

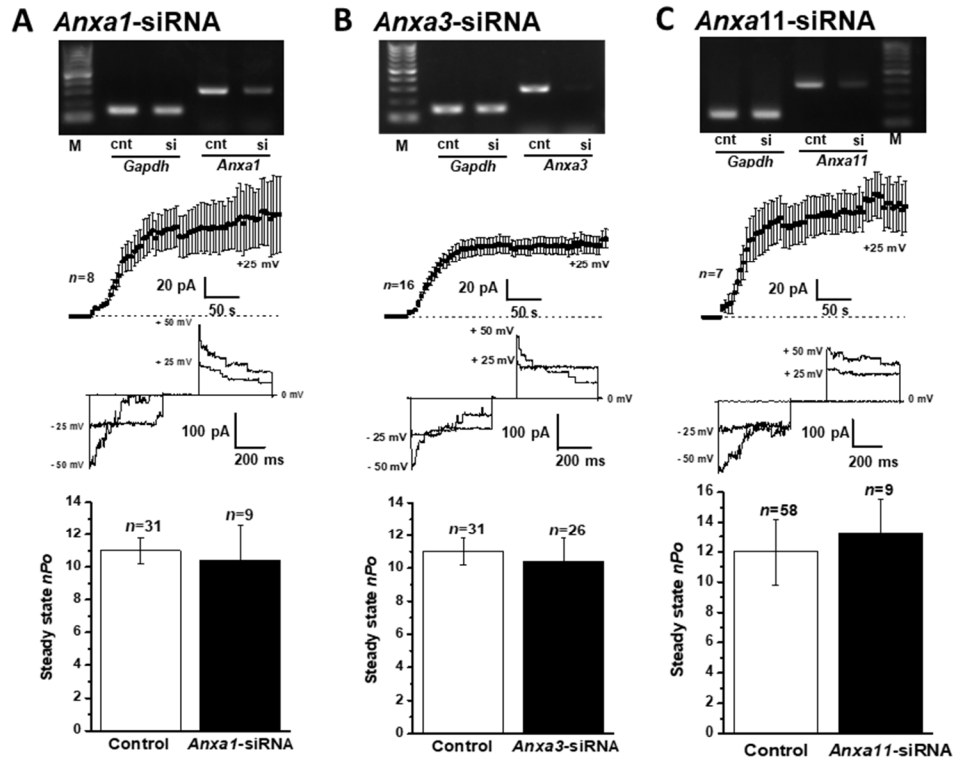
Supplemental Material

Annexin A2-S100A10 Represents the Regulatory Component of Maxi-Cl Channel Dependent on Protein Tyrosine Dephosphorylation and Intracellular Ca²⁺

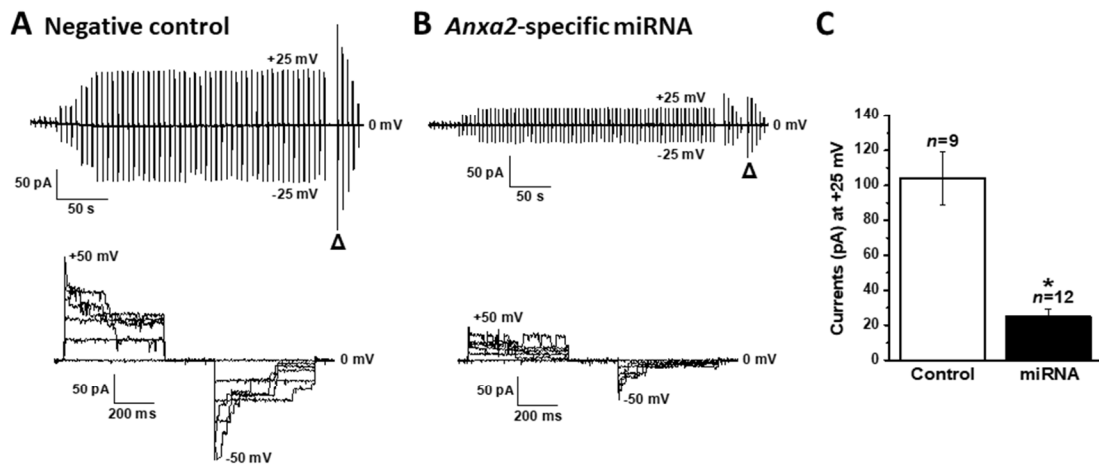
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Supplementary Material

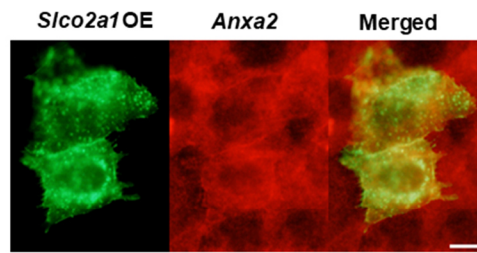


Supplementary Fig. 1. Maxi-Cl currents in C127 cells were unaffected by siRNA-mediated silencing of three annexin family member genes, *Anxa1*, *Anxa3* and *Anxa11*. Effects of knockdown mediated by *Anxa1*-specific siRNA (A), *Anxa3*-specific siRNA (B) and *Anxa11*-specific siRNA (C). Top panels: The effects on expression of ANXA mRNAs in C127 cells treated with non-targeting siRNA (*cnt*) or *Anxa1/3/11*-specific siRNA (*si*) detected by RT-PCR using *Gapdh* as a control. *M*: molecular size markers (100-bp ladder). These data represent triplicate experiments. Upper-middle panels: Representative time courses of Maxi-Cl current activation recorded at +25 mV after patch excision from C127 cells transfected with *Anxa1/3/11*-specific siRNA. Lower-middle panels: Voltage-dependent inactivation pattern of Maxi-Cl currents elicited by applying single voltage step pulses from 0 to ± 25 and ± 50 mV. Bottom panels: Summary of the effects of non-targeting siRNA (*Control*) and *Anxa1/3/11*-specific siRNA on the mean Maxi-Cl currents recorded at +25 mV. Each column represents the mean \pm SEM (*vertical bar*).

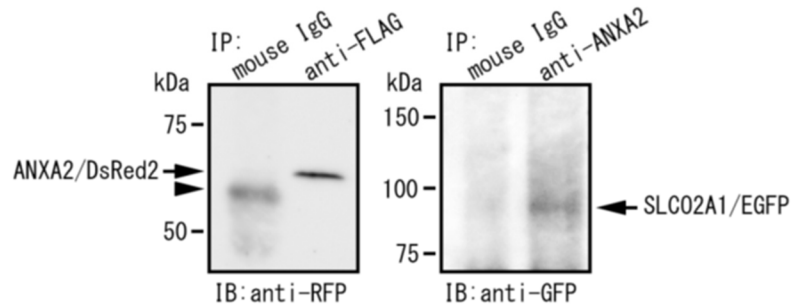


Supplementary Fig. 2. miRNA-mediated silencing of ANXA2 gene expression downregulated Maxi-Cl activity in C127 cells. **A, B)** The effects of transfection with non-targeting (negative control) and *Anxa2*-specific miRNAs on Maxi-Cl activity. Upper panels show the representative time courses of Maxi-Cl current activation after patch excision from the C127 cells transfected with non-targeting (negative control) miRNA (A) and *Anxa2*-specific miRNA (B). During the records, alternating pulses from 0 to ± 25 mV were applied. Lower panels show the voltage-dependent inactivation pattern of Maxi-Cl currents elicited by applying step pulses (500 ms) from 0 to ± 50 mV in 10-mV increments at the time points indicated by triangles in upper panels. **C)** Summary of the effects of negative control miRNA (*Control*) and *Anxa2*-specific miRNA (*miRNA*) on the mean Maxi-Cl currents recorded at +25 mV. Each column represents the mean \pm SEM (*vertical bar*). * $p < 0.05$ (Student's *t*-test) vs *Control*.

