NIBAN1,FCMR,BCL2L1,CD27,CASP8
Lifespan of blood cells	212E-02	1.00	SEMA4D,DOCKR1,FNG,CDKN2A,KIKKB
Development of regulatory T lymphocytes	239E-03	1.04	IL2,STAT4,IFNG,ICOS,STIM2,PRKQ,IL2RB,GPRI174,PARP1,STAT3,CREBBP,CBLB,ETS1,TBX21,S1PR1
Apoptosis of helper T lymphocytes	103E-02	1.08	IL2,CREB1,BCL2,FAS,CD6
Proliferation of CD8+ T lymphocyte	722E-03	1.11	IL2,RAS2,STAT4,IFNG,CD5,POCD1,CD8A,TNFAIP3,CDKN1B,STAT5A,LCK,ANO6,BATF,JBASH3A,SOC1,CRUB,PCBP2,PTPRC,CYTI,PDGKZ,TNFRSF18,STAT5B
Cell death of T lymphocytes	468E-15	1.13	ICOS,CDKN2A,IL2RB,STING1,LCXCR4,IL7R,LCK,LAT,TRAF1,LGAG3,TLF4,IL7,IL2,TLN1,EZR,PRDM1,ZC3H8,CD47,DNAJA3,BIRC6,BCL2L1,BAFF,FCMR,STAT5B,ETS1,FAS,SHO1,SLC6A6,CREB1,IFNG,FOXP1,ZBTB16,PTPN22,H12,FYN,STAT5A,WWP2,CD27,CASP10,NOTCH1,GPRI32,RAP1GDS1,CD5,BCL11B,CD99,MAP3K14,EP300,OCT4,KLRCL1G,MAP1P,PARP1,GZMA,ARHGAP1,BCL2,TNFRSF18,CD2,ANKZF1,LAT,G5,PRKQ,PKNA1,DOCK8,STAT3,PKI3C3,CYLD,GRAP2,CD3E,CCL5,PRF1,SMPD1,KIKKB,BAD,SH2D2A,CDKN1B,CASP3,STK17B,GSKB,SH2D2A,MAP4,MAPK14,TNFAIP8L2,PKI3R1,CD6,RAC2,TSC2D3,DEF6,ITK,PRKDC,KRAS,ATM,DFPA,PPP3CB,POCD1,CD44,CASP6,MAP3K2,SOC1,PPP2R2B,PTPRC,CD247,SH2D1A,CASP9,XXR8
Cell death of B lymphocytes	261E-03	1.13	IFNG,FOXP1,CDKN2A,PKI3R1,MALT1,STAT3,STING1,INPP5D,NOCD2,TSC2D3,PRKCB,CD27,DUSP4,SKI1,S1PR1,MS4A1,IL2,CD5,SMPD1,PRF1,POCD1,BAD,CD40LG,BCL2,PTPRC,FCMR,BAX,BCL2L1,ORMDL3,ETS1,FAS,CASP9,ANKZF1
Apoptosis of mononuclear leukocytes	162E-10	1.20	ICOS,CDKN2A,IL2RB,CDC8,4,STING1,IL7R,LCK,PRKCB,LAT,TRAF1,TLF4,SKI1,TLB,SI,PR1,IL2,TLN1,EZR,ZC3H8,CD47,DNAJA3,BIRC6,BCL2L1,BAFF,FCMR,STAT5B,FAS,ETS1,RHOH,SLC6A6,CREB1,IFNG,FOXP1,ZBTB16,PTPN22,H12,FYN,STAT5A,WWP2,CD27,CASP10,NOTCH1,GPRI32,RAP1GDS1,BCL11B,CD5,EP300,OCT4,KLRCL1G,MAP1P,AR1,CD40LG,GZMA,BCL2,ARHGAP1,TNFRSF18,ORMDL3,XCL1,CD2,ANKZF1,LAT,G5,PRKQ,MALT1,DOCK8,STAT3,NOCD2,DUSP4,PKI3C3,CYLD,GRAP2,CD3E,CCL5,PRF1,SMPD1,KIKKB,BAD,CDKN1B,CASP3,STK17B,GSKB,TNFAIP8L2,PKI3R1,CD6,RAC2,NPP5D,TSC2D3,ITK,PRKDC,GADD45G,KRAS,ATM,DFPA,PPP3CB,POCD1,CD44,CASP6,MAP3K2,SOC1,PPP2R2B,PTPRC,CD247,CASP9,XXR8
Cell death of mononuclear leukocytes	139E-12	1.27	ICOS,CDKN2A,IL2RB,CDC8,4,STING1,IL7R,LCK,PRKCB,LAT,TRAF1,TLF4,SKI1,TLB,SI,PR1,IL2,TLN1,EZR,PRDM1,ZC3H8,CD47,DNAJA3,BIRC6,BCL2L1,BAFF,FCMR,STAT5B,FAS,ETS1,RHOH,SLC6A6,CREB1,IFNG,FOXP1,ZBTB16,PTPN22,H12,FYN,STAT5A,WWP2,CD27,CASP10,NOTCH1,GPRI32,RAP1GDS1,BCL11B,CD5,CD99,EP300,MAP3K14,OCT4,KLRCL1G,MAP1P,PARP1,CD40LG,GZMA,BCL2,ARHGAP1,TNFRSF18,ORMDL3,XCL1,CD2,ANKZF1,LAT,G5,PRKAA1,PRKQ,MALT1,DOCK8,STAT3,NOCD2,DUSP4,PKI3C3,CYLD,GRAP2,CD3E,CCL5,PRF1,SMPD1,KIKKB,BAD,CDKN1B,CASP3,STK17B,GSKB,SH2D2A,MAP4,MAPK14,TNFAIP8L2,PKI3R1,CD6,RAC2,NPP5D,DEF6,TSC2D3,ITK,PRKDC,GADD45G,KRAS,ATM,PPP3CB,DFPA,POCD1,CD44,CASP6,TNFAIP3,MAP3K2,SOC1,PPP2R2B,PTPRC,CD247,SH2D1A,CASP9,XXR8
Apoptosis of lymphocytes	339E-11	1.29	ICOS,CDKN2A,IL2RB,CDC8,4,STING1,IL7R,LCK,PRKCB,LAT,TRAF1,TLF4,SKI1,TLB,SI,PR1,IL2,TLN1,EZR,ZC3H8,CD47,DNAJA3,BIRC6,BCL2L1,BAFF,FCMR,STAT5B,FAS,ETS1,RHOH,SLC6A6,CREB1,IFNG,FOXP1,ZBTB16,PTPN22,H12,FYN,STAT5A,WWP2,CD27,CASP10,NOTCH1,GPRI32,RAP1GDS1,BCL11B,CD5,EP300,OCT4,KLRCL1G,MAP1P,AR1,CD40LG,GZMA,BCL2,ARHGAP1,TNFRSF18,ORMDL3,XCL1,CD2,ANKZF1,LAT,G5,PRKQ,MALT1,DOCK8,STAT3,NOCD2,DUSP4,PKI3C3,CYLD,GRAP2,CD3E,CCL5,PRF1,SMPD1,KIKKB,BAD,CDKN1B,CASP3,STK17B,GSKB,TNFAIP8L2,PKI3R1,CD6,RAC2,NPP5D,TSC2D3,ITK,PRKDC,KRAS,ATM,DFPA,PPP3CB,POCD1,CD44,CASP6,MAP3K2,SOC1,PPP2R2B,PTPRC,CD247,CASP9,XXR8
Frequency of TREM cells	899E-03	1.36	IL2,PARP1,MAPK14,SMPD1,PTPN22,CD6
Cell death of helper T lymphocytes	171E-03	1.40	IL2,CREB1,BCL2,SMPD1,CASP3,FAS,CD6
Lymphoid hyperplasia	754E-03	1.43	CYLD,MAP2K7,MAPK14,CD40LG,MAP3K14,BAX,LAT,TNFRSF18,DUSP4,KZF1
Cell death of lymphocytes	635E-13	1.44	ICOS,CDKN2A,IL2RB,CDC8,4,STING1,IL7R,LCK,PRKCB,LAT,TRAF1,TLF4,SKI1,TLB,SI,PR1,IL2,TLN1,EZR,PRDM1,ZC3H8,CD47,DNAJA3,BIRC6,BCL2L1,BAFF,FCMR,STAT5B,FAS,ETS1,RHOH,SLC6A6,CREB1,IFNG,FOXP1,ZBTB16,PTPN22,H12,FYN,STAT5A,WWP2,CD27,MS4A1,CASP10,NOTCH1,GPRI32,RAP1GDS1,BCL11B,CD5,CD99,EP300,MAP3K14,OCT4,KLRCL1G,MAP1P,PARP1,CD40LG,GZMA,BCL2,ARHGAP1,TNFRSF18,ORMDL3,XCL1,CD2,ANKZF1,LAT,G5,PRKAA1,PRKQ,MALT1,DOCK8,STAT3,NOCD2,DUSP4,PKI3C3,CYLD,GRAP2,CD3E,CCL5,PRF1,SMPD1,KIKKB,SH2D2A,BAD,CDKN1B,CASP3,STK17B,GSKB,SH2D2A,MAP4,MAPK14,TNFAIP8L2,PKI3R1,CD6,RAC2,NPP5D,DEF6,TSC2D3,ITK,PRKDC,KRAS,ATM,DFPA,PPP3CB,POCD1,CD44,CASP6,TNFAIP3,MAP3K2,SOC1,PPP2R2B,PTPRC,CD247,SH2D1A,CASP9,XXR8
Apoptosis of B lymphocytes	610E-03	1.51	IFNG,FOXP1,CDKN2A,PKI3R1,MALT1,STAT3,NOCD2,TSC2D3,PRKCB,CD27,DUSP4,SKI1,S1PR1,IL2,CD5,SMPD1,PRF1,BAD,CD40LG,BCL2,PTPRC,BAX,BCL2L1,FCMR,ORMDL3,ETS1,FAS,CASP9,ANKZF1
Frequency of regulatory T lymphocytes	129E-02	1.64	CYLD,IL2,PARP1,MAPK14,SMPD1,RICTOR,PTPN22,CD6
Number of activated T lymphocyte	999E-03	2.61	DUSP10,IL2,GRAP2,PRF1,IL2RB,SOC1,MHP1
Morphology of lymphocytes	278E-11		IRF1,PRKQ,FCER1G,RASGRP1,IL2RG,MALT1,SYK,CD8A,PKI3AP1,IL7R,LCK,CBLB,LAT,CYTI,PRKCI,LYT1,IL7R,CYLD,GRAP2,CD3E,IL2,TXNIP,CD46,PRDM1,BATF,CDKN2B,BCL2L1,FCMR,BAK,ETS1,STAT5B,FAS,STK4,EP515,FLT3LG,SEMA4D,RHOH,IFNG,IL2RB,PTPN22,TAP1,LCJ,KZF1,INPP5D,ITPKB1,TKT,OXCREBBP,PRKDC,CD8B,BCL11B,TNFSF14,MARK2,PPP3CB,LY9,SLA,THEMISHLA-A,BCL2,RUNX3,SOC1,PTPRC,CD247,SH2D1A,ERN1,PGAP3,TBX21,LYST
Abnormal morphology of lymphocytes	410E-11		IRF1,PRKQ,FCER1G,RASGRP1,IL2RG,MALT1,SYK,CD8A,PKI3AP1,IL7R,LCK,CBLB,LAT,CYTI,PRKCI,LYT1,IL7R,CYLD,GRAP2,CD3E,IL2,TXNIP,CD46,PRDM1,BATF,CDKN2B,BCL2L1,FCMR,BAK,ETS1,STAT5B,FAS,STK4,EP515,FLT3LG,SEMA4D,RHOH,IFNG,IL2RB,PTPN22,TAP1,LCJ,KZF1,INPP5D,ITPKB1,TKT,OXCREBBP,PRKDC,CD8B,BCL11B,TNFSF14,MARK2,PPP3CB,LY9,SLA,THEMISHLA-A,BCL2,RUNX3,SOC1,PTPRC,CD247,SH2D1A,ERN1,PGAP3,TBX21
Abnormal morphology of mononuclear leukocytes	593E-11		IRF1,FTL,PRKQ,FCER1G,RASGRP1,IL2RG,MALT1,SYK,CD8A,PKI3AP1,IL7R,LCK,CBLB,LAT,CYTI,PRKCI,LYT1,IL7R,CYLD,GRAP2,CD3E,IL2,TXNIP,PRDM1,BATF,CDKN2B,BAX,FCMR,ETS1,STAT5B,FAS,STK4,EP515,FLT3LG,SEMA4D,RHOH,IFNG,IL2RB,PTPN22,TAP1,LCJ,KZF1,INPP5D,ITPKB1,TKT,OXCREBBP,PRKDC,CD8B,BCL11B,TNFSF14,MARK2,PPP3CB,LY9,SLA,THEMISHLA-A,BCL2,RUNX3,SOC1,PTPRC,CD247,SH2D1A,ERN1,PGAP3,TBX21
Morphology of T lymphocytes	631E-11		IRF1,RHOH,PRKQ,PTPN22,FCER1G,TAP1,RASGRP1,IL2RG,MALT1,INPP5D,CD8A,ITPKB1,IL7R,LCK,TKT,OX,CRUB,CYTI,PRKCI,LAT,CD3E,GRAP2,IL2,CD8B,BCL11B,MARK2,TNFSF14,CD46,PPP3CB,LY9,SLA,THEMISHLA-A,BCL2,RUNX3,SOC1,PTPRC,BAX,BCL2L1,STAT5B,ETS1,FAS,SH2D1A,CD247,PGAP3,TBX21,LYST
Morphology of mononuclear leukocytes	655E-11		IRF1,FTL,PRKQ,FCER1G,RASGRP1,IL2RG,MALT1,SYK,CD8A,PKI3AP1,IL7R,LCK,CBLB,LAT,CYTI,PRKCI,LYT1,IL7R,CYLD,GRAP2,CD3E,IL2,TXNIP,CD46,PRDM1,BATF,CDKN2B,BCL2L1,FCMR,BAK,ETS1,STAT5B,FAS,STK4,EP515,FLT3LG,SEMA4D,RHOH,IFNG,IL2RB,PTPN22,TAP1,LCJ,KZF1,INPP5D,ITPKB1,TKT,OXCREBBP,PRKDC,CD8B,BCL11B,TNFSF14,MARK2,PPP3CB,LY9,SLA,THEMISHLA-A,BCL2,RUNX3,SOC1,PTPRC,CD247,SH2D1A,ERN1,PGAP3,TBX21,LYST
Abnormal morphology of leukocytes	144E-10		IRF1,PML,FTL,PRKQ,FCER1G,RASGRP1,IL2RG,GAT A3,MALT1,SYK,CD8A,PKI3AP1,IL7R,LCK,CBLB,LAT,CYTI,PRKCI,LYT1,ASXL1,IL7R,CYLD,GRAP2,CD3E,IL2,TXNIP,SMPD1,PRDM1,PSTPIP1,BAD,BATF,CDKN2B,BAX,FCMR,ETS1,STAT5B,FAS,STK4,EP515,FLT3LG,SEMA4D,RHOH,IFNG,TNFAIP8L2,IL2RB,PTPN22,TAP1,LCJ,KZF1,INPP5D,ITPKB1,TKT,OXCREBBP,PRKDC,CD8B,BCL11B,ATM,MARK2,TNFSF14,PPP3CB,LY9,SLA,THEMISHLA-A,BCL2,RUNX3,SOC1,PTPRC,CD247,SH2D1A,ERN1,PGAP3,TBX21,CASP8
Abnormal morphology of T lymphocytes	148E-09		IRF1,RHOH,PRKQ,PTPN22,FCER1G,TAP1,RASGRP1,IL2RG,MALT1,CD8A,ITPKB1,IL7R,LCK,TKT,OX,CRUB,CYTI,PRKCI,LAT,CD3E,GRAP2,IL2,CD8B,BCL11B,MARK2,TNFSF14,PPP3CB,LY9,SLA,THEMISHLA-A,BCL2,RUNX3,SOC1,PTPRC,BAK,STAT5B,FAS,ETS1,CD247,SH2D1A,PGAP3,TBX21
Abnormal morphology of immune system	213E-08		IRF1,PML,FTL,PRKQ,FCER1G,RASGRP1,IL2RG,MALT1,GATA3,SYK,CD8A,PKI3AP1,IL7R,LCK,CBLB,LAT,CYTI,PRKCI,ASXL1,IL7R,CYLD,GRAP2,CD3E,IL2,TXNIP,SMPD1,PRDM1,PSTPIP1,GBA,BAD,DOCK11,BATF,CDKN2B,BAX,FCMR,STAT5B,ETS1,FAS,STK4,EP515,FLT3LG,SEMA4D,RHOH,IFNG,TNFAIP8L2,IL2RB,PTPN22,TAP1,LCJ,KZF1,INPP5D,ITPKB1,STAT5A,ITK,OXCREBBP,PRKDC,PTGDR,CD8B,BCL11B,TNFSF14,MARK2,ATM,PPP3CB,LY9,NR1H2,SLA,THEMISHLA-A,SOAT1,BCL2,RUNX3,SOC1,PTPRC,CD247,SH2D1A,ERN1,PGAP3,TBX21,CASP8
Development of natural killer T lymphocytes	268E-08		CYLD,IRF1,KRAS,NOTCH1,STIM2,ZBTB16,PRKQ,RICTOR,KIKKB,MALT1,FYN,TNFAIP3,TK,DGKZ,ETS1,SH2D1A,PKI3C3

