Supplementary Materials

An activated CD8$^+$ T cell-based signature stratifies prognosis and suggests differential sensitivity to immune checkpoint inhibitors in hepatocellular carcinoma

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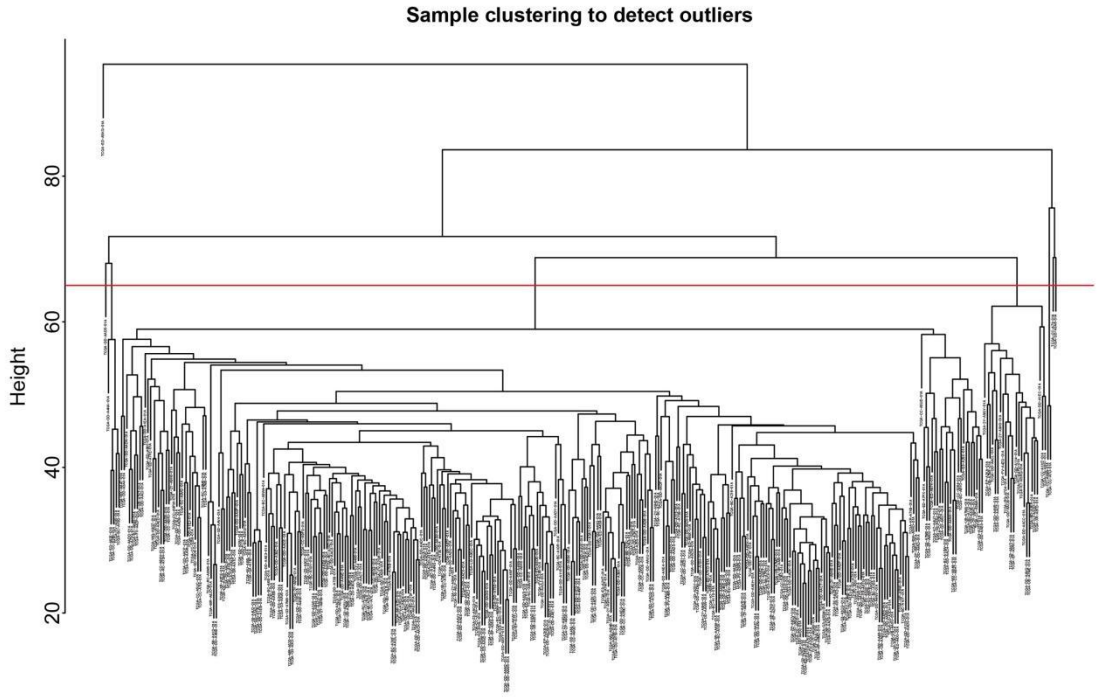
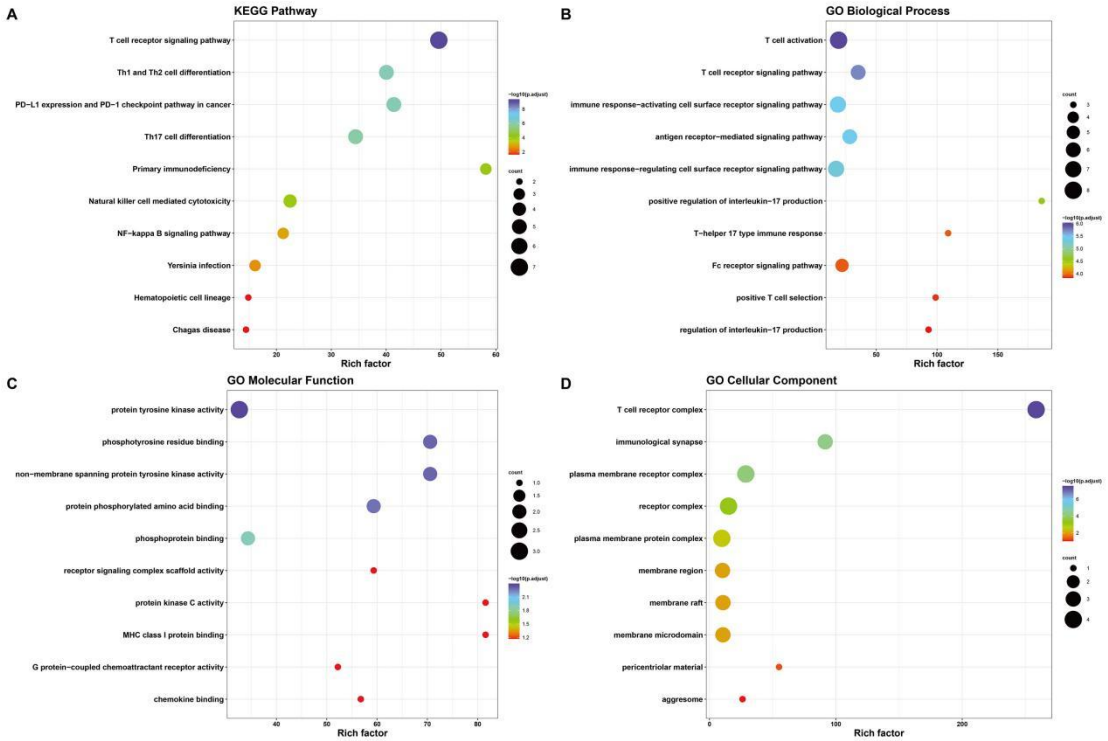
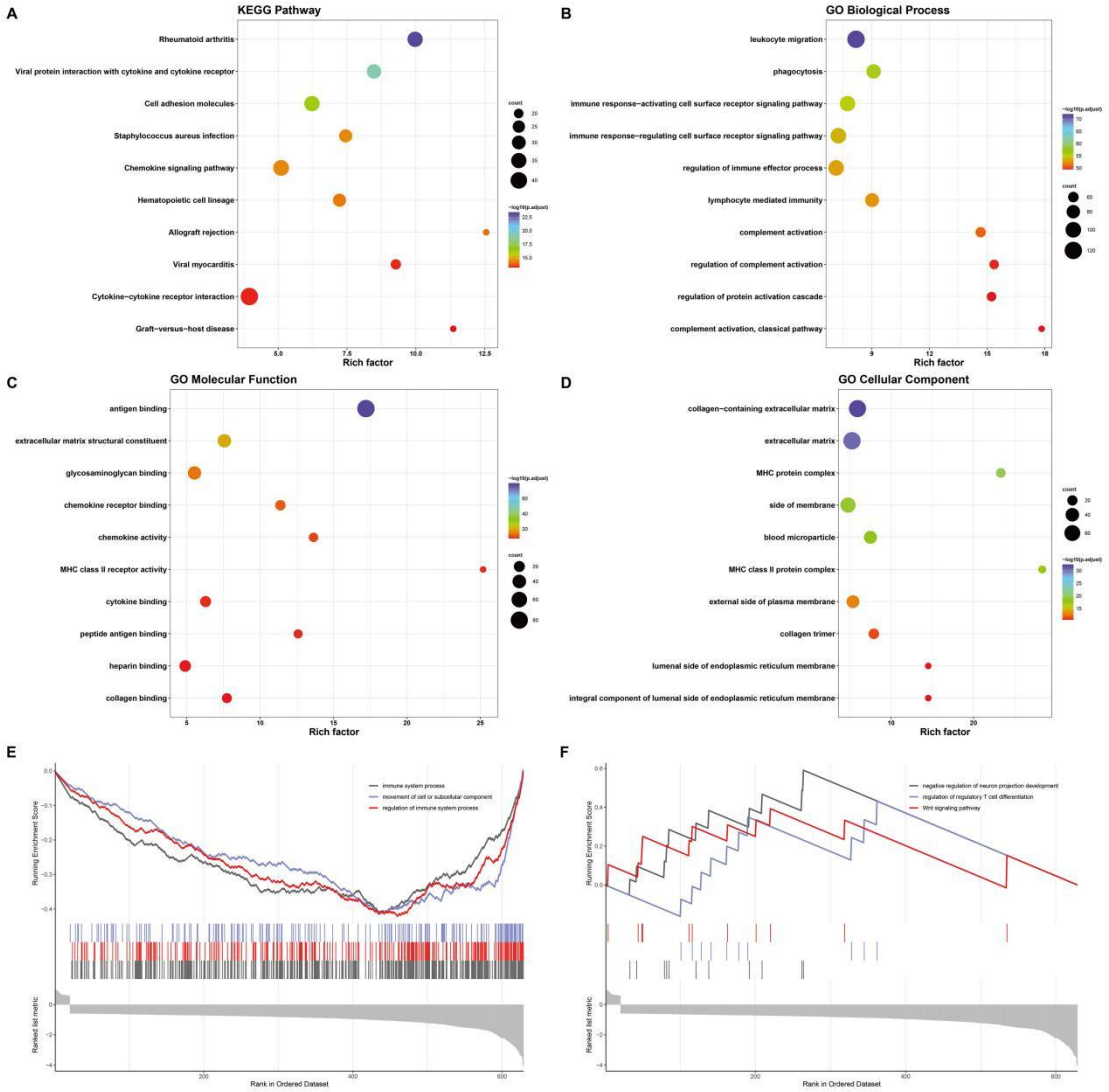


