Table S1

Gene name	UniProt ID	Uniprot description	Normalized PCMC spectral counts (avg.)	Normalized BMCMC spectral counts (avg.)
Mcpt4	MCPT4_MOUSE	Mast cell protease 4 (mMCP-4)	62.34	0.81
Ahnak	E9Q616_MOUSE	Protein Ahnak	20.38	0.81
Flna	FLNA_MOUSE	Filamin-A	19.54	0
Mcpt1	Q496V0_MOUSE	Mast cell protease 1	15.14	0
Aoah	AOAH_MOUSE	Acyloxyacyl hydrolase	12.82	0.4
Cpq	CBPQ_MOUSE	Carboxypeptidase Q	12.66	0
Galc	GALC_MOUSE	Galactocerebrosidase	12.27	0.28
Ecm1	ECM1_MOUSE	Extracellular matrix protein 1	12.17	0
Ddah2	DDAH2_MOUSE	N(G),N(G)-dimethylarginine dimethylaminohydrolase 2	8.65	0.81
Papss2	PAPS2_MOUSE	Bifunctional 3'-phosphoadenosine 5'-phosphosulfate synthase 2	8.64	0
Lap3	AMPL_MOUSE	Cytosol aminopeptidase	8.56	0
Syngr1	SNG1_MOUSE	Synaptogyrin-1	7.53	0.81
Ckb	KCRB_MOUSE	Creatine kinase B-type	7.06	0
Aars	SYA_MOUSE	Alanine--tRNA ligase, cytoplasmic	6.45	0.13
Rbp1	Q58EU7_MOUSE	Rbp1 protein	6.38	0
Ide	IDE_MOUSE	Insulin-degrading enzyme	6.19	0.27
Kv2a7	KV2A7_MOUSE	Ig kappa chain V-II region 26-10	5.89	0.67
Ptprg	PTPRG_MOUSE	Receptor-type tyrosine-protein phosphatase gamma	5.6	0
Prkar2b	KAP3_MOUSE	cAMP-dependent protein kinase type II-beta regulatory subunit	5.5	0.14
Pacsin2	Q3TDA7_MOUSE	Protein kinase C and casein kinase substrate in neurons 2, isoform CRA_a	5.04	0.68

Sdf4	CAB45_MOUSE	45 kDa calcium-binding protein	5.03	0
Mcpt4	Q3UN88_MOUSE	Mast cell protease 4	4.79	0
Scpep1	RISC_MOUSE	Retinoid-inducible serine carboxypeptidase	4.76	0
Aga	A2RSS6_MOUSE	Aspartylglucosaminidase	4.71	0.41
Sars	SYSC_MOUSE	Serine--tRNA ligase, cytoplasmic	4.53	0.81
Igh-6	IGHM_MOUSE	Ig mu chain C region secreted form	4.51	0.13
Ap2b1	AP2B1_MOUSE	AP-2 complex subunit beta	4.48	0.8
Dync1h1	DYHC1_MOUSE	Cytoplasmic dynein 1 heavy chain 1	4.46	0.81
Emp3	EMP3_MOUSE	Epithelial membrane protein 3	4.44	0
Pgk2	PGK2_MOUSE	Phosphoglycerate kinase 2	4.22	0.52
Myo1c	MYO1C_MOUSE	Unconventional myosin-Ic	3.96	0.8
Map4	MAP4_MOUSE	Microtubule-associated protein 4	3.93	0.14
Slc38a7	S38A7_MOUSE	Putative sodium-coupled neutral amino acid transporter 7	3.92	0.4
Serbp1	PAIRB_MOUSE	Plasminogen activator inhibitor 1 RNA-binding protein	3.92	0.82
Camk2d	KCC2D_MOUSE	Calcium/calmodulin-dependent protein kinase type II subunit delta	3.9	0
Cd44	CD44_MOUSE	CD44 antigen	3.85	0.81
Pros1	Q3TR66_MOUSE	Protein S (Alpha)	3.85	0
Epdr1	EPDR1_MOUSE	Mammalian ependymin-related protein 1	3.67	0
Fdps	Q4FJN9_MOUSE	Fdps protein	3.63	0.81
Serpinb1b	ILEUB_MOUSE	Leukocyte elastase inhibitor B	3.55	0.68
Ddx39b	DX39B_MOUSE	Spliceosome RNA helicase Ddx39b	3.37	0
Cth	CGL_MOUSE	Cystathionine gamma-lyase	3.34	0
Ufd1l	UFD1_MOUSE	Ubiquitin fusion degradation protein 1 homolog	3.34	0

Lipa	LICH_MOUSE	Lysosomal acid lipase/cholesteryl ester hydrolase	3.34	0.4
Ncam1	NCAM1_MOUSE	Neural cell adhesion molecule 1	3.32	0
Ca8	A2AKP8_MOUSE	Carbonic anhydrase-related protein	3.08	0
Hnrnpa0	ROA0_MOUSE	Heterogeneous nuclear ribonucleoprotein A0	3.07	0
Aimp1	AIMP1_MOUSE	Aminoacyl tRNA synthase complex-interacting multifunctional protein 1	3.07	0
Eif5b	IF2P_MOUSE	Eukaryotic translation initiation factor 5B	3.07	0.13
Psat1	Q543K5_MOUSE	Phosphoserine aminotransferase	3.05	0
Gars	SYG_MOUSE	Glycine--tRNA ligase	3.04	0.27
Lrp1	LRP1_MOUSE	Prolow-density lipoprotein receptor-related protein 1	3.03	0.68
Csf2	Q5SX78_MOUSE	Colony stimulating factor 2 (Granulocyte-macrophage)	2.84	0.14
Rrbp1	RRBP1_MOUSE	Ribosome-binding protein 1	2.84	0.13
Akap2	AKAP2_MOUSE	A-kinase anchor protein 2	2.81	0
Ehd4	Q3TM70_MOUSE	EH-domain containing 4	2.81	0
Slc1a4	Q3UTP8_MOUSE	Solute carrier family 1 (Glutamate/neutral amino acid transporter), member 4	2.8	0
Pdap1	B2RTB0_MOUSE	MCG17262	2.8	0.14
Adh7	Q9D748_MOUSE	Alcohol dehydrogenase 7 (Class IV), mu or sigma polypeptide	2.79	0.67
Slc12a4	Q3TWZ6_MOUSE	Solute carrier family 12, member 4	2.79	0.67
Plxnd1	PLXD1_MOUSE	Plexin-D1	2.79	0.13
Nid1	NID1_MOUSE	Nidogen-1	2.79	0
Ptbp1	PTBP1_MOUSE	Polypyrimidine tract-binding protein 1	2.78	0.4
Acly	A2A4H2_MOUSE	ATP-citrate synthase	2.77	0
Gc	VTDB_MOUSE	Vitamin D-binding protein	2.75	0.54

Cdv3	CDV3_MOUSE	Protein CDV3	2.52	0.81
Tmprss3	TMPS3_MOUSE	Transmembrane protease serine 3	2.52	0
Hspa9	GRP75_MOUSE	Stress-70 protein, mitochondrial	2.47	0.81
Arhgap18	RHG18_MOUSE	Rho GTPase-activating protein 18	2.47	0.14
Man1a	Q544T7_MOUSE	Mannosidase 1, alpha, isoform CRA_a	2.29	0.13
Hnrnph1	Q811L7_MOUSE	Heterogeneous nuclear ribonucleoprotein H1	2.25	0.14
Dars	SYDC_MOUSE	Aspartate--tRNA ligase, cytoplasmic	2.25	0
Eprs	SYEP_MOUSE	Bifunctional glutamate/proline--tRNA ligase	2.23	0.4
Mcpt3	MCPT3_MOUSE	Mast cell protease 3	2.22	0
Psmc3	PRS6A_MOUSE	26S protease regulatory subunit 6A	2.22	0.13
Kv3a7	KV3A7_MOUSE	Ig kappa chain V-III region TEPC 124	2.21	0.54
Tsnax	TSNAX_MOUSE	Translin-associated protein X	2.2	0.52
Arg1	ARGI1_MOUSE	Arginase-1	1.98	0
Elmo1	ELMO1_MOUSE	Engulfment and cell motility protein 1	1.97	0.25
Numa1	E9Q7G0_MOUSE	Protein Numa1	1.97	0.39
Uba2	A2BH28_MOUSE	SUMO-activating enzyme subunit 2	1.95	0
Ipo5	IPO5_MOUSE	Importin-5	1.95	0
Fus	Q564D0_MOUSE	Fusion, derived from t(12;16) malignant liposarcoma (Human), isoform CRA_a	1.95	0
Iah1	IAH1_MOUSE	Isoamyl acetate-hydrolyzing esterase 1 homolog	1.93	0.26
Ldhb	LDHB_MOUSE	L-lactate dehydrogenase B chain	1.9	0.55
Ppp1r14b	PP14B_MOUSE	Protein phosphatase 1 regulatory subunit 14B	1.71	0
Smpd1	ASM_MOUSE	Sphingomyelin phosphodiesterase	1.7	0
Gm14192	B1AQ88_MOUSE	Protein Gm14192	1.67	0.26
Hnrnpf	HNRPF_MOUSE	Heterogeneous nuclear	1.67	0.67

		ribonucleoprotein F		
Rps21	A2ABW8_MOUSE	40S ribosomal protein S21	1.66	0.27
Atp6v0c	VATL_MOUSE	V-type proton ATPase 16 kDa proteolipid subunit	1.66	0.81

Table S2

Gene name	UniProt ID	Uniprot description	Normalized PCMC spectral counts (avg.)	Normalized BMCMC spectral counts (avg.)
Scin	ADSV_MOUSE	Adseverin	0.26	66.88
Mcpt8	Q3UWB6_MOUSE	Mast cell protease 8	0	41.26
Akr1c18	Q3U538_MOUSE	Aldo-keto reductase family 1, member C18, isoform CRA_a	0	33.53
Napsa	Q3U7H1_MOUSE	Putative uncharacterized protein	0	29.36
Jak1	JAK1_MOUSE	Tyrosine-protein kinase JAK1	0.82	22.41
F13a1	F13A_MOUSE	Coagulation factor XIII A chain	0	21.94
Hist1h2af	H2A1F_MOUSE	Histone H2A type 1-F	0.26	21.19
Il4ra	Q3U905_MOUSE	Interleukin 4 receptor, alpha	0.26	19.09
Hist1h2bb	H2B1B_MOUSE	Histone H2B type 1-B	0	19
Ifitm1	IFM1_MOUSE	Interferon-induced transmembrane protein 1	0	18.63
Anxa2	Q542G9_MOUSE	Annexin	0.27	18.36
Stat5a	Q9JIA0_MOUSE	Signal transducer and activator of transcription 5A	0	17.14
Ccl6	SY06_MOUSE	C-C motif chemokine 6	0	16.35
Upp1	UPP1_MOUSE	Uridine phosphorylase 1	0	14.67
Ctsg	Q059V7_MOUSE	Cathepsin G	0.58	14.66
Myo1g	MYO1G_MOUSE	Unconventional myosin-Ig	0	12.29
Tgfbr1	Q4FJL1_MOUSE	Tgfbr1 protein	0.86	11.64
Atp6v0a1	VPP1_MOUSE	V-type proton ATPase 116 kDa subunit a isoform 1	0.58	11.15
Tmem59	TMM59_MOUSE	Transmembrane protein 59	0.56	10.64
Aldh9a1	AL9A1_MOUSE	4-trimethylaminobutyraldehyde dehydrogenase	0.58	10.11
Lrp12	LRP12_MOUSE	Low-density lipoprotein receptor-related protein 12	0.29	10.01
Vamp7	VAMP7_MOUSE	Vesicle-associated membrane protein 7	0.29	9.86
Nov	NOV_MOUSE	Protein NOV homolog	0	9.71
Fcgr2	FCGR2_MOUSE	Low affinity immunoglobulin gamma Fc region receptor II	0.58	9.3
Prep	Q543B9_MOUSE	Prolyl endopeptidase	0.85	9.17

Muc13	Q3V1S6_MOUSE	Mucin 13, epithelial transmembrane, isoform CRA_a	0	9.14
Notch2	NOTC2_MOUSE	Neurogenic locus notch homolog protein 2	0.29	8.95
Tgfbr2	Q543C0_MOUSE	Transforming growth factor, beta receptor II, isoform CRA_b	0	8.53
Cycs	Q56A15_MOUSE	Cytochrome c	0.58	8.5
Slc2a3	Q3TPL8_MOUSE	Solute carrier family 2 (Facilitated glucose transporter), member 3	0	7.97
Gnai3	GNAI3_MOUSE	Guanine nucleotide-binding protein G(k) subunit alpha	0	7.94
F2r	PAR1_MOUSE	Proteinase-activated receptor 1	0.29	7.67
Fcer1g	FCERG_MOUSE	High affinity immunoglobulin epsilon receptor subunit gamma	0	7.58
Tgm1	TGM1_MOUSE	Protein-glutamine gamma-glutamyltransferase K	0	7.55
Rab2a	Q0PD65_MOUSE	RAB2, member RAS oncogene family	0.58	7.44
Il6	A2RTD1_MOUSE	Interleukin 6	0	7.44
Hvcn1	HVCN1_MOUSE	Voltage-gated hydrogen channel 1	0	7.42
Sema4d	SEM4D_MOUSE	Semaphorin-4D	0.82	7.3
Cs	CISY_MOUSE	Citrate synthase, mitochondrial	0	7.15
Mpo	PERM_MOUSE	Myeloperoxidase	0	7.12
Manf	MANF_MOUSE	Mesencephalic astrocyte-derived neurotrophic factor	0.82	6.86
Pepd	A2RS23_MOUSE	Peptidase D	0.29	6.63
Gstp1	GSTP1_MOUSE	Glutathione S-transferase P 1	0.26	6.62
Grhpr	Q3T9Z2_MOUSE	Glyoxylate reductase/hydroxypyruvate reductase	0	6.62
Ifitm3	IFM3_MOUSE	Interferon-induced transmembrane protein 3	0	6.35
Atp6v1b2	VAB2_MOUSE	V-type proton ATPase subunit B, brain isoform	0	6.34
Ptpra	PTPRA_MOUSE	Receptor-type tyrosine-protein phosphatase alpha	0	6.34
Il2rg	Q3UPA9_MOUSE	Interleukin 2 receptor, gamma chain, isoform CRA_b	0.55	6.29

Sema4b	SEM4B_MOUSE	Semaphorin-4B	0.56	6.22
Ccl3	Q5QNW0_MOUSE	Chemokine (C-C motif) ligand 3	0	6.2
Ran	RAN_MOUSE	GTP-binding nuclear protein Ran	0.27	6.19
Prkar1a	A2AI68_MOUSE	cAMP-dependent protein kinase type I-alpha regulatory subunit	0.56	6.07
Abcc1	A5D6P3_MOUSE	ATP-binding cassette, sub-family C (CFTR/MRP), member 1	0	5.93
Atp8a1	AT8A1_MOUSE	Probable phospholipid-transporting ATPase IA	0.26	5.92
Ctsl	Q543M3_MOUSE	Cathepsin L	0.26	5.92
Lgmn	A2RTI3_MOUSE	Legumain	0	5.79
Rab38	Q5FW76_MOUSE	RAB38, member of RAS oncogene family	0	5.79
Capn5	Q3TPL4_MOUSE	Putative uncharacterized protein	0.26	5.68
Igfbp5	Q3UQV0_MOUSE	Insulin-like growth factor binding protein 5, isoform CRA_a	0	5.67
Glipr2	B1AWD5_MOUSE	Golgi-associated plant pathogenesis-related protein 1	0	5.65
Tmem9	TME9_MOUSE	Transmembrane protein 9	0.29	5.54
Myl12b	ML12B_MOUSE	Myosin regulatory light chain 12B	0	5.54
Entpd1	Q544U5_MOUSE	Putative uncharacterized protein	0	5.53
Crisp1	Q545H0_MOUSE	MCG21094	0	5.53
Ccl4	Q5QNV9_MOUSE	Chemokine (C-C motif) ligand 4	0	5.37
Wwp2	WWP2_MOUSE	NEDD4-like E3 ubiquitin-protein ligase WWP2	0	5.27
Cd34	Q543B6_MOUSE	CD34 antigen, isoform CRA_b	0	5.26
Avil	AVIL_MOUSE	Advillin	0	5.16
Rab21	Q0PD35_MOUSE	RAB21, member RAS oncogene family	0.58	5.15
Ptprj	PTPRJ_MOUSE	Receptor-type tyrosine-protein phosphatase eta	0.26	5.13
Snx3	SNX3_MOUSE	Sorting nexin-3	0	5.13
Lmna	B3RH23_MOUSE	Lamin A	0	5.12
Tmem55a	A2AP25_MOUSE	Transmembrane protein 55A	0.86	5

Sell	Q3UV83_MOUSE	L-selectin	0	4.99
Qsox1	QSOX1_MOUSE	Sulfhydryl oxidase 1	0.85	4.99
Acadl	ACADL_MOUSE	Long-chain specific acyl-CoA dehydrogenase, mitochondrial	0	4.87
Rps4x	Q545X8_MOUSE	MCG116623	0.79	4.85
C1qbp	C1QBP_MOUSE	Complement component 1 Q subcomponent-binding protein, mitochondrial	0	4.84
Rab1	Q0PD67_MOUSE	RAB1, member RAS oncogene family, isoform CRA_a	0.27	4.74
Hgf	HGF_MOUSE	Hepatocyte growth factor	0	4.73
Cr1l	CR1L_MOUSE	Complement component receptor 1-like protein	0.29	4.72
Hist2h2ab	H2A2B_MOUSE	Histone H2A type 2-B	0	4.72
Ccl9	Q3U9T8_MOUSE	Ccl9 protein	0	4.71
Gmpr	GMPR1_MOUSE	GMP reductase 1	0	4.71
Scamp2	Q3TAL2_MOUSE	Secretory carrier membrane protein 2	0.58	4.71
Gng12	GBG12_MOUSE	Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-12	0	4.59
Zdhhc20	ZDH20_MOUSE	Probable palmitoyltransferase ZDHHC20	0	4.46
Rab11a	Q0PD45_MOUSE	RAB11a, member RAS oncogene family	0	4.45
Thbs1	TSP1_MOUSE	Thrombospondin-1	0	4.45
Itch	A2AVS0_MOUSE	E3 ubiquitin-protein ligase Itchy	0	4.45
Cd300a	CLM8_MOUSE	CMRF35-like molecule 8	0	4.45
Atp5a1	ATPA_MOUSE	ATP synthase subunit alpha, mitochondrial	0.81	4.44
Hist1h1c	Q5SZA3_MOUSE	Histone cluster 1, H1c	0.55	4.44
Tyrobp	TYBP_MOUSE	TYRO protein tyrosine kinase-binding protein	0	4.43
Cd9	CD9_MOUSE	CD9 antigen	0	4.33
Pcbp1	PCBP1_MOUSE	Poly(rC)-binding protein 1	0	4.32
Itgb7	ITB7_MOUSE	Integrin beta-7	0	4.2
Atp2a3	AT2A3_MOUSE	Sarcoplasmic/endoplasmic reticulum calcium ATPase 3	0	4.19
Alox5	LOX5_MOUSE	Arachidonate 5-lipoxygenase	0.29	4.19
Cd84	SLAF5_MOUSE	SLAM family member 5	0	4.19
Prnp	Q4FJQ7_MOUSE	Major prion protein	0	4.18

