

Supplemental materials for

**“Quantitative Proteomics Identifies Vasopressin-Responsive Nuclear Proteins in the Collecting Duct”**

**Schenk et al.**

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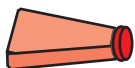
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# Supplemental Fig. 1. Design of SILAC experiments.

Incorporation of labeled amino acids  
(9 days, >6 doubling times)

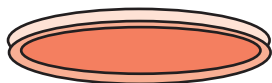
Light medium  
[<sup>12</sup>C] Lysine  
[<sup>12</sup>C, <sup>14</sup>N] Arginine



Heavy medium  
[<sup>13</sup>C] Lysine  
[<sup>13</sup>C, <sup>15</sup>N] Arginine



Growth to confluency on membrane support  
(5 days, in presence of 0.1 nM dDAVP)



Withdrawal of dDAVP  
(24 h)

Stimulation with dDAVP or vehicle  
(60 min)

Pooling of cells  
1:1 from each populations



Nucleo- cytoplasmic separation (NE-PER®)

Cytoplasmic extract

Nuclear extract

Nuclear pellet

In-gel trypsin digestion, fractionation

LC-MS/MS (Orbitrap)

Protein identification and quantitation

## Full Methods

Cell culture and sample preparation. All studies were done in an AQP2-expressing mpkCCD clonal cell line (clone 11)<sup>1</sup> grown on membrane supports (Transwell, Corning). We carried out three series of mass spectrometry experiments, viz. a non-quantitative profiling study and two series of experiments using the SILAC method for quantification. In each study, stepwise separation of cytoplasmic and nuclear extract was performed using a commercially-available kit (NE-PER® Nuclear and Cytoplasmic Extraction Reagent Kit, Pierce, Rockford, IL). In the non-quantitative profiling experiments, the test protocol supplied by the manufacturer was followed to obtain cytoplasmic extract, nuclear extract and nuclear pellet. To enhance the purity of the separation of cytoplasm and nucleus for the quantitative studies, the steps extracting the cytoplasm were carried out twice before proceeding with the nuclear sample.

The two series of studies quantifying the response to the vasopressin analog dDAVP (0.1 nM) were done using SILAC<sup>14</sup> culture media containing the amino acids arginine and lysine labeled with stable isotopes (“heavy”: <sup>13</sup>C<sub>6</sub> <sup>15</sup>N<sub>4</sub> arginine, <sup>13</sup>C<sub>6</sub> lysine; “light”: <sup>12</sup>C<sub>6</sub> <sup>14</sup>N<sub>4</sub> arginine, <sup>12</sup>C<sub>6</sub> lysine [Invitrogen]) for 16 days (three passages). This labeling period is sufficient to achieve >98% saturation of labeling.<sup>2</sup> At the beginning of an experiment (Suppl. Fig. 1), labeled cells were grown in the presence of dDAVP (0.1 nM) for 4-5 days to assure that all vasopressin-dependent proteins are expressed.<sup>3</sup> In the first quantitative series, the dDAVP was then withdrawn for 24 hour prior to re-exposure to vasopressin or vehicle for 60 minutes. In the second series, observations were made after 30-min exposure to dDAVP after a 6-hour washout period. For these experiments, cells (60-90 µg protein) were pooled in a 1:1 ratio (dDAVP:vehicle) and subjected to nuclear and cytoplasmic separation as described above prior to mass spectrometry.

Mass spectrometry. Samples were reduced with DTT (10 mM), alkylated with iodoacetamide (40 mM), and solubilized with ¼ part of Laemmli buffer (5×: 7.5% SDS, 30% glycerol, 50 mM Tris, pH 6.8) prior to 1D-SDS-PAGE (4-15% gradient). One-dimensional SDS-PAGE was performed using 4%–15% gradient polyacrylamide gels. Protein in the gel was visualized with colloidal Coomassie blue staining (GelCode Blue Stain Reagent, G-250; Pierce Biotechnology, Rockford, IL) for 5 min followed by destaining in deionized H<sub>2</sub>O for 1 hour. Protein in the gel was then sliced into small blocks for a total of 20 or 40 blocks per lane. Each block was minced into small pieces (1–1.5 mm<sup>3</sup>). Gel pieces from each block were further destained and dehydrated by incubating with 25 mM NH<sub>4</sub>HCO<sub>3</sub>/50% acetonitrile (ACN) solution for 10 min three times and then were dried in vacuo. The dried gel pieces were immersed in 25 mM NH<sub>4</sub>HCO<sub>3</sub> solution containing 12.5 ng/µl trypsin (V5113) (Promega Corp., Madison, WI) and incubated at 37°C overnight. The tryptic peptides were extracted by incubating the gel pieces with 50% ACN/0.1% formic acid (FA) followed by sonication in a water bath for 20 min. This step was repeated twice. The volume of the extracted peptide samples was reduced to about 5 µl in vacuo and then the samples were reconstituted to 20 µl in 0.1% FA. The resulting peptide mixtures were concentrated and desalted with C18 Zip-tips (Millipore Corp., Bedford, MA). They were dried in vacuo and reconstituted to 10 µl in 0.1% FA for LC-MS/MS analysis.

Tryptic peptides were analyzed on an Eksigent nanoLC system connected to an LTQ Orbitrap Velos mass spectrometer (Thermo Fisher Scientific) equipped with a nano-electrospray ion source. Peptides were loaded onto a peptide trap cartridge (Agilent Technologies) at a flow rate of 6 µl/min. The trapped peptides were then fractionated with a reversed-phase PicoFrit column (New Objective, Woburn, MA) using a linear gradient of 5%–35% ACN in 0.1% FA. The gradient time was 45 min at a flow rate of 0.25 µl/min. Precursor mass spectra (MS1) were acquired in the orbitrap at 60,000 resolution and product mass spectra (MS2) were acquired with the ion trap.

MS spectra were searched using the SEQUEST, Inspect, and OMSSA algorithms as described<sup>4</sup> using the most recent mouse RefSeq Database. Data were filtered using the target-decoy approach<sup>5</sup> to obtain <1% FDR at a peptide level. Quantification of light and heavy peptides was performed by QUIL software.<sup>6</sup> Uniqueness or multiplicity of putative peptide assignment was evaluated using ProMatch software<sup>4</sup>. Protein quantifications were median-normalized in each of experimental pair. Dual statistical criteria were applied: p, t-test (paired, P<0.05) and outside the 95% confidence interval defined by vehicle vs. vehicle experiments.

In an additional set of SILAC experiments, we analyzed samples treated for 30 min with dDAVP (0.1 nM) rather than 60 min (see above). Protein samples were reduced with 10 nM DTT for 1 hour and alkylated with iodoacetamide (40 nM) for 1 hour in the dark. Samples were diluted in 25 mM NH<sub>4</sub>HCO<sub>3</sub> before addition of trypsin (1:20 wt/wt for 16 hour at 37°C). After acidifying and desalting (HLD cartridges; Oasis), samples were dried in vacuo and fractionated using strong cation exchange (SCX) chromatography. Samples were resuspended in solvent A (5 mM KH<sub>2</sub>PO<sub>4</sub>, 25% ACN, pH 3.0) and injected onto a Polysulfoethyl A SCX column (4.6 mm ID x 20 cm length, 5 um particle size and 300 A pore size; PolyLC) on an Agilent HP1100 system. A total of 24 fractionated samples for the NE and 24 fractionated samples for NP were obtained. The fractionated samples were dried in vacuo and resuspended in 0.1% formic acid. Flow-through samples from Fe-NTA phosphopeptide IMAC columns (Pierce) were analyzed by LC-MS/MS after desalting using Graphite Spin columns (Pierce).

Bioinformatics. Clustering of transcription factors was done using the *Muscle* algorithm<sup>7</sup> and results were displayed as a dendrogram using iTOL (Interactive Tree Of Life).<sup>8</sup> Conserved transcription factor binding sites (TFBS) in the 5'-flanking regions of specific genes were found using the online Genomatix software suite and TFBS database (<http://www.genomatix.de/>).

Immunoblotting and antibodies. Immunoblot analysis using nitrocellulose membranes and IR dye-coupled secondary antibodies was performed as described previously<sup>9</sup>. Blocking

was performed using commercially-available blocking buffer (Licor). Fluorescence signals were read out using the Odyssey system.

#### Reference List

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## Suppl. Tab. 1

List of identified proteins; excludes proteins without mRNA match; peptide count for the three compartments is given in columns D-F

GI Accession No.	Gene Symbol	Protein Name	Cytoplasmic extract	Nuclear extract	Nuclear pellet
27228985	Ndufa12	13kDa differentiation-associated protein	5	1	3
23956162	Agpat2	1-acylglycerol-3-phosphate O-acyltransferase 2	3	0	0
27229077	Agpat5	1-acylglycerol-3-phosphate O-acyltransferase 5	0	0	1
40538842	E430028B21Rik	2'-phosphodiesterase	1	0	0
6753622	Decr2	2,4-dienoyl CoA reductase 2	1	6	0
147901538	Ogfod1	2-oxoglutarate and iron-dependent oxygenase domain containing 1 isoform 1	1	0	0
39652626	Bpnt1	3'-phosphoadenosine 5'-phosphosulfate synthase 1	4	0	0
6754982	Papss1	3-hydroxy-3-methylglutaryl CoA lyase	5	0	0
171543858	Hmgcl	3-hydroxyisobutyrate dehydrogenase precursor	2	0	1
21704140	Hibadh	3-hydroxyisobutyryl-Coenzyme A hydrolase	10	0	0
22122625	Hibch	3-hydroxyisobutyryl-Coenzyme A hydrolase	10	0	0
31543976	Ywhag	3-monooxygenase/tryptophan 5-monooxygenase activation protein, gamma polypeptide	12	7	8
18266680	Oxct1	3-oxoacid CoA transferase 1	13	0	2
6679066	Nipsnap1	4-nitrophenylphosphatase domain and non-neuronal SNAP25-like protein homolog 1	1	0	0
7657031	Nt5c	5'-nucleotidase, cytosolic	1	0	0
117606214	Xrn2	5'-exoribonuclease 2	1	17	0
45544618	Mtap	5'-methylthioadenosine phosphorylase	3	0	0
256665238	Nt5c2	5'-nucleotidase, cytosolic II	3	0	0
156627553	Nt5c3l	5'-nucleotidase, cytosolic III-like isoform 1	1	0	0
227908823	Atic	5-aminoimidazole-4-carboxamide ribonucleotide formyltransferase/IMP cyclohydrolase	22	0	0
21312554	2010107E04Rik	6.8 kDa mitochondrial proteolipid	1	0	0
13384778	Pgls	6-phosphogluconolactonase	8	0	3
6680642	Adam8	a disintegrin and metalloproteinase domain 8	2	1	0
110347485	Adam17	a disintegrin and metalloproteinase domain 17	1	0	0
160358787	Adam9	a disintegrin and metalloproteinase domain 9 precursor	1	0	0
13626040	Akap12	A kinase (PRKA) anchor protein (gravin) 12	65	1	1
125661048	Akap9	A kinase (PRKA) anchor protein (yotiao) 9	5	0	2
40807354	Akap10	A kinase (PRKA) anchor protein 10	1	0	0
189181672	Akap13	A kinase (PRKA) anchor protein 13	0	0	1
31560394	Akap8	A kinase anchor protein 8	5	8	7
239985513	Atad3a	AAA-ATPase TOB3	4	1	7
269784760	Abhd10	abhydrolase domain containing 10	3	0	0
299473805	Abhd11	abhydrolase domain containing 11	2	0	0
159110817	Abhd12	abhydrolase domain containing 12	0	1	0
171460960	Abhd14b	abhydrolase domain containing 14b	7	0	0
31560264	Abhd6	abhydrolase domain containing 6	0	0	1
163965368	Aim1	absent in melanoma 1	1	0	0
73622271	Ash1l	absent, small, or homeotic 1-like	0	2	0
124487344	Esf1	ABT1-associated protein	1	0	1
21313520	Aacs	acetoacetyl-CoA synthetase	1	0	1
21450129	Acat1	acetyl-Coenzyme A acetyltransferase 1 precursor	16	14	0
148747461	Acat2	acetyl-Coenzyme A acetyltransferase 2	2	0	0
110625948	Acat3	acetyl-Coenzyme A acetyltransferase 3	3	0	0

18700004	Acaa1a	acetyl-Coenzyme A acyltransferase 1	16	1	1
22122797	Acaa1b	acetyl-Coenzyme A acyltransferase 1B	1	0	0
29126205	Acaa2	acetyl-Coenzyme A acyltransferase 2 (mitochondrial 3-oxoacyl-Coenzyme A thiolase)	21	18	4
241982696	Aaas	achalasia, adrenocortical insufficiency, alacrimia	0	0	3
226693369	Gaa	acid alpha-glucosidase	7	0	0
31542070	Acp1	acid phosphatase 1, soluble isoform 1	4	0	0
29150253	Acp2	acid phosphatase 2, lysosomal	1	1	0
66773165	Acp6	acid phosphatase 6, lysophosphatidic	4	0	0
40254600	Anp32a	acidic (leucine-rich) nuclear phosphoprotein 32 family, member A	8	0	2
18700032	Anp32b	acidic (leucine-rich) nuclear phosphoprotein 32 family, member B	7	1	1
254587996	Anp32e	acidic (leucine-rich) nuclear phosphoprotein 32 family, member E	5	0	2
24418931	Dnttip2	acidic 82 kDa protein	1	0	9
110347487	Aco1	aconitase 1	2	0	0
18079339	Aco2	aconitase 2, mitochondrial	32	0	15
31982370	Afap111	actin filament associated protein 1-like 1	1	0	0
295317359	Afap112	actin filament associated protein 1-like 2	0	0	1
9790221	Arpc1a	actin related protein 2/3 complex, subunit 1A	0	1	0
160837788	Arpc1b	actin related protein 2/3 complex, subunit 1B	1	12	8
112363072	Arpc2	actin related protein 2/3 complex, subunit 2	10	19	12
9790141	Arpc3	actin related protein 2/3 complex, subunit 3	4	8	7
281427244	Arpc4	actin related protein 2/3 complex, subunit 4	3	8	4
224809382	Arpc5	actin related protein 2/3 complex, subunit 5	1	3	3
21312654	Arpc5l	actin related protein 2/3 complex, subunit 5-like	1	8	3
6752954	Actg1	actin, gamma, cytoplasmic 1	19	21	24
157057174	Ablim1	actin-binding LIM protein 1 isoform 3	0	0	12
11230802	Actn4	actinin alpha 4	34	47	30
61097906	Actn1	actinin, alpha 1	27	37	24
189181668	Actl6a	actin-like 6A	1	13	5
22122825	Actr2	actin-related protein 2	8	14	11
31791059	Alcam	activated leukocyte cell adhesion molecule	8	0	0
20270208	Ascc2	activating signal cointegrator 1 complex subunit 2	0	1	0
225703072	Ascc3	activating signal cointegrator 1 complex subunit 3 isoform 2	1	0	0
86604724	Atf1	activating transcription factor 1	0	1	0
68799916	Atf2	activating transcription factor 2 isoform 1	0	1	0
22122515	Ahsa1	activator of heat shock 90kDa protein ATPase homolog 1	3	0	1
300192925	Dbf4	activator of S phase kinase	0	1	0
160358785	Acvr2a	activin A receptor, type IIA precursor	1	0	1
90093349	Adnp	activity-dependent neuroprotective protein	0	1	4
46518528	Acsl4	acyl-CoA synthetase long-chain family member 4 isoform 1	7	0	0
58218988	Acsl5	acyl-CoA synthetase long-chain family member 5	3	0	0
31980996	Acss2	acyl-CoA synthetase short-chain family member 2	0	1	0
13385260	Acot13	acyl-CoA thioesterase 13	3	0	0
238624114	Acot2	acyl-CoA thioesterase 2	4	0	0
225690614	Acot7	acyl-CoA thioesterase 7 isoform 2	6	2	0
254587964	Acot8	acyl-CoA thioesterase 8	2	4	0
31980998	Acot9	acyl-CoA thioesterase 9	10	0	0
229608928	Acbd3	acyl-Coenzyme A binding domain containing 3	11	0	0
156255165	Acbd5	acyl-Coenzyme A binding domain containing 5 isoform b	1	0	2



74271799	Acad11	acyl-Coenzyme A dehydrogenase family, member 11	0	2	0
118403322	Acad8	acyl-Coenzyme A dehydrogenase family, member 8	5	0	0
23956084	Acadvl	acyl-Coenzyme A dehydrogenase, very long chain	30	5	2
66793429	Acox1	acyl-Coenzyme A oxidase 1	12	15	0
13384810	Acyp1	acylphosphatase 1	5	2	0
150378458	Adam10	ADAM metallopeptidase domain 10	5	0	1
165905595	Adamtsl5	ADAMTS-like 5 isoform 1	1	0	1
88853578	Ap1b1	adaptor protein complex AP-1, beta 1 subunit	26	19	13
56744242	Ap1g1	adaptor protein complex AP-1, gamma 1 subunit	15	4	3
160707961	Ap1g2	adaptor protein complex AP-1, gamma 2 subunit	1	0	0
160333508	Ap1m2	adaptor protein complex AP-1, mu 2 subunit isoform 2	8	1	2
6671559	Ap1s1	adaptor protein complex AP-1, sigma 1	1	2	0
163644277	Ap2a2	adaptor protein complex AP-2, alpha 2 subunit	8	22	14
6753074	Ap2m1	adaptor protein complex AP-2, mu1	1	13	3
40254484	Ap1s2	adaptor-related protein complex 1 sigma 2 subunit	0	1	0
78711838	Ap2b1	adaptor-related protein complex 2, beta 1 subunit isoform a	5	19	11
161086984	Ap2s1	adaptor-related protein complex 2, sigma 1 subunit	1	5	0
163310776	Ap3b1	adaptor-related protein complex 3, beta 1 subunit	2	0	0
6671565	Ap3d1	adaptor-related protein complex 3, delta 1 subunit	3	0	0
6753078	Ap3s1	adaptor-related protein complex 3, sigma 1 subunit	0	0	1
6671557	Ap1m1	adaptor-related protein complex AP-1, mu subunit 1	4	0	0
35215317	Ap1s3	adaptor-related protein complex AP-1, sigma 3	1	1	0
90568303	Asxl1	additional sex combs like 1	0	0	1
156255173	Add1	adducin 1 (alpha) isoform 1	1	14	3
255759892	Add3	adducin 3 (gamma)	0	8	0
118601013	Aprt	adenine phosphoribosyltransferase	5	0	5
110225370	Apc	adenomatosis polyposis coli	0	1	0
226371684	Adar	adenosine deaminase, RNA-specific isoform 3	0	1	0
19527306	Adk	adenosine kinase	5	0	0
66792802	Ampd3	adenosine monophosphate deaminase 3	1	0	0
86604721	Adcy6	adenylate cyclase 6	1	0	0
77020262	Ak2	adenylate kinase 2 isoform b	12	2	0
23956104	Ak3	adenylate kinase 3	14	0	3
29788764	Adsl	adenylosuccinate lyase	7	0	0
31560737	Adss	adenylosuccinate synthase	1	0	0
6671519	Adssl1	adenylosuccinate synthase like 1	3	0	0
31981027	Adrm1	adhesion regulating molecule 1	2	0	0
116235489	Adfp	adipose differentiation related protein	10	0	0
194353962	Arf1	ADP-ribosylation factor 1	9	8	9
6680720	Arf4	ADP-ribosylation factor 4	1	0	2
6680722	Arf5	ADP-ribosylation factor 5	3	0	5
6680724	Arf6	ADP-ribosylation factor 6	4	6	5
156231075	Arfgef1	ADP-ribosylation factor guanine nucleotide-exchange factor 1(brefeldin A-inhibited)	0	0	2
148229140	Arfgef2	ADP-ribosylation factor guanine nucleotide-exchange factor 2 (brefeldin A-inhibited)	1	0	0
124487362	Arfp1	ADP-ribosylation factor interacting protein 1	6	0	1
228008331	Arfp2	ADP-ribosylation factor interacting protein 2	1	0	0
260763874	Arfrp1	ADP-ribosylation factor related protein 1	2	0	0
153792526	Arl1	ADP-ribosylation factor-like 1	4	0	5
13385518	Arl8b	ADP-ribosylation factor-like 10C	2	0	1
27369856	Arl15	ADP-ribosylation factor-like 15	1	0	0
9789881	Arl3	ADP-ribosylation factor-like 3	2	0	0

13384792	Arl4d	ADP-ribosylation factor-like 4D	0	0	2
33695144	Arl5a	ADP-ribosylation factor-like 5	0	0	1
188528681	Arl6	ADP-ribosylation factor-like 6	0	0	1
45433590	Arl6ip1	ADP-ribosylation factor-like 6 interacting protein 1	1	0	0
14149750	Arl6ip5	ADP-ribosylation factor-like 6 interacting protein 5	2	0	0
23956194	Arl8a	ADP-ribosylation factor-like 8A	3	1	3
254281227	Arl6ip6	ADP-ribosylation-like factor 6-interacting protein 6	1	0	3
66792806	Afg3l1	AFG3(ATPase family gene 3)-like 1	2	0	0
110625761	Afg3l2	AFG3(ATPase family gene 3)-like 2	1	0	0
42490751	Agm	agrin	0	1	0
90403607	Ahnak	AHNAK nucleoprotein isoform 1	62	146	78
31981662	Jub	ajuba	0	0	1
110347489	Akap1	A-kinase anchor protein 1	0	0	3
190883484	Akt3	AKT3 kinase	0	1	0
34610207	Aars	alanyl-tRNA synthetase	12	1	0
34328288	Aldh3b1	aldehyde dehydrogenase 3 family, member B1	3	1	2
75677435	Aldh3a2	aldehyde dehydrogenase 3A2	4	0	1
115334671	Aldh9a1	aldehyde dehydrogenase 9A1	6	1	0
19527258	Aldh6a1	aldehyde dehydrogenase family 6, subfamily A1	18	0	0
10946870	Akr1a4	aldo-keto reductase family 1, member A4 (aldehyde reductase)	1	0	0
160707894	Akr1b3	aldo-keto reductase family 1, member B1	13	0	3
85719330	Akr1c12	aldo-keto reductase family 1, member C12	3	0	0
282398141	Akr1c19	aldo-keto reductase family 1, member C19	7	0	1
240120054	Akr7a5	aldo-keto reductase family 7, member A5 (aflatoxin aldehyde reductase)	2	0	0
60687506	Aldoc	aldolase C, fructose-bisphosphate	3	0	0
31044423	Alkbh5	alkB, alkylation repair homolog 5	0	4	0
61675696	Alkbh8	alkB, alkylation repair homolog 8	0	1	0
295444834	Agps	alkyldihydroxyacetone phosphate synthase	6	6	3
21553105	Aif1l	allograft inflammatory factor 1-like	2	3	1
219689066	1500010J02Rik	alpha accessory factor 132 isoform a	0	1	0
38194222	Mare	alpha globin regulatory element containing	1	0	1
8394027	Ppp2r1a	alpha isoform of regulatory subunit A, protein phosphatase 2	17	16	5
254540097	3222402P14Rik	alpha isoform of regulatory subunit B, protein phosphatase 2	0	1	0
154091016	Atrx	alpha thalassemia/mental retardation syndrome X-linked homolog	1	1	4
172072657	Alg2	alpha-1,3-mannosyltransferase ALG2	2	0	0
255003748	Alg3	alpha-1,3-mannosyltransferase ALG3	0	0	1
242118003	Wdr81	alpha-2-plasmin inhibitor	1	1	0
254910995	Naglu	alpha-N-acetylglucosaminidase	6	2	1
237757295	Als2	alsin isoform 1	1	0	0
224994233	Kdm1	amine oxidase (flavin containing) domain 2	1	18	4
288541337	Aimp2	aminoacyl tRNA synthetase complex-interacting multifunctional protein 2	3	0	0
110625916	2010111I01Rik	aminopeptidase O	0	1	0
68226731	Npepps	aminopeptidase puromycin sensitive	9	0	0
47523981	Npepl1	aminopeptidase-like 1	2	0	0
334848200	Ammecr1l	AMME chromosomal region gene 1-like	1	0	0
23956234	Prkab1	AMP-activated protein kinase beta 1 non-catalytic subunit	0	0	1
282847331	Prkag2	AMP-activated protein kinase gamma2 subunit	1	0	0

124107596	Prkag1	AMP-activated protein kinase, noncatalytic gamma-1 subunit	4	0	4
124486747	Agl	amylo-1,6-glucosidase, 4-alpha-glucanotransferase	1	0	0
311893408	App	amyloid beta (A4) precursor protein	6	2	0
319738665	Apbb2	amyloid beta (A4) precursor protein-binding, family B, member 2	0	1	0
156255194	Aplp2	amyloid beta (A4) precursor-like protein 2 isoform c	3	2	1
228008323	Anapc1	anaphase promoting complex subunit 1	1	2	0
35900980	Anapc10	anaphase promoting complex subunit 10	0	2	0
254281282	Anapc7	anaphase promoting complex subunit 7	0	3	0
34328275	Aggf1	angiogenic factor with G patch and FHA domains 1	0	0	1
119120838	Amotl2	angiomin like 2	0	1	0
124487107	Amotl1	angiomin-like 1	1	0	0
251823794	Anln	anillin	0	1	0
261862329	Rai14	ankycorbin	0	1	6
116256505	Ank3	ankyrin 3, epithelial isoform c	0	3	0
85702366	Ankyf1	ankyrin repeat and FYVE domain containing 1	1	0	0
114205426	Asb3	ankyrin repeat and SOCS box-containing protein 3	1	0	0
17505202	Asb4	ankyrin repeat and SOCS box-containing protein 4	1	0	0
31088892	Anks1	ankyrin repeat and sterile alpha motif domain containing 1	0	1	1
323423025	Ankrd11	ankyrin repeat domain 11	0	0	1
71834683	Ankrd12	ankyrin repeat domain 12	0	1	0
61651675	Ankrd13a	ankyrin repeat domain 13a	0	0	1
67972431	Ankrd13c	ankyrin repeat domain 13c	0	0	1
261878577	Ankrd24	ankyrin repeat domain 24	1	0	0
124487433	Ankrd26	ankyrin repeat domain 26	1	0	0
167466274	Ankrd32	ankyrin repeat domain 32	1	0	0
268607611	Ankrd50	ankyrin repeat domain 50	1	0	0
124517663	Anxa1	annexin A1	26	0	2
160707921	Anxa11	annexin A11	9	0	2
6996913	Anxa2	annexin A2	6	18	5
160707925	Anxa3	annexin A3	1	0	0
161016799	Anxa4	annexin A4	18	2	1
6753060	Anxa5	annexin A5	19	0	4
31981302	Anxa6	annexin A6 isoform a	28	1	1
160707958	Anxa7	annexin A7	5	0	1
145864497	Anxa9	annexin A9	10	19	18
169234624	Mki67	antigen identified by monoclonal antibody Ki 67	1	8	1
258613873	Apip	APAF1 interacting protein	2	0	0
6753086	Apex1	APEX nuclease 1	5	17	2
21553309	Apoa1bp	apolipoprotein A-I binding protein	6	0	0
313569874	Apoo	apolipoprotein O	2	0	1
13386062	Apool	apolipoprotein O-like	2	0	7
9790013	Aatf	apoptosis antagonizing transcription factor	0	0	5
94158994	Api5	apoptosis inhibitor 5	2	19	3
6755004	Aifm1	apoptosis-inducing factor, mitochondrion-associated 1	23	2	9
194394197	Acin1	apoptotic chromatin condensation inducer 1 isoform 2	0	18	14
160415209	Aqp2	aquaporin 2	4	1	3
163644327	Aqr	aquarius	0	13	11
148747410	Arcn1	archain 1	12	0	2
206597526	Ddef2	ArfGAP with SH3 domain, ankyrin repeat and PH domain 2 isoform b	0	1	1
269973913	Sfrs14	arginine/serine-rich 14 splicing factor	0	1	0

53988376	Rsrc2	arginine/serine-rich coiled-coil 2 isoform 1	0	1	0
224967104	Sfrs6	arginine/serine-rich splicing factor 6	5	2	5
19526986	Asl	argininosuccinate lyase	2	0	0
6996911	Ass1	argininosuccinate synthetase 1	2	0	0
318065085	Rnpepl1	arginyl aminopeptidase (aminopeptidase B)-like 1	0	0	1
227499234	Rnpep	arginyl aminopeptidase isoform 1	8	0	1
262118273	Rars	arginyl-tRNA synthetase	21	2	0
40254129	Arvcf	armadillo repeat gene deleted in velo-cardio-facial syndrome	0	0	2
21312676	Armc1	armadillo repeat-containing protein	1	0	0
8392847	Actr1a	ARP1 actin-related protein 1 homolog A, centractin alpha	7	9	1
22122615	Actr1b	ARP1 actin-related protein 1 homolog B, centractin beta	2	1	0
329664973	Actr3	ARP3 actin-related protein 3 homolog	10	17	12
91176335	Actr5	ARP5 actin-related protein 5 homolog	0	7	0
188528622	Actr8	ARP8 actin-related protein 8 homolog	0	2	0
12025542	Asna1	arsA arsenite transporter, ATP-binding, homolog 1	4	0	1
158186674	Srrt	arsenate resistance protein 2 isoform 1	4	23	4
30520239	Nceh1	arylacetamide deacetylase-like 1	10	0	1
7709982	Aip	aryl-hydrocarbon receptor-interacting protein	5	0	0
67972647	Arsa	arylsulfatase A	7	0	0
125656171	Arsb	arylsulfatase B	1	1	0
13384964	Asf1a	ASF1 anti-silencing function 1 homolog A	0	5	0
124248552	Ash2l	ash2-like isoform b	0	9	1
33469123	Asns	asparagine synthetase	2	0	0
13195608	Alg14	asparagine-linked glycosylation 14 homolog	0	0	1
19527202	Alg9	asparagine-linked glycosylation 9 protein	0	0	1
219276601	Nars	asparaginyl-tRNA synthetase isoform 2	2	6	0
295390613	Asph	aspartate beta-hydroxylase isoform 1	13	1	4
161016822	Dnpep	aspartyl aminopeptidase isoform b	9	0	0
326439050	Aga	aspartylglucosaminidase	5	0	0
27369928	Dars2	aspartyl-tRNA synthetase 2, mitochondrial	1	0	0
210147402	Dars	aspartyl-tRNA synthetase isoform 1	23	19	1
158508460	Ahctf1	AT hook containing transcription factor 1	0	2	9
124249109	Arid1a	AT rich interactive domain 1A	0	5	1
145553997	Arid1b	AT rich interactive domain 1B (Swi1 like)	0	1	0
262231796	Arid2	AT rich interactive domain 2 (ARID, RFX-like)	0	4	0
189339266	Atr	ataxia telangiectasia and rad3 related	1	0	0
163838660	Atm	ataxia telangiectasia mutated	0	2	0
83649709	Atxn10	ataxin 10	1	0	1
33942089	Atxn2l	ataxin 2-like	1	1	0
313151222	Acly	ATP citrate lyase	21	0	1
78214312	Atp5f1	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit b, isoform 1	7	3	8
21313679	Atp5h	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit d	7	1	9
10181184	Atp5j2	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit f, isoform 2	2	0	2
31980744	Atp5l	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit G	1	0	2
6680748	Atp5a1	ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit, isoform 1	33	5	20
166851828	Atp5d	ATP synthase, H+ transporting, mitochondrial F1 complex, delta subunit precursor	6	3	2

13385484	Atp5e	ATP synthase, H+ transporting, mitochondrial F1 complex, epsilon subunit	2	0	0
163838648	Atp5c1	ATP synthase, H+ transporting, mitochondrial F1 complex, gamma subunit isoform a	11	1	6
20070412	Atp5o	ATP synthase, H+ transporting, mitochondrial F1 complex, O subunit	10	7	9
83715998	Atp5k	ATP synthase, H+ transporting, mitochondrial F1F0 complex, subunit e	5	1	2
31560168	Atad1	ATPase family, AAA domain containing 1	1	0	8
91199557	Atad2	ATPase family, AAA domain containing 2	0	0	31
153791220	Atad2b	ATPase family, AAA domain containing 2B	0	0	23
22122505	Atad4	ATPase family, AAA domain containing 4	0	0	1
31982864	Atpif1	ATPase inhibitory factor 1	6	4	0
283135194	Atp13a1	ATPase type 13A1	0	1	0
158635979	Atp2a2	ATPase, Ca++ transporting, slow twitch 2 isoform b	8	0	0
320089590	Atp9b	ATPase, class II, type 9B	1	0	0
7656914	Atp11a	ATPase, class VI, type 11A	1	0	0
157951682	Atp7a	ATPase, Cu++ transporting, alpha polypeptide isoform 2	2	0	0
12025532	Atp6v0a1	ATPase, H+ transporting, lysosomal V0 subunit a1	0	0	4
83627707	Atp6v0a2	ATPase, H+ transporting, lysosomal V0 subunit A2	0	0	1
6753144	Atp6v0c	ATPase, H+ transporting, lysosomal V0 subunit C	1	0	3
31560731	Atp6v1a	ATPase, H+ transporting, lysosomal V1 subunit A	19	0	16
189339262	Atp6v1c1	ATPase, H+ transporting, lysosomal V1 subunit C1	2	0	1
31981588	Atp6v1h	ATPase, H+ transporting, lysosomal V1 subunit H	5	0	5
31981304	Atp6v0d1	ATPase, H+ transporting, V0 subunit D isoform 1	11	1	10
12963799	Atp6v1d	ATPase, H+ transporting, V1 subunit D	2	0	0
88853071	Abca3	ATP-binding cassette, sub-family A (ABC1), member 3	1	0	0
15451840	Abca7	ATP-binding cassette, sub-family A, member 7	1	0	0
169234938	Abcb7	ATP-binding cassette, sub-family B (MDR/TAP), member 7	6	0	0
90403595	Abcc3	ATP-binding cassette, sub-family C (CFTR/MRP), member 3	2	0	0
255683328	Abcc4	ATP-binding cassette, sub-family C (CFTR/MRP), member 4	3	0	0
6678848	Abcc1	ATP-binding cassette, sub-family C, member 1	10	0	2
6671497	Abcd1	ATP-binding cassette, sub-family D, member 1	0	1	0
60218877	Abcd3	ATP-binding cassette, sub-family D, member 3	16	0	22
114205431	Abce1	ATP-binding cassette, subfamily E, member 1	4	0	0
39930335	Abcf1	ATP-binding cassette, sub-family F (GCN20), member 1	5	5	0
299473734	Abcf2	ATP-binding cassette, sub-family F (GCN20), member 2	0	5	0
116268115	Auh	AU RNA binding protein/enoyl-Coenzyme A hydratase	1	0	0
13386102	Rnaseh2c	AYP1 protein	0	4	0
145587077	Bdp1	B double prime 1, subunit of RNA polymerase III transcription initiation factor IIIB	0	1	1
59859890	Birc5	baculoviral IAP repeat-containing 5 isoform 1	0	1	0
133922596	Birc6	baculoviral IAP repeat-containing 6	8	0	0
21313234	Baiap2l1	BAI1-associated protein 2-like 1	0	5	1
46519149	Heatr1	BAP28 protein	0	3	29
84042521	Banf1	barrier to autointegration factor 1	2	2	7
10048460	Bcam	basal cell adhesion molecule	4	0	0
6755680	Bhlhe40	basic helix-loop-helix family, member e40	0	0	1
13385296	Bzw1	basic leucine zipper and W2 domains 1	2	0	0
31981160	Bzw2	basic leucine zipper and W2 domains 2	1	0	1
237649007	Blzf1	basic leucine zipper nuclear factor 1 isoform a	0	0	1
281485611	Btf3	basic transcription factor 3	5	3	0

29789195	Btf3l4	basic transcription factor 3-like 4	3	1	0
116014342	Bsg	basigin isoform 1	10	0	0
22296593	Bcl7a	B-cell CLL/lymphoma 7A	0	2	0
6753176	Bcl7c	B-cell CLL/lymphoma 7C	0	2	1
56606137	Bcl9	B-cell CLL/lymphoma 9	0	1	0
6671620	Bcap29	B-cell receptor-associated protein 29	2	0	1
31981310	Bcap31	B-cell receptor-associated protein 31	7	0	3
126723336	Phb2	B-cell receptor-associated protein 37	16	3	13
21312030	1110007C09Rik	Bcl10-interacting protein with Card	0	0	2
33239415	Pthr2	Bcl-2 inhibitor of transcription isoform a	4	2	5
255003752	Bnip1	BCL2/adenovirus E1B interacting protein 1	4	0	0
111955302	Bak1	BCL2-antagonist/killer 1	2	0	7
6671610	Bad	BCL2-associated agonist of cell death	1	0	0
21703784	Bag2	Bcl2-associated athanogene 2	3	3	8
70906449	Bclaf1	BCL2-associated transcription factor 1 isoform 2	2	3	5
6680770	Bax	Bcl2-associated X protein	1	0	0
23943828	Bcl2l13	BCL2-like 13	7	0	0
7949082	Bok	BCL2-related ovarian killer protein	0	0	1
269995993	Bcor	BCL-6 interacting corepressor isoform d	0	1	1
21313544	Bcs1l	BCS1-like	2	0	0
189339268	B4galnt1	beta-1,4-N-acetyl-galactosaminyl transferase 1 isoform 1	2	0	0
225543122	Bace1	beta-site APP cleaving enzyme 1 isoform 1	1	0	0
163838766	Bicd1	bicaudal D homolog 1 isoform 2	1	0	1
124487331	Blvra	biliverdin reductase A	4	0	0
21450325	Blvrb	biliverdin reductase B (flavin reductase (NADPH))	4	0	2
31980697	Bloc1s1	biogenesis of lysosome-related organelles complex-1, subunit 1	1	0	0
124487265	Bod1l	biorientation of chromosomes in cell division 1-like	1	13	0
21624609	Bphl	biphenyl hydrolase-like (serine hydrolase, breast epithelial mucin-associated antigen)	7	0	0
114326546	Pgam1	bisphosphoglycerate mutase 1	18	1	9
30519997	Blmh	bleomycin hydrolase	2	0	0
7304931	Bop1	block of proliferation 1	1	0	6
226693393	Blm	Bloom syndrome protein homolog isoform 1	1	0	0
46559391	Bmi1	Bmi1 polycomb ring finger oncogene	0	2	0
18129622	Bmp2k	BMP2 inducible kinase	0	0	1
39930555	Bms1	BMS1-like, ribosome assembly protein	0	2	8
58037151	Bola1	bolA-like 1	4	0	0
45598372	Basp1	brain abundant, membrane attached signal protein 1	5	7	5
24418919	Pygb	brain glycogen phosphorylase	19	0	6
21312594	Brp44	brain protein 44	2	0	0
9055178	Brp44l	brain protein 44-like	0	0	1
262231776	Baiap2	brain-specific angiogenesis inhibitor 1-associated protein 2 isoform c	7	14	3
6753164	Bckdk	branched chain ketoacid dehydrogenase kinase	1	2	0
262050570	Brcc3	BRCA1/BRCA2-containing complex, subunit 3	1	0	0
161016835	Brca1	breast cancer 1	0	0	1
124487411	Brca2	breast cancer 2	0	0	1
83649717	Brms1l	breast cancer metastasis-suppressor 1-like	0	1	0
70906453	Bcas2	breast carcinoma amplified sequence 2	0	9	6
58037467	Bri3bp	Bri3 binding protein	2	1	3
134053947	Bin1	bridging integrator 1 isoform 1	1	0	0
10946638	Bin3	bridging integrator 3	0	0	1

141802630	Bxdc2	BRIX	0	0	3
110347521	Bxdc1	brix domain containing 1 isoform 2	0	0	5
189339272	Baz1a	bromodomain adjacent to zinc finger domain 1A	1	21	4
170295818	Baz1b	bromodomain adjacent to zinc finger domain, 1B	0	17	25
114205435	Baz2a	bromodomain adjacent to zinc finger domain, 2A	0	3	2
62177117	Baz2b	bromodomain adjacent to zinc finger domain, 2B	1	1	0
157057184	Brdw1	bromodomain and WD repeat domain containing 1 isoform A	1	0	1
125490358	Brdw3	bromodomain and WD repeat domain containing 3	1	0	0
164698417	Brd1	bromodomain containing 1	0	0	3
71067345	Brd2	bromodomain containing 2 isoform a	0	2	0
165972335	Brd3	bromodomain containing 3 isoform 2	0	7	0
226246640	Brd4	bromodomain containing 4 isoform 1	1	8	0
6755234	Brd7	bromodomain containing 7	0	5	1
185134208	Brd8	bromodomain containing 8	0	8	0
112817628	Brd9	bromodomain containing 9	0	1	0
140969817	Bptf	bromodomain PHD finger transcription factor	1	11	2
123858774	Btaf1	BTAf1 RNA polymerase II, B-TFIID transcription factor-associated	1	2	4
158534069	Banp	Btg3 associated nuclear protein isoform 2	1	2	0
31560618	Bub3	budding uninhibited by benzimidazoles 3 homolog	2	10	0
164698440	Bysl	bystin-like	1	1	2
7305107	Grcc10	C10 protein	0	1	0
31542251	C1d	C1D nuclear receptor co-repressor	0	1	0
162951870	Abl1	c-abl oncogene 1, receptor tyrosine kinase isoform b	0	1	0
6753374	Cdh1	cadherin 1	14	5	10
6680900	Cdh16	cadherin 16	24	0	2
83715978	Cdh3	cadherin 3 isoform b	0	0	1
70995287	Cabin1	calcineurin binding protein 1	0	2	1
21450201	Cbara1	calcium binding atopy-related autoantigen 1	3	3	2
161086893	Cab39	calcium binding protein 39	3	0	0
31541826	Cab39l	calcium binding protein 39-like	6	0	0
9790225	1500003O03Rik	calcium binding protein P22	4	1	1
295444836	Cacna1g	calcium channel, voltage-dependent, T type, alpha 1G subunit isoform b	0	1	1
85362742	Camk2g	calcium/calmodulin-dependent protein kinase II gamma isoform 2	2	1	0
70906479	Camk2d	calcium/calmodulin-dependent protein kinase II, delta isoform 3	3	6	0
21703722	Camkk2	calcium/calmodulin-dependent protein kinase kinase 2, beta	0	1	1
133504495	Cask	calcium/calmodulin-dependent serine protein kinase	1	0	1
27369998	Slc25a24	calcium-binding transporter	16	0	1
13385290	Carhsp1	calcium-regulated heat-stable protein (24kD)	1	0	0
33468885	Cacybp	calcyclin binding protein	3	0	0
21704156	Cald1	caldesmon 1	1	5	0
100816903	Clmn	calmin isoform a	0	2	17
6680834	Calm3	calmodulin 3	3	6	8
30017453	Camta2	calmodulin binding transcription activator 2	0	0	1
124486889	Camsap111	calmodulin regulated spectrin-associated protein 1-like 1	1	1	2
156447039	Calml4	calmodulin-like 4 isoform a	1	0	0
160333216	Canx	calnexin	29	1	8
160333229	Capn1	calpain 1, large subunit	21	0	1
157951598	Capn2	calpain 2	3	0	2
6680846	Capn5	calpain 5	0	0	8

110227381	Capns1	calpain, small subunit 1	7	0	1
33563246	Cast	calpastatin	5	5	0
6680952	Cnn2	calponin 2	1	0	0
21312564	Cnn3	calponin 3, acidic	2	0	6
6680836	Calr	calreticulin	22	0	2
41282022	Calu	calumenin isoform 2	11	0	0
158966707	Creb1	cAMP responsive element binding protein 1 isoform A	0	1	0
125628638	Casc5	cancer susceptibility candidate 5	1	0	0
157951604	Cap1	CAP, adenylate cyclase-associated protein 1	12	0	2
158631217	Cic	capicua homolog isoform a	0	0	1
6671672	Capza2	capping protein (actin filament) muscle Z-line, alpha 2	4	8	10
6753262	Capzb	capping protein (actin filament) muscle Z-line, beta isoform b	8	12	11
51093867	Cad	carbamoyl-phosphate synthetase 2, aspartate transcarbamylase, and dihydroorotase	1	0	0
157951596	Car2	carbonic anhydrase II	10	0	2
211057396	Car5b	carbonic anhydrase VB, mitochondrial	3	0	0
269784762	Cbr4	carbonic reductase 4	2	9	2
113680352	Cbr1	carbonyl reductase 1	2	0	0
6671688	Cbr2	carbonyl reductase 2	16	2	10
27413160	Cbr3	carbonyl reductase 3	4	0	1
158635992	Pdlim1	carboxyl terminal LIM domain protein 1	10	0	0
150378501	Cpd	carboxypeptidase D	2	0	0
189458849	Cpm	carboxypeptidase M	1	0	6
15638942	lft81	carnitine deficiency-associated gene expressed in ventricle 1	0	0	1
17157983	Crot	carnitine O-octanoyltransferase	10	0	1
162287142	Cpt1a	carnitine palmitoyltransferase 1A liver	17	6	10
10048462	Slc25a20	carnitine/acylcarnitine translocase	6	0	2
31542425	Csnk1e	casein kinase 1 epsilon	0	1	0
22165382	Csnk1a1	casein kinase 1, alpha 1	1	11	7
20544149	Csnk1d	casein kinase 1, delta isoform 2	0	1	1
113462019	Csnk1g3	casein kinase 1, gamma 3	0	1	0
31542427	Csnk2a1	casein kinase 2, alpha 1 polypeptide	8	9	0
6753540	Csnk2a2	casein kinase 2, alpha prime polypeptide	1	6	0
7106277	Csnk2b	casein kinase 2, beta polypeptide	5	4	0
8393156	Clpp	caseinolytic peptidase, ATP-dependent, proteolytic subunit	7	0	0
80978932	Cbl	Casitas B-lineage lymphoma	0	1	0
86198303	Cflar	CASP8 and FADD-like apoptosis regulator isoform 2	1	0	0
6753284	Casp3	caspase 3	1	0	0
6680850	Casp7	caspase 7	2	0	0
122056578	Casp8	caspase 8	2	0	0
172072595	Casp8ap2	caspase 8 associated protein 2	0	0	1
157951741	Cat	catalase	14	0	1
42475974	Pik3c3	catalytic phosphatidylinositol 3-kinase 3	0	1	0
227330565	Ctnn1	catenin (cadherin associated protein), alpha-like 1	2	4	0
260166642	Ctnnb1	catenin (cadherin associated protein), beta 1, 88kDa	7	6	25
6753294	Ctnna1	catenin alpha 1	37	23	43
254540032	Ctnnb1	catenin, beta like 1	7	19	1
146231979	Ctnnd1	catenin, delta 1 isoform 1	14	7	26
84042525	Ctsa	cathepsin A isoform a	9	0	0
6681079	Ctsb	cathepsin B preproprotein	12	1	1
160707990	Ctsc	cathepsin C preproprotein	6	1	0



6753556	Ctsd	cathepsin D	19	1	0
166235890	Ctsh	cathepsin H preproprotein	6	0	0
11968166	Ctsz	cathepsin Z preproprotein	3	0	0
6680854	Cav1	caveolin 1, caveolae protein	1	2	3
18702317	Cav2	caveolin 2	4	1	3
254692991	Exosc8	CBP-interacting protein 3 isoform 2	0	8	1
6753404	Cebpb	CCAAT/enhancer binding protein beta	0	1	1
61966683	Cebpg	CCAAT/enhancer binding protein gamma	0	1	0
67188876	Cebpz	CCAAT/enhancer binding protein zeta	0	5	4
31044459	Ctcf	CCCTC-binding factor	0	24	4
327315392	Cnot1	CCR4-NOT transcription complex, subunit 1 isoform 2	1	1	0
22122717	Cnot3	CCR4-NOT transcription complex, subunit 3	1	0	0
19526794	Cd81	CD 81 antigen	1	0	0
161353456	Cd151	CD151 antigen	1	0	0
17505208	Cd2bp2	CD2 antigen (cytoplasmic tail) binding protein 2	0	0	1
125987599	Cd2ap	CD2-associated protein	9	14	0
6754382	Cd47	CD47 antigen	2	0	0
209862915	Cd82	CD82 antigen isoform 1	2	0	0
6680894	Cd9	CD9 antigen	3	0	0
68448515	Cdc16	CDC16 cell division cycle 16 homolog	0	3	0
30387632	Cdc23	CDC23 (cell division cycle 23, yeast, homolog)	0	2	0
157816961	Crks	Cdc2-related kinase, arginine/serine-rich isoform 3	1	1	0
283135190	Cdc42bbp	CDC42 binding protein kinase beta	2	15	1
84781706	Cdc42se1	CDC42 small effector 1 isoform 1	1	0	0
111038135	Clk1	CDC-like kinase 1 isoform 2	0	0	1
254540152	Clk2	CDC-like kinase 2 isoform 1	0	0	1
83745112	Clk3	CDC-like kinase 3	0	1	0
19527228	Cisd1	CDGSH iron sulfur domain 1	5	0	4
49355794	Cdk2ap1	CDK2 (cyclin-dependent kinase 2)-associated protein 1	0	1	0
13384788	Cdk5rap3	CDK5 regulatory subunit associated protein 3	2	0	0
19882247	Ciz1	CDKN1A interacting zinc finger protein 1	0	1	0
167234439	Fam20c	cDNA sequence BC004044	2	0	0
31712002	Edc4	cDNA sequence BC022641	1	1	6
41235733	Lymr4	cDNA sequence BC034664	6	1	0
28076897	Cdipt	CDP-diacylglycerol-inositol 3-phosphatidyltransferase isoform 2	5	1	1
166998947	Ccpg1	cell cycle progression 1 isoform 2	0	0	2
329299065	Sept7	cell division cycle 10 homolog	2	15	0
31542366	Cdc2a	cell division cycle 2	0	1	0
92373436	Cdc25a	cell division cycle 25A	0	0	1
161621261	Cdc25b	cell division cycle 25B isoform a	0	0	1
189409171	Cdc2l5	cell division cycle 2-like 5 (cholinesterase-related cell division controller) isoform 1	0	1	0
7949018	Cdc37	cell division cycle 37 homolog	3	0	0
198278501	Cdc40	cell division cycle 40 homolog	0	0	4
6753364	Cdc42	cell division cycle 42	8	7	6
22779899	Cdc5l	cell division cycle 5-like	0	17	10
126032303	Cdc7	cell division cycle 7	1	0	0
33563288	Ccar1	cell division cycle and apoptosis regulator 1	2	22	0
7305111	Cdca3	cell division cycle associated 3	0	1	0
21313220	Cdca7	cell division cycle associated 7	0	0	2
38372905	Rab8a	cell line NK14 derived transforming oncogene	3	2	2
157909784	Cnbp	cellular nucleic acid binding protein isoform 3	4	4	1
33469075	Crabp2	cellular retinoic acid binding protein II	6	0	1

10257421	Cetn2	centrin 2	0	3	0
6680922	Cetn3	centrin 3	0	1	1
115648101	Cenpe	centromere protein E	1	0	0
189458891	Cenpf	centromere protein F	0	1	1
225543405	Cenpj	centromere protein J	1	0	1
29789150	Cenpp	centromere protein P	0	1	0
225703070	Cenpv	centromere protein V	0	0	2
22165349	Zw10	centromere/kinetochore protein zw10	1	0	0
323462178	Cep110	centrosomal protein 110	0	1	0
124487356	Cep152	centrosomal protein 152	0	1	0
256355032	Cep55	centrosomal protein 55	1	1	0
124301210	Cspp1	centrosome and spindle pole associated protein 1	1	0	1
30520001	Cggbp1	CGG triplet repeat binding protein 1	0	10	0
6753320	Cct3	chaperonin containing Tcp1, subunit 3 (gamma)	19	6	6
6753322	Cct4	chaperonin containing Tcp1, subunit 4 (delta)	15	8	2
6671702	Cct5	chaperonin containing Tcp1, subunit 5 (epsilon)	16	6	4
6753324	Cct6a	chaperonin containing Tcp1, subunit 6a	14	10	6
238814391	Cct7	chaperonin containing Tcp1, subunit 7 (eta)	17	6	3
126521835	Cct2	chaperonin subunit 2 (beta)	28	8	4
126723461	Cct8	chaperonin subunit 8 (theta)	27	20	1
31542385	Chek1	checkpoint kinase 1	1	0	0
188497681	Chfr	checkpoint with forkhead and ring finger domains	1	0	0
31982017	Cx3cl1	chemokine (C-X3-C motif) ligand 1	0	0	1
6753436	Clcn7	chloride channel 7	0	0	1
295293090	Clcc1	chloride channel CLIC-like 1	3	0	1
15617203	Clic1	chloride intracellular channel 1	11	1	8
7304963	Clic4	chloride intracellular channel 4 (mitochondrial)	1	3	0
21359827	Chmp7	CHMP family, member 7	1	0	0
210031293	Chdh	choline dehydrogenase	15	1	1
253683458	Pcyt1a	choline phosphate cytidyltransferase 1 alpha	1	0	1
226442811	Chpt1	choline phosphotransferase 1 isoform 2	1	0	0
12963733	Slc44a4	choline transporter-like protein 4	0	0	1
31559983	Cept1	choline/ethanolaminephosphotransferase 1	3	0	2
36031035	Smc3	chondroitin sulfate proteoglycan 6	3	49	31
110681714	Chm	choroideremia	0	0	1
67782360	Esyt2	chr2 synaptotagmin	12	0	0
18860511	Chrac1	chromatin accessibility complex 1	0	3	1
21312470	Chaf1b	chromatin assembly factor 1 subunit B	0	3	0
31982546	Cdt1	chromatin licensing and DNA replication factor 1	1	0	0
21704220	Chmp1a	chromatin modifying protein 1A	1	0	1
13195618	Chmp1b	chromatin modifying protein 1B	0	1	0
21312151	Chmp2a	chromatin modifying protein 2A	0	1	0
28077049	Chmp4b	chromatin modifying protein 4B	1	1	3
147904547	Chmp6	chromatin modifying protein 6	1	0	0
21450179	Cbx7	chromobox 7	0	1	0
6671696	Cbx1	chromobox homolog 1	1	6	6
108860695	Cbx3	chromobox homolog 3	2	7	7
158966694	Cbx5	chromobox homolog 5	0	8	10
61657984	Cbx6	chromobox homolog 6	1	1	1
239985588	Chd1	chromodomain helicase DNA binding protein 1	0	0	3
189458810	Chd2	chromodomain helicase DNA binding protein 2	0	2	2
124358950	Chd3	chromodomain helicase DNA binding protein 3	2	10	0
39204553	Chd4	chromodomain helicase DNA binding protein 4	0	54	23
61742812	Chd6	chromodomain helicase DNA binding protein 6	0	1	0

12963737	Cse1l	chromosome segregation 1-like	19	0	9
84000434	Chtf8	chromosome transmission fidelity factor 8	0	0	1
189458807	Cgn	cingulin	1	5	22
56550079	Cgnl1	cingulin-like 1	0	0	1
163954951	Cirh1a	cirhin	0	0	8
23956166	3300001P08Rik	cisplatin resistance-associated overexpressed protein	1	7	2
13385942	Cs	citrate synthase	12	8	2
266458391	Kras	c-K-ras2 protein	2	3	3
225543339	Clspn	claspin	1	0	0
31982511	Adh5	class III alcohol dehydrogenase, chi subunit	6	0	0
31560625	Adh7	class IV alcohol dehydrogenase, mu or sigma subunit	6	0	0
154240730	Clint1	clathrin interactor 1	14	0	3
51491845	Cltc	clathrin, heavy polypeptide (Hc)	68	53	66
30794164	Cltb	clathrin, light polypeptide (Lcb)	2	1	4
122939198	Clta	clathrin, light polypeptide A isoform a	2	2	4
6753438	Cldn3	claudin 3	3	0	4
6753440	Cldn4	claudin 4	0	0	3
9055190	Cldn6	claudin 6	0	0	1
302318906	Cldn7	claudin 7	1	0	1
9055192	Cldn8	claudin 8	2	0	3
61098102	Cldn9	claudin 9	1	0	1
16751835	Cpsf1	cleavage and polyadenylation specific factor 1	0	32	5
8393762	Cpsf2	cleavage and polyadenylation specific factor 2	0	20	4
21312614	Cpsf3l	cleavage and polyadenylation specific factor 3-like	0	7	0
30466247	Cpsf4	cleavage and polyadenylation specific factor 4	0	1	0
62909983	Cpsf6	cleavage and polyadenylation specific factor 6	4	11	1
31980904	Cpsf3	cleavage and polyadenylation specificity factor 3	0	9	1
82617610	Cstf3	cleavage stimulation factor subunit 3 isoform 1	0	20	4
18875338	Cstf2	cleavage stimulation factor, &#39; pre-RNA subunit 2	0	3	1
148277061	Cstf2t	cleavage stimulation factor, &#39; pre-RNA subunit 2, tau	0	4	1
13195628	Cstf1	cleavage stimulation factor, &#39; pre-RNA, subunit 1	0	13	1
103472025	Clptm1	cleft lip and palate associated transmembrane protein 1	4	0	1
163644249	Clasp1	CLIP-associating protein 1 isoform 1	0	0	1
84871978	Mycbp	c-myc binding protein	3	4	0
31981273	Cndp2	CNDP dipeptidase 2	20	0	1
170172540	F3	coagulation factor III	4	0	0
226823359	Copa	coatamer protein complex subunit alpha	16	1	1
15426055	Copb1	coatamer protein complex, subunit beta 1	17	0	4
29789080	Copb2	coatamer protein complex, subunit beta 2 (beta prime)	7	0	3
8567340	Copg2	coatamer protein complex, subunit gamma 2	6	0	3
47059163	Copg	coatamer protein complex, subunit gamma isoform 1	13	0	7
9789913	Copz1	coatamer protein complex, subunit zeta 1	3	2	0
189458847	Cobl1	Cobl-like 1 isoform 1	7	10	0
27229125	Coasy	Coenzyme A synthase	7	0	0
13385992	Coq5	coenzyme Q5 homolog, methyltransferase	0	1	1
283135186	Coq6	coenzyme Q6 homolog	0	0	2
33859690	Coq9	coenzyme Q9 homolog	1	0	0
6680924	Cfl1	cofilin 1, non-muscle	11	12	7
6671746	Cfl2	cofilin 2, muscle	1	6	0
228008310	Ccdc101	coiled-coil domain containing 101	0	5	0
168823441	Ccdc109a	coiled-coil domain containing 109A	8	1	9
227496903	Ccdc12	coiled-coil domain containing 12	0	0	1
281183278	Ccdc127	coiled-coil domain containing 127	0	0	2

268370059	Ccdc132	coiled-coil domain containing 132	0	1	1
151101194	lft74	coiled-coil domain containing 2	0	1	0
133922578	Ccdc22	coiled-coil domain containing 22	1	0	0
262072988	Ccdc49	coiled-coil domain containing 49	0	1	0
59858549	Ccdc55	coiled-coil domain containing 55	1	0	0
21311867	Ccdc56	coiled-coil domain containing 56	2	0	0
226874940	Ccdc58	coiled-coil domain containing 58 isoform 1	3	0	0
162135971	Ccdc6	coiled-coil domain containing 6	1	0	0
165905619	Ccdc86	coiled-coil domain containing 86	0	1	2
68448542	Ccdc93	coiled-coil domain containing 93 isoform c	3	0	0
13384734	Chchd1	coiled-coil-helix-coiled-coil-helix domain containing 1	1	0	0
21313618	Chchd3	coiled-coil-helix-coiled-coil-helix domain containing 3	6	0	11
19527144	Chchd4	coiled-coil-helix-coiled-coil-helix domain containing 4	1	1	0
28076873	Chchd5	coiled-coil-helix-coiled-coil-helix domain containing 5	1	0	0
267844806	Chchd6	coiled-coil-helix-coiled-coil-helix domain containing 6	5	0	6
298358883	Chchd7	coiled-coil-helix-coiled-coil-helix domain containing 7	0	1	0
6680946	Cirbp	cold inducible RNA binding protein	3	7	2
240255574	Csde1	cold shock domain containing E1, RNA binding isoform 1	1	10	0
47059495	Csda	cold shock domain protein A short isoform	5	2	2
161484654	Col4a1	collagen, type IV, alpha 1	0	0	1
126723423	Csf1r	colony stimulating factor 1 receptor	0	1	0
110626003	Commd2	COMM domain containing 2	0	1	0
112181167	C1qbp	complement component 1, q subcomponent binding protein	5	6	6
126518317	C3	complement component 3	5	0	0
256985208	Cog2	component of oligomeric golgi complex 2	1	0	0
119392070	Cog3	component of oligomeric golgi complex 3	1	0	0
160333744	Cog6	component of oligomeric golgi complex 6	1	0	0
66392581	Cog8	component of oligomeric golgi complex 8	1	0	0
254281178	1110007L15Rik	conserved edge expressed protein isoform 1	1	0	1
70909327	Cops2	COP9 (constitutive photomorphogenic) homolog, subunit 2	2	2	0
255760052	Cops7a	COP9 (constitutive photomorphogenic) homolog, subunit 7a	2	1	0
6753488	Cops3	COP9 (constitutive photomorphogenic), subunit 3	2	1	0
6753490	Cops4	COP9 signalosome subunit 4	9	2	0
7304971	Cops5	COP9 signalosome subunit 5	4	1	1
33563284	Cops6	COP9 signalosome subunit 6	3	0	0
114158691	Cops8	COP9 signalosome subunit 8	1	3	0
25141332	Cpne1	copine I	4	0	0
25141335	Cpne3	copine III	4	0	0
23346611	Cpne5	copine V	0	1	0
76563928	Cpne8	copine VIII isoform 1	5	1	0
161484660	Cpox	coproporphyrinogen oxidase	11	0	0
162135966	Cobl	cordon-bleu protein	0	1	0
282396086	C1galt1	core 1 synthase, glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase, 1	0	1	0
161353494	Cbfa2t2	core-binding factor, runt domain, alpha subunit 2, translocated to, 2 homolog isoform 1	1	0	0
6753494	Coro1b	coronin, actin binding protein 1B	2	13	1
31542413	Coro1c	coronin, actin binding protein 1C	1	10	1
258645152	Coro2a	coronin, actin binding protein 2A	0	5	0
75677414	Cctn	cortactin	6	15	2
31541932	Cox15	COX15 homolog	2	0	3
6754870	Cox4nb	COX4 neighbor	2	0	3

68510034	Cxadr	coxsackievirus and adenovirus receptor isoform b	2	0	0
33695139	6330503K22Rik	CP110 protein	1	0	2
6753412	Cfdp1	craniofacial development protein 1	2	2	0
6753428	Ckmt1	creatine kinase, mitochondrial 1, ubiquitous	3	10	0
70995311	Crebbp	CREB binding protein	0	5	0
13385288	Crnk1	crooked neck-like 1 protein	0	1	13
29244038	Crb3	crumbs homolog 3	1	1	1
6753530	Cryab	crystallin, alpha B	0	0	1
19525729	Cryl1	crystallin, lambda 1	1	0	0
33859530	Cryz	crystallin, zeta	9	0	0
47059059	Ctdspl2	CTD (carboxy-terminal domain, RNA polymerase II, polypeptide A) small phosphatase like 2	0	0	4
311893328	Ctbp1	C-terminal binding protein 1	3	7	0
282721029	Ctbp2	C-terminal binding protein 2	2	11	0
172072613	Ctps	CTP synthase	7	0	1
270483776	Ctps2	CTP synthase II	2	0	0
254039646	Cttbnp2nl	CTTNBP2 N-terminal like	2	1	0
237757271	Cugbp2	CUG triplet repeat, RNA binding protein 2 isoform 5	0	2	2
38570086	Cugbp1	CUG triplet repeat, RNA-binding protein 1 isoform 2	0	5	5
7549752	Cul1	cullin 1	1	2	0
170014698	Cul2	cullin 2	2	0	1
7710014	Cul3	cullin 3	1	0	1
167466258	Cul4a	cullin 4A	0	1	0
158711665	Cul4b	cullin 4B	3	1	3
239051082	Cul5	cullin 5 isoform 1	3	1	2
57013279	Cul7	cullin 7	2	0	0
323462203	Cwc22	CWC22 spliceosome-associated protein homolog	0	0	7
124487291	Cwf19l1	CWF19-like 1, cell cycle control	1	2	0
30842792	Cwf19l2	CWF19-like 2, cell cycle control	0	0	1
18390325	Cxxc1	CXXC finger 1 (PHD domain)	1	0	0
160333146	Dmtf1	cyclin D binding myb-like transcription factor 1 isoform 2	1	0	0
6753314	Ccng1	cyclin G1	0	0	1
12963599	Ccnh	cyclin H	0	2	0
157841168	Ccnk	cyclin K	0	2	0
46592877	Ccnl2	cyclin L2	1	0	0
56550069	Ccnt2	cyclin T2	0	0	1
237858589	Cdk10	cyclin-dependent kinase 10 isoform 2	1	0	0
323462189	2810452K22Rik	cyclin-dependent kinase 2-interacting protein	0	2	0
6753380	Cdk4	cyclin-dependent kinase 4	1	1	0
6680908	Cdk5	cyclin-dependent kinase 5	0	0	1
160333726	Cdk7	cyclin-dependent kinase 7	0	1	0
31652272	Cdk8	cyclin-dependent kinase 8	0	2	0
18699998	Cdk9	cyclin-dependent kinase 9	1	0	1
31542372	Cdkn1b	cyclin-dependent kinase inhibitor 1B	1	0	0
98986447	Cdkn2a	cyclin-dependent kinase inhibitor 2A isoform 1	0	1	1
6681071	Cstb	cystatin B	2	0	0
6681069	Csrp1	cysteine and glycine-rich protein 1	2	8	0
160707987	Csrp2	cysteine and glycine-rich protein 2	0	4	0
262231838	Csrp2bp	cysteine and glycine-rich protein 2 binding protein	0	1	0
13385324	Chordc1	cysteine and histidine-rich domain (CHORD)-containing, zinc-binding protein 1	2	0	1
71895029	Crim1	cysteine rich transmembrane BMP regulator 1 (chordin like)	1	0	0
6681015	Crip1	cysteine-rich protein 1 (intestinal)	1	0	0

19527148	Cred1	cysteine-rich with EGF-like domains 1	1	0	0
21313278	Cred2	cysteine-rich with EGF-like domains 2	5	0	0
148747198	Cars	cysteinyl-tRNA synthetase	0	0	1
270483872	Cdadc1	cytidine and dCMP deaminase domain containing 1	0	1	0
247269309	Cmas	cytidine monophospho-N-acetylneuraminic acid synthetase	1	16	0
13385268	Cyb5	cytochrome b-5	3	0	0
21312524	Cyb5r1	cytochrome b5 reductase 1	6	0	1
19745150	Cyb5r3	cytochrome b5 reductase 3	19	4	12
31542438	Cyb5b	cytochrome b5 type B precursor	4	2	4
6753498	Cox4i1	cytochrome c oxidase subunit IV isoform 1	8	3	10
13385090	Cox6b1	cytochrome c oxidase subunit VIb polypeptide 1	6	2	5
226958512	Cox7a2l	cytochrome c oxidase subunit VIIa polypeptide 2-like isoform 2	2	0	2
62945234	Cox17	cytochrome c oxidase subunit XVII assembly protein homolog	2	0	0
112181182	Cox5a	cytochrome c oxidase, subunit Va	8	5	9
6680988	Cox6a1	cytochrome c oxidase, subunit VI a, polypeptide 1	2	0	3
16716343	Cox6c	cytochrome c oxidase, subunit VIc	4	1	3
31981830	Cox7a2	cytochrome c oxidase, subunit VIIa 2	2	2	2
6680991	Cox7c	cytochrome c oxidase, subunit VIIC	2	0	1
6681095	Cycs	cytochrome c, somatic	3	13	0
13385006	Cyc1	cytochrome c-1	8	3	8
6679421	Por	cytochrome P450 reductase	30	0	4
6753568	Cyp1b1	cytochrome P450, family 1, subfamily b, polypeptide 1	0	1	0
74271886	Cyp20a1	cytochrome P450, family 20, subfamily A, polypeptide 1	0	0	1
71061451	Cyp51	cytochrome P450, family 51, subfamily A, polypeptide 1	3	0	0
19527376	Ciapin1	cytokine induced apoptosis inhibitor 1	2	0	0
13384730	Sarnp	cytokine induced protein 29 kDa	0	8	3
119392074	3930401K13Rik	cytokine-like nuclear factor n-pac isoform 1	0	18	8
162329564	Caprin1	cytoplasmic activation/proliferation-associated protein 1 isoform c	9	5	0
134288917	Dync1h1	cytoplasmic dynein 1 heavy chain 1	16	96	9
258547119	Cyflp1	cytoplasmic FMR1 interacting protein 1	2	16	0
269315836	Ckap2	cytoskeleton associated protein 2	1	0	0
31712008	Ckap2l	cytoskeleton associated protein 2-like	0	1	0
260166721	Ckap5	cytoskeleton associated protein 5	0	14	0
62526118	Ckap4	cytoskeleton-associated protein 4	1	0	0
6679369	Pla2g4a	cytosolic phospholipase A2, group IVA	0	1	0
224922837	Cytsa	cytospin A isoform b	0	1	0
71979930	Cytsb	cytospin B	0	1	5
255760011	Tia1	cytotoxic granule-associated RNA binding protein 1	0	3	0
170650717	Dbp	D site albumin promoter binding protein	1	0	0
37574121	Scyl2	D10Ert802e protein	0	0	1
29126213	D19Bwg1357e	D19Bwg1357e protein	0	0	13
6755314	Dpf2	D4, zinc and double PHD fingers family 2	0	10	3
42734496	Fam3c	D6Wsu176e protein	9	0	5
7657011	Ddb1	damage specific DNA binding protein 1	13	15	12
29150251	Ddb2	damage specific DNA binding protein 2	0	3	0
169790823	Dazap1	DAZ associated protein 1 isoform a	1	9	2
13384930	Ostc	DC2 protein	2	0	1
238859575	Dctd	dCMP deaminase	1	0	0
56090231	Dcaf5	DDB1 and CUL4 associated factor 5	2	0	0
6753618	Ddt	D-dopachrome tautomerase	6	0	0

299890868	Ddx19b	DDX19 homolog	0	2	0
19527256	Ddx1	DEAD (Asp-Glu-Ala-Asp) box polypeptide 1	8	19	5
189491668	Ddx10	DEAD (Asp-Glu-Ala-Asp) box polypeptide 10	0	0	3
31981163	Ddx18	DEAD (Asp-Glu-Ala-Asp) box polypeptide 18	0	17	13
148540073	Ddx20	DEAD (Asp-Glu-Ala-Asp) box polypeptide 20	0	0	1
72384374	Ddx21	DEAD (Asp-Glu-Ala-Asp) box polypeptide 21	0	39	22
34328253	Ddx24	DEAD (Asp-Glu-Ala-Asp) box polypeptide 24 isoform 2	0	0	4
124249330	Ddx27	DEAD (Asp-Glu-Ala-Asp) box polypeptide 27	0	0	6
38372907	Ddx39	DEAD (Asp-Glu-Ala-Asp) box polypeptide 39	13	22	16
270047502	Ddx41	DEAD (Asp-Glu-Ala-Asp) box polypeptide 41	0	1	2
157838001	Ddx42	DEAD (Asp-Glu-Ala-Asp) box polypeptide 42	1	15	0
27229058	Ddx47	DEAD (Asp-Glu-Ala-Asp) box polypeptide 47	1	12	2
67972435	Ddx49	DEAD (Asp-Glu-Ala-Asp) box polypeptide 49	1	4	0
83816893	Ddx5	DEAD (Asp-Glu-Ala-Asp) box polypeptide 5	19	24	24
16716475	Ddx50	DEAD (Asp-Glu-Ala-Asp) box polypeptide 50	0	1	7
40538825	Ddx51	DEAD (Asp-Glu-Ala-Asp) box polypeptide 51	0	2	2
256985213	Ddx52	DEAD (Asp-Glu-Ala-Asp) box polypeptide 52	0	0	1
28076989	Ddx54	DEAD (Asp-Glu-Ala-Asp) box polypeptide 54	0	0	5
161016793	Ddx6	DEAD (Asp-Glu-Ala-Asp) box polypeptide 6	7	8	2
93587673	Ddx17	DEAD box polypeptide 17 isoform 1	5	17	7
160420299	Ddx46	DEAD box polypeptide 46	1	3	0
6753620	Ddx3x	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 3, X-linked	2	1	1
110835726	Dhx15	DEAH (Asp-Glu-Ala-His) box polypeptide 15 isoform 2	3	16	20
226246667	Dhx16	DEAH (Asp-Glu-Ala-His) box polypeptide 16	0	0	1
46560585	Dhx33	DEAH (Asp-Glu-Ala-His) box polypeptide 33	1	1	0
240848573	Dhx36	DEAH (Asp-Glu-Ala-His) box polypeptide 36	0	0	2
30410010	Dhx38	DEAH (Asp-Glu-Ala-His) box polypeptide 38	0	3	0
144926009	Dhx40	DEAH (Asp-Glu-Ala-His) box polypeptide 40	0	1	0
56699440	Dhx8	DEAH (Asp-Glu-Ala-His) box polypeptide 8	0	1	2
150456419	Dhx9	DEAH (Asp-Glu-Ala-His) box polypeptide 9	2	39	53
76096375	Dido1	death inducer-obliterator 1 isoform 3	0	9	0
256985205	Dap3	death-associated protein 3	2	1	1
189491664	Dcp2	decapping enzyme hDcp2	0	0	1
88853584	Dock1	dedicator of cytokinesis 1	0	5	1
124358946	Dock5	dedicator of cytokinesis 5	1	1	0
78191789	Dock7	dedicator of cytokinesis 7	1	2	1
62241030	Dock8	dedicator of cytokinesis 8	0	2	2
190194401	Dock9	dedicator of cytokinesis 9 isoform 2	1	3	0
164518942	Dad1	defender against cell death 1	2	1	1
6681175	Degs1	degenerative spermatocyte homolog 1	1	0	0
27754093	Dhdds	dehydrodolichyl diphosphate synthase	1	0	1
31980844	Dhrs1	dehydrogenase/reductase (SDR family) member 1	12	0	1
117647267	Dhrs13	dehydrogenase/reductase (SDR family) member 13	0	0	1
21703854	Dhrs7b	dehydrogenase/reductase (SDR family) member 7B	2	0	4
253795498	Dek	DEK oncogene	0	15	2
51371928	Nipbl	delangin isoform A	0	12	14
33942059	Ppp2r5d	delta isoform of regulatory subunit B56, protein phosphatase 2A	3	0	0
22164784	Fads1	delta-5 desaturase	3	1	2
34328485	Alad	delta-aminolevulinic acid dehydratase	7	2	0
133930784	Dtx3l	deltex 3-like	1	0	1
58037277	Dennd2d	DENN/MADD domain containing 2D isoform 1	0	3	0
124486610	Dennd4c	DENN/MADD domain containing 4C	0	1	0

13386092	Denr	density-regulated protein	0	3	0
34328110	Atn1	dentatorubral pallidoluysian atrophy	1	0	0
247269607	Dguok	deoxyguanosine kinase isoform 1	1	0	0
6753654	Dnase2a	deoxyribonuclease II alpha	4	0	0
157785665	Dtymk	deoxythymidylate kinase isoform 1	3	0	0
227497222	Dut	deoxyuridine triphosphatase isoform 2	4	4	0
31542025	Depdc1a	DEP domain containing 1a	1	0	0
70909320	Depdc5	DEP domain containing 5 isoform 1	0	0	1
27754054	Dcakd	dephospho-CoA kinase domain containing	8	3	8
13195638	Der1	Der1-like domain family, member 1	1	0	1
15808990	Der12	Der1-like domain family, member 2	1	0	0
7305007	Dsc2	desmocollin 2	0	0	2
161016843	Dsg2	desmoglein 2	0	0	23
190194418	Dsp	desmoplakin	7	2	103
9790219	Dstn	destrin	12	10	5
6681225	Drg1	developmentally regulated GTP binding protein 1	3	7	0
10946678	Drg2	developmentally regulated GTP binding protein 2	3	0	0
85719324	Zdhhc20	DHHC-containing protein 20	0	1	0
6753632	Dgat1	diacylglycerol O-acyltransferase 1	0	1	0
6677849	Sat1	diamine N-acetyltransferase 1	1	0	0
6681183	Diap1	diaphanous homolog 1	7	0	1
9789931	Diap3	diaphanous homolog 3	1	0	0
83921595	Dbi	diazepam binding inhibitor isoform 2	2	0	0
146134409	Dcxr	dicarbonyl/L-xylulose reductase	1	0	0
117168271	Dicer1	dicer1	1	0	0
56790942	AA408296	digestive-organ expansion factor homolog	0	1	0
7106289	Dhfr	dihydrofolate reductase	1	0	4
170172520	Dbt	dihydrolipoamide branched chain transacylase E2	6	16	4
31982856	Dld	dihydrolipoamide dehydrogenase	17	3	0
257796245	Dlat	dihydrolipoamide S-acetyltransferase	17	4	4
21313536	Dlst	dihydrolipoamide S-succinyltransferase (E2 component of 2-oxo-glutarate complex)	10	3	2
40254595	Dpysl2	dihydropyrimidinase-like 2	23	1	0
38371755	Ddah1	dimethylarginine dimethylaminohydrolase 1	1	0	0
299522791	Ddah2	dimethylarginine dimethylaminohydrolase 2	4	1	0
226823258	Dip2b	DIP2 disco-interacting protein 2 homolog B isoform 2	0	1	1
244791124	Dpp3	dipeptidyl peptidase III	16	0	0
31981425	Dpp7	dipeptidylpeptidase 7	7	0	0
40254642	Dlg1	discs large homolog 1	16	21	14
254588085	Dlg5	discs, large homolog 5 (Drosophila)	0	1	0
62198210	Cuta	divalent cation tolerant protein CUTA isoform 2	1	0	0
124487031	Dmx1	Dmx-like 1	0	3	0
114145469	Dclre1a	DNA cross-link repair 1A, PSO2 homolog	1	0	1
226958589	Polr2b	DNA directed RNA polymerase II polypeptide B	0	5	22
58037181	Polr2f	DNA directed RNA polymerase II polypeptide F	0	2	1
70608144	Dffa	DNA fragmentation factor, alpha subunit isoform a	0	1	0
313151236	Lig1	DNA ligase I	1	8	0
327180734	Dnmt1	DNA methyltransferase (cytosine-5) 1	1	69	3
24371231	Dnmt3a	DNA methyltransferase 3A isoform 1	0	0	8
30519969	Poldip3	DNA polymerase delta interacting protein 3	0	12	0
153792337	Rev3l	DNA polymerase zeta	0	1	1
6679461	Prim2	DNA primase, p58 subunit	1	0	0
112734855	Top1	DNA topoisomerase I	0	33	7
6679409	Pola1	DNA-directed DNA polymerase alpha 1	3	0	0