Morphology of lymphoid tissue	5.11E-08	RHOH,CD3E,GRAP2,EP300,IL2RB,PTPN22,SLA,RASGRP1,LCP1,MALT1,CD8A,BCL2L1,CK,BATF,PTPRC,STAT5B,SH2D1A,CD247,CASP8,STK4,EP515,PIK3CJL1T8
Lack of lymphocytes	9.17E-08	IL2RB,FCER1G,TAP1,IL2RG,KZFP1,MALT1,SVK,CD8A,PIK3AP1,ITPKB,IL7R,LCK,CREBBP,LAT,PRKDC,LTB,CD3E,BCL11B,PRDM1,HLA-A,BATF,ETS1,SH2D1A,CD247,TBX21
Lymphopenia	1.57E-07	ICOS,IL2RB,FCER1G,TAP1,IL2RG,KZFP1,MALT1,SVK,CD8A,PIK3AP1,ITPKB,IL7R,LCK,CREBBP,LAT,PRKDC,LTB,CD3E,BCL11B,PRDM1,HLA-A,BATF,ETS1,CD247,SH2D1A,TBX21
Morphology of leukocytes	1.77E-07	IRF1,PML,FIT1,PRKQ,CDKN2A,FCER1G,RASGRP1,IL2RG,GATA3,MALT1,SVK,CD8A,PIK3AP1,IL7R,LCK,CHL1,LAT,PRKCHL,CYTP,ASXL1,LTB,CYLD,GRAP2,CD3E,IL2,TXNIP,SNMPD1,CD46,PRDM1,PTSTP1,GBA,BAD,NRAS,DOCK11,BATF,CDKN2B,BCL2L1,BAFF,FCMR,STAT5B,FAS,ETS1,STK4,EP515,FLT3LG,SEMA4D,RH0H,TNFAIP8L2J,FNG,IL2RB,PTPN22,TAP1,CTCF,LCP1,KZFP1,NPP5D,ITPKB,STAT5A,ITK,TOX,CREBBP,PRKDC,PTGR,CCR2,TRAF3,CD8B,BCL11B,TNFSF14,MARK2,ATM,PPP3C1L,Y9,NR1H2,SLA,THEMIS,HLA-ASOAT1,BCL2,RUNX3,SOCS1,PTPRC,CD247,ERN1,SH2D1A,PGAP3,TBX21,CASP8,LYST
Lack of T lymphocytes	5.05E-06	CD3E,BCL11B,FCER1G,TAP1,IL2RG,HLA-A,CD8A,ITPKB,IL7R,LAT,SH2D1A,CD247,TBX21
Function of natural killer cells	1.09E-05	TXNIP,STAT4,ICOS,IFNG,KLRB1,PRF1,FCER1G,TAPB,CD96,FYN,PTPRC,ETS1,LAG3,SH2D1A,CD247,TBX21,GADD45G
Abnormal morphology of lymphoid organ	3.06E-05	GRAP2,CD3E,RHOH,EP300,PTPN22,SLA,RASGRP1,MALT1,CD8A,BCL2L1,CK,STAT5B,CD247,CASP8
Abnormal morphology of hematopoietic progenitor cells	5.32E-05	RHOH,CD3E,GRAP2,PTPN22,SLA,RASGRP1,KZFP1,MALT1,SVK,CD8A,LCK,CREBBP,PTPRC,STAT5B,CD247,ERN1,PRKDC
Abnormal morphology of follicular B lymphocytes	7.54E-05	BATF,IL2RB,PTPRC,SH2D1A,EP515,STK4,LTB,CP1
Abnormal morphology of thoracic cavity	7.63E-05	MALT1,GRAP2,CD3E,RHOH,CD8A,LCK,PTPN22,STAT5B,CD247,SLA,CD69,RASGRP1
Immune mediated inflammatory disease	9.33E-05	E1F2AK2,NCOR2,RAB1B,ICOS,TNFR,GB,FCER1G,GATA3,RNF14,TMF1,CXCR4,CCDC59,STING1,STAT3,HLA,DRB5,MLLT6,TRAF1,DTX3L,NF2B3,DTX3L,NR4A2,S1PR1,SGZ9,DNAJA4,IL2,TRIM22,IRN1,CCL5,WNK1,PRDM1,DUSP2,ADSS,CD69,ISP15,PIF1,RNF149,CDKN1B,ADGRE5,GNLY,BCL2L1,BAFF,STK17B,RCSD1,JunB,F11R,IFNG,IFNG3,ISELENOX,PDE4B,HSF2L1,CP1,KZFP1,CCND3,INPP5D,FKBP5,DEDD2,HSR,ASL,AMF6,EHD4,SAFB,NONO,PPP2CA,DCUN1D1,EP300,IY9,RABGAP1L,POCD1,NUMB,BST2,TNFAIP3,MAP3K2,GZMA,BCL2,RUNX3,SOCS1,PTPRC,TBHG1,CASP8,TAGAP1,DHB
Abnormal morphology of B lymphocytes	1.04E-04	SEMA4D,FLT3LG,CYLD,CD3E,IL2RB,PRDM1,IL2RG,KZFP1,CP1,MALT1,SVK,PIK3AP1,BATF,CREBBP,PTPRC,FCMR,BAX,ETS1,SH2D1A,ERN1,PRKDC,STK4,EP515,LTB
Abnormal morphology of body cavity	1.04E-04	GRAP2,CD3E,RHOH,EP300,PTPN22,SLA,CD69,RASGRP1,MALT1,CD8A,BCL2L1,CK,STAT5B,CD247,CASP8
Morphology of lymph follicle	1.04E-04	BATF,IL2RB,PTPRC,SH2D1A,STK4,PIK3CJ,EP515,LTB,CP1
Abnormal morphology of thymus gland	1.20E-04	MALT1,CD3E,GRAP2,RHOH,CD8A,LCK,PTPN22,STAT5B,CD247,SLA,RASGRP1
Differentiation of natural killer cells	1.44E-04	FLT3LG,IRF1,SLAMF1,HCTD1,KZFP1,INPP5D,STAT5A,SP9,TOX,SLAMF6,KAT7,PTPRC,STAT5B
Abnormal quantity of lymphocytes	1.55E-04	MS4A1,CYLD,IRF1,RHOH,IL2,ICOS,IL2RG,SYK,SIT1,ARHGFB6,CD8A,ARHGEP1L,CK,TOX,PTPRC,STAT5B,POLM,SH2D1A,CD247,PRKDC
Abnormal morphology of CD8+ T lymphocyte	1.87E-04	CD3E,IL2,CD8B,PPP3C1,CR,TAP1,HLA-A,CD8A,ITPKB,BCL2,RUNX3,TOX,LAT,CYTP,ETS1,TBX21
Apoptosis of effector T regulatory cells	2.24E-04	IL2,TLN1,PTPN22,POCD1
Arrest in differentiation of T lymphocytes	2.63E-04	GRAP2,CD3E,RHOH,ITPKB,IL7R,CD3D,PTPRC,LAT,NCOR1,PRKDC,ZAP70
Rheumatic Disease	2.77E-04	E1F2AK2,NCOR2,RAB1B,TNRC6B,ICOS,RNF14,TMF1,CCDC59,STING1,STAT3,CXCR4,MLLT6,TRAF1,DTX3L,NF2B3,DTX3L,NR4A2,S1PR1,SGZ9,DNAJA4,CD3E,IL2,TRIM22,CCL5,TCF7,WNK1,KRKB,PRDM1,DUSP2,ADSS,CD69,ISP15,RNF149,CDKN1B,ADGRE5,GNLY,BCL2L1,BAFF,STK17B,RCSD1,F11R,IFNG,LCP1,KZFP1,CCND3,MEIT1,IY9,NPP5D,FKBP5,DEDD2,HSR,ASL,AMF6,EHD4,SAFB,CD27,MAP3K3,NONO,SGGR,DCUN1D1,IY9,RABGAP1L,NUMB,BST2,TNFAIP3,MAP3K2,GZMA,BCL2,RUNX3,SOCS1,PTPRC,TBHG1,TAGAP1,DHB
Lack of CD8+ T lymphocyte	4.52E-04	CD3E,HLA-A,CD8A,ITPKB,LAT,TAP1
Eosinophilia	5.31E-04	CXCR4,STAT3,SVK,CD40LG,IFNG,CD7,CD3G,CD5,KRKB,PPP3CA,CD247
Systemic autoimmune syndrome	5.51E-04	E1F2AK2,NCOR2,RAB1B,TNRC6B,ICOS,RNF14,TMF1,CCDC59,STING1,STAT3,CXCR4,MLLT6,TRAF1,DTX3L,NF2B3,DTX3L,NR4A2,S1PR1,SGZ9,DNAJA4,CD3E,IL2,TRIM22,CCL5,TCF7,WNK1,KRKB,PRDM1,DUSP2,ADSS,CD69,ISP15,RNF149,CDKN1B,ADGRE5,GNLY,BCL2L1,BAFF,STK17B,RCSD1,F11R,IFNG,LCP1,KZFP1,CCND3,MEIT1,IY9,NPP5D,FKBP5,DEDD2,HSR,ASL,AMF6,EHD4,SAFB,CD27,MAP3K3,NONO,SGGR,DCUN1D1,IY9,RABGAP1L,NUMB,BST2,CD40LG,TNFAIP3,MAP3K2,GZMA,BCL2,RUNX3,SOCS1,PTPRC,TBHG1,CASP8,TAGAP1,DHB
Function of CD4+ T-lymphocytes	6.81E-04	IL2,SLAMF1,ITGAL,TNFAIP8L2,ICOS,PRKQ,PPP3C1,PTPN22,FCER1G,CD44,CD69,FYJ,NPP5D,LAG3,SH2D1A,CD27,PGAP3,TBX21,STK4
Abnormal morphology of double-negative T lymphocyte	6.98E-04	MALT1,CD3E,RHOH,GRAP2,CD8A,LCK,STAT5B,CD247
Abnormal morphology of gamma-delta T lymphocytes	6.98E-04	IL2,IL7R,TNFSF14,ITK,LAT,FCER1G,CD247,IL2RG