Atp13a3	AT133_MOUSE	Probable cation-transporting ATPase 13A3	0	4.17
Hibadh	3HIDH_MOUSE	3-hydroxyisobutyrate dehydrogenase, mitochondrial	0.29	4.17
H2afv	B2RVP5_MOUSE	Histone H2A	0.56	4.07
Slc2a1	GTR1_MOUSE	Solute carrier family 2, facilitated glucose transporter member 1	0.29	4.06
Sub1	TCP4_MOUSE	Activated RNA polymerase II transcriptional coactivator p15	0	4.04
Cct4	Q564F4_MOUSE	T-complex protein 1 subunit delta	0	4.03
Spred1	SPRE1_MOUSE	Sprouty-related, EVH1 domain-containing protein 1	0	4.02
Ndfip1	NFIP1_MOUSE	NEDD4 family-interacting protein 1	0	3.93
Gnpda2	GNPI2_MOUSE	Glucosamine-6-phosphate isomerase 2	0	3.93
Ndfip2	NFIP2_MOUSE	NEDD4 family-interacting protein 2	0	3.92
Akr1c21	AK1CL_MOUSE	Aldo-keto reductase family 1 member C21	0	3.92
Cct2	Q542X7_MOUSE	Chaperonin subunit 2 (Beta), isoform CRA_a	0	3.91
Cyb5	Q544Z9_MOUSE	Cytochrome b-5, isoform CRA_d	0.29	3.91
B2m	B2MG_MOUSE	Beta-2-microglobulin	0	3.91
Akr1c12	Q91X42_MOUSE	Aldo-keto reductase family 1, member C12	0	3.89
Stx12	A2ADS0_MOUSE	Syntaxin-12	0	3.89
Cyfip2	CYFP2_MOUSE	Cytoplasmic FMR1-interacting protein 2	0.26	3.82
Gpr128	GP128_MOUSE	Probable G-protein coupled receptor 128	0.58	3.79
Acat1	THIL_MOUSE	Acetyl-CoA acetyltransferase, mitochondrial	0	3.78
Adam8	Q3U1J7_MOUSE	A disintegrin and metallopeptidase domain 8, isoform CRA_c	0	3.78
Tecpr1	TCPR1_MOUSE	Tectonin beta-propeller repeat-containing protein 1	0.29	3.78
Nckap1l	Q3UDY0_MOUSE	Putative uncharacterized protein	0	3.76

Tcp1	TCP2_MOUSE	T-complex protein 1 subunit alpha	0.29	3.75
Acvr1b	Q3TZF1_MOUSE	Activin A receptor, type 1B	0	3.67
H2afy2	H2AW_MOUSE	Core histone macro-H2A.2	0	3.67
H2-T23	Q3V014_MOUSE	Putative uncharacterized protein	0.29	3.64
Pmm2	Q545N8_MOUSE	Phosphomannomutase 2	0	3.51
Arpc3	ARPC3_MOUSE	Actin-related protein 2/3 complex subunit 3	0	3.5
Rab8a	Q0PD50_MOUSE	RAB8A, member RAS oncogene family, isoform CRA_a	0.53	3.5
Flot2	FLOT2_MOUSE	Flotillin-2	0.29	3.39
Tcirg1	Q91W06_MOUSE	T-cell, immune regulator 1, ATPase, H+ transporting, lysosomal V0 protein A3	0.56	3.37
Rab35	Q3U0T9_MOUSE	RAB35, member RAS oncogene family	0.84	3.37
Cd300lf	CLM1_MOUSE	CMRF35-like molecule 1	0.84	3.36
Spp1	Q547B5_MOUSE	Osteopontin	0	3.36
Ppa1	Q4FK49_MOUSE	Pyp protein	0	3.35
Stx8	Q5F234_MOUSE	Syntaxin-8	0.53	3.26
Tceb2	ELOB_MOUSE	Transcription elongation factor B polypeptide 2	0	3.25
Suox	SUOX_MOUSE	Sulfite oxidase, mitochondrial	0	3.25
Hist1h2ba	H2B1A_MOUSE	Histone H2B type 1-A	0	3.24
Cd200r3	MO2R3_MOUSE	Cell surface glycoprotein CD200 receptor 3	0	3.24
Tpm3	TPM3_MOUSE	Tropomyosin alpha-3 chain	0.29	3.24
Nedd4l	NED4L_MOUSE	E3 ubiquitin-protein ligase NEDD4-like	0	3.24
Cbx3	CBX3_MOUSE	Chromobox protein homolog 3	0	3.23
Slc4a7	S4A7_MOUSE	Sodium bicarbonate cotransporter 3	0	3.23
Relt	TR19L_MOUSE	Tumor necrosis factor receptor superfamily member 19L	0	3.22
Acaa1b	Q3UKM0_MOUSE	MCG21883, isoform CRA_e	0	3.21
Atp2a1	AT2A1_MOUSE	Sarcoplasmic/endoplasmic reticulum calcium ATPase 1	0	3.13
Hba-a1	A8DUV3_MOUSE	Alpha-globin	0	3.12
Vdac2	VDAC2_MOUSE	Voltage-dependent anion-selective channel protein 2	0	3.11

Pygb	A2AWQ5_MOUSE	Glycogen phosphorylase, brain form	0.84	3.1
Rdx	RADI_MOUSE	Radixin	0	3.1
Lmbrd1	LMBD1_MOUSE	Probable lysosomal cobalamin transporter	0.56	3.1
Snx12	SNX12_MOUSE	Sorting nexin-12	0	3.09
Aifm1	B1AU24_MOUSE	Apoptosis-inducing factor 1, mitochondrial	0	3.08
Acaa2	THIM_MOUSE	3-ketoacyl-CoA thiolase, mitochondrial	0	3.08
Slc15a4	S15A4_MOUSE	Solute carrier family 15 member 4	0.84	2.99
Ly6c1	LY6C1_MOUSE	Lymphocyte antigen 6C1	0	2.97
Plp2	Q0VEW4_MOUSE	Proteolipid protein 2	0.85	2.97
Bst2	BST2_MOUSE	Bone marrow stromal antigen 2	0	2.97
Rpl18a	RL18A_MOUSE	60S ribosomal protein L18a	0.29	2.97
Cstb	CYTB_MOUSE	Cystatin-B	0.81	2.96
Cadm3	CADM3_MOUSE	Cell adhesion molecule 3	0	2.95
Adssl1	Q3UBP0_MOUSE	Adenylosuccinate synthetase isozyme 1	0	2.94
Capn2	CAN2_MOUSE	Calpain-2 catalytic subunit	0.29	2.93
Rps24	Q5M9M7_MOUSE	40S ribosomal protein S24	0	2.85
Jak1	B1ASP2_MOUSE	Tyrosine-protein kinase	0	2.85
Sumo2	SUMO2_MOUSE	Small ubiquitin-related modifier 2	0	2.84
Gmppb	GMPPB_MOUSE	Mannose-1-phosphate guanyltransferase beta	0.27	2.83
Cct3	Q3U4U6_MOUSE	Chaperonin containing Tcp1, subunit 3 (Gamma)	0.29	2.83
Abcg1	Q0VDW9_MOUSE	ATP-binding cassette, sub-family G (WHITE), member 1	0	2.83
Lcp2	LCP2_MOUSE	Lymphocyte cytosolic protein 2	0	2.82
Aldoc	B1AQE0_MOUSE	Fructose-bisphosphate aldolase C	0	2.82
S100a11	S10AB_MOUSE	Protein S100-A11	0.52	2.7
Rap2b	Q6ZWR0_MOUSE	MCG5466	0	2.7
Tfrc	Q542D9_MOUSE	Transferrin receptor, isoform CRA_a	0	2.7
Vps28	VPS28_MOUSE	Vacuolar protein sorting-associated protein 28 homolog	0.81	2.7
Nif3l1	NIF3L_MOUSE	NIF3-like protein 1	0.56	2.7

Vps35	VP35_MOUSE	Vacuolar protein sorting-associated protein 35	0	2.69
Aldh1l1	AL1L1_MOUSE	Cytosolic 10-formyltetrahydrofolate dehydrogenase	0.84	2.69
Pa2g4	Q3TGU7_MOUSE	Proliferation-associated 2G4	0.26	2.69
Rpl27	Q5BLJ9_MOUSE	60S ribosomal protein L27	0	2.68
Rpn2	RPN2_MOUSE	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 2	0	2.67
Q61872	Q61872_MOUSE	Envelope protein	0	2.57
Rab9	Q0PD48_MOUSE	MCG116026, isoform CRA_a	0	2.57
Prkaca	KAPCA_MOUSE	cAMP-dependent protein kinase catalytic subunit alpha	0.85	2.56
Rpn1	RPN1_MOUSE	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1	0	2.56
Eci1	ECI1_MOUSE	Enoyl-CoA delta isomerase 1, mitochondrial	0	2.56
Mlec	MLEC_MOUSE	Malectin	0	2.56
Csrp1	Q4FJX4_MOUSE	Csrp1 protein	0.58	2.55
Cd151	CD151_MOUSE	CD151 antigen	0	2.55
Sidt2	Q3U1L8_MOUSE	Putative uncharacterized protein	0	2.55
Vdac1	VDAC1_MOUSE	Voltage-dependent anion-selective channel protein 1	0.29	2.55
Fut8	FUT8_MOUSE	Alpha-(1,6)-fucosyltransferase	0.82	2.55
Rbmx	RBMX_MOUSE	RNA-binding motif protein, X chromosome	0.56	2.54
Rap1b	Q52L50_MOUSE	RAS related protein 1b	0	2.44
Cmip	CMIP_MOUSE	C-Maf-inducing protein	0	2.44
Slpi	Q548X8_MOUSE	Secretory leukocyte peptidase inhibitor, isoform CRA_a	0	2.44
Pabpc1	PABP1_MOUSE	Polyadenylate-binding protein 1	0	2.44
Rap2a	RAP2A_MOUSE	Ras-related protein Rap-2a	0	2.43
Srm	Q543H0_MOUSE	MCG16662	0.27	2.43
Maob	AOFB_MOUSE	Amine oxidase [flavin-containing] B	0	2.43
Nudc	A2A9F5_MOUSE	Nuclear migration protein	0.27	2.43

		nudC		
Itpa	Q60I30_MOUSE	Inosine triphosphatase (Nucleoside triphosphate pyrophosphatase)	0.55	2.43
Crkl	A2RS58_MOUSE	V-crk sarcoma virus CT10 oncogene homolog (Avian)-like	0	2.43
Fbxo6	FBX6_MOUSE	F-box only protein 6	0	2.42
Capn1	Q3TI07_MOUSE	Putative uncharacterized protein	0.26	2.38
Tm9sf2	Q542E4_MOUSE	Transmembrane 9 superfamily member 2	0	2.3
Plcg1	A2A4A7_MOUSE	1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase gamma-1	0	2.29
Rab5b	B2RPS1_MOUSE	RAB5B, member RAS oncogene family	0.29	2.28
Pls3	PLST_MOUSE	Plastin-3	0.81	2.27
Lamtor1	LTOR1_MOUSE	Ragulator complex protein LAMTOR1	0	2.17
H3f3a	A2A852_MOUSE	Histone H3.3	0	2.17
C3	CO3_MOUSE	Complement C3	0	2.16
Slc22a3	Q547K2_MOUSE	SLCA22A3	0	2.16
Dnaja2	DNJA2_MOUSE	DnaJ homolog subfamily A member 2	0	2.16
Evi2b	EVI2B_MOUSE	Protein EVI2B	0	2.16
Rpia	RPIA_MOUSE	Ribose-5-phosphate isomerase	0	2.16
Icam2	B1ARJ1_MOUSE	Intercellular adhesion molecule 2	0	2.16
Lbr	LBR_MOUSE	Lamin-B receptor	0	2.16
Rgs19	Q78NN4_MOUSE	GAIP/RGS19	0	2.16
Glud1	DHE3_MOUSE	Glutamate dehydrogenase 1, mitochondrial	0.85	2.15
Arf4	Q14BR4_MOUSE	ADP-ribosylation factor 4	0.82	2.15
Arf6	Q3U0D7_MOUSE	Putative uncharacterized protein	0.84	2.15
S100a4	Q545V2_MOUSE	S100 calcium binding protein A4	0	2.15
Abca2	ABCA2_MOUSE	ATP-binding cassette sub-family A member 2	0	2.15
Ranbp1	RANG_MOUSE	Ran-specific GTPase-activating protein	0.55	2.15
Gna13	A2AA49_MOUSE	Guanine nucleotide-binding protein subunit alpha-13	0	2.15

Lamtor5	XIP_MOUSE	Ragulator complex protein LAMTOR5	0.82	2.14
Grap2	Q3U0E8_MOUSE	GRB2-related adaptor protein 2, isoform CRA_b	0	2.04
Tpm1	Q545Y3_MOUSE	Tropomyosin 1, alpha, isoform CRA_l	0.29	2.03
Plg	PLMN_MOUSE	Plasminogen	0	2.03
Leprot	OBRG_MOUSE	Leptin receptor gene-related protein	0	2.03
Atp5b	ATPB_MOUSE	ATP synthase subunit beta, mitochondrial	0	2.02
Cand1	CAND1_MOUSE	Cullin-associated NEDD8-dissociated protein 1	0	2.02
Psmd2	Q3TKV1_MOUSE	MCG129789, isoform CRA_b	0	2.02
Tubb3	TBB3_MOUSE	Tubulin beta-3 chain	0	2.02
Itih2	ITIH2_MOUSE	Inter-alpha-trypsin inhibitor heavy chain H2	0	2.02
Actr1a	ACTZ_MOUSE	Alpha-centractin	0.84	2
Fam108b1	F108B_MOUSE	Abhydrolase domain-containing protein FAM108B1	0	1.91
Tmem9b	TMM9B_MOUSE	Transmembrane protein 9B	0	1.91
Fxyd5	Q3TDW1_MOUSE	FXYD domain-containing ion transport regulator 5, isoform CRA_c	0	1.9
Cd82	Q3UII2_MOUSE	CD82 antigen	0.29	1.89
Cd200r1l	MO2R2_MOUSE	Cell surface glycoprotein CD200 receptor 2	0	1.89
Rsu1	RSU1_MOUSE	Ras suppressor protein 1	0.26	1.89
Sfxn1	SFXN1_MOUSE	Sideroflexin-1	0	1.89
Hspe1	Q4KL76_MOUSE	Heat shock protein 1 (Chaperonin 10)	0.29	1.89
Usp8	UBP8_MOUSE	Ubiquitin carboxyl-terminal hydrolase 8	0	1.89
Cxcl2	Q3U1J5_MOUSE	Chemokine (C-X-C motif) ligand 2	0.84	1.88
Dtd2	DTD2_MOUSE	Probable D-tyrosyl-tRNA(Tyr) deacylase 2	0	1.88
Cerk	CERK1_MOUSE	Ceramide kinase	0	1.88
Prss34	Q6RUT2_MOUSE	Mast cell protease-11	0.55	1.87
Csk	CSK_MOUSE	Tyrosine-protein kinase CSK	0	1.87
Gna14	GNA14_MOUSE	Guanine nucleotide-binding protein subunit alpha-14	0	1.87
Ugcg	CEGT_MOUSE	Ceramide glucosyltransferase	0	1.87

Slit2	SLIT2_MOUSE	Slit homolog 2 protein	0	1.87
Ist1	IST1_MOUSE	IST1 homolog	0.29	1.86
Hist1h2ah	A3KPD0_MOUSE	Histone H2A	0	1.85
Slc7a1	Q3UGD6_MOUSE	Solute carrier family 7 (Cationic amino acid transporter, y+ system), member 1	0	1.77
Cct5	TCPE_MOUSE	T-complex protein 1 subunit epsilon	0	1.76
2210016F16Rik	G3X8U3_MOUSE	MCG6895	0.53	1.76
Pfkl	K6PL_MOUSE	6-phosphofructokinase, liver type	0	1.76
Hnrnpc	HNRPC_MOUSE	Heterogeneous nuclear ribonucleoproteins C1/C2	0	1.76
Cmtm6	CKLF6_MOUSE	CKLF-like MARVEL transmembrane domain-containing protein 6	0	1.76
Srsf3	B2KF41_MOUSE	Serine/arginine-rich splicing factor 3	0	1.76
Tmem30a	CC50A_MOUSE	Cell cycle control protein 50A	0	1.76
Itgam	ITAM_MOUSE	Integrin alpha-M	0	1.76
Tgfb1	Q3UNK5_MOUSE	Transforming growth factor, beta 1	0.58	1.75
Rpl23	A2A6F9_MOUSE	60S ribosomal protein L23	0.52	1.75
Vps26a	VP26_MOUSE	Vacuolar protein sorting-associated protein 26A	0.55	1.75
Ube2v1	U2V1_MOUSE	Ubiquitin-conjugating enzyme E2 variant 1	0.29	1.75
Cct7	Q3TIJ7_MOUSE	Chaperonin subunit 7 (Eta), isoform CRA_a	0	1.75
Abhd14b	ABHEB_MOUSE	Alpha/beta hydrolase domain-containing protein 14B	0.85	1.75
Aldh7a1	AL7A1_MOUSE	Alpha-aminoadipic semialdehyde dehydrogenase	0	1.75
Stat5b	ST5B_MOUSE	Signal transducer and activator of transcription 5B	0	1.75
Acaa1a	THIKA_MOUSE	3-ketoacyl-CoA thiolase A, peroxisomal	0	1.74
Aldh3a1	AL3A1_MOUSE	Aldehyde dehydrogenase, dimeric NADP-preferring	0	1.73
Hint1	B1AZK3_MOUSE	Histidine triad nucleotide-binding protein 1	0.84	1.73
Atp12a	AT12A_MOUSE	Potassium-transporting	0.29	1.73

		ATPase alpha chain 2		
Fgl2	Q544K3_MOUSE	Fibrinogen-like protein	0	1.73
Ctnna1	Q545R0_MOUSE	Catenin (Cadherin associated protein), alpha 1	0	1.63
Pi4k2a	P4K2A_MOUSE	Phosphatidylinositol 4-kinase type 2-alpha	0	1.63
Wbp2	WBP2_MOUSE	WW domain-binding protein 2	0.58	1.62
Rpl26	Q4FZH2_MOUSE	MCG50660, isoform CRA_a	0	1.62
Ube2i	UBCI_MOUSE	SUMO-conjugating enzyme UBC9	0.26	1.61
Psen1	Q3UYK2_MOUSE	Presenilin 1, isoform CRA_a	0	1.61
Apex1	Q544Z7_MOUSE	Apurinic/apyrimidinic endonuclease 1	0	1.6
Icam1	Q3U8M7_MOUSE	Intercellular adhesion molecule	0.55	1.6
Flrt3	Q6ZPQ1_MOUSE	MKIAA1469 protein	0	1.59
Cdh1	Q4KML8_MOUSE	Cadherin 1, isoform CRA_a	0.29	1.5
Tuba4a	TBA4A_MOUSE	Tubulin alpha-4A chain	0	1.5
Rpl35a	Q6ZWX1_MOUSE	MCG1036414	0	1.49
Rps26	Q497N1_MOUSE	MCG18667	0.81	1.49
Pfkm	K6PF_MOUSE	6-phosphofructokinase, muscle type	0	1.49
D10Jhu81e	ES1_MOUSE	ES1 protein homolog, mitochondrial	0	1.49
Rasl2-9	A6H622_MOUSE	MCG131225	0.86	1.49
Itga5	ITA5_MOUSE	Integrin alpha-5	0	1.49
Adss	B9EIE9_MOUSE	Adenylosuccinate synthetase isozyme 2	0.85	1.48
Serpinb2	Q542A3_MOUSE	Serine (Or cysteine) peptidase inhibitor, clade B, member 2	0.27	1.48
Scarb1	Q4FK30_MOUSE	Scarb1 protein	0	1.48
Plcg2	PLCG2_MOUSE	1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase gamma-2	0	1.48
Syncrip	HNRPQ_MOUSE	Heterogeneous nuclear ribonucleoprotein Q	0.81	1.48
Prkca	KPCA_MOUSE	Protein kinase C alpha type	0.52	1.48
Glipr1	Q4QQK5_MOUSE	GLI pathogenesis-related 1 (Glioma)	0	1.48
Tardbp	Q544R5_MOUSE	MCG16669, isoform CRA_b	0	1.48
Tmed10	TMEDA_MOUSE	Transmembrane emp24 domain-containing protein 10	0.29	1.48
Purb	PURB_MOUSE	Transcriptional activator	0.58	1.48

		protein Pur-beta		
Gm6768	J3QND8_MOUSE	Uncharacterized protein	0.29	1.48
Smpdl3a	ASM3A_MOUSE	Acid sphingomyelinase-like phosphodiesterase 3a	0.86	1.48
Milr1	MILR1_MOUSE	Allergin-1	0	1.47
Plscr4	B1B195_MOUSE	Phospholipid scramblase 4	0.29	1.46
Arhgef1	ARHG1_MOUSE	Rho guanine nucleotide exchange factor 1	0.58	1.46
Pdlim5	PDLI5_MOUSE	PDZ and LIM domain protein 5	0	1.46
Cd200r5	MO2R5_MOUSE	Cell surface glycoprotein CD200 receptor 5	0.82	1.36
Cnr2	CNR2_MOUSE	Cannabinoid receptor 2	0	1.36
2-Sep	SEPT2_MOUSE	Septin-2	0	1.36
Dnajb11	DJB11_MOUSE	DnaJ homolog subfamily B member 11	0	1.35
Il2ra	Q544I2_MOUSE	Interleukin 2 receptor, alpha chain	0	1.35
Itga6	ITA6_MOUSE	Integrin alpha-6	0	1.35
Ehd1	Q80ZZ0_MOUSE	EH-domain containing 1	0	1.35
Fam174b	F174B_MOUSE	Membrane protein FAM174B	0	1.35
Fis1	TTCB_MOUSE	Mitochondrial fission 1 protein	0	1.35
Hbb-b1	A8DUK0_MOUSE	Beta-globin	0.29	1.35
Tmem55b	TM55B_MOUSE	Transmembrane protein 55B	0	1.35
Snx17	SNX17_MOUSE	Sorting nexin-17	0	1.35
Capns1	CPNS1_MOUSE	Calpain small subunit 1	0	1.35
Ccl2	Q5SVU3_MOUSE	Ccl2 protein	0	1.35
Adcy7	ADCY7_MOUSE	Adenylate cyclase type 7	0.86	1.34
Rpl34	RL34_MOUSE	60S ribosomal protein L34	0.82	1.34
Casp3	CASP3_MOUSE	Caspase-3	0.86	1.34
Gmds	GMDS_MOUSE	GDP-mannose 4,6 dehydratase	0.86	1.34
Pcmt1	Q545L9_MOUSE	Protein-L-isoaspartate O-methyltransferase	0	1.33
Tubb2b	B2RSN3_MOUSE	MCG1395	0.29	1.23
Ptpre	PTPRE_MOUSE	Receptor-type tyrosine-protein phosphatase epsilon	0	1.22
Aco1	ACOC_MOUSE	Cytoplasmic aconitate hydratase	0.56	1.22
Rpl37a	Q4VAF2_MOUSE	MCG112980, isoform CRA_a	0	1.22
P2rx1	B2KG89_MOUSE	P2X purinoceptor 1	0.29	1.22
Spr	SPRE_MOUSE	Sepiapterin reductase	0.26	1.22