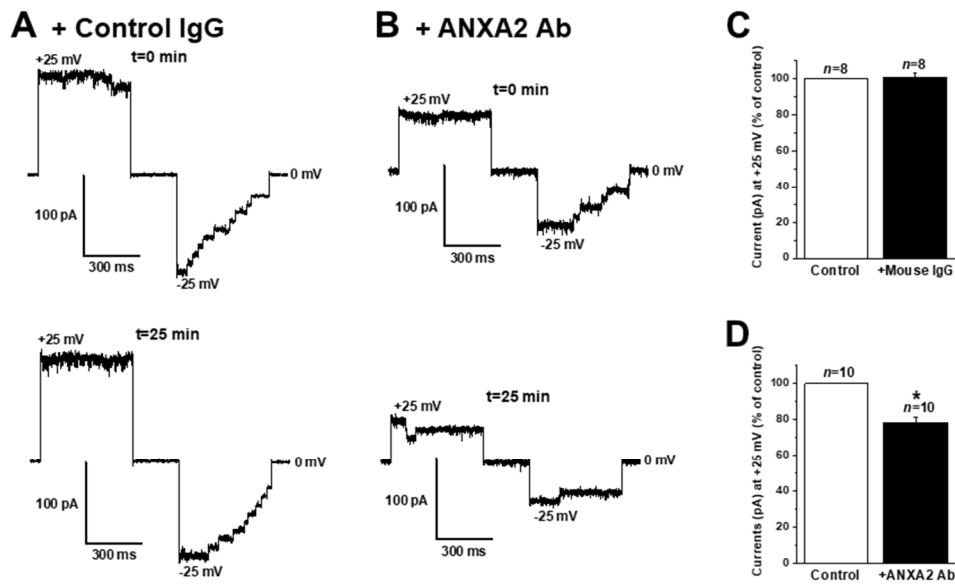
A Immunohistochemistry



B Coimmunoprecipitation



Supplementary Fig. 3. Co-localized expression and co-immunoprecipitation of ANXA2 and SLCO2A1. **A)** Expression of the recombinant EGFP-tagged SLCO2A1 protein (in green, left panel) and endogenous ANXA2 protein (in red, middle panel) detected by anti-ANXA2 monoclonal antibody (mAb) and Alexa 594-conjugated secondary antibody in C127 cells. Right panel is the merged images. The data represent duplicate experiments. Scale: 10 μ m. **B)** Co-immunoprecipitation assay showing the molecular interaction between ANXA2 and SLCO2A1. Molecular weight markers (in kDa) are indicated on the left. The data represent triplicate experiments. Left panel: The membrane proteins from the 100,000 \times g pellet prepared from HEK293T cells transiently overexpressing *Slco2a1*-FLAG and *Anxa2*-DsRed2 were subjected to immunoprecipitation (IP) using mouse IgG or anti-FLAG M2 mAb and immunoblotted (IB) with anti-RFP pAb. Arrow and arrowhead indicate the bands of DsRed2-tagged ANXA2 and mouse IgG, respectively. Right panel: Reverse co-IP was performed using *Slco2a1*-EGFP and *Anxa2*-DsRed2 expressing cells with mouse IgG or anti-ANXA2 mAb. The co-precipitated proteins were immunoblotted with anti-GFP pAb. Arrow indicates the band of EGFP-tagged SLCO2A1.



Supplementary Fig. 4. Suppression of Maxi-C1 currents by anti-ANXA2 antibody in C127 cells. **A, B)** Representative traces of Maxi-C1 currents recorded at 0 to ± 25 mV before ($t=0$ min: upper panels) and 25 min after ($t=25$ min: lower panels) exposure to 5 $\mu\text{g}/\text{mL}$ control mouse IgG (A) or 5 $\mu\text{g}/\text{mL}$ anti-ANXA2 monoclonal antibody (B) added to bathing (intracellular) solution. **C, D)** Summary of the effects of control IgG (C) and anti-ANXA2 antibody (D) on the mean Maxi-C1 currents recorded at +25 mV. Each column represents the mean \pm SEM (*vertical bar*) before (*Control*) or ≥ 25 min after application (*+Mouse IgG*, *+ANXA2 Ab*). * $p < 0.05$ (Student's *t*-test) vs *Control*.

Supplementary Table 1. List of genes of potential membrane-spanning or -associated proteins differentially less expressed in C1300 cells than C127 cells

	Gene Symbol	Gene Description	C1300 signal	C127 signal	C127/C1300 ratio
1	Ptgs2	prostaglandin-endoperoxide synthase 2	78.8	10623.6	134.8
2	Ly6a	lymphocyte antigen 6 complex, locus A	104.1	10375.3	99.6
3	Anxa1	annexin A1	73.3	6081.2	82.9
4	Cav1	caveolin 1, caveolae protein	70.5	5219.3	74.0
5	Myof	myoferlin	69.1	4913.9	71.1
6	Gpx8	glutathione peroxidase 8 (putative)	73.4	5196.1	70.8
7	Axl	AXL receptor tyrosine kinase	118.3	6837.6	57.8
8	Perp	PERP, TP53 apoptosis effector	89.7	4770.3	53.2
9	Il1rl1	interleukin 1 receptor-like 1	51.8	2675.9	51.7
10	Ccdc80	coiled-coil domain containing 80	61.1	3088.5	50.6
11	Tmem47	transmembrane protein 47	66.7	3335.5	50.0
12	Cml3	camello-like 3	74.3	3669.4	49.4
13	Sparc	secreted acidic cysteine rich glycoprotein	317.5	14607.7	46.0
14	Dhrs9	dehydrogenase/reductase (SDR family) member 9	75.2	3363.8	44.7
15	Dab2	disabled homolog 2 (Drosophila)	80.1	3355.0	41.9
16	Slc24a3	solute carrier family 24 (sodium/potassium/calcium exchanger), member 3	81.0	3306.3	40.8
17	Emp2	epithelial membrane protein 2	138.9	5431.7	39.1
18	Ly6c1	lymphocyte antigen 6 complex, locus C1	88.8	3452.6	38.9
19	Met	met proto-oncogene	45.4	1612.5	35.6
20	Cav2	caveolin 2	53.2	1865.1	35.1
21	Kitl	kit ligand	42.3	1481.9	35.0
22	Bche	butyrylcholinesterase	53.8	1813.8	33.7
23	Gpnmb	glycoprotein (transmembrane) nmb	223.0	7153.9	32.1
24	Cdc42ep3	CDC42 effector protein (Rho GTPase binding) 3	57.1	1791.6	31.4
25	Dyrk1a	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 1a	92.2	2849.2	30.9
26	Akap2	A kinase (PRKA) anchor protein 2	85.0	2610.6	30.7
27	Tm4sf1	transmembrane 4 superfamily member 1	173.1	5176.1	29.9
28	Gng12	guanine nucleotide binding protein (G protein), gamma 12	225.8	6628.5	29.4
29	Sdc2	syndecan 2	151.0	4421.1	29.3
30	Pdgfrb	platelet derived growth factor receptor, beta polypeptide	240.6	6529.7	27.1
31	Tspan6	tetraspanin 6	43.1	1085.9	25.2
32	Pmepa1	prostate transmembrane protein, androgen induced 1	226.8	5645.5	24.9

33	Itpr12	inositol 1,4,5-triphosphate receptor interacting protein-like 2	59.8	1439.8	24.1
34	Colec12	collectin sub-family member 12	90.5	2079.0	23.0
35	Plscr2	phospholipid scramblase 2	43.8	945.7	21.6
36	Csf1	colony stimulating factor 1 (macrophage)	169.8	3568.4	21.0
37	Cd59a	CD59a antigen	110.2	2261.6	20.5
38	Nid1	nidogen 1	238.1	4869.0	20.5
39	Tlr4	toll-like receptor 4	61.1	1244.5	20.4
40	A630033H20Rik	RIKEN cDNA A630033H20 gene	13.7	275.9	20.1
41	Col8a1	collagen, type VIII, alpha 1	113.5	2256.5	19.9
42	Prrg4	proline rich Gla (G-carboxyglutamic acid) 4 (transmembrane)	46.7	906.9	19.4
43	Palm2	paralemmin 2	89.1	1722.6	19.3
44	Glipr1	GLI pathogenesis-related 1 (glioma)	229.8	4408.6	19.2
45	Gyk	glycerol kinase	23.6	451.8	19.2
46	Csf2rb	colony stimulating factor 2 receptor, beta, low-affinity (granulocyte-macrophage)	87.9	1675.0	19.1
47	Plin4	perilipin 4	110.3	2097.0	19.0
48	Tnfrsf23	tumor necrosis factor receptor superfamily, member 23	62.7	1160.3	18.5
49	Ptprk	protein tyrosine phosphatase, receptor type, K	88.1	1627.6	18.5
50	Wisp2	WNT1 inducible signaling pathway protein 2	227.3	4143.1	18.2
51	Angpt1	angiopoietin 1	57.1	1037.9	18.2
52	Dock1	dedicator of cytokinesis 1	72.9	1320.0	18.1
53	Clec2d	C-type lectin domain family 2, member d	39.1	704.0	18.0
54	Slco2a1	solute carrier organic anion transporter family, member 2a1	271.4	4819.5	17.8
55	Gbp2	guanylate binding protein 2	75.2	1331.8	17.7
56	Slc4a4	solute carrier family 4 (anion exchanger), member 4	74.6	1317.3	17.6
57	Gja1	gap junction protein, alpha 1	98.8	1731.5	17.5
58	Tnc	tenascin C	123.5	2156.9	17.5
59	Figf	c-fos induced growth factor	105.2	1806.5	17.2
60	Cald1	caldesmon 1	308.1	5177.1	16.8
61	Pdk4	pyruvate dehydrogenase kinase, isoenzyme 4	48.2	803.4	16.7
62	Syt12	synaptotagmin-like 2	45.8	758.0	16.6
63	Osmr	oncostatin M receptor	66.0	1079.0	16.4
64	Tgfbr2	transforming growth factor, beta receptor II	198.4	3211.6	16.2
65	Anxa3	annexin A3	195.3	3152.3	16.1
66	Anxa4	annexin A4	272.8	4384.6	16.1
67	Cybas3	cytochrome b, ascorbate dependent 3	71.3	1117.6	15.7
68	Praf2	PRA1 domain family 2	107.4	1666.8	15.5
69	Steap3	STEAP family member 3	281.9	4358.9	15.5
70	Vamp8	vesicle-associated membrane protein 8	129.9	1938.4	14.9

