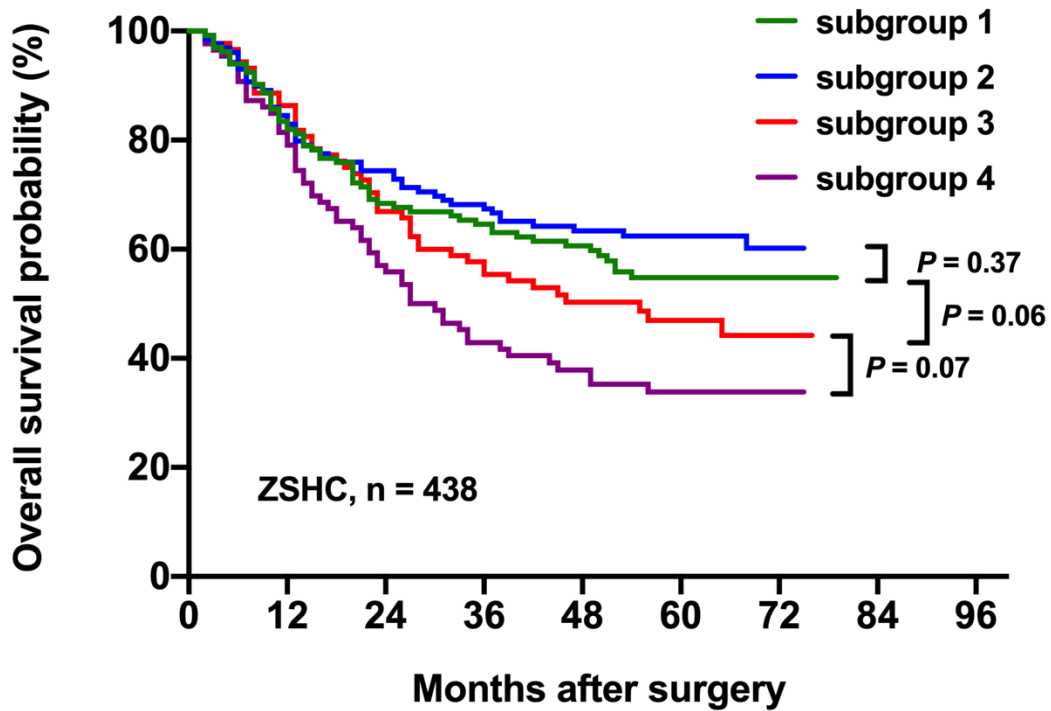


**Supplementary Table S1. Antibody list**

No.	Antibody name	Description	Reactivity	Manufacturer	Catalog No.	Dilution/Dose	Application
1	Anti-FOXP3 antibody [236A/E7]	Mouse monoclonal	Human FOXP3	Abcam	ab20034	1:100	IHC (DS)
2	Anti-ROR gamma antibody	Rabbit monoclonal	Human ROR $\gamma$	Abcam	ab219496	1:100	IHC (DS)
3	Anti-FOXP3 antibody	Mouse monoclonal	Human FOXP3	Abcam	ab22510	1:100	IHC
4	Anti-CD68 antibody	Mouse monoclonal	Human CD68	Abcam	ab955	1:300	IHC
5	Anti-CD163 antibody	Rabbit monoclonal	Human CD163	Abcam	ab182422	1:500	IHC
6	Anti-NCAM1 antibody	Mouse monoclonal	Human CD56	Abcam	ab8233	1:50	IHC
7	Anti-CD66b antibody	Rabbit monoclonal	Human CD66b	Abcam	ab214175	1:400	IHC
8	Anti-CD8 antibody	Mouse monoclonal	Human CD8	Dako	Clone C8/144B	Ready-to-use	IHC
9	Anti-CD4 antibody	Rabbit monoclonal	Human CD4	Abcam	ab133616	1:500	IHC
10	PE/Cy7 Anti-CD45 antibody	Mouse monoclonal	Human CD45	BioLegend	368532	1 $\mu$ l	FCM
11	FITC Anti-CD8 antibody	Mouse monoclonal	Human CD8	BD Biosciences	555366	2 $\mu$ l	FCM
12	PE Anti-CD279 (PD-1) antibody	Mouse monoclonal	Human PD-1	BD Biosciences	560795	1 $\mu$ l	FCM
13	BV 605 Anti-CD152 (CTLA-4) antibody	Mouse monoclonal	Human CTLA-4	BioLegend	369610	1 $\mu$ l	FCM
14	AF 647 Anti-TIM-3 (CD366) antibody	Mouse monoclonal	Human TIM-3	BD Biosciences	565558	1 $\mu$ l	FCM
15	BV 785 Anti-CD223 (LAG-3) antibody	Mouse monoclonal	Human LAG-3	BioLegend	369322	1 $\mu$ l	FCM
16	APC-R700 Anti-IFN- $\gamma$ antibody	Mouse monoclonal	Human IFN- $\gamma$	BD Biosciences	564981	1 $\mu$ l	FCM
17	PE Anti-GZMB antibody	Mouse monoclonal	Human GZMB	eBioscience	MA5-23688	1 $\mu$ l	FCM
18	AF 647 Anti- Perforin antibody	Mouse monoclonal	Human Perforin	BD Biosciences	563576	1 $\mu$ l	FCM

