

Table 7. Genes preferentially expressed in  $\gamma\delta$  IELs

A list of genes identified as being more abundantly expressed in  $\gamma\delta$  IELs than MLN CD8+  $\alpha\beta$  T cells by ANOVA. Average gene expression values are shown for  $\gamma\delta$  IELs ( $\gamma\delta$  T), MLN CD8+  $\alpha\beta$  T cells ( $\alpha\beta$  T), and epithelial cells (Epi). Because differences in gene expression between the infected and uninfected samples of the  $\alpha\beta$  and  $\gamma\delta$  T cells were small, all four  $\gamma\delta$  IEL samples were compared against all six MLN CD8+  $\alpha\beta$  T cell samples by ANOVA tests. In all, 235 genes fit the following criteria. These genes (i) have a p value <  $7.87 \times 10^{-6}$  (1,206 / 6,352 genes), (ii) are more highly expressed in  $\gamma\delta$  than in  $\alpha\beta$  T cells (449 / 1,206 genes), (iii) are called "present" or "moderate" in at least two  $\gamma\delta$  IEL samples (344 / 449 genes), (iv) have a difference in median expression of at least 15 between the  $\gamma\delta$  and  $\alpha\beta$  T cell samples (246 / 344 genes), and (v) show at least a 1.5-fold difference in median expression between the  $\gamma\delta$  and  $\alpha\beta$  T cell samples (235 / 246 genes). To avoid large differences in expression because of negative or very small values in  $\alpha\beta$  T cell gene expression, all  $\alpha\beta$  T cell expression values < 1 were made equal to 1 before calculating the absolute and fold differences in steps (iv) and (v).

#### Immune defense mediators

$\gamma\delta$ T	$\alpha\beta$ T	Epi.	Accession	P value	Description
<b>Cytokines/chemokines</b>					
3065	566	A	U02298	1.40E-73	RANTES
215	49	A	D43769	7.59E-40	Lymphotoxin
58	25	A	W29669	3.71E-14	TIS7/PC4, homolog
39	A	A	M73061	3.11E-15	MIP-1 $\alpha$
38	A	A	M23503	4.78E-50	MIP-1 $\beta$
36	A	A	X16151	6.44E-33	Secreted phosphoprotein 1 (eta-1/osteopontin)
30	A	A	M32745	1.29E-11	Transforming growth factor, $\beta$ 3
22	8	A	J00424	1.31E-20	TIS7/PC4/interferon-related developmental regulator 1
<b>Cytotoxic proteins/related</b>					
2630	116	19	M13226	4.70E-95	Granzyme A
2117	59	8	X04072	1.32E-99	Granzyme B
583	258	22	X16133	1.79E-12	Serglycin
275	A	A	U06948	9.12E-79	Fas Ligand
222	8	153	M33225	1.06E-64	Cryptdin
25	A	107	M33226	1.77E-12	Defensin-related sequence cryptdin peptide (CRS1C)
22	A	A	X58861	2.12E-06	Complement CiQ $\alpha$ chain
<b>Enzymes, inflammation</b>					
174	97	19	M63848	1.65E-14	Leukotriene A-4 hydrolase
73	35	40	L11455	1.90E-14	p47phox

#### Cell-surface molecules

$\gamma\delta$ T	$\alpha\beta$ T	Epi.	Accession	P value	Description
<b>TCR/associated</b>					
1321	21	A	M12836	1.65E-111	TCR $\gamma$ chain, constant region
740	11	A	L36135	1.84E-92	TCR $\delta$ chain, constant region
71	18	A	AA118701	1.14E-16	TCR $\delta$ chain, variable region
62	A	A	AA119287	3.39E-14	TCR $\delta$ chain, variable region
726	394	A	Y00635	5.40E-11	CD3- $\gamma$
597	16	17	W41745	1.32E-110	Fc-epsilon-R1 $\gamma$ subunit
<b>NK Activating/inhibitory receptors</b>					
182	A	A	L19057	2.57E-71	NK cell receptor 2B4
138	A	A	X98113	2.15E-76	LAG-3