Supplementary Figure 1. Sample clustering for outlier detection in WGCNA. WGCNA: Weighted gene co-expression network analysis.

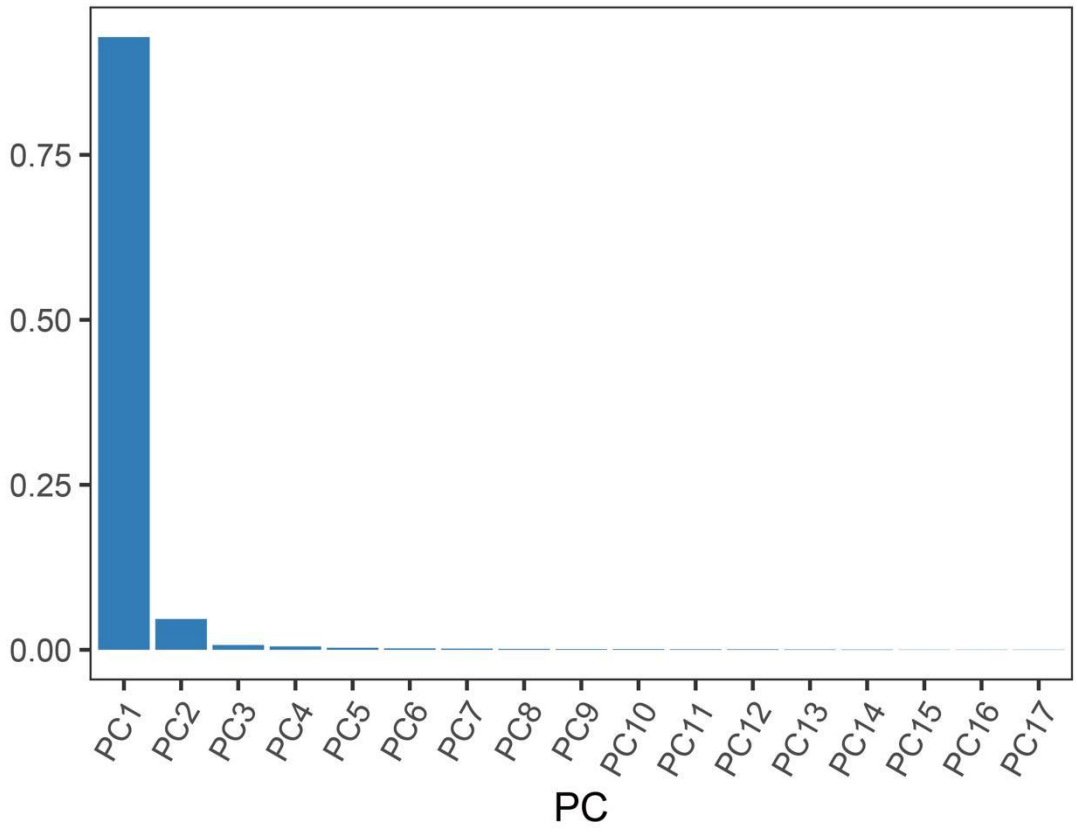


Supplementary Figure 2. Functional enrichment analysis of the 17 hub genes. (A) KEGG pathway analyses; (B) Significantly enriched GO terms in biological process;

(C) Significantly enriched GO terms in molecular function; (D) Significantly enriched GO terms in cellular component. KEGG: Kyoto Encyclopedia of Genes and Genomes; GO: gene ontology.



Supplementary Figure 3. Pathway enrichment analysis of 648 differentially expressed genes between clusters. (A) KEGG pathways enriched among the 648 DEGs; (B) Significantly enriched GO terms in biological process; (C) Significantly enriched GO terms in molecular function; (D) Significantly enriched GO terms in cellular component; (E) GSEA plots in Cluster 1; (F) GSEA plots in Cluster 2. KEGG: Kyoto Encyclopedia of Genes and Genomes; DEGs: differentially expressed genes; GO: gene ontology; GSEA: gene set enrichment analysis.



Supplementary Figure 4. Variance explained by each principal component in PCA. PCA: Principal component analysis.

Supplementary Table 1. Clinical characteristics of HCC patients in the analyzed datasets

Parameter	Subtype	TCGA	GSE76427	GSE14520
Gender	female	118	22	30
	male	245	93	190
	na	-	-	-
Age	> 60	190	67	39
	< = 60	173	48	181
	na	-	-	-
Stage	i	170	55	93
	ii	84	35	77

	iii	81	21	48
	iv	4	3	-
	na	24	1	2
M	M0	262	-	-
	M1+MX	101	-	-
N	N0	246	-	-
	N1+NX	116	-	-
	na	1	-	-
T	T1	180	-	-
	T2	91	-	-
	T3	76	-	-
	T4	13	-	-
	TX	1	-	-
	na	2	-	-
Race	American indian or Alaska native	1	-	-
	Asian	155	-	-
	Black or african American	17	-	-
	White	180	-	-
	na	10	-	-

HCC: Hepatocellular carcinoma; TCGA: the Cancer Genome Atlas.