Mboat7	MBOA7_MOUSE	Lysophospholipid acyltransferase 7	0.29	1.22
Tceb1	ELOC_MOUSE	Transcription elongation factor B polypeptide 1	0	1.22
Fnbp1	FNBP1_MOUSE	Formin-binding protein 1	0	1.21
Slc1a5	Q3UFR4_MOUSE	Putative uncharacterized protein	0.58	1.21
Mt2	MT2_MOUSE	Metallothionein-2	0.56	1.21
Cd37	Q4FK35_MOUSE	CD37 antigen, isoform CRA_b	0	1.21
Rpl29	Q5M8M8_MOUSE	MCG19505, isoform CRA_a	0	1.21
Hadh	HCDH_MOUSE	Hydroxyacyl-coenzyme A dehydrogenase, mitochondrial	0	1.21
Cuta	CUTA_MOUSE	Protein CutA	0.86	1.21
Mfsd6	D3Z183_MOUSE	Major facilitator superfamily domain-containing protein 6	0	1.21
Tm9sf3	T9S3_MOUSE	Transmembrane 9 superfamily member 3	0	1.2
Itga4	ITA4_MOUSE	Integrin alpha-4	0	1.2
Tubb4b	TBB4B_MOUSE	Tubulin beta-4B chain	0	1.2
Erp44	TXN4_MOUSE	Endoplasmic reticulum resident protein 44	0	1.19
Cuedc1	CUED1_MOUSE	CUE domain-containing protein 1	0	1.18
Akr1c19	G3X9Y6_MOUSE	Aldo-keto reductase family 1, member C19	0	1.1
Tspan3	Q545L1_MOUSE	Tetraspanin	0	1.1
Ulbp1	D2CKI9_MOUSE	UL16-binding protein-like transcript 1 splice variant	0	1.09
Ufm1	UFM1_MOUSE	Ubiquitin-fold modifier 1	0	1.09
Slco4a1	A2ACT3_MOUSE	Solute carrier organic anion transporter family member 4A1	0	1.09
Psmb9	Q4FK25_MOUSE	Proteasome subunit beta type	0.27	1.08
Rpl24	RL24_MOUSE	60S ribosomal protein L24	0.26	1.08
Gna11	Q3UPA1_MOUSE	Guanine nucleotide binding protein, alpha 11	0	1.08
Fam3c	FAM3C_MOUSE	Protein FAM3C	0.58	1.08
Phpt1	A2AJA8_MOUSE	14 kDa phosphohistidine phosphatase	0.29	1.08
Tbxas1	THAS_MOUSE	Thromboxane-A synthase	0	1.08
Cds2	A2AMQ4_MOUSE	Phosphatidate cytidylyltransferase 2	0.27	1.08
Gpr171	GP171_MOUSE	Probable G-protein coupled	0	1.08

		receptor 171		
Laptm4a	LAP4A_MOUSE	Lysosomal-associated transmembrane protein 4A	0	1.08
Abcb1b	B2RUR3_MOUSE	ATP-binding cassette, sub-family B (MDR/TAP), member 1B	0	1.08
Ninj1	Q3TXT8_MOUSE	Ninjurin 1	0	1.07
Adsl	PUR8_MOUSE	Adenylosuccinate lyase	0	1.07
Psmd12	PSD12_MOUSE	26S proteasome non-ATPase regulatory subunit 12	0	1.07
Fgfr1	FGFR1_MOUSE	Fibroblast growth factor receptor 1	0	1.07
Lst1	LST1_MOUSE	Leukocyte-specific transcript 1 protein	0	1.07
Dhrs11	DHR11_MOUSE	Dehydrogenase/reductase SDR family member 11	0	1.06
Slc30a2	ZNT2_MOUSE	Zinc transporter 2	0	1.06
Selplg	SELPL_MOUSE	P-selectin glycoprotein ligand 1	0	1.06
Neu1	Q3UL64_MOUSE	Neuraminidase 1, isoform CRA_a	0	1.06
Hmha1	HMHA1_MOUSE	Minor histocompatibility protein HA-1	0.29	1.06
Psmb5	PSB5_MOUSE	Proteasome subunit beta type-5	0.27	0.96
Taok3	TAOK3_MOUSE	Serine/threonine-protein kinase TAO3	0	0.95
Kidins220	B2RXL7_MOUSE	Kidins220 protein	0	0.94
Rpl13a	Q5M9M0_MOUSE	MCG23455, isoform CRA_e	0	0.94
Cnpy2	CNPY2_MOUSE	Protein canopy homolog 2	0	0.93
Ppp2cb	PP2AB_MOUSE	Serine/threonine-protein phosphatase 2A catalytic subunit beta isoform	0.86	0.83
Stx4	STX4_MOUSE	Syntaxin-4	0	0.81
Fyb	B2RUR0_MOUSE	FYN binding protein	0.58	0.81
Rnpep	AMPB_MOUSE	Aminopeptidase B	0	0.81
Mecp2	MECP2_MOUSE	Methyl-CpG-binding protein 2	0.29	0.8
Kcnab2	KCAB2_MOUSE	Voltage-gated potassium channel subunit beta-2	0	0.8
Mfap3l	MFA3L_MOUSE	Microfibrillar-associated protein 3-like	0	0.68

Table S3

Gene name	UniProt ID	Uniprot description	Normalized PCMC spectral counts (avg.)	Normalized BMCMC spectral counts (avg.)	Mean spectral counts of shared proteins
ALB	ALBU_BOVIN	Serum albumin	190.95	209.58	200.27
Anpep	AMPN_MOUSE	Aminopeptidase N	213.66	170.67	192.17
Man2b1	MA2B1_MOUSE	Lysosomal alpha-mannosidase	162.04	195.21	178.63
Grn	Q544Y8_MOUSE	Granulin	137.44	103.4	120.42
Cpa3	Q542E3_MOUSE	Carboxypeptidase A3, mast cell	166.55	46.79	106.67
Man2b2	MA2B2_MOUSE	Epididymis-specific alpha-mannosidase	142.38	48.62	95.5
Hexb	Q3TXR9_MOUSE	Putative uncharacterized protein	138.51	42.62	90.56
Glb1	Q3TAW7_MOUSE	Beta-galactosidase	106.38	55.5	80.94
Naglu	A2BFA6_MOUSE	Alpha-N-acetylglucosaminidase	105.93	38.96	72.44
Cma1	CMA1_MOUSE	Mast cell protease 5	113.96	30.3	72.13
Pkm	KPYM_MOUSE	Pyruvate kinase isozymes M1/M2	45.4	87.59	66.5
Tln1	TLN1_MOUSE	Talin-1	80.15	51.73	65.94
Tpsb2	B5A5B2_MOUSE	Tryptase beta 2	106.77	24.32	65.54
Pdcd6ip	PDC6I_MOUSE	Programmed cell death 6-interacting protein	89.03	39.59	64.31
Lcp1	PLSL_MOUSE	Plastin-2	61.34	64.68	63.01
Iqgap1	IQGA1_MOUSE	Ras GTPase-activating-like protein IQGAP1	79.6	44.75	62.18
Myh9	MYH9_MOUSE	Myosin-9	41.59	81.99	61.79
Aldoa	Q5FWB7_MOUSE	Fructose-bisphosphate aldolase	68.73	53.66	61.19
Lgals3bp	LG3BP_MOUSE	Galectin-3-binding protein	64.19	51.36	57.78
Vwa5a	VMA5A_MOUSE	von Willebrand factor A domain-containing protein 5A	87.43	26.63	57.03
Slc3a2	4F2_MOUSE	4F2 cell-surface antigen heavy chain	70	42.98	56.49
Actb	B2RRX1_MOUSE	Actin, beta	50.37	59.38	54.88
Creg1	CREG1_MOUSE	Protein CREG1	56.2	50.63	53.41
Kit	KIT_MOUSE	Mast/stem cell growth factor receptor Kit	35.62	70.4	53.01
Calr	B2MWM9_MOUSE	Calreticulin	65.93	39.57	52.75
Gns	GNS_MOUSE	N-acetylglucosamine-6-sulfatase	64.65	37.9	51.28
Ctsc	Q3UBY5_MOUSE	Cathepsin C, isoform CRA_b	41.02	61.15	51.09
Eno1	Q5FW97_MOUSE	Enolase 1, alpha non-neuron	42.12	59.99	51.05
Wdr1	WDR1_MOUSE	WD repeat-containing protein 1	56.29	44.63	50.46
E2fhv9	E2FHV9_MOUSE	Protease serine 34	12.61	86.36	49.49
Serpinb1a	ILEUA_MOUSE	Leukocyte elastase inhibitor A	59.5	39.32	49.41
Basp1	BASP1_MOUSE	Brain acid soluble protein 1	66.59	29.84	48.22

Hexa	HEXA_MOUSE	Beta-hexosaminidase subunit alpha	53.5	41.9	47.7
Sod1	SODC_MOUSE	Superoxide dismutase [Cu-Zn]	61.07	33.97	47.52
Csf2rb2	IL3B2_MOUSE	Interleukin-3 receptor class 2 subunit beta	22.95	72.02	47.49
Gaa	A2AFL4_MOUSE	Lysosomal alpha-glucosidase	53.39	38.96	46.18
Il1rl1	ILRL1_MOUSE	Interleukin-1 receptor-like 1	21.7	70.15	45.92
Vcl	VINC_MOUSE	Vinculin	55.11	35.18	45.15
Gapdh	D2KHZ9_MOUSE	Glyceraldehyde-3-phosphate dehydrogenase	35.89	54.15	45.02
Acta2	ACTA_MOUSE	Actin, aortic smooth muscle	49.57	40.44	45
Msn	MOES_MOUSE	Moesin	42	46.27	44.13
Tryp	TRYP_PIG	Trypsin	59.5	25.1	42.3
Tpi1	TPIS_MOUSE	Triosephosphate isomerase	47.5	36.44	41.97
Tkt	TKT_MOUSE	Transketolase	52.83	28.86	40.84
Hspa8	HSP7C_MOUSE	Heat shock cognate 71 kDa protein	37.04	44.53	40.78
Naga	NAGAB_MOUSE	Alpha-N-acetylgalactosaminidase	33.15	47.65	40.4
Ctsa	Q544R6_MOUSE	Protective protein for beta-galactosidase, isoform CRA_a	49.61	31.14	40.37
Ctsd	Q3UCD9_MOUSE	Cathepsin D, isoform CRA_a	51.42	29.1	40.26
Eef1a1	Q58E64_MOUSE	Elongation factor 1-alpha	50.25	28.82	39.54
Pgam1	Q3U7Z6_MOUSE	MCG113582	54.21	24.31	39.26
Hspa5	A2AUF6_MOUSE	78 kDa glucose-regulated protein	38.57	39.89	39.23
Sdcbp	SDCB1_MOUSE	Syntenin-1	44.61	33.82	39.21
Gsn	A2AL35_MOUSE	Gelsolin	47.95	30.15	39.05
Gm2a	Q5F1Z8_MOUSE	GM2 ganglioside activator protein	49.24	25.34	37.29
Pgk1	PGK1_MOUSE	Phosphoglycerate kinase 1	30.4	42.99	36.7
Arhgdib	GDIR2_MOUSE	Rho GDP-dissociation inhibitor 2	54.46	18.32	36.39
Pla2g7	PAFA_MOUSE	Platelet-activating factor acetylhydrolase	69.22	2.28	35.75
Ids	IDS_MOUSE	Iduronate 2-sulfatase	51.82	17.65	34.73
Arsa	ARSA_MOUSE	Arylsulfatase A	54.35	15.1	34.72
Vcp	TERA_MOUSE	Transitional endoplasmic reticulum ATPase	37.33	30.72	34.03
Sqstm1	SQSTM_MOUSE	Sequestosome-1	37.92	29.39	33.65
Cap1	CAP1_MOUSE	Adenylyl cyclase-associated protein 1	33.05	33.36	33.2
Pdia3	PDIA3_MOUSE	Protein disulfide-isomerase A3	24.78	40.57	32.67
Lnpep	LCAP_MOUSE	Leucyl-cystinyl aminopeptidase	32.1	29.99	31.04
Alb_mus	Q546G4_MOUSE	Albumin 1	24.68	37.31	31
Rnh1	RINI_MOUSE	Ribonuclease inhibitor	27.79	33.83	30.81
P4hb	PDIA1_MOUSE	Protein disulfide-isomerase	28.52	32.39	30.45
Ctsb	CATB_MOUSE	Cathepsin B	38.07	21.59	29.83
Hist4a	H4_MACFA	Histone H4	13.17	46.08	29.62
Pfn1	Q5SX50_MOUSE	Profilin	24.99	34.1	29.54
Pld3	PLD3_MOUSE	Phospholipase D3	29.87	28.17	29.02

Apeh	APEH_MOUSE	Acylamino-acid-releasing enzyme	24.57	33.32	28.95
Tagln2	TAGL2_MOUSE	Transgelin-2	35.73	21.08	28.4
Akr1c13	AK1CD_MOUSE	Aldo-keto reductase family 1 member C13	16.96	38.98	27.97
Tuba1a	TBA1_MOUSE	Tubulin alpha-1A chain	35.09	19.51	27.3
Manba	MANBA_MOUSE	Beta-mannosidase	21.56	32.91	27.23
Arhgdia	GDIR1_MOUSE	Rho GDP-dissociation inhibitor 1	35.43	18.49	26.96
Plbd2	PLBL2_MOUSE	Putative phospholipase B-like 2	35.49	16.73	26.11
Psap	Q3UFE8_MOUSE	Prosaposin, isoform CRA_e	29.83	22.34	26.09
Chi3l3	Q3U462_MOUSE	Putative uncharacterized protein	25.09	26.91	26
Dnase2a	Q3UM14_MOUSE	Deoxyribonuclease II alpha	29.52	21.96	25.74
Ppia	Q5SVY2_MOUSE	Peptidyl-prolyl cis-trans isomerase	16.19	34.4	25.29
Dpp7	DPP2_MOUSE	Dipeptidyl peptidase 2	37.99	12.29	25.14
ALB_hum	ALBU_HUMAN	Serum albumin	30.3	19.86	25.08
Selenbp1	SBP1_MOUSE	Selenium-binding protein 1	32.93	16.96	24.95
Gdi2	GDIB_MOUSE	Rab GDP dissociation inhibitor beta	16.06	33.47	24.76
Cfl1	Q544Y7_MOUSE	Cofilin 1, non-muscle	11.43	36.97	24.2
Tgm2	TGM2_MOUSE	Protein-glutamine gamma-glutamyltransferase 2	33.99	14.27	24.13
Ywhaz	1433Z_MOUSE	14-3-3 protein zeta/delta	24.43	23.35	23.89
Atp1a1	AT1A1_MOUSE	Sodium/potassium-transporting ATPase subunit alpha-1	11.72	35.81	23.77
Ggh	GGH_MOUSE	Gamma-glutamyl hydrolase	28.25	19.14	23.7
Lgals1	LEG1_MOUSE	Galectin-1	29.42	17.51	23.47
Gla	AGAL_MOUSE	Alpha-galactosidase A	12.76	34.05	23.4
Hspa4	HSP74_MOUSE	Heat shock 70 kDa protein 4	30.72	15.75	23.23
Eef2	EF2_MOUSE	Elongation factor 2	22.64	23.74	23.19
Gda	Q548F2_MOUSE	Guanine deaminase	23.74	21.98	22.86
Cltc	CLH_MOUSE	Clathrin heavy chain	22.45	23.06	22.75
Mdh2	MDHM_MOUSE	Malate dehydrogenase, mitochondrial	23.78	21.61	22.7
Gusb	BGLR_MOUSE	Beta-glucuronidase	40.36	4.18	22.27
Txnrd1	TRXR1_MOUSE	Thioredoxin reductase 1, cytoplasmic	29.28	14.98	22.13
Ada	Q4FK28_MOUSE	Ada protein	31.29	12.83	22.06
Ptprc	PTPRC_MOUSE	Receptor-type tyrosine-protein phosphatase C	12.84	29.82	21.33
Clic1	Q542F1_MOUSE	Chloride intracellular channel 1, isoform CRA_c	29.83	12.57	21.2
Pebp1	Q5EBQ2_MOUSE	MCG7941, isoform CRA_f	26.99	14.92	20.96
Hsp90ab1	Q71LX8_MOUSE	Heat shock protein 84b	22.25	19.14	20.7
Prcp	PCP_MOUSE	Lysosomal Pro-X carboxypeptidase	21.19	20.13	20.66
Gdi1	GDIA_MOUSE	Rab GDP dissociation inhibitor alpha	25.45	15.41	20.43
Slc7a8	LAT2_MOUSE	Large neutral amino acids	27.64	13.1	20.37

		transporter small subunit 2			
Esd	ESTD_MOUSE	S-formylglutathione hydrolase	22.6	17.54	20.07
Anxa6	ANXA6_MOUSE	Annexin A6	12.59	26.91	19.75
Adk	ADK_MOUSE	Adenosine kinase	33.38	5.51	19.45
Npepps	PSA_MOUSE	Puromycin-sensitive aminopeptidase	13.34	25.33	19.34
Nhlrc3	NHLC3_MOUSE	NHL repeat-containing protein 3	26.96	11.08	19.02
Mfge8	MFGM_MOUSE	Lactadherin	10.04	27.53	18.78
Actn4	Q3ULT2_MOUSE	Actinin alpha 4	14.14	22.68	18.41
Lta4h	LKHA4_MOUSE	Leukotriene A-4 hydrolase	13.29	22.87	18.08
Dld	DLDH_MOUSE	Dihydrolipoyl dehydrogenase, mitochondrial	16.94	18.88	17.91
Ywhab	A2A5N2_MOUSE	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, beta polypeptide	24.85	10.9	17.87
Hspa2	HSP72_MOUSE	Heat shock-related 70 kDa protein 2	22.51	12.16	17.34
Ldha	Q564E2_MOUSE	L-lactate dehydrogenase	20.79	13.78	17.28
Nucb1	NUCB1_MOUSE	Nucleobindin-1	20.86	13.46	17.16
Gzmb	Q3TZH4_MOUSE	Granzyme B	3.93	30.35	17.14
Uba1	UBA1_MOUSE	Ubiquitin-like modifier-activating enzyme 1	17.59	16.54	17.07
Ctbs	Q102J0_MOUSE	Chitobiase, di-N-acetyl-, isoform CRA_a	11.13	22.87	17
Ywhaq	A3KML3_MOUSE	MCG126220	20.92	13.07	16.99
Lamp1	Q3TA96_MOUSE	Lysosomal membrane glycoprotein 1, isoform CRA_c	20.27	13.62	16.95
Cd97	CD97_MOUSE	CD97 antigen	18.98	14.82	16.9
Npc1	NPC1_MOUSE	Niemann-Pick C1 protein	26.46	7.32	16.89
Ywhae	Q5SS40_MOUSE	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, epsilon polypeptide, isoform CRA_c	18.46	15.07	16.76
Sord	DHSO_MOUSE	Sorbitol dehydrogenase	17.28	16.19	16.74
Capzb	A2AMV5_MOUSE	F-actin-capping protein subunit beta	21.03	12.15	16.59
Aldh2	Q544B1_MOUSE	Aldehyde dehydrogenase 2, mitochondrial, isoform CRA_b	6.41	26.57	16.49
Nme1	Q5NC81_MOUSE	Nucleoside diphosphate kinase	21.24	10.76	16
Coro1a	Q3U1N0_MOUSE	Coronin	8.38	23.49	15.93
Prdx1	B1AXW7_MOUSE	Peroxiredoxin-1	16.66	14.95	15.81
Copb2	COPB2_MOUSE	Coatomer subunit beta'	16.68	14.77	15.73
Npc2	NPC2_MOUSE	Epididymal secretory protein E1	19.56	11.77	15.67
Pdia4	PDIA4_MOUSE	Protein disulfide-isomerase A4	4.8	26.29	15.54
Vat1	VAT1_MOUSE	Synaptic vesicle membrane protein	17.28	13.73	15.5