#### Intestinal function and homeostasis

$\gamma\delta$ T	$\alpha\beta$ T	Epi.	Accession	P value	Description
289	A	A	K00811	1.56E-77	Carbonic anhydrase isozyme II
226	A	A	M16238	2.33E-74	Fibrinogen-like protein
152	8	A	M64085	9.32E-58	Spi2/EB1 proteinase inhibitor
116	A	A	L26489	4.67E-35	Furin
116	59	A	AA089339	3.74E-06	Cystatin 7 (Cst7/leukocystatin)
91	A	A	M27347	1.17E-49	p6-5 (preproelastase, homolog)
21	A	A	U57746	3.58E-12	Platelet-activating factor acetylhydrolase, 1b, a1 subunit
23	A	42	L19932	4.96E-14	$\beta$ ig-h3
45	A	91	AA145127	1.04E-11	Monocyte/neutrophil elastase inhibitor, homolog
108	A	111	AA106468	5.93E-14	Serine protease inhibitor, Kazal type 3 (Spink3)
165	14	150	M22679	2.34E-33	Alcohol dehydrogenase class I (ADH-A-2)
104	A	297	L15193	7.31E-31	Meprin 1 $\beta$
79	A	1567	D38410	1.60E-26	Trefoil Factor 3, intestinal (Tff3)

#### Cholesterol/Lipid biosynthesis and metabolism

$\gamma\delta$ T	$\alpha\beta$ T	Epi.	Accession	P value	Description
110	A	A	D00466	1.21E-20	Apolipoprotein E
66	27	A	AA036251	1.20E-16	Farnesyl diphosphate synthase, homolog
65	16	A	D29016	1.90E-13	Squalene synthase
61	11	A	U37226	1.71E-27	Plasma phospholipid binding protein
54	29	A	U21489	2.86E-11	Acetyl CoA dehydrogenase, long-chain
51	A	A	X64414	2.76E-39	LDL receptor
50	A	A	D42048	1.18E-37	Squalene epoxidase
44	23	A	M26270	3.34E-08	Stearoyl-coenzyme A desaturase 2
38	A	A	M93275	3.53E-06	Adipose differentiation related protein
22	A	48	AA014996	2.53E-14	Apolipoprotein B (ApoB), homolog
26	A	40	M13366	3.13E-07	Glycerophosphate dehydrogenase
35	A	41	AA016485	1.04E-10	Hydroxysteroid sulfotransferase (SULT2B)
38	A	187	W17412	4.05E-26	Apolipoprotein A-I/C-III, 5'
44	A	406	U00938	2.76E-35	Ileal lipid binding protein
51	A	356	Z22216	6.31E-21	Apolipoprotein C-II
89	A	526	M64250	1.40E-42	Apolipoprotein A-IV
101	39	125	D29639	2.99E-13	3-hydroxyacyl CoA dehydrogenase

87	A	A	U10091	1.23E-47	Ly-49E-GE (Klra5)
58	A	A	U05265	1.38E-15	NK cell receptor gp49B
55	A	13	X67914	1.54E-12	PD-1/programmed cell death 1
49	A	A	X05719	8.99E-47	CTLA-4
38	A	A	M77753	2.81E-43	NK cell receptor NKR-P1A
Cytokine/chemokine/similar					
262	46	A	M59378	2.24E-59	Tumor necrosis factor receptor 2
125	49	100	X57796	3.36E-39	Tumor necrosis factor receptor 1
225	91	30	J05265	4.99E-26	Interferon $\gamma$ receptor
209	70	A	M28052	1.40E-40	IL-2 receptor, $\beta$ chain
31	A	A	U23922	8.83E-14	IL-12 receptor, $\beta$ 1
40	A	A	AA034646	2.48E-16	L-CCR chemokine receptor
62	A	A	D13458	9.72E-59	Prostaglandin E receptor, EP4 subtype
Other surface molecules					
1290	170	A	D31956	5.83E-65	CD7
781	152	14	U12236	4.51E-44	Integrin $\alpha$ -E
335	111	62	U25708	1.42E-51	CD98, heavy chain
268	69	304	X16834	5.49E-58	Mac-2
177	A	280	M76124	4.27E-51	EGP314
166	A	A	Y00864	1.32E-64	c-kit
109	A	842	U77083	1.47E-32	CD13/aminopeptidase N
96	50	A	L22143	1.57E-12	Insulin-like growth factor II
85	27	A	X55184	1.78E-24	Immune suppressor factor TJ6
81	16	A	M33581	1.37E-48	Multidrug resistance protein 1a
79	35	A	U39827	2.50E-10	TDAG8/Gpcr25
74	35	61	W08454	3.42E-12	Tetraspanin TM4-A, homolog
65	A	268	V01527	1.89E-14	MHC class II, IA- $\beta$
64	A	144	J04634	1.81E-14	Cell surface antigen 114/A10
62	A	35	X60961	9.60E-25	E-cadherin
61	33	A	U07890	2.89E-06	Flotillin 2
47	A	38	M29961	2.62E-12	Glutamyl Aminopeptidase
38	A	6	AA008624	8.52E-33	Integrin $\alpha$ -1, homolog
27	4	11	AA170355	1.05E-16	Integrin $\alpha$ -X
23	A	A	L11332	1.44E-11	CD38

