Supplemental Data for:

Proteomics analysis reveals a Th17-prone cell population in pre-symptomatic graft-versus-host disease

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Supplemental Table 6. CD146 on T cells and vessels in GI biopsies of GI-GVHD and non-GVHD enteritis post-HCT.

Supplemental Table 7. Transcriptome analysis of sorted human CD146+CCR5+ Tregs and T-cell population excluding CD146+CCR5+ Tregs.

Supplemental Table 8. Transcriptional signature for pathogenic Th17 cells of CD146+CCR5+ Tcons in comparison with published work.

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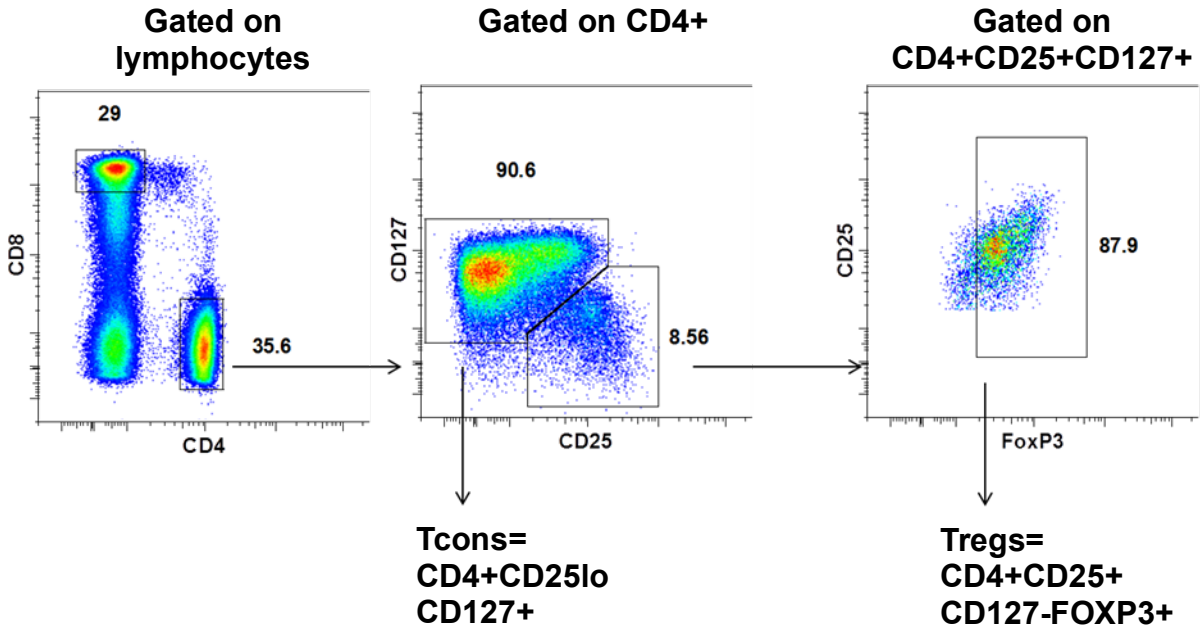
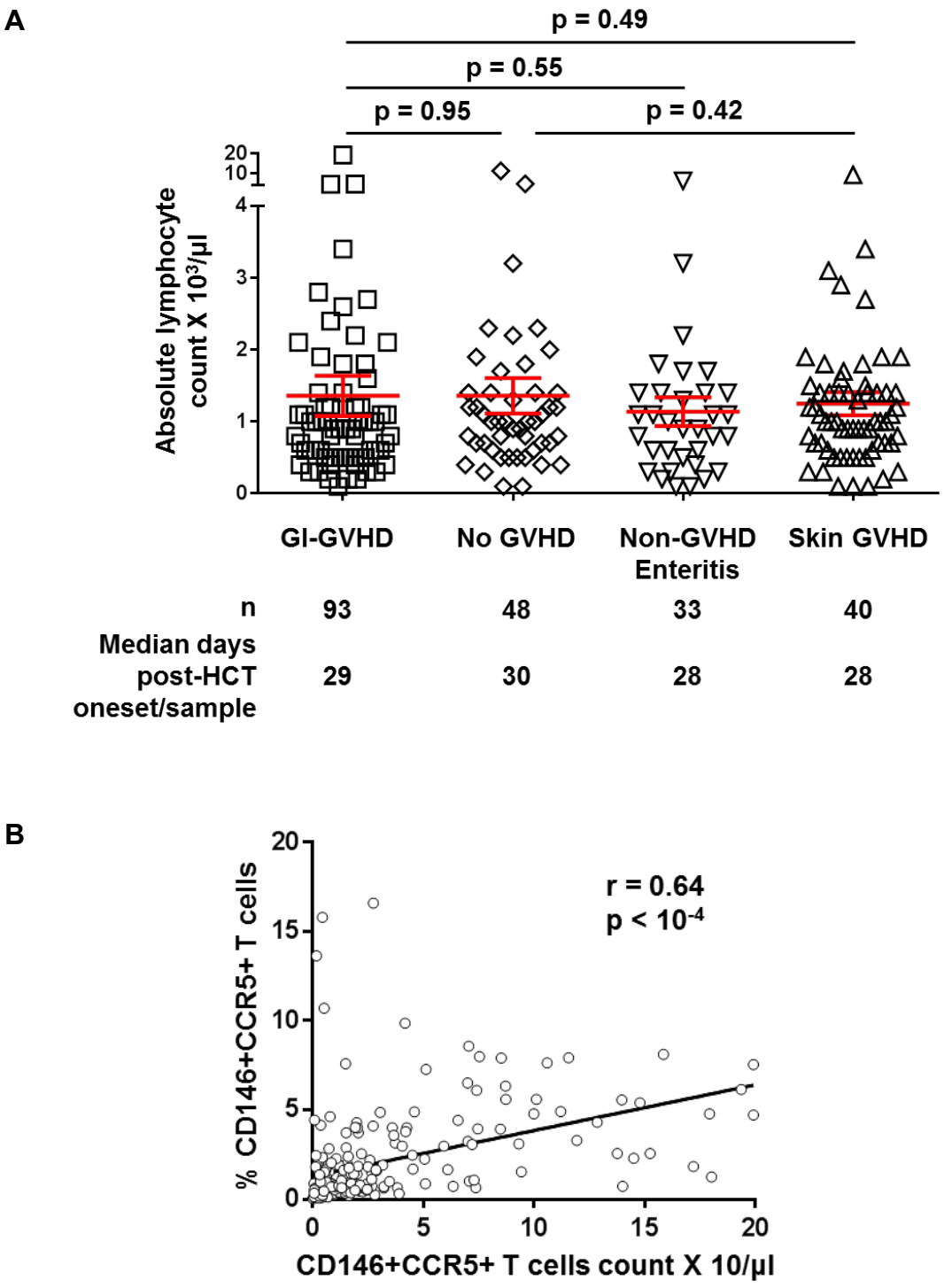
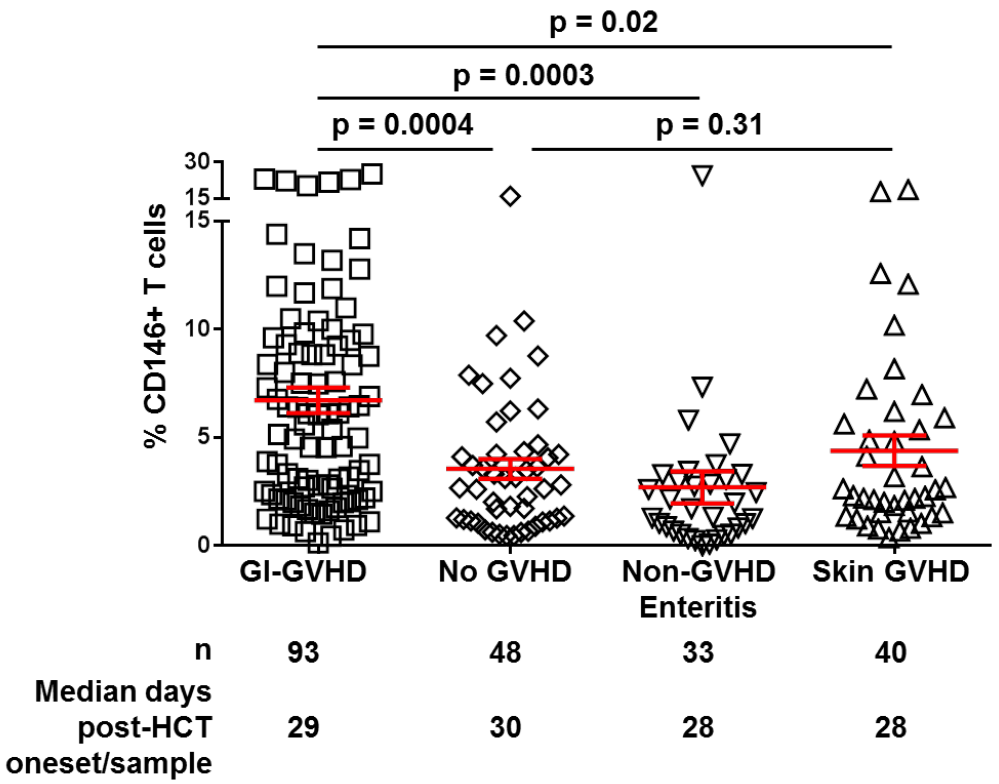


Supplemental Figure 1. Conventional T cell (Tcons) and Treg gating strategy. Tcons were defined as CD4+CD25LoCD127+, whereas Tregs were defined as CD4+CD25+CD127-FoxP3+.



Supplemental Figure 2. Absolute lymphocyte counts and correlation of CD4+CD146+CCR5+ T-cell counts and frequencies of CD4+CD146+CCR5+ T cells in PB of HCT patients. (A) Absolute lymphocyte counts in PB of allogeneic patients following HCT as measured by multicolor flow cytometry. Data represent mean±SEM, 2-tailed Student's t-test. **(B)** Correlation of CD4+CD146+CCR5+ T-cell counts and frequencies of CD4+CD146+CCR5+ T cells in PB samples of all 214 HCT patients. The Spearman correlation coefficient was used.

A



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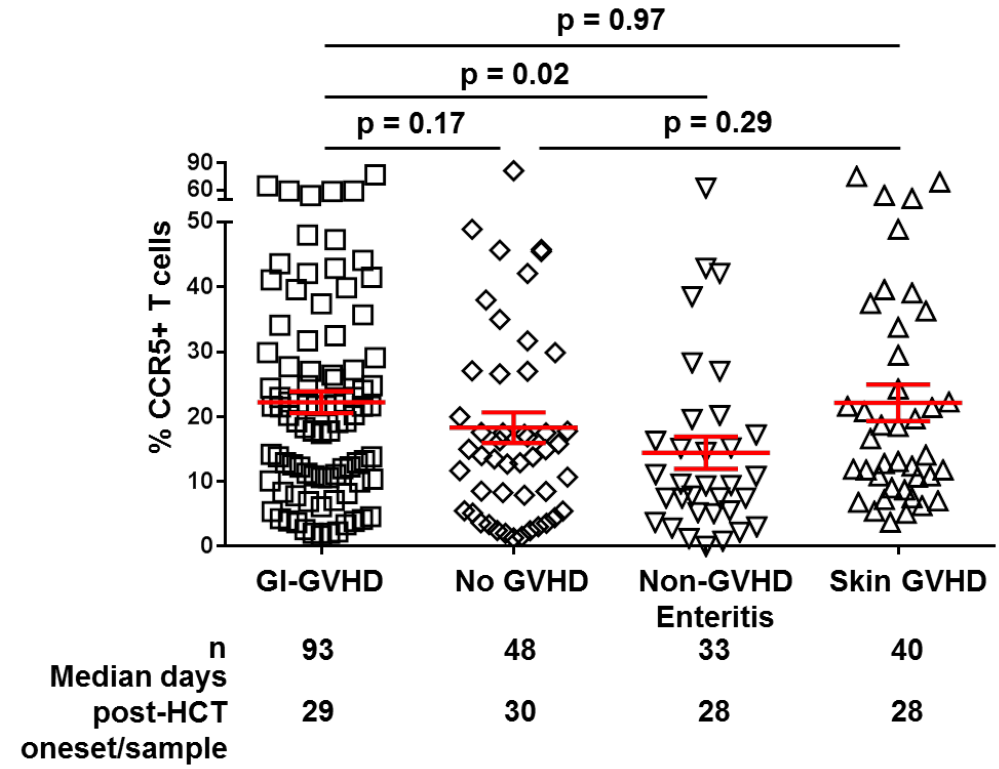
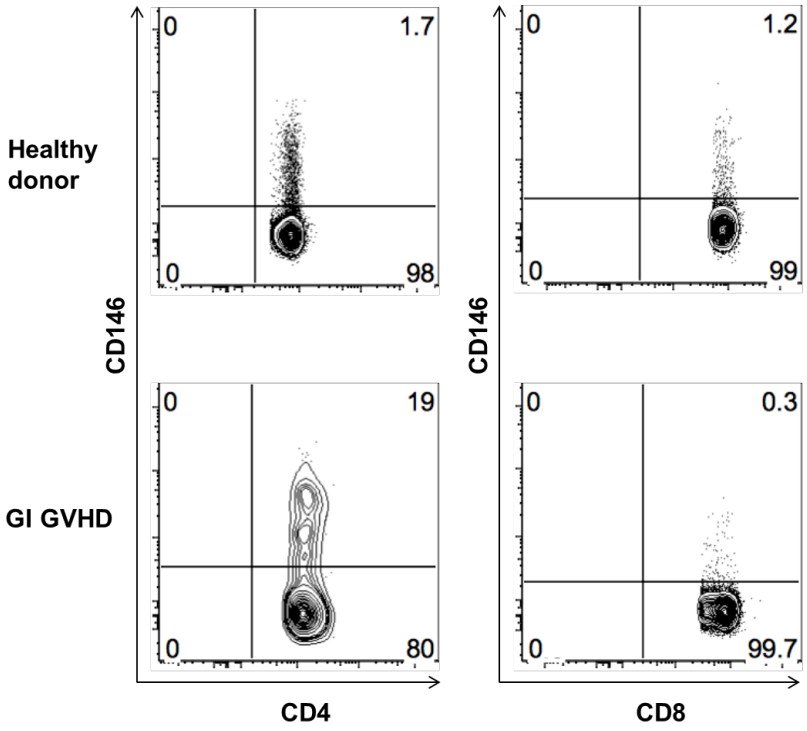
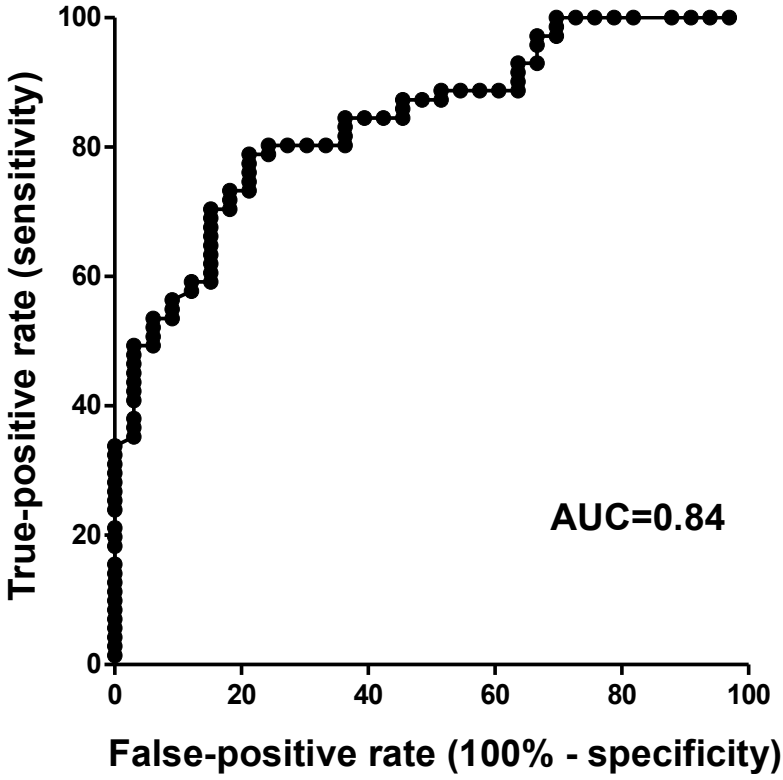


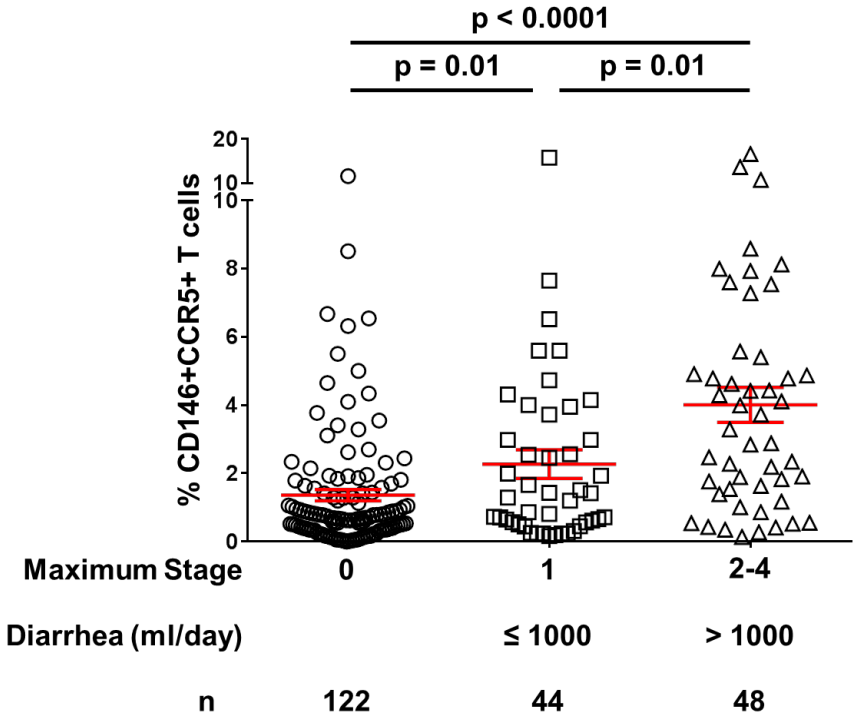
Supplemental Figure 3. Frequencies of CD4+CD146+ T cells and CD4+CCR5+ T cells in PB of HCT patients. Frequencies of **(A)** CD4+CD146+ T cells and **(B)** CD4+CCR5+ T cells in allogeneic patients following HCT. Data represent mean±SEM, and differences were analyzed using 2-tailed Student's t-test.



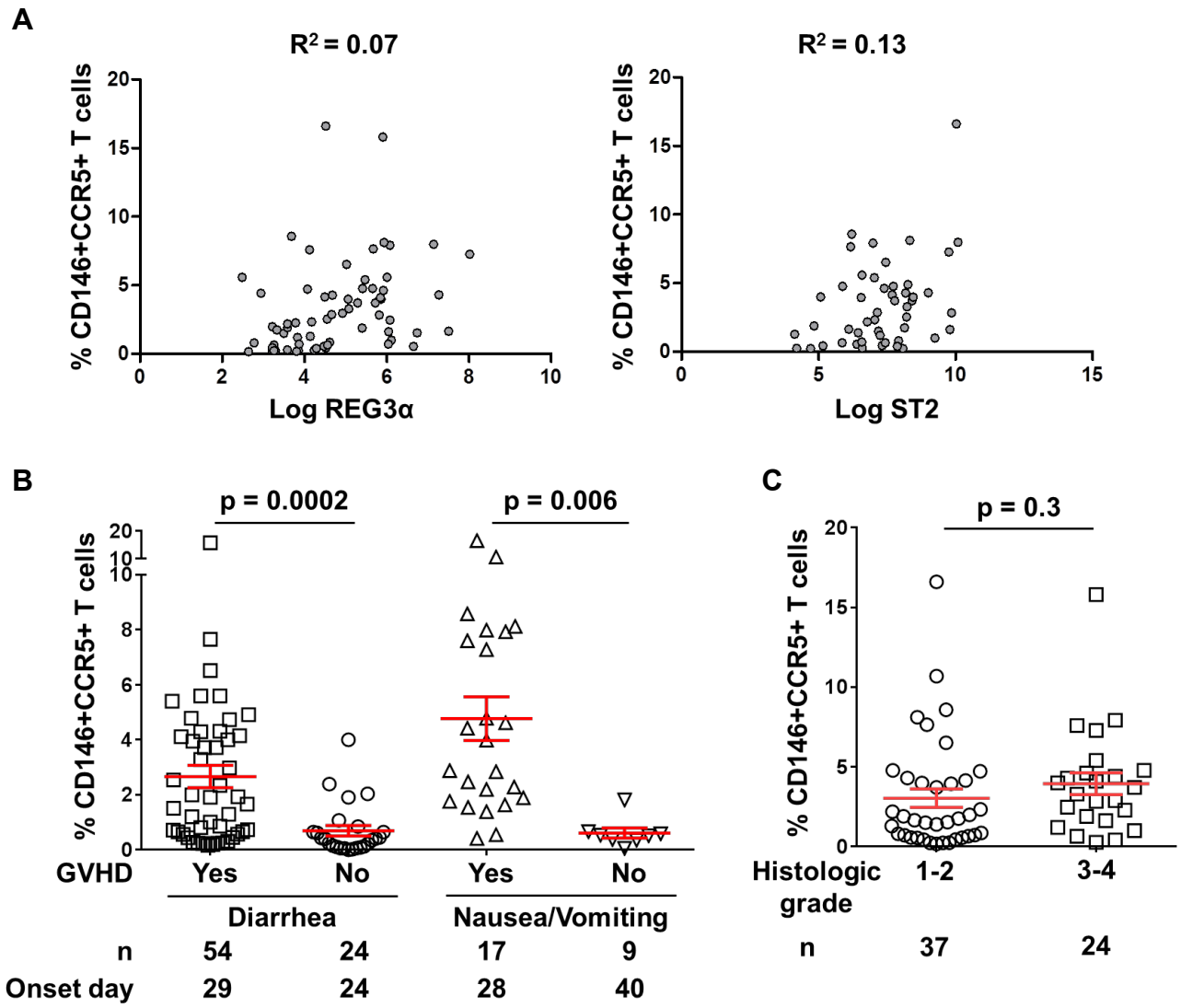
Supplemental Figure 4. CD146 expression on CD4 and CD8 T cells in PB of healthy donors and GI-GVHD patients. Representative plots showing the frequencies of CD146 expressing CD4 and CD8 T cells in PB of healthy donors (top panel) and GI-GVHD patients (bottom panel) (n=7).