		VAT-1 homolog			
H2-D1	Q792Z7_MOUSE	H-2 class I histocompatibility antigen, D-K alpha chain	18.8	12.02	15.41
P2rx4	P2RX4_MOUSE	P2X purinoceptor 4	16.76	13.92	15.34
Rab7	Q4FJQ0_MOUSE	MCG130610	8.8	21.75	15.27
Flnb	FLNB_MOUSE	Filamin-B	26.19	4.16	15.17
Pdxk	PDXK_MOUSE	Pyridoxal kinase	18.43	11.75	15.09
Tax1bp1	TAXB1_MOUSE	Tax1-binding protein 1 homolog	10.6	19.54	15.07
Dpysl2	DPYL2_MOUSE	Dihydropyrimidinase-related protein 2	15.59	14.15	14.87
Gpx1	GPX1_MOUSE	Glutathione peroxidase 1	17.21	12.26	14.74
Plxdc2	B1AY84_MOUSE	Plexin domain-containing protein 2	13.09	16.36	14.72
Cdc42	CDC42_MOUSE	Cell division control protein 42 homolog	15.29	14.14	14.72
Hsp90aa1	Q80Y52_MOUSE	Heat shock protein 90, alpha (Cytosolic), class A member 1	16.72	12.68	14.7
Capg	CAPG_MOUSE	Macrophage-capping protein	20.41	8.25	14.33
Tpp1	TPP1_MOUSE	Tripeptidyl-peptidase 1	22.77	5.89	14.33
Tal1	TAL1_MOUSE	T-cell acute lymphocytic leukemia protein 1 homolog	18.35	10.25	14.3
Serinc3	A2A5I1_MOUSE	Serine incorporator 3	13.92	14.46	14.19
Pgm1	PGM1_MOUSE	Phosphoglucomutase-1	14.02	14.16	14.09
Hk1	HXK1_MOUSE	Hexokinase-1	4.44	23.58	14.01
Gstm1	GSTM1_MOUSE	Glutathione S-transferase Mu 1	14.79	12.56	13.68
Ero1l	Q4FK57_MOUSE	Ero1l protein	17.08	10.23	13.65
Cndp2	CNDP2_MOUSE	Cytosolic non-specific dipeptidase	14.74	12.55	13.64
Blmh	BLMH_MOUSE	Bleomycin hydrolase	14.49	12.7	13.59
Vim	Q5FWJ3_MOUSE	Vimentin	8.62	18.49	13.55
Canx	Q5SUC3_MOUSE	Calnexin, isoform CRA_a	10.89	16.15	13.52
Slc18a2	VMT2_MOUSE	Synaptic vesicular amine transporter	21.14	5.79	13.46
Itm2b	ITM2B_MOUSE	Integral membrane protein 2B	2.8	23.9	13.35
Mdh1	MDHC_MOUSE	Malate dehydrogenase, cytoplasmic	16.65	9.99	13.32
Pla2g15	PAG15_MOUSE	Group XV phospholipase A2	17.09	9.03	13.06
Ttyh3	TTYH3_MOUSE	Protein tweety homolog 3	16.43	9.69	13.06
Ly6e	LY6E_MOUSE	Lymphocyte antigen 6E	5.3	20.78	13.04
Calm1	CALM_MOUSE	Calmodulin	17.86	7.68	12.77
Ctsz	Q545I6_MOUSE	Cathepsin Z, isoform CRA_b	9.46	16.05	12.76
Capza1	CAZA1_MOUSE	F-actin-capping protein subunit alpha-1	12.25	13.22	12.74
Rnf128	B1AVW8_MOUSE	E3 ubiquitin-protein ligase RNF128	4.17	21.18	12.68
Prdx6	Q53ZU7_MOUSE	Peroxiredoxin 6	11.44	13.48	12.46
Gpi	G6PI_MOUSE	Glucose-6-phosphate isomerase	12.68	12.06	12.37
Hsp90b1	Q3UAD6_MOUSE	Heat shock protein 90kDa beta (Grp94), member 1	9	15.23	12.12
Lman2	LMAN2_MOUSE	Vesicular integral-membrane	14.76	9.46	12.11

		protein VIP36			
Dpp3	DPP3_MOUSE	Dipeptidyl peptidase 3	12.46	11.62	12.04
Cst3	A2APX2_MOUSE	Cystatin-C	9.78	14.23	12
Fermt3	URP2_MOUSE	Fermitin family homolog 3	7.3	16.46	11.88
Ahnak2	E9PYB0_MOUSE	Protein Ahnak2	22.4	1.35	11.87
Ywhag	A8IP69_MOUSE	14-3-3 protein gamma subtype	12	11.71	11.85
Grb2	Q3U5I5_MOUSE	Growth factor receptor bound protein 2, isoform CRA_b	9.8	13.88	11.84
Spn	Q544C5_MOUSE	MCG145268, isoform CRA_a	6.69	16.94	11.82
Psma2	PSA2_MOUSE	Proteasome subunit alpha type-2	11.17	12.44	11.81
Pnp	PNPH_MOUSE	Purine nucleoside phosphorylase	10.09	13.51	11.8
Pgls	6PGL_MOUSE	6-phosphogluconolactonase	13.9	9.61	11.75
IGHE	IGHE_MOUSE	Ig epsilon chain C region	14.27	8.93	11.6
Rhoa	Q4VAE6_MOUSE	Ras family member A	9.44	13.57	11.51
Itm2c	ITM2C_MOUSE	Integral membrane protein 2C	1.69	21.27	11.48
Anxa5	ANXA5_MOUSE	Annexin A5	5.89	16.9	11.4
Pgd	A2AH73_MOUSE	6-phosphogluconate dehydrogenase, decarboxylating	3.37	19.42	11.39
Akr1b3	Q3UDY1_MOUSE	MCG6067, isoform CRA_b	8.3	14.43	11.37
Csf2rb	IL3RB_MOUSE	Cytokine receptor common subunit beta	3.06	19.57	11.32
Lamp2	LAMP2_MOUSE	Lysosome-associated membrane glycoprotein 2	13.13	9.16	11.14
Itgb1	ITB1_MOUSE	Integrin beta-1	10.86	11.37	11.12
Ctla2a	CTL2A_MOUSE	Protein CTLA-2-alpha	13.64	8.5	11.07
Fasn	FAS_MOUSE	Fatty acid synthase	12.28	9.29	10.79
Rplp0	Q5M8R8_MOUSE	Ribosomal protein, large, P0	13.45	7.81	10.63
Cotl1	Q544F6_MOUSE	Cotl1 protein	8.34	12.82	10.58
Uba52	Q66JP1_MOUSE	MCG23116, isoform CRA_a	11.12	9.71	10.41
Fam129a	NIBAN_MOUSE	Protein Niban	8.41	12.26	10.34
Nampt	NAMPT_MOUSE	Nicotinamide phosphoribosyltransferase	4.45	16.11	10.28
Furin	FURIN_MOUSE	Furin	11.71	8.8	10.25
Rac1	RAC1_MOUSE	Ras-related C3 botulinum toxin substrate 1	11.12	9.31	10.22
Eml2	EMAL2_MOUSE	Echinoderm microtubule-associated protein-like 2	6.93	13.38	10.15
Actbl2	ACTBL_MOUSE	Beta-actin-like protein 2	9.28	10.92	10.1
Gba	GLCM_MOUSE	Glucosylceramidase	7.48	12.68	10.08
Myh10	MYH10_MOUSE	Myosin-10	6.71	13.38	10.05
Idh1	IDHC_MOUSE	Isocitrate dehydrogenase [NADP] cytoplasmic	3.37	16.57	9.97
Atp1b3	Q544Q7_MOUSE	ATPase, Na+/K+ transporting, beta 3 polypeptide	8.67	11.05	9.86
Ncug1	NCUG1_MOUSE	Lysosomal protein NCU-G1	11.13	8.49	9.81

Gnai2	GNAI2_MOUSE	Guanine nucleotide-binding protein G(i) subunit alpha-2	4.95	14.58	9.76
Laptm5	Q544S4_MOUSE	CLAST6	5.24	14.15	9.7
Got1	AATC_MOUSE	Aspartate aminotransferase, cytoplasmic	14.83	4.47	9.65
Aco2	ACON_MOUSE	Aconitate hydratase, mitochondrial	1.1	17.9	9.5
Ddb1	DDB1_MOUSE	DNA damage-binding protein 1	7.22	11.72	9.47
Psma6	PSA6_MOUSE	Proteasome subunit alpha type-6	8.92	9.88	9.4
Npl	NPL_MOUSE	N-acetylneuraminate lyase	2.24	16.48	9.36
Sh3bgrl3	SH3L3_MOUSE	SH3 domain-binding glutamic acid-rich-like protein 3	11.68	7.02	9.35
Arsb	ARSB_MOUSE	Arylsulfatase B	5	13.54	9.27
Gapdhs	G3PT_MOUSE	Glyceraldehyde-3-phosphate dehydrogenase, testis-specific	9.47	9.06	9.26
Rpl5	Q58EU6_MOUSE	MCG13589	11.66	6.73	9.2
Ahcy	Q3TF14_MOUSE	Adenosylhomocysteinase	8.93	9.42	9.18
Park7	PARK7_MOUSE	Protein DJ-1	8.67	9.57	9.12
Rpl12	Q5BLK0_MOUSE	MCG18564, isoform CRA_a	13.05	4.87	8.96
Ms4a2	B2RTF7_MOUSE	Membrane-spanning 4-domains, subfamily A, member 2	5.88	12	8.94
Rac2	RAC2_MOUSE	Ras-related C3 botulinum toxin substrate 2	6.93	10.92	8.92
P2rx7	Q8CHP4_MOUSE	P2X purinoceptor	2.55	15.26	8.91
G6pdx	Q790Y8_MOUSE	Glucose-6-phosphate 1-dehydrogenase	3.34	14.47	8.91
Idua	IDUA_MOUSE	Alpha-L-iduronidase	5.34	12.42	8.88
Akr1a1	Q540D7_MOUSE	Aldehyde reductase	8.44	9.31	8.88
Adam10	ADA10_MOUSE	Disintegrin and metalloproteinase domain-containing protein 10	6.64	11.08	8.86
Tubb2a	TBB2A_MOUSE	Tubulin beta-2A chain	7.84	9.82	8.83
Anxa11	ANX11_MOUSE	Annexin A11	6.14	11.45	8.8
Pecam1	PECA1_MOUSE	Platelet endothelial cell adhesion molecule	11.42	5.95	8.68
Tpt1	TCTP_MOUSE	Translationally-controlled tumor protein	13.16	4.19	8.67
Rpl7a	Q58ET1_MOUSE	MCG11348	10.35	6.86	8.61
Ezr	Q4KML7_MOUSE	Ezrin	2.79	14.4	8.6
Galns	GALNS_MOUSE	N-acetylgalactosamine-6-sulfatase	9.21	7.95	8.58
Snap23	A2AKH4_MOUSE	Synaptosomal-associated protein	4.21	12.93	8.57
Gnb1	Q3TQ70_MOUSE	Beta1 subnuit of GTP-binding protein	3.66	13.23	8.45
Slc7a5	LAT1_MOUSE	Large neutral amino acids transporter small subunit 1	11.45	5.4	8.42
Inpp5d	SHIP1_MOUSE	Phosphatidylinositol 3,4,5-trisphosphate 5-phosphatase 1	9.82	7	8.41

Ywhah	1433F_MOUSE	14-3-3 protein eta	6.87	9.84	8.36
Gnb2l1	GBLP_MOUSE	Guanine nucleotide-binding protein subunit beta-2-like 1	7.79	8.77	8.28
Anxa1	Q4FJV4_MOUSE	Annexin	2.24	14.23	8.24
Rps3	Q5YLW3_MOUSE	Ribosomal protein S3	6.68	9.75	8.22
Rplp2	RLA2_MOUSE	60S acidic ribosomal protein P2	11.72	4.71	8.22
Pdia6	PDIA6_MOUSE	Protein disulfide-isomerase A6	9.8	6.62	8.21
Actg1	Q9QZ83_MOUSE	Gamma actin-like protein	7.47	8.94	8.21
Capza2	Q5DQJ3_MOUSE	Capping protein (Actin filament) muscle Z-line, alpha 2, isoform CRA_c	8.33	8.08	8.2
Prdx5	PRDX5_MOUSE	Peroxiredoxin-5, mitochondrial	6.02	10.36	8.19
CP054	CP054_MOUSE	Transmembrane protein C16orf54 homolog	8.43	7.84	8.13
Csf1	CSF1_MOUSE	Macrophage colony-stimulating factor 1	8.67	7.57	8.12
Nagpa	NAGPA_MOUSE	N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminidase	6.74	9.28	8.01
Actn1	ACTN1_MOUSE	Alpha-actinin-1	6.11	9.82	7.97
Actr3	Q3ULF7_MOUSE	Actr3 protein	3.6	12.29	7.95
Myadm	Q0VE46_MOUSE	Myadm protein	4.15	11.72	7.94
Rplp1	Q58E35_MOUSE	MCG10168	10.88	5	7.94
Scamp3	SCAM3_MOUSE	Secretory carrier-associated membrane protein 3	5.3	10.53	7.91
Rab44	RAB44_MOUSE	Ras-related protein Rab-44	10.85	4.98	7.91
Ftl1	FRIL1_MOUSE	Ferritin light chain 1	10	5.8	7.9
Mvp	MVP_MOUSE	Major vault protein	5.11	10.53	7.82
Nqo2	NQO2_MOUSE	Ribosyldihydronicotinamide dehydrogenase [quinone]	4.72	10.91	7.82
Prdx2	PRDX2_MOUSE	Peroxiredoxin-2	6.96	8.66	7.81
Psma1	Q3TS44_MOUSE	Proteasome subunit alpha type	5.85	9.73	7.79
Rpl7	Q5M9N8_MOUSE	Ribosomal protein L7	9.46	6.05	7.76
Gnb2	Q3U9V4_MOUSE	Guanine nucleotide binding protein, beta 2, isoform CRA_a	4.41	11.1	7.76
Rpl6	Q3UCH0_MOUSE	60S ribosomal protein L6	8.95	6.48	7.71
Ncstn	NICA_MOUSE	Nicastrin	7.57	7.66	7.62
Prdx3	PRDX3_MOUSE	Thioredoxin-dependent peroxide reductase, mitochondrial	7.26	7.94	7.6
Rpl4	Q564E8_MOUSE	Ribosomal protein L4	8.59	6.58	7.59
Enpp4	B8JJY5_MOUSE	Ectonucleotide pyrophosphatase/phosphodiesterase family member 4	10.84	4.33	7.58
Cfp	A2AE15_MOUSE	Complement factor properdin	1.95	13.22	7.58
Ppib	Q9DCY1_MOUSE	Peptidyl-prolyl cis-trans isomerase	3.9	11.2	7.55

Gyg	Q3TWR9_MOUSE	Glycogenin, isoform CRA_a	14.01	1.07	7.54
Ppp2r1a	2AAA_MOUSE	Serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha isoform	8.85	6.17	7.51
Tmsb4x	TYB4_MOUSE	Thymosin beta-4	8.91	6.08	7.5
Gsr	GSHR_MOUSE	Glutathione reductase, mitochondrial	4.72	10.23	7.47
Plek	Q5F271_MOUSE	Pleckstrin	7.81	7.14	7.47
Ank	Q3UG85_MOUSE	Progressive ankylosis	3.37	11.35	7.36
Lif	Q5SQP3_MOUSE	Leukemia inhibitory factor	4.17	10.53	7.35
Adh5	Q6P5I3_MOUSE	Alcohol dehydrogenase 5 (Class III), chi polypeptide	6.68	7.96	7.32
Hspa1a	Q3TU85_MOUSE	Heat shock protein 1B	4.43	10.2	7.31
Siae	SIAE_MOUSE	Sialate O-acetylesterase	8.96	5.54	7.25
Ptma	Q0VGU2_MOUSE	Prothymosin alpha	6.96	7.44	7.2
Athl1	ATHL1_MOUSE	Acid trehalase-like protein 1	7.19	7.13	7.16
Eif5a	IF5A1_MOUSE	Eukaryotic translation initiation factor 5A-1	6.95	7.28	7.11
Arpc1b	ARC1B_MOUSE	Actin-related protein 2/3 complex subunit 1B	3.03	11.18	7.11
Itga2b	ITA2B_MOUSE	Integrin alpha-Iib	3.63	10.52	7.08
Tspan13	TSN13_MOUSE	Tetraspanin-13	8.7	5.41	7.05
Rtn4	RTN4_MOUSE	Reticulon-4	11.42	2.67	7.05
Cat	CATA_MOUSE	Catalase	1.68	12.27	6.98
Slc9a3r1	Q3TG37_MOUSE	Putative uncharacterized protein	9.2	4.71	6.96
Rpsa	RSSA_MOUSE	40S ribosomal protein SA	3.04	10.79	6.91
Ifitm2	IFM2_MOUSE	Interferon-induced transmembrane protein 2	1.66	12.13	6.9
Rnf130	GOLI_MOUSE	E3 ubiquitin-protein ligase RNF130	1.97	11.59	6.78
HVM17	HVM17_MOUSE	Ig heavy chain V region MOPC 47A	9.24	4.31	6.77
Glod4	GLOD4_MOUSE	Glyoxalase domain-containing protein 4	7.01	6.48	6.75
Rps8	Q497E9_MOUSE	40S ribosomal protein S8	6.44	7.02	6.73
Arf1	ARF1_MOUSE	ADP-ribosylation factor 1	3.34	10.1	6.72
Igf2r	MPRI_MOUSE	Cation-independent mannose-6-phosphate receptor	11.34	2.05	6.69
Nme2	Q5NC82_MOUSE	Nucleoside diphosphate kinase	8.11	5.11	6.61
Itgb3	ITB3_MOUSE	Integrin beta-3	1.67	11.47	6.57
Ttyh2	TTYH2_MOUSE	Protein tweety homolog 2	11.1	2.02	6.56
Myh11	MYH11_MOUSE	Myosin-11	7.55	5.55	6.55
Oat	Q3TG75_MOUSE	Ornithine aminotransferase, isoform CRA_b	5.89	7.15	6.52
Slc6a6	Q3UPI8_MOUSE	Transporter	7.32	5.66	6.49
Rpl18	Q58EW0_MOUSE	60S ribosomal protein L18	6.36	6.5	6.43