71	Cx3cl1	chemokine (C-X3-C motif) ligand 1	140.4	2084.9	14.8
72	Crim1	cysteine rich transmembrane BMP regulator 1 (chordin like)	315.3	4661.1	14.8
73	Adamts1	a disintegrin-like and metalloproteinase (reprolysin type) with thrombospondin type 1 motif, 1	165.8	2407.3	14.5
74	Il1r1	interleukin 1 receptor, type I	53.4	748.2	14.0
75	Tmem45a	transmembrane protein 45a	99.1	1371.6	13.8
76	Loxl3	lysyl oxidase-like 3	173.8	2367.6	13.6
77	Antxr1	anthrax toxin receptor 1	189.9	2556.9	13.5
78	Pcdh19	protocadherin 19	84.0	1123.6	13.4
79	Fmn1	formin 1	125.2	1659.1	13.2
80	Tmem138	transmembrane protein 138	44.5	582.2	13.1
81	Timp1	tissue inhibitor of metalloproteinase 1	245.6	3146.2	12.8
82	Tnfrsf10b	tumor necrosis factor receptor superfamily, member 10b	115.5	1453.8	12.6
83	Copz2	coatamer protein complex, subunit zeta 2	252.8	3157.3	12.5
84	Pcdh18	protocadherin 18	79.0	955.3	12.1
85	Gjb3	gap junction protein, beta 3	62.5	750.9	12.0
86	Atxn1	ataxin 1	127.4	1528.4	12.0
87	Tnfrsf1b	tumor necrosis factor receptor superfamily, member 1b	139.8	1626.5	11.6
88	Col6a2	collagen, type VI, alpha 2	204.2	2365.1	11.6
89	Rhoj	ras homolog gene family, member J	138.2	1600.3	11.6
90	Tmem63a	transmembrane protein 63a	156.9	1815.8	11.6
91	Loxl4	lysyl oxidase-like 4	108.4	1242.6	11.5
92	Pde2a	phosphodiesterase 2A, cGMP-stimulated	188.1	2146.2	11.4
93	Rnf130	ring finger protein 130	72.0	806.9	11.2
94	Cdc42ep1	CDC42 effector protein (Rho GTPase binding) 1	157.4	1759.7	11.2
95	Jub	ajuba	110.3	1225.0	11.1
96	Itpr3	inositol 1,4,5-triphosphate receptor 3	230.6	2553.1	11.1
97	Pdgfra	platelet derived growth factor receptor, alpha polypeptide	110.5	1222.5	11.1
98	Tmem140	transmembrane protein 140	87.6	965.0	11.0
99	Sqrdl	sulfide quinone reductase-like (yeast)	91.6	1005.5	11.0
100	Il6st	interleukin 6 signal transducer	487.6	5332.8	10.9
101	Vrk2	vaccinia related kinase 2	72.0	785.6	10.9
102	Cdh13	cadherin 13	103.4	1113.8	10.8
103	Kcnmb1	potassium large conductance calcium-activated channel, subfamily M, beta member 1	60.4	639.0	10.6
104	Ppap2b	phosphatidic acid phosphatase type 2B	78.4	824.4	10.5
105	Ndst4	N-deacetylase/N-sulfotransferase (heparin glucosaminyl) 4	28.4	296.4	10.5
106	Slc5a3	solute carrier family 5 (inositol transporters), member 3	189.2	1965.0	10.4
107	Lrig3	leucine-rich repeats and immunoglobulin-like domains 3	80.3	830.4	10.3

108	Atp11a	ATPase, class VI, type 11A	245.3	2520.7	10.3
109	Tspo	translocator protein	304.8	3067.1	10.1
110	Cryab	crystallin, alpha B	512.6	5019.6	9.8
111	Frk	fyn-related kinase	193.2	1877.5	9.7
112	A830007P12Rik	RIKEN cDNA A830007P12 gene	95.5	919.1	9.6
113	B4galt1	UDP-Gal:betaGlcNAc beta 1,4-galactosyltransferase, polypeptide 1	397.9	3782.5	9.5
114	Gjb4	gap junction protein, beta 4	117.2	1097.3	9.4
115	Csgalnact1	chondroitin sulfate N-acetylgalactosaminyltransferase 1	101.7	951.4	9.4
116	Myo1c	myosin IC	319.7	2944.1	9.2
117	Phldb2	pleckstrin homology-like domain, family B, member 2	214.8	1971.1	9.2
118	Lpar1	lysophosphatidic acid receptor 1	144.3	1309.9	9.1
119	Itgb8	integrin beta 8	82.8	748.4	9.0
120	Layn	layilin	290.5	2617.3	9.0
121	Arl6ip1	ADP-ribosylation factor-like 6 interacting protein 1	366.2	3285.0	9.0
122	Ephb6	Eph receptor B6	153.2	1369.8	8.9
123	Cd82	CD82 antigen	264.8	2339.4	8.8
124	Clecl1a	C-type lectin domain family 1, member a	56.4	497.1	8.8
125	Cd68	CD68 antigen	97.2	842.4	8.7
126	Pex11a	peroxisomal biogenesis factor 11 alpha	54.7	472.8	8.6
127	F11r	F11 receptor	135.4	1165.1	8.6
128	Lamb1-1	laminin B1 subunit 1	124.9	1074.4	8.6
129	Cd44	CD44 antigen	127.5	1085.4	8.5
130	Thbd	thrombomodulin	108.9	925.3	8.5
131	Msln	mesothelin	142.2	1207.1	8.5
132	D14Erd449e	DNA segment, Chr 14, ERATO Doi 449, expressed	322.8	2677.2	8.3
133	Ptpm	protein tyrosine phosphatase, receptor type, M	122.4	1012.1	8.3
134	Cd24a	CD24a antigen	436.1	3604.1	8.3
135	Ptrf	polymerase I and transcript release factor	534.3	4357.5	8.2
136	Sgcd	sarcoglycan, delta (dystrophin-associated glycoprotein)	59.3	482.9	8.1
137	Tmem171	transmembrane protein 171	101.4	809.8	8.0
138	Slc7a2	solute carrier family 7 (cationic amino acid transporter, y+ system), member 2	91.1	706.6	7.8
139	Rab711	RAB7, member RAS oncogene family-like 1	77.3	595.4	7.7
140	Itga3	integrin alpha 3	389.6	2999.6	7.7
141	Steap2	six transmembrane epithelial antigen of prostate 2	539.4	4150.8	7.7
142	Ehd2	EH-domain containing 2	596.2	4568.9	7.7
143	Alox5ap	arachidonate 5-lipoxygenase activating protein	86.4	652.3	7.5
144	Ephb4	Eph receptor B4	180.8	1335.6	7.4
145	Pqlc3	PQ loop repeat containing	243.8	1800.5	7.4

146	Anpep	alanyl (membrane) aminopeptidase	88.1	649.9	7.4
147	Timp3	tissue inhibitor of metalloproteinase 3	896.6	6598.4	7.4
148	Lrrk2	leucine-rich repeat kinase 2	114.4	839.7	7.3
149	Vav3	vav 3 oncogene	52.7	383.3	7.3
150	Cml5	camello-like 5	19.9	142.4	7.1
151	Steap1	six transmembrane epithelial antigen of the prostate 1	148.8	1056.3	7.1
152	Tlr2	toll-like receptor 2	220.1	1551.0	7.0
153	Gper	G protein-coupled estrogen receptor 1	148.6	1046.9	7.0
154	Vangl1	vang-like 1 (van gogh, Drosophila)	177.1	1246.9	7.0
155	Cyp39a1	cytochrome P450, family 39, subfamily a, polypeptide 1	287.8	2020.6	7.0
156	0610031J06Rik	RIKEN cDNA 0610031J06 gene	673.1	4724.4	7.0
157	Anxa2	annexin A2	916.6	6430.5	7.0
158	Plscr4	phospholipid scramblase 4	146.8	1019.0	6.9
159	Ank	progressive ankylosis	663.8	4581.4	6.9
160	Aqp1	aquaporin 1	364.4	2487.4	6.8
161	Dhrs3	dehydrogenase/reductase (SDR family) member 3	156.7	1065.8	6.8
162	Tenc1	tensin like C1 domain-containing phosphatase	413.6	2812.2	6.8
163	Ephb3	Eph receptor B3	129.7	872.2	6.7
164	Fgfr2	fibroblast growth factor receptor 2	117.2	787.7	6.7
165	Apbb1ip	amyloid beta (A4) precursor protein-binding, family B, member 1 interacting protein	188.1	1263.4	6.7
166	Adam12	a disintegrin and metallopeptidase domain 12 (meltrin alpha)	120.8	811.0	6.7
167	Cyp2c55	cytochrome P450, family 2, subfamily c, polypeptide 55	75.8	503.4	6.6
168	Dse	dermatan sulfate epimerase	451.9	2991.9	6.6
169	Cdh11	cadherin 11	93.3	613.7	6.6
170	Sdc4	syndecan 4	279.4	1835.0	6.6
171	Pon2	paraoxonase 2	258.0	1680.3	6.5
172	Lynx1	Ly6/neurotoxin 1	129.1	840.1	6.5
173	Fzd7	frizzled homolog 7 (Drosophila)	143.0	927.4	6.5
174	C230081A13Rik	RIKEN cDNA C230081A13 gene	455.0	2942.6	6.5
175	Tlr3	toll-like receptor 3	85.2	541.8	6.4
176	Cdh19	cadherin 19, type 2	24.6	155.2	6.3
177	Slc6a6	solute carrier family 6 (neurotransmitter transporter, taurine), member 6	1305.8	8216.0	6.3
178	Ephx1	epoxide hydrolase 1, microsomal	845.1	5293.0	6.3
179	Lamb2	laminin, beta 2	326.4	2037.2	6.2
180	BC030046	cDNA sequence BC030046	113.2	705.2	6.2
181	Ereg	epiregulin	65.5	407.8	6.2
182	Kirrel	kin of IRRE like (Drosophila)	438.8	2729.5	6.2
183	Atp10a	ATPase, class V, type 10A	151.3	939.6	6.2