#### Other

$\gamma\delta$ T	$\alpha\beta$ T	Epi.	Accession	P value	Description
Cytoskeletal					
158	77	245	D10024	7.64E-11	Annexin II
71	A	599	X12789	9.63E-13	Cytokeratin 8 (endo A)
59	27	A	X97650	3.47E-07	Myosin If
56	8	63	X59990	4.79E-36	$\alpha$ -Catenin
55	38	A	AA032596	2.75E-06	Kinesin light chain isoform D, homolog
50	A	196	M98454	3.71E-34	Villin
41	A	A	U04354	2.36E-55	Scinderin
39	A	A	X61452	5.13E-23	Peanut-like 2 homolog/H5 septin
29	A	33	U49739	3.59E-32	Myosin VI
Enzymes, metabolic					
107	48	282	X53333	8.04E-21	Triosephosphate isomerase
89	34	37	X13752	1.19E-29	Porphobilinogen synthase
80	24	29	X64837	3.90E-09	Ornithine aminotransferase

153	A	810	AA087320	4.59E-41	Fatty acid-binding protein (L-FABP)
199	A	749	X64263	2.30E-32	Apolipoprotein A-I/C-III
816	A	2670	M65034	1.61E-34	Fatty acid-binding protein, intestinal

#### Signal transduction

$\gamma\delta$ T	$\alpha\beta$ T	Epi.	Accession	P value	Description
1207	21	A	AA154742	1.57E-90	Regulator of G-protein signaling 1 (RGS1)
1020	A	A	AA138863	2.34E-70	Regulator of G-protein signaling 1 (RGS1)
620	101	77	X61940	9.18E-68	MAPK phosphatase 1 (3CH134)
479	308	27	M90388	1.59E-42	70zpep protein tyrosine phosphatase
337	195	A	U08378	1.79E-10	Stat3/APRF
271	94	113	M13945	6.20E-47	Pim-1
185	41	17	L16462	8.19E-12	A1
155	62	A	U52044	1.03E-20	SH2 containing inositol-5-phosphatase (Ship)
123	77	A	Y08135	1.08E-20	ASM-like phosphodiesterase 3a
122	14	A	U50413	4.48E-33	PI-3-kinase, regulatory subunit p85 $\alpha$
22	A	A	AA111021	2.93E-06	PI-3-kinase, catalytic subunit, $\beta$ , homolog
109	55	A	U36799	6.69E-23	Rb2/p130
36	A	A	M26391	1.31E-28	Rb1/p105Rb
105	36	A	D78141	9.47E-30	TNF receptor-associated factor 5 (Traf5)
98	59	A	Y09010	1.11E-06	Serine/threonine kinase (MAP4K1, homolog)
95	28	A	X61434	8.16E-37	cAMP-dependent protein kinase, $\beta$ -catalytic subunit
39	27	A	M19960	2.61E-07	cAMP-dependent protein kinase, $\alpha$ subunit
88	A	A	M60285	6.05E-33	cAMP-responsive element modulator
86	50	A	L13103	1.55E-07	MAP kinase kinase kinase 1 (Mekk1)
86	41	A	M63660	1.29E-10	Guanine nucleotide binding protein, $\alpha$ 13
66	26	91	Z14249	7.30E-18	Mitogen activated protein kinase (erk-1)
61	27	51	M22326	8.13E-11	Early growth response 1 (Egr1/zif/268)
61	17	A	D31943	3.26E-14	Cytokine-inducible SH2-containing protein
57	A	A	U28217	6.82E-55	Protein tyrosine phosphatase STEP61
56	14	A	X54149	9.96E-33	MyD118
23	A	A	L28177	4.46E-13	Ddit1/Gadd45
56	A	A	X12616	2.22E-30	c-Fes (tyrosine kinase)
54	26	A	AA124192	4.33E-08	Lithium-sensitive myo-inositol monophosphatase A1
52	A	A	U54803	2.98E-10	Caspase-3/CPP32
52	25	A	U70324	2.51E-12	Fyn proto-oncogene (Fyn/p59fyn)
48	25	A	X55663	9.36E-11	Protein tyrosine kinase, tec type I
38	17	A	W83658	2.12E-09	G protein $\gamma$ -2 subunit, homolog
35	A	45	U43144	1.27E-14	Phospholipase C $\beta$ 3
34	A	27	M57696	1.28E-12	Lyn-B protein tyrosine kinase
24	A	A	W82116	7.60E-17	Death-associated protein kinase 2, homolog
20	A	A	L20899	4.25E-11	Cdc25, homolog