Tmem106b	T106B_MOUSE	Transmembrane protein 106B	3.67	9.19	6.43
Hspd1	CH60_MOUSE	60 kDa heat shock protein, mitochondrial	4.19	8.65	6.42
Psmb4	PSB4_MOUSE	Proteasome subunit beta type-4	4.71	8.11	6.41
Lilrb4	LIRB4_MOUSE	Leukocyte immunoglobulin-like receptor subfamily B member 4	3.37	9.44	6.4
Chmp4b	CHM4B_MOUSE	Charged multivesicular body protein 4b	9.8	2.95	6.37
Rap1a	RAP1A_MOUSE	Ras-related protein Rap-1A	4.48	8.07	6.28
Dcps	DCPS_MOUSE	m7GpppX diphosphatase	8.93	3.61	6.27
Atic	PUR9_MOUSE	Bifunctional purine biosynthesis protein PURH	8.05	4.45	6.25
Anp32a	AN32A_MOUSE	Acidic leucine-rich nuclear phosphoprotein 32 family member A	10.06	2.44	6.25
H2-Q10	HA10_MOUSE	H-2 class I histocompatibility antigen, Q10 alpha chain	9.98	2.45	6.22
Trpv2	TRPV2_MOUSE	Transient receptor potential cation channel subfamily V member 2	1.69	10.67	6.18
Eif6	Q545K4_MOUSE	Eukaryotic translation initiation factor 6	8.44	3.9	6.17
Ppt1	Q3U6J9_MOUSE	Palmitoyl-protein thioesterase 1	2.8	9.53	6.17
Sh3bgrl	SH3L1_MOUSE	SH3 domain-binding glutamic acid-rich-like protein	8.13	4.19	6.16
Ptpn6	PTN6_MOUSE	Tyrosine-protein phosphatase non-receptor type 6	1.95	10.27	6.11
Ppp1ca	PP1A_MOUSE	Serine/threonine-protein phosphatase PP1-alpha catalytic subunit	6.44	5.77	6.1
Emb	EMB_MOUSE	Embigin	4.49	7.69	6.09
Ppp2ca	PP2AA_MOUSE	Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform	7.77	4.4	6.09
Mtpn	MTPN_MOUSE	Myotrophin	7.83	4.34	6.08
Rab10	Q4FJL0_MOUSE	RAB10, member RAS oncogene family	7.02	5.14	6.08
Nedd4	B2RSC8_MOUSE	E3 ubiquitin-protein ligase	3.34	8.81	6.08
Pygl	PYGL_MOUSE	Glycogen phosphorylase, liver form	2.78	9.32	6.05
Ube2l3	UBC7_MOUSE	Ubiquitin-conjugating enzyme E2 L3	3.62	8.48	6.05
Psmb8	PSB8_MOUSE	Proteasome subunit beta type-8	3.95	8.1	6.02
Ptgr2	PTGR2_MOUSE	Prostaglandin reductase 2	9.38	2.59	5.99
Gnai1	GNAI1_MOUSE	Guanine nucleotide-binding protein G(i) subunit alpha-1	3.88	8.08	5.98
Myl6	MYL6_MOUSE	Myosin light polypeptide 6	1.91	9.98	5.95

Por	NCPR_MOUSE	NADPH--cytochrome P450 reductase	5.81	6.08	5.94
Impa1	IMPA1_MOUSE	Inositol monophosphatase 1	7.27	4.59	5.93
Prkcb	KPCB_MOUSE	Protein kinase C beta type	7.32	4.48	5.9
Psme1	Q5HZK3_MOUSE	Proteasome (Prosome, macropain) 28 subunit, alpha	6.11	5.65	5.88
Rps7	Q4FZE6_MOUSE	Ribosomal protein S7	6.1	5.66	5.88
Rps18	Q561N5_MOUSE	MCG23000, isoform CRA_b	6.73	4.98	5.86
Slc2a6	A2AR26_MOUSE	Protein Slc2a6	3.07	8.63	5.85
Lyz2	LYZ2_MOUSE	Lysozyme C-2	6.95	4.74	5.84
Stxbp2	Q548T0_MOUSE	Syntaxin binding protein 2, isoform CRA_e	2.23	9.43	5.83
Tmem104	A2A6S0_MOUSE	Transmembrane protein 104	6.72	4.85	5.79
Cd63	Q549D0_MOUSE	Cd63 antigen	7.5	4.07	5.78
Itgb2	ITB2_MOUSE	Integrin beta-2	2.45	8.91	5.68
Rps3a1	Q564F3_MOUSE	MCG1128, isoform CRA_c	3.93	7.28	5.61
Gnpda1	GNPI1_MOUSE	Glucosamine-6-phosphate isomerase 1	6.12	4.97	5.55
Hnrnpd	HNRPD_MOUSE	Heterogeneous nuclear ribonucleoprotein D0	9.82	1.21	5.51
Pycard	Q54AA2_MOUSE	Apoptosis-associated speck-like protein containing CARD	5.3	5.69	5.49
Anp32b	AN32B_MOUSE	Acidic leucine-rich nuclear phosphoprotein 32 family member B	9.79	1.19	5.49
Tpp2	TPP2_MOUSE	Tripeptidyl-peptidase 2	5.82	5.12	5.47
Clec2d	F5BFH0_MOUSE	C-type lectin domain family 2 member D	1.4	9.54	5.47
Rab5c	Q3TJ39_MOUSE	RAB5C, member RAS oncogene family, isoform CRA_a	3.09	7.81	5.45
Rpl10a	RL10A_MOUSE	60S ribosomal protein L10a	6.41	4.44	5.43
Crlf2	CRLF2_MOUSE	Cytokine receptor-like factor 2	1.4	9.44	5.42
Kpnb1	IMB1_MOUSE	Importin subunit beta-1	8.4	2.43	5.42
Lyn	Q3TCS3_MOUSE	Putative uncharacterized protein	1.93	8.89	5.41
Rab14	Q50HX4_MOUSE	RAB14 protein	2.26	8.5	5.38
Txn	A2AV97_MOUSE	Thioredoxin	6.68	4.06	5.37
Tpm3-rs7	D3Z2H9_MOUSE	Uncharacterized protein	6.93	3.77	5.35
Serinc1	A9CLV6_MOUSE	Axotomy induced glycoprotein 2	4.75	5.95	5.35
Rps17	Q5M9L7_MOUSE	MCG15301, isoform CRA_a	7.86	2.81	5.34
Psmb1	Q6RI64_MOUSE	Proteasome subunit beta type	3.63	6.98	5.31
Twf2	TWF2_MOUSE	Twinfilin-2	6.16	4.44	5.3
A2mp	A2MP_MOUSE	Alpha-2-macroglobulin-P	7.39	3.13	5.26
H2afy	H2AY_MOUSE	Core histone macro-H2A.1	1.13	9.16	5.14
Mtap	A2ANM4_MOUSE	S-methyl-5'-thioadenosine phosphorylase	8.11	2.14	5.13

Pfkp	K6PP_MOUSE	6-phosphofructokinase type C	1.4	8.78	5.09
Pgm2	PGM2_MOUSE	Phosphoglucomutase-2	4.77	5.41	5.09
Havcr2	HAVR2_MOUSE	Hepatitis A virus cellular receptor 2 homolog	3.58	6.6	5.09
Tubb5	TBB5_MOUSE	Tubulin beta-5 chain	6.4	3.77	5.08
Tsn	TSN_MOUSE	Translin	8.41	1.75	5.08
Cmpk1	KCY_MOUSE	UMP-CMP kinase	1.4	8.75	5.08
Fam63a	B7ZMR0_MOUSE	Fam63a protein	3.37	6.75	5.06
Trim14	Q14AR3_MOUSE	Tripartite motif-containing 14	5.89	4.19	5.04
Vars	Q790I0_MOUSE	Valyl-tRNA synthetase 2, isoform CRA_b	6.99	2.96	4.97
Serpinb6a	Q4FJQ6_MOUSE	Serine (Or cysteine) peptidase inhibitor, clade B, member 6a, isoform CRA_a	7.88	2.01	4.94
Vamp8	VAMP8_MOUSE	Vesicle-associated membrane protein 8	1.66	8.23	4.94
Psmb2	A2A882_MOUSE	Proteasome subunit beta type-2	4.18	5.67	4.92
Lgals9	LEG9_MOUSE	Galectin-9	5.04	4.74	4.89
Rps9	RS9_MOUSE	40S ribosomal protein S9	5.88	3.89	4.88
Rpl17	RL17_MOUSE	60S ribosomal protein L17	5.04	4.72	4.88
Psma5	Q3UPK6_MOUSE	Proteasome subunit alpha type	6.47	3.24	4.85
Ly6a	LY6A_MOUSE	Lymphocyte antigen 6A-2/6E-1	3.24	6.46	4.85
Rps19	RS19_MOUSE	40S ribosomal protein S19	5.59	4.06	4.82
Coro1b	A2RS22_MOUSE	Coronin	2.79	6.74	4.77
Galm	GALM_MOUSE	Aldose 1-epimerase	4.79	4.73	4.76
Psma7	Q542H2_MOUSE	Proteasome subunit alpha type	2.76	6.75	4.75
Scarb2	SCRB2_MOUSE	Lysosome membrane protein 2	8.09	1.36	4.73
Ybx1	YB1_MOUSE	Nuclease-sensitive element-binding protein 1	7.56	1.89	4.73
Renbp	RENBP_MOUSE	N-acylglucosamine 2-epimerase	6.13	3.24	4.69
Uba1y	UBA1Y_MOUSE	Ubiquitin-like modifier-activating enzyme 1 Y	6.94	2.42	4.68
Nsf	NSF_MOUSE	Vesicle-fusing ATPase	6.65	2.7	4.68
Coro1c	Q499X7_MOUSE	Coronin	1.95	7.4	4.67
Hmgb1	Q58EV5_MOUSE	High mobility group box 1	3.07	6.21	4.64
Ostf1	OSTF1_MOUSE	Osteoclast-stimulating factor 1	2.74	6.46	4.6
Eef1g	Q4FZK2_MOUSE	Eukaryotic translation elongation factor 1 gamma	5.29	3.9	4.6
Pilrb2	PILB2_MOUSE	Paired immunoglobulin-like type 2 receptor beta-2	5.51	3.65	4.58
Flot1	Q540I4_MOUSE	Flotillin 1	1.7	7.44	4.57
Atp6v0a2	VPP2_MOUSE	V-type proton ATPase 116 kDa subunit a isoform 2	2.51	6.6	4.55
Lgals3	LEG3_MOUSE	Galectin-3	3.37	5.69	4.53
Eif2s2	Q3ULL5_MOUSE	Eif2s2 protein	7.28	1.77	4.52

Pafah1b1	Q5SW18_MOUSE	Putative uncharacterized protein	7.26	1.76	4.51
Rnf13	RNF13_MOUSE	E3 ubiquitin-protein ligase RNF13	5.02	3.91	4.47
Plscr1	PLS1_MOUSE	Phospholipid scramblase 1	2.29	6.61	4.45
Gsto1	GSTO1_MOUSE	Glutathione S-transferase omega-1	3.89	5	4.44
Rab8b	Q0PD49_MOUSE	RAB8B, member RAS oncogene family	6.23	2.57	4.4
Slc1a5	AAAT_MOUSE	Neutral amino acid transporter B(0)	2.79	5.93	4.36
Ube2n	UBCN_MOUSE	Ubiquitin-conjugating enzyme E2 N	4.41	4.31	4.36
Rhog	Q3UDZ1_MOUSE	Ras homolog gene family, member G	4.14	4.58	4.36
Hist1h3a	H31_MOUSE	Histone H3.1	1.66	7.03	4.35
Fam49b	FA49B_MOUSE	Protein FAM49B	3.9	4.74	4.32
Stip1	STI1_MOUSE	Stress-induced-phosphoprotein 1	3.06	5.52	4.29
Cd93	C1QR1_MOUSE	Complement component C1q receptor	3.07	5.5	4.29
Lmnb1	LMNB1_MOUSE	Lamin-B1	2.74	5.78	4.26
Rab5a	RAB5A_MOUSE	Ras-related protein Rab-5A	2.48	5.96	4.22
Rnaset2	Q5FWA0_MOUSE	Ribonuclease T2B	6.36	2.03	4.2
Osm	ONCM_MOUSE	Oncostatin-M	1.07	7.28	4.17
Ndrg1	Q545R3_MOUSE	N-myc downstream regulated gene 1	2.23	6.09	4.16
Cd99	CD99_MOUSE	CD99 antigen	4.78	3.5	4.14
Vps37b	VP37B_MOUSE	Vacuolar protein sorting-associated protein 37B	4.49	3.79	4.14
Ifi30	GILT_MOUSE	Gamma-interferon-inducible lysosomal thiol reductase	1.4	6.85	4.12
G6pd2	A0FF38_MOUSE	Glucose-6-phosphate 1-dehydrogenase	4.25	3.94	4.09
Plec	PLEC_MOUSE	Plectin	3.89	4.27	4.08
Asl	ARLY_MOUSE	Argininosuccinate lyase	1.95	6.19	4.07
Esyt1	ESYT1_MOUSE	Extended synaptotagmin-1	1.4	6.7	4.05
Eno3	Q5SX58_MOUSE	Beta-enolase	2.23	5.82	4.03
Got2	AATM_MOUSE	Aspartate aminotransferase, mitochondrial	1.14	6.91	4.02
Rps14	RS14_MOUSE	40S ribosomal protein S14	6.14	1.9	4.02
Rpl14	RL14_MOUSE	60S ribosomal protein L14	4.49	3.53	4.01
Tom1	Q561M4_MOUSE	Target of myb1 homolog (Chicken)	5.05	2.97	4.01
Hnrnpa2b1	ROA2_MOUSE	Heterogeneous nuclear ribonucleoproteins A2/B1	3.09	4.88	3.99
Ostm1	OSTM1_MOUSE	Osteopetrosis-associated transmembrane protein 1	4.99	2.97	3.98
Sod2	Q4FJX9_MOUSE	Superoxide dismutase	2.49	5.42	3.96
Ankfy1	ANFY1_MOUSE	Ankyrin repeat and FYVE domain-containing protein 1	2.78	5.12	3.95
Clta	CLCA_MOUSE	Clathrin light chain A	5.56	2.3	3.93

Hdgf	HDGF_MOUSE	Hepatoma-derived growth factor	4.45	3.37	3.91
Stx7	STX7_MOUSE	Syntaxin-7	3.08	4.72	3.9
Rpl15	Q5M8Q0_MOUSE	Ribosomal protein L15	4.19	3.61	3.9
Txndc17	TXD17_MOUSE	Thioredoxin domain-containing protein 17	3.89	3.89	3.89
Arpc5	ARPC5_MOUSE	Actin-related protein 2/3 complex subunit 5	5.33	2.44	3.88
Tars	SYTC_MOUSE	Threonine--tRNA ligase, cytoplasmic	1.36	6.19	3.78
Atox1	ATOX1_MOUSE	Copper transport protein ATOX1	2.53	4.99	3.76
Nedd8	Q3UI46_MOUSE	Neural cell expressed, developmentally down-regulated gene 8, isoform CRA_a	4.4	3.12	3.76
Asah1	Q78P93_MOUSE	Acid ceramidase	1.11	6.34	3.72
Calu	Q3TUF3_MOUSE	Calumenin, isoform CRA_a	4.71	2.7	3.7
Syk	Q3UPF7_MOUSE	Tyrosine-protein kinase	5.89	1.5	3.69
M6pr	Q3UKQ5_MOUSE	Mannose-6-phosphate receptor, cation dependent, isoform CRA_a	1.12	6.24	3.68
Idi1	IDI1_MOUSE	Isopentenyl-diphosphate Delta-isomerase 1	3.86	3.49	3.68
Hcls1	HCLS1_MOUSE	Hematopoietic lineage cell-specific protein	1.37	5.95	3.66
Csf1r	Q0P635_MOUSE	Colony stimulating factor 1 receptor	3.92	3.37	3.64
Hprt1	B1B0W8_MOUSE	Hypoxanthine-guanine phosphoribosyltransferase	4.15	3.1	3.63
Sri	SORCN_MOUSE	Sorcin	4.7	2.55	3.63
Rab1b	Q0PD66_MOUSE	RAB1B, member RAS oncogene family, isoform CRA_c	2.24	5	3.62
Cd53	Q3U0W1_MOUSE	CD53 antigen, isoform CRA_b	3.89	3.36	3.62
Atp6v0d1	VA0D_MOUSE	V-type proton ATPase subunit d 1	3.33	3.91	3.62
Gabarapl2	GBRL2_MOUSE	Gamma-aminobutyric acid receptor-associated protein-like 2	1.95	5.28	3.61
Fam129b	NIBL1_MOUSE	Niban-like protein 1	3.82	3.37	3.59
Gmfb	GMFB_MOUSE	Glia maturation factor beta	5.03	2.15	3.59
Bsg	BASI_MOUSE	Basigin	4.72	2.43	3.58
Eef1d	EF1D_MOUSE	Elongation factor 1-delta	4.73	2.41	3.57
Qdpr	DHPR_MOUSE	Dihydropteridine reductase	3.63	3.5	3.56
Arl8b	ARL8B_MOUSE	ADP-ribosylation factor-like protein 8B	1.4	5.71	3.55
Ptms	PTMS_MOUSE	Parathymosin	1.95	5.13	3.54
Emilin2	Q3U1J9_MOUSE	Elastin microfibril interfacer 2	1.14	5.93	3.53
Rpl19	Q5I0T8_MOUSE	Ribosomal protein L19	5.03	2.02	3.53
Vps29	VP29_MOUSE	Vacuolar protein sorting-associated protein 29	4.43	2.57	3.5
Set	Q3T9S3_MOUSE	SET translocation	3.49	3.51	3.5

Tpm4	TPM4_MOUSE	Tropomyosin alpha-4 chain	1.96	5	3.48
Xpnpep1	Q3UKF5_MOUSE	X-prolyl aminopeptidase	3.92	2.98	3.45
Apoa1bp	NNRE_MOUSE	NAD(P)H-hydrate epimerase	3.93	2.96	3.45
Nutf2	NTF2_MOUSE	Nuclear transport factor 2	4.71	2.14	3.43
Hnrnpa3	Q5FB19_MOUSE	Heterogeneous nuclear ribonucleoprotein A3	4.98	1.87	3.42
Zyx	ZYX_MOUSE	Zyxin	3.86	2.95	3.41
Mroh1	D3Z624_MOUSE	Protein Mroh1	4.75	2.02	3.39
Stmn1	Q545B6_MOUSE	Stathmin	5.56	1.21	3.38
Rab27b	Q549X4_MOUSE	RAB27b, member RAS oncogene family, isoform CRA_a	1.94	4.82	3.38
Eef1b	EF1B_MOUSE	Elongation factor 1-beta	3.93	2.83	3.38
Cd55	DAF1_MOUSE	Complement decay-accelerating factor, GPI-anchored	2.25	4.47	3.36
Rpl3	RL3_MOUSE	60S ribosomal protein L3	3.07	3.63	3.35
Atp6v1g1	VAG1_MOUSE	V-type proton ATPase subunit G 1	3.05	3.65	3.35
Psmb3	Q545G0_MOUSE	Proteasome subunit beta type	2.22	4.47	3.34
Psma4	PSA4_MOUSE	Proteasome subunit alpha type-4	1.96	4.72	3.34
Arl8a	ARL8A_MOUSE	ADP-ribosylation factor-like protein 8A	1.97	4.69	3.33
Arpc4	ARPC4_MOUSE	Actin-related protein 2/3 complex subunit 4	1.39	5.27	3.33
Slc16a3	Q3UDP9_MOUSE	Solute carrier family 16 (Monocarboxylic acid transporters), member 3, isoform CRA_a	2.84	3.79	3.31
Cyfip1	CYFP1_MOUSE	Cytoplasmic FMR1-interacting protein 1	1.1	5.52	3.31
Tpsab1	A1Z090_MOUSE	Mast cell-restricted serine protease 7	5.25	1.34	3.3
Erap1	ERAP1_MOUSE	Endoplasmic reticulum aminopeptidase 1	2.83	3.76	3.29
Blvra	A2ASB2_MOUSE	Biliverdin reductase A	2.78	3.77	3.28
Pttg1ip	PTTG_MOUSE	Pituitary tumor-transforming gene 1 protein-interacting protein	3.36	3.11	3.23
Ctso	CATO_MOUSE	Cathepsin O	2.78	3.64	3.21
Gp49a	Q549E3_MOUSE	Gp49A	2.22	4.18	3.2
Coro7	CORO7_MOUSE	Coronin-7	3.64	2.7	3.17
Anxa4	ANXA4_MOUSE	Annexin A4	3.34	2.98	3.16
Enah	ENAH_MOUSE	Protein enabled homolog	2.81	3.51	3.16
Actr2	Q5SW83_MOUSE	ARP2 actin-related protein 2 homolog (Yeast)	3.08	3.23	3.16
Psma8	PSA7L_MOUSE	Proteasome subunit alpha type-7-like	2.53	3.78	3.15
Atp6v1a	VATA_MOUSE	V-type proton ATPase catalytic subunit A	2.22	4.03	3.13