Supplementary Table 2. List of genes assigned to each WGCNA module

Module	**Gene**
Blue	NFYA
	SEMA3F
	CFLAR
	SARM1
	DHX33
	MAP3K14

IFRD1
ADIPOR2
IL32
RANBP9
HFE
ZMYND11
RABEP1
PIAS1
GOPC
KITLG
MAPK9
BCAR1
PIK3CB
EIF2AK2
ATG5
CASP8
GNAI3
MAP2K4
ELAVL1
NFYC
NEO1
RHOA
FGFR3
OTUD5
NEDD4
CDC42
TRIB2
TFRC
NFATC3

SMARCE1
EED
PLXNA2
MAP2K7
PIAS2
PIK3C3
ITCH
TP73
XRCC5
MKNK1
DDX1
SMARCA2
MID2
CNOT4
HSP90AA1
GSK3B
CYLD
REST
TXLNA
HACE1
MAP3K4
ATG16L1
DNM1L
KHSRP
MAVS
P2RX7
CMTM1
OTUB2
RCOR1

MUL1
CMTM6
RNF31
SNAP23
TGFB2
LRRFIP2
MAP3K1
PSMD5
HSP90AB1
SIRT1
JAK2
ABL1
NRP1
CRKL
MAPK1
DDX17
MYH9
SOS2
PSMC6
HIF1A
DICER1
PSMC1
RPS6KA5
YY1
TRPC4AP
NFATC2
PSMD10
MID1
XIAP

NFAT5
CTCF
TCEB2
UBE2W
IKBKB
TNFRSF10A
HNRNPL
AKT2
PIAS4
TYK2
CDK6
ZC3HAV1
LMBR1
TAX1BP1
RARRES2
AHR
CORO2A
TGFBR1
MAPK8
PPP3CB
BMPR1A
MAP3K8
PSMD3
TRIM37
AKAP10
PSMD11
EFTUD2
MAP2K6
VTN

NFKB1
GAB1
BIRC2
CBL
CAMKK2
DUSP16
ULBP1
PPARD
MAPK14
ASCC3
VEGFA
ERBB2IP
SEMA5A
BRD8
PRLR
NR3C1
TRIM23
KPNA1
KAT2B
USP4
FXR1
CBLB
PLXNA1
ACVR2B
PSMD14
CCDC88A
LANCL1
IL1R1
SOS1

ATF2
NFE2L2
CACYBP
TRIM62
MFN2
NR5A2
LGALS8
CD46
MPL
DR1
TNFSF4
NENF
APOA1
CREB1
TNFAIP3
FOXO3
CTNNAL1
TRIM32
ELF1
NR2C1
TNFRSF10B
TRIM25
PIK3CA
ACVR2A
PTGFR
TRIM24
ECD
C4BPB
PLCG1

NUP153
LRRFIP1
AHNAK
ABCC4
BMP4
THRA
SBDS
BECN1
NUP214
CANX
FGFRL1
SMARCA4
TICAM1
AAMP
TNFRSF19
SHFM1
GNAI1
CCNT1
ILF3
PAK4
TRAF3
PSME3
RARA
PIAS3
RAF1
TRIM5
ANKRD17
AP3B1
RFXAP

KRAS
IRAK2
SORT1
TRIM45
SAA2
IL6ST
ELP2
TPP2
UBQLN1
TRAFD1
MAP3K7
CAPRIN1
GDF11
CDK4
ACVR1B
SEMA4F
RNASEL
DHX9
COX5B
PLXNC1
IREB2
CALCOCO2
TANK
GATA4
VPS45
KIAA0368
DAB2IP
RIPK1
SMAD6

ADAM10
ITGAV
SLC40A1
PPP3CA
SCAF11
SLC15A4
LMBR1L
RB1
CLTC
SMAD4
SOD1
AKT1
BCL10
ISG20L2
HDGF
SNX27
RFX5
IL17RD
NFKBIZ
KIAA0226
TIFA
PDGFC
SKP2
PIK3R1
ATG12
G3BP1
IRAK1BP1
EGFR
VLDLR

NR6A1

PARD3

TCF7L2

ITGB1

TIRAP

CRIM1

THRB

EIF4E

EPS8

CCL28

PDK1

MERTK

TOMM70A

PRKCA

CNOT8

PPARGC1B

DCK

NODAL

BRAF

NCK1

FANCC

ADIPOR1

UBR1

VAV2

SHC1

NLRX1

ADAR

RUSC1

JAK1

RBP7

MAPKAPK2

REL

AZI2

PSMD6

SENP2

CASP3

ERAP1

RICTOR

LEAP2

HNF4G

RAD21

ABCA1

ARF6

TSC1

DDX21

CASP7

HIF1AN

C2

ILK

TRIM66

STAT6

SMAD3

STIM1

CTNNB1

FADD

LTBP3

NKIRAS2

IRF2

STAT3
SEMA4C
TET2
MFF
MAP2K1
PTK2
PCBP1
LIMS1
ROBO1
TRIM56
SEMA3E
SOCS6
MFN1
PRKCE
SOCS5
TRIM8
PTEN
MALT1
CEBPB
MYD88
RELA
SAA1
PSMD1
STAT5B
NR1D2
BTC
PDE12
DHX36
TRAF6

PSMD2
INHBC
NR2F1
IP6K1
CRLF3
C8G
ANO6
ULK1
NR2C2
JUN
IL17RA
GRB2
UBE2N
ERN1
RAD23A
PTPN11
ELMOD2
ZFPM1
PRKRA
PAK2
NRIP1
RNF41
MTA1
TBK1
IRAK1
SEMA4B
PURA
NR2F2
SP1