#### Transcription factors

$\gamma\delta$ T	$\alpha\beta$ T	Epi.	Accession	P value	Description
1251	353	271	M94087	5.52E-46	ATF-4/CREB2
478	167	A	M69293	2.64E-29	Id-2
59	11	188	M31885	5.42E-16	Id
454	233	58	J03236	6.14E-10	Jun-B
299	171	26	X13605	1.19E-09	H3 histone, family 3B (H3f3b)
298	125	100	V00727	1.62E-24	c-Fos

66	A	101	X63023	4.09E-14	Cytochrome P450, steroid inducible 3a13 (Cyp3a13)	281	80	50	M63903	4.87E-37	Max/Myn (Myc-associated factor X)
26	6	A	D50834	6.66E-06	Cytochrome P450, subfamily IV B, polypeptide 1	27	A	36	X83106	2.41E-18	Max dimerization protein (Mad)
64	A	85	U16818	1.46E-14	UDP glucuronosyltransferase (UGT1-06)	157	49	A	X16995	6.27E-09	Nur77/N10/NGFI-B
59	25	A	Z14986	3.83E-11	S-adenosylmethionine decarboxylase 2 (Amd2)	152	99	A	M58566	4.46E-38	Butyrate response factor 1/TIS11
45	A	205	Z13968	1.66E-17	Creatine kinase, mitochondrial 1, ubiquitous (Ckmt1)	92	26	A	U19463	8.67E-26	A20/TNF induced protein 3
45	A	129	M74570	1.07E-18	Aldehyde dehydrogenase II	86	14	A	X89749	2.52E-32	TG interacting factor (TGIF)
36	A	A	U60987	1.15E-43	Glycerol phosphate dehydrogenase 1, mitochondrial	76	24	A	U78312	3.89E-20	Gfi-1
27	A	30	U27014	5.67E-15	Sorbitol dehydrogenase	70	24	61	X67083	1.63E-18	Ddit3/Chop-10/Gadd153
138	75	A	W99875	1.59E-22	Pyruvate kinase 3 (Pk3), homolog	68	33	A	AA023287	1.55E-08	General transcription factor IIB (GTF2B), homolog
45	A	106	AA023491	8.19E-13	Amiloride binding protein, homolog	64	31	A	D42124	7.94E-12	MafK
35	A	A	AA109909	1.60E-07	Amiloride binding protein, homolog	59	A	104	U70662	3.62E-23	Kruppel-like factor 4 (gut) (Klf4/Ezf/Zie)
27	A	49	J05663	1.85E-10	Androgen-regulated vas deferens protein	58	A	A	D14636	7.79E-38	PEBP2a1/PEBP2αA/CBFA1
Enzymes, nucleotide metabolism											
93	32	218	M10319	4.40E-20	Adenosine deaminase (Ada)	57	30	A	AA015076	1.52E-07	TSC-22-like protein, homolog
46	22	A	X56548	1.01E-15	Purine nucleoside phosphorylase (Np-1)	51	15	A	AA016424	4.91E-18	X box-binding protein-1 (Xbp1)
65	24	99	X75129	1.72E-25	Xanthine oxidase/dehydrogenase	51	21	36	U20532	4.26E-14	p45 NF-E2 related factor 2
44	13	A	L12059	3.48E-14	CD73/ecto-5'-nucleotidase	49	A	A	Z11664	3.57E-21	Son of Sevenless 2
Protein processing/related											
278	175	30	D78645	7.83E-11	BiP	48	A	A	X62600	5.33E-34	C/EBP β
151	85	266	J05185	1.55E-16	Protein disulfide isomerase (ERp59)	48	A	A	M32489	2.13E-34	Interferon consensus sequence binding protein
107	21	A	AA144887	7.54E-21	Cathepsin C (Ctsc)	47	A	A	D38417	1.90E-35	Arylhydrocarbon receptor
72	24	79	U51014	5.02E-12	Peptidase 4 (Pep4/prolidase)	44	A	73	U19118	2.09E-17	LRG-21
66	35	A	AA124985	8.33E-10	Insulin-degrading enzyme (IDE), homolog	36	A	41	X62940	4.33E-30	TSC-22
42	A	A	X92523	9.47E-15	Calpain 3 (Capn3)	35	18	A	J04115	5.07E-07	c-Jun
33	13	37	X59379	7.71E-12	Amyloid β precursor (protease nexin II)	33	A	A	U08185	2.57E-38	Blimp1
63	34	A	U10119	3.38E-12	Suppressor of K <sup>+</sup> transport defect 1 (Skd1)	20	A	A	U16322	3.34E-09	MITF-2B
56	35	29	D87990	2.56E-08	UDP-galactose transporter related isozyme 1	19	A	A	X76654	1.58E-06	Ear-2
54	A	A	M85153	2.74E-21	Glycoprotein galactosyltransferase α 1, 3 (Ggta1)						
22	A	A	X93999	1.19E-10	Sialyltransferase 7						
RNA-related											
213	111	32	M38381	2.62E-14	CDC-like kinase (Clk/Sty)						
186	141	247	-		18SRNAMur-3						
153	93	18	AA008245	5.23E-10	Polyadenylate-binding protein, homolog						
103	53	A	D78135	3.20E-09	Cold-inducible RNA-binding protein (Cirbp)						
82	46	A	M12130	6.59E-13	RNA polymerase II 1 (Rpo2-1)						
82	21	25	W90866	8.88E-29	Elongation factor 2 (ef-2), homolog						
71	30	A	U75680	4.19E-15	Stem loop-binding protein (Slbp)						
47	32	A	D83033	7.70E-07	Nuclear protein 220 (Np220)						
40	15	A	AA125097	4.26E-14	Ribonucleoprotein, homolog						
40	27	A	W82026	5.13E-16	RNA-binding protein SCR3, homolog						
Other											
647	79	A	M64292	5.92E-71	B-cell translocation gene 2, anti-proliferative (BTG2)						
74	40	A	Z72000	9.58E-10	B-cell translocation gene 3 (BTG3/ANA)						
383	128	564	X99807	1.23E-09	Selenoprotein P						
275	A	375	D13509	2.11E-23	PAP homologous protein						
215	92	39	U37351	4.20E-12	Paneth cell enhanced expression						
204	59	211	X61433	1.00E-09	ATPase, Na <sup>+</sup> /K <sup>+</sup> transporting, β 1						
124	41	A	U10484	3.76E-25	Jaw1						
120	A	189	D14010	2.32E-22	RegI protein						
97	A	421	AA123026	6.93E-22	RegIIIγ protein						
101	A	196	AA064246	1.10E-20	Sodium-glucose cotransporter 1 (SGLT1)						