Function of cytotoxic T cells	860E-04	GSK3B,IL2,ITGAL,CD8B,IFNG,TNFAIP8L2,TNFSF14,PRP1,TAPEP,HLA-A,CD8A,SH2D1A,CD27,TBX21
Clearance of neutrophils	892E-04	CCR2,GPR132,HMGB1,CD44,XXR8,ANXA1
Exhaustion of CD8+ T lymphocyte	1.01E-03	AN06,IL2RB,TNFRSF10,CD27
Familial autoimmune disease	1.01E-03	CD40LG,ICOS,FAS,PPDC1
Arrest in differentiation of leukocytes	1.07E-03	RHOH,GRAP2,CD3EJAK1,PIK3R1,KZF3,IL2RG,SYK,FYN,ITPKB,CD3D,IL7R,PTPRCNCOR1,LAT,PRKDC,CASP9,ZAP70
Lack of gamma-delta T lymphocytes	1.11E-03	IL7R,FCER1G,LAT,CD247,IL2RG
Systemic lupus erythematosus	1.40E-03	EIF2AK2,NCOR2,TRIM22,IFNG,ICOSL1,YRARGAP1L,CCND3,BST2,STAT3,CDKN1B,BCL2,SLAMF6,BAK,BCL2L1,DTX3L,ISG20
Inflammation of joint	1.76E-03	RAB18,TNRC6B,ICOS,SIPAI,NCF1,RNF14,LPINI,TMFI,CDC59,STING1,STAT3,CXCR4,MLLT6,PRKCB,TRAF1,ZNF326,NR4A2,S1PR1,DNAJA4,CD3E,IL2,CC15,TCF7,WNK1,KIKKB,PRDM1,DUSP2,CD69,ADSS2,USP15,RNF149,ADGRE5,GNLY,RCSD1,STK17B,F11R,IFNG,ICP1,KZFP1,CCND3,METT19,FKBP5,DEDD2,HSPA8,EHD4,SAFB,CD27,NONO,MAP3K3,SGIRL,DCUN1D1,NUMB,TNFAIP3,MAP3K2,GZMA,RUNX3,SOCS1,PTPRC,TB RG1,TAGAPL,DHB
Cell survival of CD4+ T-lymphocytes	1.83E-03	PIM1,IL2RG,PYCARD
Contact growth inhibition of T lymphocytes	1.83E-03	LCK,PTPRC,ZAP70
Generation of CD8+ T lymphocyte	1.83E-03	ITGAL,HLA-A,IFNG
Insulin-dependent diabetes mellitus secretory diarrhea syndrome	1.83E-03	CD40LG,ICOS,PPDC1
Selection of natural killer T lymphocytes	1.83E-03	ELF1,ELK4,ELK1
Hypereosinophilia	1.97E-03	CXCR4,STAT3,CD40LG,CD7,CD3G,CD5,KIKKB,PPP3CA,CD247
Arrest in differentiation of lymphocytes	2.39E-03	RHOH,GRAP2,CD3EJAK1,KZF3,PIK3R1,IL2RG,SYK,FYN,ITPKB,CD3D,IL7R,PTPRCNCOR1,LAT,PRKDC,ZAP70
Clearance of leukocytes	2.60E-03	PPARD,CCR2,HMGB1,GPR132,CD44,XXR8,ANXA1
Abnormal morphology of natural killer T lymphocytes	2.74E-03	ITK,SH2D1A,TBX21,IL2RG
Deficiency of lymphocytes	2.74E-03	BCL2,EP300,PTPRC,GIMAP1
Lack of B-1a lymphocytes	2.74E-03	MALT1,PIK3AP1,LETS1,KZF1
Lymphoid immunodeficiency	2.74E-03	BCL2,EP300,FAS,GIMAP1
Cell-cell adhesion of leukocytes	2.88E-03	SYK,ITGAL,F11R,CD40LG,CCL5,ICOS,ADGRE5,ITGA4,TNIP1,PTPRC
Abnormal quantity of leukocytes	3.23E-03	M54A1,CYLD,IRF1,RHOH,IL2,ICOS,IL2RG,KZF1,SYK,SIT1,CD6A,ARHGAP6,ARHGAP1,LCK,TOX,PTPRC,STAT5B,POLM,SH2D1A,CD247,PRKDC
Abnormal morphology of natural killer cells	3.25E-03	INPP5D,TXNIP,IFNG,LCK,IL2RB,CD247,IL2RG,KZF1
Ret Syndrome	3.26E-03	CCL5,MBPJFNG,NKG7,YBX3,ZNF131,TA99B,FCER1G,CD6,SLC16A1,NCRC3,CASP6,CXCR6,PTTPNC1,HIMOX1,BTN3A1,ABLIM1,DNAJB6,XCL1,TBX21,DUSP4,ERAP2
Insulin-dependent diabetes mellitus	4.05E-03	CD40LG,ICOS,IFNG,PTPRC,PPDC1

Function of mast cells	4.11E-03	RASGRP4FCER1G,PIM1,ABCC1,DHSP2,RASGRP1JL2RG,STAT5A,CBLB,DGKZLAT,STAT5B,PTGDR
Abnormal number of leukocytes	4.13E-03	MS4A1,CYLD,IRF1,ICOS,IL2RG,IKZF1,SYK,ARHGAP6,CDBA1,CK1,TOX,PTPRC,POLM,CD247,PRKDC
Development of gamma-delta T lymphocytes	4.18E-03	ITGAL,NOTCH1,CD3G,CD3D,SH2D1A,IL2RG
Atopic dermatitis	4.55E-03	RRN3,ZNF331,SELENOK,FCER1G,PDE4B,DUSP2,HSF2,CXCR4,TNFAIP3,PHF1,HLA-DRB5,AHNAK,INBN,NR4A2
Dysfunction of lymphocytes	4.82E-03	MS4A1,CYLD,TNFAIP8L2JFNG,TLN1,ICOS,POLH,MAP3K14,LAX1,PIK3R1,CD6,GBA,BADELF1,CXCR4,NPP5D,ARHGAP6,RGS1,PTPRC,STK4,TBC1D10C
Development of invariant natural killer T cells	5.39E-03	KRAS,STM2,ITK,RICTOR,IKKKB,DGKZ,PIK3C3
Glucose metabolism disorder	5.39E-03	PPARD,CD40LG,CREB1,ICOS,IFNG,PTPRC,PCPD1
Lack of B lymphocytes	5.76E-03	MALT1,SYK,PIK3AP1,BATF,CREBBP,ETS1,PRDM1,PRKDC1L2RG,ITR,IKZF1
Abnormal morphology of marginal-zone B lymphocytes	5.77E-03	IL2RB,EP515,STK4,LCF1
Activation of effector T lymphocytes	5.77E-03	MALT1,DEF6,BAKZAP70
Humoral immunodeficiency	5.77E-03	IL2,BCL2,EP300,GIMAP1
Development of pre-T lymphocytes	5.98E-03	CBFB,JL2,CXCR4,CD3G,RICTOR,IL2RB,RASGRP1,IL2RG
Allergy	6.01E-03	RRN3,ZNF331,SELENOK,FCER1G,PDE4B,PCD1,DUSP2,HSF2,GATA3,CXCR4,TNFAIP3,PHF1,HLA-DRB5,AHNAK,INBN,NR4A2
Binding of interferon-gamma activated sequence	6.66E-03	IL2,IFNG,CD2
Binding of keratinocytes	6.66E-03	ITGAL,IFNG,CD44
Cell death of effector memory helper T cells	6.66E-03	IL2,SMPD1,FAS
Cell-cell adhesion of granulocytes	6.66E-03	CD40LG,ICOS,ADGRE5
Contact growth inhibition of pre-B lymphocytes	6.66E-03	CDKN1B,IKZF3,IKZF1
Deficiency of B lymphocytes	6.66E-03	BCL2,EP300,GIMAP1
Dysfunction of T lymphocytes	6.66E-03	ICOS,TLN1,GBA
Influx of T lymphocytes	6.66E-03	IFNG,STM2,ITK
Lack of natural killer T lymphocytes	6.66E-03	SH2D1A,TBX21,IL2RG
Maintenance of regulatory T lymphocytes	6.66E-03	IL2,ICOS,PIK3C3
Number of iNKT2 cells	6.66E-03	TNFAIP3,BCL11B,LLY9
Survival of gamma-delta T lymphocytes	6.66E-03	IL2,BCL2,IL2RG

