

Supplementary Table 1

GO terms enriched among genes upregulated in STAT5b-CA Treg versus control Treg cells

	GO ID	FDR	n	x
G-protein coupled receptor signaling pathway	7186	3.88E-06	25	182
regulation of locomotion	40012	1.11E-05	35	359
regulation of cellular component movement	51270	1.52E-05	34	356
regulation of cell motility	2000145	2.84E-05	31	326
regulation of cell migration	30334	7.41E-05	29	308
regulation of localization	32879	1.98E-04	68	1160
positive regulation of locomotion	40017	9.76E-04	20	194
positive regulation of cell motility	2000147	4.05E-03	18	183
signal transduction	7165	1.33E-05	94	1650
single organism signaling	44700	1.52E-05	96	1729
signaling	23052	1.52E-05	96	1732
cell communication	7154	1.67E-05	98	1790
response to stimulus	50896	1.83E-05	146	3086
cellular response to stimulus	51716	2.86E-03	115	2509
single-organism process	44699	1.52E-05	241	5993
single-organism cellular process	44763	1.98E-04	215	5311
regulation of cell proliferation	42127	1.72E-05	53	743
positive regulation of cell proliferation	8284	7.53E-04	32	408
immune system process	2376	2.92E-05	59	892
immune response	6955	8.40E-04	33	431
cell surface receptor signaling pathway	7166	5.11E-05	52	755
regulation of multicellular organismal process	51239	7.21E-04	67	1183
biological adhesion	22610	5.04E-04	31	379
cell adhesion	7155	2.14E-03	29	372
regulation of cell adhesion	30155	2.41E-03	27	336
cell-substrate adhesion	31589	4.39E-03	10	63
regulation of response to wounding	1903034	4.53E-03	17	169
organ development	48513	4.05E-03	64	1189
negative regulation of multicellular organismal process	51241	2.67E-03	34	481
positive regulation of cellular process	48522	2.43E-03	116	2522
positive regulation of biological process	48518	2.86E-03	129	2899

n = number of enriched genes

x = total number of genes in GO term gene set

bold = term shown in Fig. 5f.

Thick black borders demarcate terms that were manually grouped together in Fig. 5f.

GO terms enriched among genes downregulated in STAT5bCA Treg versus control Treg cells

	GO ID	FDR	n	x
regulation of multicellular organismal process	51239	2.43E-05	69	1183
regulation of multicellular organismal development	2000026	2.78E-05	52	799
regulation of developmental process	50793	9.86E-05	61	1077
regulation of cell differentiation	45595	1.63E-04	47	761
positive regulation of multicellular organismal process	51240	1.90E-04	43	672
positive regulation of developmental process	51094	1.41E-03	35	565
response to stimulus	50896	2.78E-05	134	3086
single organism signaling	44700	2.01E-04	83	1729
signal transduction	7165	2.01E-04	80	1650
signaling	23052	2.01E-04	83	1732
cell communication	7154	2.01E-04	85	1790
cellular response to stimulus	51716	1.22E-03	105	2509
immune response	6955	2.96E-05	35	431
response to external stimulus	9605	8.67E-05	44	656
defense response to other organism	98542	1.38E-04	19	169
response to biotic stimulus	9607	6.56E-04	26	333
response to other organism	51707	7.22E-04	25	318
response to external biotic stimulus	43207	7.22E-04	25	318
defense response	6952	7.94E-04	30	428
immune system process	2376	9.16E-04	49	892
multi-organism process	51704	9.60E-04	44	768
system development	48731	7.12E-05	84	1669
single-multicellular organism process	44707	1.09E-04	106	2344
multicellular organismal development	7275	1.11E-04	93	1968
anatomical structure development	48856	1.90E-04	93	2008
multicellular organismal process	32501	2.51E-04	106	2422
cellular developmental process	48869	7.94E-04	74	1557
cell differentiation	30154	2.46E-03	68	1456
single-organism developmental process	44767	3.36E-03	96	2302
developmental process	32502	4.40E-03	96	2320
anatomical structure morphogenesis	9653	1.09E-04	55	936
tissue development	9888	8.04E-04	40	661
organ development	48513	1.00E-03	60	1189
epithelium development	60429	3.88E-03	27	409
tissue morphogenesis	48729	4.79E-03	20	261
response to chemical	42221	1.95E-04	69	1337
cellular response to organic substance	71310	7.22E-04	42	703
cellular response to chemical stimulus	70887	8.86E-04	49	890
response to organic substance	10033	1.55E-03	52	997
negative regulation of biological process	48519	2.97E-04	105	2402
regulation of cellular process	50794	1.03E-03	176	4832
nervous system development	7399	4.35E-04	50	879
generation of neurons	48699	1.80E-03	37	621
regulation of nervous system development	51960	2.97E-03	26	379
neurogenesis	22008	3.36E-03	38	668
response to hormone	9725	6.56E-04	23	272
cell projection morphogenesis	48858	6.99E-04	23	274
cell part morphogenesis	32990	1.22E-03	23	293
cell projection organization	30030	1.33E-03	30	447
sensory perception	7600	7.22E-04	15	130
G-protein coupled receptor signaling pathway	7186	7.22E-04	18	182
defense response to bacterium	42742	9.60E-04	11	75
cell surface receptor signaling pathway	7166	1.22E-03	43	755
positive regulation of immune system process	2684	2.90E-03	26	378