36	A	75	W18827	6.60E-12	Sodium-glucose cotransporter 1 (SGLT1)
128	47	A	L04961	5.90E-15	Xist (X inactive specific transcript)
119	51	43	M96823	3.31E-13	Nucleobindin (Nucb)
95	41	A	U42386	1.14E-06	Fibroblast growth factor-inducible 14 (Fin14)
78	40	100	U53591	1.03E-31	Fau-ps3 retropseudogene
72	11	35	M55154	5.86E-44	Transglutaminase
68	26	A	D00812	9.87E-14	Replication protein A2 (Rpa2)
53	29	A	AA114648	6.04E-06	Osteoclast-specific 116-kDa V-ATPase subunit(TIRC7)
44	21	16	D13003	2.49E-14	Reticulocalbin
41	14	A	W40735	1.66E-13	EH domain-containing protein EHD1 (mPAST1), hmlg.
37	A	23	U68064	1.42E-12	Ceroid lipofuscinosis, neuronal 3, juvenile (Cln3)
35	19	A	X17459	4.41E-10	J κ RS-binding protein
27	A	15	M32032	3.33E-10	Selenium-binding protein 1
25	A	86	M32240	4.25E-26	Pmp22/Gas3
24	A	68	U00478	1.16E-14	DNaseI precursor
32	A	A	M34897	2.89E-09	Ecotropic viral integration site 2 (Evi2)
29	A	A	M11024	1.80E-25	Endogenous mammary tumor virus (MMTV)
82	41	A	AA154451	8.87E-11	Unknown