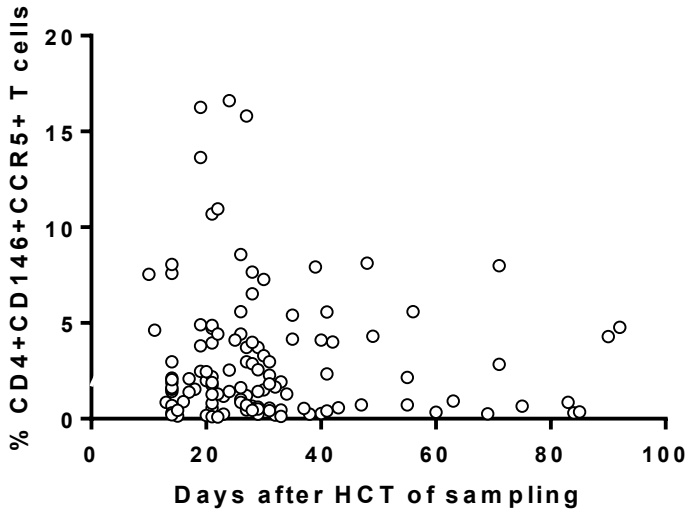
Supplemental Figure 5. Receiver operating characteristic (ROC) curve comparing GI-GVHD versus non-GVHD enteritis HCT patients. ROC curve for CD4+CD146+CCR5+ T-cell frequency between GI GVHD (n=71) and non-GVHD enteritis (n=33), AUC=0.84.



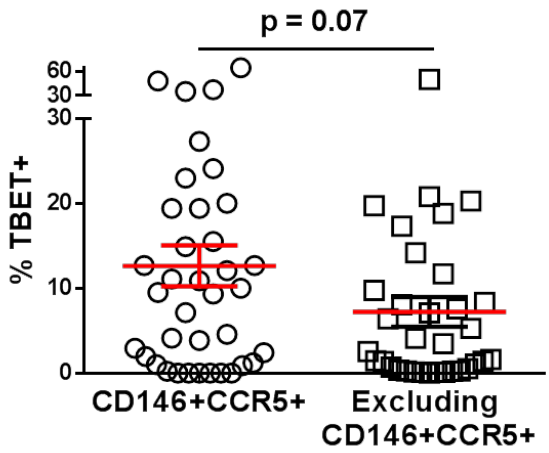
Supplemental Figure 6. CD4+CD146+CCR5+ T-cell frequency stratified by maximum GI-GVHD stage. GI-GVHD patients who had ≤1 l of stool per day were categorized stage 1, and those with >1 l as stage 2–4. Stage 0 at onset includes isolated skin GVHD patients, non-GVHD enteritis, and patients without GVHD. Data represent mean±SEM, 2-tailed Student's t-test.



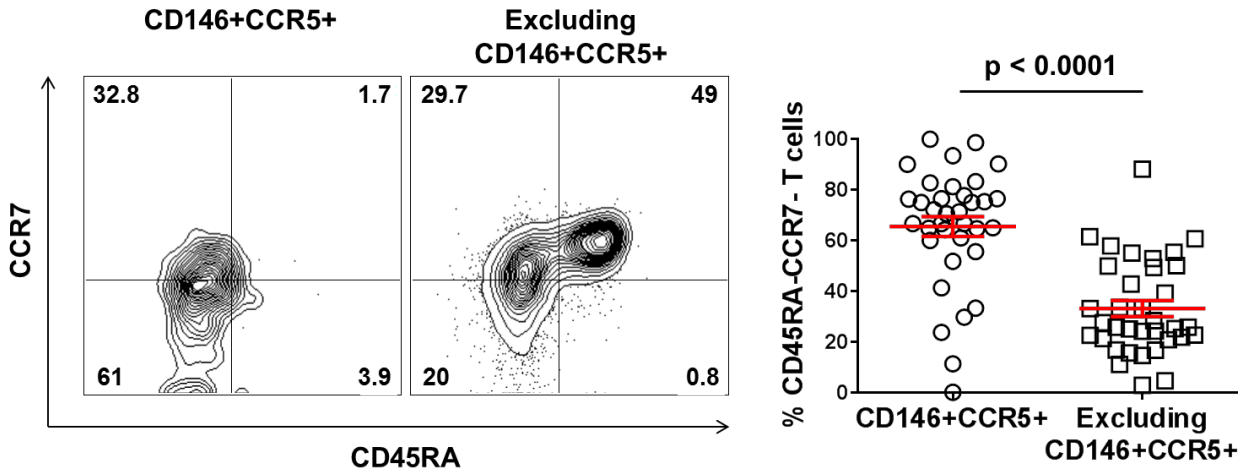
Supplemental Figure 7. CD4+CD146+CCR5+ T-cell frequency in PB by REG3α and ST2 plasma concentrations, GI symptom localization, and GI-GVHD histologic grade. (A) Correlation of REG3α and ST2 plasma concentrations with CD4+CD146+CCR5+ T-cell frequency in PB of patients with GI-GVHD. The squared Pearson correlation coefficient was used. **(B)** CD4+CD146+CCR5+ T-cell frequency classified by GI symptom localization, 2-tailed Student's t-tests. **(C)** CD4+CD146+CCR5+ T-cell frequency stratified by GI-GVHD histologic grade, 2-tailed Student's t-test.



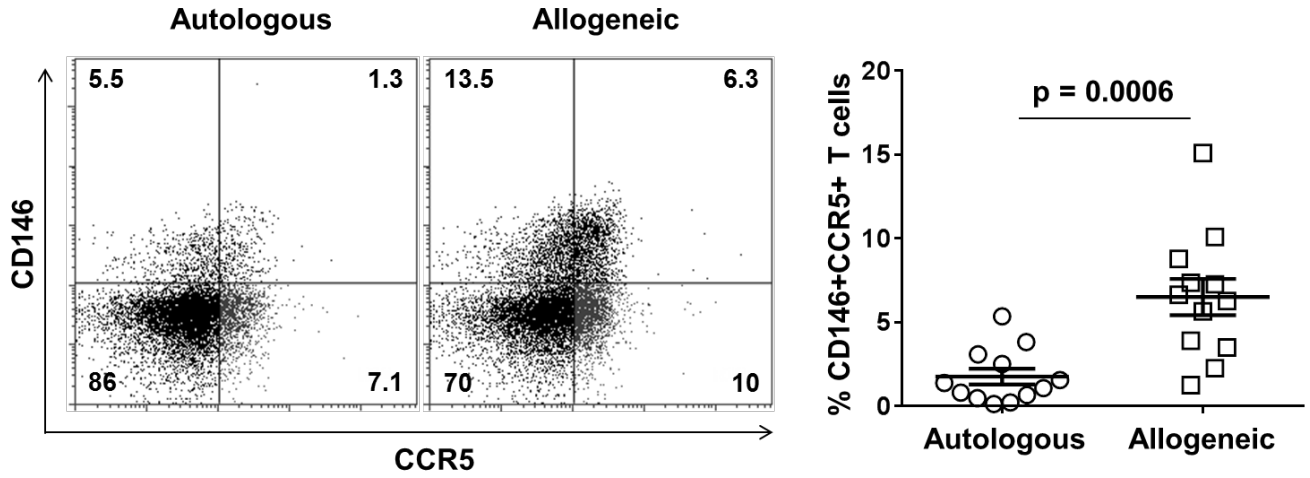
Supplemental Figure 8. The frequency of CD4+CD146+CCR5+ T-cell subset in HCT patients over time post-HCT. The percentages of the CD4+CD146+CCR5+ T cells in 124 GI-GVHD patients (in samples collected from 93 patients at onset and 31 pre-onset samples collected from day 14 to day 92 post-HCT).



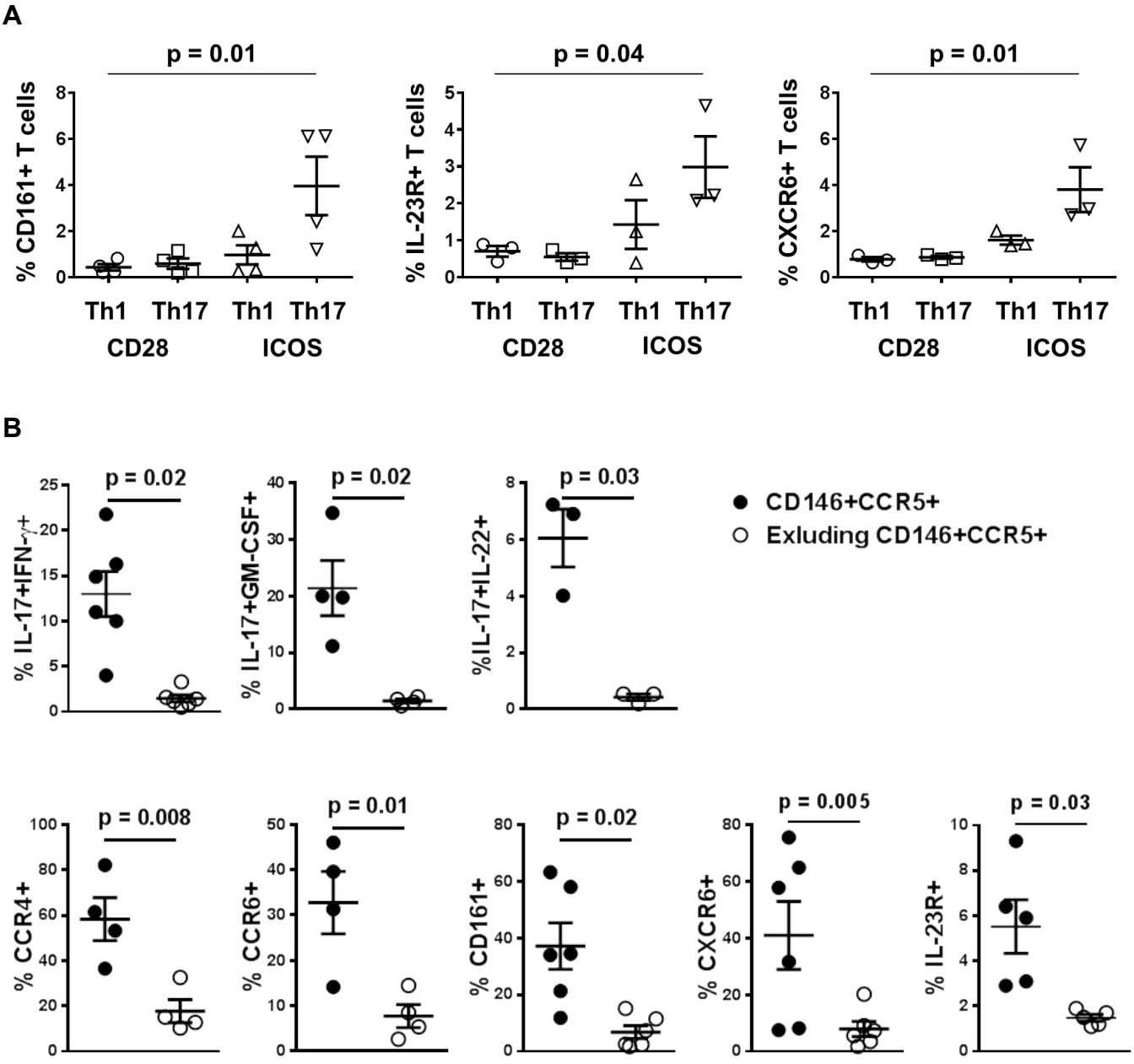
Supplemental Figure 9. Expression of Th1-transcription factor TBET in CD4+CD146+CCR5+ T-cell subset versus T cells excluding this population in GI-GVHD patients. Intracellular staining for Th1-transcription factor TBET in samples of GI-GVHD patients (n=35), 2-tailed Student's t-test.



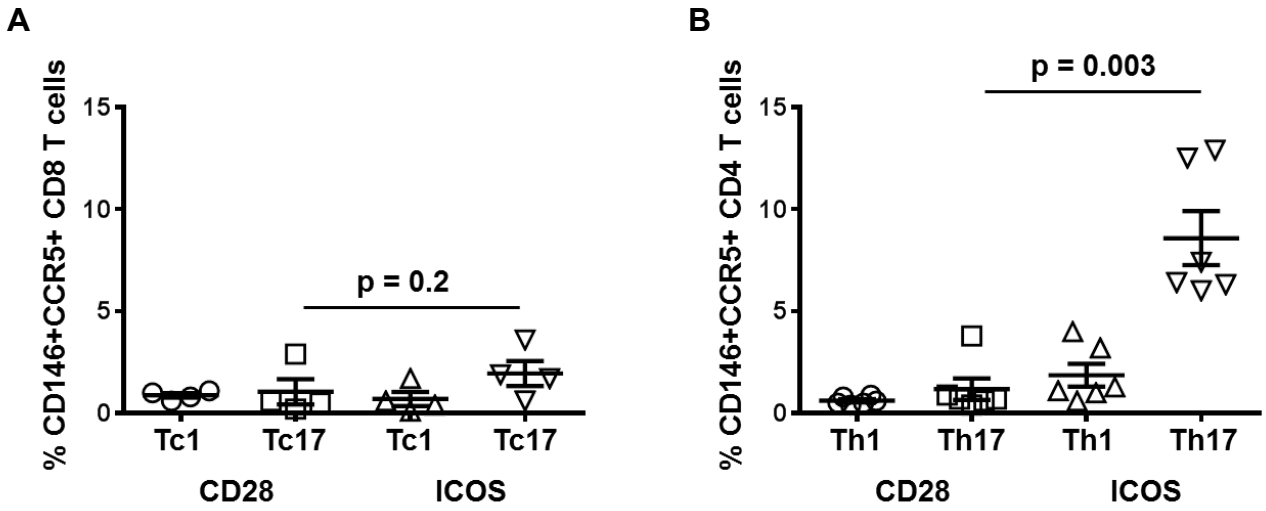
Supplemental Figure 10. CD4+CD146+CCR5+ T-cell effector memory phenotype. Representative plot showing the expression of CD45RA and CCR7 on HCT patient T cells gated on the CD4+CD146+CCR5+ T-cell population or excluding this population, and a dot plot depicting mean±SEM values for the frequencies of CD45RA-CCR7- cells in the same subsets in patient samples (n=35), 2-tailed Student's t-test.



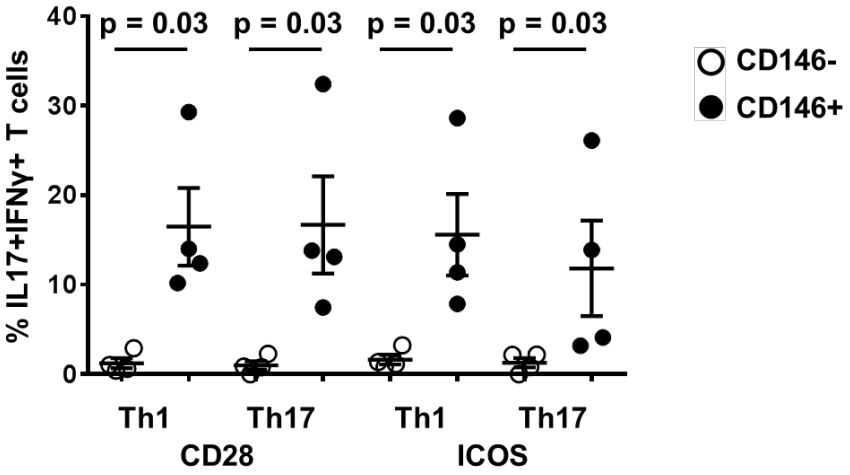
Supplemental Figure 11. **CD4+CD146+CCR5+ T-cell generation in allogeneic mixed lymphocyte reactions (MLRs).** Representative plots showing the expression of CD146 and CCR5 on CD4 T cells from autologous and allogeneic MLRs, and a dot plot depicting mean±SEM of the frequency of CD4+CD146+CCR5+ T cells (n=12), 2-tailed Student's t-test.



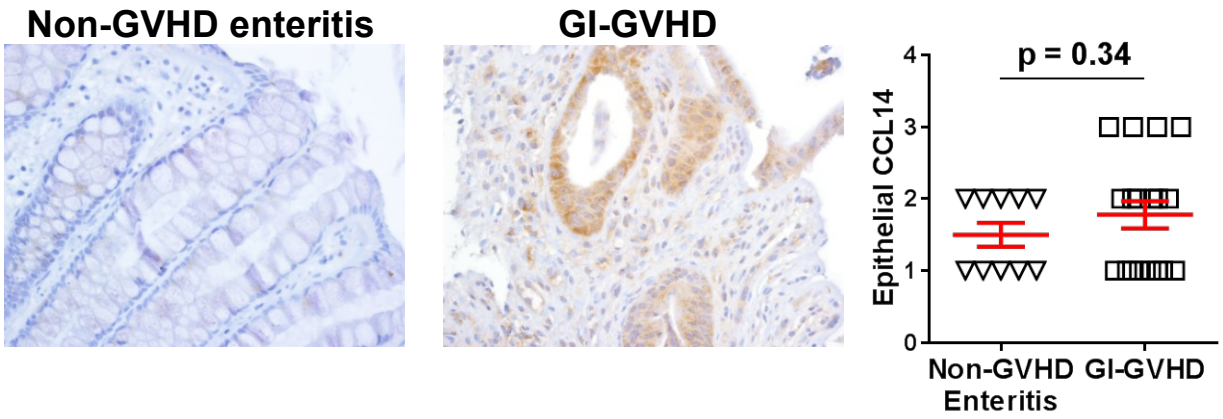
Supplemental Figure 12. Th17-associated markers in ICOS-stimulated Th17 cells and CD4+CD146+CCR5+ T cells. (**A**) Frequencies of CD161-, IL-23R- or CXCR6-expressing T cells after CD28 and ICOS stimulation with Th1 or Th17 differentiation. Summary data are presented as mean±SEM (n=3), one-way ANOVA. (**B**) Frequencies of Th17-associated markers in the CD4+CD146+CCR5+ double-positive cells as compared to in T cells excluding this population. Tcons were stimulated with anti-CD3/ICOS beads for 7 days under Th17-polarizing conditions. Summary data are presented as mean±SEM (n=3 for IL-17+IL-22+; n=4 for IL-17+GM-CSF+, CCR4+, and CCR6+; n=5 for IL23R+; n=6 for IL-17+IFN-γ+, CD161+, and CXCR6+), paired t-test.



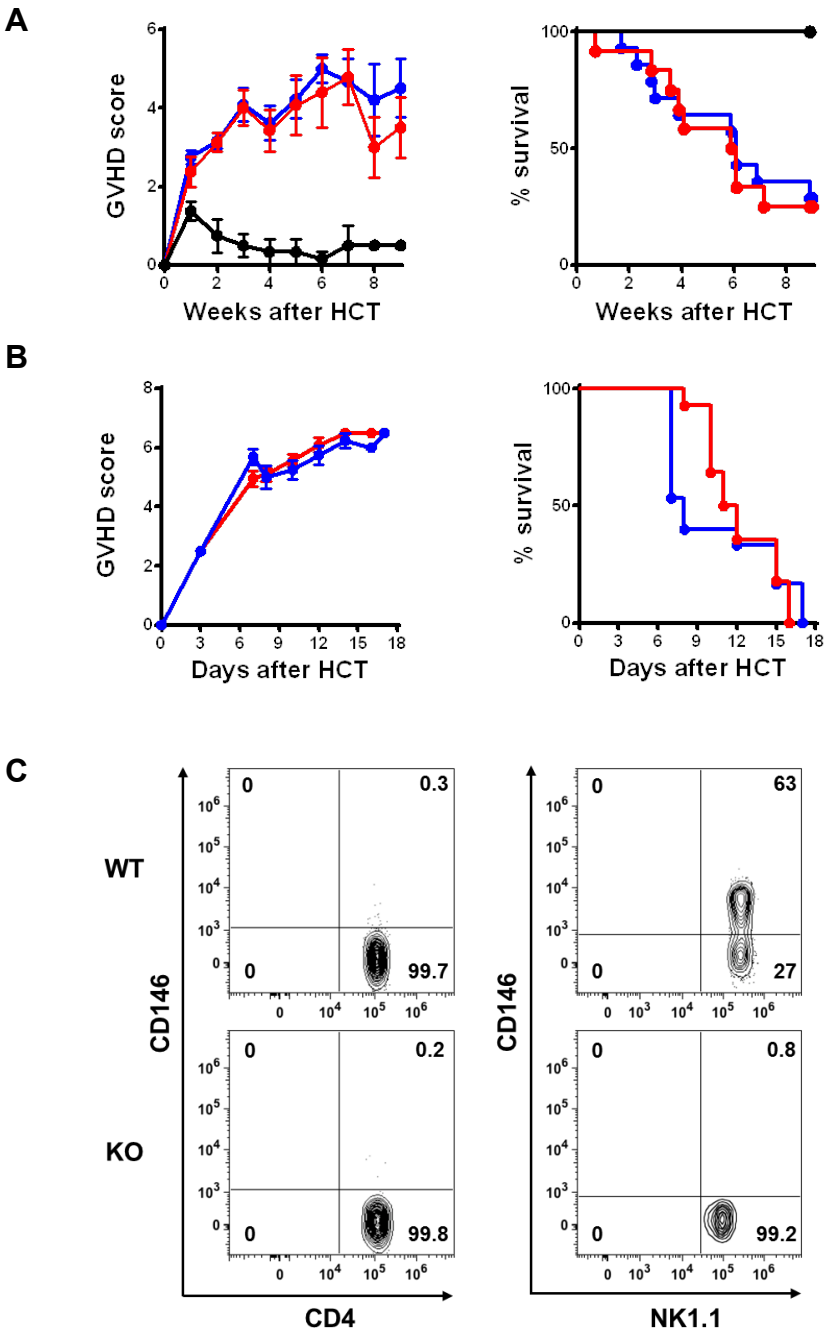
Supplemental Figure 13. Frequencies of CD146+CCR5+-expressing T cells among ICOS-stimulated CD8 cells and Tcons. (**A**) CD8 T cells and (**B**) Tcons were isolated from healthy donor PB cells and cultured in the presence of anti-CD3/CD28 or anti-CD3/ICOS beads under T cytotoxic (Tc) 1 or Tc17 (**A**) or Th1 or Th17 (**B**) polarizing conditions for 7 days. The frequencies of CD8+CD146+CCR5+ T cells and CD4+CD146+CCR5+ T cells are presented as mean±SEM (n=4 for CD8 cells and n=6 for Tcons), one-way ANOVA.



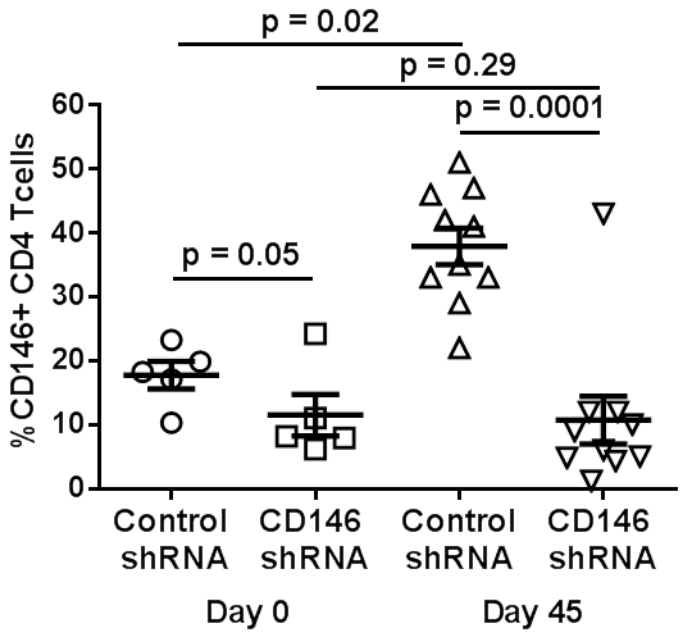
Supplemental Figure 14. Th17 proneness of sorted CD146+ versus CD146- Tcons. Mature CD146- and CD146+ T cells were isolated from total CD4 T cells and activated with anti-CD3/CD28 or anti-CD3/ICOS beads under Th1 or Th17 polarizing conditions for 7 days. The frequencies of IL-17+IFN-γ+ T cells are shown as mean±SEM (n=4), two-tailed Student's t-test.