Abnormal morphology of CD4+ T-lymphocytes	7.54E-03	GRAP2,CD3E,LT,FKB,BCL2,MARK2,PPP3CB,PTPRCLAT,RASGRP1,IL2RG
B cell cancer	1.04E-02	MS4A1,CSK3B,PAG1,BUB3,PRF1,PM1,POCD1,CD47,BTG2,PARP1,CD40LG,HIPK3,BCL2,CASP3,NIBAN1,FCMR,BCL2L1,CD27,CASP8
Cell death of peripheral T lymphocyte	1.04E-02	GIMAP4,EZR,FAS,GIMAP1
Condensation of chromatin	1.04E-02	IFNG,DFFA,FAS,NCAPH2
Development of alpha-beta T lymphocytes	1.04E-02	FYN,NOTCH1,CD3G,LCK
Development of intraepithelial lymphocytes	1.04E-02	IRF1,STIM2,LCK,PTPRC
Selection of B lymphocytes	1.04E-02	SYK,BAX,FASZAP70
Development of Th1 cells	1.25E-02	GATA3,IL2,STAT4,IFNG,PRKCQ,PRKAA1
Development of pro-T lymphocytes	1.31E-02	CIFB,IL2,CXCR4,CD3G,RICTOR,IL2RB,RASGRP1
Abnormal function of B lymphocytes	1.32E-02	MS4A1,CVLDL,TNFAIP8L2,FNG,IGOS,POLH,MAP3K14,LAX1,PIK3R1,CD6,BADELF1,CXCR4,INPP5D,ARHGAP6,RGS1,PTPRC,STK4,TRC1D10C
Homeostasis of B lymphocytes	1.38E-02	TNFAIP3,IGOS,CH2,PPP2R3C,BCL2,DOCK11,RICTOR,CASP3,IKKB,BAX
Chronic inflammatory disorder	1.49E-02	RAB1B,TNRC6B,JCOS,RNF14,TMFI,CCDC59,STING1,STAT3,CXCR4,MLL7,TRAF1,ZNF326,NR4A2,SIPR1,DNAJA4,IL2,CC15,WNK1,PRDM1,DUSP2,CD69,AOS2,USP15,RNF149,ADGRG5,GNLY,RCS1,STK17B,F11R,IFNG,ICP1,IKZF1,FKBP5,DEDI2,HSPAB,EH1D4,SAPB,NONO,DCUN1D1,BCL11B,POCD1,NUMB,TNFAIP3,MAP3K2,GZMA5,OCUS1,PTPRC,TBRG1,TAGAP3,DHB
Accumulation of naive T lymphocytes	1.50E-02	BCL2,IL2RG
Accumulation of reactive oxygen species	1.50E-02	IL2,PIK3C3
Activation of effector memory cytotoxic T cells	1.50E-02	MALT1,ZAP70
Activation of protein	1.50E-02	S0CS1,PTPRC
Adhesion of keratinocytes	1.50E-02	IFNG,CD44
Apoptosis of Th17 cells	1.50E-02	IL2,CD6
Apoptosis of central T reg cells	1.50E-02	TLN1,PTPN22
Apoptosis of conventional dendritic cells	1.50E-02	FLT3LG,IL2
Apoptosis of large granular lymphocytes	1.50E-02	STAT3,FAS
Arrest in development of alpha-beta T lymphocytes	1.50E-02	FYN,LCK
Autophagy of T lymphocytes	1.50E-02	ATG5,PIK3C3
Cell division of memory T lymphocytes	1.50E-02	IL2,IL2RB
Cell spreading of natural killer cells	1.50E-02	ITGAL,RAP1B

Clonal expansion of thymocytes	1.50E-02	SYKZAP70
Cytolysis of intraepithelial lymphocytes	1.50E-02	LCKPTPRC
Cytotoxicity of memory T lymphocytes	1.50E-02	IFNG,CD27
Degranulation of CD8+ T lymphocyte	1.50E-02	LAG3,POCD1
Development of memory natural killer cells	1.50E-02	STAT3,IL2RB
Development of pro T2 thymocytes	1.50E-02	IL2,IL2RB
Development of type II natural killer T cells	1.50E-02	ZBTB16,SH2D1A
Distension of endoplasmic reticulum	1.50E-02	FAS,CD2
Exocytosis of tertiary granules	1.50E-02	VAMP2,STX4
Expansion of CD56bright natural killer cells	1.50E-02	IL2,IL2RB
Fragmentation of nucleus	1.50E-02	DFFA,CASP3
Function of bone marrow-derived mast cells	1.50E-02	RASGRP4,RASGRP1
Hyperplasia of regulatory T lymphocytes	1.50E-02	MAP3K14,TNFRSF18
Hyperplasia of thymocytes	1.50E-02	MAP2K7,IKZF1
Immunostimulatory potential of conventional dendritic cells	1.50E-02	FLT3LG,IL2
Influx of CD4+ T-lymphocytes	1.50E-02	IFNG,STIM2
Influx of eosinophils	1.50E-02	LY96,ITK
Inhibition of lymphokine activated killer cells	1.50E-02	CLEC2D,MLRB1
Maturation of inflammatory monocytes	1.50E-02	IFNG,GPR132
Maturation of phagolysosome	1.50E-02	SLAMF1,FAS
Neck neoplasm	1.50E-02	PTPRC,CANXA1
Phagocytosis of bone marrow-derived neutrophils	1.50E-02	CD47,HMGB1
Positive selection of B lymphocytes	1.50E-02	SYKZAP70
Positive selection of natural killer T lymphocytes	1.50E-02	ELK4,ELK1
Quantity of lymphoid dendritic cells	1.50E-02	FLT3LG,IKZF1

Rejection of lymphokine activated killer cells	150E-02	IL2,KLRB1
Release of B lymphocytes	150E-02	ARHGEP1,SIPR1
Release of prostaglandin E2	150E-02	IFNG,IRF2
Replication of Dengue virus 2	150E-02	STING1,HMGB1
Repopulation by blood cells	150E-02	FLT3LG,DOCK2
Switching of T lymphocytes	150E-02	IL2,CD46
T-cell-independent type 2 extrafollicular antibody response	150E-02	SH3KBP1,KBKB
Transendothelial migration of effector memory T lymphocytes	150E-02	ZAP70,MYH9
Turnover of T lymphocytes	150E-02	IL2,GRAP2
Abnormal morphology of B-1 lymphocytes	151E-02	MALT1,SEMA4D,PK3AP1,ETS1,KZF1
Abnormal morphology of alpha-beta intraepithelial T cell	151E-02	IL2,LCK,PTPRC,CD247,IL2RG
Arrest in cell cycle progression of T lymphocytes	151E-02	ATM,CDKN2A,BCL2L1,LAG3,SKIL
Abnormal morphology of regulatory T lymphocytes	151E-02	THEMIS1L2,TOX
Aneuploidy of thymocytes	151E-02	BCL2,ATM,BAX
Cellular infiltration by CD8+ T lymphocyte	151E-02	NR1H2,LAG3,PDCD1
Conversion of induced regulatory T-lymphocyte	151E-02	IL2,PARP1,BCL11B
Modification of genomic DNA	151E-02	IRF1,PARP1,ATRX
Phospholipid flip-flop of phosphatidylserine	151E-02	IFNG,FASCD2
Quantity of central memory cytotoxic T cells	151E-02	MALT1,CD40LG,ICOS
Survival of intraepithelial lymphocytes	151E-02	BCL2,IL2RB,BCL2L1
Immunodeficiency	168E-02	IL2,BCL2,EP300,FASCASP8,GIMAP1
Abnormal morphology of effector T lymphocytes	170E-02	PRKQ,PRKCH,FCER1G,CD247
Degranulation of T lymphocytes	170E-02	VT1B,RAB27A,LAG3,PDCD1
Immune response of CD8+ T lymphocyte	170E-02	PARP1,CD27,TBX21,HSD1L
Lack of natural killer cells	170E-02	LCK,IL2RB,IL2RG,KZF1

Neoplastic cell transformation of B lymphocytes	1.70E-02	INPP5DJL7R,CDKN2A,BCL2L1
Proliferation of plasma cells	1.70E-02	CD40LG,TNFAIP3,PRDM1,FAS
Size of T lymphocytes	1.70E-02	IL2,TRAF3IP3,BCL2L1,IL2RG
Psoriatic arthritis	1.81E-02	CCND3,SGIRR,METTL9,IPIN1,STAT3,TCF7,SIPA1,RUNX3,PRKCB,IKBKB,CD27,MAP3K3
Signaling of T lymphocytes	2.12E-02	IL2,CD5,IL2RB,PTPRC,IL2RG
Transformation of B lymphocytes	2.12E-02	INPP5DJL7R,CDKN2A,BCL2L1,JUNB
Rheumatoid arthritis	2.39E-02	RAB1B,F11R,IFNG,TNRC6B,ICOSL,CPL1,KZP1,IRNF14,TMPL,CCDC59,STING,LCXCR4,FRBP5,DEDD2,HSPA8,MLL7,G,TRAF1,ZNFX26,EHD4,SAFB,NONO,NR4A2,SIPR1,DNAJA4,IL2,DCUIN1,D1,CCL5,WNK1,PRDM1,DUSP2,CD69,ADSS2,NUMB,USP15,TNFAIP3,MAP3K2,GZMA,IRNF149,ADGRES,GNLY,SOC1,PTPRCT,IRG1,KCSD1,STRK17B,TA GAPL,DHB
Development of Single positive thymocytes	2.56E-02	THEMIS,CD3G,RICTOR,IKBKB
Differentiation of naive B cells	2.56E-02	IL2,STAT3,SYK,CD40LG
Expansion of Th1 cells	0.0256	PARP1,CD40LG,ICOS,IFNG
Function of natural killer T lymphocytes	0.0256	FCER1G,HCST,SH2D1A,PRKDC

Supplementary Table 6. List of DEGs in cluster 0 and cluster 1, related to *Cytoskeletal rearrangement, cell motility and cell-cell interactions*.

Geni	log2FC cluster 0 vs cluster 1	adj p value
CCL5	-3,32	2,78E-32
IFNG	-2,78	2,56E-26
GNLY	-2,62	4,81E-28
CD3D	-2,54	1,47E-35
CD69	-2,51	2,09E-27
CD3E	-2,37	4,89E-37
IL7R	-2,34	8,55E-36
XCL1	-2,28	1,14E-36
CD3G	-2,16	1,63E-38
CD2	-2,16	4,70E-31
IL2	-2,07	1,69E-27
LCK	-2,05	1,60E-35
CD8A	-2,01	1,76E-34
ETS1	-1,97	4,04E-35
PIK3R1	-1,94	8,34E-20
HLA-DRB5	-1,87	8,55E-06
BCL11B	-1,78	3,27E-36
LAT	-1,77	5,24E-35
PTGDR	-1,71	1,47E-34
CD40LG	-1,69	1,19E-32
GATA3	-1,68	8,34E-30
ITK	-1,63	5,79E-35
KLRG1	-1,61	8,55E-20
PDCD1	-1,60	6,01E-31
BATF	-1,59	2,73E-35
STAT4	-1,57	1,45E-27
FYN	-1,57	1,16E-31
SIRPG	-1,56	5,36E-33
ITGA1	-1,55	4,45E-27
PRDM1	-1,53	2,43E-22
F2R	-1,52	9,14E-21
SH2D1A	-1,52	5,32E-28
ADGRE5	-1,52	4,88E-20
STK4	-1,50	1,55E-23
ZAP70	-1,49	3,16E-34
C1GALT1	-1,48	1,13E-24
SLFN12L	-1,46	1,14E-30
ITGA4	-1,46	3,21E-22
PIKFYVE	-1,44	6,66E-18
RICTOR	-1,44	1,74E-10
CXCR4	-1,43	1,32E-15
SMPD1	-1,42	9,71E-25
PTPRC	-1,42	5,40E-21
MIA3	-1,40	2,89E-14
LTB	-1,39	2,79E-20
CD247	-1,39	6,29E-29
ORMDL3	-1,37	5,19E-13
P2RY8	-1,36	1,84E-25
RUNX3	-1,36	1,27E-18
MPRIP	-1,36	1,65E-04
PARP1	-1,35	7,22E-20
CBFB	-1,33	2,25E-16
CYFIP2	-1,33	2,65E-29
CASP3	-1,32	6,63E-13
PIK3R4	-1,32	8,10E-27
PPP2R5C	-1,32	2,71E-27
ICOS	-1,31	7,35E-20
PXN	-1,31	1,49E-21
SKAP1	-1,31	5,92E-28