184	Chst1	carbohydrate (keratan sulfate Gal-6) sulfotransferase 1	165.4	1025.4	6.2
185	Npr2	natriuretic peptide receptor 2	259.3	1589.2	6.1
186	1200009F10Rik	RIKEN cDNA 1200009F10 gene	243.6	1488.0	6.1
187	Slc31a2	solute carrier family 31, member 2	275.9	1679.1	6.1
188	Gas1	growth arrest specific 1	662.0	4017.2	6.1
189	Peli2	pellino 2	115.8	694.4	6.0
190	Lhfp	lipoma HMGIC fusion partner	356.7	2134.0	6.0
191	Chpt1	choline phosphotransferase 1	291.0	1738.1	6.0
192	Ano1	anoctamin 1, calcium activated chloride channel	112.2	665.5	5.9
193	Vcam1	vascular cell adhesion molecule 1	80.7	477.3	5.9
194	Plxna2	plexin A2	214.8	1269.7	5.9
195	B4galt5	UDP-Gal:betaGlcNAc beta 1,4-galactosyltransferase, polypeptide 5	751.3	4400.7	5.9
196	Glt8d4	glycosyltransferase 8 domain containing 4	132.8	773.7	5.8
197	Lpcat2	lysophosphatidylcholine acyltransferase 2	109.1	633.7	5.8
198	Kcnj15	potassium inwardly-rectifying channel, subfamily J, member 15	113.4	658.8	5.8
199	Itgb5	integrin beta 5	1131.0	6560.7	5.8
200	Timp2	tissue inhibitor of metalloproteinase 2	1130.7	6525.4	5.8
201	Heph	hephaestin	76.4	440.3	5.8
202	Mfge8	milk fat globule-EGF factor 8 protein	873.5	5022.9	5.8
203	Emp3	epithelial membrane protein 3	1231.3	7040.0	5.7
204	Sgms2	sphingomyelin synthase 2	85.7	485.9	5.7
205	Mmp19	matrix metalloproteinase 19	80.9	457.0	5.7
206	Epha2	Eph receptor A2	126.5	708.5	5.6
207	Creb3l1	cAMP responsive element binding protein 3-like 1	222.9	1235.6	5.5
208	Shisa4	shisa homolog 4 (<i>Xenopus laevis</i>)	453.0	2510.0	5.5
209	Atl3	atlastin GTPase 3	568.1	3139.7	5.5
210	Tgfbr3	transforming growth factor, beta receptor III	162.9	895.2	5.5
211	Il18rap	interleukin 18 receptor accessory protein	85.5	469.3	5.5
212	Mpp1	membrane protein, palmitoylated	636.8	3462.2	5.4
213	Eda2r	ectodysplasin A2 isoform receptor	66.3	359.7	5.4
214	Mr1	major histocompatibility complex, class I-related	301.8	1635.3	5.4
215	Fads3	fatty acid desaturase 3	705.9	3817.4	5.4
216	ErbB2	v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)	173.1	935.8	5.4
217	Sh3bp4	SH3-domain binding protein 4	205.4	1102.8	5.4
218	Tlr6	toll-like receptor 6	41.2	217.4	5.3
219	Pld2	phospholipase D2	188.6	991.1	5.3
220	Slc22a23	solute carrier family 22, member 23	84.9	444.6	5.2
221	Rin1	Ras and Rab interactor 1	161.1	841.3	5.2

222	Tmbim1	transmembrane BAX inhibitor motif containing 1	539.0	2806.2	5.2
223	Plekhf1	pleckstrin homology domain containing, family F (with FYVE domain) member 1	198.7	1031.7	5.2
224	Tgm2	transglutaminase 2, C polypeptide	157.0	813.1	5.2
225	Styk1	serine/threonine/tyrosine kinase 1	83.2	428.1	5.1
226	Dapp1	dual adaptor for phosphotyrosine and 3-phosphoinositides 1	95.6	489.5	5.1
227	Ifitm3	interferon induced transmembrane protein 3	1480.7	7573.7	5.1
228	Ptgfn	prostaglandin F2 receptor negative regulator	282.0	1438.7	5.1
229	Rab11fip5	RAB11 family interacting protein 5 (class I)	220.3	1120.1	5.1
230	Ggta1	glycoprotein galactosyltransferase alpha 1, 3	217.7	1105.9	5.1
231	Mmp14	matrix metalloproteinase 14 (membrane-inserted)	667.4	3385.7	5.1
232	Fam134b	family with sequence similarity 134, member B	267.8	1350.6	5.0
233	Chst14	carbohydrate (N-acetylgalactosamine 4-O) sulfotransferase 14	206.8	1038.4	5.0
234	Smo	smoothed homolog (Drosophila)	936.5	4693.3	5.0
235	Slc25a24	solute carrier family 25 (mitochondrial carrier, phosphate carrier), member 24	751.3	3729.3	5.0
236	Ccdc90a	coiled-coil domain containing 90A	304.5	1509.8	5.0
237	Cdh2	cadherin 2	667.8	3294.5	4.9
238	H2-T22	histocompatibility 2, T region locus 22	343.4	1683.5	4.9
239	Gprc5a	G protein-coupled receptor, family C, group 5, member A	189.1	924.4	4.9
240	Evi2a	ecotropic viral integration site 2a	56.2	274.4	4.9
241	Flrt2	fibronectin leucine rich transmembrane protein 2	76.1	369.1	4.9
242	Frrs1	ferric-chelate reductase 1	915.0	4396.5	4.8
243	Rab31	RAB31, member RAS oncogene family	1006.7	4823.0	4.8
244	Rhod	ras homolog gene family, member D	377.6	1795.8	4.8
245	Ttyh2	tweety homolog 2 (Drosophila)	485.3	2295.5	4.7
246	Gabre	gamma-aminobutyric acid (GABA) A receptor, subunit epsilon	38.2	180.3	4.7
247	Gpr177	G protein-coupled receptor 177	758.1	3570.9	4.7
248	Cd300lb	CD300 antigen like family member B	85.3	398.8	4.7
249	Rhoc	ras homolog gene family, member C	710.1	3300.6	4.6
250	Maoa	monoamine oxidase A	476.1	2210.4	4.6
251	Mmp16	matrix metalloproteinase 16	53.3	246.0	4.6
252	Lmo7	LIM domain only 7	224.2	1032.5	4.6
253	F3	coagulation factor III	590.4	2715.7	4.6
254	Epha4	Eph receptor A4	108.4	494.7	4.6
255	Myd88	myeloid differentiation primary response gene 88	427.6	1938.5	4.5
256	E130311K13Rik	RIKEN cDNA E130311K13 gene	152.0	685.3	4.5
257	Fat4	FAT tumor suppressor homolog 4	82.0	368.5	4.5

		(Drosophila)			
258	Vamp5	vesicle-associated membrane protein 5	135.5	605.0	4.5
259	Tmem43	transmembrane protein 43	701.8	3127.2	4.5
260	Tmem86a	transmembrane protein 86A	325.6	1450.8	4.5
261	Vcl	vinculin	1253.1	5569.6	4.4
262	Cd97	CD97 antigen	393.3	1744.2	4.4
263	Cdon	cell adhesion molecule-related/down-regulated by oncogenes	534.7	2366.1	4.4
264	Fam82a1	family with sequence similarity 82, member A1	73.7	325.6	4.4
265	Il1rl2	interleukin 1 receptor-like 2	22.9	100.4	4.4
266	Hsd3b7	hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 7	140.3	615.2	4.4
267	Chmp4c	chromatin modifying protein 4C	57.7	253.0	4.4
268	Vopp1	vesicular, overexpressed in cancer, prosurvival protein 1	259.6	1137.6	4.4
269	Fzd6	frizzled homolog 6 (Drosophila)	698.8	3055.9	4.4
270	Cmtm3	CKLF-like MARVEL transmembrane domain containing 3	1277.3	5581.8	4.4
271	Fzd2	frizzled homolog 2 (Drosophila)	341.8	1493.0	4.4
272	Tmem223	transmembrane protein 223	456.5	1986.4	4.4
273	Jam2	junction adhesion molecule 2	126.5	549.1	4.3
274	Itgav	integrin alpha V	1175.8	5075.3	4.3
275	Dysf	dysferlin	159.0	685.6	4.3
276	Smoc2	SPARC related modular calcium binding 2	144.6	622.9	4.3
277	Nrg1	neuregulin 1	197.4	845.5	4.3
278	Pla2g16	phospholipase A2, group XVI	97.2	416.1	4.3
279	Furin	furin (paired basic amino acid cleaving enzyme)	639.7	2720.7	4.3
280	Slc46a3	solute carrier family 46, member 3	234.6	993.4	4.2
281	Fzd8	frizzled homolog 8 (Drosophila)	105.2	444.3	4.2
282	Ociad2	OCIA domain containing 2	63.6	268.1	4.2
283	Snx9	sorting nexin 9	574.9	2418.9	4.2
284	St3gal2	ST3 beta-galactoside alpha-2,3-sialyltransferase 2	571.2	2362.7	4.1
285	Sfxn3	sideroflexin 3	755.4	3117.2	4.1
286	Iigp1	interferon inducible GTPase 1	36.8	150.6	4.1
287	Rdh10	retinol dehydrogenase 10 (all-trans)	409.1	1672.8	4.1
288	Pcdhb14	protocadherin beta 14	94.9	386.0	4.1
289	Tmem117	transmembrane protein 117	137.1	557.0	4.1
290	Dpy19l1	dpy-19-like 1 (C. elegans)	589.9	2387.1	4.0
291	Pvr	poliovirus receptor	261.4	1052.2	4.0
292	Raet1d	retinoic acid early transcript delta	226.2	910.0	4.0
293	Nt5e	5' nucleotidase, ecto	94.5	379.3	4.0
294	Shroom4	shroom family member 4	67.8	271.5	4.0
295	Inpp5k	inositol polyphosphate 5-phosphatase K	434.3	1729.3	4.0