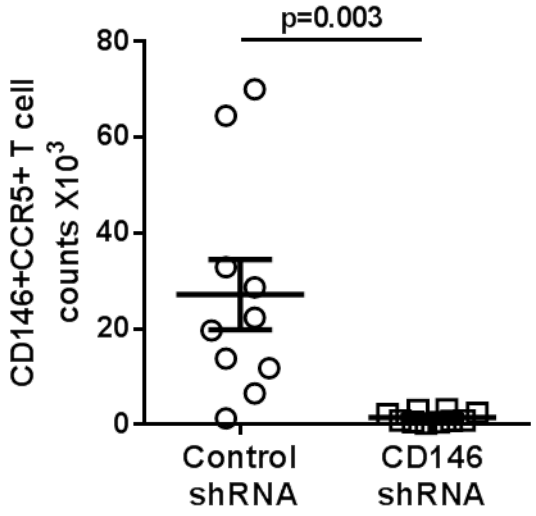
Supplemental Figure 15. Epithelial CCL14 expression in colonic biopsies of GI-GVHD and non-GVHD enteritis patients post-HCT. Immunohistochemical analysis of colonic biopsies taken at onset of symptoms from non-GVHD enteritis patients (left panel) and GI-GVHD patients (right panel) for CCL14 expression (magnification, ×200). Dot plot showing mean±SEM values for CCL14 intensity of epithelial staining X40, two-tailed Student's t-test from non-GVHD enteritis patients (n=10) and GI-GVHD patients (n=18).



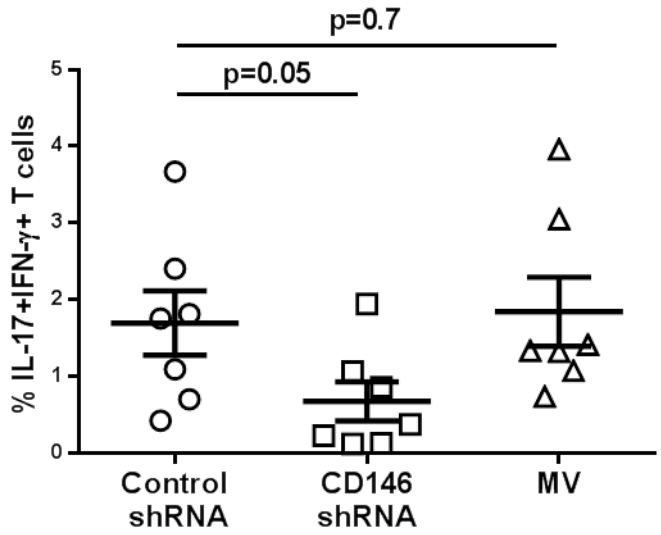
Supplemental Figure 16. CD146 KO donor T cells did not affect GVHD as compared to WT T cells in major and minor mismatched MHC murine GVHD models. (**A**) Clinical scores of GVHD and survival curves for C3H.SW mice transplanted with syngeneic BM and T cells (-●-) or allogeneic B6 BM cells and WT (-●-) or CD146 KO (-●-) splenic T cells (n=13-16 per group; p value for survival=0.81; Log-rank test for survival analysis). (**B**) Clinical scores of GVHD and survival curves for Balb/C recipient mice transplanted with B6 BM cells plus either WT (-●-) or CD146 KO B6 (-●-) T cells. (n=12-13 per group; p value for survival=0.89 Log-rank test for survival analysis). (**C**) Representative flow cytometric analysis of CD146 expression on gated WT or CD146 KO splenic CD4 T cells or NK cells.



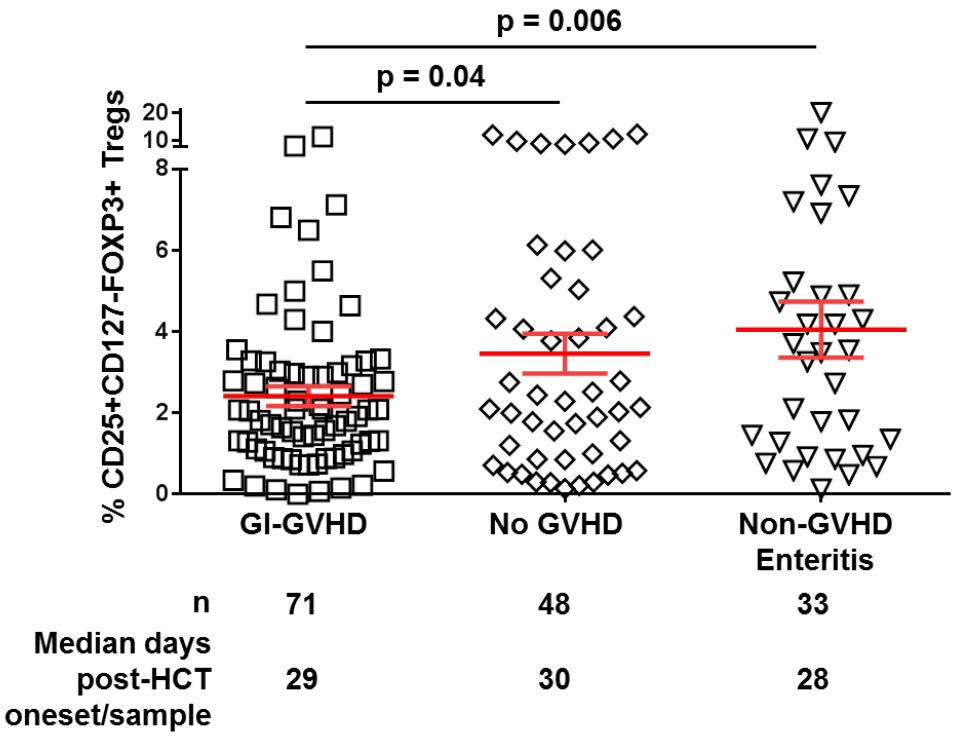
Supplemental Figure 17. CD146 expression on CD146 shRNA-transduced CD4 T cells at the day of transplantation and 45 days post-transplantation. CD4 T cells transduced with CD146 shRNA and control shRNA were analyzed for CD146 expression at the time of transplantation (D0, n=5) and 45 days after transplantation (D45, n=10) into sublethally-irradiated NSG recipient mice. The data are shown as mean±SEM for the frequencies of CD146-expressing CD4 T cells, paired t-test.



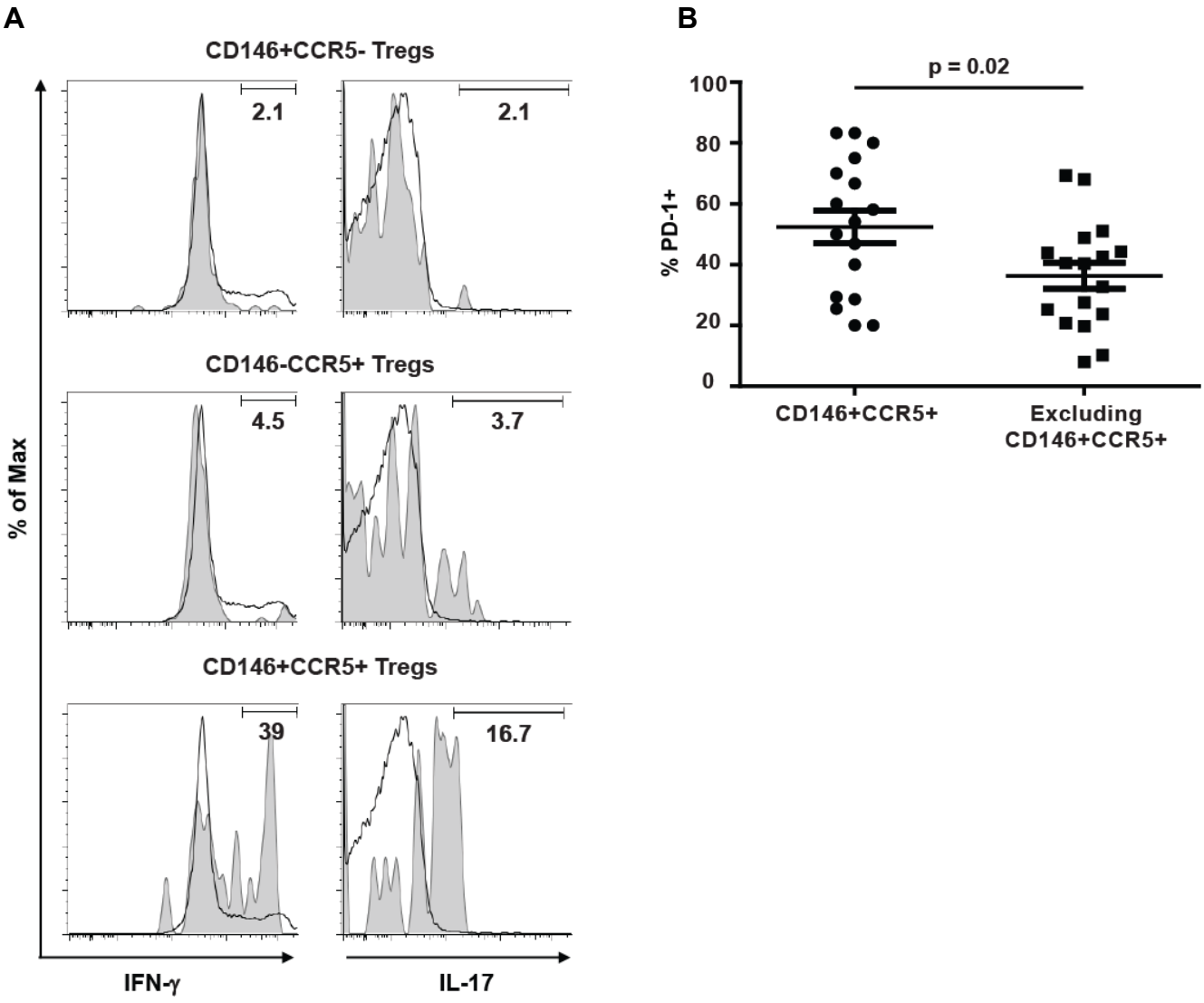
Supplemental Figure 18. Absolute counts of intestinal CD4+CD146+CCR5+ T cells in xenogeneic GVHD with control shRNA or CD146 shRNA knockdown. Sublethally irradiated NSG mice were transplanted with human CD4 T cells transduced with CD146 shRNA or control shRNA lentivirus. Mice were analyzed for absolute number of CD4+CD146+CCR5+ T cells in the gut between days 30–45 after transplantation (n=10), 2-tailed Student's t-test.



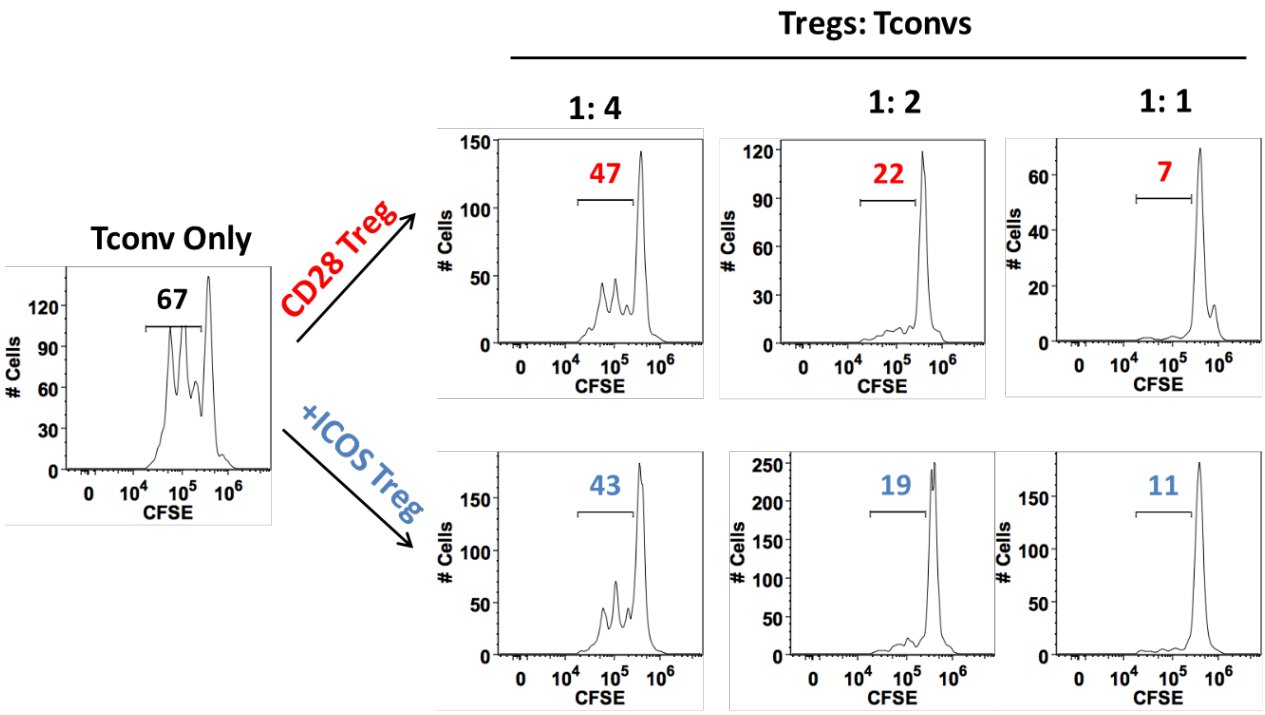
Supplemental Figure 19. In vivo coexpression of IL-17 and IFN-γ by CD4+CD146+CCR5+ T cells in xenogeneic GVHD mice. Sublethally irradiated NSG mice were transplanted with human CD4 T cells transduced with CD146 shRNA or control shRNA lentivirus or control shRNA lentivirus with additional treatment with maraviroc (MV). Mice were analyzed for the expression of IL-17 and IFN-γ on gated CD146+CCR5+ splenic CD4 T cells between days 30–45 after transplantation. The data are shown as mean±SEM for the frequencies of IL-17+IFN-γ+ T cells (n=7), paired t-test.



Supplemental Figure 20. Frequencies of CD25+CD127-FOXP3+ on CD4 T cells in PB of allogeneic HCT patients at GVHD onset. CD4+CD25+CD127-FOXP3+ Treg frequencies in PB of patients with GI-GVHD, without GVHD, and with non-GVHD enteritis. N and median days post-HCT onset of signs or samples are shown below the graphs. The data are shown as mean±SEM, 2-tailed Student's t-test.



Supplemental Figure 21. Expression of IFN-γ, IL-17, and PD-1 proteins in Treg subsets. **(A)** Representative plots showing IFN-γ and IL-17 expression in CD146+CCR5-, CD146-CCR5+, and CD146+CCR5 Tregs from healthy donors. **(B)** PD-1 expression on CD146+CCR5+ Tregs and Tregs excluding this population from 17 GI-GVHD patients, 2-tailed Student's t-test.



Supplemental Figure 22. Suppressive activity of CD28 and ICOS expanded Tregs. CFSE-labelled Tcons were activated with anti-CD3/CD28 beads in the presence of anti-CD3/CD28 or anti-CD3/ICOS expanded Tregs at indicated ratios. After 3 days of culture, the proliferation of the responder Tcons was measured by gating on the proliferated cells.

Supplemental Table 1. Proteins discovered in proteomics analysis

International Protein Index	Gene Name	Gene description	Ratio Heavy/ light
IPI00031608	SPATA5L1	spermatogenesis-associated protein 5-like protein 1.	85.19
IPI00023635	IMPA2	isoform 1 of inositol monophosphatase 2.	34.95
IPI00216003	CUL5	cullin homolog 5.	18.23
IPI00184190	ENOSF1	orf1a.	14.75
IPI00783169	F12	coagulation factor xii.	14.14
IPI00004922	CMA1	chymase.	10.97
IPI00151888	DOCK9	isoform 1 of dedicator of cytokinesis protein 9.	9.65
IPI00741710	SNED1	similar to secreted nidogen domain protein.	8.91
IPI00017817	APBA2	amyloid beta a4 precursor protein-binding family a member 2.	8.74
IPI00059238	SPSB4	spry domain-containing socs box protein 4.	8.42
IPI00465428	VPS13C	isoform 1 of vacuolar protein sorting-associated protein 13c.	7.63
IPI00002311	SCRN3	secernin-3.	7.39
IPI00472035	MICA	isoform 2 of hla class i histocompatibility antigen, cw-16 alpha chainprecursor.	7.02
IPI00013897	ADAM10	adam 10 precursor.	6.37
IPI00301163	KTELC1	ktel motif-containing protein 1 precursor.	5.89
IPI00010414	PDLIM1	pdz and lim domain protein 1.	5.58
IPI00178352	FLNC	isoform 1 of filamin-c.	5.55
IPI00180434	GRAMD1A	isoform 1 of gram domain-containing protein 1a.	5.19
IPI00306369	NSUN2	nol1/nop2/sun domain family 2 protein.	4.67
IPI00105532	LLGL1	lethal giant larvae homolog 1.	4.63
IPI00401073	IER5L	immediate early response 5-like protein.	4.60
IPI00019272	SOST	isoform 1 of sclerostin precursor.	4.34
IPI00100753	NMUR2	neuromedin-u receptor 2.	4.24
IPI00299778	PON3	serum paraoxonase/lactonase 3.	3.89
IPI00218976	FTCD	isoform c of formimidoyltransferase-cyclodeaminase.	3.88
IPI00022470	ZNF516	similar to zinc finger protein 516.	3.47
IPI00166980	KIF26A	similar to cg14535-pa.	3.41
IPI00219018	GAPDH	glyceraldehyde-3-phosphate dehydrogenase.	3.16
IPI00031171	IL6R	isoform 1 of interleukin-6 receptor alpha chain precursor.	3.12
IPI00375592	ESPNL	espin-like protein.	3.06
IPI00022445	PPBP	platelet basic protein precursor.	2.93
IPI00003375	**CCL14***	**isoform hcc-1 of small inducible cytokine a14 precursor.**	**2.90**
IPI00010779	TPM4	isoform 1 of tropomyosin alpha-4 chain.	2.85
IPI00106808	TMEM176B	transmembrane protein 176b.	2.79
IPI00021449	ITPKB	isoform 1 of inositol-trisphosphate 3-kinase b.	2.72
IPI00642090	DAB2IP	hypothetical protein (fragment).	2.72
IPI00002127	DNAH1	heat shock regulated-1.	2.69
IPI00163866	MGA	330 kda protein.	2.63
IPI00011385	LOXL3	lysyl oxidase homolog 3 precursor.	2.61
IPI00026650	MICA	hla class i histocompatibility antigen, cw-1 alpha chain	2.61

		precursor.	
IPI00022446	PF4	platelet factor 4 precursor.	2.59
IPI00216691	PFN1	profilin-1.	2.57
IPI00302592	FLNA	filamin a, alpha.	2.56
IPI00103280	ZDHHC19	probable palmitoyltransferase zdhhc19.	2.54
IPI00306311	PLEK	pleckstrin.	2.49
IPI00032292	TIMP1	metalloproteinase inhibitor 1 precursor.	2.49
IPI00219910	BLVRB	23 kda protein.	2.38
IPI00021263	YWHAZ	14-3-3 protein zeta/delta.	2.35
IPI00030871	VNN1	pantetheinase precursor.	2.23
IPI00011192	PRSS27	serine protease 27 precursor.	2.21
IPI00029235	IGFBP6	insulin-like growth factor-binding protein 6 precursor.	2.13
IPI00019579	CFD	complement factor d precursor.	2.11
IPI00216882	MASP1	mannan-binding lectin serine protease 1 isoform 3.	2.08
IPI00297646	COL1A1	collagen alpha-1(i) chain precursor.	2.05
IPI00015029	PTGES3	prostaglandin e synthase 3.	2.03
IPI00166729	AZGP1	alpha-2-glycoprotein 1, zinc.	1.96
IPI00011194	FGFBP2	fibroblast growth factor-binding protein 2 precursor.	1.91
IPI00181824	VPS53	isoform 2 of vacuolar protein sorting-associated protein 53 homolog.	1.88
IPI00303482	FGL1	fibrinogen-like protein 1 precursor.	1.87
IPI00011255	GP1BA	platelet glycoprotein ib alpha chain precursor.	1.86
IPI00011832	SPP2	secreted phosphoprotein 24 precursor.	1.85
IPI00018769	THBS2	thrombospondin-2 precursor.	1.84
IPI00166613	GALNTL1	isoform 1 of putative polypeptide n-acetylgalactosaminyltransferase-like protein 1.	1.84
IPI00297550	F13A1	coagulation factor xiii a chain precursor.	1.82
IPI00016334	**MCAM/CD146***	**isoform 1 of cell surface glycoprotein muc18.**	**1.81**
IPI00019442	GDF1	embryonic growth/differentiation factor 1 precursor.	1.81
IPI00023673	LGALS3BP	galectin-3-binding protein precursor.	1.80
IPI00026249	ZNF117	zinc finger protein 117.	1.78
IPI00007244	MPO	isoform h17 of myeloperoxidase precursor.	1.77
IPI00022418	FN1	isoform 1 of fibronectin precursor.	1.76
IPI00001653	ZSWIM5	similar to zinc finger swim domain-containing protein 5.	1.76
IPI00184094	B3GNT8	beta galactosyltransferase.	1.76
IPI00011692	IVL	involucrin.	1.73
IPI00004656	B2M	beta-2-microglobulin precursor.	1.73
IPI00029168	LPA	apolipoprotein.	1.72
IPI00011302	CD59	cd59 glycoprotein precursor.	1.69
IPI00396077	TOPORS	isoform 1 of e3 ubiquitin-protein ligase topors.	1.67
IPI00745434	PXN	cdna flj46879 fis, clone uteru3015011, highly similar to paxillin.	1.66
IPI00296099	THBS1	thrombospondin-1 precursor.	1.66
IPI00328550	THBS4	thrombospondin-4 precursor.	1.65
IPI00025819	CAPN3	isoform i of calpain-3.	1.64
IPI00334996	ADAMTS13	hypothetical protein c9orf8.	1.62
IPI00791853	NCOR1	nuclear receptor co-repressor.	1.61
IPI00028030	COMP	cartilage oligomeric matrix protein precursor.	1.58
IPI00023014	VWF	von willebrand factor precursor.	1.57
IPI00027507	CFHR3	complement factor h-related protein 3 precursor.	1.57
IPI00148820	DTX3	isoform 2 of protein deltex-3.	1.56