n = number of enriched genes

x = total number of genes in GO term gene set

bold = term shown in Supplementary Fig. 6c.

Thick black borders demarcate terms that were manually grouped together in Supplementary Fig. 6c.

Supplementary Table 2

Antibody list

Antibody	Clone	Fluorescein, Dilution	Manufacturer
B220	RA3-6B2	PE-TexasRed, 1:500	BD Biosciences
CD103	2E7	PE, 1:500,	eBioscience
CD11b	M1770	APC-eFluor780, 1:300	Tonbo Biosciences
CD11c	N418	PE-Cy7, 1:500	eBioscience
CD122	5H4	PE, 1:200	eBioscience
CD127	A7R34	PE, 1:200; PerCP-Cy5.5, 1:200	eBioscience
CD132	TUGm2	PE, 1:200; APC, 1:200	BD Biosciences
CD25	PC61	PE, 1:400; PE-Cy7, 1:500; APC, 1:300	eBioscience
CD3	17A2	eFluor450, 1:200; PerCP-Cy5.5, 1:300	eBioscience
CD4	RM4-5	PE-eFluor610, 1:500	eBioscience
CD44	IM7	PE, 1:500; eFluor450 1:300	eBioscience
CD45	30-F11	Alexa700, 1:400	eBioscience
CD62L	MEL-14	APC, 1:300	eBioscience
CD69	H1.2F3	APC, 1:300	eBioscience
CD8	5H10	BV605, 1:300	BioLegend
CD80	16-10A1	APC, 1:300; PE, 1:500	eBioscience
CD86	GL1	APC, 1:300; PE, 1:500	eBioscience
CTLA-4	UC10-4B9	PE, 1:300; APC, 1:300	eBioscience
Foxp3	FJK-16s	eFluor450, 1:200, FITC, 1:300; PE-Cy7, 1:500; APC, 1:300	eBioscience
GITR	DTA-1	eFluor450, 1:300; APC, 1:500	eBioscience
Gr-1	RB6-8C5	PE, 1:400	BD Biosciences
ICOS	7E.17G9	eFluor450, 1:200; PE, 1:400	eBioscience
IFN- γ	XMG1.2	PE, 1:500	Tonbo Biosciences
IL-13	eBio13A	PE, 1:300	eBioscience
IL-17	eBio17B7	APC, 1:300	eBioscience
IL-4	11B11	PE, 1:300; APC, 1:300	eBioscience
Ki-67	B56	PE, 1:400	BioLegend
KLRG1	2F1	APC, 1:300	eBioscience
MHC Class II (I-A/I-E)	M5/114.15.2	eFluor450, 1:1000	eBioscience
pY-STAT5	47/Stat5(pY694)	Alexa647, 1:100	BD Biosciences
TCR β	H57-597	PerCP-Cy5.5, 1:200	BioLegend
TNF α	MP6-XT22	PE-Cy7, 1:500; PE, 1:500	BD Biosciences
V β 10b	B21.5	FITC, 1:50	BD Biosciences
V β 11	RR3-15	FITC, 1:50	BD Biosciences
V β 12	MR11-1	FITC, 1:50	BD Biosciences
V β 13	MR12-3	FITC, 1:50	BD Biosciences
V β 14	14-2	FITC, 1:50	BD Biosciences
V β 2	B20.6	FITC, 1:50	BD Biosciences
V β 3	KJ25	FITC, 1:50	BD Biosciences
V β 4	KT4	FITC, 1:50	BD Biosciences
V β 5.1, 5.2	MR9-4	FITC, 1:50	BD Biosciences
V β 6	RR4-7	FITC, 1:50	BD Biosciences
V β 7	TR310	FITC, 1:50	BD Biosciences
V β 8.1, 8.2	MR5-2	FITC, 1:50	BD Biosciences
V β 8.3	1B3.3	FITC, 1:50	BD Biosciences
V β 9	MR10-2	FITC, 1:50	BD Biosciences