296	Slc44a2	solute carrier family 44, member 2	488.3	1935.9	4.0
297	Nox4	NADPH oxidase 4	41.1	162.0	3.9
298	Slc39a13	solute carrier family 39 (metal ion transporter), member 13	659.1	2596.9	3.9
299	Rnf43	ring finger protein 43	109.9	432.1	3.9
300	Lclat1	lysocardiolipin acyltransferase 1	989.8	3866.4	3.9
301	Mpv17	Mpv17 transgene, kidney disease mutant	660.3	2563.0	3.9
302	Slc25a43	solute carrier family 25, member 43	199.6	769.8	3.9
303	Efnal	ephrin A1	190.8	735.3	3.9
304	Sorcs2	sortilin-related VPS10 domain containing receptor 2	184.2	708.8	3.8
305	Ly6f	lymphocyte antigen 6 complex, locus F	41.5	159.6	3.8
306	Myh9	myosin, heavy polypeptide 9, non-muscle	1961.2	7526.9	3.8
307	Plekha1	pleckstrin homology domain containing, family A (phosphoinositide binding specific) member 1	118.6	455.0	3.8
308	Gpr56	G protein-coupled receptor 56	126.9	486.4	3.8
309	Rhoq	ras homolog gene family, member Q	626.8	2387.9	3.8
310	Tnfrsf12a	tumor necrosis factor receptor superfamily, member 12a	595.3	2266.2	3.8
311	Slc27a1	solute carrier family 27 (fatty acid transporter), member 1	1154.4	4382.5	3.8
312	Anxa7	annexin A7	205.1	777.2	3.8
313	Dok1	docking protein 1	398.6	1508.6	3.8
314	Cd93	CD93 antigen	64.3	241.8	3.8
315	Fxyd5	FXFD domain-containing ion transport regulator 5	1608.8	6046.8	3.8
316	Il6ra	interleukin 6 receptor, alpha	200.3	742.4	3.7
317	Mgat4b	mannoside acetylglucosaminyltransferase 4, isoenzyme B	861.3	3170.4	3.7
318	Tram2	translocating chain-associating membrane protein 2	513.1	1878.4	3.7
319	Notch1	Notch gene homolog 1 (Drosophila)	211.7	774.7	3.7
320	Pcdhb18	protocadherin beta 18	77.4	282.5	3.6
321	Anxa11	annexin A11	653.7	2385.0	3.6
322	Gng11	guanine nucleotide binding protein (G protein), gamma 11	82.0	299.0	3.6
323	Rap2b	RAP2B, member of RAS oncogene family	140.2	510.8	3.6
324	Sidt2	SID1 transmembrane family, member 2	812.9	2941.4	3.6
325	Gprc5b	G protein-coupled receptor, family C, group 5, member B	175.2	633.3	3.6
326	Aqp5	aquaporin 5	1237.7	4457.4	3.6
327	Dusp18	dual specificity phosphatase 18	335.1	1198.8	3.6
328	Rhog	ras homolog gene family, member G	507.5	1811.9	3.6
329	Mxra8	matrix-remodelling associated 8	1087.2	3874.2	3.6
330	Dram1	DNA-damage regulated autophagy modulator 1	145.5	514.0	3.5
331	Ptplad2	protein tyrosine phosphatase-like A domain containing 2	135.3	476.3	3.5

332	C1galt1	core 1 synthase, glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase, 1	530.0	1863.8	3.5
333	Sphk1	sphingosine kinase 1	193.6	678.4	3.5
334	Gdpd2	glycerophosphodiester phosphodiesterase domain containing 2	89.1	311.4	3.5
335	Notch2	Notch gene homolog 2 (Drosophila)	484.2	1690.2	3.5
336	Slc30a4	solute carrier family 30 (zinc transporter), member 4	781.6	2727.4	3.5
337	Mgst3	microsomal glutathione S-transferase 3	257.0	895.7	3.5
338	Smad3	MAD homolog 3 (Drosophila)	352.0	1223.5	3.5
339	B3galt1	beta 1,3-galactosyltransferase-like	354.9	1227.9	3.5
340	Slc35d2	solute carrier family 35, member D2	32.7	112.9	3.5
341	St3gal5	ST3 beta-galactoside alpha-2,3-sialyltransferase 5	639.0	2196.0	3.4
342	App12	adaptor protein, phosphotyrosine interaction, PH domain and leucine zipper containing 2	312.6	1067.2	3.4
343	Hs3st3a1	heparan sulfate (glucosamine) 3-O-sulfotransferase 3A1	45.0	152.9	3.4
344	Lama5	laminin, alpha 5	250.0	847.7	3.4
345	Sema3d	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3D	53.2	180.2	3.4
346	Nradd	neurotrophin receptor associated death domain	435.5	1467.5	3.4
347	Abca8b	ATP-binding cassette, sub-family A (ABC1), member 8b	38.7	129.7	3.4
348	Pdgfc	platelet-derived growth factor, C polypeptide	466.0	1554.5	3.3
349	Olfml2b	olfactomedin-like 2B	418.1	1393.7	3.3
350	Kdelr3	KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 3	700.2	2329.2	3.3
351	Itga11	integrin alpha 11	153.5	509.7	3.3
352	St3gal4	ST3 beta-galactoside alpha-2,3-sialyltransferase 4	356.9	1180.0	3.3
353	6720456H20Rik	RIKEN cDNA 6720456H20 gene	286.3	944.3	3.3
354	Fam176a	family with sequence similarity 176, member A	157.8	519.1	3.3
355	Cyb5	cytochrome b-5	1041.3	3414.8	3.3
356	Tmem106b	transmembrane protein 106B	822.2	2695.2	3.3
357	Btbd11	BTB (POZ) domain containing 11	216.6	707.6	3.3
358	Tpra1	transmembrane protein, adipocyte associated 1	639.3	2086.8	3.3
359	Tmem62	transmembrane protein 62	442.9	1445.9	3.3
360	Ston1	stonin 1	146.2	477.3	3.3
361	Notch3	Notch gene homolog 3 (Drosophila)	160.6	523.7	3.3
362	Nr3c1	nuclear receptor subfamily 3, group C, member 1	278.1	904.3	3.3
363	Slc22a4	solute carrier family 22 (organic cation transporter), member 4	131.7	427.9	3.2
364	A4galt	alpha 1,4-galactosyltransferase	158.1	513.5	3.2