IPI00019223	AKAP9	isoform 1 of a-kinase anchor protein 9.	1.55
IPI00292150	LTBP2	latent-transforming growth factor beta-binding protein 2 precursor.	1.54
IPI00604691	GPR157	hypothetical protein (fragment).	1.54
IPI00218733	SOD1	16 kda protein.	1.53
IPI00807515	FAM83H	hypothetical protein loc286077.	1.53
IPI00844156	SERPINC1	SERPINC1	1.53
IPI00025084	CAPNS1	calpain small subunit 1.	1.52
IPI00644168	ARHGAP22	59 kda protein.	1.52
IPI00003813	CADM1	nectin-like protein 2.	1.51
IPI00644346	ADAMTSL2	adamts-like protein 2 precursor.	1.50
IPI00018136	VCAM1	isoform 1 of vascular cell adhesion protein 1 precursor.	1.50
IPI00295339	SELP	p-selectin precursor.	1.49
IPI00451624	CRTAC1	isoform 1 of cartilage acidic protein 1 precursor.	1.46
IPI00021578	CFHR4	complement factor h-related protein 4 precursor.	1.44
IPI00020599	CALR	calreticulin precursor.	1.44
IPI00739995	LPA	lipoprotein, lp.	1.44
IPI00295414	COL15A1	collagen alpha-1(xv) chain precursor.	1.44
IPI00215767	B4GALT1	isoform long of beta-1,4-galactosyltransferase 1.	1.43
IPI00021891	FGG	isoform gamma-b of fibrinogen gamma chain precursor.	1.43
IPI00027038	VSIG4	isoform 1 of v-set and immunoglobulin domain-containing protein 4precursor.	1.43
IPI00297284	IGFBP2	insulin-like growth factor-binding protein 2 precursor.	1.42
IPI00414283	FN1	fibronectin 1 isoform 4 preproprotein.	1.40
IPI00006608	APP	isoform app770 of amyloid beta a4 protein precursor (fragment).	1.40
IPI00020986	LUM	lumican precursor.	1.40
IPI00010471	LCP1	plastin-2.	1.40
IPI00298883	AZI1	isoform 1 of 5-azacytidine-induced protein 1.	1.39
IPI00019372	SRGN	secretory granule proteoglycan core protein precursor.	1.39
IPI00795830	AHSG	29 kda protein.	1.39
IPI00414784	CD300A	isoform 1 of cmrf35-h antigen precursor.	1.39
IPI00000070	LDLR	low-density lipoprotein receptor precursor.	1.38
IPI00796830	A2M	13 kda protein.	1.38
IPI00022229	APOB	apolipoprotein b-100 precursor.	1.38
IPI00291866	SERPING1	plasma protease c1 inhibitor precursor.	1.38
IPI00299738	PCOLCE	procollagen c-endopeptidase enhancer 1 precursor.	1.37
IPI00019755	GSTO1	glutathione transferase omega-1.	1.37
IPI00005721	DEFA1	neutrophil defensin 1 precursor.	1.36
IPI00219217	LDHB	l-lactate dehydrogenase b chain.	1.35
IPI00016915	IGFBP7	insulin-like growth factor-binding protein 7 precursor.	1.35
IPI00303292	KPNA1	importin alpha-1 subunit.	1.35
IPI00004084	CREBL1	isoform 2 of cyclic amp-dependent transcription factor atf-6 beta.	1.34
IPI00022620	SLURP1	secreted ly-6/upar-related protein 1 precursor.	1.34
IPI00215899	SRPX	isoform 2 of sushi repeat-containing protein srpx precursor.	1.33
IPI00025473	B4GALNT1	beta-1,4 n-acetylgalactosaminyltransferase 1.	1.33
IPI00410078	CREB5	isoform 4 of camp response element-binding protein 5.	1.33
IPI00299116	PODXL	podocalyxin-like protein 1 precursor.	1.33

IPI00298860	LTF	growth-inhibiting protein 12.	1.32
IPI00217185	RYR3	isoform 2 of ryanodine receptor 3.	1.32
IPI00021085	PGLYRP1	peptidoglycan recognition protein precursor.	1.31
IPI00003817	ARHGDIB	rho gdp-dissociation inhibitor 2.	1.31
IPI00012011	CFL1	cofilin-1.	1.30
IPI00004373	MBL2	mannose-binding protein c precursor.	1.30
IPI00017601	CP	ceruloplasmin precursor.	1.30
IPI00645403	KIAA1217	isoform 1 of sickle tail protein homolog.	1.30
IPI00479116	CPN2	carboxypeptidase n subunit 2 precursor.	1.30
IPI00014575	CDC6	cell division control protein 6 homolog.	1.30
IPI00003351	ECM1	extracellular matrix protein 1 precursor.	1.30
IPI00167498	C9orf93	isoform 2 of uncharacterized protein c9orf93.	1.29
IPI00022429	ORM1	alpha-1-acid glycoprotein 1 precursor.	1.29
IPI00021885	FGA	isoform 1 of fibrinogen alpha chain precursor.	1.28
IPI00023858	FCGR3B	fc-gamma receptor iiib.	1.28
IPI00022426	AMBP	ambp protein precursor.	1.28
IPI00374068	ADAMTSL4	isoform 1 of adamts-like protein 4 precursor.	1.27
IPI00032293	CST3	cystatin-c precursor.	1.27
IPI00014572	SPARC	sparc precursor.	1.27
IPI00294713	MASP2	isoform 1 of mannan-binding lectin serine protease 2 precursor.	1.27
IPI00020990	OMD	osteomodulin precursor.	1.26
IPI00006971	CD248	isoform 1 of endosialin precursor.	1.26
IPI00024825	PRG4	isoform a of proteoglycan-4 precursor.	1.26
IPI00021834	TFPI	isoform alpha of tissue factor pathway inhibitor precursor.	1.26
IPI00014048	RNASE1	ribonuclease pancreatic precursor.	1.26
IPI00005774	LRP8	isoform 1 of low-density lipoprotein receptor-related protein 8precursor.	1.26
IPI00021842	APOE	apolipoprotein e precursor.	1.26
IPI00291262	CLU	clusterin precursor.	1.24
IPI00171391	ALDH8A1	aldehyde dehydrogenase 8a1 isoform 1.	1.24
IPI00029193	HGFAC	hepatocyte growth factor activator precursor.	1.24
IPI00010341	PRG2	bone-marrow proteoglycan precursor.	1.24
IPI00029723	FSTL1	follistatin-related protein 1 precursor.	1.23
IPI00000137	GNPTG	n-acetylglucosamine-1-phosphotransferase subunit gamma precursor.	1.23
IPI00019038	LYZ	lysozyme c precursor.	1.23
IPI00152878	DBF4B	activator of s-phase kinase-like protein 1.	1.23
IPI00103636	WFDC2	isoform 2 of wap four-disulfide core domain protein 2 precursor.	1.23
IPI00022420	RBP4	plasma retinol-binding protein precursor.	1.22
IPI00290856	XLKD1	lymphatic vessel endothelial hyaluronic acid receptor 1 precursor.	1.21
IPI00026154	PRKCSH	glucosidase 2 subunit beta precursor.	1.21
IPI00218732	PON1	serum paraoxonase/arylesterase 1.	1.20
IPI00328746	RTN4RL2	reticulon-4 receptor-like 2 precursor.	1.20
IPI00029699	RNASE4	ribonuclease 4 precursor.	1.20
IPI00218795	SELL	l-selectin precursor.	1.20
IPI00151990	C5orf14	disulfide isomerase.	1.20
IPI00550069	RNH1	ribonuclease inhibitor.	1.19

IPI00301143	PI16	isoform 1 of peptidase inhibitor 16 precursor.	1.18
IPI00299307	MASP1	complement-activating component of ra-reactive factor precursor.	1.18
IPI00292530	ITIH1	inter-alpha-trypsin inhibitor heavy chain h1 precursor.	1.18
IPI00164623	C3	187 kda protein.	1.18
IPI00012503	PSAP	isoform sap-mu-0 of proactivator polypeptide precursor.	1.18
IPI00328609	SERPINA4	kallistatin precursor.	1.18
IPI00022391	APCS	serum amyloid p-component precursor.	1.17
IPI00032291	C5	complement c5 precursor.	1.17
IPI00291867	CFI	complement factor i precursor.	1.17
IPI00022937	F5	coagulation factor v.	1.16
IPI00296777	SPARCL1	sparc-like protein 1 precursor.	1.16
IPI00056309	LEAP2	liver-expressed antimicrobial peptide 2 precursor.	1.16
IPI00412982	NOTCH1	neurogenic locus notch homolog protein 1 precursor.	1.16
IPI00374693	TTTY7	transcript y 7 protein (fragment).	1.16
IPI00290283	MASP1	mannan-binding lectin serine protease 1 isoform 2 precursor.	1.16
IPI00298497	FGB	fibrinogen beta chain precursor.	1.16
IPI00171411	GOLPH2	golgi phosphoprotein 2.	1.15
IPI00293925	FCN3	isoform 1 of ficolin-3 precursor.	1.15
IPI00160766	PTF1A	pancreas transcription factor 1 subunit alpha.	1.15
IPI00299485	CD93	complement component c1q receptor precursor.	1.15
IPI00419966	ABI3BP	isoform 2 of target of nesh-sh3 precursor.	1.15
IPI00024284	HSPG2	basement membrane-specific heparan sulfate proteoglycan core proteinprecursor.	1.15
IPI00019176	RARRES2	retinoic acid receptor responder protein 2 precursor.	1.15
IPI00292532	CAMP	antibacterial protein fall-39 precursor.	1.14
IPI00156171	ENPP2	isoform 1 of ectonucleotide pyrophosphatase/phosphodiesterase familymember 2 precursor.	1.14
IPI00218192	ITIH4	isoform 2 of inter-alpha-trypsin inhibitor heavy chain h4 precursor.	1.14
IPI00007240	F13B	coagulation factor xiii b chain precursor.	1.14
IPI00008780	STC2	stanniocalcin-2 precursor.	1.14
IPI00218413	BTD	biotinidase precursor.	1.14
IPI00006114	SERPINF1	pigment epithelium-derived factor precursor.	1.14
IPI00329648	POMT2	isoform 1 of protein o-mannosyl-transferase 2.	1.14
IPI00298363	KHSRP	far upstream element-binding protein 2.	1.13
IPI00022488	HPX	hemopexin precursor.	1.13
IPI00783987	C3	complement c3 precursor (fragment).	1.13
IPI00296176	F9	coagulation factor ix precursor.	1.13
IPI00007067	C9orf19	golgi-associated plant pathogenesis-related protein 1.	1.12
IPI00031490	COLEC11	collectin sub-family member 11 isoform a.	1.12
IPI00066193	SCGB3A1	secretoglobin family 3a member 1 precursor.	1.12
IPI00298828	APOH	beta-2-glycoprotein 1 precursor.	1.12
IPI00029658	EFEMP1	isoform 1 of egf-containing fibulin-like extracellular matrix protein1 precursor.	1.12
IPI00328703	OAF	oaf homolog.	1.11
IPI00025862	C4BPB	isoform 1 of c4b-binding protein beta chain precursor.	1.11
IPI00103440	CASZ1	castor homolog 1, zinc finger isoform a.	1.11

IPI00006093	FAM38A	mib.	1.11
IPI00021364	CFP	properdin precursor.	1.11
IPI00007199	SERPINA10	protein z-dependent protease inhibitor precursor.	1.10
IPI00294193	TMEM110	isoform 1 of inter-alpha-trypsin inhibitor heavy chain h4 precursor.	1.10
IPI00008554	RNASE4	angiogenin precursor.	1.10
IPI00029061	SEPP1	selenoprotein p precursor.	1.10
IPI00009920	C6	complement component c6 precursor.	1.10
IPI00028911	DAG1	dystroglycan precursor.	1.10
IPI00022895	A1BG	alpha-1b-glycoprotein precursor.	1.10
IPI00303685	OR6B3	olfactory receptor 6b3.	1.09
IPI00011588	PLA2G7	platelet-activating factor acetylhydrolase precursor.	1.09
IPI00032220	AGT	angiotensinogen precursor.	1.08
IPI00299059	CHL1	isoform 2 of neural cell adhesion molecule l1-like protein precursor.	1.08
IPI00020091	ORM2	alpha-1-acid glycoprotein 2 precursor.	1.08
IPI00299547	LCN2	neutrophil gelatinase-associated lipocalin precursor.	1.08
IPI00019591	CFB	isoform 1 of complement factor b precursor (fragment).	1.08
IPI00013299	NBL1	neuroblastoma, suppression of tumorigenicity 1 1.	1.08
IPI00019568	F2	prothrombin precursor (fragment).	1.08
IPI00009521	MARCO	macrophage receptor marco.	1.08
IPI00760855	TMEM110	101 kda protein.	1.08
IPI00008580	SLPI	antileukoproteinase precursor.	1.08
IPI00022417	LRG1	leucine-rich alpha-2-glycoprotein precursor.	1.07
IPI00012832	MFAP5	microfibrillar-associated protein 5 precursor.	1.07
IPI00032258	C4A	complement c4-a precursor.	1.07
IPI00028413	ITIH3	inter-alpha-trypsin inhibitor heavy chain h3 precursor.	1.07
IPI00005908	ADAMTS1	adamts-1 precursor.	1.06
IPI00456969	DYNC1H1	dynein heavy chain, cytosolic.	1.06
IPI00019576	F10	coagulation factor x precursor.	1.06
IPI00009793	C1RL	complement c1r-like protein.	1.06
IPI00148061	LDHAL6A	l-lactate dehydrogenase a-like 6a.	1.05
IPI00022394	C1QC	complement c1q subcomponent subunit c precursor.	1.05
IPI00019449	RNASE2	nonsecretory ribonuclease precursor.	1.04
IPI00025426	PZP	pregnancy zone protein precursor.	1.04
IPI00006154	CFHR2	isoform long of complement factor h-related protein 2 precursor.	1.04
IPI00021854	APOA2	apolipoprotein a-ii precursor.	1.04
IPI00218803	FBLN1	isoform b of fibulin-1 precursor.	1.04
IPI00745161	STEAP4	isoform 1 of metalloreductase steap4.	1.04
IPI00296165	C1R	complement c1r subcomponent precursor.	1.04
IPI00032179	SERPINC1	antithrombin iii variant.	1.04
IPI00027451	GLI1	zinc finger protein gli1.	1.03
IPI00026199	GPX3	glutathione peroxidase 3 precursor.	1.03
IPI00025204	CD5L	cd5 antigen-like precursor.	1.03
IPI00298971	VTN	vitronectin precursor.	1.03
IPI00029236	IGFBP5	insulin-like growth factor-binding protein 5 precursor.	1.03
IPI00017696	C1S	complement c1s subcomponent precursor.	1.03
IPI00299503	GPLD1	isoform 1 of phosphatidylinositol-glycan-specific phospholipase dprecursor.	1.03
IPI00022395	C9	complement component c9 precursor.	1.02

IPI00001885	SNX8	sorting nexin-8.	1.02
IPI00104074	CD163	isoform 1 of scavenger receptor cysteine-rich type 1 protein m130precursor.	1.02
IPI00023314	INHBC	inhibin beta c chain precursor.	1.02
IPI00019943	AFM	afamin precursor.	1.02
IPI00029863	SERPINF2	alpha-2-antiplasmin precursor.	1.02
IPI00742696	GC	vitamin d-binding protein precursor.	1.02
IPI00025864	BCHE	cholinesterase precursor.	1.01
IPI00550991	SERPINA3	isoform 1 of alpha-1-antichymotrypsin precursor.	1.01
IPI00376435	VPS13B	vacuolar protein sorting 13b isoform 4.	1.01
IPI00298447	TARBP1	probable methyltransferase tarbp1.	1.01
IPI00022331	LCAT	phosphatidylcholine-sterol acyltransferase precursor.	1.01
IPI00030739	APOM	apolipoprotein m.	1.01
IPI00329775	CPB2	isoform 1 of carboxypeptidase b2 precursor.	1.01
IPI00027780	MMP2	72 kda type iv collagenase precursor.	1.00
IPI00029739	CFH	isoform 1 of complement factor h precursor.	1.00
IPI00215894	KNG1	isoform lmw of kininogen-1 precursor.	1.00
IPI00031392	CARD14	caspase recruitment domain protein 14 isoform 2.	0.99
IPI00292950	SERPIND1	heparin cofactor 2 precursor.	0.99
IPI00639937	CFB	b-factor, properdin.	0.99
IPI00009028	CLEC3B	tetranectin precursor.	0.99
IPI00009802	VCAN	isoform v0 of versican core protein precursor.	0.98
IPI00305380	IGFBP4	insulin-like growth factor-binding protein 4 precursor.	0.98
IPI00009829	CPA3	mast cell carboxypeptidase a precursor.	0.98
IPI00294705	PAPLN	papilin.	0.98
IPI00032328	KNG1	isoform hmw of kininogen-1 precursor.	0.98
IPI00005439	FETUB	fetuin-b precursor.	0.97
IPI00477992	C1QB	complement component 1, q subcomponent, b chain precursor.	0.97
IPI00739473	GVIN1	imp dehydrogenase/gmp reductase family protein.	0.97
IPI00478003	A2M	alpha-2-macroglobulin precursor.	0.97
IPI00296608	C7	complement component c7 precursor.	0.97
IPI00018305	IGFBP3	insulin-like growth factor-binding protein 3 precursor.	0.97
IPI00409638	ANKRD38	isoform 1 of ankyrin repeat domain-containing protein 38.	0.97
IPI00749154	PRSS33	29 kda protein.	0.96
IPI00555812	GC	vitamin d-binding protein precursor.	0.96
IPI00003590	QSOX1	isoform 1 of sulfhydryl oxidase 1 precursor.	0.96
IPI00016832	PSMA1	isoform short of proteasome subunit alpha type 1.	0.96
IPI00655976	PRG4	isoform c of proteoglycan-4 precursor.	0.96
IPI00020687	SPINK1	pancreatic secretory trypsin inhibitor precursor.	0.96
IPI00019580	PLG	plasminogen precursor.	0.95
IPI00005300	FAM40B	isoform 2 of protein fam40b.	0.95
IPI00002714	DKK3	dickkopf-related protein 3 precursor.	0.95
IPI00027166	TIMP2	metalloproteinase inhibitor 2 precursor.	0.95
IPI00146329	C9orf90	isoform 1 of uncharacterized protein c9orf90.	0.95
IPI00163207	PGLYRP2	isoform 1 of n-acetylmuramoyl-l-alanine amidase precursor.	0.95
IPI00027848	MRC1	macrophage mannose receptor 1 precursor.	0.94
IPI00816729	TGFB1	TGFbeta1	0.94
IPI00032311	LBP	lipopolysaccharide-binding protein precursor.	0.94

IPI00293057	CPB2	isoform 2 of carboxypeptidase b2 precursor.	0.94
IPI00738433	CPN2	similar to carboxypeptidase n subunit 2 precursor.	0.94
IPI00018219	TGFBI	transforming growth factor-beta-induced protein ig-h3 precursor.	0.94
IPI00041065	HABP2	hyaluronan-binding protein 2 precursor.	0.94
IPI00296537	FBLN1	isoform c of fibulin-1 precursor.	0.93
IPI00387168	PCSK9	isoform 1 of proprotein convertase subtilisin/kexin type 9 precursor.	0.93
IPI00654888	KLKB1	kallikrein b, plasma (fletcher factor) 1.	0.93
IPI00005142	FGFR1	isoform 1 of basic fibroblast growth factor receptor 1 precursor.	0.93
IPI00294004	PROS1	vitamin k-dependent protein s precursor.	0.93
IPI00022392	C1QA	complement c1q subcomponent subunit a precursor.	0.93
IPI00292218	MST1	hepatocyte growth factor-like protein precursor.	0.93
IPI00022431	AHSG	alpha-2-hs-glycoprotein precursor.	0.93
IPI00019581	F12	coagulation factor xii precursor.	0.93
IPI00029260	CD14	monocyte differentiation antigen cd14 precursor.	0.92
IPI00395488	VASN	vasorin precursor.	0.92
IPI00010295	CPN1	carboxypeptidase n catalytic chain precursor.	0.92
IPI00021727	C4BPA	c4b-binding protein alpha chain precursor.	0.92
IPI00031086	IGFBP1	insulin-like growth factor-binding protein 1 precursor.	0.92
IPI00026314	GSN	isoform 1 of gelsolin precursor.	0.91
IPI00102575	ATAD5	atp(gtp)-binding protein.	0.91
IPI00043363	PRICKLE1	prickle-like protein 1.	0.91
IPI00445897	C22orf34	novel protein.	0.90
IPI00451965	UGT1A6	udp-glucuronosyltransferase 1-6 precursor.	0.90
IPI00643747	C22orf30	uncharacterized protein c22orf30.	0.90
IPI00299435	APOF	apolipoprotein f precursor.	0.90
IPI00011261	C8G	complement component c8 gamma chain precursor.	0.90
IPI00008556	F11	isoform 1 of coagulation factor xi precursor.	0.89
IPI00011264	CFHR1	complement factor h-related protein 1 precursor.	0.89
IPI00293748	MINPP1	isoform 1 of multiple inositol polyphosphate phosphatase 1 precursor.	0.89
IPI00045600	DAB2IP	dab2 interacting protein isoform 1.	0.89
IPI00171678	DBH	dopamine beta-hydroxylase precursor.	0.89
IPI00792115	CLEC3B	hypothetical protein dkfzp686h17246.	0.88
IPI00791350	CLEC3B	11 kda protein.	0.88
IPI00021817	PROC	vitamin k-dependent protein c precursor.	0.87
IPI00026240	BST1	adp-ribosyl cyclase 2 precursor.	0.87
IPI00020996	IGFALS	insulin-like growth factor-binding protein complex acid labile chainprecursor.	0.87
IPI00006662	APOD	apolipoprotein d precursor.	0.87
IPI00743907	C1S	75 kda protein.	0.87
IPI00006543	CFHR5	complement factor h-related 5.	0.86
IPI00001610	IGF1	insulin-like growth factor ia precursor.	0.86
IPI00023019	SHBG	isoform 1 of sex hormone-binding globulin precursor.	0.86
IPI00643525	C4A	complement component 4a.	0.86
IPI00102923	FAM108A1	protein fam108a1.	0.86
IPI00009938	CEACAM1	isoform a of carcinoembryonic antigen-related cell adhesion molecule 1precursor.	0.86
IPI00305461	ITIH2	inter-alpha-trypsin inhibitor heavy chain h2 precursor.	0.85