255708463	Pola2	DNA-directed DNA polymerase alpha 2	1	0	0
254587977	Pold1	DNA-directed DNA polymerase delta 1	1	0	0
226423863	Pold2	DNA-directed DNA polymerase delta 2	0	2	0
195947387	Pole	DNA-directed DNA polymerase epsilon	1	0	0
33468927	Pole2	DNA-directed DNA polymerase epsilon 2	1	0	0
31981174	Pole3	DNA-directed DNA polymerase epsilon 3	0	3	0
13385366	Pole4	DNA-directed DNA polymerase epsilon 4	0	1	0
6677795	Polr2a	DNA-directed RNA polymerase II A	0	3	17
6680297	Dnaja1	DnaJ (Hsp40) homolog, subfamily A, member 1	2	1	3
9789937	Dnaja2	DnaJ (Hsp40) homolog, subfamily A, member 2	8	4	5
205361112	Dnaja3	DnaJ (Hsp40) homolog, subfamily A, member 3 isoform 1	5	4	6
9055242	Dnajb1	DnaJ (Hsp40) homolog, subfamily B, member 1	1	4	0
299890782	Dnajb11	DnaJ (Hsp40) homolog, subfamily B, member 11	5	4	0
165377271	Dnajb4	DnaJ (Hsp40) homolog, subfamily B, member 4	0	2	0
188219644	Dnajb6	DnaJ (Hsp40) homolog, subfamily B, member 6 isoform a	0	0	3
119508443	Dnajc10	DnaJ (Hsp40) homolog, subfamily C, member 10	4	4	0
164565394	Dnajc11	DnaJ (Hsp40) homolog, subfamily C, member 11	0	0	3
254540074	Dnajc17	DnaJ (Hsp40) homolog, subfamily C, member 17	0	3	0
6677659	Dnajc2	DnaJ (Hsp40) homolog, subfamily C, member 2	0	1	0
7949027	Dnajc5	DnaJ (Hsp40) homolog, subfamily C, member 5	1	0	0
31980994	Dnajc7	DnaJ (Hsp40) homolog, subfamily C, member 7	1	0	0
157951606	Dnajc8	DnaJ (Hsp40) homolog, subfamily C, member 8	1	7	0
23956266	Dnajc9	DnaJ homolog, subfamily C, member 9	1	2	9
12963557	Dmap1	DNMT1 associated protein-1	1	6	2
31981810	Dci	dodecenoyl-Coenzyme A delta isomerase	12	2	2
46195798	Ddost	dolichyl-di-phosphooligosaccharide-protein glycotransferase	13	1	7
6753670	Dpm1	dolichyl-phosphate mannosyltransferase 1	10	0	1
226437674	Utp20	down-regulated in metastasis	1	61	7
27754097	Dr1	down-regulator of transcription 1	1	3	0
21313424	Drap1	Dr1 associated protein 1 (negative cofactor 2 alpha)	1	2	0
226423873	Dbrn1	drebrin-like isoform 2	3	8	0
13384676	Dtd1	D-tyrosyl-tRNA deacylase 1	0	1	0
145966803	Dusp5	dual specificity phosphatase 5	0	1	0
67846105	Dyrk2	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 2	1	0	1
23956160	Dullard	Dullard homolog	0	0	1
311893360	Dctn1	dynactin 1	13	12	1
299522842	Dctn2	dynactin 2	8	5	0
227116275	Dctn3	dynactin 3 isoform A	0	6	0
13385798	Dctn4	dynactin 4	0	1	1
188219518	Dctn5	dynactin 5	0	1	0
6756009	Dctn6	dynactin 6	1	0	0
71061458	Dnm1l	dynamamin 1-like isoform a	11	0	1
87299637	Dnm2	dynamamin 2	2	1	1
311893387	Dync1i2	dynein cytoplasmic 1 intermediate chain 2	3	6	0
22122795	Dync1li1	dynein cytoplasmic 1 light intermediate chain 1	0	6	1
72534792	Dync2h1	dynein cytoplasmic 2 heavy chain 1	0	0	1
213688406	Dynll1	dynein light chain LC8-type 1	2	4	4
281182477	Dynll2	dynein light chain LC8-type 2	1	1	0
254540041	Dynlrb1	dynein light chain roadblock-type 1	0	2	0
6678265	Dynlt1	dynein light chain Tctex-type 1	0	5	1

225543181	Dync1li2	dynein, cytoplasmic 1 light intermediate chain 2	1	5	1
118026931	Dysf	dysferlin isoform 1	2	0	0
91064867	Dkc1	dyskerin	0	18	7
111154082	Dst	dystonin isoform b	0	7	2
15208633	Dtnbp1	dystrobrevin binding protein 1	1	0	1
247269964	Dtnb	dystrobrevin, beta isoform b	8	1	2
33859532	Dag1	dystroglycan 1	3	0	0
6681203	Dmd	dystrophin, muscular dystrophy	1	0	1
30023855	Eny2	e(y)2 protein	0	1	1
94421034	Ep300	E1A binding protein p300	0	2	0
190194425	Ep400	E1A binding protein p400 isoform 2	0	5	0
257153394	Ets2	E26 avian leukemia oncogene 2, 3&apos; domain	0	1	0
31982405	E2f5	E2F transcription factor 5	1	0	0
6679627	Elf1	E74-like factor 1	0	1	0
253683411	Elf3	E74-like factor 3 isoform 2	1	1	1
15809002	Snf8	EAP30 subunit of ELL complex	0	0	1
50053824	Eea1	early endosome antigen 1	18	0	0
6681285	Egr1	early growth response 1	1	0	0
21312728	Ebna1bp2	EBNA1 binding protein 2	0	0	2
21450111	Eml3	echinoderm microtubule associated protein like 3	0	1	0
167234437	Eml4	echinoderm microtubule associated protein like 4 3	0	1	0
124487111	Eml5	echinoderm microtubule associated protein like 5	1	0	1
111185905	Evi5	ecotropic viral integration site 5	0	0	1
71061462	Entpd5	ectonucleoside triphosphate diphosphohydrolase 5 isoform a	2	0	0
84872231	Enpp4	ectonucleotide pyrophosphatase/phosphodiesterase 4	1	0	0
13386360	Efh1	EF hand domain containing 1	0	0	1
31981086	Efh2	EF hand domain containing 2	1	1	3
7106303	Ehd1	EH-domain containing 1	6	0	1
31981592	Ehd4	EH-domain containing 4	15	7	3
31542602	Elavl1	ELAV (embryonic lethal, abnormal vision, Drosophila)-like 1 (Hu antigen R)	3	13	14
227500281	Etf1a	electron transferring flavoprotein, alpha polypeptide	15	9	10
38142460	Etf1b	electron transferring flavoprotein, beta polypeptide	13	3	9
254588014	Etf1dh	electron-transferring-flavoprotein dehydrogenase	14	0	0
255003740	1200014J11Rik	ELG protein	0	2	4
153792362	Elk4	ELK4, member of ETS oncogene family	0	1	0
158508674	Eftud2	elongation factor Tu GTP binding domain containing 2 isoform b	9	41	32
148540000	Elovl7	elongation of very long chain fatty acids-like 7	1	0	0
33469023	Elp3	elongation protein 3 homolog	1	0	0
11230770	Eed	embryonic ectoderm development	0	5	0
6679641	Emd	emerin	9	0	5
7305109	Emg1	EMG1 nucleolar protein homolog	0	9	6
19526463	Erp29	endoplasmic reticulum protein ERp29 precursor	8	0	0
13385678	Ergic1	endoplasmic reticulum-golgi intermediate compartment (ERGIC) 1	8	0	2
10946942	Edf1	endothelial differentiation-related factor 1	1	2	0
13385388	Med28	endothelial-derived gene 1	0	1	0
255683297	Elmo3	engulfment and cell motility 3, ced-12 homolog	0	4	1
27532963	Epc1	enhancer of polycomb homolog 1 isoform 1	0	1	0
157042787	Epc2	enhancer of polycomb homolog 2	1	0	0
6679685	Erh	enhancer of rudimentary homolog	3	3	3
226442807	Ezh2	enhancer of zeste 2 isoform 1	0	1	0

6679719	Ezh1	enhancer of zeste homolog 1	1	0	0
294979218	Etl4	enhancer trap locus 4	0	0	6
158853992	Eno1	enolase 1, alpha non-neuron	25	2	12
7305027	Eno2	enolase 2, gamma neuronal	1	0	0
7949037	Ech1	enoyl coenzyme A hydratase 1, peroxisomal	11	3	0
111185907	Evpl	envoplakin	4	4	5
47777351	Ephb2	Eph receptor B2	0	0	1
6753724	Efna5	ephrin A5 isoform 1	0	0	1
31542597	Efnb2	ephrin B2	0	0	1
32484983	Epha2	ephrin receptor EphA2	1	0	0
46560582	Egfr	epidermal growth factor receptor isoform 1	4	0	0
170784834	Eps15l1	epidermal growth factor receptor pathway substrate 15, related isoform a	0	1	0
21040233	Eps8l2	epidermal growth factor receptor pathway substrate 8-like protein 2	3	0	5
166706895	Tox4	epidermal Langerhans cell protein LCP1	0	6	0
12963667	Npc2	epididymal secretory protein E1	4	0	0
37537522	Eppk1	epiplakin 1	7	0	5
112293275	Epcam	epithelial cell adhesion molecule	6	0	1
6753748	Emp1	epithelial membrane protein 1	0	0	1
28849887	Esrp2	epithelial splicing regulatory protein 2	1	2	2
30424918	Epm2aip1	EPM2A (laforin) interacting protein 1	0	1	0
6753762	Ephx1	epoxide hydrolase 1, microsomal	14	0	0
10946972	Cope	epsilon subunit of coatomer protein complex	5	0	2
30794400	Epn3	epsin 3	1	3	6
256355019	Erlin1	ER lipid raft associated 1	2	0	1
23956396	Erlin2	ER lipid raft associated 2	18	0	6
54607114	Erb2ip	Erb2 interacting protein isoform 2	0	0	2
6755100	Pa2g4	ErbB3-binding protein 1	13	15	0
13384938	Ergic3	ERGIC and golgi 3	3	0	0
7657067	Ero1l	ERO1-like	8	0	0
190684669	Epb4.1	erythrocyte protein band 4.1 isoform 3	3	2	0
54873604	Epb4.111	erythrocyte protein band 4.1-like 1 isoform a	8	1	0
312922373	Epb4.112	erythrocyte protein band 4.1-like 2	8	0	0
7305031	Epb4.113	erythrocyte protein band 4.1-like 3	0	0	1
87042272	Epb4.114a	erythrocyte protein band 4.1-like 4a	0	0	1
169234799	Epb4.114b	erythrocyte protein band 4.1-like 4b	0	0	1
164663872	Epb4.115	erythrocyte protein band 4.1-like 5 isoform 1	4	2	6
20070420	D10Jhu81e	es1 protein	5	0	1
13937355	Esd	esterase D/formylglutathione hydrolase	4	0	0
157951743	H2-Ke6	estradiol 17 beta-dehydrogenase 8	7	9	1
16716597	Hsd17b11	estradiol 17-beta-dehydrogenase 11	7	1	3
112293262	Esrra	estrogen related receptor, alpha	0	4	1
226958367	Esrrb	estrogen-related receptor beta isoform 1	0	2	1
257153368	Etaa1	ETAA16 protein	1	1	0
12963539	Ethe1	ETHE1 protein	11	1	0
6681287	Ehf	ets homologous factor	0	2	0
84370337	Etv6	ets variant 6	0	1	0
157951633	Ehmt1	euchromatic histone methyltransferase 1 isoform 4	0	0	4
22219432	Ehmt2	euchromatic histone-lysine N-methyltransferase 2 isoform G9a long	0	4	4
12746442	Eefsec	eukaryotic elongation factor, selenocysteine-tRNA-specific	2	7	0
6681275	Eef2k	eukaryotic elongation factor-2 kinase	0	0	1

126032329	Eef1a1	eukaryotic translation elongation factor 1 alpha 1	18	21	15
31980922	Eef1b2	eukaryotic translation elongation factor 1 beta 2	2	7	3
54287684	Eef1d	eukaryotic translation elongation factor 1 delta isoform a	8	10	2
13384756	Eef1e1	eukaryotic translation elongation factor 1 epsilon 1	0	1	0
110625979	Eef1g	eukaryotic translation elongation factor 1 gamma	11	17	5
33859482	Eef2	eukaryotic translation elongation factor 2	44	28	18
22165347	Eif1	eukaryotic translation initiation factor 1	0	2	0
158631225	Eif1a	eukaryotic translation initiation factor 1A	0	2	0
31541824	Eif1ay	eukaryotic translation initiation factor 1A, Y-linked	1	8	0
21312159	Eif1b	eukaryotic translation initiation factor 1B	1	6	0
13385624	Eif2s1	eukaryotic translation initiation factor 2, subunit 1 alpha	16	14	0
14149756	Eif2s2	eukaryotic translation initiation factor 2, subunit 2 (beta)	6	11	0
6753738	Eif2s3x	eukaryotic translation initiation factor 2, subunit 3, structural gene X-linked	2	3	0
54020676	Eif2a	eukaryotic translation initiation factor 2A	10	6	0
6755160	Eif2ak2	eukaryotic translation initiation factor 2-alpha kinase 2	0	2	0
21703744	Eif2b1	eukaryotic translation initiation factor 2B, subunit 1	1	0	0
219842353	Eif2c2	eukaryotic translation initiation factor 2C, 2	1	9	4
50838806	Eif4g3	eukaryotic translation initiation factor 4 gamma, 3	2	1	0
56699434	Eif4g1	eukaryotic translation initiation factor 4, gamma 1 isoform a	16	5	2
110630015	Eif4g2	eukaryotic translation initiation factor 4, gamma 2 isoform 1	3	0	1
20149756	Eif4a3	eukaryotic translation initiation factor 4A, isoform 3	1	2	6
21450625	Eif4a1	eukaryotic translation initiation factor 4A1 isoform 1	18	7	8
176865892	Eif4a2	eukaryotic translation initiation factor 4A2 isoform b	5	3	0
167234372	Eif4b	eukaryotic translation initiation factor 4B	10	3	0
83627717	Eif4e	eukaryotic translation initiation factor 4E	1	1	0
85677508	Eif4e2	eukaryotic translation initiation factor 4E member 2 isoform 1	1	0	1
15808988	Eif4h	eukaryotic translation initiation factor 4H	6	4	1
124430541	Eif5	eukaryotic translation initiation factor 5	2	1	1
262359900	Eif5a	eukaryotic translation initiation factor 5A	3	5	0
29243942	Eif5a2	eukaryotic translation initiation factor 5A2	2	1	1
84043961	Eif5b	eukaryotic translation initiation factor 5B	9	11	0
124286826	Etf1	eukaryotic translation termination factor 1	6	5	0
6755522	Ecsit	evolutionarily conserved signaling intermediate in Toll pathway	1	0	0
88853581	Ewsr1	Ewing sarcoma breakpoint region 1	1	3	0
187960071	Ercc1	excision repair cross-complementing rodent repair deficiency, complementation group 1 isoform a	0	1	0
19526800	Ercc3	excision repair cross-complementing rodent repair deficiency, complementation group 3	0	2	0
21313438	Exoc2	exocyst complex component 2	0	0	1
46402177	Exoc5	exocyst complex component 5	1	0	0
257796249	Exph5	exophilin 5	1	0	0
257096005	Exosc1	exosome component 1	0	6	1
227116266	Exosc10	exosome component 10	0	2	0
21450259	Exosc2	exosome component 2	0	7	0
29611663	Exosc4	exosome component 4	0	5	0
20070392	Exosc5	exosome component 5	1	5	1
30794378	Exosc6	exosome component 6	1	5	2
124487127	Exosc7	exosome component 7	1	3	0
9506981	Exosc9	exosome component 9	1	6	1
112807209	Ext1	exostosin 1	0	0	1

78190507	Xpo1	exportin 1, CRM1 homolog	4	1	9
10048438	Xpo4	exportin 4	1	0	0
24429570	Xpo5	exportin 5	2	0	2
12746422	Xpo7	exportin 7	0	4	0
124486686	Xpot	exportin, tRNA (nuclear export receptor for tRNAs)	0	0	1
33859650	Esy1	extended synaptotagmin-like protein 1	25	0	1
27734847	F11r	F11 receptor	4	0	0
161086971	Capza1	F-actin capping protein alpha-1 subunit	1	8	6
85701644	Fam82a2	family with sequence similarity 82, member A2	1	0	7
269914118	Fam83h	family with sequence similarity 83, member H	0	1	17
61098124	Fam98b	family with sequence similarity 98, member B	0	2	0
54112418	Fancm	Fanconi anemia, complementation group M	0	0	1
84662730	Fubp1	far upstream element (FUSE) binding protein 1	5	17	0
224922832	Fubp3	far upstream element (FUSE) binding protein 3	1	18	6
19882207	Fdps	farnesyl diphosphate synthase	12	0	0
315013583	Daxx	Fas death domain-associated protein	0	1	0
27369557	Fastkd2	FAST kinase domains 2	0	0	1
128485706	Fastkd3	FAST kinase domains 3	1	0	0
225703041	Fastkd5	FAST kinase domains 5	2	0	0
157951641	Fat1	FAT tumor suppressor homolog 1	0	1	0
9790071	Fads2	fatty acid desaturase 2	5	0	4
93102409	Fasn	fatty acid synthase	34	0	3
100818178	Kdm2a	F-box and leucine-rich repeat protein 11	1	3	0
40254240	Fbx19	F-box and leucine-rich repeat protein 19	1	0	0
111494221	Fbx120	F-box and leucine-rich repeat protein 20	0	1	0
124248556	Fbxw9	F-box and WD-40 domain protein 9	0	0	1
46877055	Fbxo3	F-box only protein 3 isoform 1	1	0	1
124486644	Fbxo11	F-box protein 11	0	1	0
28201989	Fbxo28	F-box protein 28	0	1	1
13384764	Fbxo36	F-box protein 36	0	1	0
160333600	Fbxo38	F-box protein 38	1	1	0
169790797	Fcgbp	Fc fragment of IgG binding protein	38	2	0
27734132	Fem1c	fem-1 homolog c	0	1	1
229892332	Farp2	FERM, RhoGEF and pleckstrin domain protein 2	0	0	1
110349752	Farp1	FERMRhoGEF (Arhgef) and pleckstrin domain protein 1	0	0	4
6679765	Fdx1	ferredoxin 1	3	0	0
6753912	Fth1	ferritin heavy chain 1	4	0	0
114326466	Ftl1	ferritin light chain 1	1	1	0
130485277	Ftl2	ferritin light chain 2	3	4	0
20452466	Fech	ferrochelatase	0	2	0
31982373	Fbl	fibrillarlin	3	17	15
29244340	Frs2	fibroblast growth factor receptor substrate 2	0	0	1
124517704	Fbln2	fibulin 2 isoform a	0	1	1
145966915	Flnb	filamin B, beta	73	107	39
253795477	Fblim1	filamin binding LIM protein 1	0	0	1
125347376	Flna	filamin, alpha	22	46	1
227330598	Fip11	FIP1 like 1 isoform 2	0	8	1
227330586	Mtor	FK506 binding protein 12-rapamycin associated protein 1	1	0	0
6679803	Fkbp1a	FK506 binding protein 1A, 12kDa	1	0	0
261824055	Fkbp2	FK506 binding protein 2, 13kDa	6	4	0
7305061	Fkbp3	FK506 binding protein 3, 25kDa	3	7	0
6753884	Fkbp5	FK506 binding protein 5	18	3	2
6753882	Fkbp4	FK506 binding protein 52	9	1	0

313851007	Fkbp8	FK506 binding protein 8 isoform a	2	0	2
172072617	Fkbp9	FK506 binding protein 9	2	0	0
46048490	Fen1	flap structure specific endonuclease 1	3	7	0
11528490	Flii	flightless I homolog	4	27	1
6679809	Flot1	flotillin 1	0	0	1
94536791	Flot2	flotillin 2 isoform 2	0	1	2
160333168	Fiz1	Flt3 interacting zinc finger protein 1	0	1	0
255003742	Flywch1	FLYWCH-type zinc finger 1	1	0	0
82546826	Foxk1	forkhead box K1	0	1	0
238018071	Foxk2	forkhead box K2	0	1	0
167900466	Fnbp1l	formin binding protein 1-like isoform 2	1	2	0
9055218	Prpf40a	formin binding protein 3	1	28	9
9055220	Fnbp4	formin binding protein 4	0	1	0
37674240	Fhod3	formin homology 2 domain containing 3	0	1	0
114052809	2610204M08Rik	formin, inverted	4	0	2
38708163	Fmnl3	formin-like 3 protein	2	0	5
124378048	Fmnl2	formin-like domain containing protein MAN	1	0	1
226823218	Fytd1	forty-two-three domain containing 1 isoform 1	0	0	2
116517340	Fh1	four and a half LIM domains 1 isoform 2	0	0	1
225543434	4932438A13Rik	fragile site-associated protein	2	1	0
51036613	Fmr1	fragile X mental retardation protein 1	3	2	3
83921589	Fxr2	fragile X mental retardation-related protein 2	3	4	1
126157515	Fras1	Fras1 protein	1	0	0
71051607	Frem2	Fras1 related extracellular matrix protein 2	4	0	0
6679863	Fxn	frataxin	3	0	0
293597569	Aldoa	fructose-bisphosphate aldolase A	22	12	1
225543552	Frg1	FSHD region gene 1	0	6	0
13384672	Ftsj3	FtsJ homolog 3	1	0	7
41281971	Fuk	fucokinase isoform 2	1	0	0
31560444	Fut8	fucosyltransferase 8	2	0	0
226823367	Fh1	fumarate hydratase 1	14	1	0
21312526	Fundc1	FUN14 domain containing 1	0	1	0
262050556	Fundc2	FUN14 domain containing 2	2	1	0
122937372	Fusip1	FUS interacting protein (serine-arginine rich) 1 isoform 1	0	5	6
16554572	Fxyd2	FXYP domain-containing ion transport regulator 2 isoform a	2	0	0
227116298	Frk	fyn-related kinase	5	0	0
85719309	Fgd3	FYVE, RhoGEF and PH domain containing 3	0	1	0
170650599	Gfm1	G elongation factor, mitochondrial 1	11	0	2
125991228	Gpkow	G patch domain and KOW motifs	0	1	0
13385692	Gpatch1	G patch domain containing 1	0	0	1
295424137	Gps1	G protein pathway suppressor 1	2	0	0
241896916	Gpr125	G protein-coupled receptor 125 isoform 1	0	0	1
98986316	Gpr177	G protein-coupled receptor 177	2	0	0
124430559	Lgr4	G protein-coupled receptor 48	0	1	0
312032400	Gpr56	G protein-coupled receptor 56	2	0	1
116517297	Git2	G protein-coupled receptor kinase interacting ArfGAP 2 isoform 2	0	1	0
51921285	Git1	G protein-coupled receptor kinase-interactor 1	0	0	2
225543465	Gprc5a	G protein-coupled receptor, family C, group 5, member A	2	2	2
160333231	Gprc5c	G protein-coupled receptor, family C, group 5, member C isoform b	3	0	6
194018533	Gspt1	G1 to S phase transition 1 isoform 1	4	0	0

34328119	Gabpa	GA repeat binding protein, alpha	0	6	1
46575942	Gabpb1	GA repeat binding protein, beta 1 isoform a	0	1	0
93102413	Galk1	galactokinase 1	3	0	0
30424748	Galk2	galactokinase 2	1	0	0
302370951	Galns	galactosamine (N-acetyl)-6-sulfate sulfatase precursor	2	0	0
93102411	Galc	galactosylceramidase	1	0	2
225543163	Lgals3	galectin 3	5	0	1
6753992	Gja1	gap junction protein, alpha 1	0	1	0
6679951	Gata3	GATA binding protein 3	0	0	2
161086973	Gatad1	GATA zinc finger domain containing 1	0	1	0
112807186	Gcn111	GCN1 general control of amino-acid synthesis 1-like 1	6	1	3
226437608	1810007M14Rik	GC-rich sequence DNA-binding factor candidate	0	4	5
22122523	Gmgs	GDP-mannose 4,6-dehydratase	5	0	0
19526884	Gmppa	GDP-mannose pyrophosphorylase A	1	0	0
28916693	Gsn	gelsolin	14	8	7
110227379	Capg	gelsolin-like capping protein isoform 2	9	1	3
262263303	Gemin5	gem (nuclear organelle) associated protein 5	0	0	1
225543576	Gtl3	gene trap locus 3	0	7	0
87299617	Gtf2a2	general transcription factor II A, 2	0	1	0
21312660	Gtf2e1	general transcription factor II E, polypeptide 1 (alpha subunit)	0	1	0
268838784	Gtf2e2	general transcription factor II E, polypeptide 2 (beta subunit)	0	1	0
188035919	Gtf2h1	general transcription factor II H, polypeptide 1	0	2	0
6754094	Gtf2h4	general transcription factor II H, polypeptide 4	0	2	0
125625345	Gtf2ird1	general transcription factor II I repeat domain-containing 1 isoform a	1	0	1
20270031	Gtf2f1	general transcription factor IIF, polypeptide 1	1	1	0
39930425	Gtf2f2	general transcription factor IIF, polypeptide 2	0	1	0
31088894	Gtf2h3	general transcription factor IIH, polypeptide 3	0	1	0
46402235	Gtf3c1	general transcription factor III C 1	0	4	0
124001578	Gtf2i	general transcription factor III isoform 1	2	16	0
22507323	Gtf3c5	general transcription factor III polypeptide 5	0	2	0
260436918	Gtf3c4	general transcription factor III C 4	0	11	2
85861229	Gtf3c2	general transcription factor III C, polypeptide 2, beta	0	3	0
75677510	Gtf3c3	general transcription factor III C, polypeptide 3	0	7	1
269973917	Gphn	gephyrin	2	0	0
160333071	Gmcl1	germ cell-less	0	0	2
9055336	Gipc1	GIPC PDZ domain containing family, member 1	1	6	0
8394258	Gipc2	GIPC PDZ domain containing family, member 2	5	11	1
188528613	Gmfb	glia maturation factor, beta	0	2	0
160298168	Gbas	glioblastoma amplified	3	0	1
113866026	Glis3	GLIS family zinc finger 3	1	1	0
121247453	Nr3c1	glucocorticoid receptor	0	0	1
75677442	Grif1	glucocorticoid receptor DNA binding factor 1	1	0	0
29789239	Gns	glucosamine (N-acetyl)-6-sulfatase	3	0	0
9506761	Gnpnat1	glucosamine-phosphate N-acetyltransferase 1	0	1	0
254553458	Gpi1	glucose phosphate isomerase 1	7	0	2
227330582	G6pd2	glucose-6-phosphate dehydrogenase 2	4	0	0
6996917	G6pdx	glucose-6-phosphate dehydrogenase X-linked	5	0	0
116734815	Gba	glucosidase, beta, acid isoform 1	1	0	0
6754098	Gusb	glucuronidase, beta	4	0	0
160298209	Got1	glutamate oxaloacetate transaminase 1, soluble	1	0	0
6754036	Got2	glutamate oxaloacetate transaminase 2, mitochondrial	30	6	0

160298215	Grik5	glutamate receptor, ionotropic, kainate 5 (gamma 2) precursor	0	0	1
258645114	Grin1a	glutamate receptor, ionotropic, N-methyl D-aspartate-like 1A	0	1	0
163937861	Grwd1	glutamate-rich WD repeat containing 1	1	5	0
164607135	Gls	glutaminase isoform 2	21	0	0
166295183	Qrich1	glutamine-rich 1	0	1	0
269954679	Qars	glutamyl-tRNA synthetase	8	1	1
82617575	Eprs	glutamyl-prolyl-tRNA synthetase	1	3	1
21312153	Glrx5	glutaredoxin 5	4	0	0
113680425	Gcdh	glutaryl-Coenzyme A dehydrogenase	2	1	0
84871986	Gpx1	glutathione peroxidase 1	11	1	9
90903235	Gpx4	glutathione peroxidase 4 isoform 1 precursor	0	5	1
160298213	Gsr	glutathione reductase precursor	1	0	0
21313138	Gstk1	glutathione S-transferase kappa 1	3	5	0
6754084	Gstm1	glutathione S-transferase mu 1	14	0	7
6680121	Gstm2	glutathione S-transferase mu 2	7	2	8
6754086	Gstm5	glutathione S-transferase mu 5	1	1	2
6754090	Gsto1	glutathione S-transferase omega 1	8	0	4
116325999	Gsta3	glutathione S-transferase, alpha 3	4	0	2
160298217	Gsta4	glutathione S-transferase, alpha 4	3	0	3
10092608	Gstp1	glutathione S-transferase, pi 1	3	2	3
160298219	Gstt1	glutathione S-transferase, theta 1	1	0	0
21536248	Gstt3	glutathione S-transferase, theta 3	2	0	5
6680117	Gss	glutathione synthetase	3	0	0
6754092	Gstz1	glutathione transferase zeta 1 (maleylacetoacetate isomerase)	6	0	0
6753966	Gpd1	glycerol-3-phosphate dehydrogenase 1 (soluble)	9	0	5
257467604	Gpd1l	glycerol-3-phosphate dehydrogenase 1-like	5	0	0
224922806	Gpd2	glycerol-3-phosphate dehydrogenase 2, mitochondrial	32	1	12
160298207	Gnpat	glyceronephosphate O-acyltransferase	2	0	0
23956140	Gdpp1	glycerophosphodiester phosphodiesterase domain containing 1	3	0	0
110431346	Gdpp3	glycerophosphodiester phosphodiesterase domain containing 3	3	0	0
240120119	Gcat	glycine C-acetyltransferase isoform a	10	0	0
13386066	Gcsh	glycine cleavage system protein H (aminomethyl carrier)	1	0	0
9790077	Gsk3b	glycogen synthase kinase 3 beta	1	4	0
31560404	Gltp	glycolipid transfer protein	1	0	0
50345976	Gp1bb	glycoprotein 1b, beta polypeptide isoform 1	1	1	0
226342960	Tecr	glycoprotein, synaptic 2 isoform 1	9	2	9
260166652	GlT28d2	glycosyltransferase 28 domain containing 1-like	0	0	1
27369952	Gtdc1	glycosyltransferase-like domain containing 1	1	0	0
93102417	Gars	glycyl-tRNA synthetase	11	1	0
165932333	Glo1	glyoxalase 1	6	0	0
255003777	Glod4	glyoxalase domain containing 4	10	0	0
17933768	Grhpr	glyoxylate reductase/hydroxypyruvate reductase	5	0	0
7710028	Gpc1	glypican 1	0	0	1
6806917	Gm2a	GM2 ganglioside activator protein	4	0	0
117959930	Gnas	GNAS complex locus XLas	6	3	10
6677905	Glg1	golgi apparatus protein 1	31	1	3
313151170	Gopc	golgi associated PDZ and coiled-coil motif containing	1	0	0
22122347	Gga1	golgi associated, gamma adaptin ear containing, ARF binding protein 1	2	0	0
30794192	Golga1	golgi autoantigen, golgin subfamily a, 1	3	0	0



124378042	Golga2	golgi autoantigen, golgin subfamily a, 2 isoform a	6	0	1
31982330	Golga3	Golgi autoantigen, golgin subfamily a, 3	0	1	1
20127150	Golga4	golgi autoantigen, golgin subfamily a, 4	0	0	1
312222675	Golga5	golgi autoantigen, golgin subfamily a, 5	15	0	0
268370067	Gcc1	Golgi coiled coil protein 1	1	0	1
14140240	Golph3	golgi phosphoprotein 3	2	0	0
295054284	Golph3l	golgi phosphoprotein 3-like	2	0	0
224967109	Gorasp2	golgi reassembly stacking protein 2	3	0	0
31542904	Gosr1	golgi SNAP receptor complex member 1	3	1	1
24528553	Gosr2	golgi SNAP receptor complex member 2	2	0	0
52138536	Gbf1	golgi-specific brefeldin A-resistance factor 1	2	0	0
6754046	Gpaa1	GPI anchor attachment protein 1	2	1	0
80861474	Gcap14	granule cell antiserum positive 14 isoform 1	0	0	1
224967126	Grn	granulin	0	0	2
148596982	Grsf1	G-rich RNA sequence binding factor 1 isoform 1	3	2	0
61742806	Gcc2	GRIP and coiled-coil domain-containing 2	8	0	0
21312546	Fam162a	growth and transformation-dependent protein	7	2	3
6678980	Gadd45b	growth arrest and DNA-damage-inducible 45 beta	1	0	0
269315840	Gadd45gip1	growth arrest and DNA-damage-inducible, gamma interacting protein 1	2	2	1
6679941	Gas1	growth arrest specific 1	0	0	1
312283736	Ghitm	growth hormone inducible transmembrane protein	2	0	1
13277394	Grpel1	GrpE-like 1, mitochondrial	8	1	0
225543388	Gtpbp2	GTP binding protein 2 isoform 1	0	0	1
31560110	Gtpbp4	GTP binding protein 4	0	0	5
188528646	Mtg1	GTP binding protein 7 (putative)	0	1	0
40254514	Gapvd1	GTPase activating protein and VPS9 domains 1	0	1	0
163310721	Garnl1	GTPase activating RANGAP domain-like 1 isoform 2	1	0	2
85861218	Gmps	guanine monophosphate synthetase	10	0	0
41054806	Gnai2	guanine nucleotide binding protein (G protein), alpha inhibiting 2	3	1	9
33563256	Gnai3	guanine nucleotide binding protein (G protein), alpha inhibiting 3	9	2	10
6680047	Gnb2l1	guanine nucleotide binding protein (G protein), beta polypeptide 2 like 1	11	17	5
294774564	Gng12	guanine nucleotide binding protein (G protein), gamma 12	4	4	4
84579906	Gng5	guanine nucleotide binding protein (G protein), gamma 5 subunit	1	0	0
6754004	Gna11	guanine nucleotide binding protein, alpha 11	5	0	0
89001109	Gna13	guanine nucleotide binding protein, alpha 13	4	0	0
84662745	Gnaq	guanine nucleotide binding protein, alpha q polypeptide	3	0	0
240120093	Gnl2	guanine nucleotide binding protein-like 2 (nucleolar)	0	0	2
229608938	Gnb1	guanine nucleotide-binding protein, beta-1 subunit	5	2	5
13937391	Gnb2	guanine nucleotide-binding protein, beta-2 subunit	11	8	12
33859560	Gdi1	guanosine diphosphate (GDP) dissociation inhibitor 1	11	0	0
116089273	Gdi2	guanosine diphosphate (GDP) dissociation inhibitor 2	21	6	0
6753950	Gbp2	guanylate binding protein 2	1	0	0
31560697	H1f0	H1 histone family, member 0	2	5	7
7106331	H2afx	H2A histone family, member X	2	3	6
283945575	H2afy	H2A histone family, member Y isoform 1	0	1	19
7949045	H2afz	H2A histone family, member Z	4	5	6
6680159	H3f3a	H3 histone, family 3A	1	1	1
6677819	Rras	Harvey rat sarcoma oncogene, subgroup R	2	1	2
7106329	Gsg2	haspin	0	0	1

122056689	Crebzf	HCF-binding transcription factor Zhangfei	1	0	0
6754160	Hax1	HCLS1 associated X-1	1	0	1
160948577	Hs1bp3	HCLS1 binding protein 3	2	0	0
75832031	Hddc2	HD domain containing 2	1	0	0
21312092	Hddc3	HD domain containing 3	1	0	0
84370019	Heca	headcase homolog	0	1	0
38505263	Heatr5a	HEAT repeat containing 5A	0	0	1
124487157	Heatr5b	HEAT repeat containing 5B	1	0	1
82880662	Hspa14	heat shock 70kDa protein 14 isoform 1	0	4	0
124339826	Hspa1b	heat shock 70kDa protein 1B	1	1	1
88196788	Tmem132a	heat shock 70kDa protein 5 binding protein 1	1	0	0
21311873	Hsbp1	heat shock factor binding protein 1	0	0	2
6680309	Hspe1	heat shock protein 1 (chaperonin 10)	6	0	0
183396771	Hspd1	heat shock protein 1 (chaperonin)	42	17	19
6754254	Hsp90aa1	heat shock protein 1, alpha	48	19	19
40556608	Hsp90ab1	heat shock protein 1, beta	26	7	11
50345978	Hspa2	heat shock protein 2	14	13	7
112293266	Hspa4	heat shock protein 4	29	14	2
40254361	Hspa4l	heat shock protein 4 like	5	1	0
254540168	Hspa5	heat shock protein 5	39	11	11
31981690	Hspa8	heat shock protein 8	19	24	22
162461907	Hspa9	heat shock protein 9	33	14	19
40807498	Hrsp12	heat-responsive protein 12	6	0	0
257196144	Herc1	hect (homologous to the E6-AP (UBE3A) carboxyl terminus) domain and RCC1 (CHC1)-like domain (RLD) 1	1	0	0
134288898	Herc2	hect (homologous to the E6-AP (UBE3A) carboxyl terminus) domain and RCC1 (CHC1)-like domain (RLD) 2	2	1	1
32451488	Herc4	hect domain and RLD 4	0	0	1
146231996	Huwe1	HECT, UBA and WWE domain containing 1	1	0	0
19111156	Dhx30	HELG	1	2	0
165932362	Helb	helicase (DNA) B	0	0	1
50355943	Helz	helicase with zinc finger domain	1	0	1
12232371	Hells	helicase, lymphoid specific	0	8	10
6680237	Hn1	hematological and neurological expressed sequence 1	0	1	0
225007593	Hmox2	heme oxygenase (decycling) 2	13	0	1
225690608	Hs6st1	heparan sulfate 6-O-sulfotransferase 1	0	1	0
237820655	Hbxip	hepatitis B virus x interacting protein	1	0	0
188497724	Hdgf	hepatoma-derived growth factor	7	12	0
6680201	Hdgfrp2	hepatoma-derived growth factor-related protein 2	2	6	2
254039596	Isca2	HESB like domain containing 1 isoform 1	5	0	0
21312189	Isca1	HESB like domain containing 2	1	0	0
171846285	Hp1bp3	heterochromatin protein 1, binding protein 3 isoform 1	0	24	13
226443091	Hnrnpa0	heterogeneous nuclear ribonucleoprotein A0	4	13	6
148664250	Hnrpdl	heterogeneous nuclear ribonucleoprotein D-like	1	9	7
110347535	Hnrpll	heterogeneous nuclear ribonucleoprotein L-like	5	21	3
20270289	Hexim1	hexamethylene bis-acetamide inducible 1	1	0	0
225735584	Hk1	hexokinase 1 isoform HK1-sb	35	37	37
7305143	Hk2	hexokinase 2	6	9	7
67514549	Hexa	hexosaminidase A	0	3	0
6754186	Hexb	hexosaminidase B	3	13	0
31982147	H6pd	hexose-6-phosphate dehydrogenase	15	1	0
226874952	Hgs	HGF-regulated tyrosine kinase substrate isoform 2	3	1	1
9789977	Higd1a	HIG1 domain family, member 1A	0	0	1
19527028	Hdlbp	high density lipoprotein binding protein	14	9	2

15022805	Hmg20a	high mobility group 20A	0	2	1
262331515	Hmga1	high mobility group AT-hook 1	0	7	2
6754210	Hmga2	high mobility group AT-hook 2	0	8	6
6754208	Hmgb1	high mobility group box 1	1	15	2
6680229	Hmgb2	high mobility group box 2	7	19	5
6680231	Hmgb3	high mobility group box 3	0	5	0
270132746	Hbp1	high mobility group box transcription factor 1 isoform 1	0	0	1
41406074	Hmgn1	high mobility group nucleosomal binding domain 1	0	3	2
8393534	Hmgn2	high mobility group nucleosomal binding domain 2	0	5	1
21313298	Hmgn3	high mobility group nucleosomal binding domain 3 isoform Hmgn3a	0	1	0
7949055	Hpcal1	hippocalcin-like 1	5	2	0
33468857	Hint1	histidine triad nucleotide binding protein 1	4	0	0
110625719	Hint2	histidine triad nucleotide binding protein 2	3	0	0
21312256	Dcps	histidine triad protein member 5	11	0	0
18079343	Hars2	histidyl-tRNA synthetase-like	2	0	0
227116337	H13	histocompatibility 13 isoform 2	3	0	0
6754148	H2-T23	histocompatibility 2, T region locus 23	1	0	0
28076885	Hat1	histone acetyltransferase 1	1	0	0
282154803	Nfu1	histone cell cycle regulation defective interacting protein 5	6	0	0
9845257	Hist1h1c	histone cluster 1, H1c	1	5	2
30061389	Hist1h2bl	histone cluster 1, H2bl	7	10	23
6680193	Hdac1	histone deacetylase 1	5	7	6
87162464	Hdac2	histone deacetylase 2	2	13	5
89257352	Hdac3	histone deacetylase 3	0	1	0
194353999	Hdac6	histone deacetylase 6	0	5	0
23956212	Htatsf1	HIV TAT specific factor 1	1	3	0
312261233	Bat2	HLA-B associated transcript 2	1	0	0
30519896	Bat5	HLA-B associated transcript 5	1	0	0
9790069	Bat1a	HLA-B-associated transcript 1A	6	12	7
33147082	Bat3	HLA-B-associated transcript 3	4	0	0
30794254	Hmgxb4	HMG box domain containing 4	0	1	0
213417775	Raly	hnRNP-associated with lethal yellow short isoform	2	7	14
6754232	Hoxa5	homeo box A5	0	1	0
160358780	Hoxb5	homeo box B5	0	1	0
21362265	Hoxb8	homeo box B8	0	1	0
158508520	Hoxd4	homeo box D4	0	1	0
31542626	Hmbx1	homeobox containing 1	0	1	0
22003856	Hook1	hook homolog 1	0	0	1
124487041	Hcfc2	host cell factor 2	0	1	1
34328130	Hcfc1	host cell factor C1	0	27	0
32451500	Hcfc1r1	host cell factor C1 regulator 1	0	1	1
117938312	Hivep1	human immunodeficiency virus type I enhancer binding protein 1	1	0	0
85861241	Hivep2	human immunodeficiency virus type I enhancer binding protein 2	1	0	0
255308928	Hip1r	huntingtin interacting protein 1 related	0	4	2
9055244	Prpf40b	huntington yeast partner C	3	2	0
226693396	Hmmr	hyaluronan mediated motility receptor (RHAMM)	1	0	0
61888838	Hsd17b10	hydroxyacyl-Coenzyme A dehydrogenase type II	16	15	8
227499240	Hagh	hydroxyacylglutathione hydrolase isoform 1 precursor	3	0	0
159110463	Hmbs	hydroxymethylbilane synthase isoform 1	3	0	0
9789991	Hsd17b12	hydroxysteroid (17-beta) dehydrogenase 12	8	0	5

31982273	Hsd17b4	hydroxysteroid (17-beta) dehydrogenase 4	24	25	3
30424792	Hsd1	hydroxysteroid dehydrogenase like 1	2	0	0
125656150	Hsd12	hydroxysteroid dehydrogenase like 2	11	4	0
70887767	Hic2	hypermethylated in cancer 2	2	1	1
22122445	Cdc73	hyperparathyroidism 2 homolog	0	16	0
253314482	4732474O15Rik	hypothetical protein	0	1	0
149249792	LOC667106	hypothetical protein	0	0	1
149259263	LOC672594	hypothetical protein	0	0	1
260593694	Syde2	hypothetical protein	1	1	0
94384306	EG667847	hypothetical protein isoform 2	0	0	1
19527154	6720456B07Rik	hypothetical protein LOC101314	1	3	0
56090602	D8Erd738e	hypothetical protein LOC101966	0	1	0
295054298	0610010K14Rik	hypothetical protein LOC104457	0	3	0
110625732	AI314976	hypothetical protein LOC106821	1	4	0
19527218	1810008A18Rik	hypothetical protein LOC108707	0	0	1
309267610	C330006A16Rik	hypothetical protein LOC109299	1	0	0
22122389	1110007A13Rik	hypothetical protein LOC210711	1	1	0
112817622	D15Erd621e	hypothetical protein LOC210998	1	0	0
253970387	BC021381	hypothetical protein LOC212483	0	0	1
268607692	BC003965	hypothetical protein LOC214489	1	0	0
116812912	E330016A19Rik	hypothetical protein LOC214763	1	0	0
21703824	Fam20b	hypothetical protein LOC215015	5	0	0
21450219	BC017643	hypothetical protein LOC217370	1	0	0
226958568	BC002230	hypothetical protein LOC217827 isoform 1	0	1	0
21450053	Fam49b	hypothetical protein LOC223601	6	0	0
85701776	5031439G07Rik	hypothetical protein LOC223739	1	0	0
31541868	2310008H04Rik	hypothetical protein LOC224008	1	0	0
113461986	D17Wsu92e	hypothetical protein LOC224647 isoform 1	0	0	1
161484644	AI661453	hypothetical protein LOC224833	2	1	1
23346595	2410015M20Rik	hypothetical protein LOC224904	1	0	2
124487015	Fam178a	hypothetical protein LOC226151	0	1	0
27369930	4632411B12Rik	hypothetical protein LOC226976	1	0	0
31981884	A830007P12Rik	hypothetical protein LOC227612	1	0	0
85701806	Gm561	hypothetical protein LOC228715	1	0	0
124487299	B230339M05Rik	hypothetical protein LOC228850	0	1	0
114205395	D930015E06Rik	hypothetical protein LOC229473	0	1	0
158341634	Fam160a1	hypothetical protein LOC229488	0	1	0
169646306	Fam40a	hypothetical protein LOC229707	0	0	1
37718970	AI314180	hypothetical protein LOC230249	4	1	0
255003755	Fam76a	hypothetical protein LOC230789 isoform A	0	1	0
85861260	C230096C10Rik	hypothetical protein LOC230866 isoform 1	11	0	5
22122693	BC023882	hypothetical protein LOC231123	0	1	0
148664203	BC023744	hypothetical protein LOC231668	1	0	0
55742803	C330023M02Rik	hypothetical protein LOC231713	1	3	0
82546849	C330006K01Rik	hypothetical protein LOC231855	0	0	1
170650679	E130309D02Rik	hypothetical protein LOC231868	0	2	0
29244114	AU022870	hypothetical protein LOC231874	1	0	0
110681698	D10627	hypothetical protein LOC234358	1	0	0
22003884	6430527G18Rik	hypothetical protein LOC238330	11	6	2
159110675	A630033E08Rik	hypothetical protein LOC240041 isoform b	0	1	0
22122859	BC031748	hypothetical protein LOC245622	0	0	1
124430709	2310021P13Rik	hypothetical protein LOC268721	0	0	1
282396075	C030048B08Rik	hypothetical protein LOC269623	1	0	0
267844902	D6Wsu116e	hypothetical protein LOC28006	1	0	0

21703842	D10Wsu52e	hypothetical protein LOC28088	6	6	2
18250288	D17Wsu104e	hypothetical protein LOC28106	3	0	0
86198339	A930041I02Rik	hypothetical protein LOC320271	0	1	0
254939685	A430041B07Rik	hypothetical protein LOC328108 isoform 11	1	0	0
141801938	D330038O06Rik	hypothetical protein LOC330788	0	0	1
50284537	BC049807	hypothetical protein LOC381066	0	1	0
197333803	Fam55c	hypothetical protein LOC385658	0	1	0
13384936	D10Erttd641e	hypothetical protein LOC52717	0	2	0
26553441	D1Bwg0212e	hypothetical protein LOC52846	0	0	1
10946822	0610007P14Rik	hypothetical protein LOC58520	2	0	1
292781931	D14Erttd449e	hypothetical protein LOC66039	2	0	0
124487393	0910001L09Rik	hypothetical protein LOC66096	2	0	0
227908787	1110008L16Rik	hypothetical protein LOC66132	0	1	0
13384786	1110031I02Rik	hypothetical protein LOC66179	0	0	1
124487145	1110037F02Rik	hypothetical protein LOC66185	0	15	0
13384816	1110059E24Rik	hypothetical protein LOC66206	0	1	0
13384876	1810009A15Rik	hypothetical protein LOC66276	0	2	0
224177530	1810013D10Rik	hypothetical protein LOC66278	1	0	0
269996023	2310008H09Rik	hypothetical protein LOC66356	1	0	0
30794468	2410001C21Rik	hypothetical protein LOC66404	1	4	0
13385042	2010309E21Rik	hypothetical protein LOC66488	2	0	0
165932364	2610528E23Rik	hypothetical protein LOC66497	0	3	0
242332593	2400001E08Rik	hypothetical protein LOC66508	1	0	1
33457314	2310061C15Rik	hypothetical protein LOC66531	1	0	0
27228993	6330409N04Rik	hypothetical protein LOC66674	2	0	0
160333500	Gm14446	hypothetical protein LOC667373 isoform 2	1	0	1
229577364	1200016B10Rik	hypothetical protein LOC66875	0	0	1
148276987	2410002O22Rik	hypothetical protein LOC66975 isoform 2	1	0	0
13385560	2900010M23Rik	hypothetical protein LOC67267	1	3	0
51571945	5730559C18Rik	hypothetical protein LOC67313	0	1	0
31981066	2410127L17Rik	hypothetical protein LOC67383	1	0	0
227330590	1810074P20Rik	hypothetical protein LOC67490	1	0	0
21313570	1810037I17Rik	hypothetical protein LOC67704	1	0	0
21312800	5033414D02Rik	hypothetical protein LOC67759	1	0	6
268837283	5830433M19Rik	hypothetical protein LOC67770	0	1	0
169646352	2610027L16Rik	hypothetical protein LOC67842	0	2	2
13385904	1700021F05Rik	hypothetical protein LOC67851	1	4	0
13259376	2310033P09Rik	hypothetical protein LOC67862	1	1	1
30424683	1810063B05Rik	hypothetical protein LOC67892	1	1	0
13385950	2510049I19Rik	hypothetical protein LOC67922	0	0	1
13386026	2700060E02Rik	hypothetical protein LOC68045	8	9	1
145587094	9430016H08Rik	hypothetical protein LOC68115	2	0	0
124486662	1110014N23Rik	hypothetical protein LOC68505	2	0	1
85362708	2310036O22Rik	hypothetical protein LOC68544	0	4	0
134053922	1110002N22Rik	hypothetical protein LOC68550	0	4	2
146134519	1110020G09Rik	hypothetical protein LOC68646 isoform 2	1	0	0
170172570	1110028C15Rik	hypothetical protein LOC68691 isoform 1	0	1	0
83649762	ORF19	hypothetical protein LOC68767	3	1	0
112181297	1110038D17Rik	hypothetical protein LOC68778	1	0	0
269995975	1110057K04Rik	hypothetical protein LOC68832	2	0	0
58037137	1500032L24Rik	hypothetical protein LOC69029	3	0	1
110625730	1810027O10Rik	hypothetical protein LOC69186	1	0	1
254675210	2310004N24Rik	hypothetical protein LOC69535	0	1	0
31981558	2310037I24Rik	hypothetical protein LOC69612	0	1	0

30519953	1810026J23Rik	hypothetical protein LOC69773	1	0	0
117647253	2010321M09Rik	hypothetical protein LOC69882	0	9	1
28076933	2010305A19Rik	hypothetical protein LOC69893	3	0	0
21312460	2010107G23Rik	hypothetical protein LOC69894	1	0	0
227430284	2810432D09Rik	hypothetical protein LOC69961	0	2	0
21312536	2310005N01Rik	hypothetical protein LOC70088	0	2	2
309271794	2210011C24Rik	hypothetical protein LOC70134	0	2	5
121583673	2510012J08Rik	hypothetical protein LOC70312	0	0	1
27229101	5730469M10Rik	hypothetical protein LOC70564	5	0	1
28076961	5730508B09Rik	hypothetical protein LOC70617	1	0	1
313747468	4931406C07Rik	hypothetical protein LOC70984	2	0	0
166851844	4930506M07Rik	hypothetical protein LOC71653 isoform 2	4	0	0
117956375	0610010F05Rik	hypothetical protein LOC71675	0	1	0
251823881	1700030K09Rik	hypothetical protein LOC72254	1	0	0
262118187	2610507B11Rik	hypothetical protein LOC72503	1	0	0
198278498	2700029M09Rik	hypothetical protein LOC72612	0	3	0
139948818	Fam98a	hypothetical protein LOC72722	0	2	0
315139016	2810455K09Rik	hypothetical protein LOC72805	0	1	0
28849885	Fam76b	hypothetical protein LOC72826	1	3	0
153791468	3110003A17Rik	hypothetical protein LOC73112	1	0	0
146134371	3110082I17Rik	hypothetical protein LOC73212	2	3	1
158937256	2410091C18Rik	hypothetical protein LOC73694	0	0	1
21311939	1300018I05Rik	hypothetical protein LOC74157	0	1	0
33859728	4933427D14Rik	hypothetical protein LOC74477	0	1	0
21312828	4930444A02Rik	hypothetical protein LOC74653	0	1	0
70778924	4930432O21Rik	hypothetical protein LOC74670	0	0	1
188497646	4930471M23Rik	hypothetical protein LOC74919	1	0	0
41680647	Fam63a	hypothetical protein LOC75007	2	0	0
90819235	4930547N16Rik	hypothetical protein LOC75317	1	0	1
27229109	3200002M19Rik	hypothetical protein LOC75430	0	1	0
145301546	Fam65a	hypothetical protein LOC75687	1	0	0
113461996	6330578E17Rik	hypothetical protein LOC76178	0	1	0
268370105	1500005K14Rik	hypothetical protein LOC76566	0	2	1
124486668	1700081L11Rik	hypothetical protein LOC76719	0	0	1
166063959	C330007P06Rik	hypothetical protein LOC77644	0	1	0
261599071	6030458C11Rik	hypothetical protein LOC77877	1	0	0
21704218	8430410K20Rik	hypothetical protein LOC78100	0	0	1
31044487	B230219D22Rik	hypothetical protein LOC78521	0	5	3
285402250	2700078E11Rik	hypothetical protein LOC78832	1	0	0
13384892	BC003266	hypothetical protein LOC80284	1	0	0
190014629	C430004E15Rik	hypothetical protein LOC97031	0	6	1
75677516	C77080	hypothetical protein LOC97130	0	2	0
247300872	A430005L14Rik	hypothetical protein LOC97159 isoform 1	0	2	0
19527012	4833439L19Rik	hypothetical protein LOC97820	1	0	0
96975138	Hprt1	hypoxanthine phosphoribosyltransferase 1	4	0	0
157951706	Hyou1	hypoxia up-regulated 1	39	7	0
7657220	Icosl	icos ligand	1	0	0
33468955	Ik	IK cytokine	1	6	10
31982165	Ikzf5	IKAROS family zinc finger 5	0	0	1
30424591	Ilvbl	ilvB (bacterial acetolactate synthase)-like	0	1	0
19387848	Ict1	immature colon carcinoma transcript 1	1	4	0
208431800	Irgq	immunity-related GTPase family, Q	0	0	1
304555605	Igbbp1	immunoglobulin (CD79A) binding protein 1	1	0	0
71040102	Cadm1	immunoglobulin superfamily, member 4A isoform a	2	0	0

32189434	Igsf8	immunoglobulin superfamily, member 8	1	0	0
19527196	Imp3	IMP3, U3 small nucleolar ribonucleoprotein, homolog	0	3	4
31541898	Ipo11	importin 11	0	0	2
112734861	Ipo9	importin 9	3	0	4
55769581	Inadl	InaD-like isoform 1	1	0	11
6678281	Inmt	indolethylamine N-methyltransferase	8	0	7
19111152	Ing4	inhibitor of growth family, member 4	0	1	1
21313552	Ing5	inhibitor of growth family, member 5	0	0	1
70608131	Immt	inner membrane protein, mitochondrial	24	0	38
22203753	Ppa2	inorganic pyrophosphatase 2	5	0	0
31981382	Impdh2	inosine 5'-phosphate dehydrogenase 2	1	0	0
31982664	Itpa	inosine triphosphatase	3	0	0
31980942	Impa1	inositol (myo)-1(or 4)-monophosphatase 1	6	0	0
60593032	Itp2	inositol 1,4,5-triphosphate receptor 2 isoform 1	1	1	1
61102728	Itp3	inositol 1,4,5-triphosphate receptor 3	0	0	1
225903432	Ip6k2	inositol hexaphosphate kinase 2	0	1	0
13249351	Ern1	inositol-requiring 1 alpha	1	0	0
121583922	Ide	insulin-degrading enzyme	9	0	0
145207996	Igf2bp2	insulin-like growth factor 2 mRNA binding protein 2	16	9	7
133778978	Igf2r	insulin-like growth factor 2 receptor	14	0	0
226958453	Igfbp7	insulin-like growth factor binding protein 7 isoform 2	1	1	0
112983656	Igf1r	insulin-like growth factor I receptor	1	0	0
148747128	Stt3a	integral membrane protein 1	5	0	0
6680502	Itm2b	integral membrane protein 2B	3	0	0
294832004	Ints1	integrator complex subunit 1	1	19	4
27229115	Ints10	integrator complex subunit 10	1	2	1
86476084	Ints2	integrator complex subunit 2	0	2	1
31652268	Ints3	integrator complex subunit 3	0	26	3
30794414	Ints4	integrator complex subunit 4	0	13	4
28849895	Ints5	integrator complex subunit 5	0	5	2
51467749	Ints6	integrator complex subunit 6	0	0	1
153791768	Ints7	integrator complex subunit 7	0	2	1
227430333	Ints8	integrator complex subunit 8	1	2	0
7305189	Itga3	integrin alpha 3	24	0	0
31982236	Itga6	integrin alpha 6	17	0	0
268839462	Itfg1	integrin alpha FG-GAP repeat containing 1	2	0	0
329744577	Itfg3	integrin alpha FG-GAP repeat containing 3	3	0	0
154240716	Itgav	integrin alpha V	22	0	0
45504394	Itgb1	integrin beta 1	25	0	0
6680488	Itgb1bp1	integrin beta 1 binding protein 1	0	1	0
110735428	Itgb4	integrin beta 4 isoform 1	12	0	0
225007621	Itgb5	integrin beta 5 isoform 1	6	0	0
227116271	Itgb6	integrin beta 6	4	0	1
240255653	Ilk	integrin-linked kinase	0	1	0
39930415	Ilkap	integrin-linked kinase-associated serine/threonine phosphatase 2C	0	1	0
125628657	Ifi30	interferon gamma inducible protein 30	5	0	0
257096038	Ifih1	interferon induced with helicase C domain 1	0	1	0
162287051	Irf2	interferon regulatory factor 2	0	2	0
31982348	Irf2bp1	interferon regulatory factor 2 binding protein 1	1	0	1
114145467	Irf6	interferon regulatory factor 6	0	1	0
165377193	Isg20	interferon stimulated exonuclease	2	4	0
33469019	Prkrir	interferon-inducible, double stranded RNA dependent inhibitor, protein-kinase	0	2	0

226062273	lfrd1	interferon-related developmental regulator 1	1	0	1
183396776	ll1r1	interleukin 1 receptor, type I isoform 1	0	0	1
13385872	llf2	interleukin enhancer binding factor 2	1	17	9
111607436	llf3	interleukin enhancer binding factor 3 isoform 1	0	23	12
184186088	lft140	intraflagellar transport 140	0	1	0
254039594	lqwd1	IQ motif and WD repeats 1	0	1	0
40254171	lqce	IQ motif containing E	0	1	1
242332572	lqgap1	IQ motif containing GTPase activating protein 1	55	45	30
31543001	Tbl1xr1	IRA1 protein	0	3	0
254281215	lreb2	iron responsive element binding protein 2	0	0	1
162417977	ldh1	isocitrate dehydrogenase 1 (NADP+), soluble	6	0	0
225579033	ldh2	isocitrate dehydrogenase 2 (NADP+), mitochondrial	23	2	6
18250284	ldh3a	isocitrate dehydrogenase 3 (NAD+) alpha	14	0	6
6680345	ldh3g	isocitrate dehydrogenase 3 (NAD+), gamma	8	0	0
18700024	ldh3b	isocitrate dehydrogenase 3, beta subunit	16	1	1
254553372	lars	isoleucine tRNA synthetase	3	0	0
281604088	ldi1	isopentenyl-diphosphate delta isomerase isoform 2	4	0	0
9789985	lvd	isovaleryl coenzyme A dehydrogenase	12	0	0
20149316	lsy1	ISY1 splicing factor homolog	0	0	3
124487317	ltch	itchy, E3 ubiquitin protein ligase	1	0	0
30352010	lws1	IWS1 homolog	0	9	0
114326480	Jak2	Janus kinase 2	0	0	1
225703114	Hscb	J-type co-chaperone HSC20	1	0	0
334724461	Jmjd1c	jumonji domain containing 1C	0	1	0
226958545	Jarid1a	jumonji, AT rich interactive domain 1A (Rbp2 like) isoform 1	0	4	1
46049047	Jtb	jumping translocation breakpoint	1	0	0
28395018	Jup	junction plakoglobin	16	9	27
31543047	Kpna1	karyopherin (importin) alpha 1	0	2	1
6754474	Kpna2	karyopherin (importin) alpha 2	0	1	2
6680596	Kpna3	karyopherin (importin) alpha 3	0	9	1
227116300	Kpna6	karyopherin (importin) alpha 6	1	1	1
88014720	Kpnb1	karyopherin (importin) beta 1	14	27	21
6680598	Kpna4	karyopherin alpha 4	3	6	3
84095201	Katnb1	katanin p80 (WD40-containing) subunit B 1	0	1	0
12963767	Kdelc1	KDEL (Lys-Asp-Glu-Leu) containing 1	0	4	0
47078285	Kdelc2	KDEL (Lys-Asp-Glu-Leu) containing 2 protein	2	0	0
13385318	Kdelr2	KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 2	1	1	1
19527170	Kdelr1	KDEL endoplasmic reticulum protein retention receptor 1	1	0	1
124486935	Kdm3b	KDM3B lysine (K)-specific demethylase 3B	1	0	0
255683384	Klhdc4	kelch domain containing 4	1	0	0
254540068	Krt18	keratin 18	30	30	51
6680606	Krt19	keratin 19	26	22	33
21592285	Krt20	keratin 20	19	21	32
15431281	Krt23	keratin 23	0	0	1
154090941	Krt42	keratin 42	2	2	3
14861854	Krt7	keratin 7	26	22	38
124249090	Krt80	keratin 80	0	0	1
114145561	Krt8	keratin complex 2, basic, gene 8	33	33	57
13384696	Krtcap2	keratinocyte associated protein 2	1	0	0
110626031	Khdrbs1	KH domain containing, RNA binding, signal transduction associated 1	3	4	3
163954948	Khsrp	KH-type splicing regulatory protein	9	30	3



9910458	0610031J06Rik	kidney predominant protein NCU-G1	4	0	1
144922638	Ktn1	kinectin 1	22	0	2
120300944	Kif13a	kinesin family member 13A	1	2	2
124487163	Kif13b	kinesin family member 13B	5	6	1
124487287	Kif16b	kinesin family member 16B	1	0	0
86990460	Kif1b	kinesin family member 1B isoform b	0	0	1
261862322	Kif20a	kinesin family member 20A	0	1	1
157823795	Kif21a	kinesin family member 21A isoform 4	1	0	1
21704182	Kif22	kinesin family member 22	1	0	0
224809373	Kif2a	kinesin family member 2A isoform 1	0	3	0
162287089	Kif4	kinesin family member 4	0	1	0
61657921	Kif5b	kinesin family member 5B	15	18	12
116642893	Kifc1	kinesin family member C1	0	1	0
224967075	Kifc3	kinesin family member C3 isoform a	0	0	1
131412207	Klc1	kinesin light chain 1 isoform 1H	0	2	0
22122725	Klc3	kinesin light chain 3	0	2	0
13386370	Klc4	kinesin light chain 4	1	0	0
226442952	Krr1	KRR1, small subunit processome component	0	1	0
144922690	Kif16	Kruppel-like factor 16	0	1	0
170784840	Kif2	Kruppel-like factor 2 (lung)	0	1	0
20270210	Kti12	KTI12 homolog, chromatin associated	0	1	0
34328234	Spint1	Kunitz-type protease inhibitor 1 precursor	2	0	0
112293279	L1cam	L1 cell adhesion molecule	1	0	0
21703884	L2hgdh	L-2-hydroxyglutarate dehydrogenase	3	1	0
111038118	Hadh	L-3-hydroxyacyl-Coenzyme A dehydrogenase	14	9	2
226442901	Larp1	la related protein	2	0	0
110665742	Larp7	La ribonucleoprotein domain family, member 7	2	3	0
13507666	Lactb	lactamase, beta	0	3	0
144922663	Lace1	lactation elevated 1	2	0	0
31981555	Lad1	ladinin	2	19	2
22095015	Lass2	LAG1 homolog, ceramide synthase 2	3	0	0
162287370	Lmna	lamin A isoform C	0	34	51
229608895	Lbr	lamin B receptor	1	4	16
188219589	Lmnb1	lamin B1	0	23	38
113195686	Lmnb2	lamin B2	0	12	32
114326497	Lamb1-1	laminin B1 subunit 1	24	0	0
226423935	Lama3	laminin, alpha 3	0	2	0
124487155	Lama5	laminin, alpha 5	1	0	0
153791270	Lamc1	laminin, gamma 1	1	1	0
19526936	Lancl2	LanC (bacterial lantibiotic synthetase component C)-like 2	0	2	3
22122469	Lss	lanosterol synthase	4	0	0
71979675	Las1l	LAS1-like	0	4	1
31980632	Lxn	latexin	2	0	2
157739867	Lphn1	latrophilin 1 precursor	0	0	1
124486821	Lphn2	latrophilin 2	1	0	0
6678682	Lgals1	lectin, galactose binding, soluble 1	5	4	1
226531139	Lgals9	lectin, galactose binding, soluble 9 isoform 1	0	0	1
34328278	Lman2	lectin, mannose-binding 2	9	0	0
285026450	Lman1	lectin, mannose-binding, 1	8	0	0
7242187	Lgmn	legumain	5	2	2
165972321	Lemd2	LEM domain containing 2	0	0	9
145864461	Lemd3	LEM domain containing 3	0	0	8
19527168	Psp1	lens epithelium-derived growth factor	1	19	0

27734076	Leprel1	leprecan-like 1	2	0	0
13386094	Leprotl1	leptin receptor overlapping transcript-like 1	1	0	0
144922656	Ligl2	lethal giant larvae homolog 2	4	23	0
255069715	Lap3	leucine aminopeptidase 3	7	0	0
162417952	Lrrfip1	leucine rich repeat (in FLII) interacting protein 1 isoform 1	12	7	0
258679524	Lrrfip2	leucine rich repeat (in FLII) interacting protein 2	0	2	0
254675306	Lrrcc1	leucine rich repeat and coiled-coil domain containing 1 isoform 3	0	0	1
225690585	Lrrc1	leucine rich repeat containing 1 isoform 2	3	0	5
31541911	Lrrc40	leucine rich repeat containing 40	1	0	1
41152116	Lrrc47	leucine rich repeat containing 47	2	3	0
19527026	Lrrc59	leucine rich repeat containing 59	10	5	6
251823957	Lrrc8e	leucine rich repeat containing 8 family, member E	0	1	0
119433663	Luzp1	leucine zipper protein 1	1	1	1
91208439	Ncapp2	leucine zipper protein 5	1	7	0
9789997	Letm1	leucine zipper-EF-hand containing transmembrane protein 1	17	2	3
134031976	Lrpprc	leucine-rich PPR motif-containing protein	47	29	10
88014689	Lrig1	leucine-rich repeats and immunoglobulin-like domains 1	1	0	0
27370240	Lnpep	leucyl/cystinyl aminopeptidase	10	0	0
120537241	Lars	leucyl-tRNA synthetase	2	0	0
23346617	Lars2	leucyl-tRNA synthetase, mitochondrial	1	0	0
27370082	Leng8	leukocyte receptor cluster member 8	0	2	0
116734870	Lta4h	leukotriene A4 hydrolase	7	0	0
253683551	Lcorl	ligand dependent nuclear receptor corepressor-like isoform 2	0	0	1
71061470	Lig3	ligase III, DNA, ATP-dependent	1	3	0
6754506	Large	like-glycosyltransferase	1	0	0
300863089	Lims1	LIM and senescent cell antigen-like domains 1	0	1	0
6754508	Lasp1	LIM and SH3 protein 1	8	2	0
165905585	Lima1	LIM domain and actin binding 1 isoform b	0	5	21
164663818	Ldb1	LIM domain binding 1 isoform 1	1	0	0
239937458	Lmo4	LIM domain only 4	0	1	0
157311641	Lmo7	LIM domain only 7	0	0	18
77404365	Limk2	LIM motif-containing protein kinase 2 isoform b	0	1	0
13195646	Crip2	LIM only protein HLP	5	2	1
124487213	4921513D23Rik	limkain b1	1	1	2
6755973	Lin7c	lin 7 homolog c	2	5	3
30424607	Lin52	lin-52 homolog	1	0	0
13277380	Lias	lipoic acid synthetase	0	4	0
123701962	Lmbrd1	liver regeneration p-53 related protein	1	0	0
257743039	Ldha	L-lactate dehydrogenase A isoform 1	17	2	2
31982520	Acadl	long-chain acyl-CoA dehydrogenase	14	1	2
113195700	Ldlr	low density lipoprotein receptor	1	0	1
124494256	Lrp1	low density lipoprotein receptor-related protein 1	2	0	0
124487372	Lrp2	low density lipoprotein receptor-related protein 2	45	4	8
124286870	Lrp8	low density lipoprotein receptor-related protein 8 isoform 1	1	1	2
63999380	Lrpap1	low density lipoprotein receptor-related protein associated protein 1	4	0	0
117956399	Lrba	LPS-responsive beige-like anchor isoform alpha	35	3	8
31711990	Lsm12	LSM12 homolog	0	3	0
23956156	Lsm14a	LSM14 homolog A	1	2	0
13385806	Lsm3	LSM3 homolog, U6 small nuclear RNA associated	2	3	1

159032056	Lsm4	LSM4 homolog, U6 small nuclear RNA associated	1	3	1
13384942	Lsm5	LSM5 homolog, U6 small nuclear RNA associated	0	1	0
300797601	Lsm6	LSM6 homolog, U6 small nuclear RNA associated	2	4	1
13384714	Lsm7	LSM7 homolog, U6 small nuclear RNA associated	3	3	0
114158677	Luc7l	Luc7 homolog ( <i>S. cerevisiae</i> )-like isoform 1	1	0	1
283806685	Luc7l2	LUC7-like 2	1	3	2
158937329	Lnp	lunapark isoform a	2	1	0
188219567	Lyar	Ly1 antibody reactive clone	2	9	0
31982233	Mtdh	LYRIC	3	0	0
26006857	Kdm4b	lysine (K)-specific demethylase 4B	0	2	0
198386326	Lpgat1	lysophosphatidylglycerol acyltransferase 1 isoform 2	1	0	1
6678760	Lypla1	lysophospholipase 1	2	0	0
7242156	Lypla2	lysophospholipase 2	1	0	0
227496223	Lyplal1	lysophospholipase-like 1	2	0	0
113195678	Lamp1	lysosomal membrane glycoprotein 1	6	0	0
63054837	Lamp2	lysosomal membrane glycoprotein 2 isoform 1	5	0	0
195963321	Kars	lysyl-tRNA synthetase isoform 2	14	4	0
21312048	Mphosph6	M phase phosphoprotein 6	0	5	1
160707919	Mfsd6	macrophage MHC receptor 2 isoform 1	1	0	0
6754696	Mif	macrophage migration inhibitory factor	2	1	1
31543224	Smad4	MAD homolog 4	0	2	0
31543218	Mad2l1	MAD2 mitotic arrest deficient-like 1	0	7	1
254826797	Mad2l1bp	MAD2L1 binding protein	0	3	0
12963595	Ndn12	mage-g1 protein	0	1	1
27229238	Mgrn1	mahogunin, ring finger 1	2	0	0
21313266	Mfsd1	major facilitator superfamily domain containing 1	1	0	0
21312422	Nat13	Mak3p homolog	2	8	0
30725780	Mal2	MAL2 proteolipid protein	1	1	1
254540027	Mdh1	malate dehydrogenase 1, NAD (soluble)	11	0	0
31982186	Mdh2	malate dehydrogenase 2, NAD (mitochondrial)	18	16	7
188497650	Mlec	malectin	6	0	2
21703972	Me2	malic enzyme 2, NAD(+)-dependent, mitochondrial	10	0	0
21312175	Mcts1	malignant T cell amplified sequence 1	0	6	0
13384966	Mcts2	malignant T cell amplified sequence 2	0	3	0
71725343	Mcat	malonyl CoA:ACP acyltransferase (mitochondrial)	1	1	0
31560090	Plbd2	mannose-6-phosphate protein p76	5	0	0
13385312	M6prbp1	mannose-6-phosphate receptor binding protein 1	8	0	1
14916479	M6pr	mannose-6-phosphate receptor, cation dependent	4	0	0
31981340	Mpdu1	mannose-P-dolichol utilization defect 1	3	0	0
71534295	Man1b1	mannosidase, alpha, class 1B, member 1	0	0	2
113195690	Man2b1	mannosidase, alpha, class 2B, member 1	2	2	0
158533990	Manba	mannosidase, beta A, lysosomal	9	16	0
254540070	Manbal	mannosidase, beta A, lysosomal-like	1	0	0
22122521	Mgat2	mannoside acetylglucosaminyltransferase 2	0	1	0
31981106	Mogs	mannosyl-oligosaccharide glucosidase	5	1	2
45544580	Mapkapk2	MAP kinase-activated protein kinase 2	1	0	0
122937363	Mark2	MAP/microtubule affinity-regulating kinase 2 isoform 1	3	4	2
251823812	Mark3	MAP/microtubule affinity-regulating kinase 3 isoform 2	1	1	0
21703882	Mbip	MAP3K12 binding inhibitory protein 1	0	3	0
21312626	2400003C14Rik	MAPK activating protein PM28	0	2	0
295148182	Madd	MAP-kinase activating death domain	0	2	0
6754706	Marcks1	MARCKS-like 1	1	0	0
57222238	Bud31	maternal G10 transcript	0	4	2
25141233	Matr3	matrin 3	4	24	31

7363445	St14	matriptase	6	0	0
226051848	Max	Max protein isoform 1	0	4	0
20070410	Med10	mediator complex subunit 10	0	5	0
125628662	Med12	mediator complex subunit 12	0	9	0
132626693	Mdc1	mediator of DNA damage checkpoint 1	0	10	1
27754138	Med11	mediator of RNA polymerase II transcription, subunit 11 homolog	0	3	1
21313064	Med18	mediator of RNA polymerase II transcription, subunit 18 homolog	0	3	0
21313194	Med19	mediator of RNA polymerase II transcription, subunit 19	0	2	0
56119162	Med31	mediator of RNA polymerase II transcription, subunit 31 homolog	0	2	1
114155155	Med8	mediator of RNA polymerase II transcription, subunit 8 homolog isoform 1	0	1	0
6680618	Acadm	medium-chain acyl-CoA dehydrogenase	17	5	1
9055282	Mre11a	meiotic recombination 11 homolog A	0	10	0
11096332	Myg1	melanocyte proliferating gene 1	2	0	0
9789935	Maged1	melanoma antigen family D, 1	0	1	0
124001582	Mia3	melanoma inhibitory activity 3	7	0	0
53759066	ORF61	membralin	2	0	0
134031999	Magi1	membrane associated guanylate kinase, WW and PDZ domain containing 1 isoform c	0	2	2
226823238	Magi3	membrane associated guanylate kinase, WW and PDZ domain containing 3 isoform 2	0	0	1
23956314	Mboat1	membrane bound O-acyltransferase domain containing 1	1	0	0
22122803	Mmg1	membrane magnesium transporter 1	2	0	0
58037337	Paqr5	membrane progesterin receptor gamma	1	0	0
9625023	Mpp5	membrane protein, palmitoylated 3 (MAGUK p55 subfamily member 5)	0	0	4
257900520	Mpp6	membrane protein, palmitoylated 3 (MAGUK p55 subfamily member 6)	0	2	1
239051572	Mpp7	membrane protein, palmitoylated 7 isoform 1	13	13	2
257095992	Pdzk1ip1	membrane-associated protein 17	1	0	0
256773303	March5	membrane-associated ring finger (C3HC4) 5	3	0	1
10181210	March7	membrane-associated ring finger (C3HC4) 7	1	0	0
89363038	Mnat1	menage a trois 1	0	1	0
110625813	Manf	mesencephalic astrocyte-derived neurotrophic factor	0	9	0
228480219	Mesdc2	mesoderm development candidate 2	3	0	0
9256568	Msln	mesothelin	1	0	0
7305285	Mt1	metallothionein 1	1	0	0
33468863	Mt2	metallothionein 2	0	1	0
91598896	Mta1	metastasis associated 1	0	3	5
283806541	Mta3	metastasis associated 3	0	7	0
51491880	Mta2	metastasis-associated gene family, member 2	1	15	10
241982742	Mtx1	metaxin 1 isoform 1	7	0	9
228480241	Mtx2	metaxin 2	6	0	9
21704144	Mat2a	methionine adenosyltransferase II, alpha	3	0	0
313482787	Mat2b	methionine adenosyltransferase II, beta	3	0	0
9789873	Metap2	methionine aminopeptidase 2	1	2	0
51491852	Mars	methionine-tRNA synthetase	5	2	0
28202007	Metap1	methionyl aminopeptidase 1	0	6	0
126517469	Mecp2	methyl CpG binding protein 2 isoform 2	0	12	2
157817372	Mbd1	methyl-CpG binding domain protein 1	0	1	0
218931229	Mbd2	methyl-CpG binding domain protein 2	2	3	2