365	Mfsd10	major facilitator superfamily domain containing 10	602.8	1955.0	3.2
366	Efemp2	epidermal growth factor-containing fibulin-like extracellular matrix protein 2	1130.7	3651.5	3.2
367	Tirap	toll-interleukin 1 receptor (TIR) domain-containing adaptor protein	330.3	1065.8	3.2
368	Tmem106a	transmembrane protein 106A	276.6	891.3	3.2
369	Cd80	CD80 antigen	85.8	276.2	3.2
370	Tmem150	transmembrane protein 150	359.7	1157.0	3.2
371	Lrp1	low density lipoprotein receptor-related protein 1	2152.6	6886.0	3.2
372	Rgma	RGM domain family, member A	183.4	586.5	3.2
373	Crk	v-crk sarcoma virus CT10 oncogene homolog (avian)	804.0	2560.5	3.2
374	Pcdh7	protocadherin 7	49.0	155.7	3.2
375	Mosc2	MOCO sulphurase C-terminal domain containing 2	233.7	738.0	3.2
376	Irgm1	immunity-related GTPase family M member 1	659.4	2080.9	3.2
377	Myadm	myeloid-associated differentiation marker	1704.8	5377.8	3.2
378	Fn1	fibronectin 1	4684.3	14735.8	3.1
379	Tmem14c	transmembrane protein 14C	413.8	1300.8	3.1
380	Large	like-glycosyltransferase	720.8	2263.8	3.1
381	Fas	Fas (TNF receptor superfamily member 6)	51.7	162.2	3.1
382	Gcnt2	glucosaminyl (N-acetyl) transferase 2, I-branching enzyme	101.3	317.5	3.1
383	Mavs	mitochondrial antiviral signaling protein	691.3	2167.4	3.1
384	Sdc3	syndecan 3	534.0	1672.5	3.1
385	Pkd1	polycystic kidney disease 1 homolog	396.6	1239.8	3.1
386	Fgfr1	fibroblast growth factor receptor 1	1370.6	4279.8	3.1
387	2010204N08Rik	RIKEN cDNA 2010204N08 gene	33.1	103.3	3.1
388	Tmem19	transmembrane protein 19	553.0	1721.5	3.1
389	Flt1	FMS-like tyrosine kinase 1	172.7	536.1	3.1
390	Slc25a37	solute carrier family 25, member 37	409.8	1271.7	3.1
391	Pcdhb5	protocadherin beta 5	114.6	353.5	3.1
392	Dennd5b	DENN/MADD domain containing 5B	55.9	172.1	3.1
393	Galnt10	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 10	767.6	2356.0	3.1
394	Marcks	myristoylated alanine rich protein kinase C substrate	1067.0	3271.3	3.1
395	Abcd1	ATP-binding cassette, sub-family D (ALD), member 1	188.0	575.1	3.1
396	Mmp24	matrix metalloproteinase 24	278.6	851.7	3.1
397	Rasa4	RAS p21 protein activator 4	252.2	766.2	3.0
398	Cmtm4	CKLF-like MARVEL transmembrane domain containing 4	768.3	2330.9	3.0
399	Hiatl1	hippocampus abundant transcript-like 1	324.8	983.7	3.0
400	Iqgap1	IQ motif containing GTPase activating protein 1	1278.3	3861.1	3.0

401	Dsel	dermatan sulfate epimerase-like	142.4	429.3	3.0
402	4932417116Rik	RIKEN cDNA 4932417116 gene	295.8	889.8	3.0
403	Kctd10	potassium channel tetramerisation domain containing 10	595.5	1788.7	3.0
404	Itpr2	inositol 1,4,5-triphosphate receptor 2	284.7	850.8	3.0
405	Gprc5c	G protein-coupled receptor, family C, group 5, member C	101.1	301.8	3.0
406	Stab2	stabilin 2	114.9	342.9	3.0
407	Ank1	ankyrin 1, erythroid	144.5	429.7	3.0
408	Agpat2	1-acylglycerol-3-phosphate O-acyltransferase 2 (lysophosphatidic acid acyltransferase, beta)	976.6	2893.0	3.0
409	Cd9	CD9 antigen	995.4	2928.6	2.9
410	Slc35b3	solute carrier family 35, member B3	104.2	306.4	2.9
411	Rnf103	ring finger protein 103	320.2	940.2	2.9
412	Stx17	syntaxin 17	312.2	916.0	2.9
413	Dmd	dystrophin, muscular dystrophy	48.2	141.4	2.9
414	Msn	moesin	1931.1	5660.6	2.9
415	Efnb2	ephrin B2	117.6	344.6	2.9
416	Slc26a2	solute carrier family 26 (sulfate transporter), member 2	267.1	780.7	2.9
417	Chic1	cysteine-rich hydrophobic domain 1	34.6	101.0	2.9
418	Stxbp3a	syntaxin binding protein 3A	238.7	696.8	2.9
419	Col4a1	collagen, type IV, alpha 1	542.3	1573.3	2.9
420	Ppapdc1b	phosphatidic acid phosphatase type 2 domain containing 1B	458.8	1323.5	2.9
421	Sh3kbp1	SH3-domain kinase binding protein 1	573.5	1651.4	2.9
422	Cpt1a	carnitine palmitoyltransferase 1a, liver	971.1	2785.6	2.9
423	Cyp1b1	cytochrome P450, family 1, subfamily b, polypeptide 1	79.0	226.4	2.9
424	Frs2	fibroblast growth factor receptor substrate 2	1016.2	2907.2	2.9
425	Stard13	StAR-related lipid transfer (START) domain containing 13	306.4	874.2	2.9
426	Tnfrsf22	tumor necrosis factor receptor superfamily, member 22	301.8	860.8	2.9
427	Slc1a3	solute carrier family 1 (glial high affinity glutamate transporter), member 3	124.6	355.1	2.9
428	Swap70	SWA-70 protein	333.4	948.7	2.8
429	Slc29a1	solute carrier family 29 (nucleoside transporters), member 1	1362.1	3871.2	2.8
430	Mfsd1	major facilitator superfamily domain containing 1	1724.7	4900.7	2.8
431	Adcy7	adenylate cyclase 7	213.0	605.0	2.8
432	Xylt2	xylosyltransferase II	331.9	939.9	2.8
433	Rnf24	ring finger protein 24	357.8	1012.8	2.8
434	Rtp4	receptor transporter protein 4	297.7	842.8	2.8
435	Dag1	dystroglycan 1	1086.7	3073.5	2.8
436	Tln1	talin 1	1206.1	3407.6	2.8

437	Retsat	retinol saturase (all trans retinol 13,14 reductase)	375.6	1053.6	2.8
438	Jak2	Janus kinase 2	274.1	768.7	2.8
439	Slc43a2	solute carrier family 43, member 2	201.3	563.7	2.8
440	Bace1	beta-site APP cleaving enzyme 1	891.0	2494.1	2.8
441	Prnp	prion protein	1138.8	3173.0	2.8
442	Fam119a	family with sequence similarity 119, member A	169.4	471.4	2.8
443	Col18a1	collagen, type XVIII, alpha 1	394.3	1094.7	2.8
444	Slc41a2	solute carrier family 41, member 2	539.3	1493.9	2.8
445	Zdhhc1	zinc finger, DHHC domain containing 1	344.0	948.7	2.8
446	Ptprd	protein tyrosine phosphatase, receptor type, D	76.6	211.3	2.8
447	2310046K01Rik	RIKEN cDNA 2310046K01 gene	128.2	352.9	2.8
448	Slc41a3	solute carrier family 41, member 3	204.4	559.4	2.7
449	Vasn	vasorin	110.2	301.3	2.7
450	Cd53	CD53 antigen	55.9	152.5	2.7
451	Lrp10	low-density lipoprotein receptor-related protein 10	1060.3	2884.7	2.7
452	Ephb2	Eph receptor B2	181.1	491.6	2.7
453	Insig2	insulin induced gene 2	726.7	1968.1	2.7
454	Esd	esterase D/formylglutathione hydrolase	1403.2	3790.9	2.7
455	Tspan4	tetraspanin 4	1737.0	4691.2	2.7
456	Lpl	lipoprotein lipase	1155.6	3119.6	2.7
457	Gpm6b	glycoprotein m6b	1169.2	3138.8	2.7
458	Litaf	LPS-induced TN factor	818.4	2189.9	2.7
459	Il17rb	interleukin 17 receptor B	112.0	299.8	2.7
460	Calhm2	calcium homeostasis modulator 2	219.6	587.6	2.7
461	Tnfrsf9	tumor necrosis factor receptor superfamily, member 9	155.0	413.3	2.7
462	5730494N06Rik	RIKEN cDNA 5730494N06 gene	167.0	444.5	2.7
463	Mospd2	motile sperm domain containing 2	191.0	508.3	2.7
464	Nipal2	NIPA-like domain containing 2	175.1	465.6	2.7
465	Col4a6	collagen, type IV, alpha 6	108.1	286.3	2.6
466	Cachd1	cache domain containing 1	124.2	327.8	2.6
467	Myo7a	myosin VIIA	462.0	1218.3	2.6
468	Rnf150	ring finger protein 150	269.3	709.4	2.6
469	Slc46a1	solute carrier family 46, member 1	353.5	930.8	2.6
470	Qsox1	quiescin Q6 sulfhydryl oxidase 1	779.9	2050.0	2.6
471	Hgsnat	heparan-alpha-glucosaminide N-acetyltransferase	930.1	2443.2	2.6
472	Itga5	integrin alpha 5 (fibronectin receptor alpha)	1536.2	4035.0	2.6
473	B3gnt2	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 2	183.2	481.1	2.6
474	Gpr39	G protein-coupled receptor 39	54.0	141.3	2.6
475	Slc39a14	solute carrier family 39 (zinc transporter), member 14	402.3	1053.2	2.6