IPI00019205	C14orf4	ring finger protein c14orf4.	0.85
IPI00220736	NEU3	sialidase-3.	0.85
IPI00303963	C2	complement c2 precursor (fragment).	0.85
IPI00642108	WDR45	protein.	0.85
IPI00745872	ALB	isoform 1 of serum albumin precursor.	0.85
IPI00328113	FBN1	fibrillin-1 precursor.	0.84
IPI00027235	ATRN	isoform 1 of attractin precursor.	0.84
IPI00401264	TXNDC4	thioredoxin domain-containing protein 4 precursor.	0.84
IPI00022371	HRG	histidine-rich glycoprotein precursor.	0.83
IPI00031008	TNC	isoform 1 of tenascin precursor.	0.83
IPI00103871	ROBO4	isoform 1 of roundabout homolog 4 precursor.	0.83
IPI00001611	IGF2	isoform 1 of insulin-like growth factor ii precursor.	0.83
IPI00302309	TTC17	ttc17 protein.	0.83
IPI00293565	FLT4	fms-related tyrosine kinase 4 isoform 1.	0.83
IPI00396418	FAM83F	family with sequence similarity 83, member f.	0.83
IPI00242956	FCGBP	iggfc-binding protein precursor.	0.82
IPI00000877	HYOU1	150 kda oxygen-regulated protein precursor.	0.82
IPI00010405	ROR1	isoform long of tyrosine-protein kinase transmembrane receptor ror1precursor.	0.82
IPI00418163	C4B	complement component 4b preproprotein.	0.82
IPI00301647	GLE1L	isoform 1 of nucleoporin gle1.	0.81
IPI00217865	FGD2	isoform 1 of fyve, rhogef and ph domain-containing protein 2.	0.81
IPI00384444	KRT14	keratin, type i cytoskeletal 14.	0.81
IPI00082524	ZNF782	zinc finger protein 782.	0.80
IPI00011252	C8A	complement component c8 alpha chain precursor.	0.80
IPI00329104	LILRA3	leukocyte immunoglobulin-like receptor subfamily a member 3 precursor.	0.79
IPI00301288	SVEP1	polydom.	0.79
IPI00022434	ALB	serum albumin.	0.77
IPI00297655	NOTCH2	neurogenic locus notch homolog protein 2 precursor.	0.77
IPI00654875	C4B	complement c4-b precursor.	0.77
IPI00220327	KRT1	keratin, type ii cytoskeletal 1.	0.76
IPI00004957	ANGPTL3	angiopoietin-related protein 3 precursor.	0.76
IPI00385956	C15orf39	brain my035 protein.	0.76
IPI00294395	C8B	complement component c8 beta chain precursor.	0.76
IPI00004798	CRISP3	cysteine-rich secretory protein 3 precursor.	0.75
IPI00032826	ST13	hsc70-interacting protein.	0.75
IPI00011651	PTPRG	isoform 1 of receptor-type tyrosine-protein phosphatase gammaprecursor.	0.75
IPI00215756	MYO7A	isoform 5 of myosin-viia.	0.74
IPI00009908	ARMCX1	armadillo repeat-containing x-linked protein 1.	0.73
IPI00792588	SMAD6	20 kda protein.	0.71
IPI00375676	FTL	ferritin light polypeptide variant.	0.71
IPI00000783	PSMB8	isoform 1 of proteasome subunit beta type 8 precursor.	0.70
IPI00747824	KLHL18	kelch-like protein 18.	0.70
IPI00297160	CD44	isoform 12 of cd44 antigen precursor.	0.69
IPI00744286	B3GALNT2	isoform 2 of udp-galnac:beta-1,3-n-acetylgalactosaminyltransferase 2.	0.69
IPI00015881	CSF1	isoform 1 of macrophage colony-stimulating factor 1 precursor.	0.69

IPI00018274	EGFR	isoform 1 of epidermal growth factor receptor precursor.	0.68
IPI00022731	APOC4	apolipoprotein c-iv precursor.	0.68
IPI00007675	DYNC1LI1	cytoplasmic dynein 1 light intermediate chain 1.	0.68
IPI00384599	TOPORS	cdna flj25547 fis, clone jth01487.	0.67
IPI00005811	MLH3	isoform 1 of dna mismatch repair protein mlh3.	0.67
IPI00009822	SRP54	signal recognition particle 54 kda protein.	0.67
IPI00216164	EHHADH	peroxisomal bifunctional enzyme.	0.66
IPI00019450	TROVE2	isoform long of 60 kda ss-a/ro ribonucleoprotein.	0.66
IPI00478297	ZNF625	62 kda protein.	0.65
IPI00008161	ATP12A	atp12a protein.	0.65
IPI00217405	UBR1	isoform 1 of e3 ubiquitin-protein ligase ubr1.	0.64
IPI00024752	CLEC3A	c-type lectin superfamily member 1 precursor.	0.64
IPI00418228	PHPT1	hspc141.	0.64
IPI00434580	MYOM1	myomesin 1 isoform a.	0.62
IPI00306682	UNC84A	isoform 3 of sad1/unc-84 protein-like 1.	0.62
IPI00001593	PRCP	lysosomal pro-x carboxypeptidase precursor.	0.62
IPI00550533	MLLT11	uncharacterized protein c1orf56.	0.62
IPI00220903	ACOT11	isoform 2 of acyl-coenzyme a thioesterase 11.	0.62
IPI00026944	NID1	isoform 1 of nidogen-1 precursor.	0.61
IPI00477030	C18orf2	putative c18orf2 variant 1.	0.61
IPI00401283	MEGF9	multiple epidermal growth factor-like domains 9 precursor.	0.60
IPI00031618	DDI2	isoform 3 of ddi1 homolog 2.	0.60
IPI00013988	ARHGAP5	rho gtpase-activating protein 5.	0.59
IPI00297412	CADPS	isoform 1 of calcium-dependent secretion activator 1.	0.59
IPI00014287	FOLR3	folate receptor 3 precursor.	0.57
IPI00180305	ZUBR1	isoform 5 of zinc finger ubr1-type protein 1.	0.57
IPI00022051	WISP3	wnt1-inducible-signaling pathway protein 3 precursor.	0.55
IPI00027843	PROZ	isoform 1 of vitamin k-dependent protein z precursor.	0.53
IPI00479404	VPS13D	492 kda protein.	0.52
IPI00007047	S100A8	protein s100-a8.	0.52
IPI00647051	LAMA3	14 kda protein.	0.51
IPI00029702	PTK2B	isoform 1 of protein tyrosine kinase 2 beta.	0.51
IPI00784155	SLAIN1	61 kda protein.	0.51
IPI00002288	XRCC6BP1	xrcc6 binding protein 1.	0.51
IPI00386763	ADAMTS9	isoform 1 of adamts-9 precursor.	0.50
IPI00167093	CFHR1	complement factor h-related 1.	0.48
IPI00464985	VPS8	isoform 1 of vacuolar protein sorting-associated protein 8 homolog.	0.46
IPI00012303	SELENBP1	selenium-binding protein 1.	0.45
IPI00098591	KCNH1	isoform 2 of potassium voltage-gated channel subfamily h member 1.	0.45
IPI00019383	GALK1	galactokinase.	0.43
IPI00004363	STK39	ste20/sps1-related proline-alanine-rich protein kinase.	0.42
IPI00414021	TRIM41	isoform 1 of tripartite motif-containing protein 41.	0.40
IPI00167515	ZADH1	isoform 1 of zinc-binding alcohol dehydrogenase domain-containingprotein 1.	0.38
IPI00166776	CREG2	protein creg2 precursor.	0.38
IPI00031696	FASTKD3	fast kinase domain-containing protein 3.	0.37
IPI00031708	FAH	fumarylacetoacetase.	0.37

IPI00296713	GRN	isoform 1 of granulins precursor.	0.36
IPI00747210	NBPF1	conserved hypothetical protein.	0.36
IPI00554777	ASNS	asparagine synthetase.	0.35
IPI00307298	LRP5	low-density lipoprotein receptor-related protein 5 precursor.	0.34
IPI00399252	PHF17	isoform 1 of protein jade-1.	0.33
IPI00329555	F7	isoform a of coagulation factor vii precursor.	0.33
IPI00299608	PSMD1	isoform 1 of 26s proteasome non-atpase regulatory subunit 1.	0.32
IPI00329470	KIAA1958	isoform 1 of uncharacterized protein kiaa1958.	0.31
IPI00217612	ARMC3	isoform 2 of armadillo repeat-containing protein 3.	0.31
IPI00010369	TEX15	testis-expressed sequence 15 protein.	0.31
IPI00009865	KRT10	keratin, type i cytoskeletal 10.	0.30
IPI00298281	LAMC1	laminin subunit gamma-1 precursor.	0.30
IPI00514029	C1orf124	chromosome 1 open reading frame 124.	0.29
IPI00293487	REC8	meiotic recombination protein rec8-like 1.	0.28
IPI00009995	ELF2	isoform 1 of ets-related transcription factor elf-2.	0.27
IPI00394834	VWA2	von willebrand factor a domain-containing protein 2.	0.27
IPI00658151	SPEG	similar to aortic preferentially expressed gene 1.	0.26
IPI00164719	KIAA1432	protein kiaa1432.	0.26
IPI00399411	LBXCOR1	ladybird homeobox corepressor 1.	0.26
IPI00007411	AKAP11	a-kinase anchor protein 11.	0.25
IPI00012395	ZNF43	zinc finger protein 43.	0.24
IPI00221162	CHRD	isoform 4 of chordin precursor.	0.23
IPI00043560	TSNARE1	t-snare domain containing 1.	0.23
IPI00026277	ZBTB7B	btb/poz domain containing protein.	0.23
IPI00385631	ZZEF1	zinc finger, zz type with ef hand domain 1.	0.21
IPI00328754	ZFHX4	zinc finger homeodomain 4.	0.19
IPI00305975	SPON2	spondin-2 precursor.	0.18
IPI00023501	TNFRSF1B	isoform 1 of tumor necrosis factor receptor superfamily member 1bprecursor.	0.18
IPI00165249	PFTK1	isoform 1 of serine/threonine-protein kinase pftaire-1.	0.18
IPI00065071	ANKAR	cdna flj25415 fis, clone tst03443.	0.17
IPI00002424	PLEKHF2	pleckstrin homology domain-containing family f member 2.	0.16
IPI00018871	ARL8B	adp-ribosylation factor-like protein 8b.	0.16
IPI00455850	LRRC24	leucine-rich repeat-containing protein 24 precursor.	0.15
IPI00217458	GPT	alanine aminotransferase 1.	0.15
IPI00307688	GIPC3	pdz domain-containing protein gipc3.	0.14
IPI00604711	KIF1A	isoform 1 of kinesin-like protein kif1a.	0.14
IPI00787253	CXorf39	isoform 2 of uncharacterized protein cxorf39.	0.14
IPI00017921	BICC1	isoform 2 of protein bicaudal c homolog 1.	0.13
IPI00442344	SLC27A1	71 kda protein.	0.13
IPI00472817	ZNF440	similar to zinc finger protein 440.	0.13
IPI00383357	WAC	pro1741.	0.13
IPI00045528	IFT140	hypothetical protein gs114.	0.13
IPI00009146	TRAFD1	traf-type zinc finger domain-containing protein 1.	0.12
IPI00015983	EDG3	sphingosine 1-phosphate receptor edg-3.	0.12
IPI00169283	MOSPD2	isoform 1 of motile sperm domain-containing protein 2.	0.11
IPI00006486	KIAA0748	similar to sperm specific antigen 2 isoform 1.	0.10
IPI00647939	C6orf148	cdna flj30329 fis, clone brace2007201.	0.09

IPI00003370	STX1A	isoform 1 of syntaxin-1a.	0.09
IPI00446473	MDN1	cdna flj42031 fis, clone splen2037194, weakly similar to norq protein.	0.09
IPI00478376	INPP5B	isoform 1 of type ii inositol-1,4,5-trisphosphate 5-phosphataseprecursor.	0.08
IPI00646555	ZNF452	protein znf452.	0.08
IPI00013418	BIRC2	baculoviral iap repeat-containing protein 2.	0.08
IPI00412415	BAZ1A	isoform 1 of bromodomain adjacent to zinc finger domain protein 1a.	0.07
IPI00000879	TXK	tyrosine-protein kinase txk.	0.07
IPI00010948	TRIM26	tripartite motif-containing protein 26.	0.06
IPI00023779	NIT1	isoform 2 of nitrilase homolog 1.	0.06
IPI00445212	WWC2	cdna flj44069 fis, clone testi4037188.	0.06
IPI00023456	CHRM3	muscarinic acetylcholine receptor m3.	0.05
IPI00413270	TLE1	transducin-like enhancer protein 1.	0.04
IPI00386923	SRC	13 kda protein.	0.03
IPI00064262	DCHS1	protocadherin-16 precursor.	0.02
IPI00296139	DDX25	isoform 1 of atp-dependent rna helicase ddx25.	0.02
IPI00304654	ASXL3	similar to additional sex combs like 2 isoform 1.	0.02
IPI00039680	SLCO4A1	isoform 2 of solute carrier organic anion transporter family member4a1.	0.00

*** Proteins listed in bold were not found in our previous proteomics experiment done with the same IPAS platform and they had antibodies available for their receptors**

Supplemental Table 2: Study patients' characteristics

	GI-GVHD	No GVHD	Non-GVHD Enteritis	Skin first GVHD	Skin GVHD Only	
Total, n = 214	**n = 71**	**n = 48**	**n = 33**	**n = 22**	**n = 40**	**p-value**
Median age	47 (0-65)	48 (2-67)	42 (3-65)	47 (7-66)	52 (1-65)	0.44
Disease, %						
Malignant	96 (n = 68)	92 (n = 44)	91 (n = 30)	96 (n = 21)	93 (n = 37)	0.84
Other	4 (n = 3)	8 (n = 4)	9 (n = 3)	4 (n = 1)	7 (n = 3)	
Disease status at transplantation, %						
Low/intermediate risk	58 (n = 41)	69 (n = 33)	57 (n = 19)	54 (n = 12)	72 (n = 29)	0.39
High risk	42 (n = 30)	31 (n = 15)	43 (n = 14)	46 (n = 10)	28 (n = 19)	
Donor type, %						
Related donor	44 (n = 31)	67 (n = 32)	57 (n = 19)	32 (n = 7)	45 (n = 18)	0.03
Unrelated donor	56 (n = 40)	33 (n = 16)	43 (n = 14)	68 (n = 15)	55 (n = 22)	
Donor match, %						
Matched donor	75 (n = 53)	87 (n = 42)	88 (n = 29)	73 (n = 16)	85 (n = 34)	0.17
Mismatched donor	25 (n = 18)	13 (n = 6)	12 (n = 4)	27 (n = 6)	25 (n = 6)	
Graft source, %						0.18
PBSC	85 (n = 60)	85 (n = 41)	94 (n = 31)	82 (n = 18)	95 (n = 38)	
BM	11 (n = 8)	15 (n = 7)	6 (n = 2)	9 (n = 2)	5 (n = 2)	
UCB	4 (n = 3)	0 (n = 0)	0 (n = 0)	9 (n = 2)	0 (n = 0)	
Conditioning regimen intensity, %						
High intensity§	62 (n = 44)	73 (n = 35)	70 (n = 23)	64 (n = 14)	62 (n = 25)	0.73
Reduced intensity¶	38 (n = 27)	27 (n = 13)	30 (n = 10)	36 (n = 8)	38 (n = 15)	

Median after HCT (range)	29 (11-92)	30 (14-131)	28 (13-78)	29 (10-85)	28 (7-100)	0.54
Stage of GVHD at onset, %						
0	0 (n = 0)	100 (n = 48)	100 (n = 33)	0 (n = 0)	0 (n = 0)	n/a
I	0 (n = 0)	0 (n = 0)	0 (n = 0)	50 (n = 11)	75 (n = 30)	
Skin stage 1	0 (n = 0)	0 (n = 0)	0 (n = 0)	27 (n = 6)	45 (n = 18)	
Skin stage 2	0 (n = 0)	0 (n = 0)	0 (n = 0)	23 (n = 5)	30 (n = 12)	
II	65 (n = 46)	0 (n = 0)	0 (n = 0)	45 (n = 10)	25 (n = 10)	
Isolated skin stage 3	0 (n = 0)	0 (n = 0)	0 (n = 0)	45 (n = 10)	25 (n = 10)	
Isolated upper GI stage 1	24 (n = 17)	0 (n = 0)	0 (n = 0)	0 (n = 0)	0 (n = 0)	
Lower GI stage 1	41 (n = 29)	0 (n = 0)	0 (n = 0)	0 (n = 0)	0 (n = 0)	
III-IV	35 (n = 25)	0 (n = 0)	0 (n = 0)	0 (n = 0)	0 (n = 0)	
Isolated skin stage 4	0 (n = 0)	0 (n = 0)	0 (n = 0)	0 (n = 0)	0 (n = 0)	
GI stage 1	1 (n = 1)	0 (n = 0)	0 (n = 0)	0 (n = 0)	0 (n = 0)	
GI stage 2	10 (n = 7)	0 (n = 0)	0 (n = 0)	0 (n = 0)	0 (n = 0)	
GI stage 3	10 (n = 7)	0 (n = 0)	0 (n = 0)	0 (n = 0)	0 (n = 0)	
GI stage 4	14 (n = 10)	0 (n = 0)	0 (n = 0)	0 (n = 0)	0 (n = 0)	

§High Intensity conditioning regimens include: BAC, CyTBI, BuCy2, CVB, CloBu4, BuCy4, FluMel, BEAM, FluCy, CyTLI, FluCyTBI, ThioCyTBI, Mel, ThioCy, CyATG, Cy/TLI/ATG, Cy

¶Reduced intensity conditioning regiments include: FluBu2, FluBu4, TLI/ATG, FluMelATG

Supplemental Table 3. Causes of non-GVHD enteritis in the validation set	
Non-GVHD lower GI enteritis +/- upper GI symptoms: n=25	
Clostridium difficile infection	39% (n=13)
Diarrhea w/ negative biopsy (no other etiology)	21% (n=7)
Nausea/vomiting and diarrhea w/ negative biopsies (no other etiology)	12% (n=4)
Ulcerative esophagitis and diarrhea (negative biopsies)	3% (n=1)
Non-GVHD upper GI enteritis without diarrhea (all biopsy negative): n=8	
Nausea/vomiting	15% (n=5)
Anorexia	3% (n=1)
Chemical gastropathy	3% (n=1)
Helicobacter pylori gastritis	3% (n=1)

Supplemental Table 4. Transcriptome analysis of sorted human CD146+CCR5+ Tcons and the T-cell population excluding CD146+CCR5+ Tcons.

Gene	Tcons double positive for CD146 CCR5	Tcons double positive for CD146 CCR5	Tcons double positive for CD146 CCR5	Average Tcons double positive CD146 CCR5	Tcons negative for CD146 CCR5	Tcons negative for CD146 CCR5	Tcons negative for CD146 CCR5	Average Tcons negative for CD146 CCR5	**Fold difference in double positive CD146CCR5 Tcons vs. T cells negative for CD146CCR5**
CXCR6	39	30	35	35	7	10	8	8	**4.16**
RORC	186	140	149	158	45	36	37	39	**4.03**
MS4A1	114	100	77	97	21	31	29	27	**3.59**
PAX5	28	25	35	29	7	10	9	9	**3.38**
CD79A	98	76	90	88	31	34	23	29	**3.00**
CCR6	541	483	476	500	195	164	171	177	**2.83**
IL23R	62	60	66	63	17	26	24	22	**2.81**
PDCD1	32	28	31	30	15	9	10	11	**2.68**
CD22	42	61	50	51	19	19	20	19	**2.64**
IL18RAP	138	119	139	132	45	60	48	51	**2.59**
CFH	139	122	150	137	60	53	52	55	**2.49**
GZMA	619	463	552	545	211	225	221	219	**2.49**
IL18R1	216	202	205	208	94	93	73	87	**2.40**
CCL20	64	47	44	52	24	25	17	22	**2.35**
CD209	8	8	5	7	2	5	2	3	**2.33**
ABCB1	263	226	223	237	104	101	102	102	**2.32**
CXCR3	227	218	224	223	99	107	85	97	**2.30**
TNFRSF4	189	163	192	181	90	73	86	83	**2.18**
AIRE	31	30	25	29	12	17	11	13	**2.15**
KLRB1	2604	2130	2261	2332	1078	1107	1078	1088	**2.14**
KIT	21	18	43	27	13	18	9	13	**2.05**
LILRB4	17	12	30	20	2	15	12	10	**2.03**
CCL5	865	748	736	783	425	364	390	393	**1.99**
TNFAIP3	14976	12942	13035	13651	7824	7062	6948	7278	**1.88**
PRDM1	588	486	563	546	332	296	307	312	**1.75**
MAF	457	427	411	432	252	239	255	249	**1.74**
TBX21	168	174	165	169	99	102	99	100	**1.69**
PTPN22	309	257	321	296	138	214	184	179	**1.65**
CD19	15	16	20	17	10	13	8	10	**1.65**
CEACAM1	17	9	5	10	5	10	4	6	**1.63**
TNFRSF11A	9	18	17	15	9	10	8	9	**1.63**
SLAMF1	69	66	74	70	42	48	42	44	**1.58**
GP1BB	33	30	32	32	27	15	21	21	**1.51**

PIGR	2	5	2	3	1	3	2	2	**1.50**
CD58	280	234	266	260	176	184	164	175	**1.49**
TRAF4	225	202	205	211	147	137	144	143	**1.48**
CCR5	19	19	15	18	10	13	13	12	**1.47**
CXCL11	5	3	8	5	3	6	2	4	**1.45**
TNFRSF8	10	11	25	15	14	12	6	11	**1.44**
GATA3	60	67	61	63	46	50	37	44	**1.41**
TGFB1	5660	4902	5344	5302	4054	3517	3731	3767	**1.41**
CD274	14	12	9	12	9	10	6	8	**1.40**
CLU	2	10	9	7	3	9	3	5	**1.40**
GFI1	87	75	84	82	56	62	58	59	**1.40**
IL32	5488	6048	8219	6585	2376	7574	4235	4728	**1.39**
IL2RB	651	588	595	611	449	466	410	442	**1.38**
MAPKAPK2	600	477	567	548	413	374	401	396	**1.38**
IFIH1	117	121	93	110	79	90	75	81	**1.36**
MAPK11	52	43	42	46	42	29	30	34	**1.36**
PRF1	448	402	436	429	329	317	309	318	**1.35**
CDKN1A	1002	926	979	969	720	694	747	720	**1.35**
CR1	376	326	333	345	276	258	237	257	**1.34**
CCL11	6	3	3	4	5	1	3	3	**1.33**
TNF	312	256	247	272	208	230	180	206	**1.32**
DPP4	171	152	167	163	141	114	118	124	**1.31**
ITGB1	1964	1709	1690	1788	1387	1390	1308	1362	**1.31**
CCL24	7	9	14	10	10	10	3	8	**1.30**
NFKB1	390	374	385	383	330	278	273	294	**1.30**
MUC1	28	34	33	32	25	24	24	24	**1.30**
GNLY	390	346	356	364	281	291	268	280	**1.30**
HFE	5	11	11	9	8	9	4	7	**1.29**
CSF1	31	14	27	24	13	24	19	19	**1.29**
IL28B	6	6	6	6	4	5	5	5	**1.29**
CD80	12	13	12	12	10	12	7	10	**1.28**
C1S	22	18	21	20	16	16	16	16	**1.27**
NOD2	128	127	109	121	107	105	79	97	**1.25**
CD40	14	19	12	15	11	14	11	12	**1.25**
TNFAIP6	14	17	15	15	13	15	9	12	**1.24**
CD99	1824	1594	1655	1691	1472	1329	1292	1364	**1.24**
IL9	9	8	9	9	8	10	3	7	**1.24**
CCRL2	6	6	9	7	4	9	4	6	**1.24**
AHR	1004	877	895	925	772	742	740	751	**1.23**
IL1R1	13	8	11	11	10	12	4	9	**1.23**
RAG2	18	14	16	16	8	21	10	13	**1.23**
CCR10	19	28	30	26	21	24	18	21	**1.22**
CD34	1	4	6	4	2	5	2	3	**1.22**
IFNB1	2	5	4	4	2	4	3	3	**1.22**