7305261	Mbd3	methyl-CpG binding domain protein 3	0	5	3
119433655	Mbd5	methyl-CpG binding domain protein 5	1	0	0
186700620	Mccc1	methylcrotonoyl-Coenzyme A carboxylase 1 (alpha)	4	0	0
73622267	Mccc2	methylcrotonoyl-Coenzyme A carboxylase 2 (beta)	8	1	0
283135114	Mthfd1l	methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1-like	14	14	1
261878543	Mthfd1	methylenetetrahydrofolate dehydrogenase 1	21	10	0
6678952	Mthfd2	methylenetetrahydrofolate dehydrogenase 2	0	1	0
148540106	Mut	methylmalonyl-Coenzyme A mutase	12	0	0
21312938	Mett10d	methyltransferase 10 domain containing	1	0	0
27229243	Mett5d1	methyltransferase 5 domain containing 1	1	1	0
13385728	Mfap1a	microfibrillar-associated protein 1A	1	5	5
226529982	Morc2a	microorchidia 2A isoform 2	0	1	1
255003723	Morc3	microorchidia 3	0	1	1
13385010	Mgst3	microsomal glutathione S-transferase 3	1	0	4
31980615	Mcrs1	microspherule protein 1	0	2	0
312433957	Macf1	microtubule-actin crosslinking factor 1	8	33	3
148747189	Mtap4	microtubule-associated protein 4	6	4	0
124486997	Mtap9	microtubule-associated protein 9	1	1	0
7106301	Mapre1	microtubule-associated protein, RP/EB family, member 1	2	7	0
109627648	Mcm3ap	minichromosome maintenance complex component 3 associated protein	0	1	1
255918149	Mcm4	minichromosome maintenance complex component 4	20	9	4
6678832	Mcm6	minichromosome maintenance complex component 6	28	5	5
10242373	Mcm7	minichromosome maintenance complex component 7	28	7	8
172088119	Mcm2	minichromosome maintenance deficient 2 mitotin	29	8	4
33859484	Mcm3	minichromosome maintenance deficient 3	33	12	3
112293273	Mcm5	minichromosome maintenance deficient 5, cell division cycle 46	23	10	7
31542008	Mcm8	minichromosome maintenance deficient 8	0	0	1
30794474	Mrps7	mitochondrial ribosomal protein S7	3	2	1
13385012	Magmas	mitochondria-associated granulocyte macrophage CSF signaling molecule	3	2	2
329755292	Mavs	mitochondrial antiviral signaling protein	4	0	3
31980648	Atp5b	mitochondrial ATP synthase beta subunit	36	14	23
158749545	Slc25a40	mitochondrial carrier family protein	1	0	0
9845273	Mtch1	mitochondrial carrier homolog 1	2	0	6
9790055	Mtch2	mitochondrial carrier homolog 2	8	1	11
281332113	Polrmt	mitochondrial DNA-directed RNA polymerase	0	1	0
34536827	Gpam	mitochondrial glycerol 3-phosphate acyltransferase	0	1	0
38490690	Iars2	mitochondrial isoleucine tRNA synthetase	9	0	0
9790049	2610024G14Rik	mitochondrial nitric oxide synthase	0	1	0
28077029	Pck2	mitochondrial phosphoenolpyruvate carboxykinase 2	12	0	3
95113671	Pmpcb	mitochondrial processing peptidase beta subunit	2	0	0
254039729	Rhot1	mitochondrial Rho 1 isoform 1	3	0	1
84875532	Mrpl1	mitochondrial ribosomal protein L1 isoform 2	8	5	1
13385658	Mrpl10	mitochondrial ribosomal protein L10	3	2	1
13384980	Mrpl11	mitochondrial ribosomal protein L11	5	7	0
22164792	Mrpl12	mitochondrial ribosomal protein L12	4	5	2
21312936	Mrpl13	mitochondrial ribosomal protein L13	0	3	0
21312028	Mrpl14	mitochondrial ribosomal protein L14	2	2	0
33468983	Mrpl15	mitochondrial ribosomal protein L15	2	0	0
19424352	Mrpl16	mitochondrial ribosomal protein L16	1	0	1
13384658	Mrpl17	mitochondrial ribosomal protein L17	0	1	0

13385808	Mrpl18	mitochondrial ribosomal protein L18	0	6	0
13385976	Mrpl19	mitochondrial ribosomal protein L19	1	1	0
13384660	Mrpl2	mitochondrial ribosomal protein L2	1	0	1
20270194	Mrpl20	mitochondrial ribosomal protein L20	2	2	0
31982032	Mrpl21	mitochondrial ribosomal protein L21	2	4	0
262263310	Mrpl22	mitochondrial ribosomal protein L22	2	5	0
6755352	Mrpl23	mitochondrial ribosomal protein L23	5	6	0
16716447	Mrpl27	mitochondrial ribosomal protein L27	4	2	0
31981470	Mrpl3	mitochondrial ribosomal protein L3	1	0	0
21312302	Mrpl30	mitochondrial ribosomal protein L30	0	1	0
16716449	Mrpl34	mitochondrial ribosomal protein L34	2	1	0
22128625	Mrpl37	mitochondrial ribosomal protein L37	0	1	0
124430535	Mrpl38	mitochondrial ribosomal protein L38	3	2	0
31560438	Mrpl39	mitochondrial ribosomal protein L39	3	1	0
119508437	Mrpl4	mitochondrial ribosomal protein L4	1	3	0
255003746	Mrpl40	mitochondrial ribosomal protein L40	2	2	0
113461980	Mrpl41	mitochondrial ribosomal protein L41	1	2	0
17298676	Mrpl43	mitochondrial ribosomal protein L43	0	1	0
124487075	Mrpl44	mitochondrial ribosomal protein L44	4	2	1
12963643	Mrpl46	mitochondrial ribosomal protein L46	1	2	1
29826332	Mrpl47	mitochondrial ribosomal protein L47	1	4	0
148368964	Mrpl48	mitochondrial ribosomal protein L48	1	3	0
13385752	Mrpl49	mitochondrial ribosomal protein L49	3	3	0
13385050	Mrpl51	mitochondrial ribosomal protein L51	1	1	1
21313040	Mrpl53	mitochondrial ribosomal protein L53	3	3	0
21313400	Mrpl55	mitochondrial ribosomal protein L55	2	1	1
29789253	Mrpl9	mitochondrial ribosomal protein L9	2	2	0
226246598	Mrps10	mitochondrial ribosomal protein S10 isoform 3	4	5	0
13384894	Mrps14	mitochondrial ribosomal protein S14	1	1	0
48526512	Mrps15	mitochondrial ribosomal protein S15	5	1	0
13384844	Mrps16	mitochondrial ribosomal protein S16	2	0	0
13384854	Mrps17	mitochondrial ribosomal protein S17	0	2	0
17505206	Mrps18a	mitochondrial ribosomal protein S18A	0	1	0
23956152	Mrps18b	mitochondrial ribosomal protein S18B	0	1	0
58037129	Mrps18c	mitochondrial ribosomal protein S18C	0	1	0
260593698	Mrps2	mitochondrial ribosomal protein S2	2	3	0
17505220	Mrps21	mitochondrial ribosomal protein S21	2	1	0
27228982	Mrps23	mitochondrial ribosomal protein S23	3	7	1
13385578	Mrps24	mitochondrial ribosomal protein S24	1	2	0
31981257	Mrps25	mitochondrial ribosomal protein S25	1	1	0
46402169	Mrps26	mitochondrial ribosomal protein S26	4	4	0
50980303	Mrps27	mitochondrial ribosomal protein S27	1	0	0
254587936	Mrps28	mitochondrial ribosomal protein S28	2	2	1
29789128	Mrps30	mitochondrial ribosomal protein S30	2	1	0
10181116	Mrps31	mitochondrial ribosomal protein S31	3	3	1
33859564	Mrps33	mitochondrial ribosomal protein S33 isoform 1	1	1	0
13385670	Mrps34	mitochondrial ribosomal protein S34	3	2	0
148235701	Mrps35	mitochondrial ribosomal protein S35	3	3	0
298286543	Mrps36	mitochondrial ribosomal protein S36	1	0	0
17157985	Mrps5	mitochondrial ribosomal protein S5	2	1	0
23956244	Mrps6	mitochondrial ribosomal protein S6	3	1	0
169790909	Mrps9	mitochondrial ribosomal protein S9	4	0	1
21312752	Mrrf	mitochondrial ribosome recycling factor	1	8	0

29789289	Echs1	mitochondrial short-chain enoyl-coenzyme A hydratase 1	8	6	1
110625866	Mtif2	mitochondrial translational initiation factor 2	1	1	0
33859811	Hadha	mitochondrial trifunctional protein, alpha subunit	31	18	22
21704100	Hadhb	mitochondrial trifunctional protein, beta subunit	15	9	7
244793488	Mfn1	mitofusin 1	1	0	0
21489933	Mapk3	mitogen activated protein kinase 3	4	0	1
89257354	Map3k2	mitogen activated protein kinase kinase kinase 2	0	1	0
93102421	Map3k4	mitogen activated protein kinase kinase kinase 4	2	0	0
84579909	Mapk1	mitogen-activated protein kinase 1	6	7	0
226246627	Mapk13	mitogen-activated protein kinase 13	0	3	0
270341386	Mapk14	mitogen-activated protein kinase 14	1	0	0
6678794	Map2k1	mitogen-activated protein kinase kinase 1	2	0	0
6754624	Map2k5	mitogen-activated protein kinase kinase 5	0	0	1
31543234	Map3k11	mitogen-activated protein kinase kinase kinase 11	1	0	0
171846249	Map3k5	mitogen-activated protein kinase kinase kinase 5	0	1	0
124486875	Map4k3	mitogen-activated protein kinase kinase kinase kinase 3	0	1	0
77736537	Map4k5	mitogen-activated protein kinase kinase kinase kinase 5	0	3	0
88014564	Mad111	mitotic arrest deficient 1-like 1	0	10	1
224809384	Mki67ip	Mki67 (FHA domain) interacting nucleolar phosphoprotein	0	0	5
62412947	Mobk11a	MOB1, Mps One Binder kinase activator-like 1A	1	0	0
19526848	Mosc2	MOCO sulphurase C-terminal domain containing 2	5	0	4
62243852	Sltm	modulator of estrogen induced transcription isoform a	0	11	1
70778915	Msn	moesin	5	12	0
164664484	Mocs2	molybdopterin synthase isoform Mocs2B	0	1	0
253683424	Mon2	MON2 homolog isoform 3	1	0	3
255759902	Maoa	monoamine oxidase A	6	0	2
85540473	Morf4l1	mortality factor 4 like 1 isoform b	0	11	0
170295836	Trim59	mouse RING finger 1	1	0	0
68303650	Mphosph10	M-phase phosphoprotein 10 (U3 small nucleolar ribonucleoprotein)	1	1	6
146134497	Mpnd	MPN domain containing	0	2	0
110625965	1600027N09Rik	MRG-binding protein	0	2	0
171906591	Mterfd1	MTERF domain containing 1	0	1	0
7305293	Muc1	mucin 1, transmembrane	1	1	5
167736365	Muc4	mucin 4	7	0	0
16716463	Mcoln1	mucopolipin 1	0	0	1
28827786	Mcf2	multiple coagulation factor deficiency 2 isoform 1	1	0	0
270309153	Men1	multiple endocrine neoplasia 1	0	5	0
17157989	Msi2	Musashi homolog 2	6	4	4
37537520	Mrt4	muscle protein684	0	2	1
46411182	Mbnl1	muscleblind-like 1	1	4	0
7305271	Mkin1	muskelin 1, intracellular mediator containing kelch motifs	1	0	0
20532342	Muted	muted	1	0	0
6678938	Msh2	mutS homolog 2	11	0	1
6754744	Msh6	mutS homolog 6	4	0	0
31982724	Mybbp1a	MYB binding protein (P160) 1a	1	78	35
256355182	Mina	myc induced nuclear antigen	1	1	0
114155153	Maz	MYC-associated zinc finger protein	0	1	0
244790095	Myef2	myelin basic protein expression factor 2, repressor isoform 2	0	12	8
49457857	Mpz1	myelin protein zero-like 1 isoform a	0	0	1
6678824	Mcl1	myeloid cell leukemia sequence 1	1	0	0

6678978	Myd116	myeloid differentiation primary response gene 116	1	0	0
145587092	Mlit4	myeloid/lymphoid or mixed lineage-leukemia translocation to 4 homolog	3	7	4
11612511	Mlit1	myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 1	0	0	1
47271507	Mlit10	myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 10	0	0	1
124486682	Mli1	myeloid/lymphoid or mixed-lineage leukemia 1	0	2	0
124487063	Mli3	myeloid/lymphoid or mixed-lineage leukemia 3	0	2	0
148271073	Myadm	myeloid-associated differentiation marker	1	0	2
76253934	Mef2a	myocyte enhancer factor 2A	0	1	0
12963757	Isyna1	myo-inositol 1-phosphate synthase A1	4	0	0
33598964	Myh10	myosin heavy chain 10, non-muscle	19	11	57
240120042	Myo1b	myosin IB isoform 2	0	1	3
124494244	Myo1c	myosin IC isoform a	1	14	40
118026911	Myo1d	myosin ID	1	0	24
68299824	Myo1e	myosin IE	0	0	3
215272384	Myo9b	myosin IXb isoform 1	1	1	0
71037403	2900073G15Rik	myosin light chain, regulatory B-like	5	9	7
115511052	Myo5a	myosin Va	0	1	2
46399202	Myo5b	myosin Vb	0	0	5
124486759	Myo5c	myosin VC	1	2	11
261823961	Myo6	myosin VI	11	18	39
22094119	Myo18a	myosin XVIIIa	1	36	2
29336026	Myh14	myosin, heavy polypeptide 14	9	5	7
114326446	Myh9	myosin, heavy polypeptide 9, non-muscle isoform 1	85	55	106
21728376	Myl12b	myosin, light chain 12B, regulatory	1	1	1
33620739	Myl6	myosin, light polypeptide 6, alkali, smooth muscle and non-muscle	1	8	9
126157499	Mylk	myosin, light polypeptide kinase	0	20	2
6679961	Mtpn	myotrophin	1	0	0
224994246	Mttr11	myotubularin related protein 11	0	0	1
33563378	Mttr9	myotubularin related protein 9	1	0	1
6678768	Marcks	myristoylated alanine rich protein kinase C substrate	6	0	0
124487239	Myst3	MYST histone acetyltransferase (monocytic leukemia) 3	1	0	0
303521989	Myst2	MYST histone acetyltransferase 2	0	1	4
21450277	Atp1a1	Na <sup>+</sup> /K <sup>+</sup> -ATPase alpha 1 subunit	24	6	12
6753138	Atp1b1	Na <sup>+</sup> /K <sup>+</sup> -ATPase beta 1 subunit	9	0	4
168693635	Naga	N-acetyl galactosaminidase, alpha	10	27	2
84579827	Gnptab	N-acetylglucosamine-1-phosphate transferase	0	1	1
16716467	Nans	N-acetylneuraminic acid synthase	3	0	0
23346561	Nat10	N-acetyltransferase 10	1	22	7
9790019	Asah1	N-acylsphingosine amidohydrolase 1	17	11	5
31982437	Nsdhl	NAD(P) dependent steroid dehydrogenase-like	11	0	0
94400773	Nqo1	NAD(P)H dehydrogenase, quinone 1	7	0	2
13195624	Ndufa10	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex 10	9	1	10
226437665	Ndufa11	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex 11	2	0	2
9506911	Ndufa1	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 1	0	0	1
12963633	Ndufa13	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 13	3	0	4
31981600	Ndufa2	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 2	4	0	1



33563266	Ndufa4	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 4	4	2	4
13386100	Ndufa5	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 5	5	2	3
13385492	Ndufa6	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 6 (B14)	3	0	2
12963571	Ndufa7	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 7 (B14.5a)	4	0	3
21312012	Ndufa8	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 8	4	6	7
254692859	Ndufa9	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 9	12	1	16
13385054	Ndufb3	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 3	1	0	1
13385558	Ndufb8	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 8	2	0	3
58037109	Ndufb10	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 10	5	4	9
27754144	Ndufb5	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 5	2	1	3
84781779	Ndufb6	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 6	2	1	2
13385322	Ndufb7	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 7	4	0	4
29789148	Ndufb9	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 9	2	0	8
27754007	Ndufab1	NADH dehydrogenase (ubiquinone) 1, alpha/beta subcomplex, 1	6	0	4
18859597	Ndufc2	NADH dehydrogenase (ubiquinone) 1, subcomplex unknown, 2	7	0	3
229892322	Ndufs1	NADH dehydrogenase (ubiquinone) Fe-S protein 1	27	3	19
23346461	Ndufs2	NADH dehydrogenase (ubiquinone) Fe-S protein 2	15	0	11
58037117	Ndufs3	NADH dehydrogenase (ubiquinone) Fe-S protein 3	2	1	9
281485615	Ndufs4	NADH dehydrogenase (ubiquinone) Fe-S protein 4	3	0	3
72004262	Ndufs5	NADH dehydrogenase (ubiquinone) Fe-S protein 5	2	0	1
56711244	Ndufs6	NADH dehydrogenase (ubiquinone) Fe-S protein 6	2	0	3
21312950	Ndufs7	NADH dehydrogenase (ubiquinone) Fe-S protein 7	3	2	6
21314826	Ndufb4	NADH dehydrogenase 1 beta subcomplex 4	4	1	4
46195430	Ndufs8	NADH dehydrogenase ubiquinone Fe-S 8	3	1	6
19526814	Ndufv1	NADH dehydrogenase ubiquinone flavoprotein 1 precursor	9	0	12
110625954	Ndufv2	NADH dehydrogenase ubiquinone flavoprotein 2 precursor	6	0	7
21539587	Ndufa3	NADH-ubiquinone oxidoreductase B9 subunit	1	0	2
140972309	Ndufv3	NADH-ubiquinone oxidoreductase flavoprotein 3 isoform 1	8	0	10
294997249	Nelf	nasal embryonic LHRH factor isoform B	0	1	0
163965357	Naca	nascent polypeptide-associated complex alpha subunit isoform a	5	3	0
62526130	Nktr	natural killer tumor recognition	1	0	0
28395023	Nckap1	NCK-associated protein 1	0	14	2
31981859	C330016O10Rik	Nedd4 binding protein 3	0	0	1
119360354	Nub1	Nedd8 ultimate buster-1	4	0	0
13385392	Napa	N-ethylmaleimide sensitive fusion protein attachment protein alpha	8	0	1
56699423	Nedd4	neural precursor cell expressed, developmentally down-regulated gene 4	4	0	1

167466245	Nedd4l	neural precursor cell expressed, developmentally down-regulated gene 4-like isoform 1	2	0	0
6679034	Nedd8	neural precursor cell expressed, developmentally down-regulated gene 8	2	0	0
31982836	Npdc1	neural proliferation, differentiation and control gene 1	1	0	0
158854037	Nbea	neurobeachin	0	1	0
111154109	Nras	neuroblastoma ras oncogene	6	5	3
31982775	Nf2	neurofibromatosis 2	0	1	0
58037133	Ngdn	neuroguidin, EIF4E binding protein	0	0	2
56699425	Nlgn2	neuroligin 2	1	0	0
28077051	Nln	neurolysin	1	0	0
167466226	Nav2	neuron navigator 2 isoform 1	1	0	0
162417959	Ngef	neuronal guanine nucleotide exchange factor isoform 1	0	1	0
158631246	Ndufb11	neuronal protein 15.6	2	0	2
153945724	Nptn	neuroplastin	1	0	0
6679891	Ganab	neutral alpha-glucosidase AB	47	1	1
255069776	2310057J16Rik	Nezha isoform 2	0	1	0
187608797	Nfkbil2	NF-kappa-B inhibitor-like protein 2	0	1	0
21312616	Nkiras2	NFKB inhibitor interacting Ras-like protein 2	0	3	0
58082069	Ppp1r13l	NFKB interacting protein 1	1	0	0
61888900	Thoc7	Ngg1 interacting factor 3 like 1 binding protein 1 isoform 1	0	7	0
41056093	Nif3l1	Ngg1 interacting factor 3-like 1	1	0	0
84781725	Nhp2l1	NHP2 non-histone chromosome protein 2-like 1	2	13	9
13386120	Nhp2	NHP2 ribonucleoprotein homolog	0	8	4
145386524	Nbn	nibrin	0	1	0
33469043	Ncln	nicalin homolog	4	0	1
224809376	Ncstn	nicastrin	6	0	0
260166706	Ubap2l	Nice-4 protein homolog isoform 2	7	0	0
124107627	Nek1	NIMA-related kinase 1	0	1	0
125346156	Nin	ninein isoform 1	0	1	0
13385084	Nipsnap3a	nipsnap homolog 3B	1	0	0
114158672	Nisch	nischarin	1	0	0
12963555	Nit2	Nit protein 2	3	0	0
254826728	Nosip	nitric oxide synthase interacting protein isoform 1	0	3	0
6754856	Nit1	nitrilase 1	1	0	0
161016824	Nfs1	nitrogen fixation gene, yeast homolog 1	7	0	0
213688428	Nmi	N-mcy (and STAT) interactor	2	0	0
21313242	Narg1l	NMDA receptor regulated 1-like	1	0	0
225543482	Narg1	NMDA receptor-regulated gene 1	3	1	0
34594671	Narg2	NMDA receptor-regulated gene 2	0	1	0
24431937	Nmral1	Nmra-like family domain containing 1	1	0	0
118150658	Ndrp1	N-myc downstream regulated 1	7	0	0
255918147	Ndrp3	N-myc downstream regulated gene 3	0	1	0
6679082	Nmt1	N-myristoyltransferase 1	2	5	0
227908803	Nomo1	nodal modulator 1	22	0	0
295054316	Nsun2	NOL1/NOP2/Sun domain family, member 2	1	4	0
255958247	Nono	non-POU-domain-containing, octamer binding protein	2	23	7
22165392	Ncapd2	non-SMC condensin I complex, subunit D2	0	2	2
169234780	Ncapg	non-SMC condensin I complex, subunit G	0	1	0
161016797	Ncapd3	non-SMC condensin II complex, subunit D3	0	4	1
34328291	Nsmce1	non-SMC element 1 homolog	0	1	2
257196205	Nsmce2	non-SMC element 2, MMS21 homolog	0	1	1
242246981	Nsmce4a	non-SMC element 4 homolog A isoform 5	0	5	4

13384790	Nop10	NOP10 ribonucleoprotein homolog	0	4	0
30519925	Nop16	NOP16 nucleolar protein homolog	0	0	4
31560052	Trp53rk	Nori-2 protein	1	0	0
224967065	Notch1	Notch 1	1	0	0
117676367	Rrp1	novel nuclear protein 1	0	0	2
158749551	Nxt1	NTF2-related export protein 1	0	1	0
125490378	Nasp	nuclear autoantigenic sperm protein isoform 1	15	0	0
144922627	AU014645	nuclear cap binding protein subunit 1, 80kDa	0	13	10
13386056	Ncbp2	nuclear cap binding protein subunit 2	1	3	2
6754910	Nudc	nuclear distribution gene C homolog	3	0	0
166197654	Nde1	nuclear distribution gene E homolog 1 isoform a	0	1	0
194440738	Nfe2l1	nuclear factor erythroid 2-like 1 isoform 1	1	1	0
163965422	Nfib	nuclear factor I/B isoform 3	0	4	0
126517474	Nfix	nuclear factor I/X isoform 3	1	1	0
117606364	Nfkb1	nuclear factor kappa-B, subunit 1	1	1	1
254588131	Nfatc2ip	nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2 interacting protein	0	0	1
293651548	Nfkb2	nuclear factor of kappa light polypeptide gene enhancer in B-cells 2, p49/p100	2	0	0
226874843	Nfkbiz	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, zeta isoform a	0	1	0
40254249	Nfrkb	nuclear factor related to kappaB binding protein	0	1	0
19527358	Prpf19	nuclear matrix protein SNEV	6	18	15
254675300	Numa1	nuclear mitotic apparatus protein 1	8	78	38
270309140	Tpr	nuclear pore complex-associated protein Tpr	4	74	10
156231054	Pom121	nuclear pore membrane protein 121	0	0	5
254911120	Narfl	nuclear prelamin A recognition factor-like	1	0	0
303324586	Nploc4	nuclear protein localization 4	1	2	0
22219434	Nrbp1	nuclear receptor binding protein	1	0	0
118026944	Ncoa2	nuclear receptor coactivator 2 isoform a	0	0	1
21450271	Ncoa5	nuclear receptor coactivator 5	0	0	4
145587671	Ncoa6	nuclear receptor coactivator 6	0	1	0
119226235	Ncor2	nuclear receptor co-repressor 2	0	1	0
27734110	Nrip1	nuclear receptor interacting protein 1	1	0	0
73611910	Nr2f2	nuclear receptor subfamily 2, group F, member 2 isoform 1	0	4	0
112807199	Nr2f6	nuclear receptor subfamily 2, group F, member 6	0	1	0
6754216	Nr4a1	nuclear receptor subfamily 4, group A, member 1	0	0	1
255982555	Nrf1	nuclear respiratory factor 1	0	3	0
31980798	Nxf1	nuclear RNA export factor 1	1	17	5
12963545	Znrd1	nuclear RNA polymerase I small specific subunit	0	1	0
161016831	Nfya	nuclear transcription factor Y, alpha isoform b	0	1	0
6754850	Nfyb	nuclear transcription factor-Y beta	0	3	0
114326538	Nfyc	nuclear transcription factor-Y gamma	0	4	0
13386032	Nutf2	nuclear transport factor 2	2	0	0
33468981	Nvl	nuclear VCP-like	0	1	2
113205059	Ybx1	nuclease sensitive element binding protein 1	10	6	9
254750698	Nucb1	nucleobindin 1 isoform 2	12	0	0
194440700	Nucb2	nucleobindin 2 isoform 2	6	0	0
86198333	Nolc1	nucleolar and coiled-body phosphoprotein 1 isoform C	1	8	2
124301227	Noc2l	nucleolar complex associated 2 homolog	0	3	8
188497644	Noc3l	nucleolar complex associated 3 homolog	0	0	3
31981994	Noc4l	nucleolar complex associated 4 homolog	0	2	2
158966689	Nop2	nucleolar protein 1	0	9	9

238550124	Nol11	nucleolar protein 11 isoform 1	0	0	9
120407050	Nop58	nucleolar protein 5	7	24	17
126090932	Nop56	nucleolar protein 5A	6	33	30
117647257	Nol7	nucleolar protein 7	0	0	1
118026904	Nol6	nucleolar protein family 6	0	16	3
13384710	Gar1	nucleolar protein family A, member 1	0	6	5
21312650	Ddx56	nucleolar RNA helicase homolog	0	0	2
84875537	Ncl	nucleolin	24	21	13
6679108	Npm1	nucleophosmin 1	3	13	4
6679110	Npm3	nucleoplasmin 3	1	3	0
29789351	Nup107	nucleoporin 107	0	16	12
283806543	Nup133	nucleoporin 133	0	27	22
254588102	Nup153	nucleoporin 153	2	0	6
165932389	Nup155	nucleoporin 155	1	29	21
10946932	Nup160	nucleoporin 160	0	34	12
38678526	Nup188	nucleoporin 188	0	15	12
226437676	Nup205	nucleoporin 205	1	48	32
172073152	Nup210	nucleoporin 210	0	11	44
124378033	Nup214	nucleoporin 214	0	4	0
298231198	Nup35	nucleoporin 35	0	2	5
210032861	Nup37	nucleoporin 37	0	10	5
38016154	Nup50	nucleoporin 50	0	6	5
39930543	Nup54	nucleoporin 54	0	15	6
16716349	Nup62	nucleoporin 62	1	10	2
108773813	Nup85	nucleoporin 85	0	15	6
134053894	Nup88	nucleoporin 88 isoform 1	0	11	4
27369533	Nup93	nucleoporin 93	1	27	20
39930413	Nup98	nucleoporin 98	0	2	12
24497431	Nupl1	nucleoporin like 1	0	8	1
166295220	Nup43	nucleoporin Nup43	0	3	1
255308888	Nme3	nucleoside diphosphate kinase 3	1	0	3
117606270	Nme2	nucleoside diphosphate kinase B	2	3	4
37700232	Nme1	nucleoside-diphosphate kinase 1	9	4	6
226443026	Nap111	nucleosome assembly protein 1-like 1 isoform 2	5	0	1
6679012	Nap114	nucleosome assembly protein 1-like 4	3	1	0
133778915	Nsbp1	nucleosome binding protein 1	1	13	1
167234411	Nubpl	nucleotide binding protein-like	2	0	0
133922575	Nudcd2	NudC domain containing 2	0	1	0
84871976	Nudt18	nudix (nucleoside diphosphate linked moiety X)-type motif 18	0	0	1
13386106	Nudt21	nudix (nucleoside diphosphate linked moiety X)-type motif 21	4	13	3
86198335	Nudt2	nudix-type motif 2	0	0	1
8393853	Nudt5	nudix-type motif 5	4	0	1
13384950	Nudt8	nudix-type motif 8	1	2	0
110625714	Nuf2	NUF2R protein	1	0	0
209862959	Numb	numb gene homolog isoform 1	1	1	0
19527352	Nrm	nurim	0	3	6
229577356	Ociad1	OCIA domain containing 1 isoform 1	8	0	4
126723205	Obfc2a	oligonucleotide/oligosaccharide-binding fold containing 2A	0	2	0
28076937	Obfc2b	oligonucleotide/oligosaccharide-binding fold containing 2B	0	3	0
46909607	Ogt	O-linked N-acetylglucosamine transferase	0	2	0

22164770	Oit1	oncprotein induced transcript 1	1	0	0
312836758	Opa1	optic atrophy 1 homolog	3	0	0
124286818	Orc4l	origin recognition complex subunit 4	0	1	0
255069721	Orc6l	origin recognition complex subunit 6-like isoform a	0	0	1
70909306	Orc2l	origin recognition complex, subunit 2-like isoform B	0	3	1
227116263	Orc3l	origin recognition complex, subunit 3-like isoform 1	0	1	1
84662768	Osgep	O-sialoglycoprotein endopeptidase	1	0	0
22267440	Ostf1	osteoclast stimulating factor 1	3	0	0
283837911	Os9	osteosarcoma amplified 9	4	0	0
19527388	Otub1	otubain 1	9	0	5
295054201	Odf2	outer dense fiber of sperm tails 2 isoform a	0	0	1
124301201	Nfxl1	ovarian zinc finger protein	1	0	1
9910472	Ovol1	OVO homolog-like 1	0	2	1
194328708	Oxr1	oxidation resistance 1 isoform A	2	0	0
110626165	Oxsr1	oxidative-stress responsive 1	1	0	0
85861164	Ogdh	oxoglutarate dehydrogenase (lipoamide)	38	1	3
52345396	Osbpl1a	oxysterol binding protein-like 1	1	0	0
257196261	Osbpl11	oxysterol binding protein-like 11	0	0	1
198278439	Osbpl9	oxysterol binding protein-like 9 isoform a	0	0	2
112181194	Pak1	p21-activated kinase 1	1	0	0
46559406	Pak2	p21-activated kinase 2	7	0	0
29336032	Pak4	p21-activated kinase 4	0	2	0
224994209	Pak6	p21-activated kinase 6	0	0	1
226958577	2610301G19Rik	p30 DBC protein	7	37	10
38198665	Nsfl1c	p47 protein	6	0	0
164519134	Gatad2a	p66 alpha isoform b	0	7	4
62243808	Dopey2	pad-1-like isoform 1	1	0	1
6754990	Pax8	paired box gene 8	0	4	0
145046259	Pak1ip1	PAK/PLC-interacting protein 1	1	14	1
165377089	Arhgef7	PAK-interacting exchange factor beta isoform c	3	0	1
171846274	X99384	paladin	1	0	0
9790039	Pldn	pallidin	1	0	0
121674797	Ppt1	palmitoyl-protein thioesterase 1	6	0	0
226958374	Sypl	pantophysin isoform 2	3	0	0
22122397	Pank3	pantothenate kinase 3	0	0	1
15809012	Prcc	papillary renal cell carcinoma translocation-associated gene product	0	4	0
167004227	Coq2	para-hydroxybenzoate-polyprenyltransferase, mitochondrial	0	1	1
34303979	Pon2	paraoxonase 2	5	0	0
225543409	Pspc1	paraspeckle protein 1	1	13	4
55741460	Park7	Parkinson disease protein 7	6	0	0
171184415	Pard3	partitioning-defective protein 3 homolog isoform 1	0	0	1
124486979	Palb2	partner and localizer of BRCA2	0	1	0
13384846	Pno1	partner of NOB1	0	5	3
31982526	Parva	parvin, alpha	1	1	0
170763472	Pnpla6	patatin-like phospholipase domain containing 6	1	0	0
118130807	Pnpla8	patatin-like phospholipase domain containing 8	1	0	0
42734451	Paxip1	Pax transcription activation domain interacting protein	0	3	0
34368580	Pknox1	Pbx/knotted 1 homeobox	0	2	0
119372296	Pcid2	PCI domain containing 2	0	6	1
6679233	Pctk3	PCTAIRE protein kinase 3	0	8	5
7242173	Pctk1	PCTAIRE-motif protein kinase 1	1	0	1
84781781	Pdap1	PDGFA associated protein 1	0	5	0

166197681	Pdlim7	PDZ and LIM domain 7 isoform b	0	1	0
21312244	Pdzd11	PDZ domain containing 11	0	4	4
124053449	Intu	PDZ domain containing 6	0	0	1
20373163	Scrib	PDZ-domain protein scribble	3	2	13
33469980	Ptcd3	pentatricopeptide repeat domain 3	7	2	0
27502349	Pmpca	peptidase (mitochondrial processing) alpha	12	7	0
171906557	Padi2	peptidyl arginine deiminase, type II	5	0	1
156938252	Padi4	peptidyl arginine deiminase, type IV	0	16	0
6679439	Ppia	peptidylprolyl isomerase A	16	14	11
71774133	Ppib	peptidylprolyl isomerase B	9	13	4
6679441	Ppic	peptidylprolyl isomerase C	0	1	0
13385854	Ppid	peptidylprolyl isomerase D	6	0	0
255683299	Ppwd1	peptidylprolyl isomerase domain and WD repeat containing 1	0	12	0
14196340	Ppie	peptidylprolyl isomerase E	2	4	4
19527310	Ppif	peptidylprolyl isomerase F	2	5	0
124487333	Ppig	peptidylprolyl isomerase G	0	0	1
158631196	Ppih	peptidylprolyl isomerase H isoform 1	1	11	2
21312784	Ppil1	peptidylprolyl isomerase-like 1	2	2	3
30025020	Ppil2	peptidylprolyl isomerase-like 2	1	1	1
169790966	Ppil3	peptidylprolyl isomerase-like 3 isoform 1	0	1	0
165972339	Ppil4	peptidylprolyl isomerase-like 4	1	2	0
30519902	Pthr1	peptidyl-tRNA hydrolase 1 homolog	0	1	0
93004085	Pcnt	pericentrin	1	1	5
170763496	Pcm1	pericentriolar material 1	2	0	1
284005509	Pwp1	periodic tryptophan protein 1 homolog	0	1	0
163838662	Tspo	peripheral benzodiazepine receptor	0	0	3
158749615	BC016423	peripheral benzodiazepine receptor associated protein	1	0	1
133779004	Pphn1	periphilin 1 isoform 1	0	1	1
112421039	Ppl	periplakin	56	90	92
183979966	Hspg2	perlecan (heparan sulfate proteoglycan 2)	1	1	2
268370173	Pxdn	peroxidasin	1	1	2
61657895	Pex1	peroxin1	0	1	0
6754976	Prdx1	peroxiredoxin 1	4	15	8
148747558	Prdx2	peroxiredoxin 2	7	7	0
6680690	Prdx3	peroxiredoxin 3	9	1	1
7948999	Prdx4	peroxiredoxin 4	9	1	1
6755114	Prdx5	peroxiredoxin 5 precursor	14	8	6
6671549	Prdx6	peroxiredoxin 6	7	0	0
241666485	Pex11b	peroxisomal biogenesis factor 11 beta isoform 1	2	1	2
9790153	Pex14	peroxisomal biogenesis factor 14	0	0	1
254750742	Pex16	peroxisomal biogenesis factor 16	3	0	3
9910484	Pex3	peroxisomal biogenesis factor 3	1	0	1
160333197	Peci	peroxisomal D3,D2-enoyl-CoA isomerase isoform a	4	1	0
10946966	Pxmp4	peroxisomal membrane protein 4	1	1	1
256220343	Dhrs4	peroxisomal short-chain alcohol dehydrogenase isoform 2	8	14	3
11528520	Perp	PERP, TP53 apoptosis effector	0	0	1
12584984	Pes1	pescadillo homolog 1, containing BRCT domain	0	1	5
71480098	Pcnp	PEST proteolytic signal containing nuclear protein	2	4	0
255683374	Ppan	peter pan homolog	0	0	2
255522851	Phf10	PHD finger protein 10	0	4	0
198442868	Phf12	PHD finger protein 12	0	1	0
270288744	Phf14	PHD finger protein 14	0	5	3

194328769	Phf17	PHD finger protein 17	1	1	1
31543476	Phf2	PHD finger protein 2	0	3	0
124487195	Phf2011	PHD finger protein 20-like 1	1	0	0
226423861	Phf23	PHD finger protein 23	0	1	0
124487309	Phf3	PHD finger protein 3	0	3	0
33563292	Phf6	PHD finger protein 6	0	4	0
164518891	Phf8	PHD finger protein 8 isoform b	1	0	0
24415990	Phf5a	PHD-finger 5A	1	4	2
162138894	Farsa	phenylalanyl-tRNA synthetase, alpha subunit	1	3	1
31981400	Farsb	phenylalanyl-tRNA synthetase, beta subunit	13	8	0
6681255	Ebp	phenylalkylamine Ca <sup>2+</sup> antagonist (emopamil) binding protein	1	0	0
31980842	Pcyt2	phosphate cytidyltransferase 2, ethanolamine	1	0	0
20149726	Cds2	phosphatidate cytidyltransferase 2	2	0	0
77861908	Ppapdc2	phosphatidic acid phosphatase type 2 domain containing 2	1	0	0
110431341	Ppap2c	phosphatidic acid phosphatase type 2c	2	0	2
84794552	Pebp1	phosphatidylethanolamine binding protein 1	5	0	1
110626163	Pgs1	phosphatidylglycerophosphate synthase 1	1	1	0
41872422	Pigh	phosphatidylinositol glycan anchor biosynthesis, class H	1	0	0
29789447	Pigk	phosphatidylinositol glycan anchor biosynthesis, class K isoform 1	3	0	0
239937480	Pigo	phosphatidylinositol glycan anchor biosynthesis, class O	0	1	0
41351529	Pigs	phosphatidylinositol glycan anchor biosynthesis, class S	13	0	2
9790159	Pitpnb	phosphatidylinositol transfer protein, beta	2	0	0
31982833	Pip5k1a	phosphatidylinositol-4-phosphate 5-kinase, type I, alpha	0	1	0
32567788	Picalm	phosphatidylinositol-binding clathrin assembly protein	3	5	2
126722757	Pisd	phosphatidylserine decarboxylase	0	0	1
158749580	Pde4dip	phosphodiesterase 4D interacting protein isoform 1	1	0	0
31560653	Pfkl	phosphofructokinase, liver, B-type	21	2	3
9790051	Pfkl	phosphofructokinase, platelet	11	0	0
227330633	Pgm2	phosphoglucomutase 2	13	0	0
124486895	Pgd	phosphogluconate dehydrogenase	9	0	1
52353955	Phgdh	phosphoglycerate dehydrogenase	12	0	8
70778976	Pgk1	phosphoglycerate kinase 1	20	0	5
254587962	Pgam5	phosphoglycerate mutase family member 5 isoform 2	7	2	4
114431250	Plaa	phospholipase A2, activating protein	1	0	0
31982122	Plcb3	phospholipase C beta 3	9	25	0
26986603	Plcg2	phospholipase C, gamma 2	0	0	1
7242181	Pld3	phospholipase D family, member 3	0	2	0
194328695	Plscr1	phospholipid scramblase 1	4	0	0
281182714	Plscr3	phospholipid scramblase 3	1	0	0
8393988	Pmm2	phosphomannomutase 2	2	0	0
254588058	Pmvk	phosphomevalonate kinase isoform 1	0	0	2
21426847	Pea15a	phosphoprotein enriched in astrocytes 15 isoform 2	3	0	1
10946854	Prps1	phosphoribosyl pyrophosphate synthetase 1	7	0	0
13386146	Prps2	phosphoribosyl pyrophosphate synthetase 2	1	0	0
256773299	Prpsap2	phosphoribosyl pyrophosphate synthetase-associated protein 2	2	0	0
13385434	Paics	phosphoribosylaminoimidazole carboxylase, phosphoribosylaminoimidazole succinocarboxamide synthetase	3	0	2

226958458	Pfas	phosphoribosylformylglycinamide synthase (FGAR amidotransferase)	4	0	0
93102415	Gart	phosphoribosylglycinamide formyltransferase	9	0	0
329299029	Psat1	phosphoserine aminotransferase 1	16	0	2
20982845	Fus	pigpen	9	10	6
112420990	Pnn	pinin	4	7	21
126032319	Pitpnm3	Pitpnm family member 3 isoform 1	0	0	1
21699068	Pitrm1	pitrilysin metallepetidase 1	21	2	0
124286797	1600029D21Rik	placenta expressed transcript 1	1	1	2
21312960	Pkp2	plakophilin 2	0	0	17
242332587	Pkp3	plakophilin 3 isoform 1	0	0	4
147899467	Pkp4	plakophilin 4 isoform 1	1	0	12
62234487	Atp2b1	plasma membrane calcium ATPase 1	6	0	0
85986577	Pls1	plastin 1 (I-isoform)	3	3	2
262050551	Pls3	plastin 3 precursor	14	18	4
7305363	Pafah1b1	platelet-activating factor acetylhydrolase, isoform Ib, alpha subunit	2	9	0
40254624	Pafah1b2	platelet-activating factor acetylhydrolase, isoform Ib, beta subunit	3	0	0
6679201	Pafah1b3	platelet-activating factor acetylhydrolase, isoform Ib, gamma subunit	4	0	1
163644296	Psd3	pleckstrin and Sec7 domain containing 3 isoform 2	1	0	0
27370088	Plekha7	pleckstrin homology domain containing, family A member 7	0	0	1
167621502	Plekhg3	pleckstrin homology domain containing, family G (with RhoGef domain) member 3	0	0	11
256818761	Plekhh1	pleckstrin homology domain containing, family H (with MyTH4 domain) member 1 isoform 1	0	1	0
124487035	Phip	pleckstrin homology domain interacting protein	0	0	3
226442929	Phlda1	pleckstrin homology-like domain, family A, member 1	0	0	1
188528897	Phldb2	pleckstrin homology-like domain, family B, member 2	1	0	1
256000747	Plec1	plectin 1 isoform 1b	65	52	201
34610215	Plagl2	pleiomorphic adenoma gene-like 2	1	0	2
31980791	Plrg1	pleiotropic regulator 1	1	13	5
113722113	Plxna2	plexin A2	1	0	0
226958476	Plxnb2	plexin B2 isoform 13	32	0	0
153792704	Plxnd1	plexin D1	0	0	1
160333703	Kdm5b	PLU1	0	1	1
260099686	Pogz	pogo transposable element with ZNF domain	0	3	4
228480275	Pvrl2	poliovirus receptor-related 2 isoform 1	2	0	0
20806109	Parp1	poly (ADP-ribose) polymerase family, member 1	1	16	0
25014095	Parp3	poly (ADP-ribose) polymerase family, member 3	0	3	1
281485553	Parp4	poly (ADP-ribose) polymerase family, member 4	0	0	1
13384918	Parp9	poly (ADP-ribose) polymerase family, member 9	0	0	1
31560656	Pabpc1	poly(A) binding protein, cytoplasmic 1	21	1	18
34419622	Pabpc4	poly(A) binding protein, cytoplasmic 4 isoform 2	1	0	1
9506945	Pabpn1	poly(A) binding protein, nuclear 1	0	4	7
21311877	Parn	poly(A)-specific ribonuclease (deadenylation nuclease)	1	2	0
6754994	Pcbp1	poly(rC) binding protein 1	11	11	9
157057549	Pcbp2	poly(rC) binding protein 2 isoform 2	11	21	15
13385420	Pmf1	polyamine-modulated factor 1	0	2	0
124486951	Pbrm1	polybromo 1	0	35	3
28076973	Pcgf6	polycomb group ring finger 6	0	1	0
294862233	Pkd1l2	polycystin 1-like 2	1	0	1
31980927	Pqbp1	polyglutamine binding protein 1	0	1	1



110835733	Phc1	polyhomeotic-like 1 isoform a	0	1	0
29336059	Polr2c	polymerase (RNA) II (DNA directed) polypeptide C	1	2	10
28076931	Polr2d	polymerase (RNA) II (DNA directed) polypeptide D isoform 2	0	2	4
124249077	Polr2e	polymerase (RNA) II (DNA directed) polypeptide E	1	3	6
13385826	Polr2g	polymerase (RNA) II (DNA directed) polypeptide G	0	4	5
21704118	Polr2h	polymerase (RNA) II (DNA directed) polypeptide H	1	4	2
110625757	Polr2i	polymerase (RNA) II (DNA directed) polypeptide I	0	1	1
86355514	Polr2k	polymerase (RNA) II (DNA directed) polypeptide K isoform b	0	1	0
219881031	Polr2l	polymerase (RNA) II (DNA directed) polypeptide L	0	2	1
124486963	Polr3a	polymerase (RNA) III (DNA directed) polypeptide A, 155kDa	0	1	0
27229271	Polr3h	polymerase (RNA) III (DNA directed) polypeptide H	0	1	0
14780884	Poldip2	polymerase delta interacting protein 38	3	0	1
6679567	Ptrf	polymerase I and transcript release factor	1	2	0
118601009	Pnkp	polynucleotide kinase 3' and phosphatase	0	13	0
326368217	Reep6	polyposis locus protein 1-like 1	2	0	0
116517303	Ptbp1	polypyrimidine tract binding protein 1 isoform 2	13	30	18
9507003	Ptbp2	polypyrimidine tract binding protein 2	0	8	1
25188204	Pnpt1	polyribonucleotide nucleotidyltransferase 1	1	6	0
126517505	Kcmf1	potassium channel modulatory factor 1	2	0	0
161333815	Kctd9	potassium channel tetramerisation domain containing 9 isoform b	0	1	0
226531251	Prdm15	PR domain containing 15	1	0	0
20070422	Praf2	PRA1 domain family 2	1	0	0
34365779	Pbx1	pre B-cell leukemia transcription factor 1 isoform a	0	3	0
7949105	Pbx3	pre B-cell leukemia transcription factor 3	0	0	1
22122651	Pbxip1	pre-B-cell leukemia transcription factor interacting protein 1	1	0	0
124486993	Gm5560	predicted gene 5560	7	1	5
13385532	Pfdn1	prefoldin 1	1	0	0
31981577	Pfdn2	prefoldin 2	2	0	0
268370153	Pcf11	pre-mRNA cleavage complex II protein Pcf11	1	0	0
256665245	Cpsf7	pre-mRNA cleavage factor I, 59 kDa subunit	0	14	1
115583687	Prpf8	pre-mRNA processing factor 8	5	99	78
13385294	Pcyox1	prenylcysteine oxidase 1	11	0	0
87196490	Pawr	PRKC, apoptosis, WT1, regulator	0	3	0
114158701	Nop14	probable nucleolar complex protein 14	0	0	5
20270200	Pop5	processing of precursor 5	0	2	0
34328045	Col4a4	procollagen, type IV, alpha 4	2	0	0
40789282	Col18a1	procollagen, type XVIII, alpha 1 isoform 2	4	5	8
6755110	Plod3	procollagen-lysine, 2-oxoglutarate 5-dioxygenase 3	1	1	0
33859596	P4ha1	procollagen-proline, 2-oxoglutarate 4-dioxygenase (proline 4-hydroxylase), alpha 1 polypeptide	14	1	0
6755040	Pfn1	profilin 1	8	2	7
31980806	Pgrmc1	progesterone receptor membrane component	10	0	2
226442772	Pgrmc2	progesterone receptor membrane component 2	6	0	2
31560391	Pdcd10	programmed cell death 10	6	3	0
120407033	Pdcd2	programmed cell death 2	1	0	0
270309161	Pdcd4	programmed cell death 4	10	0	0
6755000	Pdcd6	programmed cell death 6	1	0	0
258547156	Pdcd6ip	programmed cell death 6 interacting protein	7	0	1
54607128	Pdcd11	programmed cell death protein 11	0	28	23
6679299	Phb	prohibitin	9	0	8

158749640	Preb	prolactin regulatory element binding protein	3	0	0
7242171	Pcna	proliferating cell nuclear antigen	2	4	8
283945467	Prr13	proline rich 13	1	0	0
34328357	Prr14	proline rich 14	1	0	0
84872187	Prosc	proline synthetase co-transcribed isoform a	1	0	0
257900472	Pelp1	proline-, glutamic acid-, leucine-rich protein 1	0	4	2
226874876	P4ha2	prolyl 4-hydroxylase, alpha II subunit isoform 2	0	0	1
42415475	P4hb	prolyl 4-hydroxylase, beta polypeptide	27	2	2
6755152	Prep	prolyl endopeptidase	9	0	0
254675316	Prom1	prominin 1 isoform s1	2	0	0
224994184	Prom2	prominin 2 isoform 1	2	0	0
160333286	Pml	promyelocytic leukemia isoform 2	0	3	9
13385310	Pccb	propionyl Coenzyme A carboxylase, beta polypeptide	14	0	0
254540162	Pcca	propionyl-Coenzyme A carboxylase, alpha polypeptide	18	0	0
161086990	Prosapip1	ProSAPiP1 protein	0	1	0
225735657	Psap	prosaposin isoform B preproprotein	10	3	1
260763900	Ptges2	prostaglandin E synthase 2	6	0	0
50845420	Ptgrn	prostaglandin F2 receptor negative regulator precursor	4	0	0
9790017	Ptges3	prostaglandin-E synthase 3	4	3	4
6679537	Ptgs1	prostaglandin-endoperoxide synthase 1	7	0	0
19111160	Prss8	prostasin	0	0	1
20149318	Ptov1	prostate tumor over expressed gene 1	0	1	0
6679501	Psmc1	protease (prosome, macropain) 26S subunit, ATPase 1	14	0	0
7110703	Psmc5	protease (prosome, macropain) 26S subunit, ATPase 5	10	0	1
116089322	Lonp1	protease, serine, 15	28	20	6
33859604	Psmc2	proteasome (prosome, macropain) 26S subunit, ATPase 2	9	0	1
228008337	Psmc3	proteasome (prosome, macropain) 26S subunit, ATPase 3	9	0	0
6754724	Psmc7	proteasome (prosome, macropain) 26S subunit, non-ATPase, 7	8	0	0
6755212	Psmc1	proteasome (prosome, macropain) 28 subunit, alpha	14	0	0
33563282	Psmc1	proteasome (prosome, macropain) subunit, alpha type 1	9	0	0
261824000	Psmc3	proteasome (prosome, macropain) subunit, alpha type 3	2	0	0
7106387	Psmc5	proteasome (prosome, macropain) subunit, alpha type 5	1	2	2
6755198	Psmc6	proteasome (prosome, macropain) subunit, alpha type 6	12	1	1
7106389	Psmc7	proteasome (prosome, macropain) subunit, alpha type 7	7	3	0
7242197	Psmc1	proteasome (prosome, macropain) subunit, beta type 1	9	2	0
227116345	Psmc2	proteasome (prosome, macropain) subunit, beta type 2	6	1	0
6755204	Psmc5	proteasome (prosome, macropain) subunit, beta type 5	11	3	0
6755206	Psmc7	proteasome (prosome, macropain) subunit, beta type 7	6	0	0
124248577	Psmc4	proteasome 26S ATPase subunit 4	14	1	2
27754103	Psmc6	proteasome 26S ATPase subunit 6	9	0	0
74315975	Psmc1	proteasome 26S non-ATPase subunit 1	14	0	1
134053905	Psmc11	proteasome 26S non-ATPase subunit 11	11	0	1
13385384	Psmc12	proteasome 26S non-ATPase subunit 12	4	0	1
6755210	Psmc13	proteasome 26S non-ATPase subunit 13	9	1	1
19882201	Psmc2	proteasome 26S non-ATPase subunit 2	10	0	3
19705424	Psmc3	proteasome 26S non-ATPase subunit 3	16	1	0
6679505	Psmc4	proteasome 26S non-ATPase subunit 4	4	0	0
134053913	Psmc5	proteasome 26S non-ATPase subunit 5	6	0	1
156713423	Psmc8	proteasome 26S non-ATPase subunit 8	4	0	0
119508441	Psmc9	proteasome 26S non-ATPase subunit 9	1	0	0
145966883	Psmc14	proteasome 26S subunit, non-ATPase 14	5	0	1

71725358	Psme2	proteasome activator subunit 2 isoform 1	10	0	0
6755214	Psme3	proteasome activator subunit 3	3	0	0
6755196	Psma4	proteasome alpha 4 subunit	4	0	0
6755202	Psmb3	proteasome beta 3 subunit	8	4	0
254540082	Psmb4	proteasome beta 4 subunit	5	2	0
238231384	Psmb6	proteasome beta 6 subunit	3	1	0
134031994	Psma2	proteasome subunit alpha type 2	5	2	0
46049022	Psm6	proteasome, 26S, non-ATPase regulatory subunit 6	8	0	0
113931156	Pin4	protein (peptidyl-prolyl cis/trans isomerase) NIMA-interacting, 4 (parvulin)	0	1	0
188528624	Prmt5	protein arginine methyltransferase 5	1	0	0
21703808	Prmt7	protein arginine methyltransferase 7	0	0	1
9790109	Prmt1	protein arginine N-methyltransferase 1	1	3	0
86198316	Pdia4	protein disulfide isomerase A4	23	3	0
30794140	Pdia5	protein disulfide isomerase A5	0	8	0
58037267	Pdia6	protein disulfide isomerase A6	2	0	1
112293264	Pdia3	protein disulfide-isomerase A3	35	12	10
226958422	Pacsin2	protein kinase C and casein kinase substrate in neurons 2	2	8	0
163644252	Pacsin3	protein kinase C and casein kinase substrate in neurons 3	0	7	2
6679465	Prkcsh	protein kinase C substrate 80K-H	16	0	1
6755082	Prkcd	protein kinase C, delta	0	0	1
133778989	Prkci	protein kinase C, iota	2	3	0
94681061	Prkaa1	protein kinase, AMP-activated, alpha 1 catalytic subunit	6	0	1
30794476	Prkar1a	protein kinase, cAMP dependent regulatory, type I, alpha	2	0	0
22550094	Prkar2a	protein kinase, cAMP dependent regulatory, type II alpha	2	0	0
45598396	Prkar2b	protein kinase, cAMP dependent regulatory, type II beta	7	0	1
7110693	Prkaca	protein kinase, cAMP dependent, catalytic, alpha	3	1	0
255958320	Prkacb	protein kinase, cAMP dependent, catalytic, beta	1	0	0
124517706	Prkdc	protein kinase, DNA-activated, catalytic polypeptide	0	36	1
6755162	Prkra	protein kinase, interferon inducible double stranded RNA dependent activator	0	0	2
110625699	Pkmyt1	protein kinase, membrane associated tyrosine/threonine 1	0	0	1
13994195	Ppp1ca	protein phosphatase 1, catalytic subunit, alpha	13	20	14
161484668	Ppp1cb	protein phosphatase 1, catalytic subunit, beta isoform	3	8	3
31980772	Ppp1cc	protein phosphatase 1, catalytic subunit, gamma isoform	0	1	0
95772123	Ppp1r12a	protein phosphatase 1, regulatory (inhibitor) subunit 12A	1	10	0
22122685	Ppp1r8	protein phosphatase 1, regulatory (inhibitor) subunit 8	0	9	0
31711997	Ppp1r9a	protein phosphatase 1, regulatory (inhibitor) subunit 9A	0	0	1
6679443	Ppm1a	protein phosphatase 1A, magnesium dependent, alpha isoform	0	0	1
6679793	Ppm1g	protein phosphatase 1G (formerly 2C), magnesium-dependent, gamma isoform	3	0	0
9506983	Ppp2ca	protein phosphatase 2a, catalytic subunit, alpha isoform	3	6	2
254587947	Ppp2r4	protein phosphatase 2A, regulatory subunit B	1	0	0
22726177	Ppp2r2d	protein phosphatase 2A, regulatory subunit B, delta isoform	1	0	0
45592930	Ppp3cb	protein phosphatase 3, catalytic subunit, beta	0	0	1
9790175	Ppp4c	protein phosphatase 4, catalytic subunit	0	0	1
166706862	Ppp4r1	protein phosphatase 4, regulatory subunit 1 isoform b	0	1	0

33636709	Ppp4r2	protein phosphatase 4, regulatory subunit 2	2	0	0
21312758	Ppp6c	protein phosphatase 6, catalytic subunit	0	0	1
255308881	Ppp1r10	protein phosphatase I isoform 2	0	10	1
12963569	Ppp1r7	protein phosphatase-1 regulatory subunit 7	3	0	0
6755226	Ptp4a1	protein tyrosine phosphatase 4a1	0	3	0
258613926	Ptp4a2	protein tyrosine phosphatase 4a2	0	2	0
23956130	Ptpmt1	protein tyrosine phosphatase, mitochondrial 1	1	1	1
133505845	Ptpn1	protein tyrosine phosphatase, non-receptor type 1	3	0	0
134948762	Ptpn13	protein tyrosine phosphatase, non-receptor type 13	0	0	1
110825986	Ptpn14	protein tyrosine phosphatase, non-receptor type 14	0	1	1
124517678	Ptpn23	protein tyrosine phosphatase, non-receptor type 23	2	0	0
118130785	Ptpn6	protein tyrosine phosphatase, non-receptor type 6 isoform b	0	1	0
304361734	Ppfia1	protein tyrosine phosphatase, receptor type, f polypeptide (PTPRF), interacting protein, alpha 1	0	0	1
208609941	Ptprij	protein tyrosine phosphatase, receptor type, J isoform 1	1	0	0
6679561	Ptpirk	protein tyrosine phosphatase, receptor type, K precursor	1	0	0
226054321	Ptpirm	protein tyrosine phosphatase, receptor type, M	1	0	1
171184435	Ptplad1	protein tyrosine phosphatase-like A domain containing 1	2	0	1
84872191	Ptplb	protein tyrosine phosphatase-like protein PTPLB	1	0	0
226530884	Pcmt1	protein-L-isoaspartate (D-aspartate) O-methyltransferase 1	4	0	0
23956398	Pcmt2	protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 2	0	1	0
9790169	Plp2	proteolipid protein 2	1	0	2
7110705	Ptma	prothymosin alpha	6	0	0
157426851	Pcdh19	protocadherin 19 isoform a	0	0	1
18087769	Pcdhga9	protocadherin gamma subfamily A, 9	1	0	0
148747543	Pcdhgb1	protocadherin gamma subfamily B, 1	1	0	0
40254503	Prpf18	PRP18 pre-mRNA processing factor 18 homolog	1	2	0
31980657	Prpf3	PRP3 pre-mRNA processing factor 3 homolog	3	12	0
228480238	Prpf31	PRP31 pre-mRNA processing factor 31 isoform 1	5	14	1
227497256	Prpf38a	PRP38 pre-mRNA processing factor 38 (yeast) domain containing A	0	2	5
30794464	Prpf38b	PRP38 pre-mRNA processing factor 38 (yeast) domain containing B	0	12	0
55925589	Prpf4	PRP4 pre-mRNA processing factor 4 homolog	0	22	5
158854005	Prpf4b	PRP4 pre-mRNA processing factor 4 homolog B	1	10	2
27597069	Prune	prune	2	0	1
13384608	Pcbd1	pterin 4 alpha carbinolamine dehydratase/dimerization cofactor of hepatocyte nuclear factor 1 alpha (TCF1) 1	6	2	0
52421794	Pcbd2	pterin-4 alpha-carbinolamine dehydratase 2	1	0	0
30425042	Ptk7	PTK7 protein tyrosine kinase 7	2	0	0
281371356	Ppfbp1	PTPRF interacting protein, binding protein 1 (liprin beta 1)	1	0	0
66773206	Ergic2	PTX1 protein isoform 1	1	0	0
227430386	Pum1	pumilio 1 isoform 1	0	1	0
6679573	Pura	purine rich element binding protein A	3	4	1
6755252	Purb	purine rich element binding protein B	5	5	3
71043934	D4Ertd22e	putative MAPK activating protein PM20,PM21 isoform 1	1	0	0
87116677	Tmco1	putative membrane protein	2	1	2
27228990	Snrnp27	putative nucleic acid binding protein RY-1	0	4	0
88853588	Cd320	putative VLDL lipoprotein receptor precursor	0	0	1

30102930	Pwp2	PWP2 periodic tryptophan protein homolog	1	4	4
72535128	Pxk	PX domain containing serine/threonine kinase short isoform	0	1	0
26006861	Pdxk	pyridoxal (pyridoxine, vitamin B6) kinase	1	0	0
88758584	Pdxdc1	pyridoxal-dependent decarboxylase domain containing 1 isoform 1	5	0	5
19527238	Pnpo	pyridoxine 5'-phosphate oxidase	0	0	1
27754065	Ppa1	pyrophosphatase 1	1	0	0
19526878	Pycr2	pyrroline-5-carboxylate reductase family, member 2	16	25	26
119508439	Pycr1	pyrroline-5-carboxylate reductase-like	2	0	0
255958292	Aldh18a1	pyrroline-5-carboxylate synthetase isoform 1	20	23	7
251823980	Pcx	pyruvate carboxylase isoform 2	35	0	0
18152793	Pdhb	pyruvate dehydrogenase (lipoamide) beta	7	5	4
28201978	Pdhx	pyruvate dehydrogenase complex, component X	2	0	0
6679261	Pdha1	pyruvate dehydrogenase E1 alpha 1	15	4	0
110625975	Pdk1	pyruvate dehydrogenase kinase 1	8	10	0
226958643	Pdk2	pyruvate dehydrogenase kinase 2	1	0	0
21704122	Pdk3	pyruvate dehydrogenase kinase 3	2	6	0
31981562	Pkm2	pyruvate kinase, muscle	38	5	14
226958440	Qk	quaking protein isoform 3	0	2	1
21312520	Qdpr	quinoid dihydropteridine reductase	1	0	0
33859558	Rabac1	Rab acceptor 1	1	0	0
254553295	Rabggtb	RAB geranylgeranyltransferase, beta subunit isoform 1	1	0	0
6679587	Rab1	RAB1, member RAS oncogene family	7	3	4
7710086	Rab10	RAB10, member RAS oncogene family	8	0	4
242247151	Rab11fip3	RAB11 family interacting protein 3 (class II) isoform 1	0	0	1
6679583	Rab11b	RAB11B, member RAS oncogene family	11	7	9
28202067	Rab11fip4	Rab11-FIP4-like	0	1	0
18390323	Rab14	RAB14, member RAS oncogene family	9	6	7
229577224	Rab17	RAB17, member RAS oncogene family	1	0	0
30841008	Rab18	RAB18, member RAS oncogene family	4	0	1
21313162	Rab1b	RAB1B, member RAS oncogene family	4	0	3
33859751	Rab21	RAB21, member RAS oncogene family	6	0	3
148747177	Rab22a	RAB22A, member RAS oncogene family	1	0	1
6679591	Rab24	RAB24, member RAS oncogene family	1	0	0
31980838	Rab25	RAB25, member RAS oncogene family	7	0	7
13128964	Rab27a	RAB27A protein	1	1	0
13385896	Rab32	RAB32	0	0	1
37718983	Rab35	RAB35, member RAS oncogene family	0	2	8
261862303	Rab3a	RAB3A, member RAS oncogene family	1	0	0
15042957	Rab3d	RAB3D, member RAS oncogene family	2	0	0
171184402	Rab4a	RAB4A, member RAS oncogene family	1	0	0
13385374	Rab5a	RAB5A, member RAS oncogene family	4	0	1
113866024	Rab5c	RAB5C, member RAS oncogene family	7	1	6
254750706	Rab6	RAB6A, member RAS oncogene family isoform 2	3	0	3
120300971	Erc1	Rab6-interacting protein 2 isoform 1	0	3	1
148747526	Rab7	RAB7, member RAS oncogene family	13	3	6
27734154	Rab8b	RAB8B, member RAS oncogene family	2	1	1
31559945	Rabepk	Rab9 effector protein with kelch motifs	1	0	0
9790227	Rab9	RAB9, member RAS oncogene family	3	0	0
140970573	Rabep2	rabaptin, RAB GTPase binding effector protein 2	3	0	0
254692855	Rad21	RAD21 homolog	0	31	12
34447211	Rad23a	RAD23a homolog	2	0	1
171906578	Rad23b	RAD23b homolog	4	2	0

153945822	Rad50	RAD50 homolog	0	16	0
88319960	Rad54b	RAD54 homolog B	1	0	1
6677725	Rfng	radical fringe	0	1	0
157277952	Rdx	radixin isoform b	17	24	3
28201956	Rae1	RAE1 RNA export 1 homolog	0	5	4
229577175	Ralgps2	Ral-A exchange factor RalGPS2	1	0	0
31982627	Rgl3	RalGDS-like protein 3	3	0	4
153792001	Ranbp1	RAN binding protein 1	4	2	1
153792534	Ranbp2	RAN binding protein 2	3	35	18
83523744	Ranbp3	RAN binding protein 3	2	0	1
53850664	Ranbp6	RAN binding protein 6	0	1	0
161353515	Ranbp9	RAN binding protein 9	0	0	1
226062635	Rangap1	RAN GTPase activating protein 1	5	9	5
6678365	Ran	RAN, member RAS oncogene family	7	8	7
40804757	Ranbp10	Ran-binding protein 10	2	0	0
19745156	lpo4	RANBP4	3	1	2
84875506	Rapgef1	Rap guanine nucleotide exchange factor (GEF) 1 isoform 1	1	0	0
13386338	Rap2b	RAP2B, member of RAS oncogene family	1	0	0
154146249	Rptor	raptor	1	0	1
21703974	Rin1	Ras and Rab interactor 1	1	0	0
145587080	Raph1	Ras association (RalGDS/AF-6) and pleckstrin homology domains 1	1	0	0
110431380	Rassf6	Ras association (RalGDS/AF-6) domain family member 6	0	0	1
28626508	Rheb	Ras homolog enriched in brain	0	0	1
31542143	Rhoa	ras homolog gene family, member A	3	2	2
6680726	Rheb	ras homolog gene family, member B	3	3	3
160415213	Rhoc	ras homolog gene family, member C	3	4	7
9625037	Rhog	ras homolog gene family, member G	0	0	1
34328361	Rhoq	ras homolog gene family, member Q	1	1	1
22122457	Rhot2	ras homolog gene family, member T2	2	0	3
33859753	Rap1b	RAS related protein 1b	1	6	8
34328471	Rala	ras related v-ral simian leukemia viral oncogene homolog A	3	4	4
295424118	Rreb1	ras responsive element binding protein 1 isoform 1	0	2	0
31982028	Rsu1	Ras suppressor protein 1	1	5	2
21311975	Rab13	RAS-associated protein RAB13	1	2	3
124248579	G3bp2	Ras-GTPase-activating protein (GAP120) SH3-domain binding protein 2 isoform a	6	5	0
110625708	Rasl11b	RAS-like, family 11, member B	0	0	1
45592934	Rac1	RAS-related C3 botulinum substrate 1	3	6	7
31541819	Rraga	Ras-related GTP binding A	1	0	0
21704066	Rap1a	RAS-related protein-1a	1	2	3
29789209	Raver1	Raver1	0	8	13
226693374	Rb1cc1	RB1-inducible coiled-coil 1	1	0	0
33239431	Rcc2	RCC1-like	0	19	0
124486604	Rif	rearranged L-myc fusion sequence	1	0	1
161016826	Reep5	receptor accessory protein 5	5	0	0
188497726	Rag1ap1	recombination activating gene 1 activating protein 1	1	0	1
124286787	Rbpj	recombining binding protein suppressor of hairless isoform 1	0	9	0
326368226	Recql	RecQ protein-like	0	0	1
19527092	Rcc1	regulator of chromosome condensation 1	0	16	6
124486718	Rgs11	regulator of G-protein signaling 11	0	1	0
160948569	Rgs3	regulator of G-protein signaling 3 isoform 2	0	1	0

170784813	Upf1	regulator of nonsense transcripts 1 isoform b	5	0	4
165972315	Rras2	related RAS viral (r-ras) oncogene homolog 2	1	1	2
11177922	Rfc2	replication factor C (activator 1) 2	1	8	1
124249204	Rfc3	replication factor C (activator 1) 3	3	5	3
21703948	Rfc4	replication factor C (activator 1) 4	0	9	3
188219597	Rfc1	replication factor C 1	0	4	1
110625924	Rfc5	replication factor C 5	7	13	3
255982530	Rpa1	replication protein A1	5	1	0
110625961	Rpa2	replication protein A2	3	1	1
13386122	Rpa3	replication protein A3	3	2	0
13385882	Rer1	RER1 homolog	0	0	1
39930559	Rcor1	REST corepressor 1	0	9	1
57634523	Rcor3	REST corepressor 3	0	2	1
23821025	Clip1	restin	0	4	1
114205428	Rcn2	reticulocalbin 2	4	0	0
54607016	Rtn3	reticulon 3 isoform 4	4	2	3
34610241	Rtn4	reticulon 4 isoform D	16	0	0
19526820	Rp2h	retinitis pigmentosa 2 homolog	0	0	1
37694072	Arid4b	retinoblastoma binding protein 1-like 1 isoform 1	0	2	0
47059484	Rbbp4	retinoblastoma binding protein 4	3	18	10
164450487	Rbbp5	retinoblastoma binding protein 5	0	12	0
163937858	Rbbp6	retinoblastoma binding protein 6 isoform 1	0	1	1
157909799	Rbbp7	retinoblastoma binding protein 7	3	12	4
237820660	Zubr1	retinoblastoma-associated factor 600 isoform 1	11	1	0
168823452	D14Abb1e	retinoblastoma-associated protein 140 isoform 1	0	1	1
124487105	Arid4a	retinoblastoma-binding protein 1	0	3	0
213417872	Rbl1	retinoblastoma-like protein 1 isoform 1	0	1	2
257196165	Rai16	retinoic acid induced 16	0	1	0
6755384	Rxra	retinoid X receptor alpha	1	1	0
25141231	Rdh10	retinol dehydrogenase 10	0	0	1
19482172	Rdh11	retinol dehydrogenase 11	4	0	1
30425078	Rdh13	retinol dehydrogenase 13	1	0	4
40254551	Rev1	REV1-like	0	0	1
229092834	Rhcg	Rhesus blood group-associated C glycoprotein	0	0	1
13386354	Rnd3	Rho family GTPase 3	1	0	0
31982030	Arhgdia	Rho GDP dissociation inhibitor (GDI) alpha	9	2	3
225543420	Arhgap1	Rho GTPase activating protein 1 isoform 2	5	0	3
254750666	Arhgap19	Rho GTPase activating protein 19 isoform 1	0	1	0
203097667	Arhgap21	Rho GTPase activating protein 21 isoform 1	0	0	1
33563303	Arhgap29	Rho GTPase activating protein 29	1	0	0
86262151	Arhgap5	Rho GTPase activating protein 5	0	1	0
194306553	Arhgef1	Rho guanine nucleotide exchange factor (GEF) 1 isoform a	0	0	1
51491850	Arhgef11	Rho guanine nucleotide exchange factor (GEF) 11	0	0	2
163838664	Arhgef16	Rho guanine nucleotide exchange factor (GEF) 16	0	2	0
124487439	Arhgef17	Rho guanine nucleotide exchange factor (GEF) 17	0	0	1
33563236	Arhgdib	Rho, GDP dissociation inhibitor (GDI) beta	6	0	0
312032462	Arhgef2	rho/rac guanine nucleotide exchange factor (GEF) 2	2	0	1
134949013	Rock2	Rho-associated coiled-coil forming kinase 2	0	14	0
6677759	Rock1	Rho-associated, coiled-coil containing protein kinase 1	0	0	1
170014732	Rhbdd1	rhomboid domain containing 1	1	0	0
229092577	Rhpn2	rhophilin, Rho GTPase binding protein 2	1	0	0
209977095	Rtkn	rhotekin isoform b	1	0	1
58037097	Rnaseh2b	ribonuclease H2, subunit B	0	1	0

194328670	Rnasen	ribonuclease III, nuclear	0	1	0
13385432	Rpp14	ribonuclease P 14kDa subunit	1	4	0
257196209	Rpp30	ribonuclease P/MRP 30kDa subunit	1	6	0
145279200	Rnaset2a	ribonuclease T2A	4	0	0
285402659	Rnh1	ribonuclease/angiogenin inhibitor 1	1	0	0
121674793	Rnps1	ribonucleic acid binding protein S1 isoform 2	0	2	4
282398108	Rpn1	ribophorin I	31	2	14
34996495	Rpn2	ribophorin II	19	2	17
30794470	Rsl1d1	ribosomal L1 domain containing 1	1	6	14
16418339	Rpl10	ribosomal protein 10	8	2	9
255003735	Rpl10a	ribosomal protein L10A	10	2	7
13385408	Rpl11	ribosomal protein L11	4	8	5
160333553	Rpl12	ribosomal protein L12	2	6	6
33186863	Rpl13	ribosomal protein L13	5	1	4
31981945	Rpl13a	ribosomal protein L13A	4	1	5
13385472	Rpl14	ribosomal protein L14	1	1	5
13385036	Rpl15	ribosomal protein L15	3	4	9
161484662	Rpl17	ribosomal protein L17	4	2	6
83699424	Rpl18	ribosomal protein L18	7	6	7
58037465	Rpl18a	ribosomal protein L18A	1	0	1
226958653	Rpl19	ribosomal protein L19 isoform 1	3	1	3
6677775	Rpl22	ribosomal protein L22	1	4	3
13386010	Rpl22l1	ribosomal protein L22 like 1	1	3	2
12584986	Rpl23	ribosomal protein L23	1	3	3
46430508	Rpl23a	ribosomal protein L23a	7	9	8
18250296	Rpl24	ribosomal protein L24	5	3	6
38348464	BC003885	ribosomal protein L24-like	0	0	1
6677777	Rpl26	ribosomal protein L26	5	4	5
8567400	Rpl27	ribosomal protein L27	2	7	6
31560517	Rpl27a	ribosomal protein L27a	4	1	4
6677779	Rpl28	ribosomal protein L28	4	1	4
6677781	Rpl29	ribosomal protein L29	3	0	1
255308899	Rpl3	ribosomal protein L3	3	4	5
254553337	Rpl30	ribosomal protein L30	3	5	4
16716589	Rpl31	ribosomal protein L31	3	4	2
25742730	Rpl32	ribosomal protein L32	1	0	2
55742885	Rpl34	ribosomal protein L34 isoform 2	5	1	2
13385044	Rpl35	ribosomal protein L35	1	1	2
194440715	Rpl35a	ribosomal protein L35a	4	1	1
13385038	Rpl36al	ribosomal protein L36A-like	1	1	1
6677785	Rpl37a	ribosomal protein L37a	1	2	2
114205444	Rpl38	ribosomal protein L38	5	5	3
13385552	Rpl39	ribosomal protein L39	1	0	0
30794450	Rpl4	ribosomal protein L4	19	0	13
23956082	Rpl5	ribosomal protein L5	2	9	4
84662736	Rpl6	ribosomal protein L6	1	1	10
31981515	Rpl7	ribosomal protein L7	6	4	13
7305443	Rpl7a	ribosomal protein L7A	1	2	13
27754134	Rpl7l1	ribosomal protein L7-like 1	0	0	4
6755358	Rpl8	ribosomal protein L8	6	2	4
14149647	Rpl9	ribosomal protein L9	1	10	7
13399310	Rps10	ribosomal protein S10	6	9	3
21426889	Rps11	ribosomal protein S11	4	6	9
40254577	Rps12	ribosomal protein S12	1	7	0



13386034	Rps13	ribosomal protein S13	5	3	4
31981100	Rps14	ribosomal protein S14	5	7	4
6677799	Rps15	ribosomal protein S15	2	1	2
24762230	Rps15a	ribosomal protein S15A	3	6	6
158966704	Rps16	ribosomal protein S16	8	6	7
6677801	Rps17	ribosomal protein S17	5	5	4
6755368	Rps18	ribosomal protein S18	7	7	8
12963511	Rps19	ribosomal protein S19	1	7	1
18087805	Rps2	ribosomal protein S2	4	6	10
13385652	Rps20	ribosomal protein S20	2	4	1
21536222	Rps21	ribosomal protein S21	4	2	0
46519160	Rps24	ribosomal protein S24 isoform 2	3	2	4
28372479	Rps25	ribosomal protein S25	5	5	3
26024336	Rps27	ribosomal protein S27	3	3	2
76443694	Rps27a	ribosomal protein S27a	1	0	1
13385958	Rps27l	ribosomal protein S27-like	2	3	2
21426821	Rps28	ribosomal protein S28	3	2	0
6677803	Rps29	ribosomal protein S29	2	1	1
6755372	Rps3	ribosomal protein S3	16	14	13
254553321	Rps3a	ribosomal protein S3A	15	13	8
6677805	Rps4x	ribosomal protein S4, X-linked	5	1	3
254675270	Rps5	ribosomal protein S5	4	8	6
6677809	Rps6	ribosomal protein S6	4	2	6
158636007	Rps6ka1	ribosomal protein S6 kinase polypeptide 1	1	0	0
9910454	Rps6ka4	ribosomal protein S6 kinase, polypeptide 4	0	0	1
6755376	Rps7	ribosomal protein S7	6	8	7
6677813	Rps8	ribosomal protein S8	10	3	9
33504483	Rps9	ribosomal protein S9-like	13	6	12
224994260	Rpsa	ribosomal protein SA	10	4	3
83745120	Rplp2	ribosomal protein, large P2	6	6	5
9256519	Rplp1	ribosomal protein, large, P1	1	3	2
13384904	Mrps22	ribosomal protein, mitochondrial, S22	5	0	0
254911009	Rrp1b	ribosomal RNA processing 1 homolog B isoform 1	0	2	2
124486712	Rrbp1	ribosome binding protein 1 isoform a	8	15	0
62530188	Ahsa2	RIKEN cDNA 1110064P04	0	1	0
21313668	2310001A20Rik	RIKEN cDNA 2310001A20	9	0	0
58037443	2310003C23Rik	RIKEN cDNA 2310003C23	1	0	0
226342951	2310044H10Rik	RIKEN cDNA 2310044H10	1	0	0
145207992	Dis3	RIKEN cDNA 2810028N01	0	5	0
19526956	2900064A13Rik	RIKEN cDNA 2900064A13	2	0	2
61742810	Zc3h13	RIKEN cDNA 3110050K21	0	1	0
168480120	Rictor	RIKEN cDNA 4921505C17	2	0	0
26024211	Rfwd2	ring finger and WD repeat domain 2	0	0	1
21311909	Rnf6	ring finger protein (C3H2C3 type) 6	1	0	0
226958428	Ring1	ring finger protein 1	0	6	0
187960114	Rnf103	ring finger protein 103	0	0	1
247301241	Msl2l1	ring finger protein 184	0	1	0
256225924	Rnf187	ring finger protein 187	1	0	1
33563274	Rnf2	ring finger protein 2	0	6	1
253795509	Rnf20	ring finger protein 20	0	5	0
30519929	Rnf24	ring finger protein 24	0	1	0
38348308	Rybp	RING1 and YY1 binding protein	0	4	0
110625737	Riok3	RIO kinase 3	1	0	0
13385938	Rnmt	RNA (guanine-7-) methyltransferase	0	3	0