Abbreviation: IHC = Immunohistochemistry; DS = Double staining; FCM = Flow cytometry.



Number at risk:

subgroup 1: Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells low CD8<sup>+</sup> T cells low

133 111 92 85 70 34 10 0 0

subgroup 2: Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells low CD8<sup>+</sup> T cells high

129 109 98 88 73 44 19 0 0

subgroup 3: Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells high CD8<sup>+</sup> T cells high

89 78 61 50 38 24 11 0 0

subgroup 4: Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells high CD8<sup>+</sup> T cells low

87 70 49 38 29 18 4 0 0

**Supplementary Figure S1. Co-evaluation of Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells and CD8<sup>+</sup> T**

**cells.** Kaplan-Meier curves for overall survival in four different subgroups with different

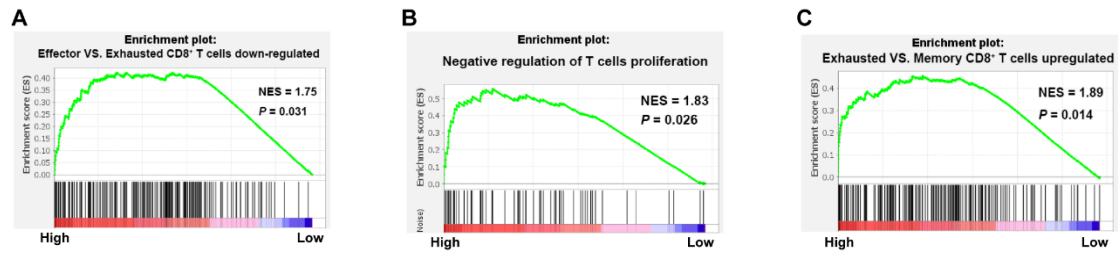
Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells and CD8<sup>+</sup> T cells infiltration. Log-rank test was performed for

Kaplan-Meier curves. No difference was observed between Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells low, CD8<sup>+</sup> T

cells low subgroup and Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells low, CD8<sup>+</sup> T cells high subgroup. However, the

survival outcomes were marginally insignificant between Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells high, CD8<sup>+</sup> T

cells high subgroup and Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells low, CD8<sup>+</sup> T cells low subgroup, as well as  
Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells high, CD8<sup>+</sup> T cells low subgroup.