PPP2R5E	-1,30	1,37E-13
RHOT1	-1,30	3,80E-15
BCL2	-1,29	2,09E-13
DAXX	-1,29	8,64E-15
PTPN22	-1,26	1,51E-14
ARHGEF6	-1,25	2,35E-20
CD47	-1,24	1,54E-18
PIP4K2A	-1,23	1,13E-09
RASGRP1	-1,21	3,93E-17
MATK	-1,21	1,09E-17
CBLB	-1,20	1,38E-15
CCND2	-1,19	1,37E-14
S1PR1	-1,19	2,19E-18
FLT3LG	-1,18	3,37E-18
CD58	-1,17	1,13E-09
HLA-F	-1,17	1,86E-19
BRAF	-1,17	4,07E-14
MMP7	-1,15	1,96E-03
BAD	-1,14	8,78E-19
TNFSF14	-1,14	1,82E-09
MAP2K7	-1,13	2,86E-14
F11R	-1,13	6,42E-09
PLA2G6	-1,12	2,15E-16
GYPC	-1,12	9,89E-10
CREB3	-1,12	2,26E-15
IL18R1	-1,12	2,63E-09
SLAMF1	-1,11	3,41E-15
CD5	-1,11	3,35E-19
PTGER4	-1,10	3,72E-14
ITGAL	-1,09	7,64E-08
CYTIP	-1,08	4,76E-21
STAT5B	-1,07	3,40E-14
PRKCQ	-1,06	5,91E-19
KRAS	-1,05	4,99E-05
FBNP1	-1,05	1,22E-10
IKBKB	-1,04	2,05E-18
FAS	-1,04	6,74E-11
PPP2R5D	-1,03	2,53E-11
CREBBP	-1,02	5,93E-08
FUT8	-1,02	2,15E-09
MGAT5	-1,01	1,44E-13
SOCS1	-1,00	1,78E-15
PIK3C2B	-1,00	1,53E-11
RASD1	-0,99	1,78E-11
OGT	-0,99	2,32E-11
JAK1	-0,99	3,30E-09
CAPN2	-0,99	3,67E-08
NRAS	-0,99	4,73E-12
NCK1	-0,99	9,54E-10
S1PR4	-0,99	4,52E-15
PLCB3	-0,98	4,63E-10
CD44	-0,98	5,67E-12
HMGB1	-0,97	2,10E-16
CCND3	-0,96	6,26E-18
PRKCH	-0,96	4,18E-07
DIAPH2	-0,96	1,96E-09
CREB1	-0,96	1,04E-13
LAG3	-0,95	3,40E-15
MYH9	-0,94	6,84E-16
EVL	-0,94	7,43E-22
TSPAN14	-0,94	3,75E-16

PRKAR2A	-0,94	1,46E-07
PDE4B	-0,94	3,93E-06
HEBP1	-0,93	4,16E-06
DOCK11	-0,93	3,80E-05
YWHAQ	-0,93	4,53E-21
CASP8	-0,93	2,67E-07
AKIRIN1	-0,92	1,77E-10
PRKACB	-0,92	4,18E-09
EZR	-0,91	7,27E-17
PREX1	-0,91	1,22E-19
WIPF1	-0,91	3,41E-18
TNFRSF18	-0,90	3,66E-09
SEMA4D	-0,90	1,99E-12
PLEKHA2	-0,90	5,95E-09
PPP2R2B	-0,90	6,01E-11
FGD3	-0,89	2,73E-04
MAPK13	-0,88	5,00E-10
ACTN4	-0,88	2,46E-15
ANGPT2	-0,88	1,67E-06
AQP3	-0,88	5,92E-13
CD6	-0,87	7,31E-09
GPR132	-0,87	8,86E-04
CLTC	-0,87	6,44E-04
ANO6	-0,87	3,90E-05
RAC2	-0,86	2,16E-17
GSK3B	-0,85	7,23E-04
MAP3K14	-0,85	1,19E-06
ARPC5L	-0,84	2,64E-10
RPS6KA5	-0,84	5,28E-12
STIM2	-0,84	2,13E-07
IQGAP1	-0,84	2,80E-10
LY96	0,85	3,11E-12
TNFAIP8L2	0,87	1,12E-05
RASGRP4	0,92	4,90E-03
CARD9	0,97	5,19E-04
AIF1	1,00	3,18E-11
SIGLEC7	1,00	1,52E-03
MS4A4A	1,07	1,08E-03
PPIF	1,09	5,38E-03
NCF2	1,19	4,28E-05
RAB34	1,28	3,32E-08
FCER1G	1,46	1,29E-15
PLAU	1,71	3,58E-03

Supplementary Table 7. List of DEGs in cluster 0 and cluster 1, related to *Activation state* .

Geni	lnFC cluster 0 vs 1	adj p value
KLRB1	-2,31	1,36E-33
CCL5	-2,31	2,78E-32
IL32	-2,12	1,52E-35
IFNG	-1,93	2,56E-26
GZMA	-1,91	9,39E-37
GNLY	-1,82	4,81E-28
KLRC1	-1,78	1,66E-30
CD3D	-1,76	1,47E-35
CD69	-1,74	2,09E-27
CD3E	-1,64	4,89E-37
IL7R	-1,63	8,55E-36
XCL1	-1,58	1,14E-36
CD52	-1,52	6,31E-28
TIGIT	-1,51	6,15E-35
CD3G	-1,50	1,63E-38
CD2	-1,50	4,70E-31
IL2	-1,44	1,69E-27
CD27	-1,43	2,23E-36
RORA	-1,42	6,85E-37
LCK	-1,42	1,60E-35
CD8A	-1,40	1,76E-34
KLRD1	-1,37	3,21E-28
ETS1	-1,37	4,04E-35
TOB1	-1,36	4,29E-29
DUSP4	-1,36	7,21E-18
PIK3R1	-1,35	8,34E-20
CLEC2D	-1,33	1,23E-32
CD7	-1,32	2,83E-26
HLA-DRB5	-1,30	8,55E-06
IKZF3	-1,24	8,21E-28
BCL11B	-1,23	3,27E-36
GPR174	-1,23	1,01E-30
LAT	-1,23	5,24E-35
EML4	-1,19	3,28E-27
PTGDR	-1,19	1,47E-34
PDE4D	-1,18	2,36E-34
CD40LG	-1,17	1,19E-32
CAMK4	-1,16	1,41E-37
GATA3	-1,16	8,34E-30
PARP8	-1,16	4,20E-26
PIK3IP1	-1,15	5,17E-21
PRF1	-1,15	5,70E-36
RBL2	-1,14	9,00E-30

SIT1	-1,14	3,86E-34
ITK	-1,13	5,79E-35
PDCD1	-1,11	6,01E-31
BATF	-1,11	2,73E-35
STAT4	-1,09	1,45E-27
GLMN	-1,09	6,22E-24
THEMIS	-1,09	6,78E-35
FYN	-1,09	1,16E-31
PTPN4	-1,09	3,66E-30
SH2D2A	-1,08	2,19E-35
SIRPG	-1,08	5,36E-33
ITGA1	-1,08	4,45E-27
PDE7A	-1,07	8,73E-28
PTPN7	-1,07	4,36E-23
PRDM1	-1,06	2,43E-22
TBP	-1,06	1,89E-26
IP6K1	-1,06	1,94E-26
F2R	-1,06	9,14E-21
SH2D1A	-1,06	5,32E-28
CTCF	-1,05	2,94E-14
STK4	-1,04	1,55E-23
BCLAF1	-1,04	7,24E-19
PPP1R10	-1,04	4,06E-14
ZAP70	-1,04	3,16E-34
RAB27A	-1,01	2,64E-25
ITGA4	-1,01	3,21E-22
PDCD4	-1,01	7,50E-22
TBC1D10C	-1,01	7,11E-27
STYX	-1,01	8,77E-16
MYBL1	-1,00	8,10E-14
PIKFYVE	-1,00	6,66E-18
RICTOR	-1,00	1,74E-10
SLAMF6	-0,99	1,38E-20
CXCR4	-0,99	1,32E-15
CDKN2A	-0,99	2,28E-27
SMPD1	-0,99	9,71E-25
PTPRC	-0,98	5,40E-21
TMC6	-0,98	1,86E-22
ERN1	-0,97	1,46E-16
AKAP11	-0,97	4,23E-20
CABIN1	-0,97	9,25E-21
MAF	-0,97	4,30E-17
SLA2	-0,97	1,61E-26
LTB	-0,96	2,79E-20
CD247	-0,96	6,29E-29

BTG1	-0,96	3,35E-21
SNTB1	-0,96	5,23E-32
KAT7	-0,96	6,85E-15
TSC22D3	-0,95	1,41E-13
RUNX3	-0,94	1,27E-18
MPRIP	-0,94	1,65E-04
TAB2	-0,94	3,70E-16
NMNAT1	-0,94	9,41E-27
PARP1	-0,94	7,22E-20
MS4A1	-0,93	8,97E-18
RCAN3	-0,93	1,44E-16
CBFB	-0,92	2,25E-16
CASP3	-0,92	6,63E-13
PIK3R4	-0,92	8,10E-27
PPP2R5C	-0,91	2,71E-27
EIF4G1	-0,91	5,26E-11
PXN	-0,91	1,49E-21
TRAF1	-0,91	3,73E-13
SKAP1	-0,91	5,92E-28
ISG20	-0,91	3,80E-15
PPP2R5E	-0,90	1,37E-13
RHOT1	-0,90	3,80E-15
BCL2	-0,90	2,09E-13
PNPLA2	-0,90	3,65E-10
DAXX	-0,89	8,64E-15
SIRT3	-0,89	1,09E-21
SMAD2	-0,88	8,14E-17
BACE1	-0,88	3,27E-29
LY9	-0,88	2,08E-20
PTPN22	-0,88	1,51E-14
IL2RB	-0,87	1,78E-32
HECTD1	-0,87	2,26E-18
ARHGEF6	-0,87	2,35E-20
ITPKB	-0,86	5,56E-19
LAX1	-0,86	3,29E-18
KPNA1	-0,86	2,56E-12
CD47	-0,86	1,54E-18
TXNIP	-0,86	4,28E-10
SLC36A4	-0,85	5,63E-10
PIP4K2A	-0,85	1,13E-09
SACM1L	-0,84	4,61E-18
RASGRP1	-0,84	3,93E-17
PRUNE1	-0,84	2,74E-13
MARK2	-0,84	2,44E-16
CBLB	-0,84	1,38E-15

PIAS1	-0,83	5,70E-16
KPNA4	-0,83	1,96E-11
CCND2	-0,83	1,37E-14
S1PR1	-0,82	2,19E-18
CAMK2G	-0,82	5,18E-13
DNAJC17	-0,82	2,21E-11
FLT3LG	-0,82	3,37E-18
ATM	-0,82	3,35E-15
ZEB1	-0,82	3,79E-11
CD58	-0,82	1,13E-09
NMT2	-0,82	3,64E-12
HLA-F	-0,81	1,86E-19
BRAF	-0,81	4,07E-14
POLR2I	-0,81	8,58E-20
PIM1	-0,81	9,37E-10
RAB5B	-0,81	1,03E-13
PYGL	-0,81	3,65E-12
VAMP4	-0,80	2,63E-08
CD82	-0,80	1,62E-09
HSPH1	-0,80	2,85E-04
POLM	-0,80	3,07E-17
MMP7	-0,80	1,96E-03
TCF7	-0,80	3,18E-09
RANBP2	-0,79	2,78E-09
ATG5	-0,79	2,12E-12
MT2A	-0,79	1,34E-08
BAD	-0,79	8,78E-19
TNFSF14	-0,79	1,82E-09
NCOA3	-0,79	1,17E-12
MAP2K7	-0,79	2,86E-14
DNAJA3	-0,79	7,81E-17
WNK1	-0,78	9,00E-19
DNAJC3	-0,78	8,98E-14
PLA2G6	-0,78	2,15E-16
CREB3	-0,78	2,26E-15
IL18R1	-0,78	2,63E-09
NCOR2	-0,77	1,04E-11
SLAMF1	-0,77	3,41E-15
CD5	-0,77	3,35E-19
IL2RG	-0,77	3,84E-11
PTGER4	-0,76	3,72E-14
ADAT2	-0,76	2,39E-10
GADD45G	-0,76	7,20E-12
GBA	-0,76	2,93E-12
ITGAL	-0,76	7,64E-08

AKAP13	-0,76	2,10E-15
CYTIP	-0,75	4,76E-21
DNAJB12	-0,75	3,53E-15
STAT5B	-0,75	3,40E-14
PML	-0,74	7,99E-11
FOXP1	-0,74	1,13E-21
PRKCQ	-0,74	5,91E-19
CYLD	-0,74	2,05E-20
PTGER2	-0,73	7,52E-08
ELF1	-0,73	6,23E-11
KRAS	-0,73	4,99E-05
PPP2R3C	-0,73	1,63E-11
FNBP1	-0,73	1,22E-10
CREM	-0,73	1,99E-05
IKBKB	-0,73	2,05E-18
RPA2	-0,72	1,61E-09
JUNB	-0,72	2,81E-09
FAS	-0,72	6,74E-11
PPP2R5D	-0,72	2,53E-11
AKAP9	-0,72	1,19E-16
CREBBP	-0,71	5,93E-08
DNAJA1	-0,71	2,19E-15
DNAJB1	-0,71	2,64E-06
AKAP7	-0,71	1,56E-10
MGAT5	-0,70	1,44E-13
SKIL	-0,70	7,92E-09
TNKS2	-0,70	1,17E-13
SOCS1	-0,70	1,78E-15
PIK3C2B	-0,70	1,53E-11
GPI	-0,70	1,42E-16
MALT1	-0,70	1,05E-07
RASD1	-0,69	1,78E-11
IRF1	-0,69	8,45E-19
JAK1	-0,69	3,30E-09
PPP3CA	-0,69	5,69E-07
NRAS	-0,69	4,73E-12
NCK1	-0,69	9,54E-10
RAB6A	-0,69	5,48E-15
S1PR4	-0,69	4,52E-15
MTMR6	-0,68	1,35E-08
PLCB3	-0,68	4,63E-10
KLF9	-0,68	1,61E-05
CD44	-0,68	5,67E-12
RC3H2	-0,68	1,88E-08
HMGB1	-0,68	2,10E-16