Cd200r1	MO2R1_MOUSE	Cell surface glycoprotein CD200 receptor 1	3.9	2.29	3.1
H2-K1	Q7JJ15_MOUSE	H2K1(B)	2.81	3.39	3.1
Vti1b	VT1B_MOUSE	Vesicle transport through interaction with t-SNAREs homolog 1B	2.26	3.92	3.09
Naaa	NAAA_MOUSE	N-acylethanolamine-hydrolyzing acid amidase	3.08	3.1	3.09
Cct8	Q3UL22_MOUSE	Chaperonin subunit 8 (Theta), isoform CRA_a	1.97	4.19	3.08
Rps27l	RS27L_MOUSE	40S ribosomal protein S27-like	3.6	2.57	3.08
Dstn	Q4FK36_MOUSE	Destrin	2.26	3.9	3.08
Vasp	VASP_MOUSE	Vasodilator-stimulated phosphoprotein	2.22	3.91	3.06
Ldlr	LDLR_MOUSE	Low-density lipoprotein receptor	1.12	4.97	3.04
Acp2	A2AGR5_MOUSE	Lysosomal acid phosphatase	2.53	3.5	3.02
Pls1	PLSI_MOUSE	Plastin-1	3.07	2.97	3.02
Txnl1	TXNL1_MOUSE	Thioredoxin-like protein 1	2.78	3.23	3.01
Gnas	GNAS2_MOUSE	Guanine nucleotide-binding protein G(s) subunit alpha isoforms short	1.67	4.32	2.99
Psmb7	A2AQL6_MOUSE	Proteasome subunit beta type-7	1.4	4.59	2.99
Brox	BROX_MOUSE	BRO1 domain-containing protein BROX	1.63	4.35	2.99
Pak2	PAK2_MOUSE	Serine/threonine-protein kinase PAK 2	2.71	3.23	2.97
Rpl27a	RL27A_MOUSE	60S ribosomal protein L27a	3.88	2.03	2.95
Rps25	Q58EA6_MOUSE	MCG10725, isoform CRA_a	2.79	3.1	2.94
Tubb1	TBB1_MOUSE	Tubulin beta-1 chain	4.21	1.62	2.91
Dbi	Q548W7_MOUSE	Diazepam binding inhibitor	2.83	2.98	2.9
A2m	A2M_MOUSE	Alpha-2-macroglobulin	4.46	1.33	2.9
Hgsnat	HGNAT_MOUSE	Heparan-alpha-glucosaminide N-acetyltransferase	2.52	3.25	2.89
Hnrnpa1	ROA1_MOUSE	Heterogeneous nuclear ribonucleoprotein A1	3.9	1.87	2.89
Hist1h1d	Q149Z9_MOUSE	Histone cluster 1, H1d	2.79	2.98	2.89
Tubb4a	TBB4A_MOUSE	Tubulin beta-4A chain	2.24	3.51	2.88
Dnaja1	Q5NTY0_MOUSE	DnaJ (Hsp40) homolog, subfamily A, member 1	3.05	2.7	2.88
ENV1	ENV1_MOUSE	MLV-related proviral Env polyprotein	2.78	2.96	2.87
Otub1	OTUB1_MOUSE	Ubiquitin thioesterase OTUB1	1.14	4.56	2.85
Prkacb	KAPCB_MOUSE	cAMP-dependent protein kinase catalytic subunit beta	1.38	4.27	2.83
Lxn	Q14BZ3_MOUSE	Latexin	2.55	3.1	2.83
Lasp1	Q543N3_MOUSE	LIM and SH3 protein 1, isoform	1.69	3.92	2.8

		CRA_b			
S100a13	Q545H7_MOUSE	S100 calcium binding protein A13	1.69	3.91	2.8
Hnrnpab	Q544Z3_MOUSE	Heterogeneous nuclear ribonucleoprotein A/B, isoform CRA_c	3.04	2.56	2.8
Dnajc5	A2AUE2_MOUSE	DnaJ homolog subfamily C member 5	2.51	3.09	2.8
Psmb6	A2CFA7_MOUSE	Proteasome subunit beta type-6	2.23	3.35	2.79
Nap1l1	NP1L1_MOUSE	Nucleosome assembly protein 1-like 1	4.51	1.07	2.79
Arpc2	ARPC2_MOUSE	Actin-related protein 2/3 complex subunit 2	3.03	2.54	2.78
Fkbp1a	A2AT05_MOUSE	Peptidyl-prolyl cis-trans isomerase FKBP1A	1.92	3.64	2.78
Myl6b	MYL6B_MOUSE	Myosin light chain 6B	4.21	1.35	2.78
Tollip	A6PWS1_MOUSE	Toll-interacting protein	1.64	3.78	2.71
Napa	SNAA_MOUSE	Alpha-soluble NSF attachment protein	1.44	3.92	2.68
Cd81	CD81_MOUSE	CD81 antigen	2.52	2.84	2.68
Cdc37	CDC37_MOUSE	Hsp90 co-chaperone Cdc37	2.78	2.56	2.67
Tuba1b	TBA1B_MOUSE	Tubulin alpha-1B chain	1.31	3.94	2.63
Rpl11	A2BH07_MOUSE	60S ribosomal protein L11	3.37	1.88	2.62
Rpl13	RL13_MOUSE	60S ribosomal protein L13	3.61	1.61	2.61
Gng2	GBG2_MOUSE	Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2	2.8	2.42	2.61
Calml3	CALL3_MOUSE	Calmodulin-like protein 3	1.95	3.26	2.6
Was	WASP_MOUSE	Wiskott-Aldrich syndrome protein homolog	3.03	2.16	2.59
Cadm1	CADM1_MOUSE	Cell adhesion molecule 1	3.68	1.48	2.58
Mif	Q545F0_MOUSE	MCG3124, isoform CRA_b	3.4	1.75	2.58
Sypl1	SYPL_MOUSE	Synaptophysin-like protein 1	2.85	2.28	2.57
Fcer1a	FCERA_MOUSE	High affinity immunoglobulin epsilon receptor subunit alpha	3.35	1.75	2.55
Cst7	CYTF_MOUSE	Cystatin-F	3.37	1.74	2.55
Eif2s3x	Q3TML6_MOUSE	Eukaryotic translation initiation factor 2, subunit 3, structural gene X-linked	3.61	1.49	2.55
Rpl23a	Q5M9M5_MOUSE	MCG10806	2.23	2.84	2.54
Abcb6	ABCB6_MOUSE	ATP-binding cassette sub-family B member 6, mitochondrial	2.79	2.28	2.54
Banf1	BAF_MOUSE	Barrier-to-autointegration factor	3.32	1.75	2.53
Hist1h1b	Q5T003_MOUSE	Histone H1.5	1.69	3.38	2.53
Rbbp4	RBBP4_MOUSE	Histone-binding protein RBBP4	3.11	1.88	2.49
Eif3b	EIF3B_MOUSE	Eukaryotic translation initiation factor 3 subunit B	3.35	1.62	2.49

Cct6a	Q3TI05_MOUSE	Chaperonin containing Tcp1, subunit 6a (Zeta)	2.25	2.7	2.48
Chmp5	B1AY07_MOUSE	Charged multivesicular body protein 5	3.6	1.33	2.47
Gpx4	GPX41_MOUSE	Phospholipid hydroperoxide glutathione peroxidase, mitochondrial	1.67	3.25	2.46
Pdcd6	PDCD6_MOUSE	Programmed cell death protein 6	1.65	3.21	2.43
Ganab	GANAB_MOUSE	Neutral alpha-glucosidase AB	1.66	3.18	2.42
LTF	TRFL_HUMAN	Lactotransferrin	2.79	2.03	2.41
Hnrnpk	HNRPK_MOUSE	Heterogeneous nuclear ribonucleoprotein K	3.08	1.74	2.41
Ppp3ca	B2RRX2_MOUSE	Serine/threonine-protein phosphatase	2.81	2.01	2.41
Gmfg	A7VJA4_MOUSE	Glia maturation factor gamma	2.51	2.29	2.4
Ppp2r4	Q543N6_MOUSE	Putative uncharacterized protein	1.69	3.1	2.39
Rab37	RAB37_MOUSE	Ras-related protein Rab-37	3.37	1.35	2.36
Rpe	B2KGE9_MOUSE	Ribulose-phosphate 3-epimerase	1.97	2.7	2.34
Klk8	KLK8_MOUSE	Kallikrein-8	1.67	2.99	2.33
Rps15a	Q5M9M4_MOUSE	Ribosomal protein S15A	2.78	1.88	2.33
Atrn	ATRN_MOUSE	Attractin	2.22	2.43	2.32
Rps6	Q5BLK1_MOUSE	40S ribosomal protein S6	2.2	2.44	2.32
Psma3	Q58EV4_MOUSE	Proteasome subunit alpha type	1.39	3.24	2.31
Cmtm7	CKLF7_MOUSE	CKLF-like MARVEL transmembrane domain-containing protein 7	3.38	1.21	2.3
Cast	ICAL_MOUSE	Calpastatin	1.08	3.5	2.29
Rragc	RRAGC_MOUSE	Ras-related GTP-binding protein C	3.6	0.95	2.27
Fh	FUMH_MOUSE	Fumarate hydratase, mitochondrial	2.26	2.28	2.27
Rpl21	RL21_MOUSE	60S ribosomal protein L21	1.96	2.55	2.26
Rps20	Q5BLK2_MOUSE	MCG3574	2.16	2.31	2.24
Rab18	Q0PD38_MOUSE	RAB18, member RAS oncogene family, isoform CRA_a	1.11	3.36	2.23
Hnrnpu	HNRPU_MOUSE	Heterogeneous nuclear ribonucleoprotein U	1.91	2.55	2.23
Crmp1	DPYL1_MOUSE	Dihydropyrimidinase-related protein 1	3.34	1.09	2.21
KV3A6	KV3A6_MOUSE	Ig kappa chain V-III region MOPC 321	2.23	2.17	2.2
Dync1i2	A2BFF7_MOUSE	Dynein cytoplasmic 1 intermediate chain 2	2.78	1.62	2.2
Hmgb2	HMGB2_MOUSE	High mobility group protein B2	2.51	1.89	2.2
Sh3kbp1	A2AG61_MOUSE	SH3 domain-containing kinase-binding protein 1	1.39	2.97	2.18
Padi2	PADI2_MOUSE	Protein-arginine deiminase type-2	1.69	2.66	2.17

Cln5	B2RUP8_MOUSE	Ceroid-lipofuscinosis, neuronal 5	1.11	3.2	2.15
Lrrfip1	LRRF1_MOUSE	Leucine-rich repeat flightless-interacting protein 1	1.35	2.94	2.15
Eif4a1	Q5F2A7_MOUSE	Putative uncharacterized protein	1.14	3.09	2.11
Tsg101	Q3UCW0_MOUSE	MCG123182	1.12	3.1	2.11
Tnf	Q3U593_MOUSE	Tumor necrosis factor	2.74	1.47	2.11
L1cam	L1CAM_MOUSE	Neural cell adhesion molecule L1	2.52	1.64	2.08
Nt5c	A2A9X6_MOUSE	5'(3')-deoxyribonucleotidase, cytosolic type	2.51	1.62	2.06
Rps2	Q58EU3_MOUSE	MCG12811, isoform CRA_b	1.08	2.96	2.02
C4b	CO4B_MOUSE	Complement C4-B	3.07	0.95	2.01
Sirpa	A2ANC1_MOUSE	Tyrosine-protein phosphatase non-receptor type substrate 1	1.73	2.29	2.01
Ncl	NUCL_MOUSE	Nucleolin	2.22	1.74	1.98
Rnf149	RN149_MOUSE	E3 ubiquitin-protein ligase RNF149	1.4	2.55	1.97
Eif4h	Q564E5_MOUSE	Williams-Beuren syndrome chromosome region 1 homolog (Human), isoform CRA_a	1.14	2.8	1.97
Slc12a6	S12A6_MOUSE	Solute carrier family 12 member 6	1.36	2.58	1.97
Slc16a1	Q544N9_MOUSE	Solute carrier family 16 (Monocarboxylic acid transporters), member 1	2.81	1.08	1.95
Rcn1	A2A3Z8_MOUSE	Reticulocalbin-1	2.26	1.62	1.94
Pfas	PUR4_MOUSE	Phosphoribosylformylglycinamidine synthase	2.81	1.07	1.94
Slc38a9	S38A9_MOUSE	Putative sodium-coupled neutral amino acid transporter 9	2.79	1.08	1.93
Lypla1	LYPA1_MOUSE	Acyl-protein thioesterase 1	2.79	1.07	1.93
Phgdh	SERA_MOUSE	D-3-phosphoglycerate dehydrogenase	2.52	1.34	1.93
Enpp5	ENPP5_MOUSE	Ectonucleotide pyrophosphatase/phosphodiesterase family member 5	1.96	1.9	1.93
Rpl9	Q5EBQ6_MOUSE	MCG10266, isoform CRA_a	1.14	2.69	1.91
Slc38a2	S38A2_MOUSE	Sodium-coupled neutral amino acid transporter 2	1.11	2.7	1.91
Acp1	Q4VAI2_MOUSE	Acid phosphatase 1, soluble	1.4	2.3	1.85
Plekho2	PKHO2_MOUSE	Pleckstrin homology domain-containing family O member 2	1.4	2.29	1.84
Sppl2a	SPP2A_MOUSE	Signal peptide peptidase-like 2A	1.4	2.28	1.84
Rps5	RS5_MOUSE	40S ribosomal protein S5	1.41	2.17	1.79
Rps12	RS12_MOUSE	40S ribosomal protein S12	1.95	1.62	1.78
Srgn	SRGN_MOUSE	Serglycin	1.95	1.61	1.78
Hist1h1e	H14_MOUSE	Histone H1.4	1.37	2.17	1.77
Cd200r4	MO2R4_MOUSE	Cell surface glycoprotein CD200	1.97	1.5	1.74

		receptor 4			
Usp5	UBP5_MOUSE	Ubiquitin carboxyl-terminal hydrolase 5	2.25	1.2	1.72
Cd47	Q3U967_MOUSE	Putative uncharacterized protein	1.69	1.75	1.72
1810009J06Rik	F6R7E8_MOUSE	Protein Gm2663	2.22	1.21	1.71
Uap1l1	UAP1L_MOUSE	UDP-N-acetylhexosamine pyrophosphorylase-like protein 1	1.4	2.01	1.7
Rps13	Q5BLJ7_MOUSE	MCG10205	1.69	1.63	1.66
Dnpep	DNPEP_MOUSE	Aspartyl aminopeptidase	1.67	1.62	1.65
Rpl30	Q58DZ3_MOUSE	MCG20799	1.65	1.62	1.64
Prkcsh	Q3U518_MOUSE	Protein kinase C substrate 80K-H, isoform CRA_b	1.4	1.87	1.64
Gabarap	GBRAP_MOUSE	Gamma-aminobutyric acid receptor-associated protein	2.19	1.07	1.63
Plin3	PLIN3_MOUSE	Perilipin-3	2.23	0.93	1.58
Il13	Q5SUZ9_MOUSE	Interleukin-13	2.23	0.93	1.58
Hgs	HGS_MOUSE	Hepatocyte growth factor-regulated tyrosine kinase substrate	1.96	1.2	1.58
Pgp	PGP_MOUSE	Phosphoglycolate phosphatase	1.95	1.21	1.58
Tspan31	TSN31_MOUSE	Tetraspanin-31	1.4	1.76	1.58
Nans	Q3TFB5_MOUSE	Putative uncharacterized protein	1.95	1.21	1.58
Rpl28	Q5M9J8_MOUSE	MCG13936	1.4	1.75	1.58
Plekhb2	PKHB2_MOUSE	Pleckstrin homology domain-containing family B member 2	1.67	1.48	1.57
Rps11	Q3UC02_MOUSE	MCG23457	1.11	2.04	1.57
Rps23	RS23_MOUSE	40S ribosomal protein S23	1.66	1.49	1.57
Stx3	Q3TBP0_MOUSE	Putative uncharacterized protein	1.14	2	1.57
Bin2	BIN2_MOUSE	Bridging integrator 2	1.66	1.47	1.56
Hnrnpl	HNRPL_MOUSE	Heterogeneous nuclear ribonucleoprotein L	1.66	1.46	1.56
Rab32	Q0PD23_MOUSE	RAB32, member RAS oncogene family	1.42	1.64	1.53
Tmed7	D3YZZ5_MOUSE	Protein Tmed7	1.69	1.36	1.52
Igkc	IGKC_MOUSE	Ig kappa chain C region	1.69	1.35	1.52
Spns1	SPNS1_MOUSE	Protein spinster homolog 1	1.4	1.62	1.51
Actn2	ACTN2_MOUSE	Alpha-actinin-2	1.11	1.87	1.49
Ck054	CK054_MOUSE	Ester hydrolase C11orf54 homolog	1.4	1.49	1.44
Lamtor2	LTOR2_MOUSE	Ragulator complex protein LAMTOR2	1.4	1.47	1.43
Btd	BTD_MOUSE	Biotinidase	1.09	1.76	1.43
Fuca1	FUCO_MOUSE	Tissue alpha-L-fucosidase	1.7	1.06	1.38
Asph	A2AL84_MOUSE	Aspartyl/asparaginyl beta-hydroxylase	1.4	1.35	1.37
Kv5aa	KV5AA_MOUSE	Ig kappa chain V-V region MOPC 173	1.1	1.62	1.36

Blvrb	Q3U6G1_MOUSE	Biliverdin reductase B (Flavin reductase (NADPH))	1.69	0.94	1.31
Vps37c	VP37C_MOUSE	Vacuolar protein sorting-associated protein 37C	1.4	1.22	1.31
Pcna	Q542J9_MOUSE	Proliferating cell nuclear antigen	1.4	1.2	1.3
Mat2a	Q99J57_MOUSE	S-adenosylmethionine synthase	1.4	1.19	1.3
Wasf2	B1AUN1_MOUSE	Wiskott-Aldrich syndrome protein family member 2	1.15	1.35	1.25
Snd1	SND1_MOUSE	Staphylococcal nuclease domain-containing protein 1	1.41	1.06	1.24
Akap9	AKAP9_MOUSE	A-kinase anchor protein 9	1.12	1.35	1.23
S100a6	Q545I9_MOUSE	MC3T3-E1 calcyclin	1.11	1.08	1.1