**Supplementary Figure S2. The functional and proliferative phenotype of CD8<sup>+</sup> T cells showed differences between patients with high and low Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells infiltration.**

- (A) With high Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells infiltration, the genes down-regulated in comparison of effector CD8<sup>+</sup> T cells versus exhausted CD8<sup>+</sup> T cells were enriched.
- (B) With high Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells infiltration, the genes negatively regulating T cells proliferation were enriched.
- (C) With high Foxp3<sup>+</sup>RORγt<sup>+</sup> T cells infiltration, the genes up-regulated in comparison of exhausted CD8<sup>+</sup> T cells versus memory CD8<sup>+</sup> T cells were enriched.

**Supplementary Table S2. Gene set list.**

<p><b>Signature for Foxp3<sup>+</sup>RORγ<sup>+</sup> T cells</b></p>	<p>RORC, RORA, CCR6, FOXP3, STAT3, BATF, STAT5A, STAT5B, GATA3, TBX21, AHR, IRF4, FOXO1, FOXO3, HIF1A, IKZF2, IKZF4</p>
<p><b>GSE9650 Genes up-regulated in comparison of effector CD8<sup>+</sup> T cells versus memory CD8<sup>+</sup> T cells.</b></p>	<p>ABCB10, AC055839.2, ACOT7, ADAM8, AGPAT3, AK3, ALCAM, ANLN, ANXA1, ANXA2, ANXA4, ANXA7, ARHGDI1B, ARL6IP4, ARNTL, ATP5IF1, ATP5PF, ATP6V0E1, AURKA, AURKB, BATF, BIRC5, BRD7, BUB1, C9orf16, CANX, CAPNS1, CARHSP1, CASP7, CCL5, CCNA2, CCNB2, CCNE1, CCNF, CCR2, CD48, CD68, CD8B, CD9, CDC25C, CDCA3, CDCA5, CDCA8, CDK1, CDK2, CDK2AP1, CDKN2C, CDKN2D, CHD7, CISD1, CKS1B, CLIP2, COMMD2, COQ3, COX17, CRIP2, CRY1, CTSA, CTSD, CX3CR1, DAP, DAPK2, DBI, DENND5A, DHRS1, DTL, E2F8, EEF1AKMT1, ELOF1, ENTPD1, FAM89B, FANCM, FHL2, FKBP2, FRG1, G6PD, GABARAPL1, GALE, GALNT4, GBA, GCAT, GDAP2, GLRX, GNAS, GNPDA1, GSTT1, GZMA, GZMB, GZMK, HASPIN, HK2, HMGB2, HSPA4L, IDH3A, IL12RB2, IL18RAP, IL1RL1, IL1RN, INSR, IRF4, IRF8, ITGA4, ITGAM, ITGAX, JAK1, KCTD9, KIF22, KIF23, KLRC1, KLRG1, KPNA2, LACTB2, LAMP2, LAMTOR5, LAT2, LGALS1, LGALS3, LGALS9B, LITAF, LMAN2, LRP10, LSM1, LXN, MAGOH, MAP4, MED12L, MEMO1, MIOS, MIS18BP1, MKI67, MRPL27, MRPL43, MRPS17, MSRB1, MT2A, MTMR1, MXD4, MYB, NASP, NCAPH, NCBP1, NDRG1, NDUFB6, NDUFV3, P3H4, PCLAF, PDCD1, PERP, POMP, PPIB, PPP2R5C, PRC1, PRELID1, PRIM2, PRRC1, PSMA2, PSMD8, PTRH2, RAP1B, REEP5, REPS1, RNF14, RORA, RPP25L, RRM1, S100A10, S100A11, S100A13, S100A4, SEC14L1, SERPINE2, SIRT2, SLC66A3, SMAP1, SMDT1, SMPD2, SNX10, SNX2, SPSB2, SRP14, STAB1, SURF4, TACC3, TMEM160, TNFRSF9, TNXB, TOP2A, TRAPPC1, TSPO, TTK, TTR, TWSG1, TXNDC12, UBL5, USO1, XDH, XPNPEP1, YBX3, ZFYVE19</p>
<p><b>GSE9650 Genes down-regulated in comparison of effector CD8<sup>+</sup> T cells versus exhausted CD8<sup>+</sup> T cells.</b></p>	<p>AARD, ABCG1, ACADVL, ACSL1, ADAM7, ADGRG1, AFP, AGAP1, AHR, ANXA3, AOPEP, APP, ATP2A2, ATP5MF, AUH, BET1, C16orf72, CADM1, CANX, CARM1, CCRL2, CD22, CD244, CELA1, CELF4, CFH, CFHR2, CHL1, CKMT2, CLCA1, CLDN11, COCH, COL19A1, COPRS, CPA3, CPSF2, CRISP2, CSF1, CXCL13, CXCL14, CYP2A6, CYP4V2, DDIT4, DFFA, DOCK7, DPP7, DUSP6, EFN3, EFS, EGR2, EIF2AK2, ENPP2, EOMES, EPCAM, ERCC5, EVI5, EXOSC8, F2RL1, FAM207A, FGF6, FHL1, FRK, GABRR2, GATA2, GCM2, GCSAM, GDAP1, GDNF, GMCL1, GNAO1, GPLD1, GPM6B, GSTM3, GSTO1, GTF3C4, H1-4, H19, H3C7, HAO2, HINFP, HLA-DMA, HMGA2, HOXC6, HTRA2, IFIH1, IGF1R, IL1A, IMMT, INCA1, IRF6, IRS1, KANSL2, KCNAB1, KCTD12, KIAA1217, LCLAT1, LHCGR, LIN9, MAGEL2, MAP1S,</p>