KIR3DL2	17	18	20	18	12	12	21	15	**1.22**
IRAK1	691	577	581	616	535	479	510	508	**1.21**
LILRB1	21	23	30	25	11	26	24	20	**1.21**
TNFSF12	394	365	369	376	330	301	301	311	**1.21**
RELB	177	174	175	175	158	136	142	145	**1.21**
BLNK	10	12	8	10	8	9	8	8	**1.20**
C4BPA	2	2	2	2	1	3	1	2	**1.20**
CXCL12	4	1	1	2	1	2	2	2	**1.20**
IL22	2	3	1	2	1	3	1	2	**1.20**
KIR3DL3	2	3	1	2	1	3	1	2	**1.20**
PDGFB	2	8	2	4	2	4	4	3	**1.20**
IL2RG	1924	1697	1667	1763	1568	1398	1446	1471	**1.20**
NCF4	162	135	149	149	119	120	134	124	**1.20**
FOXP3	15	19	16	17	14	18	10	14	**1.19**
BATF	43	32	38	38	31	36	28	32	**1.19**
TRAF3	174	157	128	153	129	126	131	129	**1.19**
KIR2DS5	5	8	6	6	2	9	5	5	**1.19**
NFKBIA	6219	5336	6164	5906	5110	5014	4877	5000	**1.18**
GUSB	102	110	103	105	89	90	88	89	**1.18**
CD81	977	803	844	875	740	784	702	742	**1.18**
STAT4	763	687	670	707	571	624	604	600	**1.18**
TFRC	715	636	674	675	546	594	586	575	**1.17**
HLA-A	21287	18870	20133	20097	15965	18537	16973	17158	**1.17**
TNFRSF13C	185	146	161	164	144	135	142	140	**1.17**
TAGAP	1100	991	1040	1044	889	971	829	896	**1.16**
SMAD5	69	75	93	79	62	83	59	68	**1.16**
TNFRSF13B	9	14	6	10	6	10	9	8	**1.16**
CXCR4	10020	8662	9231	9304	8284	7862	7936	8027	**1.16**
SKI	1009	863	824	899	802	795	738	778	**1.15**
SH2D1A	224	193	197	205	176	201	155	177	**1.15**
IFITM1	4330	3864	4129	4108	3178	3940	3627	3582	**1.15**
IL2RA	69	58	55	61	53	55	51	53	**1.14**
SLAMF7	30	35	38	34	29	37	24	30	**1.14**
BCAP31	588	516	528	544	488	452	494	478	**1.14**
CD59	330	313	297	313	281	287	260	276	**1.14**
ITGAL	740	649	672	687	607	675	548	610	**1.13**
IL12A	29	22	31	27	24	23	26	24	**1.12**
IL23A	61	59	55	58	52	54	50	52	**1.12**
CCR8	9	9	10	9	10	10	5	8	**1.12**
B2M	82970	72958	79432	78453	69694	71441	70329	70488	**1.11**
FCGR1A	8	7	5	7	4	9	5	6	**1.11**
SMAD3	484	376	409	423	379	390	378	382	**1.11**
CD82	176	150	167	164	146	146	154	149	**1.11**
DEFB1	2	8	11	7	5	9	5	6	**1.11**

KIR3DS1	2	9	10	7	2	11	6	6	**1.11**
SOCS3	958	885	919	921	735	951	816	834	**1.10**
IFNGR1	417	371	333	374	308	375	334	339	**1.10**
CD97	1898	1706	1735	1780	1724	1558	1567	1616	**1.10**
C3	3	4	4	4	4	5	1	3	**1.10**
ADA	217	186	149	184	173	183	146	167	**1.10**
IL10	9	11	14	11	10	11	10	10	**1.10**
XBP1	486	390	471	449	424	380	426	410	**1.10**
CXCL13	5	5	2	4	3	5	3	4	**1.09**
ABCF1	427	366	411	401	372	364	371	369	**1.09**
KIR2DS2	11	8	6	8	9	9	5	8	**1.09**
MYD88	691	538	639	623	601	551	570	574	**1.08**
TBK1	91	91	89	90	87	74	89	83	**1.08**
MBP	41	42	47	43	49	42	29	40	**1.08**
HLA-C	14654	12456	12808	13306	12260	12306	12306	12291	**1.08**
MSR1	50	40	47	46	39	44	44	42	**1.08**
CHUK	349	322	359	343	339	316	300	318	**1.08**
NFATC2	673	563	576	604	576	595	514	562	**1.08**
TNFRSF1B	394	351	302	349	351	340	283	325	**1.07**
HPRT1	247	217	211	225	223	204	201	209	**1.07**
TNFSF13B	108	113	116	112	107	111	96	105	**1.07**
TLR7	15	11	18	15	13	18	10	14	**1.07**
IL10RA	1240	1145	1151	1179	1162	1090	1046	1099	**1.07**
IL26	37	25	15	26	21	33	18	24	**1.07**
CD96	1687	1433	1568	1563	1523	1398	1476	1466	**1.07**
MAP4K2	606	556	553	572	538	549	522	536	**1.07**
CD8A	107	100	117	108	116	94	94	101	**1.07**
BCL3	774	680	591	682	676	646	598	640	**1.07**
LTB4R	98	69	59	75	76	76	61	71	**1.06**
CCL8	13	8	16	12	13	10	12	12	**1.06**
RARRES3	482	408	485	458	401	474	427	434	**1.06**
BCL2	1214	1079	1128	1140	1193	1029	1018	1080	**1.06**
ALAS1	28	38	29	32	28	30	32	30	**1.06**
CXCL10	9	5	6	7	4	10	5	6	**1.05**
ITLN1	7	8	6	7	5	10	5	7	**1.05**
IL4R	1113	979	1002	1031	1008	969	971	983	**1.05**
PDCD1LG2	5	8	9	7	6	11	4	7	**1.05**
PLA2G2E	6	8	8	7	7	10	4	7	**1.05**
IRF1	968	860	921	916	912	856	858	875	**1.05**
ATG16L1	585	506	512	534	506	513	514	511	**1.05**
CD24	9	8	6	8	4	9	9	7	**1.05**
SELPLG	59	36	46	47	37	47	51	45	**1.04**
IGF2R	103	90	93	95	94	89	91	91	**1.04**
ICAM3	1605	1367	1502	1491	1517	1360	1414	1430	**1.04**

IL7R	3808	3334	2917	3353	3288	3436	2928	3217	**1.04**
GAPDH	3654	3196	3333	3394	3415	3100	3268	3261	**1.04**
RELA	403	367	368	379	379	363	353	365	**1.04**
LITAF	1377	1284	1276	1312	1264	1315	1220	1266	**1.04**
HLA-B	23633	20630	21685	21983	22276	20686	20704	21222	**1.04**
PSMD7	863	825	881	856	835	846	813	831	**1.03**
LTA	120	116	128	121	113	127	115	118	**1.03**
FYN	2013	1786	1828	1876	1965	1727	1798	1830	**1.02**
IFI35	33	21	31	28	31	28	24	28	**1.02**
NFKB2	471	414	397	427	457	407	389	418	**1.02**
CD5	2093	1798	1768	1886	1952	1782	1805	1846	**1.02**
TRAF5	131	91	125	116	120	110	110	113	**1.02**
TAPBP	1877	1711	1823	1804	1844	1769	1695	1769	**1.02**
CASP8	763	673	718	718	717	715	681	704	**1.02**
TRAF6	390	354	374	373	389	355	354	366	**1.02**
ARHGDIB	8085	6913	7284	7427	7801	6989	7140	7310	**1.02**
CD53	728	631	564	641	666	646	583	632	**1.01**
POLR2A	1257	1116	1271	1215	1246	1182	1163	1197	**1.01**
CTSC	561	449	517	509	534	498	473	502	**1.01**
PTPN2	422	385	325	377	392	379	346	372	**1.01**
IRAK2	21	27	28	25	25	27	23	25	**1.01**
STAT5A	436	355	443	411	428	390	402	407	**1.01**
PSMB7	719	687	667	691	690	728	634	684	**1.01**
CD44	1194	1047	1117	1119	1185	1088	1052	1108	**1.01**
CD40LG	142	127	122	130	128	135	125	129	**1.01**
CD6	1347	1168	1069	1195	1240	1236	1084	1187	**1.01**
HLA-DPB1	702	715	701	706	582	819	703	701	**1.01**
MAP4K1	502	456	399	452	486	434	429	450	**1.01**
IL12RB1	131	124	121	125	127	116	131	125	**1.01**
ZAP70	1402	1224	1404	1343	1343	1331	1337	1337	**1.00**
JAK2	790	737	799	775	794	773	749	772	**1.00**
AICDA	5	8	1	5	3	5	6	5	**1.00**
CCL15	6	9	8	8	4	13	6	8	**1.00**
CCL2	6	11	8	8	5	10	10	8	**1.00**
CCRL1	2	1	1	1	2	1	1	1	**1.00**
CDH5	6	3	10	6	4	9	6	6	**1.00**
CSF2	2	9	2	4	4	6	3	4	**1.00**
DEFB103B	1	5	6	4	5	4	3	4	**1.00**
DEFB4A	2	1	2	2	1	1	3	2	**1.00**
IFNA1	1	1	1	1	1	1	1	1	**1.00**
ITGA2B	24	16	28	23	23	23	22	23	**1.00**
KIR2DL1	2	3	3	3	2	4	2	3	**1.00**
KIR2DL2	4	3	4	4	3	6	2	4	**1.00**
MASP1	6	6	5	6	6	7	4	6	**1.00**

SRC	9	9	6	8	7	10	7	8	**1.00**
PTGER4	518	483	472	491	496	524	454	491	**1.00**
CTLA4	286	261	235	261	270	263	250	261	**1.00**
ITGA4	512	424	430	455	481	455	433	456	**1.00**
GPI	527	443	447	472	530	458	433	474	**1.00**
PSMC2	594	492	570	552	569	570	524	554	**1.00**
CEBPB	483	489	438	470	276	706	434	472	**1.00**
LTB4R2	72	58	57	62	64	58	67	63	**0.99**
TMEM173	691	622	639	651	691	633	649	658	**0.99**
PRKCD	177	163	133	158	172	166	142	160	**0.99**
CD3D	1660	1439	1252	1450	1477	1603	1343	1474	**0.98**
CD164	826	754	744	775	837	772	755	788	**0.98**
TNFRSF14	460	476	473	470	501	460	473	478	**0.98**
FCGR2B	41	33	34	36	40	40	30	37	**0.98**
JAK1	2613	2267	2326	2402	2592	2418	2336	2449	**0.98**
ICAM2	456	371	433	420	470	402	421	431	**0.97**
HLA-DQB1	87	81	90	86	74	107	84	88	**0.97**
CD83	915	781	853	850	914	846	863	874	**0.97**
PSMB8	796	620	716	711	740	729	726	732	**0.97**
PPIA	260	238	297	265	282	262	277	274	**0.97**
CR2	11	10	9	10	10	12	9	10	**0.97**
CD2	465	415	452	444	472	463	446	460	**0.96**
CD4	660	563	594	606	718	542	625	628	**0.96**
PPBP	202	196	175	191	217	177	201	198	**0.96**
IFIT2	61	43	51	52	52	52	57	54	**0.96**
IL1RAP	76	60	69	68	72	76	65	71	**0.96**
TUBB	512	448	433	464	484	485	479	483	**0.96**
NCR1	23	25	26	25	27	28	22	26	**0.96**
SDHA	460	471	498	476	436	545	507	496	**0.96**
SPP1	6	7	8	7	6	10	6	7	**0.95**
CD46	907	906	794	869	950	946	839	912	**0.95**
TIRAP	32	26	39	32	32	39	31	34	**0.95**
STAT5B	937	852	937	909	976	988	912	959	**0.95**
ILF3	2266	2037	2029	2111	2278	2295	2111	2228	**0.95**
KLRD1	48	54	50	51	42	72	47	54	**0.94**
IFI16	257	229	273	253	289	267	248	268	**0.94**
PSMB9	510	428	489	476	508	534	470	504	**0.94**
TAP1	160	124	135	140	173	150	121	148	**0.94**
C1QBP	509	441	435	462	505	513	452	490	**0.94**
IRF7	236	193	210	213	235	225	219	226	**0.94**
POU2F2	302	264	247	271	311	275	278	288	**0.94**
PTPRC	4955	4271	4888	4705	5201	4983	4823	5002	**0.94**
CASP1	278	245	268	264	276	290	276	281	**0.94**
TOLLIP	98	87	109	98	112	94	107	104	**0.94**

MAPK1	452	400	409	420	476	425	443	448	**0.94**
PSMB5	4	7	4	5	5	5	6	5	**0.94**
IKBKG	220	187	205	204	223	188	242	218	**0.94**
TCF4	7	13	9	10	8	10	13	10	**0.94**
CTSG	3	3	8	5	4	8	3	5	**0.93**
IL3	3	16	9	9	7	13	10	10	**0.93**
EEF1G	15117	13383	13612	14037	15636	14905	14582	15041	**0.93**
NCAM1	19	23	26	23	21	26	26	24	**0.93**
IL11RA	529	439	446	471	553	474	492	506	**0.93**
CD3E	2726	2411	2490	2542	2825	2540	2842	2736	**0.93**
IL29	2	5	6	4	4	6	4	5	**0.93**
IL5	4	5	4	4	4	5	5	5	**0.93**
TLR3	8	14	3	8	10	10	7	9	**0.93**
OAZ1	1527	1350	1241	1373	1485	1553	1410	1483	**0.93**
TNFSF15	11	14	12	12	16	10	14	13	**0.93**
POLR1B	35	34	40	36	42	36	40	39	**0.92**
CCL26	3	5	4	4	3	7	3	4	**0.92**
IL6	5	3	4	4	2	9	2	4	**0.92**
LILRB5	4	9	11	8	8	10	8	9	**0.92**
BID	111	106	105	107	125	111	113	116	**0.92**
RPL19	19487	17894	16842	18074	20405	20344	18027	19592	**0.92**
IFNG	21	14	24	20	19	22	23	21	**0.92**
IRF8	72	73	61	69	73	84	67	75	**0.92**
C8G	13	11	10	11	10	15	12	12	**0.92**
TLR2	65	59	56	60	57	93	46	65	**0.92**
CMKLR1	13	14	17	15	17	21	10	16	**0.92**
CISH	20	21	13	18	17	26	16	20	**0.92**
IL15	27	16	21	21	25	21	24	23	**0.91**
STAT3	904	765	846	838	992	886	875	918	**0.91**
IRAK4	342	300	372	338	382	336	393	370	**0.91**
TNFRSF9	12	8	11	10	14	10	10	11	**0.91**
MAPK14	312	253	249	271	309	317	269	298	**0.91**
C7	17	19	24	20	14	37	15	22	**0.91**
NOS2	9	11	10	10	8	14	11	11	**0.91**
STAT2	455	382	390	409	471	435	449	452	**0.91**
ICOSLG	107	110	108	108	115	123	121	120	**0.91**
CD48	3373	2907	3078	3119	3585	3356	3406	3449	**0.90**
KIR3DL1	28	30	26	28	32	30	31	31	**0.90**
SIGIRR	1244	1050	1159	1151	1261	1276	1297	1278	**0.90**
CIITA	33	30	36	33	32	45	33	37	**0.90**
CLEC5A	6	8	4	6	7	11	2	7	**0.90**
IL21	2	3	4	3	4	3	3	3	**0.90**
LIF	5	3	1	3	2	2	6	3	**0.90**
TGFBR1	148	159	142	150	157	173	169	166	**0.90**

TAP2	168	165	113	149	164	173	159	165	**0.90**
IKZF2	24	22	24	23	26	27	25	26	**0.90**
TLR1	118	140	131	130	156	156	122	145	**0.90**
CD9	39	30	43	37	38	49	38	42	**0.90**
TYK2	312	241	281	278	312	328	293	311	**0.89**
BCL6	261	226	279	255	271	297	291	286	**0.89**
LY96	60	58	68	62	73	64	72	70	**0.89**
IKZF1	351	326	333	337	377	381	378	379	**0.89**
C1QA	2	2	4	3	2	4	3	3	**0.89**
IL17A	2	3	3	3	2	5	2	3	**0.89**
PDGFRB	6	8	10	8	5	14	8	9	**0.89**
CD74	6389	5569	5013	5657	6799	6538	5859	6399	**0.88**
HLA-DPA1	1162	1047	1037	1082	1232	1251	1190	1224	**0.88**
KIR2DL3	13	16	14	14	15	18	16	16	**0.88**
CTNNB1	1644	1399	1357	1467	1798	1637	1580	1672	**0.88**
NFATC3	587	562	537	562	613	694	616	641	**0.88**
ICAM1	70	66	62	66	74	78	74	75	**0.88**
GZMB	172	172	161	168	182	206	189	192	**0.88**
ITGB2	2186	1978	2069	2078	2441	2338	2350	2376	**0.87**
STAT6	1140	1012	941	1031	1256	1167	1116	1180	**0.87**
KIR2DL5A	13	16	12	14	12	17	18	16	**0.87**
PDCD2	217	195	233	215	250	252	238	247	**0.87**
IKBKB	98	80	87	88	102	105	98	102	**0.87**
ABL1	102	94	99	98	116	110	114	113	**0.87**
CARD9	42	26	50	39	51	51	34	45	**0.87**
BTK	88	74	87	83	102	92	93	96	**0.87**
C8B	5	3	5	4	5	5	5	5	**0.87**
RUNX1	313	284	285	294	352	361	306	340	**0.87**
FCGR2C	405	345	396	382	426	476	426	443	**0.86**
ETS1	6514	5569	5864	5982	7355	6742	6707	6935	**0.86**
STAT1	375	374	353	367	450	434	397	427	**0.86**
SOCS1	170	139	148	152	175	193	164	177	**0.86**
BST2	280	255	222	252	290	289	304	294	**0.86**
FCGR3B	3	3	6	4	2	10	2	5	**0.86**
ICAM5	5	3	4	4	4	4	6	5	**0.86**
NOTCH2	460	373	396	410	478	485	471	478	**0.86**
FCGR3A	202	207	166	192	225	240	207	224	**0.86**
UBE2L3	463	400	369	411	523	452	469	481	**0.85**
TBP	41	47	39	42	53	52	44	50	**0.85**
MARCO	14	22	10	15	20	21	13	18	**0.85**
ITGAM	254	195	206	218	271	263	235	256	**0.85**
TP53	201	159	173	178	206	213	207	209	**0.85**
MX1	321	274	310	302	364	352	349	355	**0.85**
PSMB10	760	651	653	688	889	780	760	810	**0.85**

CD28	1551	1413	1492	1485	1789	1727	1743	1753	**0.85**
IL8	4444	3897	3630	3990	4904	4777	4448	4710	**0.85**
HLA-DQA1	247	260	229	245	295	288	286	290	**0.85**
CD247	1807	1578	1576	1654	2096	1907	1860	1954	**0.85**
CD3EAP	12	5	5	7	8	9	9	9	**0.85**
CYBB	637	578	655	623	637	821	757	738	**0.84**
LCK	1307	1137	1096	1180	1533	1377	1287	1399	**0.84**
ZEB1	395	323	361	360	447	438	395	427	**0.84**
NFIL3	111	108	84	101	115	142	103	120	**0.84**
TRAF2	69	63	85	72	91	89	78	86	**0.84**
NFATC1	176	175	160	170	234	192	182	203	**0.84**
IL2	6	10	5	7	7	11	7	8	**0.84**
CASP2	230	190	204	208	241	242	260	248	**0.84**
TNFSF8	47	35	64	49	62	59	53	58	**0.84**
ICOS	571	473	526	523	658	616	602	625	**0.84**
CCR2	2	7	6	5	4	8	6	6	**0.83**
SELE	5	4	6	5	3	10	5	6	**0.83**
TNFSF10	13	17	10	13	19	19	10	16	**0.83**
XCL1	4	3	3	3	4	4	4	4	**0.83**
MAP4K4	519	417	463	466	616	543	521	560	**0.83**
TLR9	21	22	26	23	23	36	24	28	**0.83**
CCL4	41	42	50	44	56	52	52	53	**0.83**
IKBKAP	31	45	32	36	36	40	54	43	**0.83**
IRF5	22	12	20	18	25	24	16	22	**0.83**
IRGM	19	19	16	18	22	23	20	22	**0.83**
MASP2	13	12	19	15	13	23	17	18	**0.83**
ITGA5	454	422	494	457	576	551	536	554	**0.82**
C9	3	8	3	5	7	7	3	6	**0.82**
IL7	4	4	6	5	4	5	8	6	**0.82**
SERPING1	10	14	4	9	11	11	12	11	**0.82**
HLA-DRA	2912	2565	2894	2790	3460	3393	3365	3406	**0.82**
IL18	14	21	28	21	29	28	20	26	**0.82**
FCGR2A	91	85	92	89	103	117	109	110	**0.81**
LILRA5	13	14	21	16	18	24	17	20	**0.81**
IL1R2	19	19	14	17	25	21	18	21	**0.81**
PLA2G2A	4	6	3	4	7	6	3	5	**0.81**
LAIR1	116	126	119	120	158	159	129	149	**0.81**
C1R	31	34	45	37	42	39	55	45	**0.81**
IKZF3	245	211	225	227	277	278	288	281	**0.81**
CD86	101	75	96	91	120	101	116	112	**0.81**
TNFRSF10C	16	8	5	10	15	12	9	12	**0.81**
XCR1	5	14	10	10	8	18	10	12	**0.81**
MR1	50	34	35	40	48	58	42	49	**0.80**
C5	15	10	16	14	19	14	18	17	**0.80**

HLA-DMB	193	163	191	182	227	237	217	227	**0.80**
FCGRT	355	306	245	302	349	449	334	377	**0.80**
CUL9	320	274	306	300	404	361	362	376	**0.80**
PLAUR	542	492	459	498	675	624	579	626	**0.79**
LILRA6	35	36	29	33	49	46	31	42	**0.79**
IRF3	778	675	780	744	973	987	854	938	**0.79**
G6PD	156	137	131	141	189	177	171	179	**0.79**
CXCR2	25	16	19	20	25	27	24	25	**0.79**
SYK	124	101	87	104	131	137	128	132	**0.79**
CASP3	77	59	38	58	74	81	66	74	**0.79**
IRAK3	59	62	62	61	84	68	81	78	**0.79**
IRF4	68	85	66	73	102	95	82	93	**0.78**
IKBKE	205	167	174	182	220	229	248	232	**0.78**
C4B	17	14	12	14	19	29	7	18	**0.78**
PTPN6	399	361	397	386	530	469	487	495	**0.78**
PML	63	51	58	57	68	81	72	74	**0.78**
CCL16	1	5	8	5	7	7	4	6	**0.78**
LILRA4	3	3	8	5	4	7	7	6	**0.78**
LILRA2	83	74	90	82	109	102	107	106	**0.78**
LCP2	1465	1228	1195	1296	1767	1690	1561	1673	**0.77**
ICAM4	12	12	10	11	17	21	6	15	**0.77**
HLA-DRB3	1036	903	876	938	1349	1165	1130	1215	**0.77**
TGFBI	400	341	390	377	527	470	470	489	**0.77**
IL21R	105	91	91	96	128	130	115	124	**0.77**
CCL18	5	2	3	3	2	3	8	4	**0.77**
CD244	55	51	44	50	68	65	62	65	**0.77**
TLR4	45	40	26	37	53	49	43	48	**0.77**
ITGAX	250	228	230	236	314	317	294	308	**0.77**
JAK3	676	616	697	663	922	827	851	867	**0.77**
HLA-DRB1	2763	2380	2360	2501	3494	3176	3150	3273	**0.76**
IL20	6	13	10	10	8	17	13	13	**0.76**
LTF	8	10	11	10	11	17	10	13	**0.76**
CXCL2	97	77	105	93	118	137	114	123	**0.76**
CD36	269	209	236	238	326	320	302	316	**0.75**
CLEC4A	67	71	77	72	94	106	86	95	**0.75**
TRAF1	598	517	490	535	725	747	667	713	**0.75**
C4A	18	22	11	17	27	20	21	23	**0.75**
CCL13	5	3	4	4	4	9	3	5	**0.75**
CFB	6	11	10	9	8	19	9	12	**0.75**
IL4	9	7	8	8	11	13	8	11	**0.75**
KIR2DS4	10	25	16	17	17	28	23	23	**0.75**
MME	13	6	11	10	13	10	17	13	**0.75**
IL13RA1	69	108	71	83	127	106	99	111	**0.75**
IFNAR2	478	389	431	433	608	557	573	579	**0.75**