21312876	Rg9mtd1	RNA (guanine-9-) methyltransferase domain containing 1	0	1	0
148238335	Refbp2	RNA and export factor binding protein 2	1	0	0
269847199	Rbm10	RNA binding motif protein 10	0	3	7
114155125	Rbm12	RNA binding motif protein 12	2	0	0
86262142	Rbm14	RNA binding motif protein 14	1	13	19
124249066	Rbm15	RNA binding motif protein 15	0	5	2
22779924	Rbm17	RNA binding motif protein 17	0	0	2
30794154	Rbm19	RNA binding motif protein 19	0	1	5
110625591	Rbm22	RNA binding motif protein 22	0	1	4
161353449	Rbm25	RNA binding motif protein 25	3	25	9
123701991	Rbm26	RNA binding motif protein 26	0	7	0
166235127	Rbm28	RNA binding motif protein 28	0	0	9
165972311	Esrp1	RNA binding motif protein 35A	1	2	1
118403314	Rbm39	RNA binding motif protein 39	5	10	7
22507333	Rbm5	RNA binding motif protein 5	0	6	8
27753952	Rbm7	RNA binding motif protein 7	0	2	1
162287294	Rbm8a	RNA binding motif protein 8a isoform b	1	7	8
161016816	Rbm9	RNA binding motif protein 9 isoform 1	1	0	1
83699420	Rbmxt	RNA binding motif protein, X chromosome retrogene	0	2	5
262231769	RbmX	RNA binding motif protein, X-linked	5	7	10
27734072	RbmX2	RNA binding motif protein, X-linked 2	0	0	1
111185961	Rbpms	RNA binding protein gene with multiple splicing isoform 1	2	7	3
6755364	Sub1	RNA polymerase II transcriptional coactivator	1	5	1
10946950	Rcl1	RNA terminal phosphate cyclase-like 1	0	3	3
84662758	Rnpc3	RNA-binding region (RNP1, RRM) containing 3	1	1	1
30039680	Rod1	ROD1 regulator of differentiation 1 isoform 1	2	12	7
70794811	Src	Rous sarcoma oncogene isoform 1	0	3	2
227908779	Rrs1	RRS1 ribosome biogenesis regulator homolog	0	0	3
21312036	Rufy3	RUN and FYVE domain containing 3	1	0	0
9790083	Ruvbl1	RuvB-like protein 1	7	13	11
6755382	Ruvbl2	RuvB-like protein 2	9	21	9
226443099	Srbd1	S1 RNA binding domain 1	0	6	0
6677833	S100a10	S100 calcium binding protein A10	2	1	0
21886811	S100a11	S100 calcium binding protein A11 (calizzarin)	3	0	2
6677835	S100a13	S100 calcium binding protein A13	1	1	0
254587910	S100a14	S100 calcium binding protein A14 isoform a	1	3	4
21312760	S100a16	S100 calcium binding protein A16	2	3	6
6755392	S100a6	S100 calcium binding protein A6 (calcyclin)	3	2	2
30424711	Rps19bp1	S19 binding protein	1	2	1
13507622	Sacm1l	SAC1 (supressor of actin mutations 1, homolog)-like	7	0	0
119508435	Sac3d1	SAC3 domain containing 1	0	1	0
257153336	Nip7	Saccharomyces cerevisiae Nip7p homolog	0	9	3
262263372	Ahcy	S-adenosylhomocysteine hydrolase	6	0	0
213418079	Samhd1	SAM domain- and HD domain-containing protein 1 isoform 1	4	6	1
124487193	Sap30l	SAP30-like	0	1	0
255918184	Saps3	SAPS domain family, member 3	1	0	1
21703344	Sar1a	SAR1a gene homolog	2	0	2
21313476	Sar1b	SAR1a gene homolog 2	3	0	5
56605992	Slmap	sarcolemma associated protein	2	1	0
153945866	Safb2	scaffold attachment factor B2	0	13	12
134053873	Scand3	SCAN domain containing 3	1	3	0

6680878	Scarb2	scavenger receptor class B, member 2	5	0	0
70909345	Scel	sciellin	1	1	1
226246552	Scin	scinderin isoform 1	19	17	15
238550155	Sost	sclerostin	0	0	1
58037481	Scfd1	Sec1 family domain containing 1	17	1	5
9910550	Sec11a	Sec11-like 1	3	1	2
29150272	Sec13	SEC13-like 1	0	6	1
84875515	Seh1l	sec13-like protein isoform a	0	7	2
30425210	Sestd1	SEC14 and spectrin domains 1	1	0	1
6755448	Sec22b	SEC22 vesicle trafficking protein-like 1	8	1	8
254692911	Sec23ip	Sec23 interacting protein	0	1	0
67906177	Sec23a	SEC23A	2	0	0
31980969	Sec23b	SEC23B	1	0	0
116174774	Sec24a	SEC24 related gene family, member A	1	0	0
46402179	Sec24b	Sec24 related gene family, member B	1	0	0
269954700	Sec24c	Sec24 related gene family, member C	5	0	0
244791271	Sec31a	SEC31-like 1	3	0	1
8394252	Sec61a1	Sec61 alpha subunit homolog	5	1	3
13324684	Sec61b	Sec61 beta subunit	3	2	1
10946604	Sec61a2	Sec61, alpha subunit 2	4	0	3
158517836	Sec61g	SEC61, gamma subunit isoform 1	1	0	0
158937300	Sec63	SEC63-like protein	1	0	0
58037395	Scamp1	secretory carrier membrane protein 1	2	0	0
118601011	Scamp3	secretory carrier membrane protein 3	4	0	0
84875513	Sel1l	Sel1 (suppressor of lin-12) 1 homolog isoform a	7	0	0
22164798	Selenbp1	selenium binding protein 1	6	0	0
156713463	Sephs1	selenophosphate synthetase 1	0	2	0
82546883	2700094K13Rik	selenoprotein H	1	8	0
111119001	Selk	selenoprotein K	1	0	0
143770878	2810407C02Rik	selenoprotein T	1	0	0
31543683	Sema3f	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3F	0	1	1
110625636	Sema4b	semaphorin 4B precursor	0	0	1
49274623	Sema4d	semaphorin 4D	0	0	1
160333789	Spr	sepiapterin reductase	6	0	0
226442740	Sept10	septin 10 isoform 2	0	4	1
57634518	Sept11	septin 11	1	17	0
228480255	Sept2	septin 2 a	4	13	0
6755120	Sept4	septin 4	0	6	0
158508501	Sept5	septin 5	0	6	0
39930477	Sept8	septin 8	0	8	0
164698483	Sept9	septin 9 isoform b	2	21	0
6754954	Sqstm1	sequestosome 1	1	0	1
255759943	Serpinb6a	serine (or cysteine) proteinase inhibitor, clade B, member 6a	7	0	0
6678101	Serpinb9	serine (or cysteine) proteinase inhibitor, clade B, member 9	2	0	0
161353502	Serpinh1	serine (or cysteine) proteinase inhibitor, clade H, member 1	2	1	3
253970508	Scpep1	serine carboxypeptidase 1	7	0	0
13443008	Serhl	serine hydrolase protein	3	0	1
21312298	Shmt2	serine hydroxymethyltransferase 2 (mitochondrial)	21	14	5
29244577	Sptlc1	serine palmitoyltransferase subunit 1	2	0	0
6755656	Sptlc2	serine palmitoyltransferase, long chain base subunit 2	3	1	0

127139427	Spint2	serine protease inhibitor, Kunitz type 2 isoform b	0	0	1
194440687	Srrm1	serine/arginine repetitive matrix 1 isoform 1	1	2	0
126157504	Srrm2	serine/arginine repetitive matrix 2	11	3	1
31982726	Srpk1	serine/arginine-rich protein specific kinase 1	0	1	0
47059480	Srpk2	serine/arginine-rich protein-specific kinase 2	1	0	0
226958539	Stk16	serine/threonine kinase 16	1	0	1
257467554	Slk	serine/threonine kinase 2	16	0	0
21703922	Stk24	serine/threonine kinase 24	1	0	0
89337277	Stk25	serine/threonine kinase 25	2	2	0
7106391	Stk30	serine/threonine kinase 30	1	0	0
27370078	Stk38l	serine/threonine kinase 38 like	0	0	1
160707896	Strap	serine/threonine kinase receptor associated protein	2	4	0
160333312	BC033915	serine/threonine-protein kinase QSK	0	0	1
32130521	Sdccag1	serologically defined colon cancer antigen 1	1	0	0
165932377	Serbp1	SERPINE1 mRNA binding protein 1 isoform 1	9	8	0
148540184	Srfbp1	serum response factor binding protein 1	0	1	1
326381098	Sars	seryl-tRNA synthetase	10	13	0
30840984	Smyd2	SET and MYND domain containing 2	0	1	0
119508422	Setd1a	SET domain containing 1A	0	2	0
197927225	Setd2	SET domain containing 2	0	1	1
268370088	Setd3	SET domain containing 3	1	0	0
227499783	Scmh1	sex comb on midleg 1 isoform 1	2	0	0
23956176	Sugt1	SGT1, suppressor of G2 allele of SKP1	2	0	1
154090953	Ctr9	SH2 domain binding protein 1 (tetratricopeptide repeat containing)	0	23	0
206597474	Sh2d4a	SH2 domain containing 4A	1	0	0
27369694	Sh3bgrl2	SH3 domain binding glutamic acid-rich protein like 2	0	4	0
18017602	Sh3bgrl3	SH3 domain binding glutamic acid-rich protein-like 3	1	3	0
312176405	ltsn2	SH3 domain protein 1B	0	3	1
7305487	Sh3yl1	Sh3 domain YSC-like 1	0	1	0
114145507	Sh3rf1	SH3 multiple domains 2	1	0	0
9910548	Sh3bgrl	SH3-binding domain glutamic acid-rich protein like	3	0	0
31560792	Sh3gl2	SH3-domain GRB2-like 2	0	0	1
9507097	Sh3glb1	SH3-domain GRB2-like B1	3	0	0
131889222	Sdr39u1	short chain dehydrogenase/reductase family 39U, member 1	6	0	0
31982522	Acads	short-chain acyl-CoA dehydrogenase	16	0	0
94818779	Shroom4	shroom family member 4	0	0	2
23956138	Sbds	Shwachman-Bodian-Diamond syndrome homolog	0	3	0
15147224	Sfxn1	sideroflexin 1	9	0	2
295821212	Sfxn3	sideroflexin 3	5	0	1
13385134	Spcs2	signal peptidase complex subunit 2 homolog	4	1	5
125988403	Spcs3	signal peptidase complex subunit 3	4	2	3
6678133	Srp14	signal recognition particle 14	1	1	0
47271535	Srp68	signal recognition particle 68	9	0	2
118344452	Srp72	signal recognition particle 72	11	1	3
6755662	Srp9	signal recognition particle 9	3	2	0
27229036	Srpr	signal recognition particle receptor	0	0	1
6678137	Srprb	signal recognition particle receptor, B subunit	4	1	1
165377206	Ssr1	signal sequence receptor, alpha	4	1	2
262050625	Ssr4	signal sequence receptor, delta	3	3	3
21312968	Ssr3	signal sequence receptor, gamma	1	2	1
6755668	Stam	signal transducing adaptor molecule (SH3 domain and ITAM motif) 1	1	0	0

9789975	Stam2	signal transducing adaptor molecule (SH3 domain and ITAM motif) 2	1	0	0
269784721	Sipa111	signal-induced proliferation-associated 1 like 1	1	0	0
124486630	Sipa113	signal-induced proliferation-associated 1 like 3	0	1	0
254540118	1110033M05Rik	similar to 1110033M05Rik protein isoform 6	0	1	0
247494016	4930422G04Rik	similar to 4930422G04Rik protein	1	1	0
94364066	LOC632433	similar to Arl4c protein	1	0	0
149253008	LOC675933	similar to AT rich interactive domain 1A (Swi1 like)	0	1	1
309271759	AU042671	similar to chromosome 12 open reading frame 51	0	0	1
293651623	EG627788	similar to cytoplasmic dynein light chain 1	0	0	1
237858808	AI462493	similar to Expressed sequence AI462493 isoform 3	1	0	0
254911027	Nbeal2	similar to FLJ00341 protein	1	1	1
309265697	EG667035	similar to fusion protein: ubiquitin (bases 43_513); ribosomal protein S27a (bases 217_532)	1	0	0
82996390	EG433184	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH)	1	0	0
149233991	D230012E17Rik	similar to GPI inositol-deacylase	6	0	5
257196179	Irf2bp2	similar to interferon regulatory factor 2 binding protein 2	1	0	0
254540089	Prpsap1	similar to likely ortholog of H. sapiens phosphoribosyl pyrophosphate synthetase-associated protein 1 (PRPSAP1)	7	0	0
82965664	LOC638521	similar to LOC152217 protein	1	0	0
254540144	2700049A03Rik	similar to mKIAA0586 protein	2	0	0
256773220	Synj1	similar to mKIAA0910 protein	1	0	0
30527367	Rbm16	similar to mKIAA1116 protein isoform 1	0	1	1
244790458	D630023B12Rik	similar to mKIAA1450 protein	0	1	0
237820699	Mocs3	similar to molybdenum cofactor synthesis 3	0	0	1
237874229	Ccdc112	similar to mutated in bladder cancer 1	0	0	1
94363510	EG433297	similar to MYL6 protein	0	1	1
254692972	Cdc42bpa	similar to myotonic dystrophy kinase-related Cdc42-binding kinase isoform 12	1	0	1
254588079	Nat11	similar to N-acetyltransferase 11 isoform 9	0	2	3
226958612	Rbm27	similar to peri implantation stem cell 1 isoform 5	2	0	0
26024309	Ppat	similar to Phosphoribosyl pyrophosphate amidotransferase isoform 8	1	0	0
242397505	Zbtb10	similar to putative RIN zinc finger protein	0	0	1
255003810	Rab3gap2	similar to Rab3 GTPase-activating protein non-catalytic subunit (Rab3 GTPase-activating protein 150 kDa subunit) (Rab3-GAP p150) (Rab3-GAP regulatory subunit) (RAB3-GAP150) isoform 4	0	1	1
226958601	Golgb1	similar to rat GCP360 isoform 9	26	0	0
254028159	Safb	similar to Scaffold attachment factor B (Scaffold attachment factor B1) (SAF-B) isoform 18	1	7	6
256017222	Tmcc1	similar to Tmcc1 protein isoform 8	0	1	0
82950513	EG621629	similar to Ubxd4 protein	0	0	1
110625701	Sigirr	single Ig IL-1 receptor related protein	1	0	0
47059026	Ssbp1	single-stranded DNA binding protein 1 isoform 1	5	0	2
30578432	Sirt5	sirtuin 5 (silent mating type information regulation 2 homolog) 5	1	0	0
158636012	Ssb	Sjogren syndrome antigen B	10	11	12
110347531	Mib2	skeletrophin	1	0	0
146149191	Snw1	SKI interacting protein	6	3	10
113205055	Ski	Sloan-Kettering viral oncogene homolog	1	0	0
227430375	Snip1	Smad nuclear interacting protein 1	1	1	0
27229283	Rexo2	small fragment nuclease	2	0	0

21313588	Sgta	small glutamine-rich tetratricopeptide repeat (TPR) containing protein	9	0	0
114145487	Rragc	small GTPase homolog	2	0	0
126012517	Aimp1	small inducible cytokine subfamily E, member 1	12	3	0
6678055	Snrpd1	small nuclear ribonucleoprotein D1	3	5	5
58037145	Snrpd2	small nuclear ribonucleoprotein D2	1	7	6
13385598	Snrpd3	small nuclear ribonucleoprotein D3	2	3	3
27883844	Snrpe	small nuclear ribonucleoprotein E	2	5	4
133725813	Snrpn	small nuclear ribonucleoprotein N	6	7	8
114052541	Snrpa	small nuclear ribonucleoprotein polypeptide A	2	7	3
254028189	Snrpf	small nuclear ribonucleoprotein polypeptide F	1	5	3
13385994	Snrpg	small nuclear ribonucleoprotein polypeptide G	2	3	2
30409986	Snapc1	small nuclear RNA activating complex, polypeptide 1	0	0	1
7657601	Solh	small optic lobes	1	0	0
31981251	2500003M10Rik	small protein rich in arginine and glycine	1	2	4
148839318	Smchd1	SMC hinge domain containing 1	1	83	7
258613892	Smc1a	SMC1 structural maintenance of chromosomes 1-like 1	2	41	29
24415998	Smc6	SMC6 protein	0	1	8
46849745	Smek1	SMEK homolog 1, suppressor of mek1 isoform 1	1	0	0
262231766	Smek2	SMEK homolog 2, suppressor of mek1	4	0	0
27477043	Efha1	Smhs2 homolog	3	2	1
6678489	Sumo1	SMT3 suppressor of mif two 3 homolog 1	0	2	0
19111164	Sumo2	SMT3 supressor of mif two 3 homolog 2	1	1	0
227430367	Smu1	smu-1 suppressor of mec-8 and unc-52 homolog	0	12	14
257196125	Snrk	SNF related kinase	0	1	0
324021709	Lsm2	snRNP core protein SMX5 isoform 2	4	7	2
270341361	Shoc2	soc-2 (suppressor of clear) homolog	1	3	1
281371456	Slc12a9	solute carrier family 12 (potassium/chloride transporters), member 9	1	0	0
19527112	Slc15a4	solute carrier family 15, member 4	1	1	0
6677995	Slc16a1	solute carrier family 16, member 1	5	0	1
165377226	Slc2a1	solute carrier family 2 (facilitated glucose transporter), member 1	1	0	0
21312994	Slc25a11	solute carrier family 25 (mitochondrial carrier oxoglutarate carrier), member 11	10	1	10
148747424	Slc25a4	solute carrier family 25 (mitochondrial carrier, adenine nucleotide translocator), member 4	16	6	13
254826790	Slc25a10	solute carrier family 25 (mitochondrial carrier, dicarboxylate transporter), member 10	15	0	6
29789024	Slc25a17	solute carrier family 25 (mitochondrial carrier, peroxisomal membrane protein), member 17	1	0	1
19526818	Slc25a3	solute carrier family 25 member 3	14	0	10
23943838	Slc25a1	solute carrier family 25, member 1	9	1	7
27369581	Slc25a12	solute carrier family 25, member 12	29	0	11
294832028	Slc25a13	solute carrier family 25, member 13	33	0	14
49274632	Slc25a23	solute carrier family 25, member 23	0	0	1
22094075	Slc25a5	solute carrier family 25, member 5	1	0	1
45597453	Slc27a4	solute carrier family 27 (fatty acid transporter), member 4	3	0	0
238637279	Slc3a2	solute carrier family 3, member 2 isoform b	3	0	0
52630421	Slc30a4	solute carrier family 30 (zinc transporter), member 4	0	0	1
31543730	Slc33a1	solute carrier family 33 (acetyl-CoA transporter), member 1	2	0	0
21450281	Slc35a3	solute carrier family 35 (UDP-N-acetylglucosamine (UDP-GlcNAc) transporter), member 3	1	0	0

110625963	Slc35b2	solute carrier family 35, member B2	0	1	0
205830420	Slc39a14	solute carrier family 39 (zinc transporter), member 14 isoform a	1	0	0
118150670	Slc39a7	solute carrier family 39, member 7	2	0	1
155722992	Slc4a1ap	solute carrier family 4 (anion exchanger), member 1, adaptor protein	0	1	0
117320529	Slc4a7	solute carrier family 4, sodium bicarbonate cotransporter, member 7	0	1	0
227499988	Slc44a1	solute carrier family 44, member 1 isoform A	5	0	0
31982828	Slc6a6	solute carrier family 6 (neurotransmitter transporter, taurine), member 6	1	0	0
6755566	Slc9a3r1	solute carrier family 9 (sodium/hydrogen exchanger), isoform 3 regulator 1	8	5	0
226246650	Slc9a3r2	solute carrier family 9 isoform 3 regulator 2 isoform B	1	0	0
124378037	Son	Son cell proliferation protein	0	5	30
117414170	Sos1	son of sevenless 1	0	1	0
78000179	Sorbs1	sorbin and SH3 domain containing 1 isoform 2	0	2	1
327315370	Sorbs2	sorbin and SH3 domain containing 2	0	3	4
6755504	Sorbs3	sorbin and SH3 domain containing 3	0	0	2
124430543	Sri	sorcic isoform 2	3	0	1
34610211	Sort1	sortilin 1	5	0	0
110625645	Sorl1	sortilin-related receptor, LDLR class A repeats-containing	12	2	0
30519943	Samm50	sorting and assembly machinery component 50 homolog	7	0	18
71043944	Snx1	sorting nexin 1	2	0	0
13385878	Snx2	sorting nexin 2	7	0	1
258613896	Snx25	sorting nexin 25	1	1	0
31560433	Snx3	sorting nexin 3	5	0	0
312596940	Snx5	sorting nexin 5	2	0	1
27754031	Snx6	sorting nexin 6	2	0	0
26986581	Snx8	sorting nexin 8	0	1	0
29568084	Snx9	sorting nexin 9	0	2	0
61651673	Stt3b	source of immunodominant MHC-associated peptides	2	0	1
148536867	Sp3	Sp3 transcription factor isoform 2	0	5	0
20070390	Spg21	spastic paraplegia 21 homolog	0	1	0
244790112	Spast	spastin isoform 2	0	1	0
295054271	Spna2	spectrin alpha 2	33	163	114
117938334	Spnb2	spectrin beta 2 isoform 1	8	103	70
55926127	Spnb3	spectrin beta 3	15	108	85
116089351	Abi1	spectrin SH3 domain binding protein 1 isoform 1	1	2	0
120587001	Spn	SPEN homolog, transcriptional regulator	0	6	1
148747279	Spag1	sperm associated antigen 1	1	2	0
194473671	Ssfa2	sperm specific antigen 2	0	1	1
114842377	Strbp	spermatid perinuclear RNA-binding protein	1	26	0
21313470	Alkbh7	spermatogenesis associated 11	2	0	0
20982833	Spats2	spermatogenesis associated, serine-rich 2	0	0	1
158854016	Skp1a	S-phase kinase-associated protein 1A	1	7	2
257196247	Smpd4	sphingomyelin phosphodiesterase 4	0	0	11
19527104	Smpd3b	sphingomyelin phosphodiesterase, acid-like 3B	0	0	1
270483850	Sgms1	sphingomyelin synthase 1	0	0	1
31543694	Sgpl1	sphingosine-1-phosphate lyase 1	5	2	3
13507712	Sgpp1	sphingosine-1-phosphate phosphatase 1	1	0	0
21312862	Spc24	spindle pole body component 24 homolog	0	1	0
22165378	Spin1	spindlin isoform 2	0	2	2
160707947	Sf1	splicing factor 1 isoform 2	1	9	2

165932270	Sf3a1	splicing factor 3a, subunit 1	11	25	19
158749553	Sf3a2	splicing factor 3a, subunit 2	1	8	2
22095003	Sf3a3	splicing factor 3a, subunit 3	1	23	15
13384692	0610009D07Rik	splicing factor 3B, 14 kDa subunit	1	4	3
153791358	Sf3b1	splicing factor 3b, subunit 1	4	39	35
268837785	Sf3b2	splicing factor 3b, subunit 2	3	19	28
19527174	Sf3b3	splicing factor 3b, subunit 3	13	45	38
23346437	Sf3b4	splicing factor 3b, subunit 4	1	5	6
85540445	Sf3b5	splicing factor 3b, subunit 5	1	3	2
28076967	Sf4	splicing factor 4	1	1	2
23956214	Sfpq	splicing factor proline/glutamine rich (polypyrimidine tract binding protein associated)	12	29	10
13385016	Sfrs9	splicing factor, arginine/serine rich 9	0	4	10
118582271	Sfrs1	splicing factor, arginine/serine-rich 1 isoform 1	10	12	11
148222073	Sfrs11	splicing factor, arginine/serine-rich 11 isoform 2	0	5	0
27369842	Sfrs12	splicing factor, arginine/serine-rich 12	0	3	0
109150409	Sfrs15	splicing factor, arginine/serine-rich 15	0	8	1
6755478	Sfrs2	splicing factor, arginine/serine-rich 2	2	2	1
117647277	Sfrs2ip	splicing factor, arginine/serine-rich 2, interacting protein	0	16	6
8567402	Sfrs3	splicing factor, arginine/serine-rich 3 (SRp20)	2	8	8
165377173	Sfrs4	splicing factor, arginine/serine-rich 4	1	0	1
119226243	Sfrs5	splicing factor, arginine/serine-rich 5	7	6	5
306774103	Sfrs7	splicing factor, arginine/serine-rich 7	2	4	6
78217391	Sfrs8	splicing factor, arginine/serine-rich 8	0	5	0
6755650	Spry1	sprouty homolog 1	0	1	0
15743554	Spred1	sprouty-related protein 1 with EVH-1 domain	1	0	0
124244096	Sart1	squamous cell carcinoma antigen recognized by T-cells 1	10	23	2
8394239	Sart3	squamous cell carcinoma antigen recognized by T-cells 3	4	0	0
283046784	1810035L17Rik	SRA stem-loop-interacting RNA-binding protein	3	2	0
156938293	Scap	SREBF chaperone	0	0	1
119672912	Cherp	SR-related CTD associated factor 6	0	1	3
55742879	Stambpl1	STAM binding protein-like 1	1	0	0
77404392	Snd1	staphylococcal nuclease domain containing 1	30	22	0
9910482	Stard10	START domain containing 10	1	0	0
9789995	Stmn1	stathmin 1	1	0	0
158186641	Stau1	stauflen (RNA binding protein) homolog 1 isoform 3	2	1	0
226958514	Samd9l	sterile alpha motif domain containing 9-like isoform 1	3	20	2
87044895	Srd5a1	steroid-5-alpha-reductase 1	1	0	1
45476581	Scp2	sterol carrier protein 2, liver	10	1	0
84619697	Soat1	sterol O-acyltransferase 1	4	0	6
9789907	Stub1	STIP1 homology and U-box containing protein 1	1	1	0
7710018	Stom	stomatin	1	0	0
12963591	Stoml2	stomatin-like protein 2	7	0	4
134023662	Sfn	stratifin	5	0	0
34556193	Sbno2	strawberry notch homolog	0	0	1
14389431	Stip1	stress-induced phosphoprotein 1	32	5	0
61098078	Strn	striatin, calmodulin binding protein	4	0	0
40254610	Stag1	stromal antigen 1	0	2	4
118150674	Stag2	stromal antigen 2	0	24	7
226958306	Sdf2	stromal cell derived factor 2	1	1	0
11612505	Sdf2l1	stromal cell-derived factor 2-like 1	2	3	0
281182368	Stim2	stromal interaction molecule 2	2	0	1



62990166	Smc2	structural maintenance of chromosomes 2	1	12	0
29789347	Smc4	structural maintenance of chromosomes 4	0	7	1
24497433	Smc5	structural maintenance of chromosomes 5	1	8	6
209862973	Ssrp1	structure specific recognition protein 1 isoform 1	3	16	11
110815822	Sdhaf1	succinate dehydrogenase complex assembly factor 1	1	1	0
34328286	Sdhb	succinate dehydrogenase complex, subunit B, iron sulfur (lp)	9	0	6
228008307	Sdhc	succinate dehydrogenase complex, subunit C, integral membrane protein	3	0	0
54607098	Sdha	succinate dehydrogenase Fp subunit	24	1	3
255958286	Suclg1	succinate-CoA ligase, GDP-forming alpha subunit	9	0	2
165972309	Suclg2	succinate-CoA ligase, GDP-forming beta subunit	19	1	3
46849708	Sucla2	succinate-Coenzyme A ligase, ADP-forming, beta subunit	12	0	1
244790049	Sqrdl	sulfide quinone reductase-like	10	2	11
188219649	Sult1d1	sulfotransferase family 1D, member 1	11	0	14
254939663	Senp3	SUMO/sentrin specific peptidase 3	1	0	0
46560561	Senp6	SUMO/sentrin specific protease 6	0	1	1
9790247	Sae1	SUMO1 activating enzyme subunit 1	3	0	1
51593105	Senp7	SUMO1/sentrin specific protease 7 isoform 2	0	1	8
21312352	Skiv2l2	superkiller viralicidic activity 2-like 2	5	30	4
45597447	Sod1	superoxide dismutase 1, soluble	4	0	0
31980762	Sod2	superoxide dismutase 2, mitochondrial	9	3	0
23346601	Svil	supervillin isoform 1	0	1	3
19526912	St13	suppression of tumorigenicity 13	8	0	0
6677983	Clpb	suppressor of K+ transport defect 3	1	0	0
154350222	Supt16h	suppressor of Ty 16 homolog	5	39	16
6678181	Supt4h1	suppressor of Ty 4 homolog 1	0	1	0
22094123	Supt5h	suppressor of Ty 5 homolog	1	26	2
166091434	Supt6h	suppressor of Ty 6 homolog	0	26	9
31088872	Supv3l1	suppressor of var1, 3-like 1	1	0	1
6755702	Suv39h1	suppressor of variegation 3-9 homolog 1	0	0	1
268607629	Suv420h1	suppressor of variegation 4-20 homolog 1	0	0	1
253314523	Suz12	suppressor of zeste 12 homolog isoform 1	0	5	0
160707899	Surf1	surfeit 1	1	0	0
6755698	Surf4	surfeit gene 4	1	0	0
6678185	Surf6	surfeit gene 6	0	0	2
27369569	Smndc1	survival motor neuron domain containing 1	0	5	0
153791169	Sned1	sushi, nidogen and EGF-like domains 1	0	1	0
13385536	Armc10	SVH protein	9	0	8
229577278	Smarcal1	SWI/SNF related matrix associated, actin dependent regulator of chromatin, subfamily a-like 1	1	1	1
67763824	Hlhf	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 3 isoform 2	0	0	1
40254124	Smarca5	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 5	0	50	39
240255565	Smarcb1	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily b, member 1 isoform 1	0	7	1
112421097	Smarcc1	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily c, member 1	0	21	7
125347396	Smarcd1	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 1	0	13	0
194328773	Smarcd2	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 2 isoform 2	0	12	2

10181166	Smarce1	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily e, member 1	0	10	3
291463271	Smarca4	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin a4	1	38	20
166235125	Smarcc2	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin c2 isoform 2	1	34	12
226437613	Sympk	symplekin	0	16	4
295293127	Dlg3	synapse-associated protein 102	1	3	0
145699091	Syne2	synaptic nuclear envelope 2	214	68	229
7106429	Syng2	synaptogyrin 2	1	0	1
13384642	Synj2bp	synaptojanin 2 binding protein	5	0	0
158303337	Synpo	synaptopodin isoform A	0	0	2
295317330	Snap23	synaptosomal-associated protein 23	7	0	1
29788787	Syncrip	synaptotagmin binding, cytoplasmic RNA interacting protein isoform 1	11	19	1
6755438	Sdc1	syndecan 1	1	0	1
6755442	Sdc4	syndecan 4	2	0	2
148277640	Sdcbp	syndecan binding protein isoform 2	1	0	0
13385314	Nudt16l1	syndesmos	0	12	3
16716495	Ric8	synembryn	0	1	0
258547104	Syvn1	synovial apoptosis inhibitor 1, synoviolin	3	0	0
19527102	Stx12	syntaxin 12	5	0	0
156231059	Stx16	syntaxin 16 isoform d	2	0	2
70778911	Stx3	syntaxin 3 isoform A	0	0	1
6678177	Stx4a	syntaxin 4A (placental)	5	0	1
268370185	Stx5a	syntaxin 5	2	0	0
31560462	Stx7	syntaxin 7	5	0	0
9055356	Stx8	syntaxin 8	1	0	0
165972307	Stxbp1	syntaxin binding protein 1 isoform b	0	0	1
6755688	Stxbp2	syntaxin binding protein 2	12	0	0
6755690	Stxbp3a	syntaxin binding protein 3	2	2	0
6755692	Stxbp4	syntaxin binding protein 4	1	0	0
158749547	Stxbp5	syntaxin binding protein 5 (tomosyn)	1	0	0
160333722	Snta1	syntrophin, acidic 1	0	0	2
124486596	Taf1	TAF1 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	3	1
46518499	Taf10	TAF10 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	1	0
30794436	Taf11	TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	2	0
227330588	Taf12	TAF12 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	3	0
30794412	Taf15	TAF15 RNA polymerase II, TATA box binding protein (TBP)-associated factor	2	2	2
124487354	Taf4a	TAF4A RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	5	0
6678215	Taf6	TAF6 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	15	0
295317365	Taf6l	TAF6-like RNA polymerase II, p300/CBP-associated factor (PCAF)-associated factor	0	1	0
62821772	Taf9	TAF9 RNA polymerase II, TATA box binding protein-associated factor isoform 1	0	3	0
227116327	Tln1	talin 1	13	27	6
163310736	Tln2	talin 2	0	3	0
124486923	Tnks1bp1	tankyrase 1 binding protein 1	1	2	0

87239974	Tnks	tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase	0	1	0
124358959	Taok1	TAO kinase 1	0	0	1
314122205	Taok3	TAO kinase 3	0	1	0
56682935	Tardbp	TAR DNA binding protein isoform 1	1	14	14
210147426	Tom1	target of myb1 homolog isoform 1	0	0	2
84875524	Tom1l2	target of myb1-like 2 isoform a	0	2	0
172073171	Tbp	TATA box binding protein	0	2	2
20270192	Taf13	TATA box-binding protein-associated factor, RNA polymerase II, K, 18kD	0	2	0
21313140	Tax1bp3	Tax1 binding protein 3	1	1	0
91598586	Txlna	taxilin alpha	2	2	0
120587003	Tbc1d1	TBC1 domain family, member 1	1	0	1
29789165	Tbc1d20	TBC1 domain family, member 20	1	0	0
255522831	Tbc1d24	TBC1 domain family, member 24 isoform b	0	0	1
163644270	Tbc1d4	TBC1 domain family, member 4	1	0	0
124486849	Taf2	TBP-associated factor 2	0	8	0
110665722	Taf5	Tbp-associated factor 5	1	11	0
189409138	Cand1	TBP-interacting protein	25	20	3
225543229	Tiam1	T-cell lymphoma invasion and metastasis 1 isoform 1	0	1	1
268370151	Tcirg1	T-cell, immune regulator 1 isoform 2	0	0	3
110625624	Tcp1	t-complex protein 1	27	11	2
7106433	Tead2	TEA domain family member 2	0	3	0
196049389	Tead3	TEA domain family member 3 isoform 2	0	2	0
164698396	Tec	tec protein tyrosine kinase isoform a	0	1	0
6678285	Tep1	telomerase associated protein 1	0	0	1
146231944	Rif1	telomere-associated protein RIF1	0	4	10
133904142	Terf2	telomeric repeat binding factor 2 isoform 1	1	2	0
134152676	Tns3	tensin 3	1	2	1
19526976	Dnttip1	terminal deoxynucleotidyltransferase interacting factor 1	0	5	0
46395466	Tes	testis derived transcript	1	0	1
329299050	Dcun1d1	testis derived transcript 3	0	3	0
124249335	Tex10	testis expressed gene 10	0	2	2
126090463	Tex264	testis expressed gene 264	1	0	0
6678445	Tspyl1	testis-specific protein, Y-encoded-like 1	0	0	1
22122345	Tspan14	tetraspanin 14	1	0	0
13385482	Tspan31	tetraspanin 31	1	0	0
16716365	Tspan4	tetraspanin 4	1	0	0
274316334	Tspan8	tetraspanin 8	5	0	0
253735731	Fis1	tetratricopeptide repeat domain 11 isoform 1	4	0	0
238637273	Ttc15	tetratricopeptide repeat domain 15 isoform 1	1	0	0
295444831	Ttc19	tetratricopeptide repeat domain 19 isoform 1	0	1	0
114158711	Ttc21b	tetratricopeptide repeat domain 21B	0	1	0
42734471	Ttc26	tetratricopeptide repeat domain 26	0	0	1
164519039	Ttc27	tetratricopeptide repeat domain 27	0	1	0
13385196	Ttc35	tetratricopeptide repeat domain 35	4	0	2
285026483	Ttc4	tetratricopeptide repeat domain 4	0	0	1
226494680	Ttc7b	tetratricopeptide repeat domain 7B	1	0	1
110625776	Ttc9c	tetratricopeptide repeat domain 9C	0	2	0
239915965	Ift88	Tg737 protein	1	0	0
148540168	5730427N09Rik	TGF beta-inducible nuclear protein 1	0	0	2
91982765	Th1l	TH1 homolog	0	1	0
7305589	Tpk1	thiamin pyrophosphokinase 1	1	0	0

239916005	Thop1	thimet oligopeptidase 1	11	0	0
6755911	Txn1	thioredoxin 1	6	4	1
9903609	Txn2	thioredoxin 2	3	0	0
117606385	Tmx3	thioredoxin domain containing 10	5	0	0
13384700	Txndc12	thioredoxin domain containing 12	1	0	0
19072792	Erp44	thioredoxin domain containing 4	7	0	0
83921612	Txndc5	thioredoxin domain containing 5	3	1	1
158854007	1110049F12Rik	thioredoxin family Trp26	1	0	0
110224447	Txnrd1	thioredoxin reductase 1 isoform 2	9	1	0
102468565	Txnrd2	thioredoxin reductase 2 precursor	2	0	0
31543902	Txn1	thioredoxin-like 1	7	0	0
33859722	Tmx1	thioredoxin-related transmembrane protein 1	2	0	0
21313210	Txndc14	thioredoxin-related transmembrane protein 2	3	0	2
112817607	Tmx4	thioredoxin-related transmembrane protein 4	1	0	4
23956332	Thoc1	THO complex 1	0	20	0
254553424	Thoc3	THO complex 3	0	7	0
6755763	Thoc4	THO complex 4	3	11	7
27369587	Thoc5	THO complex 5	1	21	0
125656163	Thoc2	THO complex subunit 2	0	35	0
27229277	Tars	threonyl-tRNA synthetase	2	17	0
254692873	Tars2	threonyl-tRNA synthetase 2, mitochondrial isoform 1	0	11	0
21704176	Thumpd1	THUMP domain containing 1	1	0	0
226958341	Tk1	thymidine kinase 1	0	0	1
166706901	Tdg	thymine DNA glycosylase isoform 2	0	1	0
21362343	Thyn1	thymocyte protein Thy28	0	1	0
121949779	Tmpo	thymopoietin isoform zeta	7	46	35
68533246	Thrap3	thyroid hormone receptor associated protein 3	5	3	7
334724453	Trip10	thyroid hormone receptor interactor 10	6	10	0
226531227	Trip11	thyroid hormone receptor interactor 11 isoform 3	3	1	0
91932791	Trip12	thyroid hormone receptor interactor 12	0	7	6
6678349	Tial1	Tial1 cytotoxic granule-associated RNA binding protein-like 1	0	3	0
124487251	Tigd2	tigger transposable element derived 2 homolog	0	0	1
254675279	Tjp1	tight junction protein 1 isoform 1	2	17	22
312222765	Tjp2	tight junction protein 2	16	9	9
114052811	Tjp3	tight junction protein 3	3	8	11
255760017	Timeless	timeless homolog isoform 2	0	1	1
21313608	Tipin	timeless interacting protein	1	0	0
13654268	Tsta3	tissue specific transplantation antigen P35B	1	0	0
21539617	Tlcd1	TLC domain containing 1	1	0	0
13385998	Trap1	TNF receptor-associated protein 1	26	0	2
75677522	Tradd	TNFRSF1A-associated via death domain	0	0	1
153945749	Top2a	topoisomerase (DNA) II alpha	0	29	1
34328148	Top2b	topoisomerase (DNA) II beta	0	67	30
31559817	Topbp1	topoisomerase (DNA) II binding protein 1	1	0	0
6755851	Top3b	topoisomerase (DNA) III beta	0	1	0
21450255	Tor1a	torsin A	2	0	0
229608948	Tor1aip1	torsin A interacting protein 1 isoform 2	1	1	6
237512947	Tor1aip2	torsin A interacting protein 2	5	0	2
31559990	Tor1b	torsin family 1, member B	6	0	1
224809275	Tor3a	torsin family 3, member A	1	0	0
111154067	Tmem165	TPA regulated locus	3	0	0
57164407	Tanc1	TPR domain, ankyrin-repeat and coiled-coil-containing	1	0	1
117606383	Trabd	TraB domain containing	3	0	0

66730565	Trappc1	trafficking protein particle complex 1	1	0	0
7304929	Trappc3	trafficking protein particle complex 3	2	1	0
157266281	Trappc5	trafficking protein particle complex 5	0	1	0
40254203	Trak2	trafficking protein, kinesin binding 2	1	0	0
119226255	Sp1	trans-acting transcription factor 1	0	2	0
33859640	Taldo1	transaldolase 1	16	0	0
229094714	Tcea1	transcription elongation factor A (SII) 1 isoform 2	1	14	0
21312712	Tceb1	transcription elongation factor B (SIII), polypeptide 1	2	0	0
13385800	Tceb2	transcription elongation factor B (SIII), polypeptide 2	3	2	0
31543847	Tceb3	transcription elongation factor B (SIII), polypeptide 3	1	0	1
87196334	Tcerg1	transcription elongation regulator 1	0	40	0
166295206	Tcf12	transcription factor 12	0	1	0
166706889	Tcf20	transcription factor 20 isoform b	0	0	1
218931198	Tcf7l2	transcription factor 7-like 2 isoform 1	0	1	1
6678303	Tfam	transcription factor A, mitochondrial	3	13	5
171846238	Tcfap2a	transcription factor AP-2, alpha isoform a	0	4	1
13626034	Tcfap4	transcription factor AP4	0	1	0
22122569	Tfb1m	transcription factor B1, mitochondrial	0	1	0
15628025	Tcfcp2	transcription factor CP2	0	2	0
46810275	Grhl2	transcription factor CP2-like 3	0	7	0
157384992	Tcfe3	transcription factor E3 isoform a	0	1	0
22122529	Cdca7l	transcription factor RAM2	0	1	1
83921607	Vps72	transcription factor-like 1	0	2	0
70608137	Brf1	transcription initiation factor IIIB	2	0	1
134053939	Tcfcp2l1	transcription repressor CRTR-1	0	4	0
21314854	Gatad2b	transcription repressor p66 component of the MeCP1 complex	0	5	3
254692909	Ttf2	transcription termination factor, RNA polymerase II	0	0	1
21313610	Tada1l	transcriptional adaptor 1-like	0	1	0
160333360	Sin3a	transcriptional regulator, SIN3A isoform 1	0	17	2
33468969	Tbl1x	transducin (beta)-like 1 X-linked	0	5	0
30102935	Tbl3	transducin (beta)-like 3	0	8	8
160333077	Trp53bp1	transformation related protein 53 binding protein 1	0	71	2
187960040	Trp53	transformation related protein 53 isoform a	0	3	0
124486949	Trrap	transformation/transcription domain-associated protein	0	99	1
111160869	Tra2a	transformer-2 alpha	0	3	5
194394227	Tbrg4	transforming growth factor beta regulated gene 4	3	0	0
30519911	Tagln2	transgelin 2	9	10	1
239787892	Tgm1	transglutaminase 1, K polypeptide	0	0	1
6678329	Tgm2	transglutaminase 2, C polypeptide	1	0	0
254540210	Trpc4ap	transient receptor potential cation channel, subfamily C, member 4 associated protein isoform 2	1	0	0
256773287	Trpm7	transient receptor potential cation channel, subfamily M, member 7	0	0	2
269784723	Trpv4	transient receptor potential cation channel, subfamily V, member 4	7	0	4
6678359	Tkt	transketolase	27	1	5
6755899	Tsn	translin	6	2	0
8394490	Tsnax	translin-associated factor X	2	0	0
158937240	Timm10	translocase of inner mitochondrial membrane 13 homolog a	1	0	0
33468937	Timm17b	translocase of inner mitochondrial membrane 17b	1	0	2
254675168	Timm23	translocase of inner mitochondrial membrane 23 homolog	1	0	1
170763467	Timm44	translocase of inner mitochondrial membrane 44	7	0	1

22094989	Timm50	translocase of inner mitochondrial membrane 50 homolog	8	0	3
7305577	Timm8a1	translocase of inner mitochondrial membrane 8 homolog a	1	4	0
7305579	Timm8b	translocase of inner mitochondrial membrane 8 homolog b	2	4	0
7305581	Timm13	translocase of inner mitochondrial membrane 9 homolog	3	5	2
13324686	Tomm20	translocase of outer mitochondrial membrane 20 homolog	1	0	4
31982091	Tomm22	translocase of outer mitochondrial membrane 22 homolog	1	0	6
13385500	Tomm34	translocase of outer mitochondrial membrane 34	1	8	0
157909801	Tomm40	translocase of outer mitochondrial membrane 40	5	0	10
27552760	Tomm70a	translocase of outer mitochondrial membrane 70 homolog A	11	9	12
71061477	Dnajc19	translocase of the inner mitochondrial membrane 14 isoform 1	2	1	0
30794386	Tram1	translocating chain-associating membrane protein 1	2	0	1
188528894	Tm9sf2	transmembrane 9 superfamily member 2	4	0	2
31542095	Tm9sf4	transmembrane 9 superfamily protein member 4	3	0	0
75677476	Tmtc3	transmembrane and tetratricopeptide repeat containing 3 isoform 1	1	0	0
58037339	Tmtc4	transmembrane and tetratricopeptide repeat containing 4	1	0	0
71143116	Tapt1	transmembrane anterior posterior transformation 1	1	0	0
85362703	Tmed1	transmembrane emp24 domain containing 1	3	0	0
281427153	Tmed3	transmembrane emp24 domain containing 3	2	0	0
9790015	Tmed2	transmembrane emp24 domain trafficking protein 2	5	0	2
21312062	Tmed10	transmembrane emp24 domain-containing protein 10	8	2	6
19527236	Tmed4	transmembrane emp24 protein transport domain containing 4	6	0	2
21746165	Tmed5	transmembrane emp24 protein transport domain containing 5	5	1	2
145966911	Tmed9	transmembrane emp24 protein transport domain containing 9	4	0	3
34328226	Tmprss2	transmembrane protease, serine 2	1	0	0
262118243	Tmem101	transmembrane protein 101	1	0	0
188035856	Tmem106b	transmembrane protein 106B	3	0	0
19527378	Tmem109	transmembrane protein 109	2	1	1
281182922	Tmem11	transmembrane protein 11	2	0	1
28827824	Tmem111	transmembrane protein 111	2	1	3
120952692	Tmem147	transmembrane protein 147	1	0	0
13384766	Tmem14c	transmembrane protein 14C	3	0	2
21704194	Tmem161a	transmembrane protein 161A	1	0	0
313569833	Tmem164	transmembrane protein 164	1	0	0
68533251	Tmem33	transmembrane protein 33 isoform 2	3	0	2
85662379	Tmem41b	transmembrane protein 41B	2	0	0
21311891	Tmem43	transmembrane protein 43	8	0	5
21450349	Tmem45b	transmembrane protein 45b	1	0	0
28077005	Tmem48	transmembrane protein 48	0	0	3
27753991	Tmem49	transmembrane protein 49	1	0	0
23346449	Tmem5	transmembrane protein 5	0	0	1
21313410	Tmem50b	transmembrane protein 50B	0	0	1
21703804	Tmem51	transmembrane protein 51	1	0	0
226342964	Tmem63b	transmembrane protein 63b	0	0	1

158631230	Tmem66	transmembrane protein 66	1	0	0
117647265	Tmem70	transmembrane protein 70 isoform 1	1	0	0
13386014	Tmem85	transmembrane protein 85	1	1	1
160333204	Tmem87a	transmembrane protein 87A isoform 1	1	0	0
19111162	Tm9sf3	transmembrane protein 9 superfamily member 3	7	0	1
281306757	Tmem93	transmembrane protein 93	2	0	0
115385968	Tnpo1	transportin 1 isoform 1	3	0	1
54312056	Tnpo3	transportin 3	1	2	1
6755742	Tcof1	treacle	0	6	0
26892291	Tinf2	TRF1-interacting nuclear factor 2	0	1	0
170172511	Tnrc18	trinucleotide repeat containing 18 isoform B	1	0	0
88501749	Triobp	TRIO and F-actin binding protein isoform 3	0	4	3
226958349	Tpi1	triosephosphate isomerase 1	16	3	14
128485541	Trim26	tripartite motif protein 26 isoform a	0	0	1
170295840	Trim28	tripartite motif protein 28	10	23	8
119637830	Trim33	tripartite motif protein 33 isoform 1	1	1	1
94420998	Trim24	tripartite motif-containing 24	0	0	1
124358936	Trim41	tripartite motif-containing 41	1	1	0
6678419	Tpp2	tripeptidyl peptidase II	1	1	0
6753448	Tpp1	tripeptidyl-peptidase I	7	2	0
145587082	Trio	triple functional domain (PTPRF interacting)	0	0	1
9790261	Tfg	Trk-fused	6	0	0
261823938	Trmt112	TRM112-like	1	3	0
255958185	Tsen34	tRNA-intron endonuclease 4	1	0	0
8394460	Tmod3	tropomodulin 3	4	6	13
256000792	Tpm1	tropomyosin 1, alpha	7	12	7
40254525	Tpm3	tropomyosin 3, gamma	8	7	5
47894398	Tpm4	tropomyosin 4	10	10	2
46409250	Wrb	tryptophan rich basic protein	1	0	0
256818806	Wars	tryptophanyl-tRNA synthetase	4	0	0
21313468	Tsfm	Ts translation elongation factor, mitochondrial	7	5	2
254911131	Tufm	Tu translation elongation factor, mitochondrial isoform 1	19	2	5
157057154	Tulp4	tubby like protein 4 isoform b	2	0	0
6755905	Tulp3	tubby-like protein 3	1	0	0
79750409	Tsc1	tuberous sclerosis 1	0	1	0
269954711	Ttl12	tubulin tyrosine ligase-like family, member 12	3	0	0
6755901	Tuba1a	tubulin, alpha 1	1	0	0
34740335	Tuba1b	tubulin, alpha 1B	2	1	2
6678469	Tuba1c	tubulin, alpha 1C	24	6	18
6678467	Tuba4a	tubulin, alpha 4	3	0	1
21746161	Tubb2b	tubulin, beta	10	6	9
33859488	Tubb2a	tubulin, beta 2	1	0	1
22165384	Tubb2c	tubulin, beta 2C	1	0	1
7106439	Tubb5	tubulin, beta 5	5	3	7
27754056	Tubb6	tubulin, beta 6	14	3	9
228008297	Tubgcp2	tubulin, gamma complex associated protein 2	1	0	0
39930567	Tubgcp3	tubulin, gamma complex associated protein 3	0	0	1
10190660	Tfip11	tuftelin interacting protein 11	0	0	5
30519885	Tnfrsf21	tumor necrosis factor receptor superfamily, member 21	0	1	0
70608214	Tpd52	tumor protein D52 isoform 4	5	0	0
6678409	Tpd52l1	tumor protein D52-like 1	1	0	0
31560247	Tpd52l2	tumor protein D52-like 2	5	0	0
112799851	Trp53bp2	tumor protein p53 binding protein, 2	0	1	0
6678437	Tpt1	tumor protein, translationally-controlled 1	5	3	1

6755863	Hsp90b1	tumor rejection antigen gp96	43	1	10
9789955	Tusc2	tumor suppressor candidate 2	0	1	0
124248487	Tusc3	tumor suppressor candidate 3	1	0	1
254588052	Ttyh3	tweety 3	1	0	0
62990169	Twf1	twinfilin 1	1	9	0
6755224	Twf2	twinfilin-like protein	0	2	0
27545207	Twistnb	TWIST neighbor	0	6	0
157057192	Lin9	type I interferon receptor beta chain-associated isoform 2	1	0	0
31543974	Ywhab	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, beta polypeptide	8	7	6
226874906	Ywhae	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, epsilon polypeptide	15	3	6
6756037	Ywhah	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, eta polypeptide	9	5	5
6756039	Ywhaq	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide	8	4	7
6756041	Ywhaz	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide	2	6	9
165377181	Yars	tyrosyl-tRNA synthetase	2	3	0
6755596	Snrpc	U1 small nuclear ribonucleoprotein 1C	0	2	2
67846113	Snrnp70	U1 small nuclear ribonucleoprotein 70 kDa	6	14	3
71067104	Snrnp48	U11/U12 snRNP 48K	1	0	0
254939700	U2af1	U2 small nuclear ribonucleoprotein auxiliary factor (U2AF) 1 isoform 1	1	6	4
327365322	U2af2	U2 small nuclear ribonucleoprotein auxiliary factor (U2AF) 2	6	14	6
23956110	Snrpb2	U2 small nuclear ribonucleoprotein B	2	3	4
228480232	Snrpa1	U2 small nuclear ribonucleoprotein polypeptide A	6	8	9
25072205	U2af1l4	U2 small nuclear RNA auxiliary factor 1-like 4	0	4	0
171460910	2610101N10Rik	U2-associated SR140 protein 2	0	10	12
190684705	Imp4	U3 snoRNP protein 4 homolog	0	0	2
21539655	Prpf6	U5 snRNP-associated 102 kDa protein	3	23	4
115298670	Snrnp40	U5 snRNP-specific protein (Prp8-binding)	0	14	12
40018610	Snrnp200	U5 snRNP-specific protein, 200 kDa	11	86	74
19527156	Lsm8	U6 snRNA-associated Sm-like protein LSM8	3	4	3
253795523	Lsm10	U7 snRNP-specific Sm-like protein LSM10	0	1	0
50054188	Mum1	UBE-1C2 protein	0	1	1
21311819	Ubiad1	UbiA prenyltransferase domain containing 1	0	0	1
158749567	Ubn2	ubiquitin 2	1	0	0
22726191	Ubqln1	ubiquilin 1 isoform 2	2	0	0
34328236	Ubqln2	ubiquilin 2	7	0	0
15805016	Ubqln4	ubiquilin 4	0	1	1
22267442	Uqcrc2	ubiquinol cytochrome c reductase core protein 2	13	2	14
13385726	Uqcrb	ubiquinol-cytochrome c reductase binding protein	2	3	5
37574048	1110020P15Rik	ubiquinol-cytochrome c reductase complex protein	2	2	2
46593021	Uqcrc1	ubiquinol-cytochrome c reductase core protein 1	14	1	13
21539599	Uqcrh	ubiquinol-cytochrome c reductase hinge protein	3	1	2
13385112	Uqcr	ubiquinol-cytochrome c reductase subunit	1	0	0
21539585	Uqcrq	ubiquinol-cytochrome c reductase, complex III subunit VII	1	1	1
13385168	Uqcrcs1	ubiquinol-cytochrome c reductase, Rieske iron-sulfur polypeptide 1	8	4	8
157671923	Ubc	ubiquitin C	0	0	1
139948802	Uchl3	ubiquitin carboxyl-terminal esterase L3	2	0	0



15809026	Uchl4	ubiquitin carboxyl-terminal esterase L4	6	0	0
229577283	Uchl5	ubiquitin carboxyl-terminal hydrolase L5 isoform 1	0	3	0
21703984	Ubd1	ubiquitin domain containing 1	0	0	1
257153392	Ufd1l	ubiquitin fusion degradation 1 like	0	1	0
32189428	Mib1	ubiquitin ligase mind bomb	0	1	0
293651567	Ubr2	ubiquitin protein ligase E3 component n-recognin 2	0	1	1
76880500	Ube3a	ubiquitin protein ligase E3A isoform 2	1	0	0
6678493	Usp10	ubiquitin specific peptidase 10	1	0	0
251823802	Usp16	ubiquitin specific peptidase 16	0	1	1
226442882	Usp36	ubiquitin specific peptidase 36	0	0	1
34328301	Usp38	ubiquitin specific peptidase 38	1	0	0
20070404	Usp39	ubiquitin specific peptidase 39	5	18	1
116686116	Usp42	ubiquitin specific peptidase 42	1	0	1
29243896	Usp46	ubiquitin specific peptidase 46	0	1	0
7305619	Usp5	ubiquitin specific peptidase 5	4	0	0
154146209	Usp7	ubiquitin specific peptidase 7	5	17	1
169646342	Usp1	ubiquitin specific peptidase like 1 isoform A	1	0	0
84452155	Usp14	ubiquitin specific protease 14 isoform 1	3	0	0
126032299	Usp32	ubiquitin specific protease 32	1	0	0
114053325	Usp48	ubiquitin specific protease 48	0	2	0
115511018	Usp9x	ubiquitin specific protease 9, X chromosome	5	0	1
270265851	Usp19	ubiquitin thioesterase 19	0	2	0
310688895	Usp40	ubiquitin thioesterase 40	0	0	1
110625685	Usp22	ubiquitin thioesterase 22	0	1	0
21450103	Usp3	ubiquitin thioesterase 3	0	3	0
42741690	Ube2v1	ubiquitin-conjugating enzyme E2 variant 1	1	0	1
31980960	Ube2j1	ubiquitin-conjugating enzyme E2, J1	0	1	1
85662419	Ube2j2	ubiquitin-conjugating enzyme E2, J2 homolog isoform a	0	0	1
9790041	Ube2a	ubiquitin-conjugating enzyme E2A, RAD6 homolog	0	1	0
21312888	Ube2c	ubiquitin-conjugating enzyme E2C	1	0	0
6678479	Ube2e1	ubiquitin-conjugating enzyme E2E 1, UBC4/5 homolog	1	0	0
281332144	Ube2h	ubiquitin-conjugating enzyme E2H	1	0	0
294862307	Ube2i	ubiquitin-conjugating enzyme E2I	2	5	1
6678481	Ube2l3	ubiquitin-conjugating enzyme E2L 3	4	0	0
270309117	Ube2m	ubiquitin-conjugating enzyme E2M	2	0	0
18017605	Ube2n	ubiquitin-conjugating enzyme E2N	3	2	3
257796272	Ube2q2	ubiquitin-conjugating enzyme E2Q 2	1	0	0
13385778	Ube2r2	ubiquitin-conjugating enzyme E2R 2	1	0	0
31543918	Ube2v2	ubiquitin-conjugating enzyme E2v2 isoform 1	4	0	2
110625675	Ube2w	ubiquitin-conjugating enzyme E2W (putative)	0	1	0
13385932	Ufm1	ubiquitin-fold modifier 1	2	0	0
6755925	Ubl3	ubiquitin-like 3	1	0	0
21703810	Ubl4	ubiquitin-like 4	0	2	0
13384784	Ubl5	ubiquitin-like 5	0	0	1
237681133	Fau	ubiquitin-like protein fubi and ribosomal protein S30 precursor	1	4	0
162287241	Uhrf1	ubiquitin-like with PHD and ring finger domains 1 isoform B	0	7	2
224809307	Usp21	ubiquitin-specific protease 21	0	1	2
124486616	Zc3h7b	ubiquitous tetratricopeptide containing protein RoXaN	0	1	0
227496327	B3gnt7	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 7	1	0	0
236466498	Uggt1	UDP-glucose ceramide glucosyltransferase-like 1	32	0	0
6678499	Ugdh	UDP-glucose dehydrogenase	3	0	0

21314832	Ugp2	UDP-glucose pyrophosphorylase 2	3	0	0
46877109	Galnt2	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 2	3	0	0
162951828	Galnt3	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 3	13	3	4
7657112	Galnt4	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 4	1	0	0
30520375	Uap1	UDP-N-acetylglucosamine pyrophosphorylase 1	1	0	0
31982409	Dpagt1	UDP-N-acetylglucosamine-dolichyl-phosphate N-acetylglucosaminephosphotransferase	1	0	0
84794548	Uap111	UDP-N-acetylglucosamine pyrophosphorylase 1-like 1	9	0	0
62243588	Unc13d	unc-13 homolog D	1	1	2
227908790	Unc45a	unc-45 homolog A	2	1	0
29789243	Unc84a	unc-84 homolog A	0	0	15
329299037	Unc84b	unc-84 homolog B	0	0	23
77404294	Usmg5	upregulated during skeletal muscle growth 5	4	0	0
117938770	2010005J08Rik	up-regulated gene 4 isoform 2	0	1	0
134032032	Ubp1	upstream binding protein 1 isoform b	0	1	0
113205057	Ubtf	upstream binding transcription factor, RNA polymerase I isoform 1	2	16	5
33859498	Umps	uridine monophosphate synthase	2	0	0
13507680	Uck2	uridine-cytidine kinase 2	1	0	0
58037127	Upk1a	uroplakin 1A	5	0	0
110347606	Urod	uroporphyrinogen decarboxylase	1	0	0
13385534	Utp11l	UTP11-like, U3 small nucleolar ribonucleoprotein	0	0	5
51889716	Utp14a	UTP14, U3 small nucleolar ribonucleoprotein, homolog A	0	0	2
30725776	Utp15	UTP15, U3 small nucleolar ribonucleoprotein, homolog	0	1	6
61656180	Utp18	UTP18, small subunit processome component	0	0	10
21450209	Utp6	UTP6, small subunit (SSU) processome component, homolog	0	2	3
110431378	Utrn	utrophin	12	4	5
31542488	Vac14	Vac14 homolog	1	0	1
71067122	Vrk1	vaccinia related kinase 1 isoform a	0	17	0
19527166	Vrk3	vaccinia related kinase 3	0	11	2
45504359	Atp6v1e1	vacuolar H+ ATPase E1	3	0	2
15617197	Atp6v1g1	vacuolar H+ ATPase G1	1	0	2
19705578	Atp6v1b2	vacuolar H+ATPase B2	15	0	7
66392160	Vps13a	vacuolar protein sorting 13A	2	0	0
254939640	Vps16	vacuolar protein sorting 16	0	0	1
25092662	Vps25	vacuolar protein sorting 25	0	5	0
29825827	Vps26b	vacuolar protein sorting 26 homolog B	2	0	0
164518904	Vps26a	vacuolar protein sorting 26 isoform a	4	0	0
13385320	Vps28	vacuolar protein sorting 28	1	0	0
9790285	Vps29	vacuolar protein sorting 29	3	0	0
13928670	Vps35	vacuolar protein sorting 35	20	0	1
7305631	Vps45	vacuolar protein sorting 45	6	0	1
18699726	Vps4a	vacuolar protein sorting 4a	1	0	1
164698506	Vps4b	vacuolar protein sorting 4b	0	1	1
148747162	Vps52	vacuolar protein sorting 52	1	0	0
225543319	Vcp	valosin containing protein	32	1	2
255069795	Vars	valyl-tRNA synthetase	22	21	6
117414176	Vezf1	vascular endothelial zinc finger 1	0	1	0
160707909	Vasp	vasodilator-stimulated phosphoprotein	2	3	1
210031395	Vash1	vasohibin 1	0	0	1
31981693	Vasn	vasorin	1	0	0

31559995	Crk	v-crk sarcoma virus CT10 oncogene homolog	2	0	0
31542421	Crkl	v-crk sarcoma virus CT10 oncogene homolog (avian)-like	3	0	0
54873610	ErbB2	v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog	2	0	0
238637305	Vldlr	very low density lipoprotein receptor isoform a	2	0	0
100817933	Acad9	very-long-chain acyl-CoA dehydrogenase VLCAD homolog	22	0	2
33859662	Vat1	vesicle amine transport protein 1 homolog (T californica)	11	0	0
31980617	Vti1b	vesicle transport through interaction with t-SNAREs 1B homolog	4	0	0
13928668	Vti1a	vesicle transport through interaction with t-SNAREs homolog 1A	2	0	0
6678551	Vamp2	vesicle-associated membrane protein 2	2	0	0
31543938	Vamp4	vesicle-associated membrane protein 4	1	0	0
31980629	Vamp8	vesicle-associated membrane protein 8	4	0	1
94721328	Vapa	vesicle-associated membrane protein, associated protein A	9	2	4
31543940	Vapb	vesicle-associated membrane protein, associated protein B and C	7	1	5
31543349	Nsf	vesicle-fusing ATPase	9	0	0
257096033	Vill	villin-like	0	1	1
31543942	Vcl	vinculin	32	33	16
326806988	Yes1	viral oncogene yes homolog	0	0	2
13385626	Med4	vitamin D receptor interacting protein	0	2	0
6754608	Maff	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein F	0	2	0
6754610	Mafg	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein G	0	1	0
6754612	Mafk	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein K	0	1	1
6755963	Vdac1	voltage-dependent anion channel 1	18	3	21
6755965	Vdac2	voltage-dependent anion channel 2	15	5	17
6755967	Vdac3	voltage-dependent anion channel 3	11	0	14
124248572	Vbp1	von Hippel-Lindau binding protein 1	1	0	0
82617569	Vprbp	Vpr-binding protein	0	0	1
46849724	Ankrd27	VPS9-ankyrin repeat-containing protein isoform 2	0	1	0
227496776	Araf	v-raf murine sarcoma 3611 viral oncogene homolog isoform 1	0	1	1
11612509	Ralb	v-ral simian leukemia viral oncogene homolog B (ras related)	2	4	4
6677709	Rela	v-rel reticuloendotheliosis viral oncogene homolog A	1	0	0
21312840	Wfdc2	WAP four-disulfide core domain 2	0	1	0
23510313	Wasf2	WAS protein family, member 2	0	5	0
21312280	Wdfy1	WD repeat and FYVE domain containing 1 isoform 1	1	1	0
39930599	Wdfy3	WD repeat and FYVE domain containing 3	0	1	1
40254224	Wdhd1	WD repeat and HMG-box DNA binding protein 1	0	0	1
6755995	Wdr1	WD repeat domain 1	15	13	0
312261274	Wdr12	WD repeat domain 12	0	0	3
83649741	Wdr18	WD repeat domain 18	0	4	1
30425338	Wdr3	WD repeat domain 3	0	9	11
21362285	Wdr33	WD repeat domain 33	0	7	3
31542010	Wdr36	WD repeat domain 36 isoform 2	0	10	17
241896997	Wdr43	WD repeat domain 43 isoform 9	0	3	11
10181122	Wdr46	WD repeat domain 46	0	0	3

33468987	Wdr48	WD repeat domain 48	0	1	0
18252790	Wdr5	WD repeat domain 5	0	12	1
56605680	Thoc6	WD repeat domain 58	0	13	0
13878227	Wdr6	WD repeat domain 6	0	1	0
70778817	Wdr61	WD repeat domain 61 isoform a	3	7	0
264681545	Wdr67	WD repeat domain 67	1	0	0
124487149	Wdr70	WD repeat domain 70	0	2	0
83523742	Wdr75	WD repeat domain 75	0	0	8
124487321	Wdr76	WD repeat domain 76	0	4	0
148223079	Wdr82	WD repeat domain containing 82	0	10	1
168480115	Dcaf13	WD repeats and SOF domain containing 1	0	0	3
27229002	Wdr45l	Wdr45 like	1	0	0
294979205	Wiz	widely-interspaced zinc finger motifs isoform 2	0	2	7
15809010	Wbscr16	Williams-Beuren syndrome chromosome region 16 homolog	0	1	0
125988405	Wbscr22	Williams-Beuren syndrome critical region protein 22	1	0	0
165377291	Wtap	Wilms&apos; tumour 1-associating protein isoform a	0	4	0
100815493	Wapal	wings apart-like homolog	0	6	0
37537556	Wipf2	Wire protein	0	1	0
268370042	Wasl	Wiskott-Aldrich syndrome-like	3	0	0
312283631	Wnk1	WNK lysine deficient protein kinase 1	1	0	0
295424169	Whsc1	Wolf-Hirschhorn syndrome candidate 1	0	1	0
124486903	Whsc1l1	Wolf-Hirschhorn syndrome candidate 1-like 1 isoform 2	1	1	1
33859652	Whsc2	Wolf-Hirschhorn syndrome candidate 2 homolog	0	1	0
6755997	Wfs1	Wolfram syndrome 1 protein homolog	5	0	1
46402183	Wtip	WT1-interacting protein	0	1	0
267844920	Wbp11	WW domain binding protein 11	0	9	1
8394539	Wbp2	WW domain binding protein 2	2	0	0
115495457	Wbp7	WW domain binding protein 7	0	0	1
226371675	Wac	WW domain containing adaptor with coiled-coil isoform 1	0	1	0
121247429	Xpc	xeroderma pigmentosum, complementation group C	0	3	0
13385660	Xab2	XPA binding protein 2	0	3	19
76563952	Rexo4	XPMC2 prevents mitotic catastrophe 2 homolog	0	1	0
42476274	Xpnpep1	X-prolyl aminopeptidase (aminopeptidase P) 1, soluble	6	0	0
28893421	Xpnpep3	X-prolyl aminopeptidase (aminopeptidase P) 3, putative	1	2	1
170295844	Xrcc1	X-ray repair complementing defective repair in Chinese hamster cells 1	2	1	1
160333605	Xrcc5	X-ray repair complementing defective repair in Chinese hamster cells 5	3	7	0
145587104	Xrcc6	X-ray repair complementing defective repair in Chinese hamster cells 6	4	3	0
114205437	4933407N01Rik	XTP3-transactivated protein B	1	0	0
225543566	Yeats2	YEATS domain containing 2 isoform 1	1	3	0
13386064	Yeats4	YEATS domain containing 4	0	3	0
283945493	Yap1	yes-associated protein 1	1	0	0
28076889	Yipf4	Yip1 domain family, member 4	1	0	0
25282409	Yif1a	Yip1p-interacting factor	2	0	1
31543971	Ykt6	YKT6 v-SNARE protein	0	0	3
146134507	Ylpm1	YLP motif containing 1	0	1	3
7305635	Yme11	YME1-like 1	5	0	0
225543495	Ythdf3	YTH domain family 3 isoform 1	1	1	0
40254385	Yaf2	YY1 associated factor 2	0	1	1
31982421	Yy1	YY1 transcription factor	0	8	0

31559926	Zadh2	zinc binding alcohol dehydrogenase, domain containing 2	4	0	0
30520189	Zbtb1	zinc finger and BTB domain containing 1	0	0	1
226423893	Zbtb2	zinc finger and BTB domain containing 2	0	1	0
257196201	Zbtb20	zinc finger and BTB domain containing 20	0	1	3
109627663	Zhx1	zinc finger and homeodomain protein 1	0	6	0
115270986	Zc3h11a	zinc finger CCCH type containing 11A	1	8	2
156717216	Zc3h6	zinc finger CCCH type containing 6	1	0	0
231571026	Zc3h14	zinc finger CCCH-type containing 14 isoform a	0	0	5
21313088	Zcbr1	zinc finger CCHC-type and RNA binding motif 1	0	2	1
13195658	Zfpl1	zinc finger like protein 1	1	1	1
119120797	Zfp101	zinc finger protein 101	1	0	0
121247390	Zfp143	zinc finger protein 143	0	1	0
6756049	Zfp148	zinc finger protein 148	0	3	0
157823865	Zfp185	zinc finger protein 185 isoform a	0	3	1
47059078	Zfp191	zinc finger protein 191	0	0	1
37595742	Zmym2	zinc finger protein 198	0	1	0
194328717	Zfp207	zinc finger protein 207 isoform 1	0	5	0
225007600	Zfp212	Zinc finger protein 212 isoform 1	0	1	0
225543502	Zfp219	zinc finger protein 219	0	1	1
167555112	Zmym4	zinc finger protein 262	0	1	0
157823982	Zfp318	zinc finger protein 318 isoform 2	1	0	0
269784644	Zfp326	zinc finger protein 326	0	2	6
6754396	Zfp346	zinc finger protein 346	0	4	0
154350211	Zfp369	zinc finger protein 369	1	0	0
62526050	Zfp386	zinc finger protein 386 (Kruppel-like) isoform b	1	0	0
113865966	Zfp397	zinc finger protein 397	0	0	1
139949213	Ggnbp2	zinc finger protein 403	1	0	0
28076891	Zfp422	zinc finger protein 422	0	0	5
29789329	Zfp451	zinc finger protein 451	0	0	1
194394231	Zfp507	zinc finger protein 507	1	0	1
254553392	Zfp512	zinc finger protein 512	0	4	2
7305637	Zfp53	zinc finger protein 53	1	0	0
270341364	Zfp574	zinc finger protein 574	1	0	0
34147169	Zfp598	zinc finger protein 598	1	0	0
242397406	Zfp618	zinc finger protein 618	0	1	0
21313506	Zfp623	zinc finger protein 623	1	0	0
28893273	Zfp629	zinc finger protein 629	0	1	0
126723513	Zfp664	zinc finger protein 664	0	1	0
27229259	Zfp687	zinc finger protein 687	0	4	0
100817090	Zfp692	zinc finger protein 692	0	0	1
21312658	Zfp706	zinc finger protein 706	0	2	0
123173818	Zfp715	zinc finger protein 715	1	0	1
140969612	Zfp871	zinc finger protein 871	0	1	0
90669983	Zfp91	zinc finger protein 91	0	3	1
21704232	Zfp810	zinc finger protein ZFP	0	0	1
168480106	Zfr	zinc finger RNA binding protein	0	31	2
194473741	Zkscan17	zinc finger with KRAB and SCAN domains 17 isoform 1	0	1	0
224809352	Zkscan3	zinc finger with KRAB and SCAN domains 3	0	1	0
27370072	Zc3hc1	zinc finger, C3HC type 1	0	1	0
27754058	Zcchc10	zinc finger, CCHC domain containing 10	0	0	1
83977461	Zcchc11	zinc finger, CCHC domain containing 11	0	0	1
170016071	Zcchc2	zinc finger, CCHC domain containing 2 isoform B	0	0	1
169808385	Zcchc8	zinc finger, CCHC domain containing 8	1	5	2

21450253	Zdhhc5	zinc finger, DHHC domain containing 5	0	0	2
112818584	Zfyve26	zinc finger, FYVE domain containing 26	1	0	0
58037197	Znhit1	zinc finger, HIT domain containing 1	0	2	0
13385046	Zmat2	zinc finger, matrin type 2	0	0	1
49227135	Zmym1	zinc finger, MYM domain containing 1	1	0	0
91064878	Zmynd8	zinc finger, MYND-type containing 8	0	4	1
74315981	Zranb2	zinc finger, RAN-binding domain containing 2	0	1	0
124053451	Zzz3	zinc finger, ZZ domain containing 3	0	9	0
40254321	Zhx3	zinc fingers and homeoboxes 3	0	7	0
12963579	Slc30a7	zinc transporter like 2	2	0	0
6756085	Zyx	zyxin	1	0	0

**Suppl. Tab. 2**

Full list of identified proteins; peptide count for the three compartments is given in columns D-F

GI Accession No.	Gene Symbol	Protein Name	Cytoplasmic extract	Nuclear extract	Nuclear pellet
27228985	Ndufa12	13kDa differentiation-associated protein	5	1	3
16716395	Sep15	15 kDa selenoprotein precursor	4	0	0
254281341	Agpat1	1-acylglycerol-3-phosphate O-acyltransferase 1 isoform 2	1	0	1
23956162	Agpat2	1-acylglycerol-3-phosphate O-acyltransferase 2	3	0	0
27229077	Agpat5	1-acylglycerol-3-phosphate O-acyltransferase 5	0	0	1
15809044	Oas1c	2'-5'-oligoadenylate synthetase 1C	1	0	0
254540058	Oas1e	2'-5'-oligoadenylate synthetase 1E	0	1	0
229576931	Oas1h	2'-5'-oligoadenylate synthetase 1H isoform 1	0	0	1
21644585	Oas3	2'-5'-oligoadenylate synthetase 3	1	0	0
40538842	E430028B21Rik	2-phosphodiesterase	1	0	0
6753622	Decr2	2,4-dienoyl CoA reductase 2	1	6	0
22122591	Ubxn1	2B28	2	0	0
31560355	Hacl1	2-hydroxyacyl-CoA lyase 1	1	0	0
147901538	Ogfd1	2-oxoglutarate and iron-dependent oxygenase domain containing 1 isoform 1	1	0	0
39652626	Bpnt1	3',5'-bisphosphate nucleotidase 1	4	0	0
6754982	Papss1	3-phosphoadenosine 5-phosphosulfate synthase 1	5	0	0
171543858	Hmgcl	3-hydroxy-3-methylglutaryl CoA lyase	2	0	1
17921976	Haao	3-hydroxyanthranilate 3,4-dioxygenase	0	0	1
170014725	Bdh1	3-hydroxybutyrate dehydrogenase, type 1	1	0	2
21704140	Hibadh	3-hydroxyisobutyrate dehydrogenase precursor	10	0	0
22122625	Hibch	3-hydroxyisobutyryl-Coenzyme A hydrolase	10	0	0
244790003	Mpst	3-mercaptopyruvate sulfurtransferase	5	0	1
31543976	Ywhag	3-monoxygenase/tryptophan 5-monoxygenase activation protein, gamma polypeptide	12	7	8
18266680	Oxct1	3-oxoacid CoA transferase 1	13	0	2
27754120	Rbm4b	4921506I22Rik protein	0	0	2
22122847	Hpd1	4-hydroxyphenylpyruvate dioxygenase-like	1	0	0
6679066	Nipsnap1	4-nitrophenylphosphatase domain and non-neuronal SNAP25-like protein homolog 1	1	0	0
7657031	Nt5c	5',3'-nucleotidase, cytosolic	1	0	0
117606214	Xrn2	5',3'-exoribonuclease 2	1	17	0
45544618	Mtap	5-methylthioadenosine phosphorylase	3	0	0
256665238	Nt5c2	5'-nucleotidase, cytosolic II	3	0	0
156627553	Nt5c3l	5'-nucleotidase, cytosolic III-like isoform 1	1	0	0
227908823	Atic	5-aminoimidazole-4-carboxamide ribonucleotide formyltransferase/IMP cyclohydrolase	22	0	0
31542974	Htr1d	5-hydroxytryptamine (serotonin) receptor 1D	0	1	0
6680321	Htr1f	5-hydroxytryptamine (serotonin) receptor 1F	2	0	0
124487479	Mtr	5-methyltetrahydrofolate-homocysteine methyltransferase	0	1	0
21312554	2010107E04Rik	6.8 kDa mitochondrial proteolipid	1	0	0
13384778	Pgls	6-phosphogluconolactonase	8	0	3
283436121	Adam29	a disintegrin and metalloproteinase domain 29	1	0	0
6680642	Adam8	a disintegrin and metalloproteinase domain 8	2	1	0
110347485	Adam17	a disintegrin and metalloproteinase domain 17	1	0	0
116089327	Adam2	a disintegrin and metalloproteinase domain 2 (fertilin beta)	1	0	0