476	Snta1	syntrophin, acidic 1	257.5	672.7	2.6
477	Adrb2	adrenergic receptor, beta 2	64.9	169.4	2.6
478	Cubn	cubilin (intrinsic factor-cobalamin receptor)	91.5	238.5	2.6
479	Adam8	a disintegrin and metallopeptidase domain 8	163.9	424.8	2.6
480	Cat	catalase	1684.0	4364.6	2.6
481	Ctnnal1	catenin (cadherin associated protein), alpha-like 1	211.1	546.9	2.6
482	Erap1	endoplasmic reticulum aminopeptidase 1	219.0	566.5	2.6
483	Mlec	malectin	1364.1	3482.2	2.6
484	Extl3	exostoses (multiple)-like 3	550.3	1404.6	2.6
485	Mcart1	mitochondrial carrier triple repeat 1	532.2	1353.2	2.5
486	Phka2	phosphorylase kinase alpha 2	359.1	912.0	2.5
487	Sc4mol	sterol-C4-methyl oxidase-like	1580.9	4010.3	2.5
488	Phka1	phosphorylase kinase alpha 1	264.0	667.0	2.5
489	Mgst1	microsomal glutathione S-transferase 1	563.9	1424.2	2.5
490	Epb4.111	erythrocyte protein band 4.1-like 1	578.2	1459.1	2.5
491	Csf2rb2	colony stimulating factor 2 receptor, beta 2, low-affinity (granulocyte-macrophage)	83.8	211.4	2.5
492	Col4a5	collagen, type IV, alpha 5	145.6	366.8	2.5
493	Tpcn2	two pore segment channel 2	287.7	724.4	2.5
494	Tapbpl	TAP binding protein-like	177.4	446.6	2.5
495	D18Ert653e	DNA segment, Chr 18, ERATO Doi 653, expressed	352.9	888.2	2.5
496	Galnt4	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 4	133.8	335.5	2.5
497	Rab43	RAB43, member RAS oncogene family	314.0	787.4	2.5
498	Ctns	cystinosis, nephropathic	449.6	1126.8	2.5
499	Rnf145	ring finger protein 145	1014.8	2542.8	2.5
500	Hspg2	perlecan (heparan sulfate proteoglycan 2)	578.1	1447.9	2.5
501	Sri	sorcin	2259.7	5644.1	2.5
502	Capn2	calpain 2	1415.5	3535.1	2.5
503	Fam26e	family with sequence similarity 26, member E	55.6	138.8	2.5
504	Hfe	hemochromatosis	113.3	282.4	2.5
505	Pdgfb	platelet derived growth factor, B polypeptide	164.4	409.0	2.5
506	Hrct1	histidine rich carboxyl terminus 1	156.3	388.8	2.5
507	Chdh	choline dehydrogenase	164.0	407.9	2.5
508	Cyb5d2	cytochrome b5 domain containing 2	176.3	438.3	2.5
509	Trpv4	transient receptor potential cation channel, subfamily V, member 4	207.7	514.3	2.5
510	Slc12a7	solute carrier family 12, member 7	531.5	1312.4	2.5
511	Cr1l	complement component (3b/4b) receptor 1-like	211.0	521.0	2.5
512	Slc48a1	solute carrier family 48 (heme transporter), member 1	3273.9	8077.9	2.5

513	Tspan14	tetraspanin 14	846.5	2088.6	2.5
514	Fam38a	family with sequence similarity 38, member A	1327.4	3268.2	2.5
515	Slmap	sarcolemma associated protein	540.3	1330.2	2.5
516	Asah2	N-acylsphingosine amidohydrolase 2	366.2	900.1	2.5
517	Slc33a1	solute carrier family 33 (acetyl-CoA transporter), member 1	186.3	457.4	2.5
518	Tmem127	transmembrane protein 127	510.2	1250.7	2.5
519	Flnc	filamin C, gamma	841.2	2060.8	2.4
520	Abcb1b	ATP-binding cassette, sub-family B (MDR/TAP), member 1B	238.9	583.2	2.4
521	Itm2b	integral membrane protein 2B	1423.9	3475.2	2.4
522	Ehd4	EH-domain containing 4	495.8	1209.4	2.4
523	Cnksr3	Cnksr family member 3	249.9	608.5	2.4
524	Snap23	synaptosomal-associated protein 23	1571.8	3823.6	2.4
525	B3galnt2	UDP-GalNAc:betaGlcNAc beta 1,3-galactosaminyltransferase, polypeptide 2	354.7	860.0	2.4
526	Emp1	epithelial membrane protein 1	3073.8	7444.3	2.4
527	Rras2	related RAS viral (r-ras) oncogene homolog 2	739.5	1790.8	2.4
528	D19Wsu162e	DNA segment, Chr 19, Wayne State University 162, expressed	1050.3	2542.2	2.4
529	Lrrc8e	leucine rich repeat containing 8 family, member E	187.5	453.1	2.4
530	Rp2h	retinitis pigmentosa 2 homolog (human)	350.8	847.4	2.4
531	Efnb1	ephrin B1	302.6	730.7	2.4
532	Orai2	ORAI calcium release-activated calcium modulator 2	398.3	960.5	2.4
533	Invs	inversin	250.6	604.1	2.4
534	Nkain2	Na ⁺ /K ⁺ transporting ATPase interacting 2	52.3	126.0	2.4
535	Lpar6	lysophosphatidic acid receptor 6	311.5	748.9	2.4
536	Boc	biregional cell adhesion molecule-related/down-regulated by oncogenes (Cdon) binding protein	133.5	320.5	2.4
537	Cd14	CD14 antigen	84.9	203.6	2.4
538	Adi1	acioreductone dioxygenase 1	1116.3	2674.0	2.4
539	Xylt1	xylosyltransferase 1	349.2	835.9	2.4
540	Fut10	fucosyltransferase 10	160.4	383.8	2.4
541	Cyp2j6	cytochrome P450, family 2, subfamily j, polypeptide 6	157.4	375.5	2.4
542	Slc35b4	solute carrier family 35, member B4	690.0	1645.2	2.4
543	Cd28	CD28 antigen	59.5	141.4	2.4
544	Nsdhl	NAD(P) dependent steroid dehydrogenase-like	1592.1	3778.7	2.4
545	Rab3b	RAB3B, member RAS oncogene family	344.2	816.0	2.4
546	Tjp2	tight junction protein 2	603.9	1429.3	2.4
547	Mgat1	mannoside acetylglucosaminyltransferase 1	269.7	638.2	2.4
548	Slc4a2	solute carrier family 4 (anion exchanger), member 2	462.8	1095.0	2.4

549	Tpbg	trophoblast glycoprotein	425.7	1006.9	2.4
550	Enpp4	ectonucleotide pyrophosphatase/phosphodiesterase 4	549.6	1297.6	2.4
551	Slc37a2	solute carrier family 37 (glycerol-3-phosphate transporter), member 2	98.6	232.4	2.4
552	Ptpre	protein tyrosine phosphatase, receptor type, E	258.1	606.2	2.3
553	Ly75	lymphocyte antigen 75	371.5	865.3	2.3
554	Ndst2	N-deacetylase/N-sulfotransferase (heparan glucosaminyl) 2	314.2	730.1	2.3
555	Rhbdf1	rhomboid family 1 (Drosophila)	607.3	1410.1	2.3
556	Tspan5	tetraspanin 5	937.5	2171.7	2.3
557	Ugt1a9	UDP glucuronosyltransferase 1 family, polypeptide A9	72.3	167.2	2.3
558	P2rx4	purinergic receptor P2X, ligand-gated ion channel 4	814.6	1883.9	2.3
559	Pilra	paired immunoglobulin-like type 2 receptor alpha	67.8	156.7	2.3
560	Sft2d2	SFT2 domain containing 2	666.5	1538.0	2.3
561	Itch	itchy, E3 ubiquitin protein ligase	801.7	1848.9	2.3
562	Il13ra1	interleukin 13 receptor, alpha 1	296.4	682.4	2.3
563	Trim59	tripartite motif-containing 59	502.4	1155.6	2.3
564	Gpr176	G protein-coupled receptor 176	402.5	925.3	2.3
565	Svep1	sushi, von Willebrand factor type A, EGF and pentraxin domain containing 1	93.9	215.4	2.3
566	Arl6ip5	ADP-ribosylation factor-like 6 interacting protein 5	773.8	1775.0	2.3
567	Shisa5	shisa homolog 5 (<i>Xenopus laevis</i>)	1176.7	2698.7	2.3
568	Synpo	synaptopodin	100.7	230.7	2.3
569	Mras	muscle and microspikes RAS	567.0	1298.9	2.3
570	Pam	peptidylglycine alpha-amidating monooxygenase	766.0	1754.5	2.3
571	Acaa2	acetyl-Coenzyme A acyltransferase 2 (mitochondrial 3-oxoacyl-Coenzyme A thiolase)	712.2	1629.6	2.3
572	Bid	BH3 interacting domain death agonist	808.7	1849.7	2.3
573	Dok4	docking protein 4	119.0	271.9	2.3
574	Dhrs1	dehydrogenase/reductase (SDR family) member 1	909.1	2075.0	2.3
575	Stx2	syntaxin 2	563.7	1285.4	2.3
576	Ap3s1	adaptor-related protein complex 3, sigma 1 subunit	1741.0	3964.8	2.3
577	Plxnb2	plexin B2	1957.1	4443.8	2.3
578	3110056O03Rik	RIKEN cDNA 3110056O03 gene	546.1	1239.6	2.3
579	Ext1	exostoses (multiple) 1	1448.4	3287.0	2.3
580	Glt8d2	glycosyltransferase 8 domain containing 2	108.1	245.1	2.3
581	Acer3	alkaline ceramidase 3	359.9	815.6	2.3
582	Glud1	glutamate dehydrogenase 1	1355.6	3069.1	2.3
583	Plxna1	plexin A1	1124.4	2545.5	2.3
584	S1pr1	sphingosine-1-phosphate receptor 1	89.8	202.9	2.3