CSF3R	304	241	203	249	371	312	320	334	**0.75**
IL1RN	65	53	58	59	82	85	69	79	**0.75**
FCER1G	983	825	878	895	1314	1134	1157	1202	**0.75**
TIGIT	79	59	80	73	88	121	86	98	**0.74**
CSF2RB	190	159	163	171	234	264	195	231	**0.74**
BST1	125	119	90	111	161	141	151	151	**0.74**
CD14	721	626	647	665	936	876	899	904	**0.74**
IL28A	3	4	4	4	4	8	3	5	**0.73**
KIR2DS1	3	5	3	4	5	2	8	5	**0.73**
IFNAR1	57	52	47	52	66	80	67	71	**0.73**
CCL3	116	102	123	114	148	161	157	155	**0.73**
IL16	586	516	443	515	762	720	637	706	**0.73**
FKBP5	339	299	325	321	463	431	428	441	**0.73**
NFKBIZ	1549	1321	1375	1415	1999	1930	1925	1951	**0.73**
PTGS2	54	53	51	53	71	83	64	73	**0.72**
CRADD	59	58	47	55	82	76	69	76	**0.72**
CD7	734	678	696	703	1046	937	935	973	**0.72**
HLA-DOB	52	48	54	51	76	70	68	71	**0.72**
CD1D	44	47	44	45	68	61	59	63	**0.72**
CD8B	16	21	13	17	27	28	15	23	**0.71**
CCL22	7	8	5	7	7	16	5	9	**0.71**
IL6R	189	156	139	161	237	237	204	226	**0.71**
TAL1	14	8	15	12	13	29	10	17	**0.71**
LILRB3	56	57	53	55	84	76	74	78	**0.71**
IL1B	264	238	245	249	342	362	352	352	**0.71**
CD27	455	401	400	419	607	600	580	596	**0.70**
IL12B	2	2	3	2	5	4	1	3	**0.70**
TLR5	18	15	9	14	17	21	22	20	**0.70**
FCAR	55	46	40	47	65	78	59	67	**0.70**
CFI	6	8	2	5	5	10	8	8	**0.70**
CXCL1	127	112	108	116	139	178	183	167	**0.69**
LILRB2	45	49	53	49	71	70	71	71	**0.69**
CCL7	1	5	3	3	3	5	5	4	**0.69**
CX3CR1	35	19	38	31	40	49	44	44	**0.69**
CAMP	5	8	9	7	6	12	14	11	**0.69**
ITLN2	2	5	4	4	4	7	5	5	**0.69**
PPARG	4	3	4	4	4	6	6	5	**0.69**
TGFBR2	690	602	489	594	961	909	727	866	**0.69**
LILRA1	31	30	26	29	37	45	46	43	**0.68**
ITGA6	725	634	726	695	1067	1008	1006	1027	**0.68**
LILRA3	124	97	108	110	157	176	154	162	**0.68**
CLEC4E	57	40	38	45	78	62	61	67	**0.67**
TCF7	5154	4642	4659	4818	7726	6916	6924	7189	**0.67**
BATF3	2	4	4	3	3	8	4	5	**0.67**

C8A	5	3	2	3	4	7	4	5	**0.67**
CFD	58	60	46	55	90	77	79	82	**0.67**
CFP	30	25	26	27	36	47	39	41	**0.66**
APP	326	309	271	302	484	434	469	462	**0.65**
CXCR1	6	3	4	4	5	8	7	7	**0.65**
KIR2DS3	2	6	5	4	4	8	8	7	**0.65**
FCER1A	222	207	197	209	334	304	333	324	**0.64**
CX3CL1	2	4	3	3	5	5	4	5	**0.64**
CCL19	6	6	2	5	5	11	6	7	**0.64**
ENTPD1	6	14	15	12	16	22	17	18	**0.64**
NOTCH1	147	145	115	136	216	216	208	213	**0.64**
CASP10	8	6	10	8	11	18	9	13	**0.63**
TNFSF11	6	12	6	8	8	20	10	13	**0.63**
CCBP2	3	5	9	6	9	10	8	9	**0.63**
LTBR	76	60	70	69	110	98	121	110	**0.63**
IL1RL1	4	5	1	3	4	8	4	5	**0.63**
KLRC1	3	9	4	5	7	10	9	9	**0.62**
CD1A	5	4	2	4	4	8	6	6	**0.61**
FN1	3	3	5	4	3	11	4	6	**0.61**
IL19	4	3	4	4	6	10	2	6	**0.61**
RAG1	6	3	2	4	3	7	8	6	**0.61**
SELL	1114	919	1027	1020	1801	1709	1594	1701	**0.60**
TNFRSF17	4	5	4	4	7	7	8	7	**0.59**
C2	5	10	15	10	14	27	10	17	**0.59**
CEACAM6	4	2	4	3	4	10	3	6	**0.59**
CD55	15	19	27	20	29	39	36	35	**0.59**
PTAFR	30	27	17	25	43	50	35	43	**0.58**
PLAU	6	4	8	6	10	10	12	11	**0.56**
VTN	2	4	8	5	4	10	11	8	**0.56**
IL6ST	1628	1596	1654	1626	2957	2932	2828	2906	**0.56**
FAS	16	11	11	13	25	21	22	23	**0.56**
LEF1	1601	1400	1283	1428	2791	2539	2411	2580	**0.55**
HAMP	6	3	2	4	8	7	5	7	**0.55**
TLR8	23	16	18	19	28	40	36	35	**0.55**
C1QB	5	3	4	4	4	8	10	7	**0.55**
IL1RL2	3	3	6	4	4	10	8	7	**0.55**
FADD	21	21	17	20	43	40	27	37	**0.54**
IL13	6	8	2	5	11	15	4	10	**0.53**
PTK2	79	64	71	71	140	129	134	134	**0.53**
ATM	29	24	29	27	56	60	47	54	**0.50**
IL17F	4	3	1	3	8	6	2	5	**0.50**
IL1A	4	7	3	5	8	10	10	9	**0.50**
IL22RA2	1	1	1	1	2	1	3	2	**0.50**
MBL2	2	3	2	2	3	7	4	5	**0.50**

CCR7	320	276	286	294	635	587	618	613	**0.48**
CSF1R	19	18	21	19	42	45	36	41	**0.47**
CCL23	2	3	3	3	2	10	6	6	**0.44**
IL27	2	4	1	2	5	4	7	5	**0.44**
IFNA2	1	1	1	1	1	3	3	2	**0.43**
VCAM1	2	3	3	3	7	5	7	6	**0.42**
IL17B	2	1	2	2	3	8	1	4	**0.42**
EBI3	3	5	4	4	7	15	7	10	**0.41**
C6	1	5	2	3	5	8	10	8	**0.35**

Supplemental Table 5. Th17 Stemness transcripts in the CD4+CD146+CCR5+ T cells.

Gene	C146+CCR5+ Tcons vs. T cells excluding CD146+CCR5+
BCL2	1.06
TCF4	0.94
CTNNB1	0.88
TCF7	0.67
NOTCH1	0.64
LEF1	0.55
TCF4	0.94
CTNNB1	0.88
NOTCH2	0.86

Supplemental Table 6. CD146 on T cells and vessels in GI biopsies of GI-GVHD and non-GVHD enteritis post-HCT.

Patient	GVHD status	CD3 T cells	CD146 T cells	CD146 vessel count, 10X
Patient 1	GVHD	220	0	0
Patient 2	GVHD	67	3	32
Patient 3	GVHD	97	0	6
Patient 4	GVHD	58	0	105
Patient 5	GVHD	55	3.3	8
Patient 6	GVHD	90	1	82
Patient 7	GVHD	48	0	14
Patient 8	GVHD	42	2	9
Patient 9	GVHD	137	2	9
Patient 10	GVHD	97	4	24
Patient 11	GVHD	156	3.3	229
Patient 12	GVHD	86	2.7	56
Patient 13	GVHD	43	0	46
Patient 14	GVHD	364	4.7	86
Patient 15	GVHD	157	3.3	82
Patient 16	GVHD	100	3	82
Patient 17	GVHD	68	7.7	36
Patient 18	GVHD	34	3	13
Patient 19	Non-GVHD	182	1	21
Patient 20	Non-GVHD	19	1.3	13
Patient 21	Non-GVHD	45	5.3	3
Patient 22	Non-GVHD	31	0	7
Patient 23	Non-GVHD	115	0	0
Patient 24	Non-GVHD	68	0	0
Patient 25	Non-GVHD	155	3	30
Patient 26	Non-GVHD	86	8.3	23
Patient 27	Non-GVHD	50	0	13
Patient 28	Non-GVHD	55	1	14

Supplemental Table 7. Transcriptome analysis of sorted human CD146+CCR5+ Tregs and T-cell population excluding CD146+CCR5+ Tregs.

Gene	Tregs double positive for CD146 CCR5	Tregs double positive for CD146 CCR5	Tregs double positive for CD146 CCR5	Average Tregs double positive for CD146 CCR5	Tregs negative for CD146 CCR5	Tregs negative for CD146 CCR5	Tregs negative for CD146 CCR5	Average Tregs negative for CD146 CCR5	**Fold difference in Tregs positive for CD146CCR5 vs. those negative for CD146CCR5**
KIR3DL3	15	9	16	13	3	3	1	2	**12.36**
CCL22	24	50	56	43	13	17	4	12	**9.98**
CX3CL1	15	14	28	19	10	4	2	5	**8.73**
CCL15	12	32	48	31	9	12	4	8	**7.05**
CXCL13	18	18	32	23	5	7	3	5	**6.98**
PDGFB	3	14	4	7	4	7	1	4	**6.35**
CCR2	9	14	16	13	4	5	2	4	**5.95**
KIR2DS1	3	27	8	13	4	9	2	5	**5.88**
PLA2G2E	24	18	52	31	8	12	5	8	**5.79**
CCR5	48	59	80	62	9	16	11	12	**5.75**
DEFB103B	18	36	20	25	8	9	4	7	**5.71**
CEACAM1	51	68	60	60	21	13	11	15	**5.51**
CD80	33	45	44	41	12	13	8	11	**5.37**
IFNB1	9	14	12	12	7	8	2	6	**5.33**
FCGR3B	12	27	44	28	9	5	5	6	**5.12**
MBL2	3	23	24	17	3	7	3	5	**5.08**
CD34	15	23	28	22	3	4	4	4	**5.05**
XCR1	24	54	36	38	15	8	8	10	**5.02**
IL19	3	18	44	22	12	11	4	9	**5.00**
IL26	90	154	144	129	38	31	26	32	**4.98**
TNFRSF9	24	95	56	58	15	17	12	15	**4.89**
TNFSF11	27	27	40	31	12	19	6	13	**4.83**
IL28B	6	32	8	15	4	10	3	6	**4.68**
CEACAM6	9	27	8	15	7	7	3	6	**4.53**
FN1	6	18	20	15	7	3	3	4	**4.52**
ITLN2	6	9	28	14	7	6	3	5	**4.41**
KIT	21	45	48	38	16	8	9	11	**4.39**
CCL13	18	18	20	19	8	5	4	6	**4.32**
IL27	18	14	24	19	5	6	4	5	**4.28**
CD3EAP	12	27	16	18	10	7	4	7	**4.24**
ITLN1	9	18	28	18	10	3	4	6	**4.24**
IL9	24	36	36	32	15	12	8	12	**4.23**
TNFAIP6	24	45	68	46	21	16	11	16	**4.22**
C9	15	27	40	27	5	11	6	8	**4.21**
XCL1	9	23	20	17	3	4	4	4	**3.97**

AIRE	48	63	56	56	15	22	14	17	**3.96**
PIGR	9	14	28	17	4	7	4	5	**3.89**
C1QB	3	23	24	17	8	8	4	7	**3.81**
IL29	24	5	32	20	3	6	5	5	**3.73**
DEFB1	12	36	12	20	8	6	5	6	**3.71**
LILRB5	30	45	32	36	13	13	10	12	**3.67**
CCL16	24	27	32	28	11	11	8	10	**3.66**
RAG1	18	36	16	23	9	7	6	7	**3.61**
IFNA1	3	5	4	4	1	1	1	1	**3.56**
KIR2DL5A	24	32	48	35	13	14	10	12	**3.55**
TLR9	45	63	120	76	22	23	22	22	**3.51**
CAMP	24	23	56	34	12	11	10	11	**3.51**
IL22	6	5	12	8	4	3	2	3	**3.47**
C7	51	90	80	74	21	21	22	21	**3.41**
ICAM5	9	9	4	7	8	2	2	4	**3.41**
CD209	9	9	24	14	9	7	4	7	**3.23**
C8B	18	18	16	17	12	8	5	9	**3.21**
C2	36	36	32	35	19	14	11	15	**3.21**
CFB	21	18	44	28	14	14	9	12	**3.20**
VTN	27	9	32	23	9	13	8	10	**2.99**
CXCL12	3	18	8	10	9	5	3	6	**2.98**
ENTPD1	24	54	56	45	24	21	15	20	**2.95**
CCBP2	21	50	44	38	19	14	13	15	**2.94**
KIR2DL1	3	14	12	10	3	4	3	4	**2.93**
PLAU	15	5	28	16	11	8	5	8	**2.93**
KIR2DL2	12	18	36	22	7	10	8	8	**2.90**
CXCR6	45	59	28	44	13	12	15	13	**2.90**
TLR3	39	23	32	31	10	7	11	9	**2.89**
IL23R	27	54	40	40	30	28	14	24	**2.87**
TNFRSF13B	21	36	36	31	14	14	11	13	**2.87**
CFI	27	27	20	25	11	6	9	9	**2.86**
IL6	3	18	16	12	7	7	4	6	**2.85**
CASP10	33	59	28	40	20	16	14	17	**2.84**
LILRA5	54	59	60	58	21	15	21	19	**2.80**
CD1A	15	18	12	15	13	5	5	8	**2.78**
TNFRSF8	18	23	40	27	21	23	10	18	**2.76**
CCRL2	24	23	16	21	11	6	8	8	**2.76**
IFNG	36	50	48	45	21	25	16	21	**2.75**
CR2	24	27	20	24	16	14	9	13	**2.74**
EBI3	18	14	48	26	15	15	10	13	**2.72**
SPP1	18	23	12	18	7	4	6	6	**2.70**
SELE	15	14	24	18	11	4	6	7	**2.70**
AICDA	6	9	20	12	11	8	4	8	**2.69**
IL17F	18	5	12	12	4	8	4	6	**2.66**

C4B	9	41	28	26	19	17	10	15	**2.66**
TNFRSF17	9	23	20	17	10	12	6	10	**2.65**
NOS2	27	45	56	43	13	14	16	15	**2.63**
KIR2DS4	33	41	80	51	29	22	19	23	**2.63**
C3	9	5	12	9	4	3	3	4	**2.62**
NCAM1	63	127	64	85	21	35	32	30	**2.60**
CXCR2	36	54	28	39	23	31	15	23	**2.60**
CCL23	9	5	20	11	3	10	4	6	**2.58**
PDCD1	18	50	32	33	14	25	13	18	**2.56**
CSF2	12	14	24	17	5	6	6	6	**2.54**
CCR8	18	41	48	36	15	11	14	14	**2.53**
CCL26	15	14	12	14	5	5	5	5	**2.50**
CXCL10	9	32	8	16	12	10	6	10	**2.50**
IL13	18	23	24	22	10	7	9	9	**2.49**
RAG2	21	68	48	46	13	11	18	14	**2.48**
IL17B	15	9	8	11	10	5	4	6	**2.47**
PPARG	18	14	32	21	14	6	9	10	**2.45**
C6	33	18	28	26	8	10	11	10	**2.44**
IL12B	15	5	12	11	1	7	4	4	**2.43**
CDH5	3	5	24	10	7	4	4	5	**2.42**
CCRL1	3	5	16	8	7	4	3	5	**2.41**
CCL11	9	18	4	10	7	4	4	5	**2.40**
IL5	12	18	24	18	10	7	8	8	**2.38**
SRC	15	27	4	15	9	6	6	7	**2.37**
TNFSF15	30	68	24	41	16	20	17	18	**2.35**
TNFRSF11A	21	45	52	39	13	16	17	16	**2.27**
KIR3DL1	57	68	52	59	36	44	26	36	**2.27**
IL7	15	27	24	22	10	5	10	8	**2.26**
IL1RL2	9	32	40	27	5	12	12	10	**2.25**
IL12A	57	81	80	73	33	46	32	37	**2.24**
CXCL11	3	18	8	10	4	8	4	6	**2.24**
LTF	39	45	24	36	8	10	16	11	**2.22**
CCL19	15	9	12	12	10	9	5	8	**2.22**
IL18	42	50	52	48	23	30	22	25	**2.21**
ITGA2B	15	41	52	36	25	25	16	22	**2.21**
CD274	12	23	36	24	12	13	11	12	**2.17**
MME	30	54	28	37	23	19	17	20	**2.16**
C1S	33	36	28	32	19	20	15	18	**2.14**
BATF	90	100	80	90	48	53	42	48	**2.13**
MUC1	48	68	36	51	27	32	24	28	**2.13**
TAL1	15	32	56	34	19	20	16	18	**2.11**
IL20	18	54	44	39	5	8	18	11	**2.10**
KLRC1	15	14	12	14	3	6	6	5	**2.08**
LIF	9	18	20	16	2	3	8	4	**2.07**

CD9	30	50	88	56	48	34	27	37	**2.06**
RORC	45	81	60	62	46	34	30	37	**2.05**
TLR8	57	68	48	58	33	34	28	32	**2.05**
CLEC5A	15	18	20	18	4	9	9	7	**2.04**
IL10	33	32	28	31	13	7	15	12	**2.04**
HFE	18	14	28	20	11	9	10	10	**2.04**
MASP1	12	9	12	11	4	7	5	6	**2.04**
TLR7	30	41	48	40	18	10	19	16	**2.03**
CCL24	12	45	28	28	5	12	14	11	**2.02**
IFI35	45	68	44	52	30	23	26	26	**2.01**
BLNK	15	14	4	11	11	3	5	6	**2.01**
CD24	18	27	20	22	13	9	11	11	**2.01**
MARCO	24	36	44	35	26	17	17	20	**2.00**
KIR2DS2	12	5	16	11	2	3	5	4	**2.00**
FAS	24	36	24	28	21	16	14	17	**1.99**
MBP	42	113	76	77	56	46	39	47	**1.98**
TLR5	27	36	52	38	29	23	19	24	**1.97**
LILRA4	3	23	32	19	7	10	10	9	**1.97**
CTSG	6	9	4	6	4	4	3	4	**1.95**
ICAM4	9	27	8	15	13	14	8	12	**1.94**
IL2	9	18	36	21	11	12	11	11	**1.94**
HAMP	30	23	4	19	8	8	10	9	**1.94**
C5	21	32	48	34	12	18	17	16	**1.94**
C8A	18	5	40	21	7	11	11	10	**1.92**
KIR3DS1	9	5	36	16	11	8	9	9	**1.90**
IL1R1	6	14	36	18	10	6	10	9	**1.90**
C8G	9	41	28	26	14	18	14	16	**1.84**
IL28A	18	14	16	16	5	2	9	5	**1.83**
PDGFRB	12	14	16	14	11	4	8	8	**1.83**
IL4	15	18	20	18	21	18	10	16	**1.82**
CCL8	21	32	12	22	13	14	12	13	**1.81**
CD40	33	36	36	35	19	13	19	17	**1.80**
PAX5	39	54	76	56	19	28	31	26	**1.80**
TNFSF10	15	14	12	14	5	13	8	9	**1.78**
SLAMF7	54	54	48	52	26	24	29	27	**1.78**
CCL18	3	14	24	14	10	11	8	10	**1.78**
IFNA2	3	5	4	4	1	2	2	2	**1.78**
C1R	48	86	68	67	42	44	38	41	**1.78**
IL21	6	9	8	8	4	7	4	5	**1.77**
CX3CR1	36	50	80	55	43	42	31	39	**1.76**
CMKLR1	33	23	24	27	16	20	15	17	**1.75**
FOXP3	422	457	335	404	268	299	233	267	**1.74**
GATA3	48	86	80	71	43	57	41	47	**1.73**
PRDM1	702	706	590	666	392	388	385	388	**1.73**

CTLA4	1130	1425	1048	1201	658	774	697	710	**1.72**
TNFRSF10C	6	23	16	15	5	15	9	10	**1.72**
CXCR3	127	81	96	101	94	92	60	82	**1.70**
IL22RA2	12	9	12	11	5	7	6	6	**1.70**
CD55	57	72	52	60	35	33	36	35	**1.69**
PLA2G2A	18	18	24	20	9	8	12	10	**1.68**
MAPK11	39	59	44	47	23	36	28	29	**1.68**
MASP2	30	32	40	34	9	16	21	15	**1.65**
TCF4	21	14	28	21	14	21	13	16	**1.61**
LILRB2	63	109	88	86	75	60	54	63	**1.60**
SERPING1	21	14	12	16	8	13	10	10	**1.60**
MAF	458	389	307	385	226	259	241	242	**1.59**
IL17A	3	14	4	7	3	1	4	3	**1.58**
NCR1	27	27	32	29	27	43	18	30	**1.56**
MSR1	39	50	52	47	57	39	30	42	**1.55**
CLU	6	5	24	11	2	7	8	6	**1.52**
C4BPA	3	14	8	8	5	2	5	4	**1.51**
CCL7	3	5	12	6	3	6	4	5	**1.50**
CD58	226	258	267	250	151	199	168	172	**1.49**
MR1	75	68	64	69	52	64	47	54	**1.48**
LILRB4	12	23	32	22	18	18	15	17	**1.46**
TBK1	96	95	84	92	79	93	63	78	**1.46**
FCGR2B	54	68	52	58	42	36	40	39	**1.45**
KLRD1	69	63	60	64	53	52	44	50	**1.45**
C4A	33	36	60	43	40	26	30	32	**1.42**
TBX21	84	118	116	106	81	87	75	81	**1.42**
TIGIT	322	339	299	320	238	266	226	243	**1.42**
LILRB3	51	86	88	75	46	67	53	55	**1.41**
IL1RAP	60	100	56	72	68	69	51	63	**1.41**
TBP	60	63	68	64	46	59	45	50	**1.40**
GP1BB	57	32	24	38	34	38	27	33	**1.39**
IRF5	15	14	12	14	15	20	10	15	**1.39**
C1QA	6	5	12	8	4	4	5	5	**1.39**
LILRA6	54	81	40	58	34	40	42	39	**1.39**
MS4A1	117	104	116	112	86	87	81	85	**1.38**
CIITA	45	104	48	66	41	47	48	45	**1.38**
CASP1	286	416	299	334	278	250	242	257	**1.38**
IL1A	6	23	16	15	7	15	11	11	**1.37**
IL2RA	380	375	383	379	308	331	277	305	**1.37**
NCF4	178	222	247	215	148	167	159	158	**1.35**
TIRAP	33	36	40	36	34	35	27	32	**1.34**
IL18R1	69	127	56	84	88	88	63	80	**1.34**
TLR4	42	68	72	61	47	43	45	45	**1.33**
CD244	99	50	84	78	53	48	58	53	**1.33**