57222280	Adam26b	a disintegrin and metalloprotease domain 26b	1	0	0
121949804	Adam3	a disintegrin and metalloprotease domain 3 (cyritestin)	1	0	0
160358787	Adam9	a disintegrin and metalloprotease domain 9 precursor	1	0	0
57222276	Adam6b	a disintegrin and metalloproteinase domain 6-like	0	0	1
27370274	Adamts4	a disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 4	0	1	0
13626040	Akap12	A kinase (PRKA) anchor protein (gravin) 12	65	1	1
125661048	Akap9	A kinase (PRKA) anchor protein (yotiao) 9	5	0	2
40807354	Akap10	A kinase (PRKA) anchor protein 10	1	0	0
189181672	Akap13	A kinase (PRKA) anchor protein 13	0	0	1
31560394	Akap8	A kinase anchor protein 8	5	8	7
239985513	Atad3a	AAA-ATPase TOB3	4	1	7
21312430	Adck1	aarF domain containing kinase 1	1	0	0
269784760	Abhd10	abhydrolase domain containing 10	3	0	0
299473805	Abhd11	abhydrolase domain containing 11	2	0	0
159110817	Abhd12	abhydrolase domain containing 12	0	1	0
171460960	Abhd14b	abhydrolase domain containing 14b	7	0	0
31560264	Abhd6	abhydrolase domain containing 6	0	0	1
163965368	Aim1	absent in melanoma 1	1	0	0
73622271	Ash1l	absent, small, or homeotic 1-like	0	2	0
124487344	Esf1	ABT1-associated protein	1	0	1
21313520	Aacs	acetoacetyl-CoA synthetase	1	0	1
21450129	Acat1	acetyl-Coenzyme A acetyltransferase 1 precursor	16	14	0
148747461	Acat2	acetyl-Coenzyme A acetyltransferase 2	2	0	0
110625948	Acat3	acetyl-Coenzyme A acetyltransferase 3	3	0	0
18700004	Acaa1a	acetyl-Coenzyme A acyltransferase 1	16	1	1
22122797	Acaa1b	acetyl-Coenzyme A acyltransferase 1B	1	0	0
29126205	Acaa2	acetyl-Coenzyme A acyltransferase 2 (mitochondrial 3-oxoacyl-Coenzyme A thiolase)	21	18	4
157042798	Acacb	acetyl-Coenzyme A carboxylase beta	2	0	0
241982696	Aaas	achalasia, adrenocortical insufficiency, alacrimia	0	0	3
226693369	Gaa	acid alpha-glucosidase	7	0	0
31542070	Acp1	acid phosphatase 1, soluble isoform 1	4	0	0
29150253	Acp2	acid phosphatase 2, lysosomal	1	1	0
66773165	Acp6	acid phosphatase 6, lysophosphatidic	4	0	0
40254600	Anp32a	acidic (leucine-rich) nuclear phosphoprotein 32 family, member A	8	0	2
18700032	Anp32b	acidic (leucine-rich) nuclear phosphoprotein 32 family, member B	7	1	1
254587996	Anp32e	acidic (leucine-rich) nuclear phosphoprotein 32 family, member E	5	0	2
24418931	Dnttip2	acidic 82 kDa protein	1	0	9
110347487	Aco1	aconitase 1	2	0	0
18079339	Aco2	aconitase 2, mitochondrial	32	0	15
31982370	Afap111	actin filament associated protein 1-like 1	1	0	0
295317359	Afap112	actin filament associated protein 1-like 2	0	0	1
9790221	Arpc1a	actin related protein 2/3 complex, subunit 1A	0	1	0
160837788	Arpc1b	actin related protein 2/3 complex, subunit 1B	1	12	8
112363072	Arpc2	actin related protein 2/3 complex, subunit 2	10	19	12
9790141	Arpc3	actin related protein 2/3 complex, subunit 3	4	8	7
281427244	Arpc4	actin related protein 2/3 complex, subunit 4	3	8	4
224809382	Arpc5	actin related protein 2/3 complex, subunit 5	1	3	3
21312654	Arpc5l	actin related protein 2/3 complex, subunit 5-like	1	8	3
33563240	Acta1	actin, alpha 1, skeletal muscle	1	1	1
30425250	Actb12	actin, beta-like 2	3	2	3



157823889	Actg2	actin, gamma 2, smooth muscle, enteric	16	21	16
6752954	Actg1	actin, gamma, cytoplasmic 1	19	21	24
157057174	Ablim1	actin-binding LIM protein 1 isoform 3	0	0	12
157951643	Actn2	actinin alpha 2	0	1	0
11230802	Actn4	actinin alpha 4	34	47	30
61097906	Actn1	actinin, alpha 1	27	37	24
189181668	Actl6a	actin-like 6A	1	13	5
13937393	Actl6b	actin-like 6B	0	3	2
22122825	Actr2	actin-related protein 2	8	14	11
13386316	Actrt2	actin-related protein T2	0	1	0
31791059	Alcam	activated leukocyte cell adhesion molecule	8	0	0
20270208	Ascc2	activating signal cointegrator 1 complex subunit 2	0	1	0
225703072	Ascc3	activating signal cointegrator 1 complex subunit 3 isoform 2	1	0	0
86604724	Atf1	activating transcription factor 1	0	1	0
68799916	Atf2	activating transcription factor 2 isoform 1	0	1	0
22122557	Atf7	activating transcription factor 7	0	3	0
22122515	Ahsa1	activator of heat shock 90kDa protein ATPase homolog 1	3	0	1
300192925	Dbf4	activator of S phase kinase	0	1	0
160358785	Acvr2a	activin A receptor, type IIA precursor	1	0	1
90093349	Adnp	activity-dependent neuroprotective protein	0	1	4
24418933	Acsf2	acyl-CoA synthetase family member 2	16	0	2
46518528	AcsI4	acyl-CoA synthetase long-chain family member 4 isoform 1	7	0	0
58218988	AcsI5	acyl-CoA synthetase long-chain family member 5	3	0	0
295789127	Acsm2	acyl-CoA synthetase medium-chain family member 2A	1	0	0
30410742	Acsm4	acyl-CoA synthetase medium-chain family member 4	1	0	1
31980996	Acss2	acyl-CoA synthetase short-chain family member 2	0	1	0
6753550	Acot1	acyl-CoA thioesterase 1	4	0	0
18482377	Acot12	acyl-CoA thioesterase 12	1	0	0
13385260	Acot13	acyl-CoA thioesterase 13	3	0	0
238624114	Acot2	acyl-CoA thioesterase 2	4	0	0
269308227	Acot4	acyl-CoA thioesterase 4	1	0	0
225690614	Acot7	acyl-CoA thioesterase 7 isoform 2	6	2	0
254587964	Acot8	acyl-CoA thioesterase 8	2	4	0
31980998	Acot9	acyl-CoA thioesterase 9	10	0	0
31981760	Acnat2	acyl-coenzyme A amino acid N-acyltransferase 2	0	0	1
229608928	Acbd3	acyl-Coenzyme A binding domain containing 3	11	0	0
156255165	Acbd5	acyl-Coenzyme A binding domain containing 5 isoform b	1	0	2
156255157	Acad10	acyl-Coenzyme A dehydrogenase family, member 10	1	0	0
74271799	Acad11	acyl-Coenzyme A dehydrogenase family, member 11	0	2	0
118403322	Acad8	acyl-Coenzyme A dehydrogenase family, member 8	5	0	0
17647119	Acadsb	acyl-Coenzyme A dehydrogenase, short/branched chain	7	2	0
23956084	Acadvl	acyl-Coenzyme A dehydrogenase, very long chain	30	5	2
66793429	Acox1	acyl-Coenzyme A oxidase 1	12	15	0
34328334	Acox3	acyl-Coenzyme A oxidase 3	0	0	1
37537518	Agk	acylglycerol kinase	2	0	0
13384810	Acyp1	acylphosphatase 1	5	2	0
150378458	Adam10	ADAM metalloproteinase domain 10	5	0	1
10946874	Adamdec1	ADAM-like, decysin 1	0	1	1
165905595	Adamtsl5	ADAMTS-like 5 isoform 1	1	0	1
88853578	Ap1b1	adaptor protein complex AP-1, beta 1 subunit	26	19	13

56744242	Ap1g1	adaptor protein complex AP-1, gamma 1 subunit	15	4	3
160707961	Ap1g2	adaptor protein complex AP-1, gamma 2 subunit	1	0	0
160333508	Ap1m2	adaptor protein complex AP-1, mu 2 subunit isoform 2	8	1	2
6671559	Ap1s1	adaptor protein complex AP-1, sigma 1	1	2	0
116256510	Ap2a1	adaptor protein complex AP-2, alpha 1 subunit isoform a	0	15	8
163644277	Ap2a2	adaptor protein complex AP-2, alpha 2 subunit	8	22	14
6753074	Ap2m1	adaptor protein complex AP-2, mu1	1	13	3
40254484	Ap1s2	adaptor-related protein complex 1 sigma 2 subunit	0	1	0
78711838	Ap2b1	adaptor-related protein complex 2, beta 1 subunit isoform a	5	19	11
161086984	Ap2s1	adaptor-related protein complex 2, sigma 1 subunit	1	5	0
163310776	Ap3b1	adaptor-related protein complex 3, beta 1 subunit	2	0	0
6671565	Ap3d1	adaptor-related protein complex 3, delta 1 subunit	3	0	0
6753078	Ap3s1	adaptor-related protein complex 3, sigma 1 subunit	0	0	1
6671557	Ap1m1	adaptor-related protein complex AP-1, mu subunit 1	4	0	0
35215317	Ap1s3	adaptor-related protein complex AP-1, sigma 3	1	1	0
90568303	Asx1	additional sex combs like 1	0	0	1
156255173	Add1	adducin 1 (alpha) isoform 1	1	14	3
31560504	Add2	adducin 2 (beta)	0	1	0
255759892	Add3	adducin 3 (gamma)	0	8	0
118601013	Aprt	adenine phosphoribosyltransferase	5	0	5
110225370	Apc	adenomatosis polyposis coli	0	1	0
117938322	Apc2	adenomatosis polyposis coli 2	0	1	1
226371684	Adar	adenosine deaminase, RNA-specific isoform 3	0	1	0
67625747	Adarb1	adenosine deaminase, RNA-specific, B1 isoform 2	0	3	1
19527306	Adk	adenosine kinase	5	0	0
66792802	Ampd3	adenosine monophosphate deaminase 3	1	0	0
61888832	Adcy1	adenylate cyclase 1	1	0	0
227497595	Adcy10	adenylate cyclase 10	1	0	0
124244092	Adcy2	adenylate cyclase 2	0	1	0
86604721	Adcy6	adenylate cyclase 6	1	0	0
124430532	Adcy8	adenylate cyclase 8	1	0	0
150378487	Adcy9	adenylate cyclase 9	0	1	0
77020262	Ak2	adenylate kinase 2 isoform b	12	2	0
23956104	Ak3	adenylate kinase 3	14	0	3
254675166	Ak7	adenylate kinase 7	0	0	1
29788764	Adsl	adenylosuccinate lyase	7	0	0
31560737	Adss	adenylosuccinate synthase	1	0	0
6671519	Adssl1	adenylosuccinate synthase like 1	3	0	0
31981027	Adrm1	adhesion regulating molecule 1	2	0	0
144226245	Pnpla3	adiponutrin	1	0	0
116235489	Adfp	adipose differentiation related protein	10	0	0
194353962	Arf1	ADP-ribosylation factor 1	9	8	9
6680720	Arf4	ADP-ribosylation factor 4	1	0	2
6680722	Arf5	ADP-ribosylation factor 5	3	0	5
6680724	Arf6	ADP-ribosylation factor 6	4	6	5
260763915	Arfgap2	ADP-ribosylation factor GTPase activating protein 2	0	1	0
156231075	Arfgef1	ADP-ribosylation factor guanine nucleotide-exchange factor 1(brefeldin A-inhibited)	0	0	2
148229140	Arfgef2	ADP-ribosylation factor guanine nucleotide-exchange factor 2 (brefeldin A-inhibited)	1	0	0
124487362	Arfip1	ADP-ribosylation factor interacting protein 1	6	0	1
228008331	Arfip2	ADP-ribosylation factor interacting protein 2	1	0	0
260763874	Arfrp1	ADP-ribosylation factor related protein 1	2	0	0

153792526	Arl1	ADP-ribosylation factor-like 1	4	0	5
13385518	Arl8b	ADP-ribosylation factor-like 10C	2	0	1
27369856	Arl15	ADP-ribosylation factor-like 15	1	0	0
9789881	Arl3	ADP-ribosylation factor-like 3	2	0	0
13384792	Arl4d	ADP-ribosylation factor-like 4D	0	0	2
33695144	Arl5a	ADP-ribosylation factor-like 5	0	0	1
188528681	Arl6	ADP-ribosylation factor-like 6	0	0	1
45433590	Arl6ip1	ADP-ribosylation factor-like 6 interacting protein 1	1	0	0
119372304	Atl2	ADP-ribosylation factor-like 6 interacting protein 2 isoform 1	3	0	0
14149750	Arl6ip5	ADP-ribosylation factor-like 6 interacting protein 5	2	0	0
23956194	Arl8a	ADP-ribosylation factor-like 8A	3	1	3
254281227	Arl6ip6	ADP-ribosylation-like factor 6-interacting protein 6	1	0	3
28916671	Adprh2	ADP-ribosylhydrolase like 2	1	0	0
160707889	Aebp1	AE binding protein 1	1	0	1
125347464	Afm	afamin	0	0	1
66792806	Afg3l1	AFG3(ATPase family gene 3)-like 1	2	0	0
110625761	Afg3l2	AFG3(ATPase family gene 3)-like 2	1	0	0
116875858	Acan	aggrecan	1	0	0
42490751	Agrn	agrln	0	1	0
90403607	Ahnak	AHNAK nucleoprotein isoform 1	62	146	78
31981662	Jub	ajuba	0	0	1
110347489	Akap1	A-kinase anchor protein 1	0	0	3
86604728	Akirin2	akirin 2	1	0	1
190883484	Akt3	AKT3 kinase	0	1	0
34610207	Aars	alanyl-tRNA synthetase	12	1	0
52630311	Aars2	alanyl-tRNA synthetase 2, mitochondrial	1	0	0
163310765	Alb	albumin	0	1	0
6724311	Adh1	alcohol dehydrogenase 1 (class I)	1	0	0
34328288	Aldh3b1	aldehyde dehydrogenase 3 family, member B1	3	1	2
163310771	Aldh3a1	aldehyde dehydrogenase 3A1	1	0	1
75677435	Aldh3a2	aldehyde dehydrogenase 3A2	4	0	1
225543103	Aldh4a1	aldehyde dehydrogenase 4A1	1	0	0
115334671	Aldh9a1	aldehyde dehydrogenase 9A1	6	1	0
7106242	Aldh1a7	aldehyde dehydrogenase family 1, subfamily A7	1	0	0
19527258	Aldh6a1	aldehyde dehydrogenase family 6, subfamily A1	18	0	0
110347467	Aox1	aldehyde oxidase 1	1	0	0
56606023	Aox3l1	aldehyde oxidase 3-like 1	1	0	0
27369748	Aldh5a1	aldehyde dehydrogenase family 5, subfamily A1	2	0	0
10946870	Akr1a4	aldo-keto reductase family 1, member A4 (aldehyde reductase)	1	0	0
160707894	Akr1b3	aldo-keto reductase family 1, member B1	13	0	3
160415215	Akr1b7	aldo-keto reductase family 1, member B7	1	0	0
85719330	Akr1c12	aldo-keto reductase family 1, member C12	3	0	0
171846276	Akr1c13	aldo-keto reductase family 1, member C13	2	0	0
282398141	Akr1c19	aldo-keto reductase family 1, member C19	7	0	1
16905111	Akr1c20	aldo-keto reductase family 1, member C20	0	0	1
240120054	Akr7a5	aldo-keto reductase family 7, member A5 (aflatoxin aldehyde reductase)	2	0	0
60687506	Aldoc	aldolase C, fructose-bisphosphate	3	0	0
110347479	Akp3	alkaline phosphatase 3, intestine, not Mn requiring	0	1	0
31044423	Alkbh5	alkB, alkylation repair homolog 5	0	4	0
61675696	Alkbh8	alkB, alkylation repair homolog 8	0	1	0
295444834	Agps	alkyldihydroxyacetone phosphate synthase	6	6	3

21553105	Aif1l	allograft inflammatory factor 1-like	2	3	1
219689066	1500010J02Rik	alpha accessory factor 132 isoform a	0	1	0
38194222	Mare	alpha globin regulatory element containing	1	0	1
8394027	Ppp2r1a	alpha isoform of regulatory subunit A, protein phosphatase 2	17	16	5
254540097	3222402P14Rik	alpha isoform of regulatory subunit B, protein phosphatase 2	0	1	0
154091016	Atrx	alpha thalassemia/mental retardation syndrome X-linked homolog	1	1	4
172072657	Alg2	alpha-1,3-mannosyltransferase ALG2	2	0	0
255003748	Alg3	alpha-1,3-mannosyltransferase ALG3	0	0	1
70980543	St8sia1	alpha-2,8-sialyltransferase 1	0	1	0
242118003	Wdr81	alpha-2-plasmin inhibitor	1	1	0
121247277	Defa26	alpha-defensin, 26	1	1	1
254910995	Naglu	alpha-N-acetylglucosaminidase	6	2	1
237757295	Als2	alsin isoform 1	1	0	0
6753044	Ambn	ameloblastin	0	0	1
77404288	Accn1	amiloride-sensitive cation channel 1, neuronal isoform a	0	1	0
224994233	Kdm1	amine oxidase (flavin containing) domain 2	1	18	4
288541337	Aimp2	aminoacyl tRNA synthetase complex-interacting multifunctional protein 2	3	0	0
171184418	C630028N24Rik	aminoglycoside phosphotransferase domain containing 1	0	1	0
62000670	Amt	aminomethyltransferase	0	1	0
110625916	201011101Rik	aminopeptidase O	0	1	0
68226731	Npepps	aminopeptidase puromycin sensitive	9	0	0
47523981	Npepl1	aminopeptidase-like 1	2	0	0
334848200	Ammecr1l	AMME chromosomal region gene 1-like	1	0	0
23956234	Prkab1	AMP-activated protein kinase beta 1 non-catalytic subunit	0	0	1
282847331	Prkag2	AMP-activated protein kinase gamma2 subunit	1	0	0
124107596	Prkag1	AMP-activated protein kinase, noncatalytic gamma-1 subunit	4	0	4
124486747	Agl	amylase-1,6-glucosidase, 4-alpha-glucanotransferase	1	0	0
311893408	App	amyloid beta (A4) precursor protein	6	2	0
319738665	Apbb2	amyloid beta (A4) precursor protein-binding, family B, member 2	0	1	0
156255194	Appl2	amyloid beta (A4) precursor-like protein 2 isoform c	3	2	1
228008323	Anapc1	anaphase promoting complex subunit 1	1	2	0
35900980	Anapc10	anaphase promoting complex subunit 10	0	2	0
254281282	Anapc7	anaphase promoting complex subunit 7	0	3	0
7304901	Ar	androgen receptor	0	1	0
34328275	Aggf1	angiogenic factor with G patch and FHA domains 1	0	0	1
119120838	Amotl2	angiominin like 2	0	1	0
124487107	Amotl1	angiominin-like 1	1	0	0
255308873	Angptl4	angiopoietin-like 4	1	0	0
31542119	Agtrap	angiotensin II receptor-associated protein	1	0	0
251823794	Anln	anillin	0	1	0
261862329	Rai14	ankycorbin	0	1	6
116256505	Ank3	ankyrin 3, epithelial isoform c	0	3	0
172088123	Abtb1	ankyrin repeat and BTB (POZ) domain containing 1	0	1	0
85702366	Ankfy1	ankyrin repeat and FYVE domain containing 1	1	0	0
268370092	Asb15	ankyrin repeat and SOCS box-containing 15	1	0	0
18252776	Asb5	ankyrin repeat and SOCS box-containing 5	0	1	0
114205426	Asb3	ankyrin repeat and SOCS box-containing protein 3	1	0	0

17505202	Asb4	ankyrin repeat and SOCS box-containing protein 4	1	0	0
31088892	Anks1	ankyrin repeat and sterile alpha motif domain containing 1	0	1	1
323423025	Ankrd11	ankyrin repeat domain 11	0	0	1
71834683	Ankrd12	ankyrin repeat domain 12	0	1	0
61651675	Ankrd13a	ankyrin repeat domain 13a	0	0	1
67972431	Ankrd13c	ankyrin repeat domain 13c	0	0	1
261878577	Ankrd24	ankyrin repeat domain 24	1	0	0
160333753	Kank2	ankyrin repeat domain 25	0	0	1
124487433	Ankrd26	ankyrin repeat domain 26	1	0	0
167466274	Ankrd32	ankyrin repeat domain 32	1	0	0
268607611	Ankrd50	ankyrin repeat domain 50	1	0	0
268370084	Ankrd53	ankyrin repeat domain 53	0	1	0
270288786	Ankrd55	ankyrin repeat domain 55	0	0	1
124286856	Ankfn1	ankyrin-repeat and fibronectin type III domain containing 1	1	0	0
124517663	Anxa1	annexin A1	26	0	2
160707921	Anxa11	annexin A11	9	0	2
6996913	Anxa2	annexin A2	6	18	5
160707925	Anxa3	annexin A3	1	0	0
161016799	Anxa4	annexin A4	18	2	1
6753060	Anxa5	annexin A5	19	0	4
31981302	Anxa6	annexin A6 isoform a	28	1	1
160707958	Anxa7	annexin A7	5	0	1
145864497	Anxa9	annexin A9	10	19	18
334278902	Ano1	anoctamin 1, calcium activated chloride channel	0	0	1
40254290	Ano6	anoctamin 6	4	0	0
164663750	Amn1	antagonist of mitotic exit network 1 homolog	1	0	0
169234624	Mki67	antigen identified by monoclonal antibody Ki 67	1	8	1
33859684	Kin	antigenic determinant of rec-A protein	1	1	0
258613873	Apip	APAF1 interacting protein	2	0	0
39930509	Mapre3	APC-binding protein EB2	0	1	0
6753014	Aplnr	apelin receptor	0	0	1
6753086	Apex1	APEX nuclease 1	5	17	2
21553309	Apoa1bp	apolipoprotein A-I binding protein	6	0	0
161702988	Apob	apolipoprotein B precursor	1	2	0
313569874	Apoo	apolipoprotein O	2	0	1
13386062	Apool	apolipoprotein O-like	2	0	7
9790013	Aatf	apoptosis antagonizing transcription factor	0	0	5
94158994	Api5	apoptosis inhibitor 5	2	19	3
30017355	Aifm2	apoptosis-inducing factor (AIF)-like mitochondrion-associated inducer of death isoform 2	1	1	2
6755004	Aifm1	apoptosis-inducing factor, mitochondrion-associated 1	23	2	9
194394197	Acin1	apoptotic chromatin condensation inducer 1 isoform 2	0	18	14
160415209	Aqp2	aquaporin 2	4	1	3
163644327	Aqr	aquarius	0	13	11
31542127	Alox12	arachidonate 12-lipoxygenase	1	0	0
75812978	Amz2	archaemetzincins-2	0	0	1
148747410	Arcn1	archain 1	12	0	2
33563260	Agfg1	ArfGAP with FG repeats 1	0	1	0
189458894	Arap2	ArfGAP with RhoGAP domain, ankyrin repeat and PH domain 2	0	0	1
206597526	Ddef2	ArfGAP with SH3 domain, ankyrin repeat and PH domain 2 isoform b	0	1	1
7106255	Arg1	arginase 1	1	0	0

6753110	Arg2	arginase 2	14	0	0
134152669	Arglu1	arginine and glutamate rich 1	1	0	0
269973913	Sfrs14	arginine/serine-rich 14 splicing factor	0	1	0
53988376	Rsrc2	arginine/serine-rich coiled-coil 2 isoform 1	0	1	0
224967104	Sfrs6	arginine/serine-rich splicing factor 6	5	2	5
29244056	Cdnf	arginine-rich, mutated in early stage tumors-like 1	0	1	0
19526986	Asl	argininosuccinate lyase	2	0	0
6996911	Ass1	argininosuccinate synthetase 1	2	0	0
318065085	Rnpepl1	arginyl aminopeptidase (aminopeptidase B)-like 1	0	0	1
227499234	Rnpep	arginyl aminopeptidase isoform 1	8	0	1
262118273	Rars	arginyl-tRNA synthetase	21	2	0
167900462	Armc2	armadillo repeat containing 2	1	0	1
124487327	Armc3	armadillo repeat containing 3	1	0	0
124487093	Armc4	armadillo repeat containing 4	1	0	1
261824009	Armcx1	armadillo repeat containing, X-linked 1	0	0	2
40254129	Arvcf	armadillo repeat gene deleted in velo-cardio-facial syndrome	0	0	2
21312676	Armc1	armadillo repeat-containing protein	1	0	0
8392847	Actr1a	ARP1 actin-related protein 1 homolog A, centractin alpha	7	9	1
22122615	Actr1b	ARP1 actin-related protein 1 homolog B, centractin beta	2	1	0
329664973	Actr3	ARP3 actin-related protein 3 homolog	10	17	12
52345394	Actr3b	ARP3 actin-related protein 3 homolog B	1	3	1
91176335	Actr5	ARP5 actin-related protein 5 homolog	0	7	0
188528622	Actr8	ARP8 actin-related protein 8 homolog	0	2	0
30089716	Arrb1	arrestin, beta 1 isoform A	1	0	0
12025542	Asna1	arsA arsenite transporter, ATP-binding, homolog 1	4	0	1
158186674	Srrt	arsenate resistance protein 2 isoform 1	4	23	4
30520239	Nceh1	arylacetamide deacetylase-like 1	10	0	1
7709982	Aip	aryl-hydrocarbon receptor-interacting protein	5	0	0
67972647	Arsa	arylsulfatase A	7	0	0
125656171	Arsb	arylsulfatase B	1	1	0
13384964	Asf1a	ASF1 anti-silencing function 1 homolog A	0	5	0
124248552	Ash2l	ash2-like isoform b	0	9	1
6753126	Asgr1	asialoglycoprotein receptor 1	1	0	0
33469123	Asns	asparagine synthetase	2	0	0
13195608	Alg14	asparagine-linked glycosylation 14 homolog	0	0	1
19527202	Alg9	asparagine-linked glycosylation 9 protein	0	0	1
157951696	Nars2	asparaginyl-tRNA synthetase 2, mitochondrial	0	0	1
219276601	Nars	asparaginyl-tRNA synthetase isoform 2	2	6	0
295390613	Asph	aspartate beta-hydroxylase isoform 1	13	1	4
21312002	Aspdh	aspartate dehydrogenase	1	0	1
31982632	Acy3	aspartoacylase 3	1	0	0
161016822	Dnpep	aspartyl aminopeptidase isoform b	9	0	0
326439050	Aga	aspartylglucosaminidase	5	0	0
27369928	Dars2	aspartyl-tRNA synthetase 2, mitochondrial	1	0	0
210147402	Dars	aspartyl-tRNA synthetase isoform 1	23	19	1
258679481	Aste1	asteroid homolog 1	0	0	1
327199303	Astn1	astrotactin 1	0	1	0
158508460	Ahctf1	AT hook containing transcription factor 1	0	2	9
110225364	Zfhx3	AT motif binding factor 1	0	1	0
124249109	Arid1a	AT rich interactive domain 1A	0	5	1
145553997	Arid1b	AT rich interactive domain 1B (Swi1 like)	0	1	0
262231796	Arid2	AT rich interactive domain 2 (ARID, RFX-like)	0	4	0

189339266	Atr	ataxia telangiectasia and rad3 related	1	0	0
163838660	Atm	ataxia telangiectasia mutated	0	2	0
30520029	Atcay	ataxia, cerebellar, Cayman type homolog	1	1	1
83649709	Atxn10	ataxin 10	1	0	1
33942089	Atxn2l	ataxin 2-like	1	1	0
295317311	Atxn7l1	ataxin 7-like 1 isoform 2	1	0	0
30519971	Atl1	atlastin GTPase 1	1	0	0
254826718	Atl3	atlastin GTPase 3 isoform 2	13	0	0
239049657	Atmin	ATM interactor	0	0	1
313151222	Acly	ATP citrate lyase	21	0	1
34538602	ATP8	ATP synthase F0 subunit 8	2	1	1
78214312	Atp5f1	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit b, isoform 1	7	3	8
21313679	Atp5h	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit d	7	1	9
10181184	Atp5j2	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit f, isoform 2	2	0	2
31980744	Atp5l	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit G	1	0	2
6680748	Atp5a1	ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit, isoform 1	33	5	20
166851828	Atp5d	ATP synthase, H+ transporting, mitochondrial F1 complex, delta subunit precursor	6	3	2
13385484	Atp5e	ATP synthase, H+ transporting, mitochondrial F1 complex, epsilon subunit	2	0	0
163838648	Atp5c1	ATP synthase, H+ transporting, mitochondrial F1 complex, gamma subunit isoform a	11	1	6
20070412	Atp5o	ATP synthase, H+ transporting, mitochondrial F1 complex, O subunit	10	7	9
83715998	Atp5k	ATP synthase, H+ transporting, mitochondrial F1F0 complex, subunit e	5	1	2
160420289	Agbl2	ATP/GTP binding protein-like 2	0	0	1
31560168	Atad1	ATPase family, AAA domain containing 1	1	0	8
91199557	Atad2	ATPase family, AAA domain containing 2	0	0	31
153791220	Atad2b	ATPase family, AAA domain containing 2B	0	0	23
22122505	Atad4	ATPase family, AAA domain containing 4	0	0	1
31982864	Atpif1	ATPase inhibitory factor 1	6	4	0
283135194	Atp13a1	ATPase type 13A1	0	1	0
261599069	Atp13a4	ATPase type 13A4	0	1	0
36031132	Atp2a1	ATPase, Ca++ transporting, fast twitch 1	6	0	0
158635979	Atp2a2	ATPase, Ca++ transporting, slow twitch 2 isoform b	8	0	0
189339256	Atp2c2	ATPase, Ca++ transporting, type 2C, member 2	0	0	1
157671921	Atp8b4	ATPase, class I, type 8B, member 4	0	0	1
320089590	Atp9b	ATPase, class II, type 9B	1	0	0
157951686	Atp10a	ATPase, class V, type 10A	0	0	1
294979203	Atp10d	ATPase, class V, type 10D	0	1	0
7656914	Atp11a	ATPase, class VI, type 11A	1	0	0
157951682	Atp7a	ATPase, Cu++ transporting, alpha polypeptide isoform 2	2	0	0
12025532	Atp6v0a1	ATPase, H+ transporting, lysosomal V0 subunit a1	0	0	4
83627707	Atp6v0a2	ATPase, H+ transporting, lysosomal V0 subunit A2	0	0	1
6753144	Atp6v0c	ATPase, H+ transporting, lysosomal V0 subunit C	1	0	3
31560731	Atp6v1a	ATPase, H+ transporting, lysosomal V1 subunit A	19	0	16
189339262	Atp6v1c1	ATPase, H+ transporting, lysosomal V1 subunit C1	2	0	1
31981588	Atp6v1h	ATPase, H+ transporting, lysosomal V1 subunit H	5	0	5
31981304	Atp6v0d1	ATPase, H+ transporting, V0 subunit D isoform 1	11	1	10

12963799	Atp6v1d	ATPase, H <sup>+</sup> transporting, V1 subunit D	2	0	0
116292744	Abca13	ATP-binding cassette transporter	0	1	0
225703056	Abca12	ATP-binding cassette, sub-family A (ABC1), member 12	1	0	2
88853071	Abca3	ATP-binding cassette, sub-family A (ABC1), member 3	1	0	0
262118230	Abca6	ATP-binding cassette, sub-family A (ABC1), member 6	0	0	1
254911033	Abca8b	ATP-binding cassette, sub-family A (ABC1), member 8b	0	1	0
15451840	Abca7	ATP-binding cassette, sub-family A, member 7	1	0	0
169234938	Abcb7	ATP-binding cassette, sub-family B (MDR/TAP), member 7	6	0	0
153791547	Abcb1a	ATP-binding cassette, subfamily B, member 1A	0	1	0
90403595	Abcc3	ATP-binding cassette, sub-family C (CFTR/MRP), member 3	2	0	0
255683328	Abcc4	ATP-binding cassette, sub-family C (CFTR/MRP), member 4	3	0	0
6678848	Abcc1	ATP-binding cassette, sub-family C, member 1	10	0	2
6671497	Abcd1	ATP-binding cassette, sub-family D, member 1	0	1	0
60218877	Abcd3	ATP-binding cassette, sub-family D, member 3	16	0	22
114205431	Abce1	ATP-binding cassette, subfamily E, member 1	4	0	0
39930335	Abcf1	ATP-binding cassette, sub-family F (GCN20), member 1	5	5	0
299473734	Abcf2	ATP-binding cassette, sub-family F (GCN20), member 2	0	5	0
283436205	Atrip	ATR interacting protein	1	0	0
116268115	Auh	AU RNA binding protein/enoyl-Coenzyme A hydratase	1	0	0
6753020	Aire	autoimmune regulator (autoimmune polyendocrinopathy candidiasis ectodermal dystrophy)	0	1	0
31982053	Relb	avian reticuloendotheliosis viral (v-rel) oncogene related B	0	0	1
13386102	Rnaseh2c	AYP1 protein	0	4	0
145587077	Bdp1	B double prime 1, subunit of RNA polymerase III transcription initiation factor IIIB	0	1	1
124107600	Birc1f	baculoviral IAP repeat-containing 1f	0	0	1
59859890	Birc5	baculoviral IAP repeat-containing 5 isoform 1	0	1	0
133922596	Birc6	baculoviral IAP repeat-containing 6	8	0	0
169658369	Bahcc1	BAH domain and coiled-coil containing 1	0	1	0
21313234	Baiap2l1	BAI1-associated protein 2-like 1	0	5	1
46519149	Heatr1	BAP28 protein	0	3	29
84042521	Banf1	barrier to autointegration factor 1	2	2	7
10048460	Bcam	basal cell adhesion molecule	4	0	0
85701808	BC013712	basement membrane-induced protein	0	1	0
213512915	Uqcc	basic FGF repressed, zinc binding protein	3	4	3
148287018	Bhlhb9	basic helix-loop-helix domain containing, class B9	0	1	0
6755680	Bhlhe40	basic helix-loop-helix family, member e40	0	0	1
13385296	Bzw1	basic leucine zipper and W2 domains 1	2	0	0
31981160	Bzw2	basic leucine zipper and W2 domains 2	1	0	1
237649007	Blzf1	basic leucine zipper nuclear factor 1 isoform a	0	0	1
281485611	Btf3	basic transcription factor 3	5	3	0
29789195	Btf3l4	basic transcription factor 3-like 4	3	1	0
116014342	Bsg	basigin isoform 1	10	0	0
124487407	Bsn	bassoon protein	0	2	0
22296593	Bcl7a	B-cell CLL/lymphoma 7A	0	2	0
6753176	Bcl7c	B-cell CLL/lymphoma 7C	0	2	1
56606137	Bcl9	B-cell CLL/lymphoma 9	0	1	0
6671620	Bcap29	B-cell receptor-associated protein 29	2	0	1
31981310	Bcap31	B-cell receptor-associated protein 31	7	0	3
126723336	Phb2	B-cell receptor-associated protein 37	16	3	13
21312030	1110007C09Rik	Bcl10-interacting protein with Card	0	0	2



33239415	Ptrh2	Bcl-2 inhibitor of transcription isoform a	4	2	5
255003752	Bnip1	BCL2/adenovirus E1B interacting protein 1	4	0	0
111955302	Bak1	BCL2-antagonist/killer 1	2	0	7
6671610	Bad	BCL2-associated agonist of cell death	1	0	0
21703784	Bag2	Bcl2-associated athanogene 2	3	3	8
70906449	Bclaf1	BCL2-associated transcription factor 1 isoform 2	2	3	5
6680770	Bax	Bcl2-associated X protein	1	0	0
23943828	Bcl2l13	BCL2-like 13	7	0	0
7949082	Bok	BCL2-related ovarian killer protein	0	0	1
269995993	Bcor	BCL-6 interacting corepressor isoform d	0	1	1
21313544	Bcs1l	BCS1-like	2	0	0
46909609	B3gat2	beta-1,3-glucuronyltransferase 2	0	1	0
189339268	B4galnt1	beta-1,4-N-acetyl-galactosaminyl transferase 1 isoform 1	2	0	0
7709990	Bhmt	betaine-homocysteine methyltransferase	1	0	0
225543122	Bace1	beta-site APP cleaving enzyme 1 isoform 1	1	0	0
163838766	Bicd1	bicaudal D homolog 1 isoform 2	1	0	1
124487331	Blvra	biliverdin reductase A	4	0	0
21450325	Blvrb	biliverdin reductase B (flavin reductase (NADPH))	4	0	2
119672920	Mepce	bin3, bicoid-interacting 3, homolog	1	0	0
31980697	Bloc1s1	biogenesis of lysosome-related organelles complex-1, subunit 1	1	0	0
124487265	Bod1l	biorientation of chromosomes in cell division 1-like	1	13	0
21624609	Bphl	biphenyl hydrolase-like (serine hydrolase, breast epithelial mucin-associated antigen)	7	0	0
114326546	Pgam1	bisphosphoglycerate mutase 1	18	1	9
30519997	Blmh	bleomycin hydrolase	2	0	0
7304931	Bop1	block of proliferation 1	1	0	6
226693393	Blm	Bloom syndrome protein homolog isoform 1	1	0	0
46559391	Bmi1	Bmi1 polycomb ring finger oncogene	0	2	0
18129622	Bmp2k	BMP2 inducible kinase	0	0	1
39930555	Bms1	BMS1-like, ribosome assembly protein	0	2	8
164565417	Boll	bol, boule-like isoform 1	0	1	0
58037151	Bola1	bolA-like 1	4	0	0
6680802	Bmpr1b	bone morphogenetic protein receptor, type IB	0	0	1
45598372	Basp1	brain abundant, membrane attached signal protein 1	5	7	5
24418919	Pygb	brain glycogen phosphorylase	19	0	6
21312594	Brp44	brain protein 44	2	0	0
9055178	Brp44l	brain protein 44-like	0	0	1
92110033	Bai1	brain-specific angiogenesis inhibitor 1	1	1	1
262231776	Baiap2	brain-specific angiogenesis inhibitor 1-associated protein 2 isoform c	7	14	3
314122229	Bai2	brain-specific angiogenesis inhibitor 2	0	1	1
33695141	Tmem59l	brain-specific membrane-anchored protein	1	0	0
33859514	Bcat2	branched chain aminotransferase 2, mitochondrial	2	0	0
40353220	Bckdhb	branched chain keto acid dehydrogenase E1 beta	1	1	0
6753164	Bckdk	branched chain ketoacid dehydrogenase kinase	1	2	0
6680768	Bard1	BRCA1 associated RING domain 1	0	1	0
262050570	Brcc3	BRCA1/BRCA2-containing complex, subunit 3	1	0	0
161016835	Brca1	breast cancer 1	0	0	1
124487411	Brca2	breast cancer 2	0	0	1
83649717	Brms1l	breast cancer metastasis-suppressor 1-like	0	1	0
256985112	Bcas1	breast carcinoma amplified sequence 1	1	0	0
70906453	Bcas2	breast carcinoma amplified sequence 2	0	9	6

58037467	Bri3bp	Bri3 binding protein	2	1	3
134053947	Bin1	bridging integrator 1 isoform 1	1	0	0
10946638	Bin3	bridging integrator 3	0	0	1
141802630	Bxdc2	BRIX	0	0	3
110347521	Bxdc1	brix domain containing 1 isoform 2	0	0	5
189339272	Baz1a	bromodomain adjacent to zinc finger domain 1A	1	21	4
170295818	Baz1b	bromodomain adjacent to zinc finger domain, 1B	0	17	25
114205435	Baz2a	bromodomain adjacent to zinc finger domain, 2A	0	3	2
62177117	Baz2b	bromodomain adjacent to zinc finger domain, 2B	1	1	0
157057184	Brwd1	bromodomain and WD repeat domain containing 1 isoform A	1	0	1
125490358	Brwd3	bromodomain and WD repeat domain containing 3	1	0	0
164698417	Brd1	bromodomain containing 1	0	0	3
71067345	Brd2	bromodomain containing 2 isoform a	0	2	0
165972335	Brd3	bromodomain containing 3 isoform 2	0	7	0
226246640	Brd4	bromodomain containing 4 isoform 1	1	8	0
6755234	Brd7	bromodomain containing 7	0	5	1
185134208	Brd8	bromodomain containing 8	0	8	0
112817628	Brd9	bromodomain containing 9	0	1	0
140969817	Bptf	bromodomain PHD finger transcription factor	1	11	2
123858774	Btaf1	BTAF1 RNA polymerase II, B-TFIIID transcription factor-associated	1	2	4
158534069	Banp	Btg3 associated nuclear protein isoform 2	1	2	0
22122459	Bud13	BUD13 homolog	0	0	1
31560618	Bub3	budding uninhibited by benzimidazoles 3 homolog	2	10	0
124487350	Bche	butyrylcholinesterase	1	0	0
164698440	Bysl	bystin-like	1	1	2
7305107	Grcc10	C10 protein	0	1	0
31542251	C1d	C1D nuclear receptor co-repressor	0	1	0
147903609	C1qtnf4	C1q and tumor necrosis factor related protein 4	0	1	1
118200358	Cadps2	Ca2+-dependent activator for secretion protein 2	1	0	1
162951870	Abl1	c-abl oncogene 1, receptor tyrosine kinase isoform b	0	1	0
6753374	Cdh1	cadherin 1	14	5	10
6680900	Cdh16	cadherin 16	24	0	2
124517680	Cdh23	cadherin 23	1	0	0
83715978	Cdh3	cadherin 3 isoform b	0	0	1
6753376	Cdh4	cadherin 4	0	0	1
70995287	Cabin1	calcineurin binding protein 1	0	2	1
154146233	Calcoco2	calcium binding and coiled-coil domain 2 b	1	0	0
21450201	Cbara1	calcium binding atopy-related autoantigen 1	3	3	2
161086893	Cab39	calcium binding protein 39	3	0	0
31541826	Cab39l	calcium binding protein 39-like	6	0	0
21746185	Cabp4	calcium binding protein 4	0	0	1
9790225	1500003O03Rik	calcium binding protein P22	4	1	1
254826788	Cacna1h	calcium channel alpha13.2 subunit isoform 1	1	0	0
116174795	Cacna1a	calcium channel, alpha 1A subunit	0	0	2
161086902	Cacna2d1	calcium channel, voltage-dependent, alpha2/delta subunit 1 isoform e	0	1	0
6753236	Cacna2d3	calcium channel, voltage-dependent, alpha2/delta subunit 3	1	1	0
113930699	Cacna1c	calcium channel, voltage-dependent, L type, alpha 1C subunit isoform 1	0	1	0
134288900	Cacna1d	calcium channel, voltage-dependent, L type, alpha 1D subunit isoform 1	0	1	0

189409136	Cacna1s	calcium channel, voltage-dependent, L type, alpha 1S subunit isoform 2	0	1	2
110225368	Cacna1b	calcium channel, voltage-dependent, N type, alpha 1B subunit isoform 2	1	0	0
117968623	Cacna1e	calcium channel, voltage-dependent, R type, alpha 1E subunit	1	0	0
295444836	Cacna1g	calcium channel, voltage-dependent, T type, alpha 1G subunit isoform b	0	1	1
20982847	Carf	calcium response factor	0	0	1
85362742	Camk2g	calcium/calmodulin-dependent protein kinase II gamma isoform 2	2	1	0
70906479	Camk2d	calcium/calmodulin-dependent protein kinase II, delta isoform 3	3	6	0
21703722	Camkk2	calcium/calmodulin-dependent protein kinase kinase 2, beta	0	1	1
133504495	Cask	calcium/calmodulin-dependent serine protein kinase	1	0	1
27369998	Slc25a24	calcium-binding transporter	16	0	1
13385290	Carhsp1	calcium-regulated heat-stable protein (24kD)	1	0	0
33468885	Cacybp	calcyclin binding protein	3	0	0
298676543	Caly	calcyon protein	0	0	1
110835711	Capsl	calcyphosine-like	0	1	0
21704156	Cald1	caldesmon 1	1	5	0
100816903	Clmn	calmin isoform a	0	2	17
6680834	Calm3	calmodulin 3	3	6	8
56785418	Calm5	calmodulin 5	0	1	0
30017453	Camta2	calmodulin binding transcription activator 2	0	0	1
124486889	Camsap11	calmodulin regulated spectrin-associated protein 1-like 1	1	1	2
156447039	Calml4	calmodulin-like 4 isoform a	1	0	0
160333216	Canx	calnexin	29	1	8
160333229	Capn1	calpain 1, large subunit	21	0	1
62000644	Capn11	calpain 11	0	0	1
85701961	Capn13	calpain 13	0	0	1
157951598	Capn2	calpain 2	3	0	2
6680846	Capn5	calpain 5	0	0	8
251823797	Capn9	calpain 9	0	1	1
110227381	Capns1	calpain, small subunit 1	7	0	1
33563246	Cast	calpastatin	5	5	0
6680952	Cnn2	calponin 2	1	0	0
21312564	Cnn3	calponin 3, acidic	2	0	6
6680836	Calr	calreticulin	22	0	2
227430322	Casq1	calsequestrin 1	0	1	0
41282022	Calu	calumenin isoform 2	11	0	0
158966707	Creb1	cAMP responsive element binding protein 1 isoform A	0	1	0
282721112	Casc1	cancer susceptibility candidate 1	0	1	0
125628638	Casc5	cancer susceptibility candidate 5	1	0	0
9903607	Cnpy2	canopy 2 homolog	9	0	0
21312510	Cnpy3	canopy 3 homolog	2	0	0
30519939	Cnpy4	canopy 4 homolog	5	1	0
157951604	Cap1	CAP, adenylate cyclase-associated protein 1	12	0	2
158631217	Cic	capicua homolog isoform a	0	0	1
6671672	Capza2	capping protein (actin filament) muscle Z-line, alpha 2	4	8	10
6753262	Capzb	capping protein (actin filament) muscle Z-line, beta isoform b	8	12	11
124248512	Cps1	carbamoyl-phosphate synthetase 1	0	1	0

51093867	Cad	carbamoyl-phosphate synthetase 2, aspartate transcarbamylase, and dihydroorotase	1	0	0
12963845	Chst1	carbohydrate (keratan sulfate Gal-6) sulfotransferase 1	0	1	0
298676450	Carkd	carbohydrate kinase domain containing	2	0	0
157951596	Car2	carbonic anhydrase II	10	0	2
211057396	Car5b	carbonic anhydrase VB, mitochondrial	3	0	0
269784762	Cbr4	carbonic reductase 4	2	9	2
113680352	Cbr1	carbonyl reductase 1	2	0	0
6671688	Cbr2	carbonyl reductase 2	16	2	10
27413160	Cbr3	carbonyl reductase 3	4	0	1
158635992	Pdlim1	carboxyl terminal LIM domain protein 1	10	0	0
117553604	Ces3	carboxylesterase 3	3	0	0
120300909	Agbl3	carboxypeptidase 3, cytosolic	0	0	1
150378501	Cpd	carboxypeptidase D	2	0	0
189458849	Cpm	carboxypeptidase M	1	0	6
228008326	Cpxm1	carboxypeptidase X 1 (M14 family)	1	0	1
229092758	Cpxm2	carboxypeptidase X 2 (M14 family)	1	1	0
244790191	Ceacam12	carcinoembryonic antigen-related cell adhesion molecule 12 isoform 1	1	0	1
15638942	lft81	carnitine deficiency-associated gene expressed in ventricle 1	0	0	1
17157983	Crot	carnitine O-octanoyltransferase	10	0	1
162138915	Cpt2	carnitine O-palmitoyltransferase	12	0	1
162287142	Cpt1a	carnitine palmitoyltransferase 1A liver	17	6	10
162287165	Cpt1b	carnitine palmitoyltransferase 1B	2	0	0
10048462	Slc25a20	carnitine/acylcarnitine translocase	6	0	2
110626040	Crtac1	cartilage acidic protein 1	0	1	0
31542425	Csnk1e	casein kinase 1 epsilon	0	1	0
22165382	Csnk1a1	casein kinase 1, alpha 1	1	11	7
20544149	Csnk1d	casein kinase 1, delta isoform 2	0	1	1
113462019	Csnk1g3	casein kinase 1, gamma 3	0	1	0
31542427	Csnk2a1	casein kinase 2, alpha 1 polypeptide	8	9	0
6753540	Csnk2a2	casein kinase 2, alpha prime polypeptide	1	6	0
7106277	Csnk2b	casein kinase 2, beta polypeptide	5	4	0
8393156	Clpp	caseinolytic peptidase, ATP-dependent, proteolytic subunit	7	0	0
80978932	Cbl	Casitas B-lineage lymphoma	0	1	0
161168996	Caskin1	CASK interacting protein 1	0	0	1
86198303	Cflar	CASP8 and FADD-like apoptosis regulator isoform 2	1	0	0
6753284	Casp3	caspase 3	1	0	0
6680850	Casp7	caspase 7	2	0	0
122056578	Casp8	caspase 8	2	0	0
172072595	Casp8ap2	caspase 8 associated protein 2	0	0	1
161086929	Card11	caspase recruitment domain family, member 11	0	0	1
18700028	Card14	caspase recruitment domain family, member 14	1	0	0
147904864	Card9	caspase recruitment domain family, member 9	0	0	1
226823370	Cas21	castor homolog 1, zinc finger isoform 2	0	1	0
21450187	Cecr5	cat eye syndrome chromosome region, candidate 5 homolog precursor	1	0	0
157951741	Cat	catalase	14	0	1
42475974	Pik3c3	catalytic phosphatidylinositol 3-kinase 3	0	1	0
161484638	Comt1	catechol-O-methyltransferase	11	0	1
33468999	Comtd1	catechol-O-methyltransferase domain containing 1	1	0	3
157951729	Ctnna2	catenin (cadherin associated protein), alpha 2 isoform 2	0	1	2
227330565	Ctnnal1	catenin (cadherin associated protein), alpha-like 1	2	4	0

260166642	Ctnnb1	catenin (cadherin associated protein), beta 1, 88kDa	7	6	25
6753294	Ctnna1	catenin alpha 1	37	23	43
254540032	Ctnnb1	catenin, beta like 1	7	19	1
146231979	Ctnnd1	catenin, delta 1 isoform 1	14	7	26
84042525	Ctsa	cathepsin A isoform a	9	0	0
6681079	Ctsb	cathepsin B preproprotein	12	1	1
160707990	Ctsc	cathepsin C preproprotein	6	1	0
6753556	Ctsd	cathepsin D	19	1	0
166235890	Ctsh	cathepsin H preproprotein	6	0	0
29244082	Ctso	cathepsin O	0	0	1
11968166	Ctsz	cathepsin Z preproprotein	3	0	0
261823948	AU018091	cationic amino acid transporter 5	0	0	1
6680854	Cav1	caveolin 1, caveolae protein	1	2	3
18702317	Cav2	caveolin 2	4	1	3
254692991	Exosc8	CBP-interacting protein 3 isoform 2	0	8	1
6753404	Cebpb	CCAAT/enhancer binding protein beta	0	1	1
61966683	Cebpg	CCAAT/enhancer binding protein gamma	0	1	0
67188876	Cebpz	CCAAT/enhancer binding protein zeta	0	5	4
31044459	Ctcf	CCCTC-binding factor	0	24	4
327315392	Cnot1	CCR4-NOT transcription complex, subunit 1 isoform 2	1	1	0
22122717	Cnot3	CCR4-NOT transcription complex, subunit 3	1	0	0
19526794	Cd81	CD 81 antigen	1	0	0
161353456	Cd151	CD151 antigen	1	0	0
17505208	Cd2bp2	CD2 antigen (cytoplasmic tail) binding protein 2	0	0	1
125987599	Cd2ap	CD2-associated protein	9	14	0
80978941	Cd300lb	CD300 antigen like family member B	1	0	0
227116353	Cd36	CD36 antigen	0	0	1
22003860	Cd3eap	CD3E antigen, epsilon polypeptide associated protein	0	1	0
6754382	Cd47	CD47 antigen	2	0	0
160358823	Cd5l	CD5 antigen-like precursor	0	1	0
110431344	Cd63	CD63 antigen	1	0	0
160333109	Cd72	CD72 antigen isoform 3	1	0	0
112983684	Cd80	CD80 antigen precursor	1	0	0
209862915	Cd82	CD82 antigen isoform 1	2	0	0
6680894	Cd9	CD9 antigen	3	0	0
68448515	Cdc16	CDC16 cell division cycle 16 homolog	0	3	0
30387632	Cdc23	CDC23 (cell division cycle 23, yeast, homolog)	0	2	0
157816961	Crks	Cdc2-related kinase, arginine/serine-rich isoform 3	1	1	0
283135190	Cdc42bbp	CDC42 binding protein kinase beta	2	15	1
84781706	Cdc42se1	CDC42 small effector 1 isoform 1	1	0	0
111038135	Clk1	CDC-like kinase 1 isoform 2	0	0	1
254540152	Clk2	CDC-like kinase 2 isoform 1	0	0	1
83745112	Clk3	CDC-like kinase 3	0	1	0
19527228	Cisd1	CDGSH iron sulfur domain 1	5	0	4
21728370	Cisd2	CDGSH iron sulfur domain 2	4	0	0
49355794	Cdk2ap1	CDK2 (cyclin-dependent kinase 2)-associated protein 1	0	1	0
50657347	Cdk5rap2	CDK5 regulatory subunit associated protein 2	0	0	1
13384788	Cdk5rap3	CDK5 regulatory subunit associated protein 3	2	0	0
19882247	Ciz1	CDKN1A interacting zinc finger protein 1	0	1	0
27369527	Cdkn2aip	CDKN2A interacting protein	2	5	1
21313402	Cdkn2aipnl	CDKN2A interacting protein N-terminal like	0	1	0
134947988	AK220484	cDNA sequence AK220484	0	1	0
167234439	Fam20c	cDNA sequence BC004044	2	0	0
21450083	Rprd1a	cDNA sequence BC021395	0	1	0

31712002	Edc4	cDNA sequence BC022641	1	1	6
31981980	Ints9	cDNA sequence BC028953	0	8	2
41235733	Lymr4	cDNA sequence BC034664	6	1	0
28076897	Cdpt	CDP-diacylglycerol-inositol 3-phosphatidyltransferase isoform 2	5	1	1
189409173	Ceacam15	CEA-related cell adhesion molecule 15	0	1	0
166998947	Ccpg1	cell cycle progression 1 isoform 2	0	0	2
329299065	Sept7	cell division cycle 10 homolog	2	15	0
31542366	Cdc2a	cell division cycle 2	0	1	0
92373436	Cdc25a	cell division cycle 25A	0	0	1
161621261	Cdc25b	cell division cycle 25B isoform a	0	0	1
189409171	Cdc215	cell division cycle 2-like 5 (cholinesterase-related cell division controller) isoform 1	0	1	0
7949018	Cdc37	cell division cycle 37 homolog	3	0	0
198278501	Cdc40	cell division cycle 40 homolog	0	0	4
6753364	Cdc42	cell division cycle 42	8	7	6
22779899	Cdc5l	cell division cycle 5-like	0	17	10
126032303	Cdc7	cell division cycle 7	1	0	0
52630436	Pigu	cell division cycle 91-like 1	2	0	0
33563288	Ccar1	cell division cycle and apoptosis regulator 1	2	22	0
7305111	Cdca3	cell division cycle associated 3	0	1	0
21313220	Cdca7	cell division cycle associated 7	0	0	2
38372905	Rab8a	cell line NK14 derived transforming oncogene	3	2	2
157909784	Cnbp	cellular nucleic acid binding protein isoform 3	4	4	1
7304975	Crabp1	cellular retinoic acid binding protein I	1	0	0
33469075	Crabp2	cellular retinoic acid binding protein II	6	0	1
87299624	Cntln	centlein isoform 1	0	1	1
10257421	Cetn2	centrin 2	0	3	0
6680922	Cetn3	centrin 3	0	1	1
115648101	Cenpe	centromere protein E	1	0	0
189458891	Cenpf	centromere protein F	0	1	1
225543405	Cenpj	centromere protein J	1	0	1
29789150	Cenpp	centromere protein P	0	1	0
225703070	Cenpv	centromere protein V	0	0	2
22165349	Zw10	centromere/kinetochore protein zw10	1	0	0
323462178	Cep110	centrosomal protein 110	0	1	0
124487356	Cep152	centrosomal protein 152	0	1	0
157278527	Cep170	centrosomal protein 170	0	1	0
256355032	Cep55	centrosomal protein 55	1	1	0
124486733	Cep76	centrosomal protein 76	1	0	0
124301210	Csp1	centrosome and spindle pole associated protein 1	1	0	1
6753410	Cer1	cerberus 1	0	0	1
30520001	Cggbp1	CGG triplet repeat binding protein 1	0	10	0
194097451	Catsper4	channel, sperm associated 4 isoform 1	1	0	0
6753320	Cct3	chaperonin containing Tcp1, subunit 3 (gamma)	19	6	6
6753322	Cct4	chaperonin containing Tcp1, subunit 4 (delta)	15	8	2
6671702	Cct5	chaperonin containing Tcp1, subunit 5 (epsilon)	16	6	4
6753324	Cct6a	chaperonin containing Tcp1, subunit 6a	14	10	6
226693361	Cct6b	chaperonin containing Tcp1, subunit 6b (zeta)	4	1	0
238814391	Cct7	chaperonin containing Tcp1, subunit 7 (eta)	17	6	3
126521835	Cct2	chaperonin subunit 2 (beta)	28	8	4
126723461	Cct8	chaperonin subunit 8 (theta)	27	20	1
118136297	Dlg2	chapsyn-110	0	0	1
31542385	Chek1	checkpoint kinase 1	1	0	0

51093870	Foxn3	checkpoint suppressor 1	0	1	0
188497681	Chfr	checkpoint with forkhead and ring finger domains	1	0	0
157012007	Ccr1	chemokine (C-C motif) receptor 1	1	0	0
116268121	Ccr7	chemokine (C-C motif) receptor 7	0	0	1
31982017	Cx3cl1	chemokine (C-X3-C motif) ligand 1	0	0	1
262205438	Chn1	chimerin (chimaerin) 1 isoform 3	0	0	1
218083710	Chid1	chitinase domain containing 1 isoform 2	0	6	0
6753434	Clcn6	chloride channel 6	1	1	0
6753436	Clcn7	chloride channel 7	0	0	1
295293090	Clcc1	chloride channel CLIC-like 1	3	0	1
226423869	Clcnka	chloride channel K1	0	1	1
15617203	Clic1	chloride intracellular channel 1	11	1	8
7304963	Clic4	chloride intracellular channel 4 (mitochondrial)	1	3	0
27369633	Clic6	chloride intracellular channel 6	0	0	1
21359827	Chmp7	CHMP family, member 7	1	0	0
210031293	Chdh	choline dehydrogenase	15	1	1
253683458	Pcyt1a	choline phosphate cytidyltransferase 1 alpha	1	0	1
46877071	Pcyt1b	choline phosphate cytidyltransferase 1 beta isoform 1	1	0	0
226442811	Chpt1	choline phosphotransferase 1 isoform 2	1	0	0
12963733	Slc44a4	choline transporter-like protein 4	0	0	1
31559983	Cept1	choline/ethanolaminephosphotransferase 1	3	0	2
282721106	Chrm2	cholinergic receptor, muscarinic 2, cardiac	1	0	0
124487261	Chrna10	cholinergic receptor, nicotinic, alpha polypeptide 10	0	1	1
36031035	Smc3	chondroitin sulfate proteoglycan 6	3	49	31
6753418	Chrd	chordin	0	1	0
167466239	Chrdl1	chordin-like 1 1	1	0	0
328927033	Prl3d1	chorionic somatomammotropin hormone 1	0	1	0
110681714	Chm	choroideremia	0	0	1
67782360	Esyt2	chr2 synaptotagmin	12	0	0
18860511	Chrac1	chromatin accessibility complex 1	0	3	1
21312470	Chaf1b	chromatin assembly factor 1 subunit B	0	3	0
7304957	Chaf1a	chromatin assembly factor 1, subunit A (p150)	0	11	1
31982546	Cdt1	chromatin licensing and DNA replication factor 1	1	0	0
21704220	Chmp1a	chromatin modifying protein 1A	1	0	1
13195618	Chmp1b	chromatin modifying protein 1B	0	1	0
21312151	Chmp2a	chromatin modifying protein 2A	0	1	0
28077049	Chmp4b	chromatin modifying protein 4B	1	1	3
147904547	Chmp6	chromatin modifying protein 6	1	0	0
21450179	Cbx7	chromobox 7	0	1	0
6671696	Cbx1	chromobox homolog 1	1	6	6
108860695	Cbx3	chromobox homolog 3	2	7	7
158966694	Cbx5	chromobox homolog 5	0	8	10
61657984	Cbx6	chromobox homolog 6	1	1	1
7304947	Cbx8	chromobox homolog 8	0	3	0
239985588	Chd1	chromodomain helicase DNA binding protein 1	0	0	3
189458810	Chd2	chromodomain helicase DNA binding protein 2	0	2	2
124358950	Chd3	chromodomain helicase DNA binding protein 3	2	10	0
39204553	Chd4	chromodomain helicase DNA binding protein 4	0	54	23
124487025	Chd5	chromodomain helicase DNA binding protein 5 isoform 2	1	28	11
61742812	Chd6	chromodomain helicase DNA binding protein 6	0	1	0
12963737	Cse1l	chromosome segregation 1-like	19	0	9
84000434	Chtf8	chromosome transmission fidelity factor 8	0	0	1
225543193	Crocc	ciliary rootlet coiled-coil isoform 1	1	6	4
189458807	Cgn	cingulin	1	5	22

56550079	Cgnl1	cingulin-like 1	0	0	1
163954951	Cirh1a	cirhin	0	0	8
23956166	3300001P08Rik	cisplatin resistance-associated overexpressed protein	1	7	2
256220113	Clybl	citrate lyase beta like	1	0	0
13385942	Cs	citrate synthase	12	8	2
269973935	Csl	citrate synthase-like protein	8	5	2
27312023	Cmtm4	CKLF-like MARVEL transmembrane domain containing 4	1	0	0
266458391	Kras	c-K-ras2 protein	2	3	3
225543339	Clspn	claspin	1	0	0
31982511	Adh5	class III alcohol dehydrogenase, chi subunit	6	0	0
31560625	Adh7	class IV alcohol dehydrogenase, mu or sigma subunit	6	0	0
154240730	Clint1	clathrin interactor 1	14	0	3
51491845	Cltc	clathrin, heavy polypeptide (Hc)	68	53	66
30794164	Cltb	clathrin, light polypeptide (Lcb)	2	1	4
122939198	Clta	clathrin, light polypeptide A isoform a	2	2	4
6753438	Cldn3	claudin 3	3	0	4
6753440	Cldn4	claudin 4	0	0	3
9055190	Cldn6	claudin 6	0	0	1
302318906	Cldn7	claudin 7	1	0	1
9055192	Cldn8	claudin 8	2	0	3
61098102	Cldn9	claudin 9	1	0	1
16751835	Cpsf1	cleavage and polyadenylation specific factor 1	0	32	5
8393762	Cpsf2	cleavage and polyadenylation specific factor 2	0	20	4
21312614	Cpsf3l	cleavage and polyadenylation specific factor 3-like	0	7	0
30466247	Cpsf4	cleavage and polyadenylation specific factor 4	0	1	0
62909983	Cpsf6	cleavage and polyadenylation specific factor 6	4	11	1
31980904	Cpsf3	cleavage and polyadenylation specificity factor 3	0	9	1
82617610	Cstf3	cleavage stimulation factor subunit 3 isoform 1	0	20	4
18875338	Cstf2	cleavage stimulation factor, &apos; pre-RNA subunit 2	0	3	1
148277061	Cstf2t	cleavage stimulation factor, &apos; pre-RNA subunit 2, tau	0	4	1
13195628	Cstf1	cleavage stimulation factor, &apos; pre-RNA, subunit 1	0	13	1
103472025	Clptm1	cleft lip and palate associated transmembrane protein 1	4	0	1
163644249	Clasp1	CLIP-associating protein 1 isoform 1	0	0	1
84871978	Mycbp	c-myc binding protein	3	4	0
31981273	Cndp2	CNDP dipeptidase 2	20	0	1
170172540	F3	coagulation factor III	4	0	0
238624184	F8	coagulation factor VIII isoform 1	1	0	0
334724425	F10	coagulation factor X	1	0	0
226823359	Copa	coatamer protein complex subunit alpha	16	1	1
15426055	Copb1	coatamer protein complex, subunit beta 1	17	0	4
29789080	Copb2	coatamer protein complex, subunit beta 2 (beta prime)	7	0	3
8567340	Copg2	coatamer protein complex, subunit gamma 2	6	0	3
47059163	Copg	coatamer protein complex, subunit gamma isoform 1	13	0	7
9789913	Copz1	coatamer protein complex, subunit zeta 1	3	2	0
9845242	Copz2	coatamer protein complex, subunit zeta 2	1	0	0
189458847	Cobl1	Cobl-like 1 isoform 1	7	10	0
27229125	Coasy	Coenzyme A synthase	7	0	0
13385992	Coq5	coenzyme Q5 homolog, methyltransferase	0	1	1
283135186	Coq6	coenzyme Q6 homolog	0	0	2
33859690	Coq9	coenzyme Q9 homolog	1	0	0
165377251	Cobra1	cofactor of BRCA1	2	2	2
115270977	Med14	cofactor required for Sp1 transcriptional activation, subunit 2 isoform b	0	1	0



6680924	Cfl1	cofilin 1, non-muscle	11	12	7
6671746	Cfl2	cofilin 2, muscle	1	6	0
63025208	Ccdc88a	coiled coil domain containing 88A	0	1	1
228008310	Ccdc101	coiled-coil domain containing 101	0	5	0
168823441	Ccdc109a	coiled-coil domain containing 109A	8	1	9
261862311	Ccdc11	coiled-coil domain containing 11	0	0	1
27370404	Ccdc113	coiled-coil domain containing 113	2	0	0
85701754	Ccdc114	coiled-coil domain containing 114	1	0	1
227496903	Ccdc12	coiled-coil domain containing 12	0	0	1
47059143	Ccdc124	coiled-coil domain containing 124	0	2	0
270288750	Ccdc125	coiled-coil domain containing 125	0	1	0
281183278	Ccdc127	coiled-coil domain containing 127	0	0	2
126158913	Ccdc129	coiled-coil domain containing 129	1	0	0
268370059	Ccdc132	coiled-coil domain containing 132	0	1	1
169646270	Ccdc14	coiled-coil domain containing 14	1	0	1
124486907	Ccdc142	coiled-coil domain containing 142	1	0	0
229577139	Ccdc150	coiled-coil domain containing 150	0	0	1
151101194	lft74	coiled-coil domain containing 2	0	1	0
133922578	Ccdc22	coiled-coil domain containing 22	1	0	0
22164768	Ccdc25	coiled-coil domain containing 25	2	0	1
85701967	Ccdc27	coiled-coil domain containing 27	1	0	0
206597551	Ccdc36	coiled-coil domain containing 36	0	1	0
254939666	Ccdc37	coiled-coil domain containing 37 isoform 1	0	1	0
31541988	Ccdc38	coiled-coil domain containing 38	0	0	1
27229249	Ccdc41	coiled-coil domain containing 41	0	0	1
39930435	Ccdc44	coiled-coil domain containing 44	1	0	0
125628650	Ccdc47	coiled-coil domain containing 47	11	0	1
262072988	Ccdc49	coiled-coil domain containing 49	0	1	0
258679490	Ccdc51	coiled-coil domain containing 51	2	0	0
59858549	Ccdc55	coiled-coil domain containing 55	1	0	0
21311867	Ccdc56	coiled-coil domain containing 56	2	0	0
58037237	Ccdc57	coiled-coil domain containing 57	0	1	1
226874940	Ccdc58	coiled-coil domain containing 58 isoform 1	3	0	0
162135971	Ccdc6	coiled-coil domain containing 6	1	0	0
23943818	Ccdc65	coiled-coil domain containing 65	1	0	0
115270981	Ccdc69	coiled-coil domain containing 69	0	0	1
194473718	Ccdc75	coiled-coil domain containing 75	1	0	0
165905619	Ccdc86	coiled-coil domain containing 86	0	1	2
124486839	Ccdc88b	coiled-coil domain containing 88B	0	0	1
68448542	Ccdc93	coiled-coil domain containing 93 isoform c	3	0	0
13384734	Chchd1	coiled-coil-helix-coiled-coil-helix domain containing 1	1	0	0
21313618	Chchd3	coiled-coil-helix-coiled-coil-helix domain containing 3	6	0	11
19527144	Chchd4	coiled-coil-helix-coiled-coil-helix domain containing 4	1	1	0
28076873	Chchd5	coiled-coil-helix-coiled-coil-helix domain containing 5	1	0	0
267844806	Chchd6	coiled-coil-helix-coiled-coil-helix domain containing 6	5	0	6
298358883	Chchd7	coiled-coil-helix-coiled-coil-helix domain containing 7	0	1	0
6680946	Cirbp	cold inducible RNA binding protein	3	7	2
240255574	Csde1	cold shock domain containing E1, RNA binding isoform 1	1	10	0
47059495	Csda	cold shock domain protein A short isoform	5	2	2
242247116	Dvwa	collagen type VI alpha 4	0	1	0
161484654	Col4a1	collagen, type IV, alpha 1	0	0	1
6753484	Col6a1	collagen, type VI, alpha 1	0	0	1
22203747	Col6a2	collagen, type VI, alpha 2	0	0	1
157057559	Col23a1	collagen, type XXIII, alpha 1	0	1	0

226053018	Colec10	collectin sub-family member 10	0	1	0
126723423	Csf1r	colony stimulating factor 1 receptor	0	1	0
6681049	Csf2rb2	colony stimulating factor 2 receptor, beta 2, low-affinity (granulocyte-macrophage)	0	0	1
110626003	Comm2	COMM domain containing 2	0	1	0
112181167	C1qbp	complement component 1, q subcomponent binding protein	5	6	6
157951694	C2	complement component 2	0	0	1
126518317	C3	complement component 3	5	0	0
157951698	C4b	complement component 4B	0	1	0
109627652	Cfh	complement component factor H	1	0	0
52426750	Cr1l	complement receptor related protein	1	1	0
256985208	Cog2	component of oligomeric golgi complex 2	1	0	0
119392070	Cog3	component of oligomeric golgi complex 3	1	0	0
160333744	Cog6	component of oligomeric golgi complex 6	1	0	0
66392581	Cog8	component of oligomeric golgi complex 8	1	0	0
124430553	Cdan1	congenital dyserythropoietic anemia, type I	0	0	1
29244248	Cnksr2	connector enhancer of kinase suppressor of Ras 2	0	1	0
254281178	1110007L15Rik	conserved edge expressed protein isoform 1	1	0	1
71725355	Zc3h18	conserved nuclear protein Nhn1 isoform a	1	1	7
283046667	Cntn5	contactin 5	1	0	0
116063560	Cntnap1	contactin associated protein 1	0	0	1
70909327	Cops2	COP9 (constitutive photomorphogenic) homolog, subunit 2	2	2	0
255760052	Cops7a	COP9 (constitutive photomorphogenic) homolog, subunit 7a	2	1	0
6753488	Cops3	COP9 (constitutive photomorphogenic), subunit 3	2	1	0
6753490	Cops4	COP9 signalosome subunit 4	9	2	0
7304971	Cops5	COP9 signalosome subunit 5	4	1	1
33563284	Cops6	COP9 signalosome subunit 6	3	0	0
114158691	Cops8	COP9 signalosome subunit 8	1	3	0
25141332	Cpne1	copine I	4	0	0
25141335	Cpne3	copine III	4	0	0
23346611	Cpne5	copine V	0	1	0
226052679	Cpne6	copine VI isoform a	1	0	0
76563928	Cpne8	copine VIII isoform 1	5	1	0
161484660	Cpox	coproporphyrinogen oxidase	11	0	0
162135966	Cobl	cordon-bleu protein	0	1	0
282396086	C1galt1	core 1 synthase, glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase, 1	0	1	0
161353494	Cbfa2t2	core-binding factor, runt domain, alpha subunit 2, translocated to, 2 homolog isoform 1	1	0	0
158081731	Cbfa2t3	core-binding factor, runt domain, alpha subunit 2, translocated to, 3 isoform 3	0	0	1
170295827	Corin	corin isoform 1	0	0	1
6753494	Coro1b	coronin, actin binding protein 1B	2	13	1
31542413	Coro1c	coronin, actin binding protein 1C	1	10	1
258645152	Coro2a	coronin, actin binding protein 2A	0	5	0
75677414	Cttn	cortactin	6	15	2
45429990	Crh	corticotropin releasing hormone	0	1	0
38259188	Crhbp	corticotropin releasing hormone binding protein	1	0	0
31541932	Cox15	COX15 homolog	2	0	3
6754870	Cox4nb	COX4 neighbor	2	0	3
68510034	Cxadr	coxsackievirus and adenovirus receptor isoform b	2	0	0
33695139	6330503K22Rik	CP110 protein	1	0	2

6753412	Cfdp1	craniofacial development protein 1	2	2	0
6753428	Ckmt1	creatine kinase, mitochondrial 1, ubiquitous	3	10	0
70995311	Crebbp	CREB binding protein	0	5	0
13385288	Crnk1	crooked neck-like 1 protein	0	1	13
29244038	Crb3	crumbs homolog 3	1	1	1
6753530	Cryab	crystallin, alpha B	0	0	1
19525729	Cryl1	crystallin, lambda 1	1	0	0
33859530	Cryz	crystallin, zeta	9	0	0
259155334	Ctage5	CTAGE family, member 5	2	0	0
47059059	Ctdspl2	CTD (carboxy-terminal domain, RNA polymerase II, polypeptide A) small phosphatase like 2	0	0	4
311893328	Ctbp1	C-terminal binding protein 1	3	7	0
282721029	Ctbp2	C-terminal binding protein 2	2	11	0
172072613	Ctps	CTP synthase	7	0	1
270483776	Ctps2	CTP synthase II	2	0	0
254039646	Cttntp2nl	CTTNBP2 N-terminal like	2	1	0
161086986	Csmd3	CUB and Sushi multiple domains 3	1	0	0
237757271	Cugbp2	CUG triplet repeat, RNA binding protein 2 isoform 5	0	2	2
38570086	Cugbp1	CUG triplet repeat, RNA-binding protein 1 isoform 2	0	5	5
7549752	Cul1	cullin 1	1	2	0
170014698	Cul2	cullin 2	2	0	1
7710014	Cul3	cullin 3	1	0	1
167466258	Cul4a	cullin 4A	0	1	0
158711665	Cul4b	cullin 4B	3	1	3
239051082	Cul5	cullin 5 isoform 1	3	1	2
57013279	Cul7	cullin 7	2	0	0
110835729	Cux1	cut-like homeobox 1 isoform b	2	30	0
40789277	Cux2	cut-like homeobox 2	1	0	0
12963537	Cwc15	CWC15 homolog	0	3	2
323462203	Cwc22	CWC22 spliceosome-associated protein homolog	0	0	7
124487291	Cwf19l1	CWF19-like 1, cell cycle control	1	2	0
30842792	Cwf19l2	CWF19-like 2, cell cycle control	0	0	1
18390325	Cxxc1	CXXC finger 1 (PHD domain)	1	0	0
241896976	Cxxc6	CXXC finger 6 isoform 1	1	0	0
172072638	Ccnc	cyclin C isoform 1	0	2	0
160333146	Dmtf1	cyclin D binding myb-like transcription factor 1 isoform 2	1	0	0
6753314	Ccng1	cyclin G1	0	0	1
12963599	Ccnh	cyclin H	0	2	0
157841168	Ccnk	cyclin K	0	2	0
46592877	Ccnl2	cyclin L2	1	0	0
156447048	Cnnm2	cyclin M2 isoform a	1	0	0
56550069	Ccnt2	cyclin T2	0	0	1
237858589	Cdk10	cyclin-dependent kinase 10 isoform 2	1	0	0
323462189	2810452K22Rik	cyclin-dependent kinase 2-interacting protein	0	2	0
6753380	Cdk4	cyclin-dependent kinase 4	1	1	0
6680908	Cdk5	cyclin-dependent kinase 5	0	0	1
160333726	Cdk7	cyclin-dependent kinase 7	0	1	0
31652272	Cdk8	cyclin-dependent kinase 8	0	2	0
18699998	Cdk9	cyclin-dependent kinase 9	1	0	1
31542372	Cdkn1b	cyclin-dependent kinase inhibitor 1B	1	0	0
98986447	Cdkn2a	cyclin-dependent kinase inhibitor 2A isoform 1	0	1	1
262263406	Cdkl3	cyclin-dependent kinase-like 3	1	0	0
124244037	Cdkl5	cyclin-dependent kinase-like 5	0	1	0
6681071	Cstb	cystatin B	2	0	0

6681069	Csrp1	cysteine and glycine-rich protein 1	2	8	0
160707987	Csrp2	cysteine and glycine-rich protein 2	0	4	0
262231838	Csrp2bp	cysteine and glycine-rich protein 2 binding protein	0	1	0
13385324	Chordc1	cysteine and histidine-rich domain (CHORD)-containing, zinc-binding protein 1	2	0	1
71895029	Crim1	cysteine rich transmembrane BMP regulator 1 (chordin like)	1	0	0
55742749	Chic1	cysteine-rich hydrophobic domain 1	0	1	0
254692987	Cypt12	cysteine-rich perinuclear theca 12	1	0	0
114842383	Cypt3	cysteine-rich perinuclear theca 3	0	1	1
6681015	Crip1	cysteine-rich protein 1 (intestinal)	1	0	0
19527148	Creld1	cysteine-rich with EGF-like domains 1	1	0	0
21313278	Creld2	cysteine-rich with EGF-like domains 2	5	0	0
23463295	Csrnp1	cysteine-serine-rich nuclear protein 1	1	0	0
148747198	Cars	cysteinyl-tRNA synthetase	0	0	1
270483872	Cdadc1	cytidine and dCMP deaminase domain containing 1	0	1	0
247269309	Cmas	cytidine monophospho-N-acetylneuraminic acid synthetase	1	16	0
34538610	CYTB	cytochrome b	0	0	1
13385268	Cyb5	cytochrome b-5	3	0	0
21312524	Cyb5r1	cytochrome b5 reductase 1	6	0	1
19745150	Cyb5r3	cytochrome b5 reductase 3	19	4	12
31542438	Cyb5b	cytochrome b5 type B precursor	4	2	4
34538600	COX1	cytochrome c oxidase subunit I	1	0	2
34538601	COX2	cytochrome c oxidase subunit II	5	3	7
34538604	COX3	cytochrome c oxidase subunit III	1	0	1
6753498	Cox4i1	cytochrome c oxidase subunit IV isoform 1	8	3	10
13385090	Cox6b1	cytochrome c oxidase subunit VIb polypeptide 1	6	2	5
226958512	Cox7a2l	cytochrome c oxidase subunit VIIa polypeptide 2-like isoform 2	2	0	2
62945234	Cox17	cytochrome c oxidase subunit XVII assembly protein homolog	2	0	0
112181182	Cox5a	cytochrome c oxidase, subunit Va	8	5	9
6680988	Cox6a1	cytochrome c oxidase, subunit VI a, polypeptide 1	2	0	3
16716343	Cox6c	cytochrome c oxidase, subunit VIc	4	1	3
31981830	Cox7a2	cytochrome c oxidase, subunit VIIa 2	2	2	2
6680991	Cox7c	cytochrome c oxidase, subunit VIIC	2	0	1
6681095	Cycs	cytochrome c, somatic	3	13	0
13385006	Cyc1	cytochrome c-1	8	3	8
6679421	Por	cytochrome P450 reductase	30	0	4
6753568	Cyp1b1	cytochrome P450, family 1, subfamily b, polypeptide 1	0	1	0
19526798	Cyp2a12	cytochrome P450, family 2, subfamily a, polypeptide 12	0	0	1
160948612	Cyp2d9	cytochrome P450, family 2, subfamily d, polypeptide 9	0	0	1
28893407	Cyp4f39	cytochrome P450, family 2, subfamily E, polypeptide 2 homolog	1	0	0
239985506	Cyp2j11	cytochrome P450, family 2, subfamily j, polypeptide 11	1	0	0
74271886	Cyp20a1	cytochrome P450, family 20, subfamily A, polypeptide 1	0	0	1
30578401	Cyp27a1	cytochrome P450, family 27, subfamily A, polypeptide 1	1	1	0
6681121	Cyp4a14	cytochrome P450, family 4, subfamily a, polypeptide 14	0	0	1
71061451	Cyp51	cytochrome P450, family 51, subfamily A, polypeptide 1	3	0	0
19527376	Ciapin1	cytokine induced apoptosis inhibitor 1	2	0	0
13384730	Sarnp	cytokine induced protein 29 kDa	0	8	3
119392074	3930401K13Rik	cytokine-like nuclear factor n-pac isoform 1	0	18	8
162329564	Caprin1	cytoplasmic activation/proliferation-associated protein 1 isoform c	9	5	0