PTCH1
PPP1CC
MAPT
EPOR
PTMA
HSPA14
USP7
PLSCR1
QRFP
SLX4
LRRK2
HMGB1
IL1RAP
SIAH1
PLXNB2
HDAC2
FAM3C
GMFB
IGF2R
PCBP2
PELI1
IRAK4
5-Mar
COPS8
MTOR
HMGN2
MAP3K3
SREBF2
DAXX

BMPR2
RXRB
SKIV2L
EHMT2
HSPA1L
APOM
MICB
TRIM27
TRIM13
LGR4
MIR499A
NRAS
CHUK
LTB4R2
DDX3X
PPP3R1
CEBPD
ORM2
ORM1
TRIM26
CNTF
TICAM2
CFB
YJEFN3
PRKDC
HP
ITGB3
FIGNL2
OTUD7B

	IKBKG
	SRXN1
Brown	CFH
	MASP2
	PSMC4
	BID
	C8B
	FAS
	GRN
	USP2
	C6
	RFXANK
	RORA
	JMJD6
	WDR62
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	F11
	BIRC5
	ESR1
	TYRO3
	PSMD8
	PSMA7
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GCGR
CKLF
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EGLN2

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Green	PLXND1
	SEMA3G
	KAL1
	DCN
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GPR17
PTH2R
AGTR1
UCN2
MUC4
FABP2
TNIP1
TRIM7
VIP
SLC22A3
TRIM55
PMP2
CER1
IFNA5
IFNA16

IFNK
SHC3
LCN2
LRSAM1
LCN9
ADM
HTR3B
DAK
CTF1
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PTH
TRIM36
IFIT5
BMP3
BMP6
NR4A2
SEMA3D
ROBO3
WNT3A
TMSB4Y
PIK3AP1
TRIM42
ADCY8
RAET1L
NRG1
TRIM63
COLEC12
NRG2
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FBXW5
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AMFR
AGRP
NR2F6
FCN2
IL6R
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SQSTM1
PGLYRP2
SCGB3A1
PSMC2
DCD
CXCL16
FGF19
IL23R
TRIM58
SLAMF9
FCGR3B
ATF3
IL20
INHBB
BMP10
S100A12
NPPC
FAM19A4
RETNLB

IL17RE
IL17RC
PPBP
PF4
UCN
S100P
PGRMC2
CAMP
PLXNB1
ESM1
ERAP2
TLR3
IL3
GDF9
IL31RA
DEFA5
DEFA4
SPAG11B
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FIGF
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CLEC1B
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IL1RAPL1
GP2
SDC2
RAC3
NRG4
CMTM8
STAT2
TRH
OBP2B
INSR
NRTN
RLN3

APLN
NLRP5
RXFP1
LGALS4
ANGPTL7
PRL
AZU1
INSL5
IL17D
ESRRA
GLRX
TNFRSF10D
NLRP13
CCR9
RGMB
PELI3
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LEP
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A2M
DEFB104A
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TRIM60
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STAP2
HTR3C
SPAG11A
AMBN
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CALR
GPHB5
NLRP8
APOBEC3B
NLRP11
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AGTR2
DEFB112
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AEN
ADIPOQ
PENK
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MIR10B
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TRAJ58

TRAJ57

TRAJ56

TRAJ54

TRAJ53

TRAJ52

TRAJ50

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TRAJ46

TRAJ45

TRAJ43

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TRAJ23

TRAJ22

TRAJ21

TRAJ20

TRAJ19

TRAJ14

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TRAJ11

TRAJ10
TRAJ9
TRAJ8
TRAJ7
IGHE
IGHD1-26
IGHD5-24
IGHD2-21
IGHD6-19
IGHD5-18
IGHD5-12
IGHD2-8
DEFB117
CGB8
LTB4R
CCL27
DEFB133
GPR33
MUC5AC
DEFB116
DEFB115
MIR208B
PLXNA4
C4B
IGHD1-14
IFNA14
IGHD4-11
IGHD4-4
IFNA13

IFNA17
IGHD1-1
IGHD7-27
IGHD1-20
TLR9
DEFA3
TDGF1
CORT
KIR3DL3
IL10RB
C4A
TRBV6-8
INS
NOX5
CARD18
PDF
RN7SL1
MC1R
TRAV30
GH1
MIA
GDF2
MIR3148
TXNIP
GDF10
MIR212
VTRNA2-1
CCL23
TRBV16

	CCL15
	TRAJ36
	MIR29A
	NR2E3
	TRAJ37
Red	TAC1
	CHGB
	CHGA
	BMP7
	FGF9
	FGF8
	FGF6
	OPRD1
	PRLHR
	NPPB
	DEFB126
	PCSK2
	PRKCG
	VGF
	PYY
	AMHR2
	CSH1
	NR5A1
	PROK1
	IL9
	CRH
	GPHA2
	MCHR2
	SST