RAB8B	-0,68	5,56E-08
DNAJB14	-0,67	6,21E-09
NABP1	-0,67	7,70E-09
PHKG2	-0,67	7,83E-05
CSNK1G3	-0,67	6,78E-03
CCND3	-0,67	6,26E-18
RAB29	-0,67	2,29E-06
PRKCH	-0,67	4,18E-07
CREB1	-0,66	1,04E-13
UBASH3A	-0,66	6,56E-14
KMT2E	-0,66	1,36E-09
RGS2	-0,66	8,71E-05
LAG3	-0,66	3,40E-15
PRKAR2A	-0,65	1,46E-07
DNAJA4	-0,65	7,04E-05
PDE4B	-0,65	3,93E-06
HEBP1	-0,65	4,16E-06
ARCN1	-0,65	1,13E-07
YWHAQ	-0,65	4,53E-21
ADD3	-0,64	4,28E-17
CASP8	-0,64	2,67E-07
PRR5	-0,64	1,41E-12
PPARD	-0,64	1,53E-07
PRKACB	-0,64	4,18E-09
IRF2	-0,64	7,12E-07
JUND	-0,64	3,15E-18
ZNF335	-0,63	1,12E-15
EZR	-0,63	7,27E-17
PREX1	-0,63	1,22E-19
DEF6	-0,63	1,60E-13
GRAP2	-0,63	6,47E-12
WIPF1	-0,63	3,41E-18
NCSTN	-0,63	1,15E-07
TNFRSF18	-0,63	3,66E-09
SEMA4D	-0,63	1,99E-12
PPP2R2B	-0,62	6,01E-11
ISG15	-0,62	2,86E-06
PPP1R16B	-0,62	1,06E-09
EP300	-0,62	3,41E-05
PGAP3	-0,62	2,95E-07
MAPK13	-0,61	5,00E-10
PARP4	-0,61	8,42E-06
ANGPT2	-0,61	1,67E-06
CD6	-0,61	7,31E-09
IKZF1	-0,61	7,53E-12

EIF2AK2	-0,61	8,36E-08
GIMAP1	-0,60	1,64E-06
GPR132	-0,60	8,86E-04
EIF3A	-0,60	2,96E-11
ACLY	-0,60	2,90E-03
TOX	-0,60	1,80E-08
ANO6	-0,60	3,90E-05
KPNA6	-0,60	3,67E-09
EIF4G3	-0,60	1,05E-08
LBR	-0,60	1,74E-08
EIF4A2	-0,60	2,55E-14
RAC2	-0,60	2,16E-17
KIDINS220	-0,59	4,81E-07
GSK3B	-0,59	7,23E-04
MAP3K14	-0,59	1,19E-06
EIF3B	-0,59	1,88E-08
DNAJB6	-0,59	1,82E-07
NR4A2	-0,59	2,17E-03
PPP4R1	-0,58	4,67E-07
NABP2	-0,58	3,27E-09
HSPA8	-0,58	4,87E-11
RPS6KA5	-0,58	5,28E-12
STIM2	-0,58	2,13E-07
LY96	0,59	3,11E-12
TNFAIP8L2	0,61	1,12E-05
CARD9	0,68	5,19E-04
AIF1	0,69	3,18E-11
MS4A4A	0,74	1,08E-03
POLR2H	0,81	4,84E-07
NCF2	0,83	4,28E-05
RAB34	0,89	3,32E-08
MGST1	0,89	1,62E-09
FTL	0,92	8,00E-08
PIK3AP1	0,95	1,70E-07
FCER1G	1,02	1,29E-15
PLAU	1,19	3,58E-03

Supplementary Table 8. List of Diseases and Functions deregulated in cluster 2 compared with cluster 0.

Diseases or Functions Annotation	p-Value	Activation z-score	Molecules
Organismal death	1,75E-03	-3,16	VIM,MYL6,HDAC2,CFL1,PTEN,ACTG1,GNB1,ATP5MF,DDX5,KRR1
Leukocyte migration	1,59E-02	-2,38	FASTK,GAS6,CORO1A,HSPA1A/HSPA1B,PTEN,ALOX5AP,RASGRP4,CD48,FCER1G,DEPTOR,NFKBIA,PRDX1,MAPKAPK2,MYH9,CD63,CXCR4,TPT1,S100A10,LRP1,TGFBR1,LAMTOR2,PILRA,SMPD2,JAK2,CD14,NINJ1,EZR,PTPN1,TIMP2,GNB2,EIF2AK4,IL4R,STK4,CTS2,JUN,SERPINB1,HCLS1,CLEC4E,LGALS1,SOCS3,CSF2RA,G6PC3,LITAF,FCER1A,MTND1,MYO1G,BSG,LY96,GNAI2,GPSM3,CD302,PFN1,CD1D,CD37,ROCK1,UCP2,MPP1,S100A8,GLRX,VASP,CD99,S100A9,FYB1,GNAS,RGS1,UBE2I,CAST,PTPRC,DDT,RAC1
Cell movement of leukocytes	1,98E-02	-2,29	CORO1A,PTEN,RASGRP4,CD48,FCER1G,DEPTOR,PRDX1,MAPKAPK2,MYH9,CD63,CXCR4,S100A10,LRP1,TGFBR1,PILRA,SMPD2,JAK2,CD14,NINJ1,EZR,PTPN1,TIMP2,GNB2,IL4R,STK4,CTS2,JUN,SERPINB1,HCLS1,LGALS1,SOCS3,CSF2RA,G6PC3,LITAF,FCER1A,MTND1,MYO1G,BSG,LY96,GNAI2,GPSM3,CD302,PFN1,CD1D,CD37,ROCK1,MPP1,S100A8,VASP,CD99,S100A9,FYB1,GNAS,RGS1,UBE2I,CAST,DDT,RAC1
Cell movement	1,20E-02	-2,23	GAS6,FASTK,CORO1A,HSPA1A/HSPA1B,PTEN,ALOX5AP,RASGRP4,CD48,FCER1G,DEPTOR,NFKBIA,PRDX1,MAPKAPK2,MYH9,CD63,CXCR4,TPT1,S100A10,LRP1,TGFBR1,LAMTOR2,PILRA,SMPD2,JAK2,CD14,NINJ1,EZR,PTPN1,TIMP2,GNB2,EIF2AK4,IL4R,BAX,STK4,CTS2,JUN,SERPINB1,HCLS1,CLEC4E,LGALS1,SOCS3,CSF2RA,G6PC3,LITAF,FCER1A,MTND1,MYO1G,BSG,LY96,GNAI2,GPSM3,CD302,PFN1,CD1D,CD37,ROCK1,UCP2,MPP1,S100A8,GLRX,VASP,CD99,S100A9,FYB1,GNAS,RGS1,UBE2I,CAST,PTPRC,DDT,RAC1
Binding of leukocytes	8,54E-03	-1,91	GAS6,CORO1A,LGALS1,FCGR1A,TNFSF12,CD48,DEPTOR,PKM,MYO1G,GNAI2,CXCR4,CD37,ROCK1,PRDX2,TGFBR1,PILRA,IL18R1,ADAM9,S100A8,MFNG,GLRX,JAK2,CD14,VASP,NINJ1,S100A9,EZR,FYB1,CALR,RGS1,UBE2I,PTPRC,RAC1,STK4
Adhesion of immune cells	1,20E-02	-1,88	GAS6,CORO1A,FCGR1A,LGALS1,TNFSF12,CD48,PKM,DEPTOR,MYO1G,GNAI2,CXCR4,CD37,ROCK1,TGFBR1,PRDX2,PILRA,ADAM9,S100A8,GLRX,JAK2,CD14,NINJ1,S100A9,EZR,FYB1,CALR,RGS1,UBE2I,PTPRC,RAC1,STK4
Renal cancer	7,96E-03	-1,63	LILRB4,HCLS1,DHRS7,GNB1,ATP5MF,DDX5
Extracranial solid tumor	3,56E-02	-1,63	LILRB4,HCLS1,PAG1,DHRS7,GNB1,ATP5MF,PTPRC,DDX5
Concentration of lipid	3,82E-02	-1,09	S100A8,G6PC3,S100A9,CS,ACAT1,ROCK1,IL4R,PKM
Interaction of mononuclear leukocytes	3,34E-02	-0,85	MFNG,JAK2,CD14,VASP,EZR,CD48,FYB1,DEPTOR,MYO1G,CALR,GNAI2,CXCR4,RGS1,UBE2I,PRDX2,RAC1,STK4,IL18R1
Binding of lymphocytes	1,29E-02	-0,78	MFNG,JAK2,VASP,CD48,EZR,FYB1,DEPTOR,MYO1G,CALR,GNAI2,CXCR4,RGS1,UBE2I,RAC1,STK4,IL18R1
Activation of leukocytes	3,81E-02	-0,70	CORO1A,HSPA1A/HSPA1B,HPS1,PTEN,CD300LF,FCGR1A,CD48,FCER1G,NFKBIA,PRDX1,LILRB4,SLC33A1,TPT1,LRP1,IL18R1,ADAM9,PAG1,TXNIP,CD14,LAPTMS,MGST1,RAB8B,HAVCR2,CALR,EIF2AK4,IFI35,IL4R,BCLAF1,CD163,BAX,PSMB9,PSMB8,MT-CYB,RAB33A,LGALS1,TNFSF12,FKBP1A,PSME2,IRAK3,LY96,DUSP1,CD1D,CD37,CD1E,UPF2,HDAC9,S100A8,NFKB1,MFNG,VAMP8,MBP,OSTM1,DUSP22,CRY1,PHB2,PTPRC
Binding of mononuclear leukocytes	3,13E-02	-0,63	MFNG,JAK2,VASP,CD48,EZR,FYB1,DEPTOR,MYO1G,CALR,GNAI2,CXCR4,RGS1,UBE2I,PRDX2,RAC1,STK4,IL18R1
Activation of mononuclear leukocytes	2,71E-02	-0,63	CORO1A,HSPA1A/HSPA1B,HPS1,PTEN,LGALS1,TNFSF12,CD48,FKBP1A,FCER1G,NFKBIA,PRDX1,IRAK3,LILRB4,LY96,SLC33A1,DUSP1,TPT1,CD1D,CD1E,HDAC9,IL18R1,ADAM9,PAG1,NFKB1,VAMP8,MFNG,TXNIP,MBP,CD14,LAPTMS,MGST1,HAVCR2,DUSP22,CRY1,CALR,EIF2AK4,PHB2,BCLAF1,IL4R,PTPRC,CD163,BAX
Proliferation of immune cells	2,15E-02	-0,61	CORO1A,ITPR2,HSPA1A/HSPA1B,FTL,PTEN,CD48,FCER1G,GADD45B,RABL3,NFKBIA,LILRB4,CXCR4,TPT1,RGS2,TGFBR1,LAMTOR2,ZNHIT1,CD300C,RELT,ELOB,PAG1,TXNIP,JAK2,CD14,LAPTMS,EZR,HAVCR2,IL4R,BCLAF1,ELAVL1,ELAVL1,TALD01,STK17B,SLC39A10,POU2F2,STK4,PMAIP1,CTS2,JUNB,HCLS1,MARCHF7,LGALS1,SOCS3,FKBP1A,RNF7,BSG,VIM,LY96,GNAI2,TSC22D3,DUSP1,CD1D,ISG15,CD37,ARHGDI1,PRDX2,NFKB1,MFNG,MBP,FYB1,LAMTOR1,DUSP22,NDUFB10,RHOG,GNAS,VSIG4,GAPT,PTPRC
Proliferation of mononuclear leukocytes	4,08E-02	-0,50	CORO1A,ITPR2,HSPA1A/HSPA1B,FTL,PTEN,CD48,FCER1G,GADD45B,RABL3,NFKBIA,LILRB4,CXCR4,TPT1,RGS2,TGFBR1,ZNHIT1,CD300C,RELT,ELOB,PAG1,TXNIP,CD14,LAPTMS,EZR,HAVCR2,CALR,EIF2AK4,IL4R,BCLAF1,ELAVL1,ELAVL1,STK17B,SLC39A10,POU2F2,STK4,PMAIP1,CTS2,JUNB,HCLS1,MARCHF7,LGALS1,SOCS3,FKBP1A,RNF7,BSG,VIM,LY96,GNAI2,TSC22D3,DUSP1,CD1D,ISG15,CD37,ARHGDI1,PRDX2,NFKB1,MFNG,MBP,FYB1,LAMTOR1,DUSP22,NDUFB10,RHOG,GNAS,VSIG4,GAPT,PTPRC
Proliferation of lymphatic system cells	3,35E-02	-0,40	CORO1A,ITPR2,HSPA1A/HSPA1B,FTL,PTEN,CD48,FCER1G,GADD45B,RABL3,NFKBIA,LILRB4,CXCR4,TPT1,RGS2,TGFBR1,ZNHIT1,CD300C,RELT,ELOB,PAG1,TXNIP,JAK2,CD14,LAPTMS,EZR,HAVCR2,CALR,EIF2AK4,IL4R,BCLAF1,ELAVL1,ELAVL1,STK17B,SLC39A10,POU2F2,STK4,PMAIP1,CTS2,JUNB,HCLS1,MARCHF7,LGALS1,SOCS3,FKBP1A,RNF7,BSG,VIM,LY96,GNAI2,TSC22D3,DUSP1,CD1D,ISG15,CD37,ARHGDI1,PRDX2,NFKB1,MFNG,MBP,FYB1,LAMTOR1,DUSP22,NDUFB10,RHOG,GNAS,VSIG4,GAPT,PTPRC
Proliferation of lymphocytes	4,20E-02	-0,40	CORO1A,ITPR2,HSPA1A/HSPA1B,FTL,PTEN,CD48,FCER1G,GADD45B,RABL3,NFKBIA,LILRB4,CXCR4,TPT1,RGS2,TGFBR1,ZNHIT1,CD300C,RELT,ELOB,PAG1,TXNIP,CD14,LAPTMS,EZR,HAVCR2,CALR,EIF2AK4,IL4R,BCLAF1,ELAVL1,ELAVL1,STK17B,SLC39A10,POU2F2,STK4,PMAIP1,CTS2,JUNB,HCLS1,MARCHF7,LGALS1,SOCS3,FKBP1A,RNF7,BSG,VIM,LY96,GNAI2,TSC22D3,DUSP1,CD1D,ISG15,CD37,ARHGDI1,PRDX2,NFKB1,MFNG,MBP,FYB1,LAMTOR1,DUSP22,NDUFB10,RHOG,GNAS,VSIG4,GAPT,PTPRC
Binding of T lymphocytes	9,75E-03	-0,35	MFNG,JAK2,VASP,CD48,EZR,FYB1,DEPTOR,CALR,GNAI2,CXCR4,UBE2I,RAC1,STK4,IL18R1
Degranulation of myeloid cells	1,94E-09	-0,14	PEBP1,CORO1A,HSPA1A/HSPA1B,FTL,PTEN,PGAM1,FCGR1A,RASGRP4,FCER1G,PKM,HSPA6,LILRB4,CD63,CYSTM1,LAMTOR2,FABP5,RAP2C,CTSD,A1BG,VPS35L,CD14,CSTB,MGST1,HAVCR2,TIMP2,CYB5R3,ARMC8,VAMP7,IL4R,HLA-C,CYBA,JUNB,CTS2,DYNLL1,SERPINB1,CD59,PRDX4,APAF1,VAMP2,FCER1A,PSMD11,PSMB1,RAB5C,DUSP1,ROCK1,S100A11,CREG1,S100A8,NFKB1,VAMP8,TUBB,CSNK2B,TRAPP1,S100A9,LAMTOR1,ACA1,SERPINB6,RHOG,PDAP1,BST2,DYNLT1,CORO1B,PSMD13,PTPRC,CFD,COTL1,RAC1,ARHGAP9
Degranulation of phagocytes	2,88E-09	-0,14	PEBP1,CORO1A,HSPA1A/HSPA1B,FTL,PTEN,PGAM1,FCGR1A,RASGRP4,FCER1G,PKM,HSPA6,LILRB4,CD63,CYSTM1,LAMTOR2,FABP5,RAP2C,CTSD,A1BG,VPS35L,CD14,CSTB,MGST1,HAVCR2,TIMP2,CYB5R3,ARMC8,VAMP7,IL4R,HLA-C,CYBA,JUNB,CTS2,DYNLL1,SERPINB1,CD59,PRDX4,APAF1,FCER1A,PSMD11,PSMB1,RAB5C,DUSP1,ROCK1,S100A11,CREG1,S100A8,NFKB1,VAMP8,TUBB,CSNK2B,TRAPP1,S100A9,LAMTOR1,ACA1,SERPINB6,RHOG,PDAP1,BST2,DYNLT1,CORO1B,PSMD13,PTPRC,CFD,COTL1,RAC1,ARHGAP9
Degranulation of mast cells	5,14E-03	-0,14	PEBP1,CORO1A,VAMP8,PTEN,FCGR1A,RASGRP4,FCER1G,FCER1A,HAVCR2,LILRB4,CD63,DUSP1,CORO1B,IL4R,PTPRC,JUNB
Inflammation of organ	3,66E-04	0,00	JUN,MBP,IFI30,JPT1,LGALS1,SOCS3,RBPJ,H3-3A/H3-3B,FCER1G,LSM1,NFKBIA,FCER1A,CXCR4,DUSP1,PHF1,IFI44,HLA-DRB5,S100A10,ELAVL1,TGFBR1,S100A11,JUNB
Degranulation	2,73E-09	0,04	GAS6,PEBP1,CORO1A,HSPA1A/HSPA1B,FTL,PTEN,PGAM1,FCGR1A,RASGRP4,FCER1G,PKM,HSPA6,LILRB4,CD63,CYSTM1,LAMTOR2,FABP5,RAP2C,CTSD,A1BG,VPS35L,CD14,CSTB,MGST1,HAVCR2,TIMP2,CYB5R3,ARMC8,VAMP7,IL4R,HLA-C,CYBA,JUNB,CTS2,DYNLL1,SERPINB1,CD59,PRDX4,APAF1,VAMP2,FCER1A,PSMD11,PSMB1,RAB5C,DUSP1,ROCK1,S100A11,CREG1,S100A8,NFKB1,VAMP8,GLRX,TUBB,CSNK2B,TRAPP1,S100A9,LAMTOR1,ACA1,SERPINB6,RHOG,PDAP1,BST2,DYNLT1,CORO1B,PSMD13,PTPRC,CFD,COTL1,RAC1,ARHGAP9
Degranulation of leukocytes	4,62E-09	0,11	GAS6,PEBP1,CORO1A,HSPA1A/HSPA1B,FTL,PTEN,PGAM1,FCGR1A,RASGRP4,FCER1G,PKM,HSPA6,LILRB4,CD63,CYSTM1,LAMTOR2,FABP5,RAP2C,CTSD,A1BG,VPS35L,CD14,CSTB,MGST1,HAVCR2,TIMP2,CYB5R3,ARMC8,VAMP7,IL4R,HLA-C,CYBA,JUNB,CTS2,DYNLL1,SERPINB1,CD59,PRDX4,APAF1,VAMP2,FCER1A,PSMD11,PSMB1,RAB5C,DUSP1,ROCK1,S100A11,CREG1,S100A8,NFKB1,VAMP8,TUBB,CSNK2B,TRAPP1,S100A9,LAMTOR1,ACA1,SERPINB6,RHOG,PDAP1,BST2,DYNLT1,CORO1B,PSMD13,PTPRC,CFD,COTL1,RAC1,ARHGAP9