SMAD5	42	100	56	66	64	82	50	65	**1.32**
PTPN22	274	317	223	271	248	224	206	226	**1.32**
IRAK3	87	68	72	76	63	55	57	58	**1.32**
CD40LG	57	118	120	98	80	84	75	80	**1.31**
IRF8	72	68	56	65	60	82	50	64	**1.31**
IRF4	208	199	159	189	140	175	144	153	**1.31**
KIR2DS5	12	18	12	14	13	10	11	11	**1.30**
CD8B	30	14	36	27	30	31	21	27	**1.29**
CD22	63	72	52	62	56	56	49	53	**1.28**
TLR2	60	86	64	70	68	55	55	59	**1.27**
FADD	51	41	48	47	34	36	37	36	**1.27**
IFIT2	39	36	48	41	34	39	32	35	**1.26**
LTB4R2	75	54	84	71	57	73	56	62	**1.26**
SELPLG	51	68	44	54	32	51	43	42	**1.25**
CD19	30	32	36	33	16	16	26	20	**1.25**
IL3	15	14	16	15	12	6	12	10	**1.25**
PDCD2	214	222	279	238	214	214	192	207	**1.24**
PTGS2	48	86	80	71	53	38	57	49	**1.24**
LILRA1	21	68	60	50	31	39	40	37	**1.24**
ALAS1	39	45	60	48	34	18	39	30	**1.23**
HLA-DOB	78	81	68	76	79	64	62	68	**1.23**
CD79A	81	100	104	95	96	101	78	92	**1.22**
IRF7	202	204	251	219	171	211	181	188	**1.21**
CTSC	614	706	478	599	481	503	496	493	**1.21**
CD86	102	127	108	112	98	128	93	106	**1.21**
IKZF2	337	393	283	338	335	322	281	313	**1.20**
CCR6	175	244	171	197	149	160	165	158	**1.20**
CFP	24	41	48	38	46	39	31	39	**1.20**
MAPKAPK2	304	421	327	351	310	347	293	317	**1.20**
SLAMF1	81	77	32	63	42	40	53	45	**1.19**
PRF1	322	339	323	328	275	339	277	297	**1.18**
TMEM173	648	665	538	617	622	612	522	585	**1.18**
TNFSF13B	81	95	96	91	102	94	77	91	**1.18**
PML	42	104	64	70	48	75	60	61	**1.18**
CLEC4A	36	122	108	89	87	80	76	81	**1.17**
CASP8	952	1045	734	910	765	763	780	769	**1.17**
TNFRSF4	87	63	68	73	65	78	63	68	**1.16**
FCGR3A	256	226	195	226	204	224	195	208	**1.16**
HLA-DPB1	798	941	749	829	752	832	719	768	**1.15**
IL23A	45	59	76	60	44	66	52	54	**1.15**
TRAF3	154	149	128	143	116	137	124	126	**1.15**
CD99	1295	1379	1132	1269	1134	1229	1103	1155	**1.15**
POLR1B	63	23	52	46	44	50	40	44	**1.15**
DEFB4A	9	9	8	9	4	8	8	7	**1.15**

HLA-DQA1	259	294	271	275	267	262	240	256	**1.14**
CFD	69	77	64	70	47	66	62	58	**1.13**
TNFRSF1B	404	493	327	408	401	415	360	392	**1.13**
CD82	108	149	116	124	126	120	110	119	**1.13**
PSMB9	473	498	446	472	418	491	420	443	**1.12**
IL12RB1	111	118	92	107	111	83	95	96	**1.12**
ITGAM	223	339	219	260	187	232	234	218	**1.11**
IL1R2	21	18	40	26	14	22	24	20	**1.11**
LILRB1	15	27	44	29	26	29	26	27	**1.10**
CD36	244	267	195	235	254	242	213	236	**1.10**
CD74	6057	6544	5589	6064	5599	6022	5522	5714	**1.10**
IL10RA	1416	1655	1343	1471	1350	1427	1341	1373	**1.10**
IL2RB	639	782	626	682	613	707	622	648	**1.10**
VCAM1	3	9	20	11	4	7	10	7	**1.09**
CLEC4E	39	54	56	50	49	61	45	52	**1.09**
GPI	440	430	371	413	401	475	380	419	**1.09**
FCER1A	217	289	195	234	240	255	215	236	**1.09**
MYD88	449	552	462	488	494	514	450	486	**1.08**
CD2	464	375	454	431	418	440	398	419	**1.08**
FCGR2A	99	149	104	117	107	103	109	106	**1.07**
SYK	117	127	84	109	88	135	102	108	**1.07**
HLA-DPA1	1054	1407	1052	1171	1049	1142	1097	1096	**1.07**
GUSB	99	118	88	102	96	103	95	98	**1.07**
PTAFR	30	45	32	36	33	29	34	32	**1.07**
ADA	120	104	132	119	133	133	111	126	**1.06**
CD14	756	805	682	748	685	749	702	712	**1.06**
CHUK	232	375	263	290	293	290	273	285	**1.06**
HLA-DRB1	2605	3021	2424	2683	2679	2882	2523	2695	**1.06**
TP53	205	208	235	216	187	220	203	203	**1.06**
KIR3DL2	12	14	40	22	18	12	21	17	**1.06**
IFIH1	60	109	96	88	103	74	83	87	**1.06**
HLA-DQB1	108	113	100	107	82	86	102	90	**1.05**
ICOS	602	660	566	610	578	603	582	588	**1.05**
IL32	5747	8462	7774	7328	7726	6348	7010	7028	**1.05**
TFRC	596	674	558	609	598	620	584	601	**1.04**
BTK	99	95	80	91	96	87	88	90	**1.04**
TNFRSF13C	226	258	199	228	211	237	219	222	**1.04**
CASP3	93	68	68	76	75	72	74	73	**1.04**
IL6R	223	204	223	217	218	244	209	224	**1.04**
HLA-DRB3	1084	1022	1021	1042	1002	1089	1007	1033	**1.04**
IKBKAP	60	50	44	51	38	29	50	39	**1.03**
TAP1	108	163	163	145	130	173	141	148	**1.03**
KIR2DS3	3	9	8	7	3	11	6	7	**1.03**
MAP4K1	419	511	403	444	380	447	432	420	**1.03**

LTA	75	113	108	99	116	93	96	102	**1.02**
CD28	1566	1995	1363	1641	1605	1656	1612	1624	**1.02**
GZMA	190	253	187	210	190	193	207	197	**1.02**
ITGB1	1307	1348	1104	1253	1234	1330	1233	1266	**1.02**
G6PD	175	127	128	143	144	146	141	144	**1.02**
FCGR2C	313	538	287	379	387	426	376	396	**1.01**
TNFSF12	274	317	239	277	305	322	274	301	**1.01**
GAPDH	2901	3062	2711	2891	2848	3087	2869	2935	**1.01**
CSF2RB	232	222	167	207	210	253	206	223	**1.01**
CD27	584	592	578	585	604	640	581	609	**1.01**
HLA-DRA	2602	3094	2595	2764	2765	2968	2764	2833	**1.00**
HLA-DMB	229	267	179	225	191	215	225	210	**1.00**
SH2D1A	136	185	140	154	151	142	154	149	**1.00**
CSF1	24	27	20	24	29	23	24	25	**1.00**
TUBB	428	475	343	415	445	461	419	441	**0.99**
CCR10	42	41	20	34	27	29	35	30	**0.99**
TRAF5	87	190	92	123	119	116	124	120	**0.99**
CD8A	102	72	88	87	103	98	89	97	**0.99**
KLRB1	801	733	610	715	714	824	725	755	**0.99**
HPRT1	187	222	179	196	179	216	199	198	**0.98**
CD59	250	353	243	282	267	269	288	275	**0.98**
CCL2	6	27	24	19	8	8	19	12	**0.98**
OAZ1	1298	1402	1096	1266	1406	1479	1300	1395	**0.97**
CYBB	648	710	486	615	616	609	632	619	**0.97**
CSF1R	30	45	32	36	25	35	37	32	**0.97**
ITGAX	208	280	255	248	249	285	255	263	**0.97**
CSF3R	250	267	243	253	265	291	262	273	**0.97**
JAK2	617	692	570	627	706	705	648	687	**0.97**
GFI1	36	81	52	56	52	68	58	59	**0.97**
FCER1G	940	1045	789	925	976	1047	961	994	**0.96**
POU2F2	268	303	275	282	327	325	293	315	**0.96**
CASP2	238	253	175	222	219	231	232	227	**0.96**
TGFBR1	117	176	179	158	175	145	165	162	**0.96**
CARD9	42	41	48	44	46	41	45	44	**0.96**
HLA-C	10371	11519	8898	10263	10844	11836	10715	11132	**0.96**
ICOSLG	124	77	120	107	136	146	111	131	**0.96**
BCL3	491	498	506	498	528	543	522	531	**0.96**
IL2RG	1289	1316	1072	1226	1240	1390	1284	1305	**0.96**
PTGER4	220	335	263	273	329	349	287	321	**0.95**
IFNAR2	443	602	578	541	586	658	569	604	**0.95**
TGFBI	310	339	307	319	400	394	337	377	**0.95**
STAT1	298	339	319	319	369	394	337	367	**0.95**
STAT2	386	344	251	327	405	446	345	399	**0.95**
IKZF3	193	204	203	200	237	258	212	236	**0.94**

CD44	892	963	829	895	959	1062	950	990	**0.94**
ICAM3	1111	1398	1092	1200	1238	1374	1277	1296	**0.94**
NFIL3	93	100	88	94	119	105	100	108	**0.94**
HLA-A	14895	17055	13458	15136	15963	17005	16171	16380	**0.94**
SMAD3	367	475	339	394	394	426	421	414	**0.94**
PSMB8	630	710	646	662	708	745	708	720	**0.94**
TLR1	105	149	88	114	129	130	122	127	**0.93**
NFATC2	404	443	379	409	450	527	438	472	**0.93**
FCAR	60	41	96	66	74	70	70	71	**0.93**
BCAP31	404	448	343	398	431	501	428	453	**0.93**
MAP4K4	443	416	407	422	509	486	453	483	**0.93**
ARHGDIB	5422	6246	5039	5569	6030	6685	5995	6236	**0.93**
TNF	102	154	124	127	148	188	136	158	**0.93**
PSMC2	491	534	387	470	501	556	509	522	**0.92**
PTPN2	277	344	259	293	320	339	318	326	**0.92**
IKBKG	178	231	112	173	186	219	188	198	**0.92**
IGF2R	39	118	64	74	68	98	80	82	**0.92**
RUNX1	259	222	243	241	286	318	263	289	**0.92**
MX1	349	366	279	332	332	376	363	357	**0.91**
ITGA4	241	294	263	266	291	307	291	296	**0.91**
CD164	702	796	526	675	754	919	739	804	**0.91**
LILRA3	90	149	151	130	145	141	143	143	**0.91**
IFI16	337	393	255	329	324	387	360	357	**0.91**
LTBR	78	63	116	86	77	84	94	85	**0.91**
TOLLIP	90	86	84	87	119	111	95	108	**0.91**
TYK2	229	222	263	238	260	295	262	272	**0.91**
CD4	404	547	439	463	468	525	513	502	**0.90**
ABL1	48	118	104	90	86	99	100	95	**0.90**
FCGRT	343	371	283	332	404	411	370	395	**0.90**
AHR	605	755	466	609	704	684	679	689	**0.90**
C1QBP	313	403	339	352	386	438	392	405	**0.90**
HLA-B	15073	17901	14682	15885	17722	19959	17714	18465	**0.90**
IL1RL1	6	5	4	5	5	3	5	5	**0.90**
POLR2A	970	1072	873	972	1143	1283	1086	1170	**0.90**
ABCF1	259	271	259	263	310	328	294	311	**0.89**
TRAF2	87	59	92	79	68	80	89	79	**0.89**
XBP1	238	276	199	238	313	284	266	288	**0.89**
CD5	1368	1474	1100	1314	1417	1695	1472	1528	**0.89**
LILRA2	69	95	88	84	104	84	94	94	**0.89**
B2M	55950	65127	51621	57566	65294	68772	64632	66233	**0.89**
CCL4	45	77	28	50	49	60	56	55	**0.89**
CD97	1093	1248	929	1090	1283	1403	1228	1305	**0.89**
TAP2	136	181	104	140	160	188	158	169	**0.89**
ICAM2	355	366	291	338	418	454	381	417	**0.89**

IRGM	9	41	28	26	25	36	29	30	**0.89**
IL13RA1	99	72	96	89	99	94	101	98	**0.89**
PDCD1LG2	15	5	12	11	13	13	12	13	**0.88**
NOTCH1	142	149	187	159	181	199	181	187	**0.88**
IRF1	684	724	606	671	795	843	763	800	**0.88**
PTPN6	395	502	375	424	455	480	483	472	**0.88**
TGFB1	2566	2714	2292	2524	2843	3073	2876	2931	**0.88**
TAPBP	1346	1506	1100	1318	1598	1581	1504	1561	**0.88**
LY96	54	86	76	72	79	50	82	70	**0.87**
IRAK1	349	375	327	351	436	440	402	426	**0.87**
IKBKE	229	199	175	201	231	228	231	230	**0.87**
BST1	90	109	132	110	127	136	127	130	**0.87**
TRAF1	919	1072	821	937	1072	1142	1081	1098	**0.87**
RARRES3	316	398	391	368	448	478	426	451	**0.86**
STAT5B	789	805	638	744	848	894	863	868	**0.86**
ITGB2	1627	1719	1599	1648	1888	2100	1911	1966	**0.86**
CD3E	1985	2293	1774	2017	2344	2639	2347	2443	**0.86**
RELA	307	299	227	278	335	358	324	339	**0.86**
PRKCD	142	149	124	138	127	165	161	151	**0.86**
ZAP70	961	1036	825	941	1206	1168	1099	1158	**0.86**
CD3D	1121	1284	985	1130	1361	1389	1323	1358	**0.85**
TNFRSF14	340	371	291	334	392	452	392	412	**0.85**
CD6	693	837	654	728	866	938	854	886	**0.85**
TRAF6	265	339	275	293	337	394	344	358	**0.85**
CD53	467	629	486	527	585	645	622	617	**0.85**
JAK3	506	583	450	513	638	740	607	662	**0.85**
SELL	1229	1416	1136	1260	1529	1636	1497	1554	**0.84**
NOTCH2	310	434	323	356	477	459	423	453	**0.84**
PSMB7	575	674	522	590	661	694	702	686	**0.84**
IL18RAP	39	45	44	43	40	58	51	49	**0.84**
CISH	27	5	12	15	4	15	17	12	**0.84**
CD247	1407	1664	1228	1433	1645	1871	1709	1742	**0.84**
IL11RA	361	384	347	364	443	510	435	463	**0.84**
MAP4K2	407	525	403	445	548	538	534	540	**0.83**
IL21R	117	77	60	85	105	122	102	110	**0.83**
SIGIRR	904	1054	849	936	1162	1232	1123	1173	**0.83**
IRAK4	265	339	335	313	349	381	377	369	**0.83**
TRAF4	120	140	112	124	159	170	149	159	**0.83**
NFATC3	410	412	470	431	499	523	518	514	**0.83**
LCK	1042	1239	957	1079	1259	1451	1300	1337	**0.83**
BST2	214	226	247	229	255	282	276	271	**0.83**
MAPK1	277	389	355	340	367	432	411	404	**0.83**
PSMB10	545	615	538	566	642	737	685	688	**0.83**
ETS1	4943	5500	4596	5013	6273	6588	6083	6315	**0.82**

RELB	84	118	92	98	141	129	119	130	**0.82**
LCP2	1108	1199	1076	1128	1362	1506	1373	1414	**0.82**
CCL5	247	244	255	249	302	308	303	304	**0.82**
BID	78	90	60	76	96	66	93	85	**0.82**
STAT6	816	850	821	829	1104	1164	1014	1094	**0.82**
PLAUR	407	493	363	421	491	534	515	514	**0.82**
PSMB5	3	18	8	10	5	9	12	9	**0.81**
PSMD7	624	787	674	695	834	781	854	823	**0.81**
PTPRC	3627	4025	3500	3717	4638	4948	4574	4720	**0.81**
ITGAL	479	579	450	503	623	661	621	635	**0.81**
IFNAR1	36	68	48	51	48	72	63	61	**0.81**
ATG16L1	349	326	371	349	416	460	435	437	**0.80**
PPIA	208	258	203	223	274	287	280	280	**0.80**
JAK1	1696	2017	1662	1792	2227	2351	2264	2281	**0.79**
ICAM1	60	50	44	51	65	75	65	68	**0.79**
GNLY	184	204	243	210	230	268	266	255	**0.79**
IL16	491	439	431	453	549	663	575	596	**0.79**
BCL6	190	249	191	210	279	311	266	285	**0.79**
GZMB	105	163	112	127	162	173	162	166	**0.78**
TNFSF8	21	50	28	33	55	53	42	50	**0.78**
IKBKB	72	95	76	81	101	110	104	105	**0.78**
CEBPB	422	384	383	396	606	540	509	552	**0.78**
STAT3	488	606	510	535	743	803	693	746	**0.77**
IFNGR1	223	380	199	267	330	354	346	343	**0.77**
FYN	1377	1642	1164	1394	1699	1829	1806	1778	**0.77**
BATF3	9	5	4	6	1	8	8	6	**0.77**
ILF3	1358	1909	1300	1522	2115	2153	1974	2081	**0.77**
STAT5A	277	253	275	268	372	383	350	368	**0.77**
CRADD	66	63	60	63	68	86	82	79	**0.77**
CTNNB1	1235	1131	1044	1137	1491	1598	1483	1524	**0.77**
SDHA	361	416	431	403	517	507	526	517	**0.77**
NFATC1	105	149	116	123	178	193	161	177	**0.77**
ATM	42	32	68	47	46	50	62	52	**0.77**
UBE2L3	280	357	267	302	388	417	397	401	**0.76**
SOCS3	518	665	399	527	653	710	696	686	**0.76**
IRF3	651	773	546	657	802	938	869	870	**0.76**
BCL2	696	760	638	698	958	1049	934	980	**0.75**
MAPK14	232	249	175	219	280	318	293	297	**0.75**
CD46	614	669	494	593	730	874	795	800	**0.75**
CD81	494	525	534	518	706	721	697	708	**0.74**
CD96	849	837	738	808	1057	1149	1090	1098	**0.74**
CD83	575	715	494	595	853	890	803	849	**0.74**
CD7	557	534	490	527	755	889	712	785	**0.74**
CD1D	39	36	28	34	52	50	47	49	**0.74**

CUL9	277	285	195	252	334	359	342	345	**0.74**
ITGA6	482	507	427	472	727	740	640	702	**0.74**
IKZF1	235	240	207	227	324	337	308	323	**0.74**
LTB4R	42	50	44	45	63	73	62	66	**0.73**
LITAF	708	905	710	774	1033	1172	1061	1088	**0.73**
CFH	12	36	56	35	45	37	48	43	**0.73**
CD48	2063	2487	1985	2179	3059	3212	2994	3088	**0.73**
IFITM1	2115	2207	2013	2112	3098	3253	2908	3086	**0.73**
RPL19	11624	13749	11493	12289	17785	19097	16926	17936	**0.73**
IL4R	503	683	474	553	754	811	765	777	**0.72**
SOCS1	72	131	88	97	146	129	134	137	**0.72**
ZEB1	298	289	263	284	397	368	393	386	**0.72**
CCR7	349	344	339	344	443	503	487	478	**0.71**
ITGA5	280	375	307	321	426	467	457	450	**0.70**
CDKN1A	370	434	403	402	593	625	576	598	**0.70**
LEF1	1639	1886	1535	1686	2380	2579	2415	2458	**0.70**
NOD2	66	77	88	77	92	96	110	100	**0.70**
TAGAP	693	760	590	681	993	1024	977	998	**0.70**
EEF1G	8039	9448	7798	8428	12219	13404	12126	12583	**0.70**
FCGR1A	6	14	12	11	9	8	15	11	**0.69**
LAIR1	102	95	116	104	136	143	150	143	**0.69**
CXCR1	12	9	8	10	7	10	14	10	**0.69**
APP	220	285	175	227	333	411	341	362	**0.67**
PPBP	163	181	171	172	229	268	261	252	**0.66**
SKI	485	425	411	440	631	745	680	685	**0.65**
NFKBIA	2503	2768	2125	2465	3884	4207	3830	3974	**0.64**
CXCR4	5220	5929	4465	5205	7648	8681	8137	8155	**0.64**
IRAK2	12	27	8	16	15	22	25	21	**0.63**
ABCB1	24	36	32	31	52	50	49	50	**0.63**
DPP4	27	90	32	50	79	78	80	79	**0.62**
NFKBIZ	1199	1235	957	1130	1870	1945	1824	1879	**0.62**
CR1	127	122	88	112	149	216	183	183	**0.61**
KIR2DL3	18	14	8	13	15	17	22	18	**0.61**
IL6ST	1717	1845	1316	1626	2652	2803	2676	2711	**0.61**
IL15	6	14	12	11	10	16	17	14	**0.61**
STAT4	199	280	219	233	379	417	384	394	**0.61**
NFKB1	102	158	136	132	243	244	220	236	**0.60**
CCL20	12	36	4	17	30	18	29	26	**0.60**
TGFBR2	392	330	383	368	619	715	620	651	**0.59**
IL1RN	57	41	56	51	79	90	87	85	**0.59**
TNFAIP3	2524	2831	2264	2540	4374	4795	4411	4527	**0.58**
TCF7	2925	3252	2412	2863	4991	5335	4991	5106	**0.57**
NFKB2	193	231	128	184	308	348	321	326	**0.57**
FKBP5	205	204	144	184	318	349	324	330	**0.57**

PTK2	42	63	48	51	96	91	92	93	**0.56**
IL7R	1021	1208	965	1064	2080	2187	1933	2067	**0.55**
CXCL1	48	81	108	79	157	158	155	156	**0.51**
IL8	2196	2637	2105	2312	4646	5008	4600	4751	**0.50**
IL1B	111	158	163	144	330	322	345	332	**0.42**
CXCL2	12	45	56	38	131	123	105	120	**0.36**
CCL3	24	54	44	41	159	152	146	152	**0.28**

Supplemental Table 8. Transcriptional signature for pathogenic Th17 cells of CD146+CCR5+ Tcons in comparison with published work.

Gene	C146+CCR5+ Tconvs vs. T cells excluding CD146+CCR5+	Lee et al, *Nature Immunology* 2012 (*40*)
Cxcl3	Not present	4.52
IL22	**1.20**	3.83
IL3	0.93	2.57
CCL4	0.83	1.97
GZMB	0.88	1.87
LRMP	Not present	1.79
CCL5	**1.99**	1.79
CASP1	0.94	1.76
CSF2	1.00	1.75
CCL3	0.73	1.75
TBX21	**1.69**	1.72
ICOS	0.84	1.72
IL7R	1.04	1.71
STAT4	**1.18**	1.67
LGALS3	Not present	1.56
LAG3	Not present	1.55