	TMSB15A
	TMSB15B
	AIRE
	NLRP4
	FGF11
	PROK2
	FABP7
	DEFA6
	FREM1
	LALBA
	NLRP7
	GKN1
	S100G
	TRHR
	IFNW1
	HTR1A
	UCN3
	SCN5A
	SLIT1
	AVPR1B
	MIR130A
	TRAJ48
	CSH2
	IFNA4
Turquoise	FGR
	CASP10
	ITGAL
	CX3CL1
	CD79B

CD4
BTK
FYN
PLAUR
TYROBP
CD22
LTF
WAS
SLC11A1
MARCO
CD74
HGF
RUNX3
BIRC3
TYMP
SLAMF7
BTN3A1
TNFRSF1B
MSR1
LCP2
TNFRSF17
UTS2
TNFRSF9
TNIP3
CYBA
TRAF1
PRKCQ
SPI1
BCL3

FCGR2B
ACAP1
CD5L
TXK
SEMA3A
ARHGAP15
IL4R
PTPRC
GSTP1
FCN1
SIGLEC1
ICAM1
IRAK3
LYZ
FLT3LG
CD209
NLRC4
IL5RA
NLRP1
CEBPE
CECR1
TREM2
IL12RB1
OSM
LGALS2
HMOX1
APOBEC3H
GRAP2
CSF2RB

IL2RB
GZMB
LGMN
PLTP
MMP9
CD40
HCK
SAMHD1
WFDC2
TLR8
CD40LG
TNFSF13B
OLFM4
CCL22
CCL17
MEFV
IL21R
CSK
IL7
CD37
RETN
IL27RA
EBI3
SIGLEC8
CD79A
SIGLEC6
SIGLEC5
JAK3
PIK3CG

CCL24
SERPINE1
TRIM14
AKNA
TNFSF8
RLN2
DDX58
PTGDS
ICAM2
CCL7
CCL2
CCL8
PF4V1
AREG
IL2
HSPA8
IL10RA
OAS3
OAS2
VDR
IL26
IFNG
PTPN6
AICDA
BTN3A3
TRIM38
CCR6
LY86
HBEGF

ITK
IL12B
FGF1
STC2
CD86
GNAI2
IL1A
ZAP70
CYTIP
IFIH1
STAT1
GNLY
IL18R1
IL18RAP
SDC1
PLA2G4A
RGS2
SLAMF1
CD48
CR2
PIK3R3
FASLG
SPP1
NR4A3
CSF3R
CD274
TNFSF18
PTK2B
PPP3CC

TNFRSF8
TRIM6
FABP3
CCRL2
CXCR4
FLT3
CD244
LY9
PLAU
CD97
OPTN
NCKAP1L
IL13RA2
ZBP1
IL9R
NDP
TREM1
CXCL6
IRF1
PTGER2
KIR2DL1
OPRL1
IL1B
TNFSF9
CD70
FFAR2
HCST
CCR7
STAT5A

CFP
HSPA2
IL22
IL17B
RAC2
APOBEC3A
APOBEC3F
SIGLEC9
RIPK3
GMFG
ULBP3
NFATC1
IDO1
RFTN1
LGALS3
TRIM21
TRIM22
CARD6
CRP
CHIT1
RARRES3
CD180
IL2RA
IL15RA
KLRD1
KLRC1
HAVCR2
IL6
IL10

TLR4
CD72
IRF4
BPHL
TLR2
ARRB1
MMP7
CASP1
STAT4
IL21
CXCL9
CD27
CELA1
ESR2
PSTPIP1
BCL2A1
PML
ITGAX
NLRC5
CMTM2
IRF8
ARRB2
PIK3R5
SECTM1
PMAIP1
VAV1
TRPM2
NLRP12
SIGLEC10

SYTL1
CD53
XCL1
XCL2
FCGR2A
RORC
S100A8
SNCA
OSMR
CXCL14
DOK3
IL2RG
FCGR1A
IL18
VENTX
MR1
CMTM7
CD8A
LY96
CXCL13
GHRL
MX1
TNFRSF14
CD1A
CD1C
CD1B
CD1E
SLAMF8
FCER1G

IFNAR2
C1QC
TNFRSF13C
ABCG1
ITGB2
S100B
TOR2A
CD3G
CXCR5
CCR5
SIGLEC11
TNFSF13
SDC3
GBP2
VCAM1
NLRP3
SLAMF6
IL24
CTSS
TNFAIP8L2
PGLYRP4
S100A9
CXCR1
TRAT1
IFI16
AIM2
CTLA4
ICOS
CXCL3

CXCL5
CXCL1
CCR1
ZC3H12A
IL15
F2RL2
F2RL1
CSF2
MB21D1
IL22RA2
RAET1E
FABP5
CTSB
TNFRSF11B
SYK
CYBB
TSHR
PRKCB
CLEC4E
CLEC4D
MC4R
B2M
GREM1
NOD2
CD3D
LAIR1
KIR3DL1
CD300A
NLRC3