Accumulation of B lymphocytes	3.94E-02	0.15	NFKB1,TSC22D3,CD99,BAD,PTPN1
Viral Infection	5.69E-03	0.43	CLEC4E,GLUL,LY6E,S100A9,NFKBIA,ARL4C,TIMP2,HAVCR2,ZYX,EIF1AY,GSTO1,CD63,CXCR4,EIF2AK4,KPNA4,PTPRC,TALDO1,GAPDH,BAX,ZNF175,MTX1,HERPUD1,CTSZ
Activation of monocytes	5.80E-03	0.45	ADAM9,LILRB4,LY96,CD14,TNFSF12,CD163
Quantity of granulocytes	2.23E-02	0.74	SERPINB1,FASTK,GFUS,CLEC4E,PTEN,DIDO1,LGALS1,SOCS3,G6PC3,IL13RA1,PLCE1,NFKBIA,FCER1A,IRAK3,C1QA,GNAI2,SLC33A1,DUSP1,CD1D,ARHGDIAPILRA,CD300C,MPP1,S100A8,NFKB1,STK3,MFNG, JAK2,S100A9,LAMTOR1,TIMP2,ARID4A,GNAS,CEBPB,STK4
Quantity of leukocytes	1.77E-02	0.97	FASTK,CORO1A,ITPR2,PTEN,CD300LF,FCGR1A,CD48,PLCE1,FCER1G,TSP0,NFKBIA,PRKACB,PRDX1,MAPKAPK2,WWOX,C1QA,LILRB4,CXCR4,SLC33A1,AFF1,FABP5,TGFBR1,PILRA,CTSD,CD300C,PAG1,TXN1 P, JAK2,HDAC3,HAVCR2,TIMP2,BAD,CEBPB,IL4R,BCLAF1,ELAVL1,RGS10,BAX,STK17B,PSMB9,SLC39A10,POU2F2,STK4,PSMB8,SERPINB1,GFUS,HCLS1,CLEC4E,DIDO1,COMT,DNMT1,LGALS1,SOCS3,TNFSF1 2,G6PC3,IL13RA1,FKBP1A,LITAF,FCER1A,IRAK3,MYO1G,BSG,GNAI2,CD302,DUSP1,CD1D,ISG15,ARHGDIAPARL,UPF2,N4BP1,CENPX,MPP1,S100A8,NFKB1,STK3,MFNG,MBP,RPS6KA3,MPG,RBPJ,S100A9,FY B1,LAMTOR1,SERPINB6,ARID4A,GNAS,RGS1,VSIG4,GAPT,ACAT1,PTPRC,CSNK2A1,RAC1
Quantity of cells	1.42E-02	1.06	FASTK,CORO1A,ITPR2,PTEN,CD300LF,FCGR1A,CD48,PLCE1,FCER1G,TSP0,NFKBIA,PRKACB,PRDX1,MAPKAPK2,WWOX,C1QA,LILRB4,CXCR4,SLC33A1,AFF1,FABP5,TGFBR1,PILRA,CTSD,CD300C,PAG1,TXN1 P, JAK2,HDAC3,HAVCR2,TIMP2,BAD,CEBPB,IL4R,BCLAF1,ELAVL1,RGS10,BAX,STK17B,PSMB9,SLC39A10,POU2F2,STK4,PSMB8,JUNB,SERPINB1,GFUS,HCLS1,CLEC4E,DIDO1,COMT,DNMT1,LGALS1,SOCS3,TN FSF12,G6PC3,IL13RA1,FKBP1A,LITAF,FCER1A,IRAK3,MYO1G,BSG,GNAI2,CD302,DUSP1,CD1D,ISG15,ARHGDIAPARL,UPF2,N4BP1,CENPX,MPP1,S100A8,NFKB1,STK3,MFNG,MBP,RPS6KA3,MPG,RBPJ,S100A 9,FYB1,LAMTOR1,SERPINB6,ARID4A,GNAS,RGS1,VSIG4,GAPT,ACAT1,PTPRC,CSNK2A1,RAC1
Degranulation of granulocytes	1.97E-08		HSPA1A/HSPA1B,FTL,PGAM1,FCER1G,PKM,HSPA6,CD63,CYSTM1,LAMTOR2,FABP5,RAP2C,CTSD,A1BG,VPS35L,CD14,CSTB,MGST1,TIMP2,CYB5R3,ARMCB,VAMP7,HLA- C,CYBACTSZ,DYNLL1,SERPINB1,CD59,PRDX4,APAF1,VAMP2,PSMD11,PSMB1,RAB5C,ROCK1,S100A11,CREG1,S100A8,NFKB1,VAMP8,TUBB,CSNK2B,TRAPP1,S100A9,LAMTOR1,ACAA1,SERPINB6,RHOG, PDAP1,BST2,DYNLL1,PSMD13,PTPRC,CFD,COTL1,RAC1,ARHGAP9
Degranulation of neutrophils	2.34E-08		HSPA1A/HSPA1B,FTL,PGAM1,FCER1G,PKM,HSPA6,CD63,CYSTM1,LAMTOR2,FABP5,RAP2C,CTSD,A1BG,VPS35L,CD14,CSTB,MGST1,TIMP2,CYB5R3,ARMCB,VAMP7,HLAC,CYBACTSZ,DYNLL1,SERPINB1,CD5 9,PRDX4,APAF1,PSMD11,PSMB1,RAB5C,ROCK1,S100A11,CREG1,S100A8,NFKB1,VAMP8,TUBB,CSNK2B,TRAPP1,S100A9,LAMTOR1,ACAA1,SERPINB6,RHOG,PDAP1,BST2,DYNLL1,PSMD13,PTPRC,CFD,C OTL1,RAC1,ARHGAP9
Hypersensitive reaction	1.23E-06		JUN,IFI30,JPT1,LGALS1,H3-3A/H3-3B,FCER1G,FCER1A,CXCR4,DUSP1,PHF1,HLA-DRB5,IL4R,TGFBR1,S100A11,JUNB
Allergy	2.29E-06		JUN,IFI30,JPT1,LGALS1,H3-3A/H3-3B,FCER1G,FCER1A,CXCR4,DUSP1,PHF1,HLA-DRB5,IL4R,TGFBR1,S100A11,JUNB
Dermatitis	2.95E-06		JUN,IFI30,JPT1,LGALS1,H3-3A/H3-3B,FCER1G,FCER1A,CXCR4,DUSP1,PHF1,HLA-DRB5,TGFBR1,S100A11,JUNB
Immediate hypersensitivity	3.64E-06		JUN,IFI30,JPT1,LGALS1,H3-3A/H3-3B,FCER1G,FCER1A,CXCR4,DUSP1,PHF1,HLA-DRB5,IL4R,S100A11,JUNB
Atopic dermatitis	4.58E-06		JUN,IFI30,JPT1,LGALS1,H3-3A/H3-3B,FCER1G,FCER1A,CXCR4,DUSP1,PHF1,HLA-DRB5,S100A11,JUNB
Immune mediated inflammatory disease	1.50E-05		JUN,CLEC4E,GLUL,HSPA1A/HSPA1B,TNRC6B,LGALS1,LY6E,DNAJC4,FCER1G,GADD45B,IL1R2,NFKBIA,PRDX1,FCER1A,VIM,CXCR4,FKBP5,DUSP1,HLADR85,S100A10,ZNF326,S100A11,ST6GALNAC4,S100A 8,IFI30,JPT1,S100A9,H3-3A/H3-3B,CHCHD2,NDUFB10,GNB2,ARF1,UQCRC2,BST2,RGS1,PHF1,IFI44,CEBPB,PTPRC,TALDO1,BAX,TBRG1,STK17B,JUNB,DYNLL1
Rheumatoid arthritis	2.23E-04		CLEC4E,GLUL,HSPA1A/HSPA1B,TNRC6B,LGALS1,DNAJC4,GADD45B,IL1R2,NFKBIA,PRDX1,VIM,CXCR4,FKBP5,DUSP1,S100A10,ZNF326,ST6GALNAC4,S100A8,S100A9,H3-3A/H3- 3B,CHCHD2,NDUFB10,GNB2,ARF1,UQCRC2,CEBPB,PTPRC,TALDO1,TBRG1,STK17B,DYNLL1
Inflammation of joint	5.57E-04		CLEC4E,GLUL,HSPA1A/HSPA1B,APAF1,TNRC6B,LGALS1,DNAJC4,GADD45B,IL1R2,NFKBIA,PRDX1,VIM,GNAI2,CXCR4,FKBP5,DUSP1,S100A10,ZNF326,ST6GALNAC4,S100A8,S100A9,H3-3A/H3- 3B,CHCHD2,NDUFB10,GNB2,ARF1,UQCRC2,CEBPB,PHB2,PTPRC,TALDO1,TBRG1,STK17B,DYNLL1
Systemic autoimmune syndrome	6.94E-04		CLEC4E,GLUL,HSPA1A/HSPA1B,TNRC6B,LY6E,LGALS1,DNAJC4,GADD45B,IL1R2,PRDX1,NFKBIA,VIM,CXCR4,FKBP5,DUSP1,S100A10,ZNF326,ST6GALNAC4,S100A8,S100A9,H3-3A/H3- 3B,CHCHD2,NDUFB10,GNB2,ARF1,UQCRC2,BST2,IFI44,CEBPB,PTPRC,TALDO1,BAX,TBRG1,STK17B,DYNLL1
Rheumatic Disease	7.74E-04		CLEC4E,GLUL,HSPA1A/HSPA1B,APAF1,TNRC6B,LGALS1,LY6E,DNAJC4,GADD45B,IL1R2,PRDX1,NFKBIA,VIM,GNAI2,CXCR4,FKBP5,DUSP1,S100A10,ZNF326,ST6GALNAC4,S100A8,S100A9,H3-3A/H3- 3B,CHCHD2,NDUFB10,GNB2,ARF1,UQCRC2,BST2,RGS1,IFI44,CEBPB,PHB2,PTPRC,TALDO1,BAX,TBRG1,STK17B,DYNLL1
Severe acute respiratory syndrome	2.74E-03		GLUL,CLEC4E,S100A9,NFKBIA,ARL4C,TIMP2,ZYX,EIF1AY,CD63,GSTO1,GAPDH,TALDO1,MTX1,CTSZ
Emigration of thymocytes	2.83E-03		CXCR4,IL4R,STK4
Cytotoxicity of peripheral blood natural killer cells	4.75E-03		VASP,CD48,HAVCR2
Degranulation of lysosome	7.30E-03		CORO1A,GLRX,CORO1B
Deficiency of T lymphocytes	8.54E-03		RBPJ,PTPRC
Chemotaxis of hematopoietic progenitor cells	1.44E-02		CXCR4,GNAI2,RGS1,STK4
Polycythemia	1.44E-02		CALR,GNAI2,CD63,JAK2
Autoimmune response	1.44E-02		PTEN,BAX,PTPN1
Cell proliferation of Langerhans cells	1.65E-02		RPS6KA3,LAMTOR2
Distribution of phosphatidylserine	1.65E-02		LGALS1,PTPRC