	<p>MAP2, MCAM, MDN1, METAP2, MITF, MRPL48, MRPS2, MSX1, MTRF1L, MYO6, NAP1L2, NCAN, NDUFA13, NEFH, NELFE, NEUROD1, NFIB, NKIRAS1, NKX2-2, NOTCH4, NQO1, NR4A2, NRK, NSDHL, OVGP1, P2RX4, PAWR, PAX1, PBDC1, PCLO, PER2, PHLDA3, PHLDB2, PIK3C2G, PLA2G10, PLEKHA1, PNRC1, POLR1B, POLR2C, POU2F1, PRXL2A, PTGER2, PTK6, PTPN12, PTPRJ, RBM15, REXO5, RFLNB, RGS10, RGS16, RHAG, RIN2, RPRD1B, RXYLT1, SCAMP1, SCAND1, SCN1A, SCN7A, SCRG1, SIX1, SLC12A2, SLC30A1, SLC6A4, SLC7A11, SMAD1, SMIM4, SPOCK2, SPOUT1, SPP1, SPRED2, SSBP2, STRA6, SUB1, SYT1, TAPBP, TBX15, TCF4, TERF1, TGM2, TLR7, TM2D1, TM2D3, TM4SF1, TMEM150A, TNFRSF4, TNFRSF9, TRPC1, TUG1, TWSG1, VAMP7, VCAM1, WFS1, WLS, YAP1, ZFP28, ZNF239, ZNF35, ZNF821, ZNRF1, ZRANB1</p>
<p><b>GO Any process that stops, prevents or reduces the rate or extent of T cell proliferation.</b></p>	<p>ARG1, ARG2, BMP4, BTN2A2, CASP3, CD274, CD80, CD86, CEBPB, CLEC4G, CRTAM, CTLA4, DLG1, DLG5, ERBB2, FOXP1, FOXP3, GLMN, GNRH1, GPNMB, HAVCR2, HLA-DRB1, HLA-G, IDO1, IHH, IL10, IL20RB, IL2RA, LGALS7B, LGALS9, LGALS9B, LGALS9C, LILRB1, LILRB2, LRRC32, MAD1L1, MARCHF7, MIR181C, NDFIP1, PAWR, PDCD1LG2, PDE5A, PELI1, PLA2G2D, PLA2G2F, PRKAR1A, PRNP, PTPN6, RC3H1, SCGB1A1, SCRIB, SDC4, SFTPD, SHH, SPN, TMEM131L, TNFRSF14, TNFRSF21, TWSG1, VSIG4, VSIR, VTCN1, XCL1, ZBTB7B</p>