PNOC
PTGDR
CX3CR1
TAP1
IL7R
IL12A
INPP5D
LGALS9
SIGLEC7
CXCL10
CXCL11
RNASE2
RNASE3
PTAFR
ITGAM
TPST1
FABP6
SERPINB9
FPR2
FPR1
PTGER4
PIK3CD
S100Z
IFNB1
C3AR1
CD8B
CCL11
ISG20
CXCR6

CLEC7A
IL16
RASGRP1
CCL19
HSPA6
CYSLTR1
C1QB
C1QA
OLR1
XCR1
TLR10
TLR1
TLR6
CMKLR1
P2RY14
DES
UCP2
BDNF
CD19
CD28
HLA-DQB1
CIITA
CCR8
PRF1
CCL13
RNF135
CSF1R
LCK
PMCH

MX2
KLRC4
CCR4
SH2D1A
CSF1
SOCS3
FAM19A3
IL3RA
SOCS1
IFITM1
CD300LF
CD300E
BTN3A2
CXCR3
TNFRSF4
TNFRSF18
TRPV2
SEMA4D
CARD9
PDCD1
KIR2DL4
NCR1
HLA-DRB1
SEMA4A
S100A5
TLR7
HLA-DQA1
CASP4
C5AR1

GZMM
PDCD1LG2
MAP1LC3C
CLEC9A
SIRPA
CLEC4C
CSF2RA
SLC29A3
CARD11
HLA-DRB5
SH2D1B
CD247
CD3E
RAET1G
FCGR3A
HLA-DOA
HLA-DMA
PSMB8
TAP2
HLA-DRA
CARD16
NCR3
LST1
HLA-C
LILRB3
HLA-E
HLA-G
HLA-F
TMSB4X

KLRC2
KLRC3
CLEC6A
HLA-H
HLA-A
IGKC
IGKJ5
IGKV4-1
IGKV5-2
IGKV6-21
IGKV3D-20
IGKV6D-41
IGKV3D-11
IGKV1D-42
IGLV4-69
IGLV8-61
IGLV4-60
IGLV6-57
IGLV11-55
IGLV10-54
IGLV1-51
IGLV1-50
IGLV5-48
IGLV1-47
IGLV7-46
IGLV5-45
IGLV1-44
IGLV7-43
IGLV1-40

IGLV5-37
IGLV1-36
IGLV2-33
IGLV3-32
IGLV3-27
IGLV3-25
IGLV2-23
IGLV3-22
IGLV3-21
IGLV3-19
IGLV2-18
IGLV3-16
IGLV2-14
IGLV3-12
IGLV2-11
IGLV3-10
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IGLV4-3
IGLV3-1
IGLJ1
IGLJ2
IGLC2
IGLJ3
IGLC3
IGLJ6
IGLC7
TRGC1
TRGV5
TRGV4

TRGV3
TRBV6-1
TRBV4-1
TRBV6-4
TRBV7-3
TRBV9
TRBV10-1
TRBV11-1
TRBV6-5
TRBV6-6
TRBV5-5
TRBV7-6
TRBV5-6
TRBV5-7
TRBV5-1
TRBV4-2
TRBV19
TRBV20-1
TRBV24-1
TRBV25-1
TRBV27
TRBV28
TRBJ2-1
TRBJ2-2
TRBJ2-3
TRBJ2-4
TRBJ2-7
TRBC2
TRAV2

TRAV3
TRAV4
TRAV5
TRAV6
TRAV8-1
TRAV9-1
TRAV10
TRAV12-1
TRAV8-2
TRAV8-3
TRAV13-1
TRAV12-2
TRAV8-4
TRAV13-2
TRAV14DV4
TRAV9-2
TRAV12-3
TRAV8-6
TRAV16
TRAV17
TRAV18
TRAV19
TRAV20
TRAV21
TRAV22
TRAV23DV6
TRDV1
TRAV24
TRAV25

TRAV26-1
TRAV27
TRAV29DV5
TRAV26-2
TRAV34
TRAV35
TRAV36DV7
TRAV38-1
TRAV39
TRAV40
TRAV41
TRDC
TRAJ44
TRAJ42
TRAJ39
TRAJ38
TRAJ34
TRAJ31
TRAJ25
TRAJ24
TRAJ18
TRAJ17
TRAJ16
TRAJ12
TRAJ6
TRAJ5
TRAJ4
TRAJ3
TRAJ2

TRAJ1
IGHA2
IGHG4
IGHG2
IGHA1
IGHG1
IGHG3
IGHD
IGHM
IGHJ2
IGHJ1
IGHD3-22
IGHD3-16
IGHD2-15
IGHD6-13
IGHD3-10
IGHD3-9
IGHD3-3
IGHD2-2
IGHV6-1
IGHV1-2
IGHV1-3
IGHV2-5
IGHV3-7
IGHV3-11
IGHV3-13
IGHV3-15
IGHV3-16
IGHV1-18