585	Pcdhb16	protocadherin beta 16	139.4	314.8	2.3
586	Aoc3	amine oxidase, copper containing 3	76.5	172.6	2.3
587	Serp1	stress-associated endoplasmic reticulum protein 1	1894.9	4269.6	2.3
588	Syk	spleen tyrosine kinase	85.2	192.1	2.3
589	Slc6a8	solute carrier family 6 (neurotransmitter transporter, creatine), member 8	1491.3	3359.0	2.3
590	Gnaq	guanine nucleotide binding protein, alpha q polypeptide	903.7	2035.0	2.3
591	Smurf2	SMAD specific E3 ubiquitin protein ligase 2	1298.0	2920.1	2.2
592	Sntb2	syntrophin, basic 2	580.1	1301.9	2.2
593	Phlda1	pleckstrin homology-like domain, family A, member 1	828.1	1855.9	2.2
594	Slc44a3	solute carrier family 44, member 3	160.1	358.9	2.2
595	Amigo2	adhesion molecule with Ig like domain 2	170.2	380.7	2.2
596	Btc	betacellulin, epidermal growth factor family member	87.8	195.7	2.2
597	Bak1	BCL2-antagonist/killer 1	981.5	2185.8	2.2
598	Rnd3	Rho family GTPase 3	737.1	1641.5	2.2
599	Stap2	signal transducing adaptor family member 2	182.1	405.3	2.2
600	Smad7	MAD homolog 7 (Drosophila)	495.8	1102.9	2.2
601	Rit1	Ras-like without CAAX 1	339.0	753.6	2.2
602	Magi3	membrane associated guanylate kinase, WW and PDZ domain containing 3	772.1	1706.5	2.2
603	Tmem144	transmembrane protein 144	155.2	342.2	2.2
604	Phkb	phosphorylase kinase beta	550.1	1211.0	2.2
605	4632428N05Rik	RIKEN cDNA 4632428N05 gene	172.7	379.3	2.2
606	Cd109	CD109 antigen	176.0	386.1	2.2
607	Sc5d	sterol-C5-desaturase (fungal ERG3, delta-5-desaturase) homolog (S. cerevisiae)	1157.0	2537.6	2.2
608	Uaca	uveal autoantigen with coiled-coil domains and ankyrin repeats	154.1	337.8	2.2
609	Neto2	neuropilin (NRP) and tolloid (TLL)-like 2	262.5	575.3	2.2
610	Rab9	RAB9, member RAS oncogene family	693.2	1518.0	2.2
611	Slc25a13	solute carrier family 25 (mitochondrial carrier, adenine nucleotide translocator), member 13	346.7	758.5	2.2
612	Nrp2	neuropilin 2	2458.6	5373.6	2.2
613	Mmgt2	membrane magnesium transporter 2	707.6	1543.3	2.2
614	Efna4	ephrin A4	287.9	627.8	2.2
615	Zdhhc3	zinc finger, DHHC domain containing 3	1385.6	3016.4	2.2
616	Esyt2	extended synaptotagmin-like protein 2	878.2	1910.0	2.2
617	Hhat	hedgehog acyltransferase	309.9	671.2	2.2
618	AI464131	expressed sequence AI464131	170.7	368.1	2.2
619	Ly6e	lymphocyte antigen 6 complex, locus E	2819.2	6075.2	2.2
620	Flot2	flotillin 2	675.7	1456.1	2.2
621	Galnt14	UDP-N-acetyl-alpha-D-	68.2	146.5	2.1

		galactosamine:polypeptide N-acetylgalactosaminyltransferase-like 4			
622	Fibp	fibroblast growth factor (acidic) intracellular binding protein	461.2	990.8	2.1
623	Ap3d1	adaptor-related protein complex 3, delta 1 subunit	2365.4	5078.9	2.1
624	Aak1	AP2 associated kinase 1	802.8	1721.9	2.1
625	Scamp4	secretory carrier membrane protein 4	1222.1	2620.5	2.1
626	Abca7	ATP-binding cassette, sub-family A (ABC1), member 7	340.9	730.8	2.1
627	Marveld1	MARVEL (membrane-associating) domain containing 1	1394.5	2988.0	2.1
628	Reck	reversion-inducing-cysteine-rich protein with kazal motifs	197.4	420.8	2.1
629	Ssr3	signal sequence receptor, gamma	2213.9	4710.0	2.1
630	Bcl2l1	BCL2-like 1	355.4	753.3	2.1
631	Gpc6	glypican 6	875.2	1851.2	2.1
632	St6galnac4	ST6 (alpha-N-acetyl-neuraminy-2,3-beta-galactosyl-1,3)-N-acetylgalactosaminide alpha-2,6-sialyltransferase 4	691.9	1462.9	2.1
633	Il4ra	interleukin 4 receptor, alpha	419.3	886.4	2.1
634	Slc23a2	solute carrier family 23 (nucleobase transporters), member 2	555.9	1172.4	2.1
635	Tspan17	tetraspanin 17	1556.5	3278.4	2.1
636	Ebp	phenylalkylamine Ca ²⁺ antagonist (emopamil) binding protein	906.0	1908.3	2.1
637	Srd5a3	steroid 5 alpha-reductase 3	1354.4	2851.6	2.1
638	Tmem53	transmembrane protein 53	376.9	792.8	2.1
639	Nucb2	nucleobindin 2	412.0	866.4	2.1
640	Fzd5	frizzled homolog 5 (Drosophila)	166.7	350.6	2.1
641	2010002N04Rik	RIKEN cDNA 2010002N04 gene	282.0	591.1	2.1
642	Megf8	multiple EGF-like-domains 8	501.0	1050.0	2.1
643	Arhgef12	Rho guanine nucleotide exchange factor (GEF) 12	655.3	1369.4	2.1
644	Plin2	perilipin 2	2152.3	4497.0	2.1
645	Filip1l	filamin A interacting protein 1-like	576.5	1203.8	2.1
646	Man2a1	mannosidase 2, alpha 1	2945.5	6143.4	2.1
647	Tmem77	transmembrane protein 77	937.4	1950.3	2.1
648	Chrnbl	cholinergic receptor, nicotinic, beta polypeptide 1 (muscle)	127.7	265.4	2.1
649	Pdcd6	programmed cell death 6	537.1	1115.7	2.1
650	Ldlr	low density lipoprotein receptor	1632.3	3387.2	2.1
651	Tmem50b	transmembrane protein 50B	1943.3	4031.1	2.1
652	Pedhb2	protocadherin beta 2	273.2	566.7	2.1
653	Zdhhc20	zinc finger, DHHC domain containing 20	759.5	1574.5	2.1
654	Lass6	LAG1 homolog, ceramide synthase 6	1598.9	3310.5	2.1
655	Unc13c	unc-13 homolog C (C. elegans)	50.2	103.7	2.1
656	Cd99l2	CD99 antigen-like 2	968.2	1992.8	2.1
657	Cib1	calcium and integrin binding 1 (calmyrin)	448.0	920.6	2.1

658	Agpat9	1-acylglycerol-3-phosphate O-acyltransferase 9	180.8	371.6	2.1
659	Cml4	camello-like 4	83.1	170.6	2.1
660	Itgb3	integrin beta 3	201.7	414.2	2.1
661	Tmem167	transmembrane protein 167	417.0	854.4	2.0
662	Vtcn1	V-set domain containing T cell activation inhibitor 1	81.0	165.7	2.0
663	Pitpna	phosphatidylinositol transfer protein, alpha	4022.2	8221.1	2.0
664	Lhfp12	lipoma HMGIC fusion partner-like 2	681.7	1391.5	2.0
665	Tmem64	transmembrane protein 64	1473.9	3007.4	2.0
666	Dcxr	dicarbonyl L-xylulose reductase	286.9	583.9	2.0
667	Rnft1	ring finger protein, transmembrane 1	1075.1	2183.7	2.0
668	Porcn	porcupine homolog (Drosophila)	212.0	429.8	2.0
669	Plxnd1	plexin D1	946.6	1917.7	2.0
670	Dmpk	dystrophia myotonica-protein kinase	343.1	694.9	2.0
671	Stim2	stromal interaction molecule 2	501.4	1015.4	2.0
672	Frmd6	FERM domain containing 6	673.5	1361.3	2.0
673	Nptn	neuroplastin	3578.7	7231.8	2.0
674	Gpr97	G protein-coupled receptor 97	77.1	155.6	2.0
675	Nup210l	nucleoporin 210-like	127.5	257.2	2.0
676	Vps24	vacuolar protein sorting 24 (yeast)	537.8	1084.4	2.0
677	Chst11	carbohydrate sulfotransferase 11	1005.5	2025.2	2.0
678	Rab35	RAB35, member RAS oncogene family	1132.9	2277.9	2.0
679	Tmtc3	transmembrane and tetratricopeptide repeat containing 3	731.7	1470.9	2.0
680	Itfg3	integrin alpha FG-GAP repeat containing 3	727.5	1460.1	2.0
681	Sptlc1	serine palmitoyltransferase, long chain base subunit 1	452.3	907.5	2.0
682	Mrgprf	MAS-related GPR, member F	112.5	225.4	2.0
683	Pgrmc1	progesterone receptor membrane component 1	1507.3	3019.5	2.0
684	4831426I19Rik	RIKEN cDNA 4831426I19 gene	276.0	552.6	2.0
685	Nelf	nasal embryonic LHRH factor	396.0	792.4	2.0
686	Chmp1b	chromatin modifying protein 1B	172.6	345.3	2.0