134288917	Dync1h1	cytoplasmic dynein 1 heavy chain 1	16	96	9
258547119	Cyfp1	cytoplasmic FMR1 interacting protein 1	2	16	0
84370256	Cyfp2	cytoplasmic FMR1 interacting protein 2	2	14	3
85662406	Clip2	cytoplasmic linker 2 isoform a	0	0	1
269315836	Ckap2	cytoskeleton associated protein 2	1	0	0
31712008	Ckap2l	cytoskeleton associated protein 2-like	0	1	0
260166721	Ckap5	cytoskeleton associated protein 5	0	14	0
62526118	Ckap4	cytoskeleton-associated protein 4	1	0	0
312147392	Me1	cytosolic malic enzyme 1	4	0	0
6679369	Pla2g4a	cytosolic phospholipase A2, group IVA	0	1	0
224922837	Cytsa	cytospin A isoform b	0	1	0
71979930	Cytsb	cytospin B	0	1	5
255760011	Tia1	cytotoxic granule-associated RNA binding protein 1	0	3	0
170650717	Dbp	D site albumin promoter binding protein	1	0	0
37574121	Scyl2	D10Ert802e protein	0	0	1
29126213	D19Bwg1357e	D19Bwg1357e protein	0	0	13
6755314	Dpf2	D4, zinc and double PHD fingers family 2	0	10	3
237681081	Miip	D4Wsu114e protein	1	0	0
42734496	Fam3c	D6Wsu176e protein	9	0	5
7657011	Ddb1	damage specific DNA binding protein 1	13	15	12
29150251	Ddb2	damage specific DNA binding protein 2	0	3	0
24158474	Dact1	dapper 1	0	1	0
169790823	Dazap1	DAZ associated protein 1 isoform a	1	9	2
13384930	Ostc	DC2 protein	2	0	1
238859575	Dctd	dCMP deaminase	1	0	0
257900506	Dcp1b	DCP1 decapping enzyme homolog b	0	1	0
56090231	Dcaf5	DDB1 and CUL4 associated factor 5	2	0	0
6753618	Ddt	D-dopachrome tautomerase	6	0	0
110350660	Ddrgk1	DDRKG domain containing 1	1	0	0
299890868	Ddx19b	DDX19 homolog	0	2	0
19527256	Ddx1	DEAD (Asp-Glu-Ala-Asp) box polypeptide 1	8	19	5
189491668	Ddx10	DEAD (Asp-Glu-Ala-Asp) box polypeptide 10	0	0	3
31981163	Ddx18	DEAD (Asp-Glu-Ala-Asp) box polypeptide 18	0	17	13
148540073	Ddx20	DEAD (Asp-Glu-Ala-Asp) box polypeptide 20	0	0	1
72384374	Ddx21	DEAD (Asp-Glu-Ala-Asp) box polypeptide 21	0	39	22
124430514	Ddx23	DEAD (Asp-Glu-Ala-Asp) box polypeptide 23	4	15	2
34328253	Ddx24	DEAD (Asp-Glu-Ala-Asp) box polypeptide 24 isoform 2	0	0	4
163914388	Ddx25	DEAD (Asp-Glu-Ala-Asp) box polypeptide 25	1	0	0
124249330	Ddx27	DEAD (Asp-Glu-Ala-Asp) box polypeptide 27	0	0	6
25141235	Ddx3y	DEAD (Asp-Glu-Ala-Asp) box polypeptide 3, Y-linked	13	5	9
38372907	Ddx39	DEAD (Asp-Glu-Ala-Asp) box polypeptide 39	13	22	16
270047502	Ddx41	DEAD (Asp-Glu-Ala-Asp) box polypeptide 41	0	1	2
157838001	Ddx42	DEAD (Asp-Glu-Ala-Asp) box polypeptide 42	1	15	0
27229058	Ddx47	DEAD (Asp-Glu-Ala-Asp) box polypeptide 47	1	12	2
67972435	Ddx49	DEAD (Asp-Glu-Ala-Asp) box polypeptide 49	1	4	0
83816893	Ddx5	DEAD (Asp-Glu-Ala-Asp) box polypeptide 5	19	24	24
16716475	Ddx50	DEAD (Asp-Glu-Ala-Asp) box polypeptide 50	0	1	7
40538825	Ddx51	DEAD (Asp-Glu-Ala-Asp) box polypeptide 51	0	2	2
256985213	Ddx52	DEAD (Asp-Glu-Ala-Asp) box polypeptide 52	0	0	1
28076989	Ddx54	DEAD (Asp-Glu-Ala-Asp) box polypeptide 54	0	0	5
161016793	Ddx6	DEAD (Asp-Glu-Ala-Asp) box polypeptide 6	7	8	2
124487049	Ddx60	DEAD (Asp-Glu-Ala-Asp) box polypeptide 60	1	0	1
93587673	Ddx17	DEAD box polypeptide 17 isoform 1	5	17	7
160420299	Ddx46	DEAD box polypeptide 46	1	3	0

6753620	Ddx3x	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 3, X-linked	2	1	1
254675193	Ddx31	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 31	1	0	1
110835726	Dhx15	DEAH (Asp-Glu-Ala-His) box polypeptide 15 isoform 2	3	16	20
226246667	Dhx16	DEAH (Asp-Glu-Ala-His) box polypeptide 16	0	0	1
46852276	Dhx29	DEAH (Asp-Glu-Ala-His) box polypeptide 29	0	0	1
46560585	Dhx33	DEAH (Asp-Glu-Ala-His) box polypeptide 33	1	1	0
240848573	Dhx36	DEAH (Asp-Glu-Ala-His) box polypeptide 36	0	0	2
42600571	Dhx37	DEAH (Asp-Glu-Ala-His) box polypeptide 37	0	5	2
30410010	Dhx38	DEAH (Asp-Glu-Ala-His) box polypeptide 38	0	3	0
144926009	Dhx40	DEAH (Asp-Glu-Ala-His) box polypeptide 40	0	1	0
56699440	Dhx8	DEAH (Asp-Glu-Ala-His) box polypeptide 8	0	1	2
150456419	Dhx9	DEAH (Asp-Glu-Ala-His) box polypeptide 9	2	39	53
76096375	Dido1	death inducer-obliterator 1 isoform 3	0	9	0
256985205	Dap3	death-associated protein 3	2	1	1
189491664	Dcp2	decapping enzyme hDcp2	0	0	1
88853584	Dock1	dedicator of cytokinesis 1	0	5	1
190194393	Dock10	dedicator of cytokinesis 10	0	1	0
117553625	Dock2	dedicator of cyto-kinesis 2	0	1	0
148277096	Dock3	dedicator of cyto-kinesis 3	0	0	1
124358946	Dock5	dedicator of cytokinesis 5	1	1	0
78191789	Dock7	dedicator of cytokinesis 7	1	2	1
62241030	Dock8	dedicator of cytokinesis 8	0	2	2
190194401	Dock9	dedicator of cytokinesis 9 isoform 2	1	3	0
164518942	Dad1	defender against cell death 1	2	1	1
147899924	Defb8	defensin beta 8	1	0	0
8393248	Deaf1	deformed epidermal autoregulatory factor 1	0	1	0
6681175	Degs1	degenerative spermatocyte homolog 1	1	0	0
27754093	Dhdds	dehydrololichyl diphosphate synthase	1	0	1
124487485	Dhtkd1	dehydrogenase E1 and transketolase domain containing 1	1	1	0
31980844	Dhrs1	dehydrogenase/reductase (SDR family) member 1	12	0	1
117647267	Dhrs13	dehydrogenase/reductase (SDR family) member 13	0	0	1
21703854	Dhrs7b	dehydrogenase/reductase (SDR family) member 7B	2	0	4
253795498	Dek	DEK oncogene	0	15	2
51371928	Nipbl	delangin isoform A	0	12	14
302699225	Dlc1	deleted in liver cancer 1	0	1	0
87239967	Dmbt1	deleted in malignant brain tumors 1	0	1	0
33942059	Ppp2r5d	delta isoform of regulatory subunit B56, protein phosphatase 2A	3	0	0
22164784	Fads1	delta-5 desaturase	3	1	2
34328485	Alad	delta-aminolevulinic acid dehydratase	7	2	0
299758514	Dlk1	delta-like 1 homolog	0	0	1
116292184	Dll3	delta-like 3	1	0	0
133930784	Dtx3l	deltex 3-like	1	0	1
58037277	Dennd2d	DENN/MADD domain containing 2D isoform 1	0	3	0
124486610	Dennd4c	DENN/MADD domain containing 4C	0	1	0
13386092	Denr	density-regulated protein	0	3	0
34328110	Atn1	dentatorubral pallidoluysian atrophy	1	0	0
247269607	Dguok	deoxyguanosine kinase isoform 1	1	0	0
148539953	Dnase1l2	deoxyribonuclease 1-like 2	7	0	0
6753654	Dnase2a	deoxyribonuclease II alpha	4	0	0
157785665	Dtymk	deoxythymidylate kinase isoform 1	3	0	0
227497222	Dut	deoxyuridine triphosphatase isoform 2	4	4	0

31542025	Depdc1a	DEP domain containing 1a	1	0	0
183583559	Prex2	DEP domain containing 2 isoform 1	1	0	1
70909320	Depdc5	DEP domain containing 5 isoform 1	0	0	1
27754054	Dcakd	dephospho-CoA kinase domain containing	8	3	8
13195638	Der1	Der1-like domain family, member 1	1	0	1
15808990	Der12	Der1-like domain family, member 2	1	0	0
161016841	Dsc1	desmocollin 1	0	1	0
7305007	Dsc2	desmocollin 2	0	0	2
32129201	Dsg1b	desmoglein 1 beta	0	0	1
161016843	Dsg2	desmoglein 2	0	0	23
110625833	Dsg3	desmoglein 3	0	1	0
190194418	Dsp	desmoplakin	7	2	103
9790219	Dstn	destrin	12	10	5
6681225	Drg1	developmentally regulated GTP binding protein 1	3	7	0
10946678	Drg2	developmentally regulated GTP binding protein 2	3	0	0
23510273	Rbm45	developmentally regulated RNA binding protein 1	0	5	1
85719324	Zdhhc20	DHHC-containing protein 20	0	1	0
27883850	Ankrd23	diabetes related ankyrin repeat protein	1	0	1
39841023	Dgkq	diacylglycerol kinase, theta	1	0	0
31559956	Daglb	diacylglycerol lipase, beta	0	0	1
6753632	Dgat1	diacylglycerol O-acyltransferase 1	0	1	0
6677849	Sat1	diamine N-acetyltransferase 1	1	0	0
253735769	1600015I10Rik	diamine oxidase-like protein 1	0	0	1
6681183	Diap1	diaphanous homolog 1	7	0	1
9789931	Diap3	diaphanous homolog 3	1	0	0
83921595	Dbi	diazepam binding inhibitor isoform 2	2	0	0
146134409	Dcxr	dicarbonyl/L-xylulose reductase	1	0	0
117168271	Dicer1	dicer1	1	0	0
255308871	Def6	differentially expressed in FDCP 6	1	0	0
126362981	Dgcr14	DiGeorge syndrome critical region protein 14 isoform 1	0	0	1
56790942	AA408296	digestive-organ expansion factor homolog	0	1	0
13385656	Dhdpsl	dihydrodipicolinate synthase-like, mitochondrial	1	0	0
7106289	Dhfr	dihydrofolate reductase	1	0	4
170172520	Dbt	dihydrolipoamide branched chain transacylase E2	6	16	4
31982856	Dld	dihydrolipoamide dehydrogenase	17	3	0
257796245	Dlat	dihydrolipoamide S-acetyltransferase	17	4	4
21313536	Dlst	dihydrolipoamide S-succinyltransferase (E2 component of 2-oxo-glutarate complex)	10	3	2
9910194	Dhodh	dihydroorotate dehydrogenase	6	0	0
40254595	Dpysl2	dihydropyrimidinase-like 2	23	1	0
209862992	Dpysl3	dihydropyrimidinase-like 3 isoform 2	0	0	1
38371755	Ddah1	dimethylarginine dimethylaminohydrolase 1	1	0	0
299522791	Ddah2	dimethylarginine dimethylaminohydrolase 2	4	1	0
226823258	Dip2b	DIP2 disco-interacting protein 2 homolog B isoform 2	0	1	1
32880214	Dpep2	dipeptidase 2	1	1	0
244791124	Dpp3	dipeptidyl peptidase III	16	0	0
31981425	Dpp7	dipeptidylpeptidase 7	7	0	0
40254642	Dlg1	discs large homolog 1	16	21	14
254588085	Dlg5	discs, large homolog 5 (Drosophila)	0	1	0
38348480	Dlgap3	disks large-associated protein 3	0	1	1
62198210	Cuta	divalent cation tolerant protein CUTA isoform 2	1	0	0
46559410	Dixdc1	DIX domain containing 1	0	0	1
34328379	Ldhd	D-lactate dehydrogenase	3	0	0
124487031	Dmx1	Dmx-like 1	0	3	0

114145469	Dclre1a	DNA cross-link repair 1A, PSO2 homolog	1	0	1
226958589	Polr2b	DNA directed RNA polymerase II polypeptide B	0	5	22
58037181	Polr2f	DNA directed RNA polymerase II polypeptide F	0	2	1
70608144	Dffa	DNA fragmentation factor, alpha subunit isoform a	0	1	0
160948620	Dffb	DNA fragmentation factor, beta subunit	0	2	0
313151236	Lig1	DNA ligase I	1	8	0
84794637	Lig4	DNA ligase IV	0	1	0
327180734	Dnmt1	DNA methyltransferase (cytosine-5) 1	1	69	3
24371231	Dnmt3a	DNA methyltransferase 3A isoform 1	0	0	8
30519969	Poldip3	DNA polymerase delta interacting protein 3	0	12	0
226823286	Polq	DNA polymerase theta isoform 1	0	1	0
153792337	Rev3l	DNA polymerase zeta	0	1	1
6679461	Prim2	DNA primase, p58 subunit	1	0	0
283837769	Dna2	DNA replication helicase 2 homolog	0	0	1
27369676	Sepsecs	DNA segment, Chr 5, ERATO Doi 135, expressed	1	0	1
112734855	Top1	DNA topoisomerase I	0	33	7
31541839	Ddit4l	DNA-damage-inducible transcript 4-like	1	0	0
6679409	Pola1	DNA-directed DNA polymerase alpha 1	3	0	0
255708463	Pola2	DNA-directed DNA polymerase alpha 2	1	0	0
254587977	Pold1	DNA-directed DNA polymerase delta 1	1	0	0
226423863	Pold2	DNA-directed DNA polymerase delta 2	0	2	0
195947387	Pole	DNA-directed DNA polymerase epsilon	1	0	0
33468927	Pole2	DNA-directed DNA polymerase epsilon 2	1	0	0
31981174	Pole3	DNA-directed DNA polymerase epsilon 3	0	3	0
13385366	Pole4	DNA-directed DNA polymerase epsilon 4	0	1	0
9910500	Poll	DNA-directed DNA polymerase lambda	1	0	0
46309579	Poln	DNA-directed DNA polymerase nu	0	1	0
256985188	Polr1a	DNA-directed RNA polymerase I A	0	12	0
6677795	Polr2a	DNA-directed RNA polymerase II A	0	3	17
6680297	Dnaja1	DnaJ (Hsp40) homolog, subfamily A, member 1	2	1	3
9789937	Dnaja2	DnaJ (Hsp40) homolog, subfamily A, member 2	8	4	5
205361112	Dnaja3	DnaJ (Hsp40) homolog, subfamily A, member 3 isoform 1	5	4	6
9055242	Dnajb1	DnaJ (Hsp40) homolog, subfamily B, member 1	1	4	0
299890782	Dnajb11	DnaJ (Hsp40) homolog, subfamily B, member 11	5	4	0
226371690	Dnajb14	DnaJ (Hsp40) homolog, subfamily B, member 14	1	0	0
229577344	Dnajb2	DnaJ (Hsp40) homolog, subfamily B, member 2 isoform 1	1	0	1
165377271	Dnajb4	DnaJ (Hsp40) homolog, subfamily B, member 4	0	2	0
188219644	Dnajb6	DnaJ (Hsp40) homolog, subfamily B, member 6 isoform a	0	0	3
119392096	Dnajb7	DnaJ (Hsp40) homolog, subfamily B, member 7	0	0	2
119508443	Dnajc10	DnaJ (Hsp40) homolog, subfamily C, member 10	4	4	0
164565394	Dnajc11	DnaJ (Hsp40) homolog, subfamily C, member 11	0	0	3
254540074	Dnajc17	DnaJ (Hsp40) homolog, subfamily C, member 17	0	3	0
6677659	Dnajc2	DnaJ (Hsp40) homolog, subfamily C, member 2	0	1	0
190194391	Dnajc21	DnaJ (Hsp40) homolog, subfamily C, member 21	1	1	1
70887607	Dnajc27	DnaJ (Hsp40) homolog, subfamily C, member 27	1	0	0
31542563	Dnajc3	DnaJ (Hsp40) homolog, subfamily C, member 3B	5	1	0
7949027	Dnajc5	DnaJ (Hsp40) homolog, subfamily C, member 5	1	0	0
257196146	Dnajc6	DnaJ (Hsp40) homolog, subfamily C, member 6	1	0	0
31980994	Dnajc7	DnaJ (Hsp40) homolog, subfamily C, member 7	1	0	0
157951606	Dnajc8	DnaJ (Hsp40) homolog, subfamily C, member 8	1	7	0
23956266	Dnajc9	DnaJ homolog, subfamily C, member 9	1	2	9



12963557	Dmap1	DNMT1 associated protein-1	1	6	2
31981810	Dci	dodecenoyl-Coenzyme A delta isomerase	12	2	2
46195798	Ddost	dolichyl-di-phosphooligosaccharide-protein glycotransferase	13	1	7
6753670	Dpm1	dolichyl-phosphate mannosyltransferase 1	10	0	1
58037125	Dpm3	dolichyl-phosphate mannosyltransferase polypeptide 3	2	0	0
170932475	Dct	dopachrome tautomerase	1	0	0
190194414	Dopey1	dopey family member 1	0	1	0
226246660	Dpy30	dosage compensation-related protein DPY30	2	2	1
238776837	Dclk3	doublecortin-like kinase 3	0	0	1
9506555	Psmg1	Down syndrome critical region protein 2	1	0	0
226437674	Utp20	down-regulated in metastasis	1	61	7
27754097	Dr1	down-regulator of transcription 1	1	3	0
21313424	Drap1	Dr1 associated protein 1 (negative cofactor 2 alpha)	1	2	0
226423873	Dbnl	drebrin-like isoform 2	3	8	0
13384676	Dtd1	D-tyrosyl-tRNA deacylase 1	0	1	0
145966803	Dusp5	dual specificity phosphatase 5	0	1	0
67846105	Dyrk2	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 2	1	0	1
23956160	Dullard	Dullard homolog	0	0	1
311893360	Dctn1	dynactin 1	13	12	1
299522842	Dctn2	dynactin 2	8	5	0
227116275	Dctn3	dynactin 3 isoform A	0	6	0
13385798	Dctn4	dynactin 4	0	1	1
188219518	Dctn5	dynactin 5	0	1	0
6756009	Dctn6	dynactin 6	1	0	0
116063570	Dnm1	dynamamin	0	1	0
71061458	Dnm1l	dynamamin 1-like isoform a	11	0	1
87299637	Dnm2	dynamamin 2	2	1	1
27369922	Dnm3	dynamamin 3 isoform 1	1	0	0
311893387	Dync1i2	dynein cytoplasmic 1 intermediate chain 2	3	6	0
22122795	Dync1li1	dynein cytoplasmic 1 light intermediate chain 1	0	6	1
72534792	Dync2h1	dynein cytoplasmic 2 heavy chain 1	0	0	1
213688406	Dynll1	dynein light chain LC8-type 1	2	4	4
281182477	Dynll2	dynein light chain LC8-type 2	1	1	0
254540041	Dynlrb1	dynein light chain roadblock-type 1	0	2	0
6678265	Dynlt1	dynein light chain Tctex-type 1	0	5	1
124486773	Dnahc2	dynein, axonemal, heavy chain 2	0	1	0
114155137	Dnahc5	dynein, axonemal, heavy chain 5	0	0	2
153792273	Dnahc8	dynein, axonemal, heavy chain 8	0	0	1
153791933	Dnahc9	dynein, axonemal, heavy chain 9	0	1	1
227330593	Dnaic1	dynein, axonemal, intermediate chain 1	0	1	0
225543181	Dync1li2	dynein, cytoplasmic 1 light intermediate chain 2	1	5	1
118026931	Dysf	dysferlin isoform 1	2	0	0
91064867	Dkc1	dyskerin	0	18	7
111154082	Dst	dystonin isoform b	0	7	2
15208633	Dtnbp1	dystrobrevin binding protein 1	1	0	1
247269964	Dtnb	dystrobrevin, beta isoform b	8	1	2
33859532	Dag1	dystroglycan 1	3	0	0
161016837	Drp2	dystrophin related protein 2	0	0	1
6681203	Dmd	dystrophin, muscular dystrophy	1	0	1
30023855	Eny2	e(y)2 protein	0	1	1
94421034	Ep300	E1A binding protein p300	0	2	0
190194425	Ep400	E1A binding protein p400 isoform 2	0	5	0

257153394	Ets2	E26 avian leukemia oncogene 2, 3&apos; domain	0	1	0
31982405	E2f5	E2F transcription factor 5	1	0	0
6679627	Elf1	E74-like factor 1	0	1	0
253683411	Elf3	E74-like factor 3 isoform 2	1	1	1
15809002	Snf8	EAP30 subunit of ELL complex	0	0	1
50053824	Eea1	early endosome antigen 1	18	0	0
6681285	Egr1	early growth response 1	1	0	0
21312728	Ebna1bp2	EBNA1 binding protein 2	0	0	2
21450111	Eml3	echinoderm microtubule associated protein like 3	0	1	0
167234437	Eml4	echinoderm microtubule associated protein like 4 3	0	1	0
124487111	Eml5	echinoderm microtubule associated protein like 5	1	0	1
127140886	C230094A16Rik	echinoderm microtubule associated protein like 6	1	0	0
111185905	Evi5	ecotropic viral integration site 5	0	0	1
22122383	Enox2	ecto-NOX disulfide-thiol exchanger 2	0	1	0
255683318	Entpd3	ectonucleoside triphosphate diphosphohydrolase 3	0	1	0
71061462	Entpd5	ectonucleoside triphosphate diphosphohydrolase 5 isoform a	2	0	0
209862963	Enpp2	ectonucleotide pyrophosphatase/phosphodiesterase 2 isoform 1	0	1	0
154240724	Enpp3	ectonucleotide pyrophosphatase/phosphodiesterase 3	0	0	1
84872231	Enpp4	ectonucleotide pyrophosphatase/phosphodiesterase 4	1	0	0
71892414	Enpp7	ectonucleotide pyrophosphatase/phosphodiesterase 7	1	0	0
127139913	Edaradd	EDAR (ectodysplasin-A receptor)-associated death domain isoform 1	1	0	0
13386360	Efhd1	EF hand domain containing 1	0	0	1
31981086	Efhd2	EF hand domain containing 2	1	1	3
126723102	Efr3b	EFR3 homolog B	0	0	1
9506563	Egfl6	EGF-like-domain, multiple 6	0	1	0
102468234	Dlk2	EGF-like-domain, multiple 9	1	0	0
7106303	Ehd1	EH-domain containing 1	6	0	1
215983062	Ehd3	EH-domain containing 3	1	0	0
31981592	Ehd4	EH-domain containing 4	15	7	3
31542606	Eln	elastin	0	1	1
21553119	Emilin2	elastin microfibril interfacier 2	0	1	0
33469055	Emilin3	elastin microfibril interfacier 3	0	0	1
31542602	Elavl1	ELAV (embryonic lethal, abnormal vision, Drosophila)-like 1 (Hu antigen R)	3	13	14
227500281	Etfa	electron transferring flavoprotein, alpha polypeptide	15	9	10
38142460	Etfb	electron transferring flavoprotein, beta polypeptide	13	3	9
254588014	Etfdh	electron-transferring-flavoprotein dehydrogenase	14	0	0
255003740	1200014J11Rik	ELG protein	0	2	4
153792362	Elk4	ELK4, member of ETS oncogene family	0	1	0
37360977	Erc2	ELKS/RAB6-interacting/CAST family member 2	1	2	0
82617676	Elmod1	ELMO domain containing 1	1	1	0
227908784	Eftud1	elongation factor Tu GTP binding domain containing 1	0	0	1
158508674	Eftud2	elongation factor Tu GTP binding domain containing 2 isoform b	9	41	32
148540000	Elovl7	elongation of very long chain fatty acids-like 7	1	0	0
33469023	Elp3	elongation protein 3 homolog	1	0	0
31542608	Elp4	elongation protein 4 homolog	0	1	0
11230770	Eed	embryonic ectoderm development	0	5	0
6679641	Emd	emerin	9	0	5
7305109	Emg1	EMG1 nucleolar protein homolog	0	9	6
27369816	Engase	endo-beta-N-acetylglucosaminidase	0	8	0

6679647	Endog	endonuclease G	0	1	0
71043968	Eepd1	endonuclease/exonuclease/phosphatase family domain containing 1	0	0	1
38348230	Ero1lb	endoplasmic oxidoreductase 1 beta	1	0	0
13507656	Erap1	endoplasmic reticulum aminopeptidase 1	2	0	0
124487057	Ermp1	endoplasmic reticulum metallopeptidase 1	13	0	2
19526463	Erp29	endoplasmic reticulum protein ERp29 precursor	8	0	0
13385678	Ergic1	endoplasmic reticulum-golgi intermediate compartment (ERGIC) 1	8	0	2
10946942	Edf1	endothelial differentiation-related factor 1	1	2	0
13385388	Med28	endothelial-derived gene 1	0	1	0
111185951	Tek	endothelial-specific receptor tyrosine kinase	1	0	1
122937365	Edn2	endothelin 2	1	0	0
40254536	Ecel1	endothelin converting enzyme-like 1	0	1	0
17933766	Elmo1	engulfment and cell motility 1 isoform 2	2	0	0
255683297	Elmo3	engulfment and cell motility 3, ced-12 homolog	0	4	1
27532963	Epc1	enhancer of polycomb homolog 1 isoform 1	0	1	0
157042787	Epc2	enhancer of polycomb homolog 2	1	0	0
6679685	Erh	enhancer of rudimentary homolog	3	3	3
226442807	Ezh2	enhancer of zeste 2 isoform 1	0	1	0
6679719	Ezh1	enhancer of zeste homolog 1	1	0	0
294979218	Etl4	enhancer trap locus 4	0	0	6
158853992	Eno1	enolase 1, alpha non-neuron	25	2	12
7305027	Eno2	enolase 2, gamma neuronal	1	0	0
7949037	Ech1	enoyl coenzyme A hydratase 1, peroxisomal	11	3	0
225543400	Echdc2	enoyl Coenzyme A hydratase domain containing 2	1	0	0
31980955	Echdc3	enoyl Coenzyme A hydratase domain containing 3	1	0	0
111185907	Evpl	envoplakin	4	4	5
125988414	Eid3	EP300 interacting inhibitor of differentiation 3	1	0	0
282165729	Epdr1	ependymin 2	0	1	0
47777351	Ephb2	Eph receptor B2	0	0	1
226437671	Ephb6	Eph receptor B6	0	0	1
6753724	Efna5	ephrin A5 isoform 1	0	0	1
31542597	Efnb2	ephrin B2	0	0	1
31980651	Epha1	ephrin receptor EphA1	1	0	0
32484983	Epha2	ephrin receptor EphA2	1	0	0
46560582	Egfr	epidermal growth factor receptor isoform 1	4	0	0
170784834	Eps15l1	epidermal growth factor receptor pathway substrate 15, related isoform a	0	1	0
21040233	Eps8l2	epidermal growth factor receptor pathway substrate 8-like protein 2	3	0	5
166706895	Tox4	epidermal Langerhans cell protein LCP1	0	6	0
12963667	Npc2	epididymal secretory protein E1	4	0	0
37537522	Eppk1	epiplakin 1	7	0	5
112293275	Epcam	epithelial cell adhesion molecule	6	0	1
6753748	Emp1	epithelial membrane protein 1	0	0	1
28849887	Esrp2	epithelial splicing regulatory protein 2	1	2	2
30424918	Epm2aip1	EPM2A (laforin) interacting protein 1	0	1	0
6753762	Ephx1	epoxide hydrolase 1, microsomal	14	0	0
83716015	Ephx3	epoxide hydrolase 3	1	0	0
10946972	Cope	epsilon subunit of coatomer protein complex	5	0	2
30794400	Epn3	epsin 3	1	3	6
256355019	Erlin1	ER lipid raft associated 1	2	0	1
23956396	Erlin2	ER lipid raft associated 2	18	0	6

54607114	Erb2ip	Erb2 interacting protein isoform 2	0	0	2
6755100	Pa2g4	ErbB3-binding protein 1	13	15	0
13384938	Ergic3	ERGIC and golgi 3	3	0	0
7657067	Ero1l	ERO1-like	8	0	0
172072610	Ermmap	erythroblast membrane-associated protein	0	0	1
190684669	Epb4.1	erythrocyte protein band 4.1 isoform 3	3	2	0
54873604	Epb4.1l1	erythrocyte protein band 4.1-like 1 isoform a	8	1	0
312922373	Epb4.1l2	erythrocyte protein band 4.1-like 2	8	0	0
7305031	Epb4.1l3	erythrocyte protein band 4.1-like 3	0	0	1
87042272	Epb4.1l4a	erythrocyte protein band 4.1-like 4a	0	0	1
169234799	Epb4.1l4b	erythrocyte protein band 4.1-like 4b	0	0	1
164663872	Epb4.1l5	erythrocyte protein band 4.1-like 5 isoform 1	4	2	6
20070420	D10Jhu81e	es1 protein	5	0	1
19526804	Es22	esterase 22	0	1	0
13937355	Esd	esterase D/formylglutathione hydrolase	4	0	0
157951743	H2-Ke6	estradiol 17 beta-dehydrogenase 8	7	9	1
16716597	Hsd17b11	estradiol 17-beta-dehydrogenase 11	7	1	3
112293262	Esrra	estrogen related receptor, alpha	0	4	1
226958367	Esrrb	estrogen-related receptor beta isoform 1	0	2	1
257153368	Etaa1	ETAA16 protein	1	1	0
12963539	Ethe1	ETHE1 protein	11	1	0
6681287	Ehf	ets homologous factor	0	2	0
84370337	Etv6	ets variant 6	0	1	0
157951633	Ehmt1	euchromatic histone methyltransferase 1 isoform 4	0	0	4
22219432	Ehmt2	euchromatic histone-lysine N-methyltransferase 2 isoform G9a long	0	4	4
12746442	Eefsec	eukaryotic elongation factor, selenocysteine-tRNA-specific	2	7	0
6681275	Eef2k	eukaryotic elongation factor-2 kinase	0	0	1
126032329	Eef1a1	eukaryotic translation elongation factor 1 alpha 1	18	21	15
31980922	Eef1b2	eukaryotic translation elongation factor 1 beta 2	2	7	3
54287684	Eef1d	eukaryotic translation elongation factor 1 delta isoform a	8	10	2
13384756	Eef1e1	eukaryotic translation elongation factor 1 epsilon 1	0	1	0
110625979	Eef1g	eukaryotic translation elongation factor 1 gamma	11	17	5
33859482	Eef2	eukaryotic translation elongation factor 2	44	28	18
22165347	Eif1	eukaryotic translation initiation factor 1	0	2	0
158631225	Eif1a	eukaryotic translation initiation factor 1A	0	2	0
31541824	Eif1ay	eukaryotic translation initiation factor 1A, Y-linked	1	8	0
21312159	Eif1b	eukaryotic translation initiation factor 1B	1	6	0
166851838	Eif2ak4	eukaryotic translation initiation factor 2 alpha kinase 4	0	0	1
13385624	Eif2s1	eukaryotic translation initiation factor 2, subunit 1 alpha	16	14	0
14149756	Eif2s2	eukaryotic translation initiation factor 2, subunit 2 (beta)	6	11	0
6753738	Eif2s3x	eukaryotic translation initiation factor 2, subunit 3, structural gene X-linked	2	3	0
7242148	Eif2s3y	eukaryotic translation initiation factor 2, subunit 3, structural gene Y-linked	6	6	0
54020676	Eif2a	eukaryotic translation initiation factor 2A	10	6	0
6755160	Eif2ak2	eukaryotic translation initiation factor 2-alpha kinase 2	0	2	0
21703744	Eif2b1	eukaryotic translation initiation factor 2B, subunit 1	1	0	0
219842353	Eif2c2	eukaryotic translation initiation factor 2C, 2	1	9	4
51093840	Eif3l	eukaryotic translation initiation factor 3 subunit 6 interacting protein	17	5	3
146219837	Eif3a	eukaryotic translation initiation factor 3, subunit 10 (theta)	24	9	2
45476573	Eif3e	eukaryotic translation initiation factor 3, subunit 6	6	2	0

125628629	Eif3d	eukaryotic translation initiation factor 3, subunit 7 (zeta)	9	0	0
29789343	Eif3b	eukaryotic translation initiation factor 3, subunit 9	13	4	1
22203755	Eif3c	eukaryotic translation initiation factor 3, subunit C	22	3	0
225637531	Eif3f	eukaryotic translation initiation factor 3, subunit F	8	2	1
31980808	Eif3g	eukaryotic translation initiation factor 3, subunit G	5	1	0
18079341	Eif3h	eukaryotic translation initiation factor 3, subunit H	6	1	0
9055370	Eif3i	eukaryotic translation initiation factor 3, subunit I	11	4	1
124244040	Eif3j	eukaryotic translation initiation factor 3, subunit J	4	1	0
21312044	Eif3k	eukaryotic translation initiation factor 3, subunit K	2	4	0
21703762	Eif3m	eukaryotic translation initiation factor 3, subunit M	7	2	0
50838806	Eif4g3	eukaryotic translation initiation factor 4 gamma, 3	2	1	0
56699434	Eif4g1	eukaryotic translation initiation factor 4, gamma 1 isoform a	16	5	2
110630015	Eif4g2	eukaryotic translation initiation factor 4, gamma 2 isoform 1	3	0	1
20149756	Eif4a3	eukaryotic translation initiation factor 4A, isoform 3	1	2	6
21450625	Eif4a1	eukaryotic translation initiation factor 4A1 isoform 1	18	7	8
176865892	Eif4a2	eukaryotic translation initiation factor 4A2 isoform b	5	3	0
167234372	Eif4b	eukaryotic translation initiation factor 4B	10	3	0
83627717	Eif4e	eukaryotic translation initiation factor 4E	1	1	0
85677508	Eif4e2	eukaryotic translation initiation factor 4E member 2 isoform 1	1	0	1
15808988	Eif4h	eukaryotic translation initiation factor 4H	6	4	1
124430541	Eif5	eukaryotic translation initiation factor 5	2	1	1
262359900	Eif5a	eukaryotic translation initiation factor 5A	3	5	0
29243942	Eif5a2	eukaryotic translation initiation factor 5A2	2	1	1
84043961	Eif5b	eukaryotic translation initiation factor 5B	9	11	0
27501448	Eif6	eukaryotic translation initiation factor 6	6	6	7
124286826	Etf1	eukaryotic translation termination factor 1	6	5	0
6755522	Ecsit	evolutionarily conserved signaling intermediate in Toll pathway	1	0	0
88853581	Ewsr1	Ewing sarcoma breakpoint region 1	1	3	0
187960071	Ercc1	excision repair cross-complementing rodent repair deficiency, complementation group 1 isoform a	0	1	0
31542614	Ercc2	excision repair cross-complementing rodent repair deficiency, complementation group 2	0	1	0
19526800	Ercc3	excision repair cross-complementing rodent repair deficiency, complementation group 3	0	2	0
241666402	Ercc4	excision repair cross-complementing rodent repair deficiency, complementation group 4	1	0	0
124487019	Ercc6	excision repair cross-complementing rodent repair deficiency, complementation group 6	0	0	1
21313438	Exoc2	exocyst complex component 2	0	0	1
46402177	Exoc5	exocyst complex component 5	1	0	0
247269443	Exoc7	exocyst complex component 7 isoform 1	1	2	1
257796249	Exph5	exophilin 5	1	0	0
257096005	Exosc1	exosome component 1	0	6	1
227116266	Exosc10	exosome component 10	0	2	0
21450259	Exosc2	exosome component 2	0	7	0
39930417	Exosc3	exosome component 3	0	2	0
29611663	Exosc4	exosome component 4	0	5	0
20070392	Exosc5	exosome component 5	1	5	1
30794378	Exosc6	exosome component 6	1	5	2
124487127	Exosc7	exosome component 7	1	3	0
9506981	Exosc9	exosome component 9	1	6	1

112807209	Ext1	exostosin 1	0	0	1
78190507	Xpo1	exportin 1, CRM1 homolog	4	1	9
10048438	Xpo4	exportin 4	1	0	0
24429570	Xpo5	exportin 5	2	0	2
12746422	Xpo7	exportin 7	0	4	0
124486686	Xpot	exportin, tRNA (nuclear export receptor for tRNAs)	0	0	1
33859650	Esyt1	extended synaptotagmin-like protein 1	25	0	1
27734847	F11r	F11 receptor	4	0	0
161086971	Capza1	F-actin capping protein alpha-1 subunit	1	8	6
126090857	Fam120a	family with sequence similarity 120, member A	3	9	2
241982745	Fam129a	family with sequence similarity 129, member A	10	0	1
124486785	Fam148b	family with sequence similarity 148, member B	0	1	1
268370213	Fam164c	family with sequence similarity 164, member C	0	1	0
28202059	Fam171b	family with sequence similarity 171, member B	0	0	1
84993237	Fam60a	family with sequence similarity 60, member A	0	1	0
85701644	Fam82a2	family with sequence similarity 82, member A2	1	0	7
31560255	Fam82b	family with sequence similarity 82, member B	1	0	0
269914118	Fam83h	family with sequence similarity 83, member H	0	1	17
124487447	Fam89a	family with sequence similarity 89, member A	0	1	0
61098124	Fam98b	family with sequence similarity 98, member B	0	2	0
282721083	Fancd2	Fanconi anemia, complementation group D2	0	1	0
255652995	Fance	Fanconi anemia, complementation group E	0	1	0
126722700	Fanci	Fanconi anemia, complementation group I	0	1	1
54112418	Fancm	Fanconi anemia, complementation group M	0	0	1
84662730	Fubp1	far upstream element (FUSE) binding protein 1	5	17	0
224922832	Fubp3	far upstream element (FUSE) binding protein 3	1	18	6
19882207	Fdps	farnesyl diphosphate synthase	12	0	0
226443053	Fas	Fas (TNF receptor superfamily member) isoform 1 precursor	0	0	1
315013583	Daxx	Fas death domain-associated protein	0	1	0
85861160	Fastk	Fas-activated serine/threonine kinase	0	0	1
27369557	Fastkd2	FAST kinase domains 2	0	0	1
128485706	Fastkd3	FAST kinase domains 3	1	0	0
225703041	Fastkd5	FAST kinase domains 5	2	0	0
164664497	My11	fast skeletal myosin alkali light chain 1 isoform 1f	1	0	1
157951641	Fat1	FAT tumor suppressor homolog 1	0	1	0
71725377	Fat2	FAT tumor suppressor homolog 2	0	0	1
153792706	Fat4	FAT tumor suppressor homolog 4	0	1	0
226443015	Faah	fatty acid amide hydrolase	2	0	0
9790071	Fads2	fatty acid desaturase 2	5	0	4
93102409	Fasn	fatty acid synthase	34	0	3
100818178	Kdm2a	F-box and leucine-rich repeat protein 11	1	3	0
161333858	Fbxl13	F-box and leucine-rich repeat protein 13	0	1	0
153945830	Fbxl18	F-box and leucine-rich repeat protein 18	1	1	0
40254240	Fbxl19	F-box and leucine-rich repeat protein 19	1	0	0
30519963	Fbxl2	F-box and leucine-rich repeat protein 2	1	0	0
111494221	Fbxl20	F-box and leucine-rich repeat protein 20	0	1	0
124248556	Fbxw9	F-box and WD-40 domain protein 9	0	0	1
46877055	Fbxo3	F-box only protein 3 isoform 1	1	0	1
244790104	Fbxo10	F-box protein 10	3	0	0
124486644	Fbxo11	F-box protein 11	0	1	0
28201989	Fbxo28	F-box protein 28	0	1	1
158517904	Fbxo31	F-box protein 31	0	1	0
13384764	Fbxo36	F-box protein 36	0	1	0

160333600	Fbxo38	F-box protein 38	1	1	0
47564092	Fbxo41	F-box protein 41	1	0	0
124487431	Fbxo47	F-box protein 47	0	1	0
169790797	Fcgbp	Fc fragment of IgG binding protein	38	2	0
255683303	Fcho1	FCH domain only 1	0	1	0
27734132	Fem1c	fem-1 homolog c	0	1	1
124487185	Frmpd1	FERM and PDZ domain containing 1	0	1	1
13385676	Frmf8	FERM domain containing 8	1	0	0
229892332	Farp2	FERM, RhoGEF and pleckstrin domain protein 2	0	0	1
110349752	Farp1	FERMRhoGEF (Arhgef) and pleckstrin domain protein 1	0	0	4
6679765	Fdx1	ferredoxin 1	3	0	0
6753912	Fth1	ferritin heavy chain 1	4	0	0
114326466	Ftl1	ferritin light chain 1	1	1	0
130485277	Ftl2	ferritin light chain 2	3	4	0
20452466	Fech	ferrochelataase	0	2	0
31982373	Fbl	fibrillarin	3	17	15
7106313	Fgf10	fibroblast growth factor 10	1	0	0
6753854	Fgf5	fibroblast growth factor 5	0	1	0
261599078	Fgf8	fibroblast growth factor 8	1	1	1
29244340	Frs2	fibroblast growth factor receptor substrate 2	0	0	1
116063550	Fsd2	fibronectin type III and SPRY domain containing 2	0	0	1
168693628	Fbln1	fibulin 1	1	1	0
124517704	Fbln2	fibulin 2 isoform a	0	1	1
145966915	Flnb	filamin B, beta	73	107	39
253795477	Fblim1	filamin binding LIM protein 1	0	0	1
124487139	Flna	filamin C, gamma	9	20	7
125347376	Flna	filamin, alpha	22	46	1
227330598	Fip111	FIP1 like 1 isoform 2	0	8	1
227330586	Mtor	FK506 binding protein 12-rapamycin associated protein 1	1	0	0
6679803	Fkbp1a	FK506 binding protein 1A, 12kDa	1	0	0
261824055	Fkbp2	FK506 binding protein 2, 13kDa	6	4	0
7305061	Fkbp3	FK506 binding protein 3, 25kDa	3	7	0
6753884	Fkbp5	FK506 binding protein 5	18	3	2
6753882	Fkbp4	FK506 binding protein 52	9	1	0
313851007	Fkbp8	FK506 binding protein 8 isoform a	2	0	2
172072617	Fkbp9	FK506 binding protein 9	2	0	0
46048490	Fen1	flap structure specific endonuclease 1	3	7	0
31542819	Fmo2	flavin-containing monooxygenase 2	0	1	0
11528490	Flii	flightless I homolog	4	27	1
6679809	Flot1	flotillin 1	0	0	1
94536791	Flot2	flotillin 2 isoform 2	0	1	2
160333168	Fiz1	Flt3 interacting zinc finger protein 1	0	1	0
255003742	Flywch1	FLYWCH-type zinc finger 1	1	0	0
122937353	Flt3	FMS-like tyrosine kinase 3	0	0	1
6679813	Flt4	fms-related tyrosine kinase 4	0	1	0
28827784	Folr4	folate receptor 4 (delta) isoform 2	0	0	1
57527848	Fstl4	follistatin-like 4	1	0	0
34304111	Foxe1	forkhead box E1	1	0	0
226693376	Foxj1	forkhead box J1	0	1	0
82546826	Foxk1	forkhead box K1	0	1	0
238018071	Foxk2	forkhead box K2	0	1	0
91598891	Foxn4	forkhead box N4	1	0	0
167900466	Fnbp11	formin binding protein 1-like isoform 2	1	2	0

9055218	Prpf40a	formin binding protein 3	1	28	9
9055220	Fnbp4	formin binding protein 4	0	1	0
37674240	Fhod3	formin homology 2 domain containing 3	0	1	0
114052809	2610204M08Rik	formin, inverted	4	0	2
38708163	Fmnl3	formin-like 3 protein	2	0	5
124378048	Fmnl2	formin-like domain containing protein MAN	1	0	1
7305065	Fpr1	formyl peptide receptor 1	0	0	1
226823218	Fydd1	forty-two-three domain containing 1 isoform 1	0	0	2
116517340	Fhl1	four and a half LIM domains 1 isoform 2	0	0	1
130488506	Fhl3	four and a half LIM domains 3	1	0	0
47059108	Fjx1	four jointed box 1	0	0	1
225543434	4932438A13Rik	fragile site-associated protein	2	1	0
51036613	Fmr1	fragile X mental retardation protein 1	3	2	3
163954941	Fxr1	fragile X mental retardation-related protein 1 isoform 1	4	9	3
83921589	Fxr2	fragile X mental retardation-related protein 2	3	4	1
126157515	Fras1	Fras1 protein	1	0	0
71051607	Frem2	Fras1 related extracellular matrix protein 2	4	0	0
6679863	Fxn	frataxin	3	0	0
270341379	Ffar2	free fatty acid receptor 2	0	0	1
6755476	Frzb	frizzled-related protein	1	0	0
253970463	Fn3krp	fructosamine 3 kinase related protein	2	0	0
293597569	Aldoa	fructose-bisphosphate aldolase A	22	12	1
225543552	Frg1	FSHD region gene 1	0	6	0
13384672	Ftsj3	FtsJ homolog 3	1	0	7
41281971	Fuk	fucokinase isoform 2	1	0	0
31560444	Fut8	fucosyltransferase 8	2	0	0
226823367	Fh1	fumarate hydratase 1	14	1	0
12963697	Fahd1	fumarylacetoacetate hydrolase domain containing 1	5	0	0
29366814	Fahd2a	fumarylacetoacetate hydrolase domain containing 2A	2	0	0
21312526	Fundc1	FUN14 domain containing 1	0	1	0
262050556	Fundc2	FUN14 domain containing 2	2	1	0
157841282	Gm7348	functional Smad suppressor element on chromosome 18	1	0	0
122937372	Fusip1	FUS interacting protein (serine-arginine rich) 1 isoform 1	0	5	6
16554572	Fxyd2	FXYD domain-containing ion transport regulator 2 isoform a	2	0	0
227116298	Frk	fyn-related kinase	5	0	0
85719309	Fgd3	FYVE, RhoGEF and PH domain containing 3	0	1	0
56699430	Fgd5	FYVE, RhoGEF and PH domain containing 5	1	0	0
160708005	Fgd6	FYVE, RhoGEF and PH domain containing 6	0	0	1
170650599	Gfm1	G elongation factor, mitochondrial 1	11	0	2
125991228	Gpkow	G patch domain and KOW motifs	0	1	0
13385692	Gpatch1	G patch domain containing 1	0	0	1
295424137	Gps1	G protein pathway suppressor 1	2	0	0
226246675	Gpr110	G protein-coupled receptor 110	1	0	0
300934759	Gpr124	G protein-coupled receptor 124	0	1	0
241896916	Gpr125	G protein-coupled receptor 125 isoform 1	0	0	1
52350563	Gpr158	G protein-coupled receptor 158	0	1	0
71725394	Gpr17	G protein-coupled receptor 17	0	1	0
98986316	Gpr177	G protein-coupled receptor 177	2	0	0
124487045	Gpr179	G protein-coupled receptor 179	0	1	0
27734082	Gpr20	G protein-coupled receptor 20	0	0	1



295293102	Gpr22	G protein-coupled receptor 22	1	0	0
27734158	Gpr26	G protein-coupled receptor 26	0	0	1
160298211	Gpr37	G protein-coupled receptor 37 precursor	1	0	0
6753528	Gpr44	G protein-coupled receptor 44	0	0	1
124430559	Lgr4	G protein-coupled receptor 48	0	1	0
312032400	Gpr56	G protein-coupled receptor 56	2	0	1
159032059	Grk5	G protein-coupled receptor kinase 5	2	0	0
116517297	Git2	G protein-coupled receptor kinase interacting ArfGAP 2 isoform 2	0	1	0
51921285	Git1	G protein-coupled receptor kinase-interactor 1	0	0	2
148762954	Casr	G protein-coupled receptor, family C, group 2, member A	1	0	0
225543465	Gprc5a	G protein-coupled receptor, family C, group 5, member A	2	2	2
160333231	Gprc5c	G protein-coupled receptor, family C, group 5, member C isoform b	3	0	6
84000009	Gprin1	G protein-regulated inducer of neurite outgrowth 1	0	1	0
194018533	Gspt1	G1 to S phase transition 1 isoform 1	4	0	0
34328119	Gabpa	GA repeat binding protein, alpha	0	6	1
46575942	Gabpb1	GA repeat binding protein, beta 1 isoform a	0	1	0
93102413	Galk1	galactokinase 1	3	0	0
30424748	Galk2	galactokinase 2	1	0	0
302370951	Galns	galactosamine (N-acetyl)-6-sulfate sulfatase precursor	2	0	0
85986609	Gm6086	galactose-3-O-sulfotransferase 2-like	0	0	1
93102411	Galc	galactosylceramidase	1	0	2
30794256	Galp	galanin-like peptide precursor	0	1	0
225543163	Lgals3	galectin 3	5	0	1
22122485	Gabrp	gamma-aminobutyric acid (GABA) A receptor, pi	0	1	0
124487263	Gabbr2	gamma-aminobutyric acid (GABA) B receptor, 2	0	1	0
18485502	Bbox1	gamma-butyrobetaine dioxygenase	1	0	0
9790009	Ggcx	gamma-glutamyl carboxylase	0	1	0
224994186	Ggt7	gamma-glutamyltransferase 7	0	0	1
6753992	Gja1	gap junction protein, alpha 1	0	1	0
6680011	Gjb2	gap junction protein, beta 2	0	1	0
116174744	Gjd3	gap junction protein, delta 3	0	1	0
13878199	Gsdmc	gasdermin C	0	0	1
269954702	Gsdmc2	gasdermin C2	19	19	32
226053537	Gsdmc3	gasdermin C3	2	1	6
6679951	Gata3	GATA binding protein 3	0	0	2
157266271	Glp1	GATA like protein-1	1	1	0
161086973	Gatad1	GATA zinc finger domain containing 1	0	1	0
112807186	Gcn111	GCN1 general control of amino-acid synthesis 1-like 1	6	1	3
226437608	1810007M14Rik	GC-rich sequence DNA-binding factor candidate	0	4	5
22122523	Gmnds	GDP-mannose 4,6-dehydratase	5	0	0
19526884	Gmppa	GDP-mannose pyrophosphorylase A	1	0	0
29244556	Gmppb	GDP-mannose pyrophosphorylase B	1	0	0
28916693	Gsn	gelsolin	14	8	7
110227379	Capg	gelsolin-like capping protein isoform 2	9	1	3
262263303	Gemin5	gem (nuclear organelle) associated protein 5	0	0	1
225543576	Gtl3	gene trap locus 3	0	7	0
87299617	Gtf2a2	general transcription factor II A, 2	0	1	0
21312660	Gtf2e1	general transcription factor II E, polypeptide 1 (alpha subunit)	0	1	0

268838784	Gtf2e2	general transcription factor II E, polypeptide 2 (beta subunit)	0	1	0
188035919	Gtf2h1	general transcription factor II H, polypeptide 1	0	2	0
6754094	Gtf2h4	general transcription factor II H, polypeptide 4	0	2	0
125625345	Gtf2ird1	general transcription factor II I repeat domain-containing 1 isoform a	1	0	1
20270031	Gtf2f1	general transcription factor IIF, polypeptide 1	1	1	0
39930425	Gtf2f2	general transcription factor IIF, polypeptide 2	0	1	0
31088894	Gtf2h3	general transcription factor IIH, polypeptide 3	0	1	0
46402235	Gtf3c1	general transcription factor III C 1	0	4	0
124001578	Gtf2i	general transcription factor Ili isoform 1	2	16	0
22507323	Gtf3c5	general transcription factor III polypeptide 5	0	2	0
260436918	Gtf3c4	general transcription factor IIIC 4	0	11	2
85861229	Gtf3c2	general transcription factor IIIC, polypeptide 2, beta	0	3	0
75677510	Gtf3c3	general transcription factor IIIC, polypeptide 3	0	7	1
269973917	Gphn	gephyrin	2	0	0
160333071	Gmcl1	germ cell-less	0	0	2
85861226	Grtp1	GH regulated TBC protein 1	1	0	0
124487231	Gan	giant axonal neuropathy	0	0	1
9055336	Gipc1	GIPC PDZ domain containing family, member 1	1	6	0
8394258	Gipc2	GIPC PDZ domain containing family, member 2	5	11	1
58037369	Gle1	GLE1 RNA export mediator	0	0	3
90186273	Gli1	GLI family zinc finger 1	0	1	0
188528613	Gmfb	glia maturation factor, beta	0	2	0
85861222	Gmfg	glia maturation factor, gamma isoform 1	1	0	0
7110601	Gdnf	glial cell line derived neurotrophic factor	0	1	0
6753976	Gfra1	glial cell line derived neurotrophic factor family receptor alpha 1	0	0	1
160298168	Gbas	glioblastoma amplified	3	0	1
113866026	Glis3	GLIS family zinc finger 3	1	1	0
239985605	Glmn	glomulin, FKBP associated protein isoform a	0	0	1
121247453	Nr3c1	glucocorticoid receptor	0	0	1
75677442	Grif1	glucocorticoid receptor DNA binding factor 1	1	0	0
29789239	Gns	glucosamine (N-acetyl)-6-sulfatase	3	0	0
9506761	Gnpat1	glucosamine-phosphate N-acetyltransferase 1	0	1	0
124430729	Gcnt3	glucosaminyl (N-acetyl) transferase 3, mucin type	0	0	1
254553458	Gpi1	glucose phosphate isomerase 1	7	0	2
227330582	G6pd2	glucose-6-phosphate dehydrogenase 2	4	0	0
6996917	G6pdx	glucose-6-phosphate dehydrogenase X-linked	5	0	0
116734815	Gba	glucosidase, beta, acid isoform 1	1	0	0
6754098	Gusb	glucuronidase, beta	4	0	0
6680027	Glud1	glutamate dehydrogenase 1	23	0	0
160298209	Got1	glutamate oxaloacetate transaminase 1, soluble	1	0	0
6754036	Got2	glutamate oxaloacetate transaminase 2, mitochondrial	30	6	0
304766513	Grik4	glutamate receptor KA1 precursor	0	0	1
163792196	Gria3	glutamate receptor, ionotropic, AMPA3 precursor	0	0	1
160298215	Grik5	glutamate receptor, ionotropic, kainate 5 (gamma 2) precursor	0	0	1
41680705	Grin2a	glutamate receptor, ionotropic, NMDA2A (epsilon 1)	0	0	1
117168299	Grin2b	glutamate receptor, ionotropic, NMDA2B (epsilon 2) precursor	1	0	0
144922606	Grin2d	glutamate receptor, ionotropic, NMDA2D (epsilon 4)	0	1	1
258645114	Grin1a	glutamate receptor, ionotropic, N-methyl D-aspartate-like 1A	0	1	0
116812904	Grm8	glutamate receptor, metabotropic 8	1	0	0

163937861	Grwd1	glutamate-rich WD repeat containing 1	1	5	0
164607135	Gls	glutaminase isoform 2	21	0	0
7305085	Gfpt1	glutamine fructose-6-phosphate transaminase 1	1	0	0
166295183	Qrich1	glutamine-rich 1	0	1	0
269954679	Qars	glutaminyl-tRNA synthetase	8	1	1
6679653	Enpep	glutamyl aminopeptidase	0	1	0
82617575	Eprs	glutamyl-prolyl-tRNA synthetase	1	3	1
31981269	Glrx3	glutaredoxin 3	1	0	0
21312153	Glrx5	glutaredoxin 5	4	0	0
113680425	Gcdh	glutaryl-Coenzyme A dehydrogenase	2	1	0
84871986	Gpx1	glutathione peroxidase 1	11	1	9
90903235	Gpx4	glutathione peroxidase 4 isoform 1 precursor	0	5	1
160298213	Gsr	glutathione reductase precursor	1	0	0
21313138	Gstk1	glutathione S-transferase kappa 1	3	5	0
6754084	Gstm1	glutathione S-transferase mu 1	14	0	7
6680121	Gstm2	glutathione S-transferase mu 2	7	2	8
6754086	Gstm5	glutathione S-transferase mu 5	1	1	2
113679874	Gstm7	glutathione S-transferase mu 7	2	0	2
6754090	Gsto1	glutathione S-transferase omega 1	8	0	4
313151238	Gsto2	glutathione S-transferase omega 2	1	0	1
116325999	Gsta3	glutathione S-transferase, alpha 3	4	0	2
160298217	Gsta4	glutathione S-transferase, alpha 4	3	0	3
10092608	Gstp1	glutathione S-transferase, pi 1	3	2	3
32401425	Gstp2	glutathione S-transferase, pi 2	8	2	2
160298219	Gstt1	glutathione S-transferase, theta 1	1	0	0
158081796	Gstt2	glutathione S-transferase, theta 2	2	0	1
21536248	Gstt3	glutathione S-transferase, theta 3	2	0	5
6680117	Gss	glutathione synthetase	3	0	0
6754092	Gstz1	glutathione transferase zeta 1 (maleylacetoacetate isomerase)	6	0	0
6679939	Gapdhs	glyceraldehyde-3-phosphate dehydrogenase, spermatogenic	1	2	2
28893497	Gk5	glycerol kinase 5 (putative)	0	1	0
6753966	Gpd1	glycerol-3-phosphate dehydrogenase 1 (soluble)	9	0	5
257467604	Gpd1l	glycerol-3-phosphate dehydrogenase 1-like	5	0	0
224922806	Gpd2	glycerol-3-phosphate dehydrogenase 2, mitochondrial	32	1	12
160298207	Gnpat	glyceronephosphate O-acyltransferase	2	0	0
23956140	Gdpd1	glycerophosphodiester phosphodiesterase domain containing 1	3	0	0
110431346	Gdpd3	glycerophosphodiester phosphodiesterase domain containing 3	3	0	0
52345431	Gdpd5	glycerophosphodiester phosphodiesterase domain containing 5	0	1	0
240120119	Gcat	glycine C-acetyltransferase isoform a	10	0	0
13386066	Gcsh	glycine cleavage system protein H (aminomethyl carrier)	1	0	0
22122359	Glyat	glycine-N-acyltransferase	1	0	1
9790077	Gsk3b	glycogen synthase kinase 3 beta	1	4	0
31560404	Gltp	glycolipid transfer protein	1	0	0
50345976	Gp1bb	glycoprotein 1b, beta polypeptide isoform 1	1	1	0
226342960	Tecr	glycoprotein, synaptic 2 isoform 1	9	2	9
147901175	Glt1d1	glycosyltransferase 1 domain containing 1	0	1	0
260166652	Glt28d2	glycosyltransferase 28 domain containing 1-like	0	0	1
27369952	Gtdc1	glycosyltransferase-like domain containing 1	1	0	0
93102417	Gars	glycyl-tRNA synthetase	11	1	0
165932333	Glo1	glyoxalase 1	6	0	0

255003777	Glod4	glyoxalase domain containing 4	10	0	0
17933768	Grhpr	glyoxylate reductase/hydroxypyruvate reductase	5	0	0
7710028	Gpc1	glypican 1	0	0	1
6806917	Gm2a	GM2 ganglioside activator protein	4	0	0
117959930	Gnas	GNAS complex locus XLas	6	3	10
6677905	Glg1	golgi apparatus protein 1	31	1	3
313151170	Gopc	golgi associated PDZ and coiled-coil motif containing	1	0	0
22122347	Gga1	golgi associated, gamma adaptin ear containing, ARF binding protein 1	2	0	0
30794192	Golga1	golgi autoantigen, golgin subfamily a, 1	3	0	0
124378042	Golga2	golgi autoantigen, golgin subfamily a, 2 isoform a	6	0	1
31982330	Golga3	Golgi autoantigen, golgin subfamily a, 3	0	1	1
20127150	Golga4	golgi autoantigen, golgin subfamily a, 4	0	0	1
312222675	Golga5	golgi autoantigen, golgin subfamily a, 5	15	0	0
268370067	Gcc1	Golgi coiled coil protein 1	1	0	1
78190502	Golm1	golgi membrane protein 1	4	0	0
14140240	Golph3	golgi phosphoprotein 3	2	0	0
295054284	Golph3l	golgi phosphoprotein 3-like	2	0	0
30350202	Gorasp1	Golgi reassembly stacking protein 1	0	1	0
224967109	Gorasp2	golgi reassembly stacking protein 2	3	0	0
31542904	Gosr1	golgi SNAP receptor complex member 1	3	1	1
24528553	Gosr2	golgi SNAP receptor complex member 2	2	0	0
52138536	Gbf1	golgi-specific brefeldin A-resistance factor 1	2	0	0
161016845	4921537P18Rik	gonad specific ankyrin repeat protein isoform 1	0	0	1
6754046	Gpaal1	GPI anchor attachment protein 1	2	1	0
19527346	Gpsm3	G-protein signalling modulator 3 (AGS3-like, C. elegans)	0	0	1
238637263	Grhl1	grainyhead-like 1 isoform 2	0	1	0
329663552	Gramd4	GRAM domain containing 4	1	0	1
80861474	Gcap14	granule cell antiserum positive 14 isoform 1	0	0	1
224967126	Grn	granulin	0	0	2
159032014	Gigyf2	GRB10 interacting GYF protein 2 isoform a	1	1	1
148596982	Grsf1	G-rich RNA sequence binding factor 1 isoform 1	3	2	0
85701616	Gcom1	GRINL1A complex locus	0	0	5
61742806	Gcc2	GRIP and coiled-coil domain-containing 2	8	0	0
21312546	Fam162a	growth and transformation-dependent protein	7	2	3
6678980	Gadd45b	growth arrest and DNA-damage-inducible 45 beta	1	0	0
269315840	Gadd45gip1	growth arrest and DNA-damage-inducible, gamma interacting protein 1	2	2	1
6679941	Gas1	growth arrest specific 1	0	0	1
41529818	Gdf6	growth differentiation factor 6	1	0	0
312283736	Ghitm	growth hormone inducible transmembrane protein	2	0	1
145966853	BC030307	Grp94 neighboring nucleotidase isoform 3	0	0	1
13277394	Grpel1	GrpE-like 1, mitochondrial	8	1	0
18921210	Gsx2	GS homeobox 2	1	0	0
37059812	Frat1	GSK-3 binding protein FRAT1	1	0	0
160298187	Gem	GTP binding protein (gene overexpressed in skeletal muscle)	0	0	1
225543388	Gtbbp2	GTP binding protein 2 isoform 1	0	0	1
31560110	Gtbbp4	GTP binding protein 4	0	0	5
188528646	Mtg1	GTP binding protein 7 (putative)	0	1	0
40254514	Gapvd1	GTPase activating protein and VPS9 domains 1	0	1	0
163310721	Garnl1	GTPase activating RANGAP domain-like 1 isoform 2	1	0	2
28416442	Gimap4	GTPase, IMAP family member 4 isoform a	0	1	0
226693391	Gtbbp8	GTP-binding protein 8 isoform 1	0	4	1

6753960	Gda	guanine deaminase	0	1	0
85861218	Gmps	guanine monophosphate synthetase	10	0	0
41054806	Gnai2	guanine nucleotide binding protein (G protein), alpha inhibiting 2	3	1	9
33563256	Gnai3	guanine nucleotide binding protein (G protein), alpha inhibiting 3	9	2	10
6680047	Gnb2l1	guanine nucleotide binding protein (G protein), beta polypeptide 2 like 1	11	17	5
294774564	Gng12	guanine nucleotide binding protein (G protein), gamma 12	4	4	4
84579906	Gng5	guanine nucleotide binding protein (G protein), gamma 5 subunit	1	0	0
6754004	Gna11	guanine nucleotide binding protein, alpha 11	5	0	0
89001109	Gna13	guanine nucleotide binding protein, alpha 13	4	0	0
160298199	Gna14	guanine nucleotide binding protein, alpha 14	2	0	1
84662745	Gnaq	guanine nucleotide binding protein, alpha q polypeptide	3	0	0
122937361	Gnai1	guanine nucleotide binding protein, related sequence 1	0	0	1
240120093	Gni2	guanine nucleotide binding protein-like 2 (nucleolar)	0	0	2
229608938	Gnb1	guanine nucleotide-binding protein, beta-1 subunit	5	2	5
13937391	Gnb2	guanine nucleotide-binding protein, beta-2 subunit	11	8	12
33859560	Gdi1	guanosine diphosphate (GDP) dissociation inhibitor 1	11	0	0
116089273	Gdi2	guanosine diphosphate (GDP) dissociation inhibitor 2	21	6	0
6753950	Gbp2	guanylate binding protein 2	1	0	0
194688157	Gucy2d	guanylate cyclase 2d	0	1	0
22122571	Guca1b	guanylate cyclase activator 1B	0	1	0
91064876	Gbp5	guanylate-binding protein 5	0	0	1
27370038	Guf1	GUF1 GTPase homolog	1	0	0
31560697	H1f0	H1 histone family, member 0	2	5	7
257196238	H1fnt	H1 histone family, member N, testis-specific	2	0	1
19923865	H1foo	H1 histone family, member O, oocyte-specific	1	0	0
7106331	H2afx	H2A histone family, member X	2	3	6
283945575	H2afy	H2A histone family, member Y isoform 1	0	1	19
7949045	H2afz	H2A histone family, member Z	4	5	6
6680159	H3f3a	H3 histone, family 3A	1	1	1
61098067	Hes2	hairy and enhancer of split 2	1	0	0
21312204	Hdhd3	haloacid dehalogenase-like hydrolase domain containing 3	4	0	0
254911005	Ush1c	harmonin isoform a1	0	1	0
6677819	Rras	Harvey rat sarcoma oncogene, subgroup R	2	1	2
7106329	Gsg2	haspin	0	0	1
122056689	Crebzf	HCF-binding transcription factor Zhangfei	1	0	0
6754160	Hax1	HCLS1 associated X-1	1	0	1
160948577	Hs1bp3	HCLS1 binding protein 3	2	0	0
75832031	Hddc2	HD domain containing 2	1	0	0
21312092	Hddc3	HD domain containing 3	1	0	0
84370019	Heca	headcase homolog	0	1	0
38505263	Heatr5a	HEAT repeat containing 5A	0	0	1
124487157	Heatr5b	HEAT repeat containing 5B	1	0	1
114145505	Hsph1	heat shock 105kD	14	1	0
82880662	Hspa14	heat shock 70kDa protein 14 isoform 1	0	4	0
124339829	Hspa1a	heat shock 70kDa protein 1A	17	18	11
124339826	Hspa1b	heat shock 70kDa protein 1B	1	1	1
124339838	Hspa1l	heat shock 70kDa protein 1-like	15	11	10
88196788	Tmem132a	heat shock 70kDa protein 5 binding protein 1	1	0	0
21311873	Hsbp1	heat shock factor binding protein 1	0	0	2

6680309	Hspe1	heat shock protein 1 (chaperonin 10)	6	0	0
183396771	Hspd1	heat shock protein 1 (chaperonin)	42	17	19
6754254	Hsp90aa1	heat shock protein 1, alpha	48	19	19
40556608	Hsp90ab1	heat shock protein 1, beta	26	7	11
50345978	Hspa2	heat shock protein 2	14	13	7
112293266	Hspa4	heat shock protein 4	29	14	2
40254361	Hspa4l	heat shock protein 4 like	5	1	0
254540168	Hspa5	heat shock protein 5	39	11	11
30089677	Hspa13	heat shock protein 70 family, member 13	2	0	0
31981690	Hspa8	heat shock protein 8	19	24	22
162461907	Hspa9	heat shock protein 9	33	14	19
40807498	Hrsp12	heat-responsive protein 12	6	0	0
257196144	Herc1	hect (homologous to the E6-AP (UBE3A) carboxyl terminus) domain and RCC1 (CHC1)-like domain (RLD) 1	1	0	0
134288898	Herc2	hect (homologous to the E6-AP (UBE3A) carboxyl terminus) domain and RCC1 (CHC1)-like domain (RLD) 2	2	1	1
32451488	Herc4	hect domain and RLD 4	0	0	1
146231996	Huwe1	HECT, UBA and WWE domain containing 1	1	0	0
124249064	Hhip1	hedgehog interacting protein-like 1	0	0	1
160358774	Hhip	Hedgehog-interacting protein precursor	1	0	0
19111156	Dhx30	HELG	1	2	0
165932362	Helb	helicase (DNA) B	0	0	1
50355943	Helz	helicase with zinc finger domain	1	0	1
12232371	Hells	helicase, lymphoid specific	0	8	10
6680237	Hn1	hematological and neurological expressed sequence 1	0	1	0
225007593	Hmox2	heme oxygenase (decycling) 2	13	0	1
17647499	Hbb-b2	hemoglobin, beta adult minor chain	0	1	0
6754164	Hc	hemolytic complement	1	0	0
124487077	Hs3st5	heparan sulfate (glucosamine) 3-O-sulfotransferase 5	0	0	1
60223081	Hs3st6	heparan sulfate (glucosamine) 3-O-sulfotransferase 6	1	0	0
225690608	Hs6st1	heparan sulfate 6-O-sulfotransferase 1	0	1	0
124486753	Hs3st2	heparan sulfate D-glucosaminyl 3-O-sulfotransferase 2	0	0	1
157042776	Ndst4	heparan sulfate N-deacetylase/N-sulfotransferase 4	1	1	1
22779887	Hpse	heparanase	0	0	1
124486931	Hpse2	heparanase 2	0	2	0
46575916	Hnf4a	hepatic nuclear factor 4, alpha	0	1	0
237820655	Hbxip	hepatitis B virus x interacting protein	1	0	0
170172522	Hgf	hepatocyte growth factor	0	1	0
188497724	Hdgf	hepatoma-derived growth factor	7	12	0
34787412	Hdgfrp3	hepatoma-derived growth factor, related protein 3	1	5	0
6680201	Hdgfrp2	hepatoma-derived growth factor-related protein 2	2	6	2
268607542	Hps5	Hermansky-Pudlak syndrome 5 isoform 1	0	1	0
254039596	Isca2	HESB like domain containing 1 isoform 1	5	0	0
21312189	Isca1	HESB like domain containing 2	1	0	0
171846285	Hp1bp3	heterochromatin protein 1, binding protein 3 isoform 1	0	24	13
146260280	Hnrnpab	heterogeneous nuclear ribonucleoprotein A/B isoform 1	8	16	10
226443091	Hnrnpa0	heterogeneous nuclear ribonucleoprotein A0	4	13	6
85060507	Hnrnpa1	heterogeneous nuclear ribonucleoprotein A1 isoform a	12	28	19
109134362	Hnrnpa2b1	heterogeneous nuclear ribonucleoprotein A2/B1 isoform 2	15	35	31
157277969	Hnrnpa3	heterogeneous nuclear ribonucleoprotein A3 isoform a	1	26	21
283436180	Hnrnpc	heterogeneous nuclear ribonucleoprotein C	5	12	16
116256518	Hnrnpd	heterogeneous nuclear ribonucleoprotein D isoform c	3	16	5
148664250	Hnrpdl	heterogeneous nuclear ribonucleoprotein D-like	1	9	7

261878599	Hnrnpf	heterogeneous nuclear ribonucleoprotein F	16	15	14
10946928	HnrnpH1	heterogeneous nuclear ribonucleoprotein H1	1	8	10
9845253	HnrnpH2	heterogeneous nuclear ribonucleoprotein H2	4	8	14
119637823	HnrnpH3	heterogeneous nuclear ribonucleoprotein H3	0	3	8
13384620	Hnrnpk	heterogeneous nuclear ribonucleoprotein K	16	24	20
183980004	HnrnpL	heterogeneous nuclear ribonucleoprotein L	6	33	22
110347535	HnrnpL-like	heterogeneous nuclear ribonucleoprotein L-like	5	21	3
158186704	HnrnpM	heterogeneous nuclear ribonucleoprotein M isoform a	8	16	40
33859724	HnrnpR	heterogeneous nuclear ribonucleoprotein R	5	23	10
160333923	HnrnpU	heterogeneous nuclear ribonucleoprotein U	27	48	29
21450323	HnrnpU1	heterogeneous nuclear ribonucleoprotein U-like 1 isoform 1	3	1	4
124487099	HnrnpU2	heterogeneous nuclear ribonucleoprotein U-like 2	3	23	28
20270289	Hexim1	hexamethylene bis-acetamide inducible 1	1	0	0
225735584	Hk1	hexokinase 1 isoform HK1-sb	35	37	37
7305143	Hk2	hexokinase 2	6	9	7
329755312	Hk3	hexokinase 3	0	1	0
21703836	Hkdc1	hexokinase domain containing 1	0	1	1
67514549	Hexa	hexosaminidase A	0	3	0
6754186	Hexb	hexosaminidase B	3	13	0
31982147	H6pd	hexose-6-phosphate dehydrogenase	15	1	0
226874952	Hgs	HGF-regulated tyrosine kinase substrate isoform 2	3	1	1
9789977	Higd1a	HIG1 domain family, member 1A	0	0	1
19527028	Hdlbp	high density lipoprotein binding protein	14	9	2
15022805	Hmg20a	high mobility group 20A	0	2	1
262331515	Hmga1	high mobility group AT-hook 1	0	7	2
6754210	Hmga2	high mobility group AT-hook 2	0	8	6
6754208	Hmgb1	high mobility group box 1	1	15	2
6680229	Hmgb2	high mobility group box 2	7	19	5
6680231	Hmgb3	high mobility group box 3	0	5	0
270132746	Hbp1	high mobility group box transcription factor 1 isoform 1	0	0	1
41406074	Hmgn1	high mobility group nucleosomal binding domain 1	0	3	2
8393534	Hmgn2	high mobility group nucleosomal binding domain 2	0	5	1
21313298	Hmgn3	high mobility group nucleosomal binding domain 3 isoform Hmgn3a	0	1	0
7949055	Hpcal1	hippocalcin-like 1	5	2	0
33468857	Hint1	histidine triad nucleotide binding protein 1	4	0	0
110625719	Hint2	histidine triad nucleotide binding protein 2	3	0	0
21312256	Dcps	histidine triad protein member 5	11	0	0
18079343	Hars2	histidyl-tRNA synthetase-like	2	0	0
227116337	H13	histocompatibility 13 isoform 2	3	0	0
294997253	H2-BI	histocompatibility 2, blastocyst	1	0	0
29244030	H2-M10.4	histocompatibility 2, M region locus 10.4	1	0	0
6754148	H2-T23	histocompatibility 2, T region locus 23	1	0	0
28076885	Hat1	histone acetyltransferase 1	1	0	0
52426778	Hira	histone cell cycle regulation defective homolog A	0	3	1
282154803	Nfu1	histone cell cycle regulation defective interacting protein 5	6	0	0
21426823	Hist1h1a	histone cluster 1, H1a	2	8	4
21426893	Hist1h1b	histone cluster 1, H1b	3	8	11
9845257	Hist1h1c	histone cluster 1, H1c	1	5	2
254588110	Hist1h1d	histone cluster 1, H1d	2	4	4
13430890	Hist1h1e	histone cluster 1, H1e	6	17	13
30061327	Hist1h2ah	histone cluster 1, H2ah	5	8	17

30061389	Hist1h2bl	histone cluster 1, H2bl	7	10	23
7305139	Hist1h3f	histone cluster 1, H3f	1	2	5
30061345	Hist1h3i	histone cluster 1, H3i	1	2	7
119433657	Hist2h2ab	histone cluster 2, H2ab	0	0	1
30089710	Hist2h2ac	histone cluster 2, H2ac	0	1	4
30061401	Hist2h3c1	histone cluster 2, H3c1 isoform 1	4	7	12
21361209	Hist2h4	histone cluster 2, H4	11	15	24
13386452	Hist3h2ba	histone cluster 3, H2ba	0	1	2
6680193	Hdac1	histone deacetylase 1	5	7	6
259089444	Hdac10	histone deacetylase 10	0	1	0
87162464	Hdac2	histone deacetylase 2	2	13	5
89257352	Hdac3	histone deacetylase 3	0	1	0
194353999	Hdac6	histone deacetylase 6	0	5	0
23956212	Htatsf1	HIV TAT specific factor 1	1	3	0
312261233	Bat2	HLA-B associated transcript 2	1	0	0
30519896	Bat5	HLA-B associated transcript 5	1	0	0
9790069	Bat1a	HLA-B-associated transcript 1A	6	12	7
33147082	Bat3	HLA-B-associated transcript 3	4	0	0
30794254	Hmgxb4	HMG box domain containing 4	0	1	0
213417775	Raly	hnRNP-associated with lethal yellow short isoform	2	7	14
6754232	Hoxa5	homeo box A5	0	1	0
160358780	Hoxb5	homeo box B5	0	1	0
88014652	Hoxb7	homeo box B7	0	0	1
21362265	Hoxb8	homeo box B8	0	1	0
158508520	Hoxd4	homeo box D4	0	1	0
154800435	Hoxc4	homeobox C4	0	0	1
31542626	Hmbox1	homeobox containing 1	0	1	0
227330557	Meis2	homeobox protein Meis2 isoform 1	0	2	0
161333817	Hipk4	homeodomain interacting protein kinase 4	0	0	1
171846263	Homer1	homer homolog 1 isoform S	1	0	0
22003856	Hook1	hook homolog 1	0	0	1
46559745	Hook3	hook homolog 3	0	1	0
87239972	Lipe	hormone-sensitive lipase isoform 1	1	0	0
124487041	Hcfc2	host cell factor 2	0	1	1
34328130	Hcfc1	host cell factor C1	0	27	0
32451500	Hcfc1r1	host cell factor C1 regulator 1	0	1	1
254281222	Htra2	HtrA serine peptidase 2	6	0	0
117938312	Hivep1	human immunodeficiency virus type I enhancer binding protein 1	1	0	0
85861241	Hivep2	human immunodeficiency virus type I enhancer binding protein 2	1	0	0
124107625	Hivep3	human immunodeficiency virus type I enhancer binding protein 3	0	1	1
255308928	Hip1r	huntingtin interacting protein 1 related	0	4	2
9055244	Prpf40b	huntington yeast partner C	3	2	0
15042971	Hapln2	hyaluronan and proteoglycan link protein 2	1	0	0
31982256	Hapln3	hyaluronan and proteoglycan link protein 3 precursor	0	1	0
226693396	Hmmr	hyaluronan mediated motility receptor (RHAMM)	1	0	0
116812879	Hyal4	hyaluronoglucosaminidase 4	1	1	0
125660448	Hyal6	hyaluronoglucosaminidase 6	1	0	0
46361984	Hydin	hydrocephalus inducing	1	1	0
157168326	Atp12a	hydrogen/potassium-exchanging ATPase 12A	4	0	3
110225337	Atp4a	hydrogen/potassium-exchanging ATPase 4A	2	0	1
6754156	Hao1	hydroxyacid oxidase 1	0	1	0