IGHV3-20
IGHV3-21
IGHV3-23
IGHV1-24
IGHV2-26
IGHV4-28
IGHV3-33
IGHV4-34
IGHV3-35
IGHV3-38
IGHV4-39
IGHV1-45
IGHV1-46
IGHV3-48
IGHV3-49
IGHV5-51
IGHV3-53
IGHV1-58
IGHV4-61
IGHV3-66
IGHV1-69
IGHV2-70
IGHV3-73
IGHV7-81
LAT
KLRK1
UBD
IRF9
TNFRSF25

IFI30
KIR2DS4
IGLC6
IGLV9-49
IGHV3-64
HLA-DPB1
IGKV3D-15
IGHV4-59
IGHV3-74
IGKV6D-21
IGHV3-72
IGHD6-25
TRBV2
LTA
TRGC2
IGHD4-23
LTB
IGHD4-17
IGHD6-6
IGKV3D-7
TRBV10-2
TRBV5-4
HLA-DPA1
IGHV4-31
TAPBP
IGHV3-43
TNF
TRBV29-1
TRGV2

HLA-B
TRBV30
HLA-DQA2
TRBV3-1
IGKV2D-30
TNFSF12
APOBEC3G
IGKV1D-8
IGKV1-6
IGKV1-37
IGKV3-20
LILRA4
IGKV1D-33
LILRA2
IGKV1-17
KIR3DL2
TNFRSF13B
IGKV1-8
IGKV1-16
HLA-DOB
IGKV1D-16
IGKV2-24
IGKV3-11
IGKV2D-24
TRBV11-2
IGKV1-9
IGKV1-33
IGKV1-39
IGKV2D-28

HLA-DMB
IGKV1D-43
IGKV1D-17
IGHJ3
IGKV3-7
IGKV2-30
IGKV2D-29
IGKV1-12
IGKV1-5
LEFTY1
KIR2DL3
IGKV2-28
IGKV3-15
APOBEC3C
IGKV1-27
INSL3
NAIP
IGKV1D-37
IGKV2D-40
IGKV1D-39
TRBV6-7
TRBV7-7
TRBV7-4
IGKV1-13
LYN
TRAV1-1
TRAV1-2
TRDV3
MMP12

	S1PR2
	IGHV3-30
	CCL5
	IGKV2-40
	TRBV12-3
	TRBV12-5
	CCL4
	CCL18
	TRBV14
	TRBV10-3
	CCL4L1
	CCL3L3
	TRBV13
	TRBV18
	IGKV1D-13
	TRBV11-3
	IGHV4-4
	TRBV15
	TRBV12-4
	CCL3
	TRAC
	TRBV17
	TRBV7-9
	IGLV2-8
	IGKV1D-12
Yellow	CFTR
	ITGA3
	CCL26
	GIPR

IL20RA
TMSB10
KCNH2
NCK2
NFKB2
SCTR
TRAF5
SEMA5B
PTHLH
APOH
SEMA6A
IL11
ITPR3
SERPIND1
LGALS1
NFATC4
HNF4A
ELF4
PYCARD
AQP9
RAB11A
PDGFRL
LHB
RELB
NUMBL
TGFB1
UNC93B1
LTBR
CCL20

PROC

ARTN

TRIM67

PGF

CRHR1

KCNJ8

PLG

INHA

PI3

UNC5CL

VASP

MASP1

ATF4

LIF

IRF5

RHBDF2

PLXNA3

TRIM47

ANGPTL3

VAV3

CD63

RAC1

PAK6

DUOX1

CASP6

RBP5

DUOX2

IGF1R

CMTM3

TNFRSF11A
NR1I3
CRABP2
PKLR
AHSG
LECT2
TNFRSF21
NFKBIE
TRIM50
ZC3HAV1L
GNRH1
PTGES
PAK1
UCHL1
FZD1
PGLYRP3
ZYX
LCN1
GPSM1
SSTR5
RPS6KA4
S100A11
TGFA
MST1R
HFE2
AR
ADRB2
NUDT6
ADRBK1

VEGFB
TNFRSF10C
TNK1
PTPN2
CLCF1
SPHK1
RABEP2
PLEC
OXTR
TNFSF15
ANXA2
BMP8A
CMTM4
PRKX
ACTG1
GAST
MUC1
NRG3
TLR5
S100A3
S100A16
CLDN4
S100A13
S100A14
CTSE
CGB7
S100A2
ANXA4
ANXA6

	IL27
	S100A6
	TUBB3
	TPM2
	PLXNB3
	TBKBP1
	DEFB134
	LCNL1
	NTF4
	IKBKE
	CCL16

Supplementary Table 3. Proportion of variance explained by each principal component

PC	Freq
PC1	0.928236
PC2	0.046466
PC3	0.007112
PC4	0.005018
PC5	0.002986
PC6	0.001962
PC7	0.001696
PC8	0.001324
PC9	0.001022
PC10	0.000986
PC11	0.000859
PC12	0.0007
PC13	0.000561
PC14	0.00038

PC15	0.000277
PC16	0.000243
PC17	0.000172