Table S4

Term	Count	%	P-Value	Benjamini
BP00001:Carbohydrate metabolism	59	9.5	6.30E-13	1.00E-10
BP00060:Protein metabolism and modification	175	28.2	1.00E-11	8.30E-10
BP00061:Protein biosynthesis	52	8.4	1.50E-10	8.40E-09
BP00125:Intracellular protein traffic	66	10.6	1.70E-07	7.10E-06
BP00062:Protein folding	20	3.2	2.40E-06	8.10E-05
BP00005:Glycolysis	11	1.8	6.90E-06	1.90E-04
BP00129:Endocytosis	26	4.2	9.90E-06	2.40E-04
BP00268:Antioxidation and free radical removal	10	1.6	1.20E-05	2.60E-04
BP00140:Other protein targeting and localization	7	1.1	3.20E-05	6.00E-04
BP00285:Cell structure and motility	63	10.1	6.90E-05	1.20E-03
BP00126:Exocytosis	17	2.7	1.30E-04	2.00E-03
BP00286:Cell structure	42	6.8	1.40E-04	1.90E-03
BP00071:Proteolysis	60	9.7	2.40E-04	3.10E-03
BP00276:General vesicle transport	22	3.5	2.70E-04	3.20E-03
BP00287:Cell motility	25	4	7.60E-04	8.40E-03
BP00009:Other polysaccharide metabolism	14	2.3	1.40E-03	1.40E-02
BP00132:Receptor mediated endocytosis	12	1.9	1.90E-03	1.90E-02
BP00007:Pentose-phosphate shunt	4	0.6	2.50E-03	2.30E-02
BP00178:Stress response	17	2.7	2.80E-03	2.50E-02
BP00148:Immunity and defense	80	12.9	4.50E-03	3.70E-02
BP00072:Protein complex assembly	8	1.3	6.60E-03	5.10E-02
BP00011:Monosaccharide metabolism	6	1	1.40E-02	1.00E-01
BP00069:Protein disulfide-isomerase	4	0.6	2.40E-02	1.60E-01

reaction				
BP00032:Purine metabolism	7	1.1	2.90E-02	1.90E-01
BP00298:Glycogen metabolism	6	1	3.00E-02	1.80E-01
BP00073:Translational regulation	8	1.3	3.50E-02	2.00E-01
BP00137:Protein targeting and localization	13	2.1	5.10E-02	2.80E-01
BP00012:Other carbohydrate metabolism	6	1	5.30E-02	2.80E-01
BP00280:Lysosome transport	3	0.5	7.10E-02	3.50E-01
BP00008:Tricarboxylic acid pathway	4	0.6	9.10E-02	4.10E-01
BP00189:Hearing	4	0.6	9.90E-02	4.30E-01

Table S5

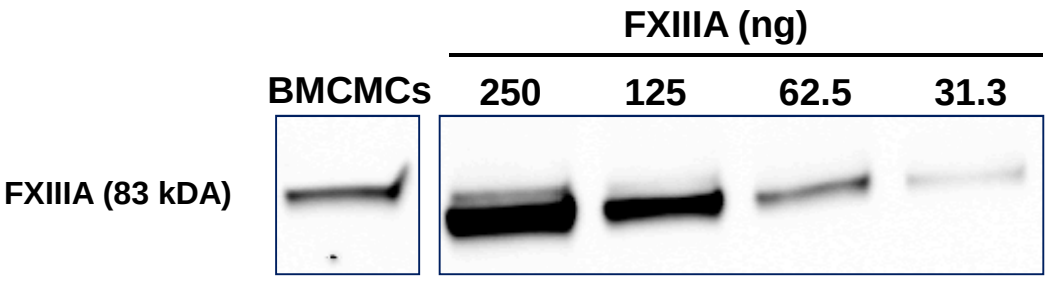
Term	Count	%	P-Value	Benjamini
BP00074:Amino acid activation	4	5	7.60E-04	6.00E-02
BP00013:Amino acid metabolism	6	7.5	3.30E-03	1.30E-01
BP00060:Protein metabolism and modification	24	30	4.40E-03	1.10E-01
BP00071:Proteolysis	10	12.5	3.80E-02	5.50E-01
BP00288:Granulocyte-mediated immunity	3	3.8	4.10E-02	5.00E-01

Table S6

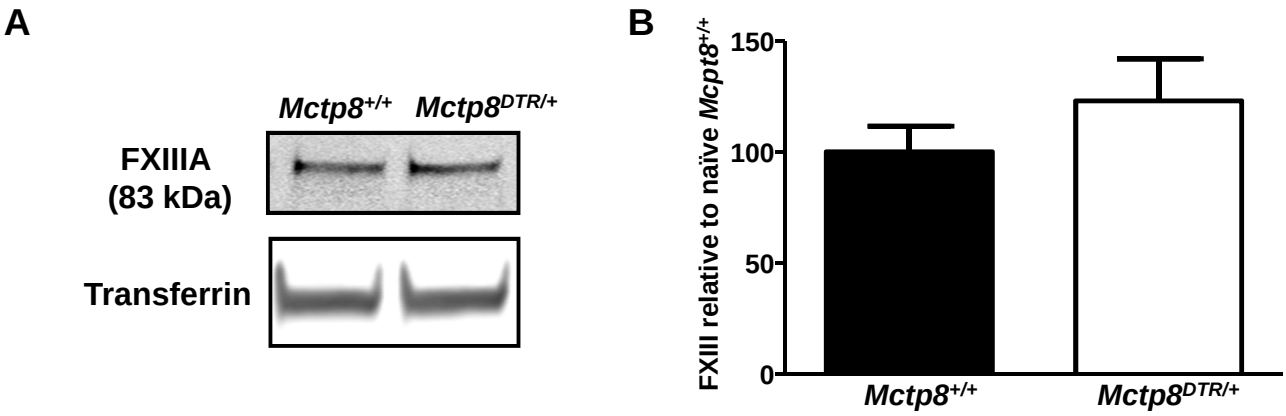
Term	Count	%	P-Value	Benjamini
BP00276:General vesicle transport	15	4.2	5.70E-04	8.60E-02
BP00176:Blood clotting	8	2.2	2.10E-03	1.60E-01
BP00125:Intracellular protein traffic	32	8.9	4.30E-03	2.00E-01
BP00107:Cytokine and chemokine mediated signaling pathway	13	3.6	4.70E-03	1.70E-01
BP00291:Calcium ion homeostasis	5	1.4	5.30E-03	1.50E-01
BP00060:Protein metabolism and modification	80	22.3	7.40E-03	1.80E-01
BP00129:Endocytosis	13	3.6	7.50E-03	1.60E-01
BP00148:Immunity and defense	48	13.4	9.50E-03	1.70E-01
BP00141:Transport	40	11.2	1.20E-02	1.90E-01
BP00287:Cell motility	14	3.9	1.60E-02	2.20E-01
BP00124:Cell adhesion	21	5.9	1.80E-02	2.30E-01
BP00071:Proteolysis	31	8.7	2.80E-02	3.10E-01
BP00072:Protein complex assembly	5	1.4	3.70E-02	3.60E-01
BP00123:Other signal transduction	5	1.4	4.30E-02	3.90E-01
BP00075:Other protein metabolism	4	1.1	5.40E-02	4.40E-01
BP00288:Granulocyte-mediated immunity	5	1.4	5.90E-02	4.50E-01
BP00274:Cell communication	32	8.9	6.30E-02	4.50E-01
BP00267:Homeostasis	9	2.5	6.40E-02	4.40E-01
BP00273:Chromatin packaging and remodeling	8	2.2	6.80E-02	4.40E-01
BP00132:Receptor mediated endocytosis	6	1.7	7.20E-02	4.40E-01
BP00122:Ligand-mediated signaling	13	3.6	7.50E-02	4.40E-01

BP00286:Cell structure	19	5.3	8.30E-02	4.60E-01
BP00120:Cell adhesion-mediated signaling	13	3.6	8.70E-02	4.70E-01
BP00117:JAK-STAT cascade	5	1.4	9.00E-02	4.60E-01
BP00062:Protein folding	7	2	9.10E-02	4.50E-01
BP00209:Blood circulation and gas exchange	5	1.4	9.60E-02	4.60E-01

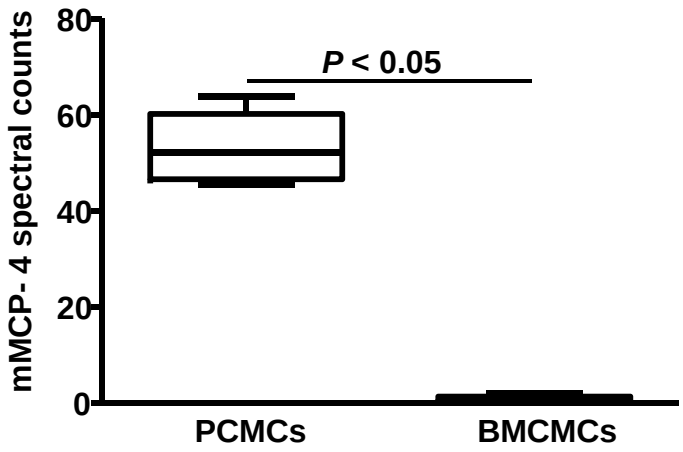
Suppl. Figure 1



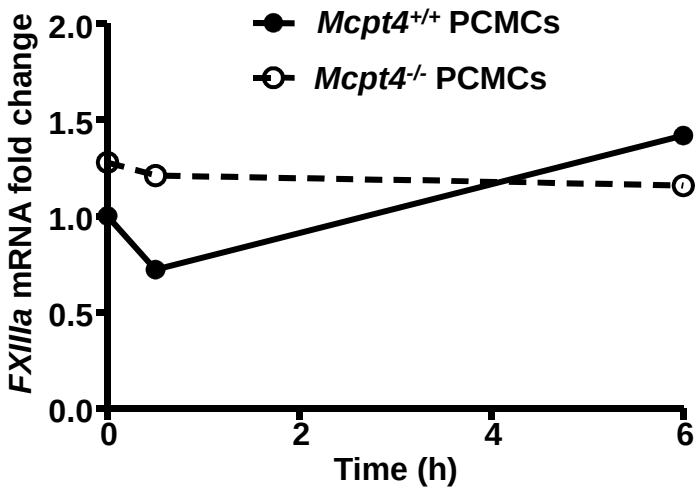
Suppl. Figure 2



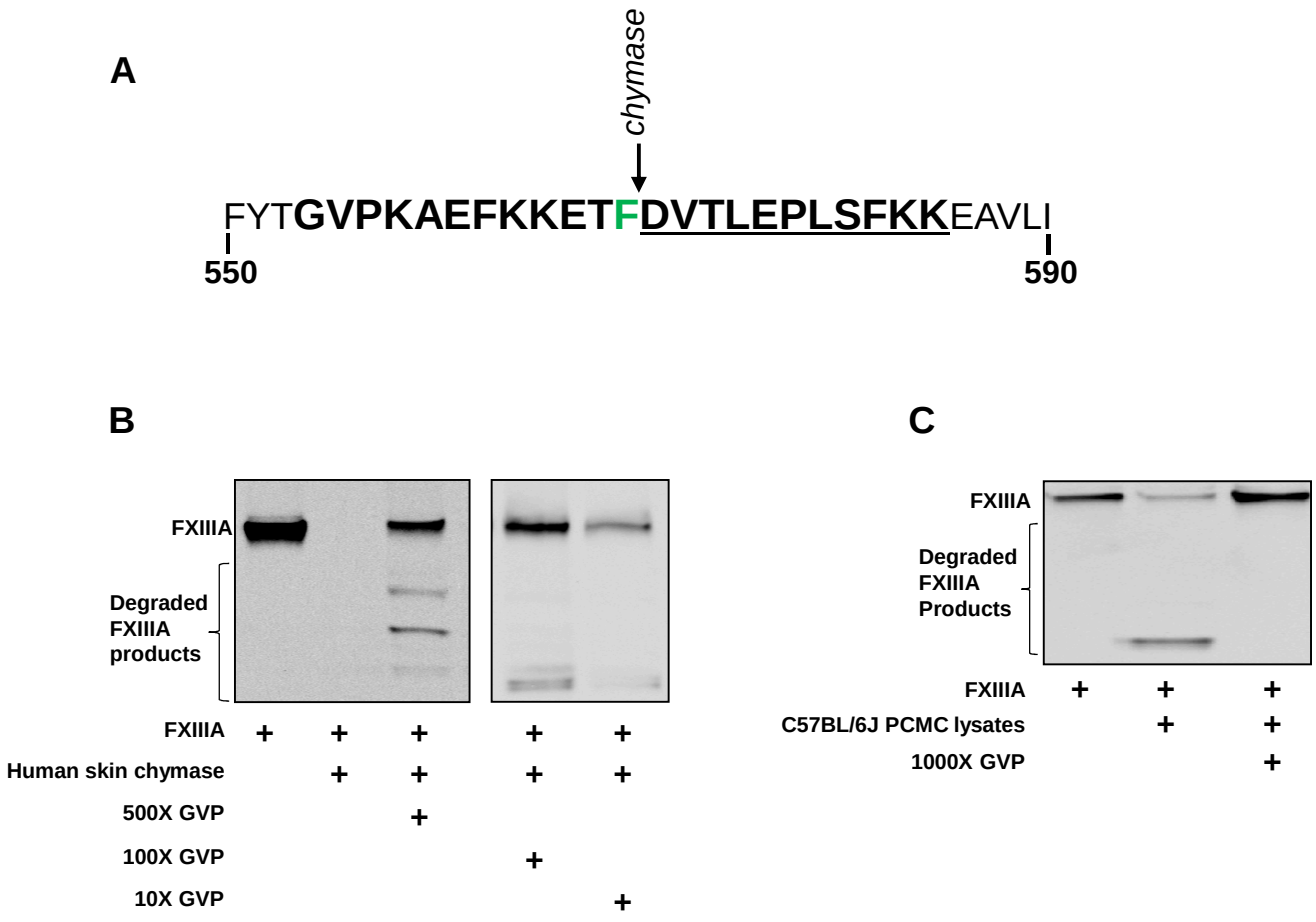
Suppl. Figure 3



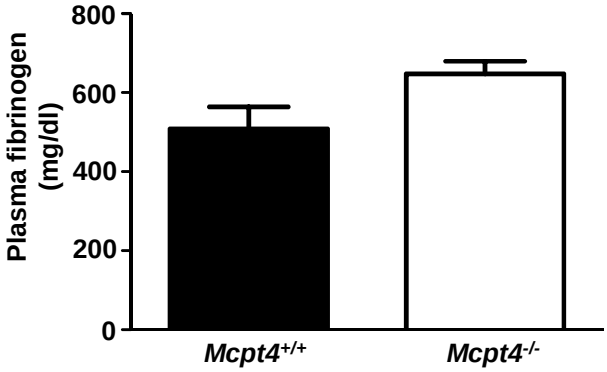
Suppl. Figure 4



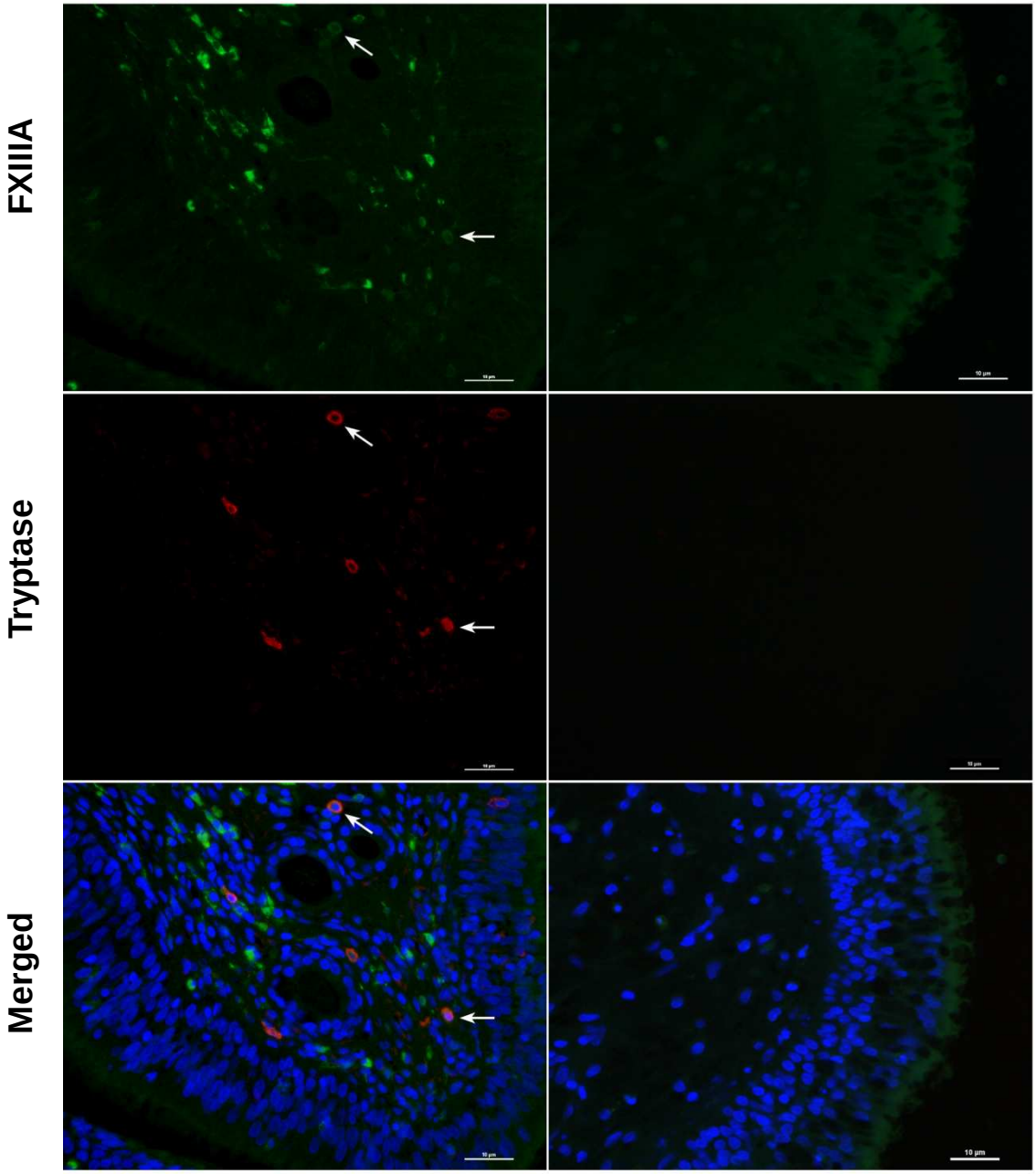
Suppl. Figure 5



Suppl. Figure 6



Suppl. Figure 7



METHODS

Mice

Cpa3-Cre expressing mice[1] on the C57BL/6 background were crossed with $ROSA^{DTA/DTA}$ mice that were purchased from Jackson Laboratories to generate mast cell- and basophil-deficient mice (*Cpa3*-Cre; $ROSA^{DTA/DTA}$) as well as the corresponding control mice (*Cpa3*-Cre; $ROSA^{+/+}$).[2] $Mcpt8^{DTR}$ mice[3] (kindly provided by Dr. Hajime Karasuyama, Tokyo and Medical and Dental University, Tokyo, Japan) and mMCP-4-deficient mice ($Mcpt4^{-/-}$)[4] on the C57BL/6 background, like all of the other mice used in this study, were bred and maintained at the Seattle Children's Research Institute. The C57BL/6J mice were purchased from Jackson Laboratories. Unless specified otherwise, all of the experiments were performed using male mice that were 12 weeks old at the beginning of the experiment. All of the animal care and experimentation was conducted in accordance with the current National Institutes of Health guidelines and with the approval from the Seattle Children's Research Institute Institutional Animal Care and Use Committee.

Cecal ligation and puncture

Cecal ligation and puncture (CLP) was performed as described. [5] Briefly, mice were deeply anaesthetized by an intraperitoneal (i.p.) injection of 100 mg/kg ketamine and 20 mg/kg xylazine, and the cecum was exposed following a 1-2 cm midline incision on the anterior abdomen. The distal half of the cecum was then subjected to ligation and the ligated segment was then punctured once with a 22G needle (to induce a moderately severe model of CLP in which 20-50% of the wild type mice died within 4 days after CLP). The cecum was then

replaced into the abdomen, 1 ml of sterile saline (pyrogen-free 0.9% NaCl) was administrated into the peritoneal cavity, and the incision was closed using 9-mm steel wound clips.

The mice were observed for mortality at least four times daily. Mice that were clearly moribund were euthanized by CO_2 inhalation.

Bleeding time test

Tail tip bleeding was performed as previously described. [6] Briefly, we resected 3-4 mm of mouse tail from the tip. Time until bleeding cessation was monitored by blood aspiration onto a piece of filter paper.