6188838	Hsd17b10	hydroxyacyl-Coenzyme A dehydrogenase type II	16	15	8
227499240	Hagh	hydroxyacylglutathione hydrolase isoform 1 precursor	3	0	0
159110463	Hmbs	hydroxymethylbilane synthase isoform 1	3	0	0
9789991	Hsd17b12	hydroxysteroid (17-beta) dehydrogenase 12	8	0	5
254553342	Hsd17b13	hydroxysteroid (17-beta) dehydrogenase 13 isoform 2	2	0	0
31982273	Hsd17b4	hydroxysteroid (17-beta) dehydrogenase 4	24	25	3
30424792	Hsd1	hydroxysteroid dehydrogenase like 1	2	0	0
125656150	Hsd12	hydroxysteroid dehydrogenase like 2	11	4	0
70887767	Hic2	hypermethylated in cancer 2	2	1	1
22122445	Cdc73	hyperparathyroidism 2 homolog	0	16	0
6680189	Hcn2	hyperpolarization-activated, cyclic nucleotide-gated K+ 2	1	0	0
94369765	EG668353	hypothetical protein	1	0	0
94388081	LOC668374	hypothetical protein	0	0	1
149263159	EG666385	hypothetical protein	0	1	0
149257764	B230311B06Rik	hypothetical protein	1	0	0
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309267832	LOC668936	hypothetical protein	0	0	1
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309269480	1700120B22Rik	hypothetical protein	0	1	1
149254708	LOC100044759	hypothetical protein	1	0	0
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309268753	9430025M13Rik	hypothetical protein	0	0	1
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149257604	LOC100040457	hypothetical protein	0	0	1
149250350	LOC100045469	hypothetical protein	1	0	1
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149255138	LOC100041292	hypothetical protein	0	0	1
149254313	LOC100046490	hypothetical protein	0	1	0
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149259263	LOC672594	hypothetical protein	0	0	1
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149263073	LOC100047152	hypothetical protein	0	0	1
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149249307	LOC100042629	hypothetical protein	1	0	0
149265667	LOC668482	hypothetical protein	1	1	0
149241159	LOC100048181	hypothetical protein	0	0	1
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149249713	A530010F05Rik	hypothetical protein	0	0	1
149262913	LOC100043531	hypothetical protein	1	0	0
149249726	LOC100048696	hypothetical protein	1	0	0
149265865	LOC100043821	hypothetical protein	2	0	1
149265875	LOC100043831	hypothetical protein	0	0	1
149260402	LOC100043812	hypothetical protein	1	0	0

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253314482	4732474O15Rik	hypothetical protein	0	1	0
268831712	LOC242627	hypothetical protein	1	0	0
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256574776	E030011K20Rik	hypothetical protein	1	0	0
83027669	Gm872	hypothetical protein	0	0	1
51766932	EG432676	hypothetical protein	1	0	0
149270270	EG433216	hypothetical protein	0	0	1
82922589	EG434394	hypothetical protein	0	0	1
309263699	Gm318	hypothetical protein	0	1	0
82995190	EG545226	hypothetical protein	2	2	2
94392820	ENSMUSG0000045946	hypothetical protein	1	0	0
94374968	EG624049	hypothetical protein	1	0	0
82900352	LOC624698	hypothetical protein	1	0	0
293629305	EG626058	hypothetical protein	0	1	1
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309269577	EG626858	hypothetical protein	0	0	1
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309266992	EG627311	hypothetical protein	0	0	1
256223290	EG628705	hypothetical protein	0	1	0
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82953379	EG620119	hypothetical protein	1	1	1
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149264516	LOC634601	hypothetical protein	1	0	0
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149266697	I830127L07Rik	hypothetical protein	0	0	1
149267099	Gm920	hypothetical protein	1	0	1
149264576	LOC625662	hypothetical protein	0	0	1
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82997285	EG637748	hypothetical protein	1	0	1
82994583	EG621988	hypothetical protein	0	1	0
149262665	A830035A12Rik	hypothetical protein	0	0	1
149261734	LOC633367	hypothetical protein	1	0	0
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149254346	LOC638038	hypothetical protein	1	0	0
94366216	LOC433415	hypothetical protein	1	0	0
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94381514	LOC674339	hypothetical protein	0	1	0
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94375796	LOC667386	hypothetical protein	1	0	1

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94375021	EG666527	hypothetical protein	0	1	1
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262399402	EG639025	hypothetical protein	0	1	0
94395353	EG666856	hypothetical protein	0	1	1
262050614	4930407110Rik	hypothetical protein	0	0	1
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149264220	EG638833	hypothetical protein	2	0	0
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149271772	EG668103	hypothetical protein	1	0	0
260593694	Syde2	hypothetical protein	1	1	0
149256553	Wdr88	hypothetical protein	1	0	0
309272933	LOC100039192	hypothetical protein isoform 1	1	0	0
94384306	EG667847	hypothetical protein isoform 2	0	0	1
150010568	Gm11273	hypothetical protein LOC100040340	3	2	5
169808401	Gm10639	hypothetical protein LOC100042314	1	0	0
154689748	Gm4297	hypothetical protein LOC100043216	0	1	0
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156119549	LOC100048775	hypothetical protein LOC100048775	0	0	1
153945763	1700047117Rik2	hypothetical protein LOC100101807	3	0	0
309272110	Al481877	hypothetical protein LOC100155	0	1	0
30424982	Fam46b	hypothetical protein LOC100342	1	0	0
153791366	AA792892	hypothetical protein LOC100554	0	1	0
19527154	6720456B07Rik	hypothetical protein LOC101314	1	3	0
56090602	D8ErtD738e	hypothetical protein LOC101966	0	1	0
309269999	AA414992	hypothetical protein LOC102402	1	1	1
295054298	0610010K14Rik	hypothetical protein LOC104457	0	3	0
294997276	Fam149b	hypothetical protein LOC105428 isoform 1	0	1	0
110625732	Al314976	hypothetical protein LOC106821	1	4	0
261245048	Al790298	hypothetical protein LOC107239 isoform 3	1	0	1
13386132	4632417K18Rik	hypothetical protein LOC107373	1	1	0
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61657928	4933409K07Rik	hypothetical protein LOC108816	1	0	0
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148491086	Fam175b	hypothetical protein LOC109359	1	0	0
113931644	Fam83b	hypothetical protein LOC208994	0	0	1
22122389	1110007A13Rik	hypothetical protein LOC210711	1	1	0

112817622	D15Ert621e	hypothetical protein LOC210998	1	0	0
269784766	Gm382	hypothetical protein LOC211208	1	0	0
253970387	BC021381	hypothetical protein LOC212483	0	0	1
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162138942	Gm381	hypothetical protein LOC214308	0	0	1
268607692	BC003965	hypothetical protein LOC214489	1	0	0
116812912	E330016A19Rik	hypothetical protein LOC214763	1	0	0
21703824	Fam20b	hypothetical protein LOC215015	5	0	0
167621420	D930020B18Rik	hypothetical protein LOC216393	0	0	1
21450219	BC017643	hypothetical protein LOC217370	1	0	0
226958568	BC002230	hypothetical protein LOC217827 isoform 1	0	1	0
31981784	9030617O03Rik	hypothetical protein LOC217830	3	0	0
226958579	1300010F03Rik	hypothetical protein LOC219189	1	0	0
21450053	Fam49b	hypothetical protein LOC223601	6	0	0
21735489	C030006K11Rik	hypothetical protein LOC223665 isoform 2	1	1	0
85701776	5031439G07Rik	hypothetical protein LOC223739	1	0	0
260593706	4930455B06Rik	hypothetical protein LOC223825	0	0	2
31541868	2310008H04Rik	hypothetical protein LOC224008	1	0	0
29244026	Fam43a	hypothetical protein LOC224093	0	0	1
113461986	D17Wsu92e	hypothetical protein LOC224647 isoform 1	0	0	1
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23346595	2410015M20Rik	hypothetical protein LOC224904	1	0	2
21450105	BC021614	hypothetical protein LOC225884	0	0	1
242247266	Gm98	hypothetical protein LOC225908 isoform 2	1	0	0
124486767	C030046E11Rik	hypothetical protein LOC226089	1	0	0
124487015	Fam178a	hypothetical protein LOC226151	0	1	0
256665261	9930023K05Rik	hypothetical protein LOC226245	1	0	0
27369930	4632411B12Rik	hypothetical protein LOC226976	1	0	0
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305682577	D2Wsu81e	hypothetical protein LOC227695	0	1	0
22122641	Fam129b	hypothetical protein LOC227737	7	1	0
126157490	4833423E24Rik	hypothetical protein LOC228151	0	1	0
85701806	Gm561	hypothetical protein LOC228715	1	0	0
29244072	6820408C15Rik	hypothetical protein LOC228778	0	1	0
124487299	B230339M05Rik	hypothetical protein LOC228850	0	1	0
114205395	D930015E06Rik	hypothetical protein LOC229473	0	1	0
158341634	Fam160a1	hypothetical protein LOC229488	0	1	0
67625729	Gm128	hypothetical protein LOC229588	0	1	0
169646306	Fam40a	hypothetical protein LOC229707	0	0	1
37718970	AI314180	hypothetical protein LOC230249	4	1	0
124487123	BC057079	hypothetical protein LOC230393	0	0	1
59958368	AU022252	hypothetical protein LOC230696	1	0	0
26024305	Fam176b	hypothetical protein LOC230752	0	0	1
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85861260	C230096C10Rik	hypothetical protein LOC230866 isoform 1	11	0	5

22122693	BC023882	hypothetical protein LOC231123	0	1	0
148664203	BC023744	hypothetical protein LOC231668	1	0	0
55742803	C330023M02Rik	hypothetical protein LOC231713	1	3	0
82546849	C330006K01Rik	hypothetical protein LOC231855	0	0	1
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29244114	AU022870	hypothetical protein LOC231874	1	0	0
223633888	D430041B17Rik	hypothetical protein LOC232813	0	0	1
124486628	D430042O09Rik	hypothetical protein LOC233865	0	1	0
110681698	D10627	hypothetical protein LOC234358	1	0	0
21450339	AU018778	hypothetical protein LOC234564	0	1	0
255069806	6430548M08Rik	hypothetical protein LOC234797 isoform a	0	1	0
113866019	AK129341	hypothetical protein LOC234915	0	1	0
85702063	1700071K01Rik	hypothetical protein LOC237880	9	1	6
283046769	BC068281	hypothetical protein LOC238037	0	1	0
22003884	6430527G18Rik	hypothetical protein LOC238330	11	6	2
226053365	AI836003	hypothetical protein LOC239650	0	0	1
269914154	4732456N10Rik	hypothetical protein LOC239673	2	2	3
159110675	A630033E08Rik	hypothetical protein LOC240041 isoform b	0	1	0
22122835	BC031441	hypothetical protein LOC240120	0	0	1
124378024	6330439K17Rik	hypothetical protein LOC241688	2	0	0
30425280	4930412F15Rik	hypothetical protein LOC242408	1	0	0
148227266	4930500O05Rik	hypothetical protein LOC242409	0	0	1
148225566	Gm4987	hypothetical protein LOC245405	2	0	2
262118195	4930595M18Rik	hypothetical protein LOC245492	0	0	1
22122859	BC031748	hypothetical protein LOC245622	0	0	1
147900187	E030025P04Rik	hypothetical protein LOC268498	0	1	0
124430709	2310021P13Rik	hypothetical protein LOC268721	0	0	1
256355176	AI480653	hypothetical protein LOC268880	1	0	0
167830469	3110057O12Rik	hypothetical protein LOC269423	1	0	1
282396075	C030048B08Rik	hypothetical protein LOC269623	1	0	0
256220954	BC030046	hypothetical protein LOC277154	0	1	0
187280849	Gm13083	hypothetical protein LOC279185	0	1	0
267844902	D6Wsu116e	hypothetical protein LOC28006	1	0	0
21703842	D10Wsu52e	hypothetical protein LOC28088	6	6	2
18250288	D17Wsu104e	hypothetical protein LOC28106	3	0	0
119392079	BC049715	hypothetical protein LOC320135	1	0	0
124486602	4930473A06Rik	hypothetical protein LOC320226	3	0	0
86198339	A930041I02Rik	hypothetical protein LOC320271	0	1	0
130502228	A430107D22Rik	hypothetical protein LOC320484	1	0	0
83627724	Fam40b	hypothetical protein LOC320609 isoform a	0	0	1
254939685	A430041B07Rik	hypothetical protein LOC328108 isoform 11	1	0	0
187283015	Gm13109	hypothetical protein LOC329984	0	1	0

56090469	BC080695	hypothetical protein LOC329986	0	1	0
34303989	Gm5111	hypothetical protein LOC330305	0	0	1
141801938	D330038O06Rik	hypothetical protein LOC330788	0	0	1
197384598	Gm15104	hypothetical protein LOC333588	1	0	0
94388845	4930485B16Rik	hypothetical protein LOC380654	1	2	0
53749206	Gm1574	hypothetical protein LOC380842	1	1	0
85701949	Gm906	hypothetical protein LOC380882	0	0	1
49457863	C230021P08Rik	hypothetical protein LOC380969	1	0	0
85702244	2210404J11Rik	hypothetical protein LOC381062 isoform 1	1	1	1
50284537	BC049807	hypothetical protein LOC381066	0	1	0
124244085	Gm973	hypothetical protein LOC381260	1	0	0
38348552	B930007M17Rik	hypothetical protein LOC381476	0	1	0
256017234	C87414	hypothetical protein LOC381654 isoform 6	0	0	1
38348570	4930590J08Rik	hypothetical protein LOC381798	1	1	1
158937284	Cpxcr1	hypothetical protein LOC382239	0	1	0
197333803	Fam55c	hypothetical protein LOC385658	0	1	0
142383655	BC066028	hypothetical protein LOC407812	0	0	2
62000658	E130309D14Rik	hypothetical protein LOC432582	1	0	0
164519048	Fam105b	hypothetical protein LOC432940	0	0	1
197313752	Gm5538	hypothetical protein LOC433597	0	1	0
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51921355	BC057022	hypothetical protein LOC433940	1	0	0
62000668	Fam169b	hypothetical protein LOC434197	1	0	0
56606037	BC085271	hypothetical protein LOC434632	5	6	1
85702181	6330534C20Rik	hypothetical protein LOC434778	0	0	1
13384936	D10ErtD641e	hypothetical protein LOC52717	0	2	0
26553441	D1Bwg0212e	hypothetical protein LOC52846	0	0	1
147901636	Gm13298	hypothetical protein LOC545611	0	1	0
148238094	Gm13276	hypothetical protein LOC545649	0	0	1
75832179	Gm16367	hypothetical protein LOC545762	0	0	1
148222101	Gm13178	hypothetical protein LOC546849	0	1	0
120587013	Fam181b	hypothetical protein LOC58238	0	0	1
10946822	0610007P14Rik	hypothetical protein LOC58520	2	0	1
85702129	4930428D18Rik	hypothetical protein LOC619294	1	0	1
85702306	Gm6320	hypothetical protein LOC622408	0	0	1
254540148	Gm6583	hypothetical protein LOC625424	0	1	0
148229840	Gm13101	hypothetical protein LOC626922	1	0	0
169234924	Gm13125	hypothetical protein LOC627009	1	0	0
149588862	Gm6812	hypothetical protein LOC627927	0	0	1
85986673	Gm7276	hypothetical protein LOC639653	0	0	1
292781931	D14ErtD449e	hypothetical protein LOC66039	2	0	0
124487393	0910001L09Rik	hypothetical protein LOC66096	2	0	0
227908787	1110008L16Rik	hypothetical protein LOC66132	0	1	0
13384786	1110031I02Rik	hypothetical protein LOC66179	0	0	1
124487145	1110037F02Rik	hypothetical protein LOC66185	0	15	0
13384816	1110059E24Rik	hypothetical protein LOC66206	0	1	0
77917612	Fam134b	hypothetical protein LOC66270 isoform 1	1	0	0
116008181	1810012P15Rik	hypothetical protein LOC66274	1	0	0
13384876	1810009A15Rik	hypothetical protein LOC66276	0	2	0
224177530	1810013D10Rik	hypothetical protein LOC66278	1	0	0

13384908	1700011A15Rik	hypothetical protein LOC66322	0	1	3
269996023	2310008H09Rik	hypothetical protein LOC66356	1	0	0
30794468	2410001C21Rik	hypothetical protein LOC66404	1	4	0
13384992	1810049H13Rik	hypothetical protein LOC66431	1	0	0
89111930	BC003883	hypothetical protein LOC664621	1	0	0
13385042	2010309E21Rik	hypothetical protein LOC66488	2	0	0
165932364	2610528E23Rik	hypothetical protein LOC66497	0	3	0
242332593	2400001E08Rik	hypothetical protein LOC66508	1	0	1
33457314	2310061C15Rik	hypothetical protein LOC66531	1	0	0
157364970	Gm11808	hypothetical protein LOC666586	3	5	4
27228993	6330409N04Rik	hypothetical protein LOC66674	2	0	0
160333500	Gm14446	hypothetical protein LOC667373 isoform 2	1	0	1
21313338	4933411K16Rik	hypothetical protein LOC66765	0	1	0
229577364	1200016B10Rik	hypothetical protein LOC66875	0	0	1
167908803	Gm14160	hypothetical protein LOC668929	0	0	1
148276987	2410002O22Rik	hypothetical protein LOC66975 isoform 2	1	0	0
224967102	2010011I20Rik	hypothetical protein LOC67017	1	0	0
21362305	2900011O08Rik	hypothetical protein LOC67254	0	1	0
13385560	2900010M23Rik	hypothetical protein LOC67267	1	3	0
51571945	5730559C18Rik	hypothetical protein LOC67313	0	1	0
94366451	1700084E18Rik	hypothetical protein LOC67350	0	0	1
31981066	2410127L17Rik	hypothetical protein LOC67383	1	0	0
227330590	1810074P20Rik	hypothetical protein LOC67490	1	0	0
21313570	1810037I17Rik	hypothetical protein LOC67704	1	0	0
21312816	Fam114a2	hypothetical protein LOC67726	3	0	2
254588114	4930560E09Rik	hypothetical protein LOC67737	0	1	0
21312800	5033414D02Rik	hypothetical protein LOC67759	1	0	6
268837283	5830433M19Rik	hypothetical protein LOC67770	0	1	0
169646352	2610027L16Rik	hypothetical protein LOC67842	0	2	2
13385904	1700021F05Rik	hypothetical protein LOC67851	1	4	0
13259376	2310033P09Rik	hypothetical protein LOC67862	1	1	1
30424683	1810063B05Rik	hypothetical protein LOC67892	1	1	0
13385950	2510049I19Rik	hypothetical protein LOC67922	0	0	1
28077025	Fam134c	hypothetical protein LOC67998 isoform 2	2	0	0
13386026	2700060E02Rik	hypothetical protein LOC68045	8	9	1
145587094	9430016H08Rik	hypothetical protein LOC68115	2	0	0
170650597	Fam114a1	hypothetical protein LOC68303	1	0	0
124486662	1110014N23Rik	hypothetical protein LOC68505	2	0	1
20901299	1110020A21Rik	hypothetical protein LOC68531	0	1	0
85362708	2310036O22Rik	hypothetical protein LOC68544	0	4	0
134053922	1110002N22Rik	hypothetical protein LOC68550	0	4	2
146134519	1110020G09Rik	hypothetical protein LOC68646 isoform 2	1	0	0
170172570	1110028C15Rik	hypothetical protein LOC68691 isoform 1	0	1	0
83649762	ORF19	hypothetical protein LOC68767	3	1	0
112181297	1110038D17Rik	hypothetical protein LOC68778	1	0	0
269995975	1110057K04Rik	hypothetical protein LOC68832	2	0	0
58037137	1500032L24Rik	hypothetical protein LOC69029	3	0	1



224591395	4930579G22Rik	hypothetical protein LOC69034	1	0	0
110625730	1810027O10Rik	hypothetical protein LOC69186	1	0	1
110625717	2610034M16Rik	hypothetical protein LOC69239	1	0	0
267844862	1700011H22Rik	hypothetical protein LOC69314	1	0	0
254675210	2310004N24Rik	hypothetical protein LOC69535	0	1	0
281427239	2310010M20Rik	hypothetical protein LOC69576	0	1	0
31981558	2310037I24Rik	hypothetical protein LOC69612	0	1	0
30519953	1810026J23Rik	hypothetical protein LOC69773	1	0	0
149253713	1600023N17Rik	hypothetical protein LOC69788	0	0	1
117647253	2010321M09Rik	hypothetical protein LOC69882	0	9	1
28076933	2010305A19Rik	hypothetical protein LOC69893	3	0	0
21312460	2010107G23Rik	hypothetical protein LOC69894	1	0	0
227430284	2810432D09Rik	hypothetical protein LOC69961	0	2	0
21312536	2310005N01Rik	hypothetical protein LOC70088	0	2	2
309271794	2210011C24Rik	hypothetical protein LOC70134	0	2	5
121583673	2510012J08Rik	hypothetical protein LOC70312	0	0	1
227330606	2610109H07Rik	hypothetical protein LOC70433	0	0	1
27229101	5730469M10Rik	hypothetical protein LOC70564	5	0	1
28076961	5730508B09Rik	hypothetical protein LOC70617	1	0	1
21389313	4921507P07Rik	hypothetical protein LOC70821	0	1	0
166795271	4921517L17Rik	hypothetical protein LOC70873	1	0	0
46559372	4921511H03Rik	hypothetical protein LOC70920	1	0	0
94407493	4931400O07Rik	hypothetical protein LOC70936	1	0	0
254588072	4921539E11Rik	hypothetical protein LOC70941 isoform 3	0	0	1
313747468	4931406C07Rik	hypothetical protein LOC70984	2	0	0
13386252	4933421I07Rik	hypothetical protein LOC71162	1	0	0
116089316	5430419D17Rik	hypothetical protein LOC71395	0	0	1
124486859	9030418K01Rik	hypothetical protein LOC71532	0	0	1
139947660	9130011E15Rik	hypothetical protein LOC71617	1	0	0
166851844	4930506M07Rik	hypothetical protein LOC71653 isoform 2	4	0	0
117956375	0610010F05Rik	hypothetical protein LOC71675	0	1	0
254553418	1700019O17Rik	hypothetical protein LOC71863 isoform 3	1	0	0
239937493	2310002L09Rik	hypothetical protein LOC71886 isoform 2	0	1	0
124487325	2010317E24Rik	hypothetical protein LOC72080	0	0	1
259013526	2810406K13Rik	hypothetical protein LOC72184 isoform 1	0	1	0
251823881	1700030K09Rik	hypothetical protein LOC72254	1	0	0
262118187	2610507B11Rik	hypothetical protein LOC72503	1	0	0
254692993	2610307O08Rik	hypothetical protein LOC72512 isoform 12	1	0	0
198278498	2700029M09Rik	hypothetical protein LOC72612	0	3	0
33859720	2810006K23Rik	hypothetical protein LOC72650 isoform a	1	2	0
139948818	Fam98a	hypothetical protein LOC72722	0	2	0
315139016	2810455K09Rik	hypothetical protein LOC72805	0	1	0
28849885	Fam76b	hypothetical protein LOC72826	1	3	0

268607568	2900006K08Rik	hypothetical protein LOC72873	0	1	0
153791468	3110003A17Rik	hypothetical protein LOC73112	1	0	0
146134371	3110082I17Rik	hypothetical protein LOC73212	2	3	1
110625952	1700054N08Rik	hypothetical protein LOC73420	0	1	0
83019564	1700055N04Rik	hypothetical protein LOC73458 isoform 1	1	0	0
258679514	1700001O22Rik	hypothetical protein LOC73598	0	0	1
259906436	2410076I21Rik	hypothetical protein LOC73673 isoform 2	1	0	0
158937256	2410091C18Rik	hypothetical protein LOC73694	0	0	1
255982598	4930431J08Rik	hypothetical protein LOC73884	1	1	0
21311939	1300018I05Rik	hypothetical protein LOC74157	0	1	0
21312668	2210009G21Rik	hypothetical protein LOC74243 isoform 1	0	0	1
82914092	1700095J03Rik	hypothetical protein LOC74293	1	1	0
268370019	1700106J16Rik	hypothetical protein LOC74297	1	0	0
198278494	4933433C11Rik	hypothetical protein LOC74472	1	0	0
33859728	4933427D14Rik	hypothetical protein LOC74477	0	1	0
21312828	4930444A02Rik	hypothetical protein LOC74653	0	1	0
70778924	4930432O21Rik	hypothetical protein LOC74670	0	0	1
241982721	4930505D03Rik	hypothetical protein LOC74694	1	0	0
149249613	4930517E11Rik	hypothetical protein LOC74702	1	0	0
58037391	4930417G10Rik	hypothetical protein LOC74855	1	0	0
229577050	4930455F23Rik	hypothetical protein LOC74895	0	1	0
188497646	4930471M23Rik	hypothetical protein LOC74919	1	0	0
149263484	4930463M05Rik	hypothetical protein LOC74947	1	0	0
41680647	Fam63a	hypothetical protein LOC75007	2	0	0
309271050	4930505H01Rik	hypothetical protein LOC75039	0	1	0
118150478	4930578N16Rik	hypothetical protein LOC75051	1	0	0
254910967	4930563E22Rik	hypothetical protein LOC75304 isoform 3	1	0	0
90819235	4930547N16Rik	hypothetical protein LOC75317	1	0	1
124487453	1100001E04Rik	hypothetical protein LOC75404	0	0	1
242247213	3100002J23Rik	hypothetical protein LOC75429 isoform 2	0	2	0
27229109	3200002M19Rik	hypothetical protein LOC75430	0	1	0
254675147	1700011E24Rik	hypothetical protein LOC75467 isoform 2	0	1	0
149271661	1700019B21Rik	hypothetical protein LOC75545	1	0	0
145301546	Fam65a	hypothetical protein LOC75687	1	0	0
34147101	4932414N04Rik	hypothetical protein LOC75721	0	1	0
187607842	4930525F21Rik	hypothetical protein LOC75823	1	0	1
149263204	5033425G24Rik	hypothetical protein LOC75998	1	0	0
113461996	6330578E17Rik	hypothetical protein LOC76178	0	1	0
268370105	1500005K14Rik	hypothetical protein LOC76566	0	2	1
21313252	1700027D21Rik	hypothetical protein LOC76573	1	0	0
124486668	1700081L11Rik	hypothetical protein LOC76719	0	0	1
244790037	2610029I01Rik	hypothetical protein LOC77032	1	0	0
149263528	9430024F10Rik	hypothetical protein LOC77271	0	0	1
166063959	C330007P06Rik	hypothetical protein LOC77644	0	1	0

83028090	A930009A15Rik	hypothetical protein LOC77798	0	1	0
261599071	6030458C11Rik	hypothetical protein LOC77877	1	0	0
94363736	A030003K21Rik	hypothetical protein LOC77913	1	0	0
82880741	A030005L19Rik	hypothetical protein LOC77922	1	0	0
149269931	4930578E11Rik	hypothetical protein LOC78058	1	0	0
94366941	6430503K07Rik	hypothetical protein LOC78068	0	1	0
21704218	8430410K20Rik	hypothetical protein LOC78100	0	0	1
149245226	4930439D14Rik	hypothetical protein LOC78167	0	0	1
94400636	4930578N18Rik	hypothetical protein LOC78215	0	1	0
149268292	3300005D01Rik	hypothetical protein LOC78512	0	0	1
31044487	B230219D22Rik	hypothetical protein LOC78521	0	5	3
21313496	4930555I21Rik	hypothetical protein LOC78806	1	0	0
285402250	2700078E11Rik	hypothetical protein LOC78832	1	0	0
82907090	B230218P12Rik	hypothetical protein LOC78880 isoform 2	0	1	0
13384892	BC003266	hypothetical protein LOC80284	1	0	0
190014629	C430004E15Rik	hypothetical protein LOC97031	0	6	1
75677516	C77080	hypothetical protein LOC97130	0	2	0
247300872	A430005L14Rik	hypothetical protein LOC97159 isoform 1	0	2	0
19527012	4833439L19Rik	hypothetical protein LOC97820	1	0	0
270309107	5033414K04Rik	hypothetical protein LOC98496	1	0	0
96975138	Hprt1	hypoxanthine phosphoribosyltransferase 1	4	0	0
157951706	Hyou1	hypoxia up-regulated 1	39	7	0
7657220	Icosl	icos ligand	1	0	0
170172526	Idua	iduronidase, alpha-L-	0	1	0
33468955	Ik	IK cytokine	1	6	10
31982165	Ikzf5	IKAROS family zinc finger 5	0	0	1
30424591	Ilvbl	ilvB (bacterial acetolactate synthase)-like	0	1	0
19387848	Ict1	immature colon carcinoma transcript 1	1	4	0
6680351	Irgm1	immunity-related GTPase family M member 1	1	0	1
208431800	Irgq	immunity-related GTPase family, Q	0	0	1
304555605	Igpb1	immunoglobulin (CD79A) binding protein 1	1	0	0
153945808	Ighmbp2	immunoglobulin mu binding protein 2	1	0	1
71040102	Cadm1	immunoglobulin superfamily, member 4A isoform a	2	0	0
32189434	Igsf8	immunoglobulin superfamily, member 8	1	0	0
19527196	Imp3	IMP3, U3 small nucleolar ribonucleoprotein, homolog	0	3	4
298676498	Magt1	implantation-associated protein	1	0	1
31541898	Ipo11	importin 11	0	0	2
29789199	Ipo5	importin 5	1	0	2
112734861	Ipo9	importin 9	3	0	4
55769581	Inadl	InaD-like isoform 1	1	0	11
6678281	Inmt	indolethylamine N-methyltransferase	8	0	7
19111152	Ing4	inhibitor of growth family, member 4	0	1	1
21313552	Ing5	inhibitor of growth family, member 5	0	0	1
70608131	Immt	inner membrane protein, mitochondrial	24	0	38
27369894	Ino80c	INO80 complex subunit C	0	3	0
167830449	Ino80d	INO80 complex subunit D isoform 1	0	1	0
22203753	Ppa2	inorganic pyrophosphatase 2	5	0	0
31981382	Impdh2	inosine 5'-phosphate dehydrogenase 2	1	0	0
31982664	Itpa	inosine triphosphatase	3	0	0
31980942	Impa1	inositol (myo)-1(or 4)-monophosphatase 1	6	0	0

39979616	Ippk	inositol 1,3,4,5,6-pentakisphosphate 2-kinase	1	0	0
60593032	Itpr2	inositol 1,4,5-triphosphate receptor 2 isoform 1	1	1	1
61102728	Itpr3	inositol 1,4,5-triphosphate receptor 3	0	0	1
22122643	Itpka	inositol 1,4,5-trisphosphate 3-kinase A	0	1	0
31712006	Itpkc	inositol 1,4,5-trisphosphate 3-kinase C	0	0	1
225903432	Ip6k2	inositol hexaphosphate kinase 2	0	1	0
13249351	Ern1	inositol-requiring 1 alpha	1	0	0
121583922	Ide	insulin-degrading enzyme	9	0	0
6753518	Igf2bp1	insulin-like growth factor 2 mRNA binding protein 1	0	4	0
145207996	Igf2bp2	insulin-like growth factor 2 mRNA binding protein 2	16	9	7
133778978	Igf2r	insulin-like growth factor 2 receptor	14	0	0
226958453	Igfbp7	insulin-like growth factor binding protein 7 isoform 2	1	1	0
112983656	Igf1r	insulin-like growth factor I receptor	1	0	0
148747128	Stt3a	integral membrane protein 1	5	0	0
6680502	Itm2b	integral membrane protein 2B	3	0	0
294832004	Ints1	integrator complex subunit 1	1	19	4
27229115	Ints10	integrator complex subunit 10	1	2	1
86476084	Ints2	integrator complex subunit 2	0	2	1
31652268	Ints3	integrator complex subunit 3	0	26	3
30794414	Ints4	integrator complex subunit 4	0	13	4
28849895	Ints5	integrator complex subunit 5	0	5	2
51467749	Ints6	integrator complex subunit 6	0	0	1
153791768	Ints7	integrator complex subunit 7	0	2	1
227430333	Ints8	integrator complex subunit 8	1	2	0
153791389	Itga1	integrin alpha 1	9	0	0
225703035	Itga11	integrin alpha 11	1	0	0
7305189	Itga3	integrin alpha 3	24	0	0
31982236	Itga6	integrin alpha 6	17	0	0
268839462	Itfg1	integrin alpha FG-GAP repeat containing 1	2	0	0
329744577	Itfg3	integrin alpha FG-GAP repeat containing 3	3	0	0
132626295	Itgam	integrin alpha M isoform 2 precursor	1	0	0
154240716	Itgav	integrin alpha V	22	0	0
45504394	Itgb1	integrin beta 1	25	0	0
6680488	Itgb1bp1	integrin beta 1 binding protein 1	0	1	0
110735428	Itgb4	integrin beta 4 isoform 1	12	0	0
225007621	Itgb5	integrin beta 5 isoform 1	6	0	0
227116271	Itgb6	integrin beta 6	4	0	1
160708008	Itgb7	integrin beta 7	1	0	0
124249086	Itgb8	integrin beta 8	1	1	0
240255653	Ilk	integrin-linked kinase	0	1	0
39930415	Ilkap	integrin-linked kinase-associated serine/threonine phosphatase 2C	0	1	0
124249351	Itih1	inter-alpha trypsin inhibitor, heavy chain 1	1	0	0
126722649	Ifna2	interferon alpha family, gene 2	1	0	0
125628657	Ifi30	interferon gamma inducible protein 30	5	0	0
257096038	Ifih1	interferon induced with helicase C domain 1	0	1	0
162287051	Irf2	interferon regulatory factor 2	0	2	0
31982348	Irf2bp1	interferon regulatory factor 2 binding protein 1	1	0	1
114145467	Irf6	interferon regulatory factor 6	0	1	0
165377193	Isg20	interferon stimulated exonuclease	2	4	0
33469019	Prkrir	interferon-inducible, double stranded RNA dependent inhibitor, protein-kinase	0	2	0
226062273	Ifrd1	interferon-related developmental regulator 1	1	0	1
13507616	Il1rapl2	interleukin 1 receptor accessory protein-like 2	1	0	1

183396776	Il1r1	interleukin 1 receptor, type I isoform 1	0	0	1
6680405	Il13ra2	interleukin 13 receptor, alpha 2	0	1	0
6754326	Il18rap	interleukin 18 receptor accessory protein	1	0	0
254540187	Il2ra	interleukin 2 receptor, alpha chain	0	1	0
257900495	Il33	interleukin 33	0	1	0
254553434	Il4i1	interleukin 4 induced 1	0	0	1
30142679	Il8ra	interleukin 8 receptor, alpha	0	0	1
13385872	Ilf2	interleukin enhancer binding factor 2	1	17	9
111607436	Ilf3	interleukin enhancer binding factor 3 isoform 1	0	23	12
158517890	Impg1	interphotoreceptor matrix proteoglycan 1	0	0	1
255522773	Ick	intestinal cell kinase	0	0	1
184186088	Ift140	intraflagellar transport 140	0	1	0
21312562	Iyd	iodotyrosine dehalogenase 1 protein	1	0	0
255003688	Iqcb1	IQ calmodulin-binding motif containing 1	0	0	1
255683447	Iqub	IQ motif and ubiquitin domain containing	1	0	0
254039594	Iqwd1	IQ motif and WD repeats 1	0	1	0
40254171	Iqce	IQ motif containing E	0	1	1
54020727	Iqcf4	IQ motif containing F4	1	0	0
30410018	Iqcg	IQ motif containing G	1	0	0
242332572	Iqgap1	IQ motif containing GTPase activating protein 1	55	45	30
118344444	Iqgap2	IQ motif containing GTPase activating protein 2	2	1	1
31543001	Tbl1xr1	IRA1 protein	0	3	0
254281215	Ireb2	iron responsive element binding protein 2	0	0	1
197333728	Isoc2a	isochorismatase domain containing 2a	2	0	0
162417977	Ish1	isocitrate dehydrogenase 1 (NADP+), soluble	6	0	0
225579033	Ish2	isocitrate dehydrogenase 2 (NADP+), mitochondrial	23	2	6
18250284	Ish3a	isocitrate dehydrogenase 3 (NAD+) alpha	14	0	6
6680345	Ish3g	isocitrate dehydrogenase 3 (NAD+), gamma	8	0	0
18700024	Ish3b	isocitrate dehydrogenase 3, beta subunit	16	1	1
254553372	Iars	isoleucine tRNA synthetase	3	0	0
281604088	Iid1	isopentenyl-diphosphate delta isomerase isoform 2	4	0	0
9789985	Ivd	isovaleryl coenzyme A dehydrogenase	12	0	0
20149316	Ily1	ISY1 splicing factor homolog	0	0	3
124487317	Itch	itchy, E3 ubiquitin protein ligase	1	0	0
30352010	Iws1	IWS1 homolog	0	9	0
114326480	Jak2	Janus kinase 2	0	0	1
254588016	Jakmip1	janus kinase and microtubule interacting protein 1	0	0	1
326807033	Jsrp1	JP-45 protein	0	1	0
225703114	Hscb	J-type co-chaperone HSC20	1	0	0
334724461	Jmjd1c	jumonji domain containing 1C	0	1	0
116174756	Kdm4d	jumonji domain containing 2D	1	0	0
226958545	Jarid1a	jumonji, AT rich interactive domain 1A (Rbp2 like) isoform 1	0	4	1
46049047	Jtb	jumping translocation breakpoint	1	0	0
6754404	Jund	jun D proto-oncogene	0	1	0
28395018	Jup	junction plakoglobin	16	9	27
10181142	Jph3	junctophilin 3	1	0	0
300116314	Kat2b	K(lysine) acetyltransferase 2B	1	2	0
6679487	Klk8	kallikrein related-peptidase 8	0	1	0
31543047	Kpna1	karyopherin (importin) alpha 1	0	2	1
6754474	Kpna2	karyopherin (importin) alpha 2	0	1	2
6680596	Kpna3	karyopherin (importin) alpha 3	0	9	1
227116300	Kpna6	karyopherin (importin) alpha 6	1	1	1
88014720	Kpnb1	karyopherin (importin) beta 1	14	27	21

6680598	Kpna4	karyopherin alpha 4	3	6	3
23956364	Katnal1	katanin p60 subunit A-like 1	0	1	0
21313044	Katnal2	katanin p60 subunit A-like 2	0	0	1
84095201	Katnb1	katanin p80 (WD40-containing) subunit B 1	0	1	0
157837992	9030409G11Rik	kazrin isoform 3	0	1	0
12963767	Kdelc1	KDEL (Lys-Asp-Glu-Leu) containing 1	0	4	0
47078285	Kdelc2	KDEL (Lys-Asp-Glu-Leu) containing 2 protein	2	0	0
13385318	Kdelr2	KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 2	1	1	1
19527170	Kdelr1	KDEL endoplasmic reticulum protein retention receptor 1	1	0	1
124486935	Kdm3b	KDM3B lysine (K)-specific demethylase 3B	1	0	0
30142701	Klhdc1	kelch domain containing 1	1	0	0
255683384	Klhdc4	kelch domain containing 4	1	0	0
58037523	Klhdc8b	kelch domain containing 8B	0	0	1
124486714	Klhl31	kelch repeat and BTB (POZ) domain containing 1	0	0	1
13385674	Klhl13	kelch-like 13	0	0	1
84794653	Klhl15	kelch-like 15 isoform a	0	0	1
87116679	Klhl20	kelch-like 20	0	0	1
126157475	Klhl34	kelch-like 34	0	1	0
22122779	Klhl36	kelch-like 36	0	1	0
6754480	Krt13	keratin 13	6	7	9
21489935	Krt14	keratin 14	0	1	0
226823220	Krt15	keratin 15	2	3	3
6680604	Krt16	keratin 16	0	1	0
7106335	Krt17	keratin 17	0	0	2
254540068	Krt18	keratin 18	30	30	51
6680606	Krt19	keratin 19	26	22	33
21592285	Krt20	keratin 20	19	21	32
15431281	Krt23	keratin 23	0	0	1
122425580	Krt24	keratin 24	1	0	1
267844916	Krt26	keratin 26	0	1	2
198278448	Krt28	keratin 28	0	0	1
160333504	Krt33a	keratin 33A	0	0	7
13386238	Krt34	keratin 34	0	0	1
238231425	Krt35	keratin 35	0	0	4
154090941	Krt42	keratin 42	2	2	3
20911031	Krt5	keratin 5	1	2	6
54607171	Krt6a	keratin 6A	1	1	2
22164776	Krt79	keratin 6L	1	1	1
14861854	Krt7	keratin 7	26	22	38
47059013	Krt73	keratin 73	0	0	1
51092295	Krt74	keratin 74	3	3	6
29789317	Krt75	keratin 75	0	0	1
85701680	Krt76	keratin 76	3	4	6
51092293	Krt77	keratin 77	0	0	2
124249090	Krt80	keratin 80	0	0	1
282398110	Krt82	keratin 82	0	0	1
269914157	Krt83	keratin 83	0	0	1
74315985	Krt86	keratin 86	0	0	2
145966692	Krt31	keratin complex 1, acidic, gene 1	0	0	4
112983636	Krt10	keratin complex 1, acidic, gene 10	6	6	10
118130981	Krt12	keratin complex 1, acidic, gene 12	1	1	2
31980832	Krt85	keratin complex 2, basic gene 18	0	0	8

126116585	Krt1	keratin complex 2, basic, gene 1	3	2	4
124487419	Krt2	keratin complex 2, basic, gene 17	4	3	5
114145561	Krt8	keratin complex 2, basic, gene 8	33	33	57
145580629	Krt78	keratin Kb40	2	2	1
13384696	Krtcap2	keratinocyte associated protein 2	1	0	0
31982229	Khk	ketoheokinase	1	0	0
110626031	Khdrbs1	KH domain containing, RNA binding, signal transduction associated 1	3	4	3
18875400	Khdrbs2	KH domain-containing, RNA-binding, signal transduction-associated protein 2	2	1	0
163954948	Khsrp	KH-type splicing regulatory protein	9	30	3
9910458	0610031J06Rik	kidney predominant protein NCU-G1	4	0	1
85701512	Gm156	killer cell lectin-like receptor subfamily H, member 1	0	1	0
7549771	Klra15	killer cell lectin-like receptor, subfamily A, member 15	0	1	0
294661846	Klra17	killer cell lectin-like receptor, subfamily A, member 17	1	0	0
27777648	Kdr	kinase insert domain protein receptor	0	1	0
40254330	Uhmk1	kinase interacting stathmin	1	0	0
144922638	Ktn1	kinectin 1	22	0	2
120300944	Kif13a	kinesin family member 13A	1	2	2
124487163	Kif13b	kinesin family member 13B	5	6	1
124486927	Kif14	kinesin family member 14	2	0	0
39930325	Kif15	kinesin family member 15	0	1	1
124487287	Kif16b	kinesin family member 16B	1	0	0
86990460	Kif1b	kinesin family member 1B isoform b	0	0	1
261862322	Kif20a	kinesin family member 20A	0	1	1
157823795	Kif21a	kinesin family member 21A isoform 4	1	0	1
86990454	Kif21b	kinesin family member 21B	1	1	1
21704182	Kif22	kinesin family member 22	1	0	0
147902443	Kif26a	kinesin family member 26A	1	0	0
239582737	Kif26b	kinesin family member 26B	2	0	0
224809373	Kif2a	kinesin family member 2A isoform 1	0	3	0
162287089	Kif4	kinesin family member 4	0	1	0
84781727	Kif5a	kinesin family member 5A isoform 2	1	0	0
61657921	Kif5b	kinesin family member 5B	15	18	12
45433560	Kif5c	kinesin family member 5C	5	7	4
116642893	Kifc1	kinesin family member C1	0	1	0
117168297	Kifc2	kinesin family member C2	0	2	0
224967075	Kifc3	kinesin family member C3 isoform a	0	0	1
131412207	Klc1	kinesin light chain 1 isoform 1H	0	2	0
133778983	Klc2	kinesin light chain 2	0	9	3
22122725	Klc3	kinesin light chain 3	0	2	0
13386370	Klc4	kinesin light chain 4	1	0	0
156231029	Kng2	kininogen 2 isoform 1	0	1	0
75677563	Kank1	KN motif and ankyrin repeat domains 1	1	0	0
40254257	Kank4	KN motif and ankyrin repeat domains 4	1	0	0
157909778	Kri1	KRI1 homolog	0	2	0
226442952	Krr1	KRR1, small subunit processome component	0	1	0
205360920	Kif14	Kruppel-like factor 14	0	1	0
144922690	Kif16	Kruppel-like factor 16	0	1	0
170784840	Kif2	Kruppel-like factor 2 (lung)	0	1	0
20270210	Kti12	KTI12 homolog, chromatin associated	0	1	0
34328234	Spint1	Kunitz-type protease inhibitor 1 precursor	2	0	0
19527030	Kmo	kynurenine 3-monooxygenase	0	1	0
124486779	L3mbtl	l(3)mbt-like	1	0	0

112293279	L1cam	L1 cell adhesion molecule	1	0	0
21703884	L2hgdh	L-2-hydroxyglutarate dehydrogenase	3	1	0
111038118	Hadh	L-3-hydroxyacyl-Coenzyme A dehydrogenase	14	9	2
226442901	Larp1	la related protein	2	0	0
124358932	Larp4	La ribonucleoprotein domain family, member 4 isoform 2	1	0	1
110665742	Larp7	La ribonucleoprotein domain family, member 7	2	3	0
13507666	Lactb	lactamase, beta	0	3	0
144922663	Lace1	lactation elevated 1	2	0	0
238550173	Lpo	lactoperoxidase	1	0	0
31981555	Lad1	ladinin	2	19	2
22095015	Lass2	LAG1 homolog, ceramide synthase 2	3	0	0
162287370	Lmna	lamin A isoform C	0	34	51
229608895	Lbr	lamin B receptor	1	4	16
188219589	Lmnb1	lamin B1	0	23	38
113195686	Lmnb2	lamin B2	0	12	32
114326497	Lamb1-1	laminin B1 subunit 1	24	0	0
226423935	Lama3	laminin, alpha 3	0	2	0
124487155	Lama5	laminin, alpha 5	1	0	0
153791270	Lamc1	laminin, gamma 1	1	1	0
19526936	Lancl2	LanC (bacterial lantibiotic synthetase component C)-like 2	0	2	3
22122469	Lss	lanosterol synthase	4	0	0
71979675	Las1l	LAS1-like	0	4	1
46249421	Ltbp1	latent transforming growth factor beta binding protein 1 isoform LTBP-1L	0	1	1
31980632	Lxn	latexin	2	0	2
157739867	Lphn1	latrophilin 1 precursor	0	0	1
124486821	Lphn2	latrophilin 2	1	0	0
124517724	Lca5l	Leber congenital amaurosis 5-like	0	0	1
6678682	Lgals1	lectin, galactose binding, soluble 1	5	4	1
226531139	Lgals9	lectin, galactose binding, soluble 9 isoform 1	0	0	1
34328278	Lman2	lectin, mannose-binding 2	9	0	0
285026450	Lman1	lectin, mannose-binding, 1	8	0	0
7242187	Lgmn	legumain	5	2	2
165972321	Lemd2	LEM domain containing 2	0	0	9
145864461	Lemd3	LEM domain containing 3	0	0	8
23956410	Lgsn	lengsin, lens protein with glutamine synthetase domain	0	1	0
19527168	Psip1	lens epithelium-derived growth factor	1	19	0
87299619	Leo1	Leo1, Paf1/RNA polymerase II complex component, homolog	0	6	1
27734076	Leprel1	leprecan-like 1	2	0	0
13386094	Leprotl1	leptin receptor overlapping transcript-like 1	1	0	0
144922656	Ligl2	lethal giant larvae homolog 2	4	23	0
255069715	Lap3	leucine aminopeptidase 3	7	0	0
162417952	Lrrfip1	leucine rich repeat (in FLII) interacting protein 1 isoform 1	12	7	0
258679524	Lrrfip2	leucine rich repeat (in FLII) interacting protein 2	0	2	0
254675306	Lrrcc1	leucine rich repeat and coiled-coil domain containing 1 isoform 3	0	0	1
30841016	Lingo1	leucine rich repeat and Ig domain containing 1	0	0	1
40556366	Lrsam1	leucine rich repeat and sterile alpha motif containing 1	1	0	0
225690585	Lrrc1	leucine rich repeat containing 1 isoform 2	3	0	5
162287221	Gm705	leucine rich repeat containing 10-like	1	0	0
154146185	Lrrc16a	leucine rich repeat containing 16A	1	2	1
21553121	Lrrc3	leucine rich repeat containing 3	1	0	0



31542583	Lrrc33	leucine rich repeat containing 33	0	1	0
31541911	Lrrc40	leucine rich repeat containing 40	1	0	1
41152116	Lrrc47	leucine rich repeat containing 47	2	3	0
285026459	Lrrc56	leucine rich repeat containing 56	0	1	0
19527026	Lrrc59	leucine rich repeat containing 59	10	5	6
40255285	Lrrc68	leucine rich repeat containing 68	1	0	0
124486885	Lrrc7	leucine rich repeat containing 7	0	0	1
251823957	Lrrc8e	leucine rich repeat containing 8 family, member E	0	1	0
218505690	Lrrc9	leucine rich repeat containing 9 isoform 2	0	0	1
47777289	Lrrn2	leucine rich repeat protein 2, neuronal	1	0	0
33859578	Lrrn3	leucine rich repeat protein 3, neuronal	0	1	0
27229082	Lzic	leucine zipper and CTNNBIP1 domain containing	1	0	0
119433663	Luzp1	leucine zipper protein 1	1	1	1
167466229	Luzp4	leucine zipper protein 4	0	0	1
91208439	Ncappg2	leucine zipper protein 5	1	7	0
9789997	Letm1	leucine zipper-EF-hand containing transmembrane protein 1	17	2	3
165905627	Letm2	leucine zipper-EF-hand containing transmembrane protein 2	0	1	0
134031976	Lrpprc	leucine-rich PPR motif-containing protein	47	29	10
146231954	Lrrk2	leucine-rich repeat kinase 2	1	0	0
158517913	Lrit1	leucine-rich repeat, immunoglobulin-like and transmembrane domains 1	0	1	1
88014689	Lrig1	leucine-rich repeats and immunoglobulin-like domains 1	1	0	0
283135157	Lrig3	leucine-rich repeats and immunoglobulin-like domains 3	0	0	1
166851848	Lrwd1	leucine-rich repeats and WD repeat domain containing 1	0	10	2
27370240	Lnpep	leucyl/cystinyl aminopeptidase	10	0	0
120537241	Lars	leucyl-tRNA synthetase	2	0	0
23346617	Lars2	leucyl-tRNA synthetase, mitochondrial	1	0	0
21312402	Leng1	leukocyte receptor cluster (LRC) member 1	1	0	0
30425300	Leng9	leukocyte receptor cluster (LRC) member 9	0	0	1
27370082	Leng8	leukocyte receptor cluster member 8	0	2	0
159032532	Ltk	leukocyte receptor tyrosine kinase isoform D precursor	1	0	0
116734870	Lta4h	leukotriene A4 hydrolase	7	0	0
10048442	Ltb4r2	leukotriene B4 receptor 2	1	0	0
26080416	Lpxn	leupaxin	0	1	0
253683551	Lcorl	ligand dependent nuclear receptor corepressor-like isoform 2	0	0	1
71061470	Lig3	ligase III, DNA, ATP-dependent	1	3	0
6754506	Large	like-glycosyltransferase	1	0	0
134053896	Limch1	LIM and calponin homology domains 1	1	0	1
21450157	Lmcd1	LIM and cysteine-rich domains 1	0	1	0
300863089	Lims1	LIM and senescent cell antigen-like domains 1	0	1	0
6754508	Lasp1	LIM and SH3 protein 1	8	2	0
165905585	Lima1	LIM domain and actin binding 1 isoform b	0	5	21
164663818	Ldb1	LIM domain binding 1 isoform 1	1	0	0
239937458	Lmo4	LIM domain only 4	0	1	0
157311641	Lmo7	LIM domain only 7	0	0	18
6678688	Lhx1	LIM homeobox protein 1	0	1	0
89001116	Lhx3	LIM homeobox protein 3	1	0	0
77404365	Limk2	LIM motif-containing protein kinase 2 isoform b	0	1	0
13195646	Crip2	LIM only protein HLP	5	2	1
30425330	Lsamp	limbic system-associated membrane protein	1	0	0
6754548	Limk1	LIM-domain containing, protein kinase	1	0	0

124487213	4921513D23Rik	limkain b1	1	1	2
85701728	Lin7a	lin 7 homolog a isoform 1	2	4	1
6755973	Lin7c	lin 7 homolog c	2	5	3
30424607	Lin52	lin-52 homolog	1	0	0
30725786	Lmf2	lipase maturation factor 2	1	0	0
13277380	Lias	lipoic acid synthetase	0	4	0
229577004	2610209A20Rik	lipoyl(octanoyl) transferase	0	1	0
268836255	Pygl	liver glycogen phosphorylase	1	0	0
123701962	Lmbrd1	liver regeneration p-53 related protein	1	0	0
257743039	Ldha	L-lactate dehydrogenase A isoform 1	17	2	2
7305229	Ldhc	L-lactate dehydrogenase C	2	2	0
21313566	Llph	LLP homolog	0	0	1
31982520	Acadl	long-chain acyl-CoA dehydrogenase	14	1	2
112293271	Lor	loricrin	1	0	0
113195700	Ldlr	low density lipoprotein receptor	1	0	1
124494256	Lrp1	low density lipoprotein receptor-related protein 1	2	0	0
124487372	Lrp2	low density lipoprotein receptor-related protein 2	45	4	8
224994223	Lrp4	low density lipoprotein receptor-related protein 4 isoform 1	2	0	0
253314536	Lrp5	low density lipoprotein receptor-related protein 5	1	0	0
124286870	Lrp8	low density lipoprotein receptor-related protein 8 isoform 1	1	1	2
63999380	Lrpap1	low density lipoprotein receptor-related protein associated protein 1	4	0	0
153792247	Lrp1b	low density lipoprotein-related protein 1B	1	0	1
117956399	Lrba	LPS-responsive beige-like anchor isoform alpha	35	3	8
170650601	Macrocl1	LRP16 protein	7	0	0
31711990	Lsm12	LSM12 homolog	0	3	0
23956156	Lsm14a	LSM14 homolog A	1	2	0
13385806	Lsm3	LSM3 homolog, U6 small nuclear RNA associated	2	3	1
159032056	Lsm4	LSM4 homolog, U6 small nuclear RNA associated	1	3	1
13384942	Lsm5	LSM5 homolog, U6 small nuclear RNA associated	0	1	0
300797601	Lsm6	LSM6 homolog, U6 small nuclear RNA associated	2	4	1
13384714	Lsm7	LSM7 homolog, U6 small nuclear RNA associated	3	3	0
114158677	Luc7l	Luc7 homolog (S. cerevisiae)-like isoform 1	1	0	1
283806685	Luc7l2	LUC7-like 2	1	3	2
158937329	Lnp	lunapark isoform a	2	1	0
257467634	Lba1	lupus brain antigen 1	2	0	0
188219567	Lyar	Ly1 antibody reactive clone	2	9	0
27753962	Lypd1	Ly6/Plaur domain containing 1	1	0	0
31543113	Lcp1	lymphocyte cytosolic protein 1	2	3	0
162287383	Lrmp	lymphoid-restricted membrane protein	0	1	0
31982233	Mtdh	LYRIC	3	0	0
26006857	Kdm4b	lysine (K)-specific demethylase 4B	0	2	0
285402040	Kdm4c	lysine (K)-specific demethylase 4C	1	0	1
23821021	Lysmd1	LysM, putative peptidoglycan-binding, domain containing 1 isoform 2	0	0	2
46402175	Lpcat4	lysophosphatidylcholine acyltransferase 4	1	0	0
198386326	Lpgat1	lysophosphatidylglycerol acyltransferase 1 isoform 2	1	0	1
6678760	Lypla1	lysophospholipase 1	2	0	0
7242156	Lypla2	lysophospholipase 2	1	0	0
227496223	Lyplal1	lysophospholipase-like 1	2	0	0
113195678	Lamp1	lysosomal membrane glycoprotein 1	6	0	0
63054837	Lamp2	lysosomal membrane glycoprotein 2 isoform 1	5	0	0

195963321	Kars	lysyl-tRNA synthetase isoform 2	14	4	0
21312048	Mphosph6	M phase phosphoprotein 6	0	5	1
133506753	Mpeg1	macrophage expressed gene 1	0	1	0
21553093	Mgl2	macrophage galactose N-acetyl-galactosamine specific lectin 2	0	0	1
160707919	Mfsd6	macrophage MHC receptor 2 isoform 1	1	0	0
6754696	Mif	macrophage migration inhibitory factor	2	1	1
162463170	LOC100040259	macrophage migration inhibitory factor-like	2	1	1
6754640	Marco	macrophage receptor with collagenous structure	0	0	1
85861254	Msr1	macrophage scavenger receptor 1 isoform a	0	1	0
31543224	Smad4	MAD homolog 4	0	2	0
31543218	Mad2l1	MAD2 mitotic arrest deficient-like 1	0	7	1
254826797	Mad2l1bp	MAD2L1 binding protein	0	3	0
12963595	Ndn12	mage-g1 protein	0	1	1
256985211	Magohb	mago-nashi homolog	1	8	8
27229238	Mgrn1	mahogunin, ring finger 1	2	0	0
21313266	Mfsd1	major facilitator superfamily domain containing 1	1	0	0
13386144	Mfsd10	major facilitator superfamily domain containing 10	2	0	1
167900456	Mfsd4	major facilitator superfamily domain containing 4 isoform a	2	0	0
239052674	Mvp	major vault protein	13	0	0
33468997	Mak16	MAK16 homolog	0	0	1
21312422	Nat13	Mak3p homolog	2	8	0
30725780	Mal2	MAL2 proteolipid protein	1	1	1
254540027	Mdh1	malate dehydrogenase 1, NAD (soluble)	11	0	0
31982186	Mdh2	malate dehydrogenase 2, NAD (mitochondrial)	18	16	7
224809552	Mak	male germ cell-associated kinase isoform 3	0	1	0
188497650	Mlec	malectin	6	0	2
21703972	Me2	malic enzyme 2, NAD(+)-dependent, mitochondrial	10	0	0
21312175	Mcts1	malignant T cell amplified sequence 1	0	6	0
13384966	Mcts2	malignant T cell amplified sequence 2	0	3	0
71725343	Mcat	malonyl CoA:ACP acyltransferase (mitochondrial)	1	1	0
56797739	Mlycd	malonyl-CoA decarboxylase	0	1	0
300863061	Mdga2	MAM domain containing glycosylphosphatidylinositol anchor 2	0	1	0
91206392	Mpi	mannose phosphate isomerase	1	0	0
113930720	Mrc2	mannose receptor, C type 2	0	1	0
31560090	Plbd2	mannose-6-phosphate protein p76	5	0	0
13385312	M6prbp1	mannose-6-phosphate receptor binding protein 1	8	0	1
14916479	M6pr	mannose-6-phosphate receptor, cation dependent	4	0	0
31981340	Mpdu1	mannose-P-dolichol utilization defect 1	3	0	0
71534295	Man1b1	mannosidase, alpha, class 1B, member 1	0	0	2
113195690	Man2b1	mannosidase, alpha, class 2B, member 1	2	2	0
227330625	Man2b2	mannosidase, alpha, class 2B, member 2	0	0	1
158533990	Manba	mannosidase, beta A, lysosomal	9	16	0
254540070	Manbal	mannosidase, beta A, lysosomal-like	1	0	0
22122521	Mgat2	mannoside acetylglucosaminyltransferase 2	0	1	0
31981106	Mogs	mannosyl-oligosaccharide glucosidase	5	1	2
13385846	Mansc1	MANSC domain containing 1	0	0	1
45544580	Mapkapk2	MAP kinase-activated protein kinase 2	1	0	0
122937363	Mark2	MAP/microtubule affinity-regulating kinase 2 isoform 1	3	4	2
251823812	Mark3	MAP/microtubule affinity-regulating kinase 3 isoform 2	1	1	0
21703882	Mbip	MAP3K12 binding inhibitory protein 1	0	3	0
124487457	Mtap7d2	MAP7 domain containing 2	1	0	0

144922676	Mtap7d3	MAP7 domain containing 3	0	0	1
21312626	2400003C14Rik	MAPK activating protein PM28	0	2	0
9910452	Mapksp1	MAPK scaffold protein 1	4	0	0
295148182	Madd	MAP-kinase activating death domain	0	2	0
6754706	Marcksl1	MARCKS-like 1	1	0	0
46430534	Mrgprb8	MAS-related GPR, member B8	0	0	1
85701947	Gm885	mast cell antigen 32	1	0	0
57222238	Bud31	maternal G10 transcript	0	4	2
25141233	Matr3	matrin 3	4	24	31
7363445	St14	matriptase	6	0	0
75677470	Mmp25	matrix metalloproteinase 25	0	1	0
160333381	Mmp8	matrix metalloproteinase 8	0	0	1
6678902	Mmp2	matrix metalloproteinase 2	0	1	0
226051848	Max	Max protein isoform 1	0	4	0
20070410	Med10	mediator complex subunit 10	0	5	0
125628662	Med12	mediator complex subunit 12	0	9	0
124286862	Med13	mediator complex subunit 13	0	1	0
253970419	Med16	mediator complex subunit 16 isoform 1	0	6	0
21450345	Med17	mediator complex subunit 17	0	2	0
261878547	Med23	mediator complex subunit 23	0	13	0
119220579	Med24	mediator complex subunit 24	0	2	0
27754101	Med29	mediator complex subunit 29	0	1	0
19882231	Med30	mediator complex subunit 30	0	3	0
157266324	Med7	mediator complex subunit 7	0	3	0
132626693	Mdc1	mediator of DNA damage checkpoint 1	0	10	1
27754138	Med11	mediator of RNA polymerase II transcription, subunit 11 homolog	0	3	1
21313064	Med18	mediator of RNA polymerase II transcription, subunit 18 homolog	0	3	0
21313194	Med19	mediator of RNA polymerase II transcription, subunit 19	0	2	0
56119162	Med31	mediator of RNA polymerase II transcription, subunit 31 homolog	0	2	1
114155155	Med8	mediator of RNA polymerase II transcription, subunit 8 homolog isoform 1	0	1	0
6680618	Acadm	medium-chain acyl-CoA dehydrogenase	17	5	1
6678908	Mns1	meiosis-specific nuclear structural protein 1	0	0	1
9055282	Mre11a	meiotic recombination 11 homolog A	0	10	0
110625785	Mlana	melan-A	0	1	1
11096332	Myg1	melanocyte proliferating gene 1	2	0	0
9789935	Maged1	melanoma antigen family D, 1	0	1	0
111378377	Magee1	melanoma antigen, family E, 1	0	0	1
124001582	Mia3	melanoma inhibitory activity 3	7	0	0
53759066	ORF61	membralin	2	0	0
134031999	Magi1	membrane associated guanylate kinase, WW and PDZ domain containing 1 isoform c	0	2	2
226823238	Magi3	membrane associated guanylate kinase, WW and PDZ domain containing 3 isoform 2	0	0	1
23956314	Mboat1	membrane bound O-acyltransferase domain containing 1	1	0	0
22122803	Mmgt1	membrane magnesium transporter 1	2	0	0
58037337	Paqr5	membrane progesterin receptor gamma	1	0	0
300193009	Kirrel3	membrane protein mKirre	0	1	0
9625023	Mpp5	membrane protein, palmitoylated 3 (MAGUK p55 subfamily member 5)	0	0	4

257900520	Mpp6	membrane protein, palmitoylated 3 (MAGUK p55 subfamily member 6)	0	2	1
162287100	Mpp4	membrane protein, palmitoylated 4	1	1	0
239051572	Mpp7	membrane protein, palmitoylated 7 isoform 1	13	13	2
257095992	Pdzk1ip1	membrane-associated protein 17	1	0	0
256773303	March5	membrane-associated ring finger (C3HC4) 5	3	0	1
10181210	March7	membrane-associated ring finger (C3HC4) 7	1	0	0
213385280	March10	membrane-associated ring finger 10 isoform 1	0	1	0
22128653	Mfrp	membrane-type frizzled-related protein	0	0	1
89363038	Mnat1	menage a trois 1	0	1	0
110625813	Manf	mesencephalic astrocyte-derived neurotrophic factor	0	9	0
228480219	Mesdc2	mesoderm development candidate 2	3	0	0
6678866	Mest	mesoderm specific transcript	0	1	0
9256568	Msln	mesothelin	1	0	0
7305285	Mt1	metallothionein 1	1	0	0
33468863	Mt2	metallothionein 2	0	1	0
7305287	Mt3	metallothionein 3	0	0	1
91598896	Mta1	metastasis associated 1	0	3	5
283806541	Mta3	metastasis associated 3	0	7	0
51491880	Mta2	metastasis-associated gene family, member 2	1	15	10
241982742	Mtx1	metaxin 1 isoform 1	7	0	9
228480241	Mtx2	metaxin 2	6	0	9
21704144	Mat2a	methionine adenosyltransferase II, alpha	3	0	0
313482787	Mat2b	methionine adenosyltransferase II, beta	3	0	0
9789873	Metap2	methionine aminopeptidase 2	1	2	0
21313208	Msrb2	methionine sulfoxide reductase B2	0	1	0
51491852	Mars	methionine-tRNA synthetase	5	2	0
28202007	Metap1	methionyl aminopeptidase 1	0	6	0
126517469	Mecp2	methyl CpG binding protein 2 isoform 2	0	12	2
157817372	Mbd1	methyl-CpG binding domain protein 1	0	1	0
218931229	Mbd2	methyl-CpG binding domain protein 2	2	3	2
7305261	Mbd3	methyl-CpG binding domain protein 3	0	5	3
119433655	Mbd5	methyl-CpG binding domain protein 5	1	0	0
186700620	Mccc1	methylcrotonoyl-Coenzyme A carboxylase 1 (alpha)	4	0	0
73622267	Mccc2	methylcrotonoyl-Coenzyme A carboxylase 2 (beta)	8	1	0
283135114	Mthfd1l	methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1-like	14	14	1
261878543	Mthfd1	methylenetetrahydrofolate dehydrogenase 1	21	10	0
6678952	Mthfd2	methylenetetrahydrofolate dehydrogenase 2	0	1	0
21313396	Mmab	methylmalonic aciduria (cobalamin deficiency) type B homolog	0	2	0
148540106	Mut	methylmalonyl-Coenzyme A mutase	12	0	0
21312938	Mett10d	methyltransferase 10 domain containing	1	0	0
27229243	Mett5d1	methyltransferase 5 domain containing 1	1	1	0
221139873	Mettl11b	methyltransferase like 11B	1	1	0
13385728	Mfap1a	microfibrillar-associated protein 1A	1	5	5
295844817	Mitf	microphthalmia-associated transcription factor isoform 2	0	1	0
226529982	Morc2a	microorchidia 2A isoform 2	0	1	1
255003723	Morc3	microorchidia 3	0	1	1
13385010	Mgst3	microsomal glutathione S-transferase 3	1	0	4
254540223	Mttp	microsomal triglyceride transfer protein isoform 2	1	0	0
31980615	Mcrs1	microspherule protein 1	0	2	0
312433957	Macf1	microtubule-actin crosslinking factor 1	8	33	3

291045426	Mtap1a	microtubule-associated protein 1 A	0	1	0
171543853	Mtap1b	microtubule-associated protein 1B	1	0	0
148747189	Mtap4	microtubule-associated protein 4	6	4	0
124486997	Mtap9	microtubule-associated protein 9	1	1	0
7106301	Mapre1	microtubule-associated protein, RP/EB family, member 1	2	7	0
124487133	Mdn1	midasin	2	4	1
109627648	Mcm3ap	minichromosome maintenance complex component 3 associated protein	0	1	1
255918149	Mcm4	minichromosome maintenance complex component 4	20	9	4
6678832	Mcm6	minichromosome maintenance complex component 6	28	5	5
10242373	Mcm7	minichromosome maintenance complex component 7	28	7	8
86439953	Mcm9	minichromosome maintenance complex component 9	0	0	1
172088119	Mcm2	minichromosome maintenance deficient 2 mitotin	29	8	4
33859484	Mcm3	minichromosome maintenance deficient 3	33	12	3
112293273	Mcm5	minichromosome maintenance deficient 5, cell division cycle 46	23	10	7
31542008	Mcm8	minichromosome maintenance deficient 8	0	0	1
30794474	Mrps7	mitochondrial ribosomal protein S7	3	2	1
13385012	Magmas	mitochondria-associated granulocyte macrophage CSF signaling molecule	3	2	2
329755292	Mavs	mitochondrial antiviral signaling protein	4	0	3
31980648	Atp5b	mitochondrial ATP synthase beta subunit	36	14	23
256355222	Slc25a25	mitochondrial Ca <sup>2+</sup> -dependent solute carrier	0	0	1
158749545	Slc25a40	mitochondrial carrier family protein	1	0	0
9845273	Mtch1	mitochondrial carrier homolog 1	2	0	6
9790055	Mtch2	mitochondrial carrier homolog 2	8	1	11
254692847	AU042651	mitochondrial carrier protein-like	4	0	0
281332113	Polrmt	mitochondrial DNA-directed RNA polymerase	0	1	0
34536827	Gpam	mitochondrial glycerol 3-phosphate acyltransferase	0	1	0
38490690	lars2	mitochondrial isoleucine tRNA synthetase	9	0	0
9790049	2610024G14Rik	mitochondrial nitric oxide synthase	0	1	0
28077029	Pck2	mitochondrial phosphoenolpyruvate carboxykinase 2	12	0	3
95113671	Pmpcb	mitochondrial processing peptidase beta subunit	2	0	0
254039729	Rhot1	mitochondrial Rho 1 isoform 1	3	0	1
84875532	Mrpl1	mitochondrial ribosomal protein L1 isoform 2	8	5	1
13385658	Mrpl10	mitochondrial ribosomal protein L10	3	2	1
13384980	Mrpl11	mitochondrial ribosomal protein L11	5	7	0
22164792	Mrpl12	mitochondrial ribosomal protein L12	4	5	2
21312936	Mrpl13	mitochondrial ribosomal protein L13	0	3	0
21312028	Mrpl14	mitochondrial ribosomal protein L14	2	2	0
33468983	Mrpl15	mitochondrial ribosomal protein L15	2	0	0
19424352	Mrpl16	mitochondrial ribosomal protein L16	1	0	1
13384658	Mrpl17	mitochondrial ribosomal protein L17	0	1	0
13385808	Mrpl18	mitochondrial ribosomal protein L18	0	6	0
13385976	Mrpl19	mitochondrial ribosomal protein L19	1	1	0
13384660	Mrpl2	mitochondrial ribosomal protein L2	1	0	1
20270194	Mrpl20	mitochondrial ribosomal protein L20	2	2	0
31982032	Mrpl21	mitochondrial ribosomal protein L21	2	4	0
262263310	Mrpl22	mitochondrial ribosomal protein L22	2	5	0
6755352	Mrpl23	mitochondrial ribosomal protein L23	5	6	0
16716447	Mrpl27	mitochondrial ribosomal protein L27	4	2	0
31981470	Mrpl3	mitochondrial ribosomal protein L3	1	0	0
21312302	Mrpl30	mitochondrial ribosomal protein L30	0	1	0

16716449	Mrpl34	mitochondrial ribosomal protein L34	2	1	0
22128625	Mrpl37	mitochondrial ribosomal protein L37	0	1	0
124430535	Mrpl38	mitochondrial ribosomal protein L38	3	2	0
31560438	Mrpl39	mitochondrial ribosomal protein L39	3	1	0
119508437	Mrpl4	mitochondrial ribosomal protein L4	1	3	0
255003746	Mrpl40	mitochondrial ribosomal protein L40	2	2	0
113461980	Mrpl41	mitochondrial ribosomal protein L41	1	2	0
17298676	Mrpl43	mitochondrial ribosomal protein L43	0	1	0
124487075	Mrpl44	mitochondrial ribosomal protein L44	4	2	1
12963643	Mrpl46	mitochondrial ribosomal protein L46	1	2	1
29826332	Mrpl47	mitochondrial ribosomal protein L47	1	4	0
148368964	Mrpl48	mitochondrial ribosomal protein L48	1	3	0
13385752	Mrpl49	mitochondrial ribosomal protein L49	3	3	0
13385050	Mrpl51	mitochondrial ribosomal protein L51	1	1	1
21313040	Mrpl53	mitochondrial ribosomal protein L53	3	3	0
21313400	Mrpl55	mitochondrial ribosomal protein L55	2	1	1
29789253	Mrpl9	mitochondrial ribosomal protein L9	2	2	0
226246598	Mrps10	mitochondrial ribosomal protein S10 isoform 3	4	5	0
13384894	Mrps14	mitochondrial ribosomal protein S14	1	1	0
48526512	Mrps15	mitochondrial ribosomal protein S15	5	1	0
13384844	Mrps16	mitochondrial ribosomal protein S16	2	0	0
13384854	Mrps17	mitochondrial ribosomal protein S17	0	2	0
17505206	Mrps18a	mitochondrial ribosomal protein S18A	0	1	0
23956152	Mrps18b	mitochondrial ribosomal protein S18B	0	1	0
58037129	Mrps18c	mitochondrial ribosomal protein S18C	0	1	0
260593698	Mrps2	mitochondrial ribosomal protein S2	2	3	0
17505220	Mrps21	mitochondrial ribosomal protein S21	2	1	0
27228982	Mrps23	mitochondrial ribosomal protein S23	3	7	1
13385578	Mrps24	mitochondrial ribosomal protein S24	1	2	0
31981257	Mrps25	mitochondrial ribosomal protein S25	1	1	0
46402169	Mrps26	mitochondrial ribosomal protein S26	4	4	0
50980303	Mrps27	mitochondrial ribosomal protein S27	1	0	0
254587936	Mrps28	mitochondrial ribosomal protein S28	2	2	1
29789128	Mrps30	mitochondrial ribosomal protein S30	2	1	0
10181116	Mrps31	mitochondrial ribosomal protein S31	3	3	1
33859564	Mrps33	mitochondrial ribosomal protein S33 isoform 1	1	1	0
13385670	Mrps34	mitochondrial ribosomal protein S34	3	2	0
148235701	Mrps35	mitochondrial ribosomal protein S35	3	3	0
298286543	Mrps36	mitochondrial ribosomal protein S36	1	0	0
17157985	Mrps5	mitochondrial ribosomal protein S5	2	1	0
23956244	Mrps6	mitochondrial ribosomal protein S6	3	1	0
169790909	Mrps9	mitochondrial ribosomal protein S9	4	0	1
21312752	Mrrf	mitochondrial ribosome recycling factor	1	8	0
29789289	Echs1	mitochondrial short-chain enoyl-coenzyme A hydratase 1	8	6	1
110625866	Mtif2	mitochondrial translational initiation factor 2	1	1	0
33859811	Hadha	mitochondrial trifunctional protein, alpha subunit	31	18	22
21704100	Hadhb	mitochondrial trifunctional protein, beta subunit	15	9	7
31543952	Wars2	mitochondrial tryptophanyl tRNA synthetase 2	0	1	0
111074538	Mtus1	mitochondrial tumor suppressor 1 isoform 1	1	1	1
244793488	Mfn1	mitofusin 1	1	0	0
21489933	Mapk3	mitogen activated protein kinase 3	4	0	1
89257354	Map3k2	mitogen activated protein kinase kinase kinase 2	0	1	0
93102421	Map3k4	mitogen activated protein kinase kinase kinase 4	2	0	0