Emigration of single positive thymocytes	1.65E-02	IL4R,STK4
Generation of filament barbed ends	1.65E-02	VASP,RAC1
Phagocytic capacity of peritoneal macrophages	1.65E-02	G6PC3,ISG15
Presence of thymocytes	1.65E-02	CXCR4,BAX
Juvenile rheumatoid arthritis	1.85E-02	S100A8,HSPA1A/HSPA1B,LGALS1,S100A9,DNAJC4,GADD45B,NFKBIA,NDUFB10,CEBPG,S100A10,PTPRC,TALDO1,ZNF326,TBRG1,DYNLL1
Interaction of CD4+ T-lymphocytes	1.90E-02	CXCR4,UBE2I,FYB1
Sepsis	1.90E-02	NFKB1,CD14,NFKBIA
Adhesion of peripheral T lymphocyte	2.44E-02	CXCR4,FYB1,RAC1
Chemokinesis of leukocytes	2.44E-02	S100A9,CAST,RAC1
Accumulation of Single positive thymocytes	2.65E-02	IL4R,STK4
Concentration of cholesterol ester	2.65E-02	ACAT1,PKM
Ingestion of cells	2.65E-02	CALR,LRP1
Myeloproliferative neoplasm	2.65E-02	CALR,JAK2
Polarization of M1 macrophages	2.65E-02	SOCS3,RBPJ
Proliferation of CD3 positive T-lymphocytes	2.65E-02	LILRB4,PTPRC
Synthesis of 5-hydroxyeicosatetraenoic acid	2.65E-02	ALOX5AP,COTL1
Activation of peripheral blood monocytes	3.83E-02	LY96,CD14
Antibody-dependent cell-mediated cytotoxicity	3.83E-02	CD59,VASP
Chemokinesis of neutrophils	3.83E-02	S100A9,CAST
G2 phase of T lymphocytes	3.83E-02	LGALS1,IL4R
G2/M phase	3.83E-02	LGALS1,IL4R
Transition of double-positive thymocyte	3.83E-02	HDAC2,PTEN
Abnormal function of neutrophils	3.84E-02	SERPINB1,HSPB1,FASTK,MPP1,GNAI2,CD14,G6PC3,RASGRP4,PILRA
Migration of hematopoietic progenitor cells	3.87E-02	GNAI2,CXCR4,IL4R,STK4
Atherosclerosis	3.94E-02	JUN,ACAT1,PKM,MAPKAPK2,JUNB
Function of immune system	4.33E-02	LILRB4,GNAI2,CD300LF,FCGR1A,RASGRP4,FCER1G,FCER1A
Morphology of dendritic cells	4.38E-02	RPS6KA3,LAMTOR2,TGFBR1,STK4,CTSZ
Function of mast cells	4.46E-02	LILRB4,CD300LF,FCGR1A,RASGRP4,FCER1G,FCER1A

Supplementary Table 10. List of DEGs in cluster 0 and cluster 2, related to *Cytoskeletal rearrangement, cell motility and cell-cell interactions* and *Activation state*.

geni	log2FC cluster 0 vs cluster 2	adj p value
HSPA1B	-1,95	2,46E-16
FCER1A	-1,91	2,66E-09
HSPA1A	-1,86	4,05E-13
CXCR4	-1,42	2,02E-17
RGS1	-1,41	2,82E-15
DEPTOR	-1,35	1,44E-12
EIF2AK4	-1,35	2,90E-06
CLEC4E	-1,31	4,66E-03
AFDN	-1,25	1,01E-05
PTEN	-1,21	4,93E-04
ITSN1	-1,13	1,46E-06
FER	-1,11	8,27E-10
CD302	-1,10	7,59E-12
JAK2	-1,07	4,63E-06
PTPRC	-1,06	2,18E-15
IL18R1	-1,04	8,71E-08
ROCK1	-1,02	1,15E-05
STXBP5	-1,01	3,95E-09
CSF2RA	-1,01	7,34E-08
PRKACB	-0,94	6,32E-03
HCLS1	-0,90	2,08E-11
CALM1	0,55	3,80E-04
RPS6KB2	0,84	1,05E-10
ARPC1A	0,85	4,03E-04
SMPD2	0,85	2,40E-03
BAD	0,85	7,47E-08
RAC1	0,86	2,39E-03
AP2S1	0,87	2,16E-11
ACTG1	0,87	5,10E-04
FYB1	0,88	1,18E-05
ARPC1B	0,89	6,12E-08
PKM	0,90	1,50E-05
CAST	0,90	1,67E-04
CREB3L4	0,90	4,86E-03
ADAM9	0,92	1,65E-03
LITAF	0,92	3,94E-04
GAS6	0,92	7,70E-03
RASGRP4	0,92	3,83E-03
PFN1	0,93	4,35E-07
SIGLEC7	0,94	7,51E-03
MT-ND1	0,94	9,28E-08
SOCS3	0,95	9,91E-04
PTPN1	0,96	8,27E-03
PLD3	0,97	5,51E-04
PILRA	0,97	1,13E-04
GPAA1	0,97	2,75E-03
MPP1	0,99	3,78E-04
TGFBR1	0,99	5,74E-03
MFNG	0,99	2,52E-06
CDK5	0,99	9,25E-05
MAPKAPK2	1,00	1,65E-03
TNFSF12	1,02	2,28E-03
SGTA	1,04	9,96E-06
FCER1G	1,04	1,83E-07
TIMP2	1,06	6,54E-06
LRP1	1,08	7,73E-05
IL4R	1,12	2,88E-07
UCP2	1,13	5,62E-03
CALR	1,14	5,34E-06
G6PC3	1,14	4,84E-06
CD63	1,17	1,23E-09
CTSZ	1,22	1,67E-08
MYO1G	1,24	5,39E-04
CALM3	1,32	9,00E-14
ALOX5AP	1,39	5,49E-08
NINJ1	1,43	1,11E-06
PRDX1	1,55	2,16E-12
S100A10	1,58	7,37E-06
FCGR1A	1,81	1,69E-08
CD14	1,96	2,02E-03
LGALS1	2,06	4,17E-06
C1QA	2,50	3,31E-03
S100A9	2,82	1,71E-03
S100A8	2,93	1,65E-03