Generation of peritoneal cell-derived mast cells (PCMCs)

Peritoneal cells from wild type (*Mcpt4*$^{+/+}$ mice) and *Mcpt4*$^{-/-}$ mice were maintained *in vitro* for two weeks in medium containing 10ng/ml IL-3 (Peprotech, Rocky Hill, NJ) and 50 ng/ml SCF (Peprotech) until the mast cells represented >95% of the total non-adherent cells according to May-Grünwald-Giemsa staining. [7]

Generation of bone marrow derived-cultured mast cells (BMCMCs)

Femoral bone marrow cells from *Mcpt4*$^{+/+}$ and *Mcpt4*$^{-/-}$ mice were maintained *in vitro* for ~4 weeks in medium containing 10 ng/ml IL-3 (Peprotech) until the mast cells represented >95% of the total cells according to May-Grünwald-Giemsa staining.

IgE/antigen mast cell activation

BMCMCs or PCMCs were sensitized with 2 μg/ml of anti-DNP IgE mAb (H1-ε-26) [8] by overnight incubation at 37°C. The cells were then washed with Tyrode's buffer (10 mM Hepes, pH 7.4, 130 mM NaCl, 5 mM KCl, 1.4 mM $CaCl_2$, 1 mM $MgCl_2$, and 0.1% glucose) and re-suspended at 2×10^6 cells/ml in 2.5 mL of the cell suspension. DNP-HSA (Sigma-Aldrich) was then added to the wells to achieve a final concentration of 100 ng/ml and incubated at 37°C for 6 h and supernatants collected by centrifugation. In the conditions used, mast cells released 50-60% of the pre-formed mediator beta-hexosaminidase.

Mass spectrometry analysis of the mast cell releasates

Mass spectrometry (MS) sample preparation. Supernatants from IgE-activated PCMCs and BMCMCs were collected and concentrated 10-fold using Amicon Ultra-4 centrifugal filter devices with a 30K cut off. The protein concentration was determined using a BCA protein assay kit (Pierce, Rockford, IL), with albumin utilized as the standard. The proteins were suspended at the same concentration in 200 mM ammonium bicarbonate containing 0.1% RapiGest (Waters Corp., Milford, MA). Proteins were reduced with 10 mM dithiothreitol (DTT) at 37 °C, alkylated with 40 mM iodoacetamide (IAA) at room temperature in the dark for 45 min, and then digested at 37 °C for 3 h with trypsin (1:50, w/w; Promega) and then overnight after addition of another aliquot of trypsin (1:50, w/w). The samples were desalted by solid phase extraction on an Oasis HLB column (Waters Corp., Milford, MA), eluted with 80% acetonitrile in 0.1% formic acid, dried down and stored at -80 °C until analysis. Before the analysis, the samples were reconstituted in 5% acetonitrile, 0.1% formic acid.

Data acquisition via LC-MS/MS. Digested proteins (0.75 μg) were injected onto a C18 trap column (XBridge C18 BEH, 5 μm, 0.1 x 30 mm, Waters Corp., Milford, MA), desalted for 10

min with 1% acetonitrile in water, 0.1% formic acid (4 μL/min), and eluted onto a C18 analytical column (0.075 x 300 mm) packed with XBridge C18 BEH (3.5 μm, Waters Corp., Milford, MA). Then, the samples were eluted and separated using a gradient between two solvents, 0.1% formic acid in water (A) and 0.1% formic acid in Acetonitrile (B), at a flow rate of 0.4 μL/min using a multi-segment linear gradient of 2-7%B in 5 min, 7-25%B in 70 min, 25-35%B in 15 min followed by ramp to 80%B and a 5 min wash on a NanoAquity HPLC (Waters Corp., Milford, MA). Positive ion mass spectra were acquired with electrospray ionization in a hybrid quadrupole-orbitrap mass spectrometer (Q Exactive, Thermo Fisher, San Jose, CA) with data-dependent acquisition of MS/MS scans on the 20 most abundant ions in the survey scan (normalized collision energy 27, resolution FWHM at 400 m/z 30,000 for MS and 15,000 for MSMS scans) excluding MSMS on isotopic peaks and 1+, and >4+ charge states. An exclusion window of 45 s was used after single MS/MS scan of a given precursor ion.

Protein identification and quantification. MS/MS spectra were matched against the mouse Uniprot database combining SwissProt and TrEMBL databases (Uniprot 2012_11, 16573 SwissProt, 58303 TrEMBL entries),[9] using the SEQUEST (v2.7) search engine with semi-tryptic enzyme specificity, 20 ppm precision for precursor and unit precision for fragment ions, fixed Cys carbamidomethylation and variable Met oxidation modifications. SEQUEST results were further validated with Trans-Proteomic Pipeline tools, using an adjusted probability of ≥0.90 for peptides and ≥0.95 for proteins. Proteins considered for subsequent analysis had to be detected in ≥2 analyses with ≥2 unique peptide-spectrum matches (PSM). Relative protein quantification was performed using spectral counting.[10] Significant differences in spectral counts were identified using the PepC algorithm with FDR<4%, the combination of *G*-test and *t*-test together with permutation analysis to estimate the FDR.[11]

Bioinformatics analysis. The DAVID software (Database for Annotation, Visualization, and Integrated Discovery, version 6.7, https://david.ncifcrf.gov/summary.jsp) was utilized to determine the general functional annotations of the proteins contained in mast cell releasates. The Uniprot IDs from the tables describing the significantly released PCMC only, BMCMC only, and shared PCMC and BMCMC proteins were uploaded into the 'Functional Annotation' section of DAVID. Then, the 'Gene_Ontology' tab was selected and the 'PANTHER_BP_ALL' category was charted. The DAVID software determines a modified Fisher's exact P-value to determine gene ontology or molecular pathway enrichment. P-values < 0.05 are considered to be strongly enriched in an annotation category.

qPCR

RNA (1 μg) was isolated from cells with an RNeasy mini kit (Qiagen) and converted to first-strand cDNA with the iScript™ cDNA Synthesis Kit (BioRad). The cDNA was analyzed for quantitative expression levels of *Fxiiia, Fxiiib and GAPDH* with the Maxima™ SYBR Green/ROX qPCR Master Mix (Fermentas Life Sciences) on a 7500-Fast-Real-Time PCR System or a Step One Plus Real-Time PCR System Thermal Cycling Block (Applied Biosystems). The primers used were as follows: *Fxiiia* forward, 5'-AGCACAAGCAGGATCCAGTA-3'; *Fxiiia* reverse, 5'-CCCTCTGCGGACAATCAACT-3'; *Fxiiib* forward, 5'-GCTGGCTATGCAACCGAAAG-3'; *Fxiiib* reverse, 5'-GGGGCCAAACATGTCTCTTG-3'; *GAPDH* forward, 5'-TCACCACCATGGAGAAGGC-3'; *GAPDH* reverse, 5'-GCTAAGCAGTTGGTGGTGCA-3';

Results were analyzed using the dCt method normalized to *gapdh*.

Immunofluorescence

BMCMCs were induced to adhere to 10 μg/ml fibronectin (Sigma)-coated glass coverslips for 1 h by the addition of 1 mM $MnCl_2$ (Sigma), which induces high affinity conformational changes of integrins on the cell surface. The cells were then washed with PBS, fixed with 4% paraformaldehyde, and washed again with PBS. The samples were then blocked with 3% FBS/0.05% saponin in PBS (antibody/blocking solution) for 30 minutes and then incubated with an anti-FXIIIA antibody (clone AC-101, Abcam) that was diluted 1:100 in antibody/blocking solution for 60 minutes at room temperature. The cells were washed with PBS and then incubated with an Alexa Fluor® 594-conjugated anti-mouse donkey polyclonal antibody (A21203, Life Technologies) that was diluted 1:1,000 in antibody/blocking solution for 45 minutes at room temperature, then washed with PBS, and mounted with ProLong® Gold antifade reagent with DAPI (Life Technologies). Images were acquired with an automated Leica DM6000B fluorescent microscope (Leica Microsystems) at 400x total magnification. Separate fluorescent channels were acquired sequentially and overlaid using the accompanying LASAF v2.6 software package.

Degradation of FXIIIA by PCMC lysates

Human FXIIIA was utilized throughout the *in-vitro* studies with the mouse PCMC lysates, given its high degree of homology with mouse FXIIIA. BLAST results indicated that both human and mouse FXIIIA have protein sequences that contain 732 amino acids (blast.ncbi.nlm.nih.gov) with 87% identical homology (635/732 identical amino acids) and 95% positive homology (696/732 positive amino acids), which compares similar classes of amino acids (AAs). FXIIIA contains four conserved domains, which were determined from the NCBI Conserved Doman

Database (www.ncbi.nlm.nih.gov/cdd), and includes N-terminal (AAs, 46-167), core (AAs, 309-400), and two C-terminal transglutaminase domain regions (AAs, 519-623 and 631-728) (depicted by different colors in **Fig 5B**). The homology between human and mouse FXIIIA with regard to the conserved domains is also very similar, with 88%/98%, 97%/100%, 74%/85%, and 84%/93% identical/positive homology for the N-terminal, core, and two C-terminal transglutaminase regions, respectively. 0.5-1μg of human FXIIIA (Haematologic Technologies Inc) was incubated with 100ng- 3μg mouse PCMC lysates (2 x 10^5 cells/100 μl of lysis buffer [2 M NaCl, 0.5% Triton X-100 in PBS]) that were obtained from *Mcpt4*$^{+/+}$ or *Mcpt4*$^{-/-}$ mice for the indicated times at 37 °C. FXIIIA cleaved fragments were visualized by SDS-PAGE.

Of note, the utilized FXIIIA preparation contained FXIIIB as well; however, we found that FXIIIB was not cleaved by mast cell proteases [data not shown]).

Degradation of FXIIIA by human chymase

One microgram FXIIIA was incubated with 0.001-0.1U human skin chymase (ENZO Life Sciences) for 6h at 37 °C. The FXIIIA cleaved fragments were visualized following silver staining and analyzed with mass spectrometry.

Western blot analysis

BMCMCs and PCMCs were lysed with M-PER (Thermo Scientific) plus 1X halt protease inhibitor and EDTA (Thermo Scientific). Then, the samples were spun at 15,000xg for 15 minutes at 4^{o}C to remove cellular debris. BMCMC lysates, PCMC lysates, FXIIIA digests, and plasma sample dilutions (diluted 1:120 in water) were denatured by boiling for 10 min at 70 °C with 1X sample buffer (NuPage 4X LDS sample buffer, Life Technologies) and 1X reducing agent (NuPage 10X sample reducing agent, Life Technologies) and separated with SDS/PAGE

(4-20% Bis-Tris-gels with MOPS running buffer, Genscript), electroblotted onto Invitrolon poly (vinylidene difluoride) membranes (Invitrogen), and then probed with antibodies against FXIIIA (clone 1834, Abcam) along with GAPDH (clone GA1R, Cell Sciences, Canton, MA) as a loading control for cellular samples or transferrin (clone PA3-913, Thermo Scientific) as a loading control for plasma samples.

Mass spectrometry analysis of FXIIIA degradation by human chymase

MS Sample preparation. One microgram FXIIIA aliquots were diluted to 200 µl final volume in ammonium acetate buffer (100 mM, pH 8.9). The samples were reduced with 50 mM DTT at 56 ^{o}C for 60 min and alkylated with 150 mM IAA at room temperature in the dark for 30 min. The alkylation was quenched by addition of 50 mM DTT. The resulting protein samples were adjusted to pH 8.9 by addition of ammonium acetate to 1ml final volume, and were digested into peptides by the addition of trypsin (0.05 μg/sample; Promega) and incubated at 37 ^{o}C for 2 h with agitation. The trypsin digestion was stopped by the addition of 83 μl glacial acetic acid, and the samples were cleared of insoluble debris by centrifugation. Next, the sample was desalted using Sep-Pak columns (Waters Corporation) according to the manufacturer's instructions. The resulting samples were concentrated and resuspended in 0.1% formic acid in water and stored at -80^{o}C until analysis.

Data Acquisition via LC-MS/MS. Fused silica capillary tubing (50 μm i.d., Polymicro Technologies) was pulled to a tip of 5 μm, with a Lithsil frit placed ~2cm upstream of the tip. The column was packed with 25 cm of 3 μm Reliasil reversed-phase chromatography material (Orochem Technologies). To load and elute the samples from the column, we used nanoflow liquid chromatography using a Nano Aquity UPLC system (Waters Corporation). The samples

were eluted using a gradient between two solvents: 0.1% formic acid (A) and 0.1% formic acid in 100% Acetonitrile (B). Following loading in 0% A, solvent B was raised to 10% for 5 min, then it was increased using a linear gradient to 40% over the subsequent 110 min prior to a step at 75% for 5 min before re-equilibration. The total gradient time was 150 min at a flow rate of 0.25 µl/min. The eluting peptides were ionized via electrospray with the emitter held at 2.4 kV using a custom build ESI source, and directed into a Thermo Scientific Q Exactive mass spectrometer. Each precursor scan covered 400-1600 *m/z* range and was followed by 20 DDA scans. The dynamic exclusion duration was set to 30 s. A normalized collision energy (CE) of 28 was used. A digest of yeast Enolase protein was run every 2 injections and was used to evaluate chromatographic peak shape, retention time reproducibility, and peak intensity.

Protein Identification. Following the LC-MS/MS analysis, .RAW data files were converted into the mzXML format, and the MS/MS spectra were searched with Comet[12] against a human IPI with no enzyme specificity, a static modification of 57.021 on Cysteine residues, and a variable modification of 15.995 on Methionine residues. The peptide spectrum match false discovery rates were determined using the PeptideProphet algorithm with TPP v4.6[13] with an error threshold of 0.025. The chymase cleavage sites were determined using a database search, and they were confirmed by viewing the ion chromatograms in Skyline across the entire sample.[14] Peak areas were extracted from Skyline for exact determinations of the relative peak intensity across the treatments.

Clot Formation

Clot formation was measured using rotational thromboelastometry (ROTEM, Tem Int. Research Triangle Park, NC, USA). FXIIIA (10ug/ml) and chymase (1.4U/ml) were co-incubated in

HEPES pH 7.4. Fibrinogen was added to a final concentration of 4 mg/ml and clotting was activated in the ROTEM at 37°C using 0.5IU/ml thrombin and 10mmol $CaCl_2$ in addition to 2ug/ml plasmin to induce clot lysis. FXIIIA (10ug/ml) or FXIIIA and chymase (1.4U/ml) were incubated in HEPES pH 7.4.

FXIIIa activity levels

FXIIIa activity levels were determined by using a chromogenic method that measures the ammonia released during the transglutaminase reaction (TECHNOCHROM FXIII kit, Diapharma). Samples were run with and without an FXIIIa inhibitor to correct for reactions leading to FXIIIa independent transglutaminase activity. The results were calculated as: Δ Absorbance sample/min - Δ Absorbance blank/min.

Fibrinogen levels

Functional fibrinogen concentrations were measured using the STArt-4™ steel ball coagulometer (Diagnostica Stago, Asnières sur Seine Cedex, France) by the modified method of Clauss [15] according to the manufacturer's directions.

Histology for nasal polyps

Five patients with chronic rhinosinusitis-related nasal polyps that were resected between 2010 and 2014 were identified from a pathology database under a protocol approved by Seattle Children's Hospital Institutional Review Board; patients with cystic fibrosis, immunodeficiencies, coagulation disorders, and allergic fungal sinusitis were excluded. Dual immunofluorescence for mast cell tryptase (1:100; clone M7052, Dako) and FXIIIA (1:250;

clone EP3372, Roche) was carried out on formalin-fixed, paraffin-embedded 5-µm sections following citrate pH 6.0 antigen retrieval. The antibodies were incubated with the samples overnight at room temperature. FXIIIA was developed with goat anti-rabbit IgG, fluorescein conjugate, and mast cell tryptase was developed with goat anti-mouse cyanine (Cy5) (both 1:500, Jackson ImmunoResearch). Coverslips were mounted using Vectashield fluorescent mounting medium with DAPI (Vector Laboratories). Images were visualized and captured with a digital camera mounted on a Nikon Eclipse 80i microscope using NIS-Elements Advanced Research Software v4.13 (Nikon Instruments Inc., Melville, NY).

Statistical analysis

To determine significant differences in the spectral counts (the sum of all potential substrate peptides) that were detected with the MS/MS analysis, we utilized a stringent dual statistical criteria approach in a similar fashion to Becker L *et al.*[11] which included the log likelihood test (G-test, $G > 1.5$) combined with the 2-tailed *t* test ($\alpha<0.05$). ROTEM results were compared using the one way ANOVA test. All other data were analyzed for statistical significance using the Mann Whitney *U*-test. $P < 0.05$ was considered statistically significant. Unless otherwise specified, all of the data are presented as mean ± SEM.

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OR Figure Legends

Suppl. Fig. 1. Quantification of FXIIIA amounts in BMCMCs. FXIIIA in BMCMC lysates (1 x 10^5 cells) and different amounts of FXIIIA were assessed by western blot analysis.

Suppl. Fig. 2. Effect of diphtheria toxin-mediated basophil depletion on plasma FXIIIA levels in *Mcpt8*^{DTR} mice. Mice were treated i.p. with 500 ng DT 48 h before euthanasia. **(A)** Western blot analysis and **(B)** densitometry for FXIIIA plasma levels at baseline in *Mcpt8*$^{+/+}$ (*n* = 4) and *Mcpt8*$^{DTR/+}$ (*n* = 4) mice.

Suppl. Fig. 3. Mass spectrometry analysis of mMCP-4 abundance in BMCMC and PCMC releasates. Wild type mouse PCMCs (*n* = 5) and BMCMCs (*n* = 6) (5 x 10^6 cells/2.5 ml) were pre-loaded with 2ug/mL anti-IgE-DNP for 24h, and then stimulated with 100ng/mL DNP for 6h. The cell supernatants were collected, concentrated, and subjected to shotgun proteomics. mMCP-4 abundance is expressed in spectral counts.

Suppl. Fig. 4. FXIIIA mRNA expression levels by wild type (*Mcpt4*$^{+/+}$) and Mcpt4-deficient (*Mcpt4*$^{-/-}$) peritoneal-derived mast cells (PCMCs). PCMCs (2.5 x 10^5 cells) were sensitized with IgE mAb to DNP (2 mg/ml) overnight at 37 °C and then they were challenged with DNP-HSA (100 ng/ml) for the indicated time points at 37 °C and analyzed by qPCR. The FXIIIA versus GAPDH mRNA expression level for PCMCs that were incubated in media alone was assigned a value of 1.0 for calculation of the corresponding PCMC stimulated by IgE/antigen results. Data were pooled from 3 independent experiments, each of which produced similar results.

Suppl. Fig. 5. GVP prevents FXIIIA proteolytic degradation by chymase. (A) Sequence of the endogenous (native) FXIIIA (aa 550-590, spanning the chymase site F574). The synthetic peptide is marked in bold letters within the endogenous sequence, with the cleavage site marked

in green. The chymic-tryptic peptide used to identify this cleavage site and as a diagnostic fragment for efficient cleavage, is underlined. FXIII (0.5ug) was incubated with human skin chymase in the presence or absence of increasing concentrations of GVP **(B),** or with C57BL/6J PCMC lysates (100ng) in the presence and absence of 1000X GVP **(C)** for 6h at 37^{o}C. Amounts of FXIIIA and its fragments were assessed by western blot analysis. The data are representative of those obtained in two independent experiments, each of which produced similar results.

Suppl. Fig. 6. mMCP-4 deficiency does not affect fibrinogen plasma levels after CLP. Fibrinogen plasma levels at 24 h after CLP in *Mcpt4*$^{+/+}$ mice (*n* = 7) and *Mcpt4*$^{-/-}$ mice (*n* = 8). Data were pooled from the 3 independent experiments performed, each of which gave similar results.

Suppl. Fig. 7. Detection of FXIIIA in mast cells located in nasal polyps. Immunofluorescence was performed with anti-FXIIIA (green fluorescence) and anti-tryptase mAb (red fluorescence) antibodies for mast cells located in nasal polyp (right panel). Nuclei were counterstained with DAPI (blue fluorescence). Mast cells expressing both FXIIIA and tryptase are indicated with white arrows. Negative controls were performed with secondary antibodies only (right panel). Images are representative of five separate subjects.