84579909	Mapk1	mitogen-activated protein kinase 1	6	7	0
226246627	Mapk13	mitogen-activated protein kinase 13	0	3	0
270341386	Mapk14	mitogen-activated protein kinase 14	1	0	0
6678794	Map2k1	mitogen-activated protein kinase kinase 1	2	0	0
6754624	Map2k5	mitogen-activated protein kinase kinase 5	0	0	1
31543234	Map3k11	mitogen-activated protein kinase kinase kinase 11	1	0	0
171846249	Map3k5	mitogen-activated protein kinase kinase kinase 5	0	1	0
124486875	Map4k3	mitogen-activated protein kinase kinase kinase kinase 3	0	1	0
77736537	Map4k5	mitogen-activated protein kinase kinase kinase kinase 5	0	3	0
88014564	Mad111	mitotic arrest deficient 1-like 1	0	10	1
224809384	Mki67ip	Mki67 (FHA domain) interacting nucleolar phosphoprotein	0	0	5
237820633	Mki2	MKL/myocardin-like 2 isoform 3	1	1	0
62412947	Mobk1a	MOB1, Mps One Binder kinase activator-like 1A	1	0	0
124486921	Mosc1	MOCO sulphurase C-terminal domain containing 1	1	0	0
19526848	Mosc2	MOCO sulphurase C-terminal domain containing 2	5	0	4
62243852	Sltm	modulator of estrogen induced transcription isoform a	0	11	1
70778915	Msn	moesin	5	12	0
254540183	Mov10	Moloney leukemia virus 10 isoform b	1	0	0
161484622	Mocs1	molybdenum cofactor synthesis 1 isoform 2	2	0	0
164664484	Mocs2	molybdopterin synthase isoform Mocs2B	0	1	0
253683424	Mon2	MON2 homolog isoform 3	1	0	3
255759902	Maoa	monoamine oxidase A	6	0	2
261878516	Mgll	monoglyceride lipase	1	0	0
7106359	Morc1	MORC	1	0	1
85540473	Morf4l1	mortality factor 4 like 1 isoform b	0	11	0
170295836	Trim59	mouse RING finger 1	1	0	0
133505571	Kif20b	M-phase phosphoprotein 1	0	0	1
68303650	Mphosph10	M-phase phosphoprotein 10 (U3 small nucleolar ribonucleoprotein)	1	1	6
225543402	Mphosph8	M-phase phosphoprotein, mpp8	0	0	3
146134497	Mpnd	MPN domain containing	0	2	0
110625965	1600027N09Rik	MRG-binding protein	0	2	0
171906591	Mterfd1	MTERF domain containing 1	0	1	0
7305293	Muc1	mucin 1, transmembrane	1	1	5
167736365	Muc4	mucin 4	7	0	0
16716463	Mcoln1	mucopolipin 1	0	0	1
27370250	Malt1	mucosa associated lymphoid tissue lymphoma translocation gene 1	1	0	0
254588077	Mmrn1	multimerin 1	0	0	1
85701536	Mctp2	multiple C2 domains, transmembrane 2	0	1	0
28827786	Mcf2	multiple coagulation factor deficiency 2 isoform 1	1	0	0
270309153	Men1	multiple endocrine neoplasia 1	0	5	0
31982171	Mug1	murinoglobulin 1	0	1	0
17157989	Msi2	Musashi homolog 2	6	4	4
153792649	Myh3	muscle embryonic myosin heavy chain 3	0	1	0
6755256	Pygm	muscle glycogen phosphorylase	0	1	0
37537520	Mrto4	muscle protein684	0	2	1
46411182	Mbnl1	muscleblind-like 1	1	4	0
6754740	Msc	musculin	1	1	1
7305271	Mklin1	muskelin 1, intracellular mediator containing kelch motifs	1	0	0
145699135	Mcc	mutated in colorectal cancers isoform 1	1	0	1
20532342	Muted	muted	1	0	0
6678938	Msh2	mutS homolog 2	11	0	1



6754744	Msh6	mutS homolog 6	4	0	0
31982724	Mybbp1a	MYB binding protein (P160) 1a	1	78	35
256355182	Mina	myc induced nuclear antigen	1	1	0
114155153	Maz	MYC-associated zinc finger protein	0	1	0
244790095	Myef2	myelin basic protein expression factor 2, repressor isoform 2	0	12	8
49457857	Mpz1	myelin protein zero-like 1 isoform a	0	0	1
148271079	Myt1l	myelin transcription factor 1-like isoform 3	0	0	1
6678824	Mcl1	myeloid cell leukemia sequence 1	1	0	0
6678978	Myd116	myeloid differentiation primary response gene 116	1	0	0
145587092	Mllt4	myeloid/lymphoid or mixed lineage-leukemia translocation to 4 homolog	3	7	4
11612511	Mllt1	myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 1	0	0	1
47271507	Mllt10	myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 10	0	0	1
124486682	Mll1	myeloid/lymphoid or mixed-lineage leukemia 1	0	2	0
124487063	Mll3	myeloid/lymphoid or mixed-lineage leukemia 3	0	2	0
148271073	Myadm	myeloid-associated differentiation marker	1	0	2
76253934	Mef2a	myocyte enhancer factor 2A	0	1	0
153791796	Myof	myoferlin	24	2	0
12963757	Isyna1	myo-inositol 1-phosphate synthase A1	4	0	0
145279198	Myom1	myomesin 1 isoform 1	1	0	0
147906795	Myom3	myomesin family, member 3	0	1	0
33598964	Myh10	myosin heavy chain 10, non-muscle	19	11	57
124487037	Myo1a	myosin IA	0	1	0
240120042	Myo1b	myosin IB isoform 2	0	1	3
124494244	Myo1c	myosin IC isoform a	1	14	40
118026911	Myo1d	myosin ID	1	0	24
68299824	Myo1e	myosin IE	0	0	3
255069756	Myo1f	myosin IF	1	0	2
266458101	Myo1g	myosin IG	0	1	1
291219940	Myo3a	myosin IIIA	0	0	1
215272384	Myo9b	myosin IXb isoform 1	1	1	0
71037403	2900073G15Rik	myosin light chain, regulatory B-like	5	9	7
198278553	Myl9	myosin regulatory light polypeptide 9	1	1	1
115511052	Myo5a	myosin Va	0	1	2
46399202	Myo5b	myosin Vb	0	0	5
124486759	Myo5c	myosin VC	1	2	11
261823961	Myo6	myosin VI	11	18	39
115511010	Myo7a	myosin VIIa	0	1	0
261823963	Myo7b	myosin VIIB	0	1	0
157041248	Myo15	myosin XV isoform 1	2	0	1
22094119	Myo18a	myosin XVIIIa	1	36	2
124486959	Myh13	myosin, heavy polypeptide 13, skeletal muscle	2	0	1
29336026	Myh14	myosin, heavy polypeptide 14	9	5	7
67189167	Myh4	myosin, heavy polypeptide 4, skeletal muscle	0	1	1
255918225	Myh6	myosin, heavy polypeptide 6, cardiac muscle, alpha	0	1	3
71143152	Myh8	myosin, heavy polypeptide 8, skeletal muscle, perinatal	0	1	0
114326446	Myh9	myosin, heavy polypeptide 9, non-muscle isoform 1	85	55	106
21728376	Myl12b	myosin, light chain 12B, regulatory	1	1	1
33620739	Myl6	myosin, light polypeptide 6, alkali, smooth muscle and non-muscle	1	8	9
26986555	Myl6b	myosin, light polypeptide 6B	0	0	2

114326499	Myl7	myosin, light polypeptide 7, regulatory	1	1	1
126157499	Mylk	myosin, light polypeptide kinase	0	20	2
6679961	Mtpn	myotrophin	1	0	0
224994246	Mttr11	myotubularin related protein 11	0	0	1
33563378	Mttr9	myotubularin related protein 9	1	0	1
6678768	Marcks	myristoylated alanine rich protein kinase C substrate	6	0	0
124487239	Myst3	MYST histone acetyltransferase (monocytic leukemia) 3	1	0	0
21312790	Myst1	MYST histone acetyltransferase 1	0	5	0
303521989	Myst2	MYST histone acetyltransferase 2	0	1	4
6996930	Mx1	myxovirus (influenza virus) resistance 1	0	1	0
229608908	1190005F20Rik	N2,N2-dimethylguanosine tRNA methyltransferase-like	0	1	0
21450277	Atp1a1	Na+/K+ -ATPase alpha 1 subunit	24	6	12
21450321	Atp1a3	Na+/K+ -ATPase alpha 3 subunit	9	3	7
6753138	Atp1b1	Na+/K+ -ATPase beta 1 subunit	9	0	4
168693635	Naga	N-acetyl galactosaminidase, alpha	10	27	2
52138552	Naalad2	N-acetylated alpha-linked acidic dipeptidase 2	0	0	1
158749624	Galnt5	N-acetylgalactosaminyltransferase 5	0	0	1
84579827	Gnptab	N-acetylglucosamine-1-phosphate transferase	0	1	1
16716467	Nans	N-acetylneuraminic acid synthase	3	0	0
23346561	Nat10	N-acetyltransferase 10	1	22	7
112821677	Nlrp2	NACHT, leucine rich repeat and PYD containing 2	1	1	2
9790019	Asah1	N-acylsphingosine amidohydrolase 1	17	11	5
31982437	Nsdhl	NAD(P) dependent steroid dehydrogenase-like	11	0	0
94400773	Nqo1	NAD(P)H dehydrogenase, quinone 1	7	0	2
253795455	Nqo2	NAD(P)H dehydrogenase, quinone 2 isoform 1	1	0	0
13195624	Ndufa10	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex 10	9	1	10
226437665	Ndufa11	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex 11	2	0	2
9506911	Ndufa1	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 1	0	0	1
12963633	Ndufa13	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 13	3	0	4
31981600	Ndufa2	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 2	4	0	1
33563266	Ndufa4	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 4	4	2	4
13386100	Ndufa5	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 5	5	2	3
13385492	Ndufa6	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 6 (B14)	3	0	2
12963571	Ndufa7	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 7 (B14.5a)	4	0	3
21312012	Ndufa8	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 8	4	6	7
254692859	Ndufa9	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 9	12	1	16
188035926	Ndufaf2	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, assembly factor 2	1	0	0
13385054	Ndufb3	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 3	1	0	1
13385558	Ndufb8	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 8	2	0	3
58037109	Ndufb10	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 10	5	4	9

27754144	Ndufb5	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 5	2	1	3
84781779	Ndufb6	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 6	2	1	2
13385322	Ndufb7	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 7	4	0	4
29789148	Ndufb9	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 9	2	0	8
27754007	Ndufab1	NADH dehydrogenase (ubiquinone) 1, alpha/beta subcomplex, 1	6	0	4
18859597	Ndufc2	NADH dehydrogenase (ubiquinone) 1, subcomplex unknown, 2	7	0	3
229892322	Ndufs1	NADH dehydrogenase (ubiquinone) Fe-S protein 1	27	3	19
23346461	Ndufs2	NADH dehydrogenase (ubiquinone) Fe-S protein 2	15	0	11
58037117	Ndufs3	NADH dehydrogenase (ubiquinone) Fe-S protein 3	2	1	9
281485615	Ndufs4	NADH dehydrogenase (ubiquinone) Fe-S protein 4	3	0	3
72004262	Ndufs5	NADH dehydrogenase (ubiquinone) Fe-S protein 5	2	0	1
56711244	Ndufs6	NADH dehydrogenase (ubiquinone) Fe-S protein 6	2	0	3
21312950	Ndufs7	NADH dehydrogenase (ubiquinone) Fe-S protein 7	3	2	6
21314826	Ndufb4	NADH dehydrogenase 1 beta subcomplex 4	4	1	4
34538598	ND1	NADH dehydrogenase subunit 1	1	0	3
34538599	ND2	NADH dehydrogenase subunit 2	0	0	1
34538605	ND3	NADH dehydrogenase subunit 3	1	0	1
34538607	ND4	NADH dehydrogenase subunit 4	1	0	3
34538608	ND5	NADH dehydrogenase subunit 5	1	0	2
46195430	Ndufs8	NADH dehydrogenase ubiquinone Fe-S 8	3	1	6
19526814	Ndufv1	NADH dehydrogenase ubiquinone flavoprotein 1 precursor	9	0	12
110625954	Ndufv2	NADH dehydrogenase ubiquinone flavoprotein 2 precursor	6	0	7
21539587	Ndufa3	NADH-ubiquinone oxidoreductase B9 subunit	1	0	2
140972309	Ndufv3	NADH-ubiquinone oxidoreductase flavoprotein 3 isoform 1	8	0	10
26251303	Nox1	NADPH oxidase 1	0	0	2
6680552	Napsa	napsin A aspartic peptidase	1	0	0
294997249	Nelf	nasal embryonic LHRH factor isoform B	0	1	0
163965357	Naca	nascent polypeptide-associated complex alpha subunit isoform a	5	3	0
254675124	Ccdc19	nasopharyngeal epithelium specific protein 1 isoform 1	0	0	2
62526130	Nktr	natural killer tumor recognition	1	0	0
23943795	Nckap1l	NCK associated protein 1 like	0	1	0
49258190	Nckipsd	NCK interacting protein with SH3 domain	1	0	0
28395023	Nckap1	NCK-associated protein 1	0	14	2
21311871	Nebi	nebulette	1	0	0
148222065	Neb	nebulin	0	0	1
164519082	N4bp2l1	NEDD4 binding protein 2-like 1	0	0	1
31981859	C330016O10Rik	Nedd4 binding protein 3	0	0	1
21450341	Nae1	NEDD8 activating enzyme E1 subunit 1	2	0	0
119360354	Nub1	Nedd8 ultimate buster-1	4	0	0
118130803	Neil2	nei like 2	1	0	0
159131891	Nphp3	nephrocystin 3 isoform a	1	0	0
124244073	Nphp4	nephrocystin 4	1	0	0
111607453	4831426I19Rik	nesprin-3 isoform beta	0	0	8

13385392	Napa	N-ethylmaleimide sensitive fusion protein attachment protein alpha	8	0	1
29789104	Napb	N-ethylmaleimide sensitive fusion protein attachment protein beta	2	0	0
23346571	Unc5a	netrin receptor Unc5h1	1	0	0
56699423	Nedd4	neural precursor cell expressed, developmentally down-regulated gene 4	4	0	1
167466245	Nedd4l	neural precursor cell expressed, developmentally down-regulated gene 4-like isoform 1	2	0	0
6679034	Nedd8	neural precursor cell expressed, developmentally down-regulated gene 8	2	0	0
31982836	Npc1	neural proliferation, differentiation and control gene 1	1	0	0
158854037	Nbea	neurobeachin	0	1	0
111154109	Nras	neuroblastoma ras oncogene	6	5	3
237858634	Nfasc	neurofascin isoform 1 precursor	0	1	0
31982775	Nf2	neurofibromatosis 2	0	1	0
34878892	Nf1	neurofibromin	2	0	1
39204499	Nefl	neurofilament, light polypeptide	1	0	0
6671587	Neurod4	neurogenic differentiation 4	0	0	1
58037133	Ngdn	neuroguidin, EIF4E binding protein	0	0	2
56699425	Nlgn2	neuroligin 2	1	0	0
28077051	Nln	neurolysin	1	0	0
167466226	Nav2	neuron navigator 2 isoform 1	1	0	0
124486648	Nav3	neuron navigator 3	0	0	1
162417959	Ngef	neuronal guanine nucleotide exchange factor isoform 1	0	1	0
158631246	Ndufb11	neuronal protein 15.6	2	0	2
256017197	Nova1	neuro-oncological ventral antigen 1 isoform 1	0	1	0
326633237	Npy2r	neuropeptide Y receptor Y2	1	0	0
251823964	Neto1	neuropilin- and tolloid-like protein 1	1	0	0
153945724	Nptn	neuroplastin	1	0	0
13277358	Nts	neurotensin	0	0	1
9055296	Ntsr1	neurotensin receptor 1	0	0	1
6679891	Ganab	neutral alpha-glucosidase AB	47	1	1
240849436	Nexn	nexilin	0	1	1
255069776	2310057J16Rik	Nezha isoform 2	0	1	0
187608797	Nfkbil2	NF-kappa-B inhibitor-like protein 2	0	1	0
21312616	Nkiras2	NFKB inhibitor interacting Ras-like protein 2	0	3	0
58082069	Ppp1r13l	NFKB interacting protein 1	1	0	0
61888900	Thoc7	Ngg1 interacting factor 3 like 1 binding protein 1 isoform 1	0	7	0
41056093	Nif3l1	Ngg1 interacting factor 3-like 1	1	0	0
27369692	Nhlrc3	NHL repeat containing 3	4	0	0
84781725	Nhp2l1	NHP2 non-histone chromosome protein 2-like 1	2	13	9
13386120	Nhp2	NHP2 ribonucleoprotein homolog	0	8	4
145386524	Nbn	nibrin	0	1	0
33469043	Ncln	nicalin homolog	4	0	1
224809376	Ncstn	nicastrin	6	0	0
260166706	Ubp2l	Nice-4 protein homolog isoform 2	7	0	0
257153454	Nampt	nicotinamide phosphoribosyltransferase	12	0	0
225543267	Nrk	Nik related kinase	0	1	1
124107627	Nek1	NIMA-related kinase 1	0	1	0
304766813	Nek10	NIMA-related kinase 10	0	1	0
31559852	Nek5	NIMA-related kinase 5	0	1	1
125346156	Nin	ninein isoform 1	0	1	0
13385084	Nipsnap3a	nipsnap homolog 3B	1	0	0

114158672	Nisch	nischarin	1	0	0
12963555	Nit2	Nit protein 2	3	0	0
254826728	Nosip	nitric oxide synthase interacting protein isoform 1	0	3	0
6754856	Nit1	nitrilase 1	1	0	0
161016824	Nfs1	nitrogen fixation gene, yeast homolog 1	7	0	0
161016805	Nkx3-2	NK3 homeobox 2	1	0	0
255522935	Nlr1	NLR family member X1	0	0	1
309268636	Nlrp4d	NLR family, pyrin domain containing 4D	1	0	0
213688428	Nmi	N-mcy (and STAT) interactor	2	0	0
21313242	Narg1l	NMDA receptor regulated 1-like	1	0	0
225543482	Narg1	NMDA receptor-regulated gene 1	3	1	0
34594671	Narg2	NMDA receptor-regulated gene 2	0	1	0
24431937	Nmral1	NmrA-like family domain containing 1	1	0	0
118150658	Ndr1	N-myc downstream regulated 1	7	0	0
255918147	Ndr3	N-myc downstream regulated gene 3	0	1	0
6679082	Nmt1	N-myristoyltransferase 1	2	5	0
6679084	Nmt2	N-myristoyltransferase 2	1	3	0
227908803	Nomo1	nodal modulator 1	22	0	0
295054316	Nsun2	NOL1/NOP2/Sun domain family, member 2	1	4	0
21312358	Nsun4	NOL1/NOP2/Sun domain family, member 4	0	0	1
46519166	Nsun7	NOL1/NOP2/Sun domain family, member 7	0	0	1
255958247	Nono	non-POU-domain-containing, octamer binding protein	2	23	7
22165392	Ncapd2	non-SMC condensin I complex, subunit D2	0	2	2
169234780	Ncapg	non-SMC condensin I complex, subunit G	0	1	0
161016797	Ncapd3	non-SMC condensin II complex, subunit D3	0	4	1
34328291	Nsmce1	non-SMC element 1 homolog	0	1	2
257196205	Nsmce2	non-SMC element 2, MMS21 homolog	0	1	1
242246981	Nsmce4a	non-SMC element 4 homolog A isoform 5	0	5	4
13384790	Nop10	NOP10 ribonucleoprotein homolog	0	4	0
30519925	Nop16	NOP16 nucleolar protein homolog	0	0	4
31560052	Trp53rk	Nori-2 protein	1	0	0
224967065	Notch1	Notch 1	1	0	0
157412261	4930579E17Rik	notch1-induced protein	0	0	1
117676367	Rrp1	novel nuclear protein 1	0	0	2
213512857	Nsl1	NSL1, MIND kinetochore complex component	0	0	1
158749551	Nxt1	NTF2-related export protein 1	0	1	0
227908769	Nthl1	nth endonuclease III-like 1	0	3	0
125490378	Nasp	nuclear autoantigenic sperm protein isoform 1	15	0	0
144922627	AU014645	nuclear cap binding protein subunit 1, 80kDa	0	13	10
13386056	Ncbp2	nuclear cap binding protein subunit 2	1	3	2
6754910	Nudc	nuclear distribution gene C homolog	3	0	0
166197654	Nde1	nuclear distribution gene E homolog 1 isoform a	0	1	0
194440738	Nfe2l1	nuclear factor erythroid 2-like 1 isoform 1	1	1	0
163965422	Nfib	nuclear factor I/B isoform 3	0	4	0
126517474	Nfix	nuclear factor I/X isoform 3	1	1	0
117606364	Nfkb1	nuclear factor kappa-B, subunit 1	1	1	1
254588131	Nfatc2ip	nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2 interacting protein	0	0	1
270047510	Nfatc4	nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 4	0	1	0
293651548	Nfkb2	nuclear factor of kappa light polypeptide gene enhancer in B-cells 2, p49/p100	2	0	0
226874843	Nfkbiz	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, zeta isoform a	0	1	0

40254249	Nfrkb	nuclear factor related to kappaB binding protein	0	1	0
19527358	Prpf19	nuclear matrix protein SNEV	6	18	15
254675300	Numa1	nuclear mitotic apparatus protein 1	8	78	38
270309140	Tpr	nuclear pore complex-associated protein Tpr	4	74	10
156231054	Pom121	nuclear pore membrane protein 121	0	0	5
254911120	Narfl	nuclear prelamin A recognition factor-like	1	0	0
303324586	Nploc4	nuclear protein localization 4	1	2	0
22219434	Nrbp1	nuclear receptor binding protein	1	0	0
118026944	Ncoa2	nuclear receptor coactivator 2 isoform a	0	0	1
21450271	Ncoa5	nuclear receptor coactivator 5	0	0	4
145587671	Ncoa6	nuclear receptor coactivator 6	0	1	0
119226235	Ncor2	nuclear receptor co-repressor 2	0	1	0
27734110	Nrip1	nuclear receptor interacting protein 1	1	0	0
6671531	Nr0b1	nuclear receptor subfamily 0, group B, member 1	0	1	0
170650696	Nr1h5	nuclear receptor subfamily 1, group H, member 5 isoform 2	0	1	0
73611910	Nr2f2	nuclear receptor subfamily 2, group F, member 2 isoform 1	0	4	0
112807199	Nr2f6	nuclear receptor subfamily 2, group F, member 6	0	1	0
6754216	Nr4a1	nuclear receptor subfamily 4, group A, member 1	0	0	1
7657397	Nr4a3	nuclear receptor subfamily 4, group A, member 3	0	1	0
229335598	Nr5a2	nuclear receptor subfamily 5, group A, member 2 isoform 1	1	0	0
255982555	Nrf1	nuclear respiratory factor 1	0	3	0
31980798	Nxf1	nuclear RNA export factor 1	1	17	5
12963545	Znrd1	nuclear RNA polymerase I small specific subunit	0	1	0
161016831	Nfya	nuclear transcription factor Y, alpha isoform b	0	1	0
6754850	Nfyb	nuclear transcription factor-Y beta	0	3	0
114326538	Nfyc	nuclear transcription factor-Y gamma	0	4	0
13386032	Nutf2	nuclear transport factor 2	2	0	0
33468981	Nvl	nuclear VCP-like	0	1	2
113205059	Ybx1	nuclease sensitive element binding protein 1	10	6	9
254750698	Nucb1	nucleobindin 1 isoform 2	12	0	0
194440700	Nucb2	nucleobindin 2 isoform 2	6	0	0
86198333	Nolc1	nucleolar and coiled-body phosphoprotein 1 isoform C	1	8	2
124301227	Noc2l	nucleolar complex associated 2 homolog	0	3	8
188497644	Noc3l	nucleolar complex associated 3 homolog	0	0	3
31981994	Noc4l	nucleolar complex associated 4 homolog	0	2	2
158966689	Nop2	nucleolar protein 1	0	9	9
56606027	Nol10	nucleolar protein 10	0	0	2
238550124	Nol11	nucleolar protein 11 isoform 1	0	0	9
120407050	Nop58	nucleolar protein 5	7	24	17
126090932	Nop56	nucleolar protein 5A	6	33	30
117647257	Nol7	nucleolar protein 7	0	0	1
124486813	Nol8	nucleolar protein 8	1	0	0
118026904	Nol6	nucleolar protein family 6	0	16	3
13384710	Gar1	nucleolar protein family A, member 1	0	6	5
21312650	Ddx56	nucleolar RNA helicase homolog	0	0	2
84875537	Ncl	nucleolin	24	21	13
6679108	Npm1	nucleophosmin 1	3	13	4
6679110	Npm3	nucleoplasmin 3	1	3	0
29789351	Nup107	nucleoporin 107	0	16	12
283806543	Nup133	nucleoporin 133	0	27	22
254588102	Nup153	nucleoporin 153	2	0	6

165932389	Nup155	nucleoporin 155	1	29	21
10946932	Nup160	nucleoporin 160	0	34	12
38678526	Nup188	nucleoporin 188	0	15	12
226437676	Nup205	nucleoporin 205	1	48	32
172073152	Nup210	nucleoporin 210	0	11	44
124378033	Nup214	nucleoporin 214	0	4	0
298231198	Nup35	nucleoporin 35	0	2	5
210032861	Nup37	nucleoporin 37	0	10	5
38016154	Nup50	nucleoporin 50	0	6	5
39930543	Nup54	nucleoporin 54	0	15	6
16716349	Nup62	nucleoporin 62	1	10	2
108773813	Nup85	nucleoporin 85	0	15	6
134053894	Nup88	nucleoporin 88 isoform 1	0	11	4
27369533	Nup93	nucleoporin 93	1	27	20
39930413	Nup98	nucleoporin 98	0	2	12
24497431	Nupl1	nucleoporin like 1	0	8	1
166295220	Nup43	nucleoporin Nup43	0	3	1
255308888	Nme3	nucleoside diphosphate kinase 3	1	0	3
117606270	Nme2	nucleoside diphosphate kinase B	2	3	4
9055290	Nme6	nucleoside diphosphate kinase type 6	0	1	0
37700232	Nme1	nucleoside-diphosphate kinase 1	9	4	6
226443026	Nap1l1	nucleosome assembly protein 1-like 1 isoform 2	5	0	1
6679012	Nap1l4	nucleosome assembly protein 1-like 4	3	1	0
133778915	Nsbp1	nucleosome binding protein 1	1	13	1
167234411	Nubpl	nucleotide binding protein-like	2	0	0
133922575	Nudcd2	NudC domain containing 2	0	1	0
84871976	Nudt18	nudix (nucleoside diphosphate linked moiety X)-type motif 18	0	0	1
13386106	Nudt21	nudix (nucleoside diphosphate linked moiety X)-type motif 21	4	13	3
125656157	Nudt16	nudix-type motif 16	0	1	0
86198335	Nudt2	nudix-type motif 2	0	0	1
8393853	Nudt5	nudix-type motif 5	4	0	1
13384950	Nudt8	nudix-type motif 8	1	2	0
110625714	Nuf2	NUF2R protein	1	0	0
209862959	Numb	numb gene homolog isoform 1	1	1	0
19527352	Nrm	nurim	0	3	6
28077041	Spata16	Nyd-sp12 protein isoform 1	0	1	0
21313144	Ola1	Obg-like ATPase 1 isoform a	7	2	1
256574803	Ocel1	occludin/ELL domain containing 1	0	0	1
229577356	Ociad1	OClA domain containing 1 isoform 1	8	0	4
124248484	Odz4	odd Oz/ten-m homolog 4	0	1	2
283135128	Olf1507	odorant receptor MOR28	0	1	0
84370359	Olfm1	olfactomedin 1 isoform a	0	0	1
86439989	Olfml3	olfactomedin-like 3	1	0	0
22129493	Olf1033	olfactory receptor 1033	0	1	0
289577138	Olf1052	olfactory receptor 1052	0	0	1
22129711	Olf113	olfactory receptor 113	1	0	0
33238990	Olf1317	olfactory receptor 1317	1	0	0
22129197	Olf133	olfactory receptor 133	1	0	0
53828663	Olf138	olfactory receptor 138	0	1	0
22129733	Olf1402	olfactory receptor 1402	0	0	1
33238892	Olf165	olfactory receptor 165	0	1	0
46430560	Olf1257	olfactory receptor 257	0	0	1

268607654	Olfr290	olfactory receptor 290	0	0	1
22129699	Olfr446	olfactory receptor 446	1	0	0
33239114	Olfr474	olfactory receptor 474	0	0	1
22129371	Olfr483	olfactory receptor 483	0	0	1
121247462	Olfr554	olfactory receptor 554	0	0	1
22128741	Olfr559	olfactory receptor 559	0	1	0
22128737	Olfr570	olfactory receptor 570	1	0	0
22128747	Olfr578	olfactory receptor 578	1	0	0
58801352	Olfr598	olfactory receptor 598	1	0	1
22129381	Olfr599	olfactory receptor 599	1	0	0
112982848	Olfr747	olfactory receptor 747	0	1	1
33239278	Olfr860	olfactory receptor 860	0	0	1
22129519	Olfr868	olfactory receptor 868	1	1	1
22129285	Olfr916	olfactory receptor 916	0	1	0
22129203	Olfr983	olfactory receptor 983	1	0	0
58801340	Olfr987	olfactory receptor 987	1	0	0
126723205	Obfc2a	oligonucleotide/oligosaccharide-binding fold containing 2A	0	2	0
28076937	Obfc2b	oligonucleotide/oligosaccharide-binding fold containing 2B	0	3	0
46909607	Ogt	O-linked N-acetylglucosamine transferase	0	2	0
22164770	Oit1	oncoprotein induced transcript 1	1	0	0
312836758	Opa1	optic atrophy 1 homolog	3	0	0
42821120	Hcrtr2	orexin receptor 2	0	1	0
124286818	Orc4l	origin recognition complex subunit 4	0	1	0
255069721	Orc6l	origin recognition complex subunit 6-like isoform a	0	0	1
70909306	Orc2l	origin recognition complex, subunit 2-like isoform B	0	3	1
227116263	Orc3l	origin recognition complex, subunit 3-like isoform 1	0	1	1
13385128	Ormdl3	ORM1-like 3	1	0	0
6679184	Otc	ornithine transcarbamylase	1	0	0
84662768	Osgep	O-sialoglycoprotein endopeptidase	1	0	0
22267440	Ostf1	osteoclast stimulating factor 1	3	0	0
283837911	Os9	osteosarcoma amplified 9	4	0	0
190358487	Otog	otogelin	0	1	1
153791407	Otop3	otopetrin 3	0	1	0
19527388	Otub1	otubain 1	9	0	5
295054201	Odf2	outer dense fiber of sperm tails 2 isoform a	0	0	1
124301201	Nfxl1	ovarian zinc finger protein	1	0	1
33468849	Ovgp1	oviductal glycoprotein 1	0	0	1
9910472	Ovol1	OVO homolog-like 1	0	2	1
194328708	Oxr1	oxidation resistance 1 isoform A	2	0	0
110626165	Oxsr1	oxidative-stress responsive 1	1	0	0
85861164	Ogdh	oxoglutarate dehydrogenase (lipoamide)	38	1	3
52345396	Osbpl1a	oxysterol binding protein-like 1	1	0	0
257196261	Osbpl11	oxysterol binding protein-like 11	0	0	1
68131560	Osbpl6	oxysterol binding protein-like 6	0	0	1
198278439	Osbpl9	oxysterol binding protein-like 9 isoform a	0	0	2
124487451	Osbpl7	oxysterol-binding protein-like protein 7	1	0	0
112181194	Pak1	p21-activated kinase 1	1	0	0
46559406	Pak2	p21-activated kinase 2	7	0	0
304307788	Pak3	p21-activated kinase 3	2	0	0
29336032	Pak4	p21-activated kinase 4	0	2	0
224994209	Pak6	p21-activated kinase 6	0	0	1



226958577	2610301G19Rik	p30 DBC protein	7	37	10
38198665	Nsfl1c	p47 protein	6	0	0
164519134	Gatad2a	p66 alpha isoform b	0	7	4
62243808	Dopey2	pad-1-like isoform 1	1	0	1
31980912	Paf1	Paf1, RNA polymerase II associated factor, homolog	0	7	0
326537335	Pax2	paired box gene 2	0	5	0
7305369	Pax6	paired box gene 6	1	0	0
6754990	Pax8	paired box gene 8	0	4	0
6679341	Pitx3	paired-like homeodomain transcription factor 3	1	0	0
145046259	Pak1ip1	PAK/PLC-interacting protein 1	1	14	1
165377089	Arhgef7	PAK-interacting exchange factor beta isoform c	3	0	1
171846274	X99384	paladin	1	0	0
9790039	Pldn	pallidin	1	0	0
121674797	Ppt1	palmitoyl-protein thioesterase 1	6	0	0
14010845	9530002B09Rik	palmitoyl-protein thioesterase-like protein	0	0	1
127141012	Mycbp2	pam, highwire, rpm 1	1	0	1
6754980	Reg3b	pancreatitis-associated protein	0	1	0
226958374	Sypl	pantophysin isoform 2	3	0	0
22122397	Pank3	pantothenate kinase 3	0	0	1
15809012	Prcc	papillary renal cell carcinoma translocation-associated gene product	0	4	0
163310767	Pard3b	par-3 partitioning defective 3 homolog B	0	2	1
167004227	Coq2	para-hydroxybenzoate-polyprenyltransferase, mitochondrial	0	1	1
124430707	4432412L15Rik	paralemmin 3	1	0	0
34303979	Pon2	paraoxonase 2	5	0	0
27370510	Pon3	paraoxonase 3	2	0	0
225543409	Pspc1	paraspeckle protein 1	1	13	4
157841170	Pddc1	Parkinson disease 7 domain containing 1	1	5	0
55741460	Park7	Parkinson disease protein 7	6	0	0
171184415	Pard3	partitioning-defective protein 3 homolog isoform 1	0	0	1
124486979	Palb2	partner and localizer of BRCA2	0	1	0
13384846	Pno1	partner of NOB1	0	5	3
31982526	Parva	parvin, alpha	1	1	0
18860551	Parvb	parvin, beta	0	1	0
170763472	Pnpla6	patatin-like phospholipase domain containing 6	1	0	0
118130807	Pnpla8	patatin-like phospholipase domain containing 8	1	0	0
42734451	Paxip1	Pax transcription activation domain interacting protein	0	3	0
34368580	Pknox1	Pbx/knotted 1 homeobox	0	2	0
119372296	Pcid2	PCI domain containing 2	0	6	1
6679233	Pctk3	PCTAIRE protein kinase 3	0	8	5
7242173	Pctk1	PCTAIRE-motif protein kinase 1	1	0	1
84781781	Pdap1	PDGFA associated protein 1	0	5	0
124486765	Pds5a	PDS5, regulator of cohesion maintenance, homolog A	0	31	4
66955886	Pds5b	PDS5, regulator of cohesion maintenance, homolog B	0	51	6
166197681	Pdlim7	PDZ and LIM domain 7 isoform b	0	1	0
225579122	Pdzk1	PDZ domain containing 1	1	0	0
21312244	Pdzd11	PDZ domain containing 11	0	4	4
124486716	Pdzd2	PDZ domain containing 2	0	1	0
124053449	Intu	PDZ domain containing 6	0	0	1
256985136	Pdzrn3	PDZ domain containing RING finger 3	0	1	0
20373163	Scrib	PDZ-domain protein scribble	3	2	13
126352572	Pcxl2	pecanex-like 2 isoform 2	1	0	1

6755022	Slc26a4	pendrin	1	0	1
33469980	Ptcd3	pentatricopeptide repeat domain 3	7	2	0
27502349	Pmpca	peptidase (mitochondrial processing) alpha	12	7	0
171906557	Padi2	peptidyl arginine deiminase, type II	5	0	1
156938255	Padi3	peptidyl arginine deiminase, type III	0	0	1
156938252	Padi4	peptidyl arginine deiminase, type IV	0	16	0
153792657	Pam	peptidylglycine alpha-amidating monooxygenase	1	0	1
6679439	Ppia	peptidylprolyl isomerase A	16	14	11
71774133	Ppib	peptidylprolyl isomerase B	9	13	4
6679441	Ppic	peptidylprolyl isomerase C	0	1	0
13385854	Ppid	peptidylprolyl isomerase D	6	0	0
255683299	Ppwd1	peptidylprolyl isomerase domain and WD repeat containing 1	0	12	0
14196340	Ppie	peptidylprolyl isomerase E	2	4	4
19527310	Ppif	peptidylprolyl isomerase F	2	5	0
124487333	Ppig	peptidylprolyl isomerase G	0	0	1
158631196	Ppjh	peptidylprolyl isomerase H isoform 1	1	11	2
21312784	Ppil1	peptidylprolyl isomerase-like 1	2	2	3
30025020	Ppil2	peptidylprolyl isomerase-like 2	1	1	1
169790966	Ppil3	peptidylprolyl isomerase-like 3 isoform 1	0	1	0
165972339	Ppil4	peptidylprolyl isomerase-like 4	1	2	0
30519902	Pthr1	peptidyl-tRNA hydrolase 1 homolog	0	1	0
170172589	Prx	periaxin isoform L	1	0	0
93004085	Pcnt	pericentrin	1	1	5
170763496	Pcm1	pericentriolar material 1	2	0	1
284005509	Pwp1	periodic tryptophan protein 1 homolog	0	1	0
163838662	Tspo	peripheral benzodiazepine receptor	0	0	3
157909774	Bzrap1	peripheral benzodiazepine receptor-associated protein 1	0	0	1
158749615	BC016423	peripheral benzodiazepine receptor associated protein	1	0	1
133779004	Pphln1	periphilin 1 isoform 1	0	1	1
112421039	Ppl	periplakin	56	90	92
183979966	Hspg2	perlecan (heparan sulfate proteoglycan 2)	1	1	2
268370173	Pxdn	peroxidasin	1	1	2
61657895	Pex1	peroxin1	0	1	0
6754976	Prdx1	peroxiredoxin 1	4	15	8
148747558	Prdx2	peroxiredoxin 2	7	7	0
6680690	Prdx3	peroxiredoxin 3	9	1	1
7948999	Prdx4	peroxiredoxin 4	9	1	1
6755114	Prdx5	peroxiredoxin 5 precursor	14	8	6
28916703	Prdx6-rs1	peroxiredoxin 5 related sequence 1 protein	2	0	0
6671549	Prdx6	peroxiredoxin 6	7	0	0
241666485	Pex11b	peroxisomal biogenesis factor 11 beta isoform 1	2	1	2
21735445	Pex11c	peroxisomal biogenesis factor 11 gamma	0	0	1
9790153	Pex14	peroxisomal biogenesis factor 14	0	0	1
254750742	Pex16	peroxisomal biogenesis factor 16	3	0	3
9910484	Pex3	peroxisomal biogenesis factor 3	1	0	1
254553500	Pex5l	peroxisomal biogenesis factor 5-like isoform 1	0	1	0
160333197	Peci	peroxisomal D3,D2-enoyl-CoA isomerase isoform a	4	1	0
10946966	Pxmp4	peroxisomal membrane protein 4	1	1	1
256220343	Dhrs4	peroxisomal short-chain alcohol dehydrogenase isoform 2	8	14	3
164663880	Ppara	peroxisome proliferator activated receptor alpha	0	0	1
11528520	Perp	PERP, TP53 apoptosis effector	0	0	1

12584984	Pes1	pescadillo homolog 1, containing BRCT domain	0	1	5
71480098	Pcnp	PEST proteolytic signal containing nuclear protein	2	4	0
255683374	Ppan	peter pan homolog	0	0	2
24025665	Plekho2	PH domain-containing protein homolog	0	1	0
255522851	Phf10	PHD finger protein 10	0	4	0
198442868	Phf12	PHD finger protein 12	0	1	0
270288744	Phf14	PHD finger protein 14	0	5	3
40556368	Phf16	PHD finger protein 16	0	1	0
194328769	Phf17	PHD finger protein 17	1	1	1
31543476	Phf2	PHD finger protein 2	0	3	0
124487195	Phf20l1	PHD finger protein 20-like 1	1	0	0
226423861	Phf23	PHD finger protein 23	0	1	0
124487309	Phf3	PHD finger protein 3	0	3	0
33563292	Phf6	PHD finger protein 6	0	4	0
57222274	4921501E09Rik	PHD finger protein 8	0	0	1
164518891	Phf8	PHD finger protein 8 isoform b	1	0	0
24415990	Phf5a	PHD-finger 5A	1	4	2
171543886	Pah	phenylalanine hydroxylase	0	1	0
162138894	Farsa	phenylalanyl-tRNA synthetase, alpha subunit	1	3	1
31981400	Farsb	phenylalanyl-tRNA synthetase, beta subunit	13	8	0
6681255	Ebp	phenylalkylamine Ca2+ antagonist (emopamil) binding protein	1	0	0
6679405	Pnmt	phenylethanolamine N-methyltransferase	1	0	0
295317320	Phactr3	phosphatase and actin regulator 3 isoform 1	1	0	0
23346533	Phospho1	phosphatase, orphan 1	0	0	1
31980842	Pcyt2	phosphate cytidylyltransferase 2, ethanolamine	1	0	0
20149726	Cds2	phosphatidate cytidylyltransferase 2	2	0	0
77861908	Ppapdc2	phosphatidic acid phosphatase type 2 domain containing 2	1	0	0
110431341	Ppap2c	phosphatidic acid phosphatase type 2c	2	0	2
84794552	Pebp1	phosphatidylethanolamine binding protein 1	5	0	1
110626163	Pgs1	phosphatidylglycerophosphate synthase 1	1	1	0
241982771	Pi4ka	phosphatidylinositol 4-kinase type 3 alpha	0	2	2
124486987	Pigg	phosphatidylinositol glycan anchor biosynthesis, class G	1	0	0
41872422	Pigh	phosphatidylinositol glycan anchor biosynthesis, class H	1	0	0
29789447	Pigk	phosphatidylinositol glycan anchor biosynthesis, class K isoform 1	3	0	0
167900470	Pign	phosphatidylinositol glycan anchor biosynthesis, class N	1	0	0
239937480	Pigo	phosphatidylinositol glycan anchor biosynthesis, class O	0	1	0
41351529	Pigs	phosphatidylinositol glycan anchor biosynthesis, class S	13	0	2
120587021	Pigt	phosphatidylinositol glycan, class T	5	0	0
9790159	Pitpnb	phosphatidylinositol transfer protein, beta	2	0	0
22003862	Pitpnc1	phosphatidylinositol transfer protein, cytoplasmic 1	0	1	0
31982833	Pip5k1a	phosphatidylinositol-4-phosphate 5-kinase, type I, alpha	0	1	0
226442759	Pip5k1c	phosphatidylinositol-4-phosphate 5-kinase, type I, gamma isoform 1	1	0	0
17298686	Pip4k2c	phosphatidylinositol-5-phosphate 4-kinase, type II, gamma	3	1	1
32567788	Picalm	phosphatidylinositol-binding clathrin assembly protein	3	5	2
126722757	Pisd	phosphatidylserine decarboxylase	0	0	1

227330629	Pde1a	phosphodiesterase 1A isoform PDE1A2	0	1	0
23510241	Pde4d	phosphodiesterase 4D	1	0	0
158749580	Pde4dip	phosphodiesterase 4D interacting protein isoform 1	1	0	0
260166631	Pde5a	phosphodiesterase 5A	0	1	1
284005078	Pde6c	phosphodiesterase 6C	0	1	0
31560653	Pfkl	phosphofructokinase, liver, B-type	21	2	3
9790051	Pfkl	phosphofructokinase, platelet	11	0	0
227330633	Pgm2	phosphoglucomutase 2	13	0	0
124486895	Pgd	phosphogluconate dehydrogenase	9	0	1
52353955	Phgdh	phosphoglycerate dehydrogenase	12	0	8
70778976	Pgk1	phosphoglycerate kinase 1	20	0	5
226246531	Pgk2	phosphoglycerate kinase 2	1	0	0
254587962	Pgam5	phosphoglycerate mutase family member 5 isoform 2	7	2	4
40254507	Pgp	phosphoglycolate phosphatase	8	0	0
110835706	Plekha5	phosphoinositol 3-phosphate-binding protein-2	1	0	0
114431250	Plaa	phospholipase A2, activating protein	1	0	0
67972423	Pla2g4f	phospholipase A2, group IVF	0	0	1
19527008	Pla2g15	phospholipase A2, group XV	1	0	1
124487227	Plb1	phospholipase B1 isoform 1	0	1	0
31982122	Plcb3	phospholipase C beta 3	9	25	0
29293803	Plcb4	phospholipase C beta 4	0	2	0
224967070	Plcb1	phospholipase C, beta 1 isoform 2	0	1	0
125347158	Plcd4	phospholipase C, delta 4 isoform 2	0	0	1
164565357	Plch2	phospholipase C, eta 2 isoform b	1	0	0
26986603	Plcg2	phospholipase C, gamma 2	0	0	1
22550102	Plcz1	phospholipase C, zeta 1	0	0	1
7242181	Plid3	phospholipase D family, member 3	0	2	0
194328695	Plscr1	phospholipid scramblase 1	4	0	0
281182714	Plscr3	phospholipid scramblase 3	1	0	0
8393988	Pmm2	phosphomannomutase 2	2	0	0
254588058	Pmvk	phosphomevalonate kinase isoform 1	0	0	2
158186629	N4bp2l2	phosphonoformate immuno-associated protein 5	1	0	0
31543456	Pag1	phosphoprotein associated with glycosphingolipid microdomains 1	1	0	0
21426847	Pea15a	phosphoprotein enriched in astrocytes 15 isoform 2	3	0	1
10946854	Prps1	phosphoribosyl pyrophosphate synthetase 1	7	0	0
30794182	Prps1l1	phosphoribosyl pyrophosphate synthetase 1-like 1	1	0	0
13386146	Prps2	phosphoribosyl pyrophosphate synthetase 2	1	0	0
256773299	Prpsap2	phosphoribosyl pyrophosphate synthetase-associated protein 2	2	0	0
13385434	Paics	phosphoribosylaminoimidazole carboxylase, phosphoribosylaminoimidazole succinocarboxamide synthetase	3	0	2
226958458	Pfas	phosphoribosylformylglycinamide synthase (FGAR amidotransferase)	4	0	0
93102415	Gart	phosphoribosylglycinamide formyltransferase	9	0	0
253314458	Phax	phosphorylated adaptor for RNA export isoform 1	0	0	1
329299029	Psat1	phosphoserine aminotransferase 1	16	0	2
88014628	Pstk	phosphoserine-tRNA kinase	0	0	1
242397487	Phyipl	phytanoyl-CoA hydroxylase interacting protein-like isoform 1	0	1	1
160707978	Pclo	piccolo isoform 1	1	0	1
25777750	Pgbd5	piggyBac transposable element derived 5	0	0	1
20982845	Fus	pigpen	9	10	6

18129616	2610028A01Rik	PIN2/TRF1-interacting protein	0	1	1
112420990	Pnn	pinin	4	7	21
126032319	Pitpnm3	Pitpnm family member 3 isoform 1	0	0	1
21699068	Pitrm1	pitrilysin metallopeptidase 1	21	2	0
10946612	Piwil1	piwi like homolog 1	0	0	1
52138556	Piwil4	piwi-like 4	1	0	0
14861844	D1Pas1	PL10 protein	2	0	1
124286797	1600029D21Rik	placenta expressed transcript 1	1	1	2
9790161	Pkp1	plakophilin 1	0	1	1
21312960	Pkp2	plakophilin 2	0	0	17
242332587	Pkp3	plakophilin 3 isoform 1	0	0	4
147899467	Pkp4	plakophilin 4 isoform 1	1	0	12
157041252	S3-12	plasma membrane associated protein, S3-12	1	0	0
62234487	Atp2b1	plasma membrane calcium ATPase 1	6	0	0
80861454	Atp2b2	plasma membrane calcium ATPase 2 isoform 1	3	0	1
56699478	Atp2b3	plasma membrane calcium ATPase 3	1	0	0
269784615	Atp2b4	plasma membrane calcium ATPase 4	3	0	0
20279132	Plp	plasma membrane proteolipid	0	0	1
257471003	Plg	plasminogen	0	0	1
85986577	Pls1	plastin 1 (I-isoform)	3	3	2
262050551	Pls3	plastin 3 precursor	14	18	4
74024915	Pecam1	platelet/endothelial cell adhesion molecule 1 isoform 1	0	0	1
7305363	Pafah1b1	platelet-activating factor acetylhydrolase, isoform Ib, alpha subunit	2	9	0
40254624	Pafah1b2	platelet-activating factor acetylhydrolase, isoform Ib, beta subunit	3	0	0
6679201	Pafah1b3	platelet-activating factor acetylhydrolase, isoform Ib, gamma subunit	4	0	1
163644296	Psd3	pleckstrin and Sec7 domain containing 3 isoform 2	1	0	0
51317392	Psd	pleckstrin and Sec7 domain containing homolog	0	0	1
237681204	Plekha6	pleckstrin homology domain containing, family A member 6 isoform 1	0	3	10
27370088	Plekha7	pleckstrin homology domain containing, family A member 7	0	0	1
167621502	Plekhg3	pleckstrin homology domain containing, family G (with RhoGef domain) member 3	0	0	11
124487489	Plekhg4	pleckstrin homology domain containing, family G (with RhoGef domain) member 4	0	0	1
256818761	Plekhh1	pleckstrin homology domain containing, family H (with MyTH4 domain) member 1 isoform 1	0	1	0
33942120	Plekhn1	pleckstrin homology domain containing, family M (with RUN domain) member 1	0	1	0
124487035	Phip	pleckstrin homology domain interacting protein	0	0	3
226442929	Phlda1	pleckstrin homology-like domain, family A, member 1	0	0	1
188528897	Phldb2	pleckstrin homology-like domain, family B, member 2	1	0	1
156616318	Phldb3	pleckstrin homology-like domain, family B, member 3	0	0	1
256000747	Plec1	plectin 1 isoform 1b	65	52	201
34610215	Plagl2	pleiomorphic adenoma gene-like 2	1	0	2
31980791	Plrg1	pleiotropic regulator 1	1	13	5
113722113	Plxna2	plexin A2	1	0	0
171543899	Plxna4	plexin A4	1	0	0
226958476	Plxnb2	plexin B2 isoform 13	32	0	0
153792704	Plxnd1	plexin D1	0	0	1
160333703	Kdm5b	PLU1	0	1	1

260099686	Pogz	pogo transposable element with ZNF domain	0	3	4
228480275	Pvrl2	poliovirus receptor-related 2 isoform 1	2	0	0
65508357	Plk5	polo-like kinase 5	0	1	0
20806109	Parp1	poly (ADP-ribose) polymerase family, member 1	1	16	0
25014095	Parp3	poly (ADP-ribose) polymerase family, member 3	0	3	1
281485553	Parp4	poly (ADP-ribose) polymerase family, member 4	0	0	1
13384918	Parp9	poly (ADP-ribose) polymerase family, member 9	0	0	1
6754972	Pabpc2	poly A binding protein, cytoplasmic 2	0	0	1
31560656	Pabpc1	poly(A) binding protein, cytoplasmic 1	21	1	18
34419622	Pabpc4	poly(A) binding protein, cytoplasmic 4 isoform 2	1	0	1
9506945	Pabpn1	poly(A) binding protein, nuclear 1	0	4	7
21311877	Parn	poly(A)-specific ribonuclease (deadenylation nuclease)	1	2	0
6754994	Pcbp1	poly(rC) binding protein 1	11	11	9
157057549	Pcbp2	poly(rC) binding protein 2 isoform 2	11	21	15
9910570	Pmfbp1	polyamine modulated factor 1 binding protein 1	1	0	0
13385420	Pmf1	polyamine-modulated factor 1	0	2	0
124486951	Pbrm1	polybromo 1	0	35	3
37574111	Pcgf1	polycomb group ring finger 1	0	1	0
28076973	Pcgf6	polycomb group ring finger 6	0	1	0
29135339	Pkhd11	polycystic kidney and hepatic disease 1-like 1	1	0	0
294862233	Pkd1l2	polycystin 1-like 2	1	0	1
31980927	Pqbp1	polyglutamine binding protein 1	0	1	1
110835733	Phc1	polyhomeotic-like 1 isoform a	0	1	0
32189421	Polr1d	polymerase (RNA) I polypeptide D isoform 1	0	3	0
29336059	Polr2c	polymerase (RNA) II (DNA directed) polypeptide C	1	2	10
28076931	Polr2d	polymerase (RNA) II (DNA directed) polypeptide D isoform 2	0	2	4
124249077	Polr2e	polymerase (RNA) II (DNA directed) polypeptide E	1	3	6
13385826	Polr2g	polymerase (RNA) II (DNA directed) polypeptide G	0	4	5
21704118	Polr2h	polymerase (RNA) II (DNA directed) polypeptide H	1	4	2
110625757	Polr2i	polymerase (RNA) II (DNA directed) polypeptide I	0	1	1
86355514	Polr2k	polymerase (RNA) II (DNA directed) polypeptide K isoform b	0	1	0
219881031	Polr2l	polymerase (RNA) II (DNA directed) polypeptide L	0	2	1
124486963	Polr3a	polymerase (RNA) III (DNA directed) polypeptide A, 155kDa	0	1	0
27229271	Polr3h	polymerase (RNA) III (DNA directed) polypeptide H	0	1	0
14780884	Poldip2	polymerase delta interacting protein 38	3	0	1
6679567	Ptrf	polymerase I and transcript release factor	1	2	0
118601009	Pnkp	polynucleotide kinase &apos; phosphatase	0	13	0
326368217	Reep6	polyposis locus protein 1-like 1	2	0	0
116517303	Ptbp1	polypyrimidine tract binding protein 1 isoform 2	13	30	18
9507003	Ptbp2	polypyrimidine tract binding protein 2	0	8	1
25188204	Pnpt1	polyribonucleotide nucleotidyltransferase 1	1	6	0
257196183	Puf60	poly-U binding splicing factor 60 isoform a	4	23	3
23956336	Pms1	postmeiotic segregation increased 1	0	1	0
126517505	Kcmf1	potassium channel modulatory factor 1	2	0	0
161333815	Kctd9	potassium channel tetramerisation domain containing 9 isoform b	0	1	0
123701966	Kctd12	potassium channel tetramerization domain containing 12	0	1	0
229577268	Kctd18	potassium channel tetramerization domain containing 18 isoform 3	0	1	0
120300928	Kcnu1	potassium channel, subfamily U, member 1	0	1	0
22122333	Kcnc4	potassium voltage gated channel, Shaw-related subfamily, member 4	0	0	1

54873660	Kcnq2	potassium voltage-gated channel KQT-like protein 2 isoform 6	1	0	0
23943842	Kcng3	potassium voltage-gated channel, subfamily G, member 3	0	0	1
116875836	Kcnh7	potassium voltage-gated channel, subfamily H (eag-related), member 7	1	0	0
172073164	Prdm1	PR domain containing 1, with ZNF domain	1	1	0
124249099	Prdm10	PR domain containing 10	0	2	0
226531251	Prdm15	PR domain containing 15	1	0	0
20070422	Praf2	PRA1 domain family 2	1	0	0
34365779	Pbx1	pre B-cell leukemia transcription factor 1 isoform a	0	3	0
7949105	Pbx3	pre B-cell leukemia transcription factor 3	0	0	1
22122651	Pbxip1	pre-B-cell leukemia transcription factor interacting protein 1	1	0	0
162329547	Gm10070	predicted gene 10070	3	3	4
124486863	Gm12695	predicted gene 12695	0	0	1
154759295	Gm15450	predicted gene 15450	2	4	4
153792123	Gm4696	predicted gene 4696	0	0	1
124486993	Gm5560	predicted gene 5560	7	1	5
124486640	Gm9294	predicted gene 9294	10	5	8
154147571	677156	predicted gene, 677156	0	0	1
218505708	Gm8994	predicted gene, EG668137	1	9	14
215490077	Gm10094	predicted gene, ENSMUSG00000061104	0	6	4
13385532	Pfdn1	prefoldin 1	1	0	0
31981577	Pfdn2	prefoldin 2	2	0	0
156938259	Psg16	pregnancy specific glycoprotein 16	1	0	0
110347469	Pzp	pregnancy zone protein	1	1	1
40254521	Mobkl3	preimplantation protein 3	0	1	0
268370153	Pcf11	pre-mRNA cleavage complex II protein Pcf11	1	0	0
256665245	Cpsf7	pre-mRNA cleavage factor I, 59 kDa subunit	0	14	1
115583687	Prpf8	pre-mRNA processing factor 8	5	99	78
269973905	Pdss2	prenyl diphosphate synthase, subunit 2	1	0	0
13385294	Pcyox1	prenylcysteine oxidase 1	11	0	0
326537301	Pnoc	prepronociceptin	1	0	0
190684663	Psen2	presenilin 2	0	1	0
28201983	Prickle3	prickle homolog 3	0	1	1
197333835	Prickle2	prickle-like 2 isoform a	0	1	0
87196490	Pawr	PRKC, apoptosis, WT1, regulator	0	3	0
114158701	Nop14	probable nucleolar complex protein 14	0	0	5
20270200	Pop5	processing of precursor 5	0	2	0
111120329	Col1a2	procollagen, type I, alpha 2	1	0	2
34328045	Col4a4	procollagen, type IV, alpha 4	2	0	0
115647999	Col7a1	procollagen, type VII, alpha 1	0	1	0
226423922	Col14a1	procollagen, type XIV, alpha 1	0	1	0
40789282	Col18a1	procollagen, type XVIII, alpha 1 isoform 2	4	5	8
116326001	Col24a1	procollagen, type XXIV, alpha 1	0	1	0
116063546	Col27a1	procollagen, type XXVII, alpha 1	0	0	1
6755110	Plod3	procollagen-lysine, 2-oxoglutarate 5-dioxygenase 3	1	1	0
33859596	P4ha1	procollagen-proline, 2-oxoglutarate 4-dioxygenase (proline 4-hydroxylase), alpha 1 polypeptide	14	1	0
6755040	Pfn1	profilin 1	8	2	7
31980806	Pgrmc1	progesterone receptor membrane component	10	0	2
226442772	Pgrmc2	progesterone receptor membrane component 2	6	0	2
31560391	Pdcd10	programmed cell death 10	6	3	0
120407033	Pdcd2	programmed cell death 2	1	0	0

270309161	Pdcd4	programmed cell death 4	10	0	0
6755000	Pdcd6	programmed cell death 6	1	0	0
258547156	Pdcd6ip	programmed cell death 6 interacting protein	7	0	1
54607128	Pdcd11	programmed cell death protein 11	0	28	23
148271093	Pdcd7	programmed cell death protein 7	1	1	0
6679299	Phb	prohibitin	9	0	8
254675324	Prlr	prolactin receptor	0	1	0
158749640	Preb	prolactin regulatory element binding protein	3	0	0
7242171	Pcna	proliferating cell nuclear antigen	2	4	8
118601004	Prodh	proline dehydrogenase	20	0	0
153791304	Prr12	proline rich 12	0	2	0
283945467	Prr13	proline rich 13	1	0	0
34328357	Prr14	proline rich 14	1	0	0
255308901	Prr18	proline rich region 18	1	0	0
84872187	Prosc	proline synthetase co-transcribed isoform a	1	0	0
257900472	Pelp1	proline-, glutamic acid-, leucine-rich protein 1	0	4	2
90991706	Zfc3h1	proline/serine-rich coiled-coil 2	1	0	0
226874876	P4ha2	prolyl 4-hydroxylase, alpha II subunit isoform 2	0	0	1
42415475	P4hb	prolyl 4-hydroxylase, beta polypeptide	27	2	2
6755152	Prep	prolyl endopeptidase	9	0	0
33469015	Prcp	prolylcarboxypeptidase	1	0	0
254675316	Prom1	prominin 1 isoform s1	2	0	0
224994184	Prom2	prominin 2 isoform 1	2	0	0
160333286	Pml	promyelocytic leukemia isoform 2	0	3	9
13385310	Pccb	propionyl Coenzyme A carboxylase, beta polypeptide	14	0	0
254540162	Pcca	propionyl-Coenzyme A carboxylase, alpha polypeptide	18	0	0
161086990	Prosapip1	ProSAPiP1 protein	0	1	0
225735657	Psap	prosaposin isoform B preproprotein	10	3	1
260763900	Ptges2	prostaglandin E synthase 2	6	0	0
50845420	Ptgfrn	prostaglandin F2 receptor negative regulator precursor	4	0	0
9790017	Ptges3	prostaglandin-E synthase 3	4	3	4
6679537	Ptgs1	prostaglandin-endoperoxide synthase 1	7	0	0
19111160	Prss8	prostasin	0	0	1
20149318	Ptov1	prostate tumor over expressed gene 1	0	1	0
6679501	Psmc1	protease (prosome, macropain) 26S subunit, ATPase 1	14	0	0
7110703	Psmc5	protease (prosome, macropain) 26S subunit, ATPase 5	10	0	1
116089322	Lonp1	protease, serine, 15	28	20	6
111607469	Prss1	protease, serine-like 1	0	1	0
33859604	Psmc2	proteasome (prosome, macropain) 26S subunit, ATPase 2	9	0	1
228008337	Psmc3	proteasome (prosome, macropain) 26S subunit, ATPase 3	9	0	0
6754724	Psmc7	proteasome (prosome, macropain) 26S subunit, non-ATPase, 7	8	0	0
6755212	Psmc1	proteasome (prosome, macropain) 28 subunit, alpha	14	0	0
33563282	Psmc1	proteasome (prosome, macropain) subunit, alpha type 1	9	0	0
261824000	Psmc3	proteasome (prosome, macropain) subunit, alpha type 3	2	0	0
7106387	Psmc5	proteasome (prosome, macropain) subunit, alpha type 5	1	2	2
6755198	Psmc6	proteasome (prosome, macropain) subunit, alpha type 6	12	1	1
7106389	Psmc7	proteasome (prosome, macropain) subunit, alpha type 7	7	3	0
7242197	Psmc1	proteasome (prosome, macropain) subunit, beta type 1	9	2	0
227116345	Psmc2	proteasome (prosome, macropain) subunit, beta type 2	6	1	0
6755204	Psmc5	proteasome (prosome, macropain) subunit, beta type 5	11	3	0
6755206	Psmc7	proteasome (prosome, macropain) subunit, beta type 7	6	0	0



124248577	Psmc4	proteasome 26S ATPase subunit 4	14	1	2
27754103	Psmc6	proteasome 26S ATPase subunit 6	9	0	0
74315975	Psmc1	proteasome 26S non-ATPase subunit 1	14	0	1
134053905	Psmc11	proteasome 26S non-ATPase subunit 11	11	0	1
13385384	Psmc12	proteasome 26S non-ATPase subunit 12	4	0	1
6755210	Psmc13	proteasome 26S non-ATPase subunit 13	9	1	1
19882201	Psmc2	proteasome 26S non-ATPase subunit 2	10	0	3
19705424	Psmc3	proteasome 26S non-ATPase subunit 3	16	1	0
6679505	Psmc4	proteasome 26S non-ATPase subunit 4	4	0	0
134053913	Psmc5	proteasome 26S non-ATPase subunit 5	6	0	1
156713423	Psmc8	proteasome 26S non-ATPase subunit 8	4	0	0
119508441	Psmc9	proteasome 26S non-ATPase subunit 9	1	0	0
145966883	Psmc14	proteasome 26S subunit, non-ATPase 14	5	0	1
71725358	Psmc2	proteasome activator subunit 2 isoform 1	10	0	0
6755214	Psmc3	proteasome activator subunit 3	3	0	0
6755196	Psmc4	proteasome alpha 4 subunit	4	0	0
6755202	Psmc3	proteasome beta 3 subunit	8	4	0
254540082	Psmc4	proteasome beta 4 subunit	5	2	0
238231384	Psmc6	proteasome beta 6 subunit	3	1	0
134031994	Psmc2	proteasome subunit alpha type 2	5	2	0
46049022	Psmc6	proteasome, 26S, non-ATPase regulatory subunit 6	8	0	0
113931156	Pin4	protein (peptidyl-prolyl cis/trans isomerase) NIMA-interacting, 4 (parvulin)	0	1	0
188528624	Prmt5	protein arginine methyltransferase 5	1	0	0
21703808	Prmt7	protein arginine methyltransferase 7	0	0	1
9790109	Prmt1	protein arginine N-methyltransferase 1	1	3	0
86198316	Pdia4	protein disulfide isomerase A4	23	3	0
30794140	Pdia5	protein disulfide isomerase A5	0	8	0
58037267	Pdia6	protein disulfide isomerase A6	2	0	1
112293264	Pdia3	protein disulfide-isomerase A3	35	12	10
226958422	Pacsin2	protein kinase C and casein kinase substrate in neurons 2	2	8	0
163644252	Pacsin3	protein kinase C and casein kinase substrate in neurons 3	0	7	2
6679465	Prkcsh	protein kinase C substrate 80K-H	16	0	1
6755082	Prkcd	protein kinase C, delta	0	0	1
6755080	Prkcc	protein kinase C, gamma	0	0	1
133778989	Prkci	protein kinase C, iota	2	3	0
6679353	Prkcq	protein kinase C, theta	0	1	0
284005389	Prkd3	protein kinase D3	0	1	0
94681061	Prkaa1	protein kinase, AMP-activated, alpha 1 catalytic subunit	6	0	1
24371223	Prkag3	protein kinase, AMP-activated, gamma 3 non-catalytic subunit	1	0	0
30794476	Prkar1a	protein kinase, cAMP dependent regulatory, type I, alpha	2	0	0
22550094	Prkar2a	protein kinase, cAMP dependent regulatory, type II alpha	2	0	0
45598396	Prkar2b	protein kinase, cAMP dependent regulatory, type II beta	7	0	1
7110693	Prkaca	protein kinase, cAMP dependent, catalytic, alpha	3	1	0
255958320	Prkacb	protein kinase, cAMP dependent, catalytic, beta	1	0	0
124517706	Prkdc	protein kinase, DNA-activated, catalytic polypeptide	0	36	1
6755162	Prkra	protein kinase, interferon inducible double stranded RNA dependent activator	0	0	2
110625699	Pkmyt1	protein kinase, membrane associated tyrosine/threonine 1	0	0	1
21703812	Slc10a3	protein P3	0	0	1

13994195	Ppp1ca	protein phosphatase 1, catalytic subunit, alpha	13	20	14
161484668	Ppp1cb	protein phosphatase 1, catalytic subunit, beta isoform	3	8	3
31980772	Ppp1cc	protein phosphatase 1, catalytic subunit, gamma isoform	0	1	0
95772123	Ppp1r12a	protein phosphatase 1, regulatory (inhibitor) subunit 12A	1	10	0
124486803	Ppp1r12b	protein phosphatase 1, regulatory (inhibitor) subunit 12B	0	1	0
22122685	Ppp1r8	protein phosphatase 1, regulatory (inhibitor) subunit 8	0	9	0
31711997	Ppp1r9a	protein phosphatase 1, regulatory (inhibitor) subunit 9A	0	0	1
124249341	Ppp1r12c	protein phosphatase 1, regulatory subunit 12C	0	1	0
50053703	Ppp1r9b	protein phosphatase 1, regulatory subunit 9B	0	0	2
6679443	Ppm1a	protein phosphatase 1A, magnesium dependent, alpha isoform	0	0	1
6679793	Ppm1g	protein phosphatase 1G (formerly 2C), magnesium-dependent, gamma isoform	3	0	0
9506983	Ppp2ca	protein phosphatase 2a, catalytic subunit, alpha isoform	3	6	2
254587947	Ppp2r4	protein phosphatase 2A, regulatory subunit B	1	0	0
22726177	Ppp2r2d	protein phosphatase 2A, regulatory subunit B, delta isoform	1	0	0
45592930	Ppp3cb	protein phosphatase 3, catalytic subunit, beta	0	0	1
9790175	Ppp4c	protein phosphatase 4, catalytic subunit	0	0	1
166706862	Ppp4r1	protein phosphatase 4, regulatory subunit 1 isoform b	0	1	0
33636709	Ppp4r2	protein phosphatase 4, regulatory subunit 2	2	0	0
21312758	Ppp6c	protein phosphatase 6, catalytic subunit	0	0	1
255308881	Ppp1r10	protein phosphatase 1 isoform 2	0	10	1
12963569	Ppp1r7	protein phosphatase-1 regulatory subunit 7	3	0	0
46309455	Pros1	protein S, alpha	1	0	0
6755226	Ptp4a1	protein tyrosine phosphatase 4a1	0	3	0
258613926	Ptp4a2	protein tyrosine phosphatase 4a2	0	2	0
23956130	Ptpmt1	protein tyrosine phosphatase, mitochondrial 1	1	1	1
133505845	Ptpn1	protein tyrosine phosphatase, non-receptor type 1	3	0	0
134948762	Ptpn13	protein tyrosine phosphatase, non-receptor type 13	0	0	1
110825986	Ptpn14	protein tyrosine phosphatase, non-receptor type 14	0	1	1
124517678	Ptpn23	protein tyrosine phosphatase, non-receptor type 23	2	0	0
118130785	Ptpn6	protein tyrosine phosphatase, non-receptor type 6 isoform b	0	1	0
153945814	Ptpre	protein tyrosine phosphatase, receptor type, E	1	0	0
161016786	Ppfia3	protein tyrosine phosphatase, receptor type, f polypeptide (PTPRF), interacting protein (liprin), alpha 3	1	0	0
304361734	Ppfia1	protein tyrosine phosphatase, receptor type, f polypeptide (PTPRF), interacting protein, alpha 1	0	0	1
153791843	Ptprg	protein tyrosine phosphatase, receptor type, G	1	0	0
145046271	Ptprh	protein tyrosine phosphatase, receptor type, H	0	0	1
208609941	PtpRJ	protein tyrosine phosphatase, receptor type, J isoform 1	1	0	0
6679561	PtpRK	protein tyrosine phosphatase, receptor type, K precursor	1	0	0
226054321	PtpRM	protein tyrosine phosphatase, receptor type, M	1	0	1
116089339	PtpRN	protein tyrosine phosphatase, receptor type, N	0	0	1
171184435	Ptplad1	protein tyrosine phosphatase-like A domain containing 1	2	0	1
84872191	Ptplb	protein tyrosine phosphatase-like protein PTPLB	1	0	0
226530884	Pcmt1	protein-L-isoaspartate (D-aspartate) O-methyltransferase 1	4	0	0
23956398	Pcmt2	protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 2	0	1	0

171543841	Fyn	protein-tyrosine kinase fyn isoform b	1	1	1
9790169	Plp2	proteolipid protein 2	1	0	2
7110705	Ptma	prothymosin alpha	6	0	0
157426851	Pcdh19	protocadherin 19 isoform a	0	0	1
282165827	Pcdh24	protocadherin 24	0	0	1
18087793	Pcdhb15	protocadherin beta 15	0	0	1
113866017	Pcdhb3	protocadherin beta 3	1	0	0
18087781	Pcdhb6	protocadherin beta 6	0	0	1
16716433	Pcdhb8	protocadherin beta 8	0	0	1
18087769	Pcdhga9	protocadherin gamma subfamily A, 9	1	0	0
148747543	Pcdhgb1	protocadherin gamma subfamily B, 1	1	0	0
40254503	Prpf18	PRP18 pre-mRNA processing factor 18 homolog	1	2	0
31980657	Prpf3	PRP3 pre-mRNA processing factor 3 homolog	3	12	0
228480238	Prpf31	PRP31 pre-mRNA processing factor 31 isoform 1	5	14	1
227497256	Prpf38a	PRP38 pre-mRNA processing factor 38 (yeast) domain containing A	0	2	5
30794464	Prpf38b	PRP38 pre-mRNA processing factor 38 (yeast) domain containing B	0	12	0
55925589	Prpf4	PRP4 pre-mRNA processing factor 4 homolog	0	22	5
158854005	Prpf4b	PRP4 pre-mRNA processing factor 4 homolog B	1	10	2
27597069	Prune	prune	2	0	1
164518895	Gulp1	PTB domain adaptor protein CED-6	1	0	0
126215545	Pink1	PTEN induced putative kinase 1	0	1	0
13384608	Pcbd1	pterin 4 alpha carbinolamine dehydratase/dimerization cofactor of hepatocyte nuclear factor 1 alpha (TCF1) 1	6	2	0
52421794	Pcbd2	pterin-4 alpha-carbinolamine dehydratase 2	1	0	0
6677971	Ptk6	PTK6 protein tyrosine kinase 6	0	0	1
30425042	Ptk7	PTK7 protein tyrosine kinase 7	2	0	0
329112534	Ppfia2	PTPRF interacting protein alpha 2	1	0	0
281371356	Ppfibp1	PTPRF interacting protein, binding protein 1 (liprin beta 1)	1	0	0
66773206	Ergic2	PTX1 protein isoform 1	1	0	0
227430386	Pum1	pumilio 1 isoform 1	0	1	0
6679573	Pura	purine rich element binding protein A	3	4	1
6755252	Purb	purine rich element binding protein B	5	5	3
7305395	Pnp1	purine-nucleoside phosphorylase 1	1	0	0
27544935	P2rx2	purinergic receptor P2X2	1	0	0
71043934	D4Erd22e	putative MAPK activating protein PM20,PM21 isoform 1	1	0	0
87116677	Tmco1	putative membrane protein	2	1	2
27228990	Snrnp27	putative nucleic acid binding protein RY-1	0	4	0
88853588	Cd320	putative VLDL lipoprotein receptor precursor	0	0	1
30102930	Pwp2	PWP2 periodic tryptophan protein homolog	1	4	4
72535128	Pxk	PX domain containing serine/threonine kinase short isoform	0	1	0
26006861	Pdxk	pyridoxal (pyridoxine, vitamin B6) kinase	1	0	0
88758584	Pdxdc1	pyridoxal-dependent decarboxylase domain containing 1 isoform 1	5	0	5
19527238	Pnp0	pyridoxine 5'-phosphate oxidase	0	0	1
27754065	Ppa1	pyrophosphatase 1	1	0	0
21450149	Pycr1	pyrroline-5-carboxylate reductase 1	1	0	1
19526878	Pycr2	pyrroline-5-carboxylate reductase family, member 2	16	25	26
119508439	Pycrl	pyrroline-5-carboxylate reductase-like	2	0	0
255958292	Aldh18a1	pyrroline-5-carboxylate synthetase isoform 1	20	23	7
251823980	Pcx	pyruvate carboxylase isoform 2	35	0	0
18152793	Pdhh	pyruvate dehydrogenase (lipoamide) beta	7	5	4

28201978	Pdhx	pyruvate dehydrogenase complex, component X	2	0	0
6679261	Pdha1	pyruvate dehydrogenase E1 alpha 1	15	4	0
6679263	Pdha2	pyruvate dehydrogenase E1 alpha 2	1	0	0
110625975	Pdk1	pyruvate dehydrogenase kinase 1	8	10	0
226958643	Pdk2	pyruvate dehydrogenase kinase 2	1	0	0
21704122	Pdk3	pyruvate dehydrogenase kinase 3	2	6	0
7305375	Pdk4	pyruvate dehydrogenase kinase, isoenzyme 4	0	1	0
153792772	Pklr	pyruvate kinase, liver and RBC isoform 1	2	1	1
31981562	Pkm2	pyruvate kinase, muscle	38	5	14
226958440	Qk	quaking protein isoform 3	0	2	1
21312520	Qdpr	quinoid dihydropteridine reductase	1	0	0
33859558	Rabac1	Rab acceptor 1	1	0	0
254553295	Rabggtb	RAB geranylgeranyltransferase, beta subunit isoform 1	1	0	0
6679587	Rab1	RAB1, member RAS oncogene family	7	3	4
7710086	Rab10	RAB10, member RAS oncogene family	8	0	4
242247151	Rab11fip3	RAB11 family interacting protein 3 (class II) isoform 1	0	0	1
6679583	Rab11b	RAB11B, member RAS oncogene family	11	7	9
28202067	Rab11fip4	Rab11-FIP4-like	0	1	0
18390323	Rab14	RAB14, member RAS oncogene family	9	6	7
229577224	Rab17	RAB17, member RAS oncogene family	1	0	0
30841008	Rab18	RAB18, member RAS oncogene family	4	0	1
21313162	Rab1b	RAB1B, member RAS oncogene family	4	0	3
33859751	Rab21	RAB21, member RAS oncogene family	6	0	3
148747177	Rab22a	RAB22A, member RAS oncogene family	1	0	1
6679591	Rab24	RAB24, member RAS oncogene family	1	0	0
31980838	Rab25	RAB25, member RAS oncogene family	7	0	7
13128964	Rab27a	RAB27A protein	1	1	0
10946940	Rab2a	RAB2A, member RAS oncogene family	2	0	1
30525051	Rab2b	RAB2B protein	6	0	0
31560778	Rab30	RAB30, member RAS oncogene family	0	1	0
13385896	Rab32	RAB32	0	0	1
37718983	Rab35	RAB35, member RAS oncogene family	0	2	8
30425356	Rab39	RAB39, member RAS oncogene family	2	1	1
21362337	Rab3il1	RAB3A interacting protein (rabin3)-like 1	0	0	1
261862303	Rab3a	RAB3A, member RAS oncogene family	1	0	0
12963723	Rab3b	RAB3B, member RAS oncogene family	2	1	0
13470090	Rab3c	RAB3C, member RAS oncogene family	1	0	0
15042957	Rab3d	RAB3D, member RAS oncogene family	2	0	0
171184402	Rab4a	RAB4A, member RAS oncogene family	1	0	0
13385374	Rab5a	RAB5A, member RAS oncogene family	4	0	1
28916687	Rab5b	RAB5B, member RAS oncogene family isoform 2	7	2	4
113866024	Rab5c	RAB5C, member RAS oncogene family	7	1	6
254750706	Rab6	RAB6A, member RAS oncogene family isoform 2	3	0	3
120300971	Erc1	Rab6-interacting protein 2 isoform 1	0	3	1
148747526	Rab7	RAB7, member RAS oncogene family	13	3	6
27734154	Rab8b	RAB8B, member RAS oncogene family	2	1	1
31559945	Rabepk	Rab9 effector protein with kelch motifs	1	0	0
9790227	Rab9	RAB9, member RAS oncogene family	3	0	0
140970573	Rabep2	rabaptin, RAB GTPase binding effector protein 2	3	0	0
41152502	Rph3al	rabphilin 3A-like (without C2 domains)	1	0	0
254692855	Rad21	RAD21 homolog	0	31	12
34447211	Rad23a	RAD23a homolog	2	0	1
171906578	Rad23b	RAD23b homolog	4	2	0
91807128	0610007P08Rik	RAD26L hypothetical protein isoform 1	0	0	1

153945822	Rad50	RAD50 homolog	0	16	0
88319960	Rad54b	RAD54 homolog B	1	0	1
6677725	Rfng	radical fringe	0	1	0
157277952	Rdx	radixin isoform b	17	24	3
28201956	Rae1	RAE1 RNA export 1 homolog	0	5	4
110625981	Rftn2	raftlin family member 2	1	0	0
229577175	Ralgps2	Ral-A exchange factor RalGPS2	1	0	0
31982627	Rgl3	RalGDS-like protein 3	3	0	4
153792001	Ranbp1	RAN binding protein 1	4	2	1
13249349	Ranbp17	RAN binding protein 17	1	0	0
153792534	Ranbp2	RAN binding protein 2	3	35	18
83523744	Ranbp3	RAN binding protein 3	2	0	1
53850664	Ranbp6	RAN binding protein 6	0	1	0
161353515	Ranbp9	RAN binding protein 9	0	0	1
226062635	Rangap1	RAN GTPase activating protein 1	5	9	5
6678365	Ran	RAN, member RAS oncogene family	7	8	7
40804757	Ranbp10	Ran-binding protein 10	2	0	0
19745156	lpo4	RANBP4	3	1	2
84875506	Rapgef1	Rap guanine nucleotide exchange factor (GEF) 1 isoform 1	1	0	0
13386338	Rap2b	RAP2B, member of RAS oncogene family	1	0	0
154146249	Rptor	raptor	1	0	1
21703974	Rin1	Ras and Rab interactor 1	1	0	0
229091861	Rinl	Ras and Rab interactor-like	0	1	0
145587080	Raph1	Ras association (RalGDS/AF-6) and pleckstrin homology domains 1	1	0	0
110431380	Rassf6	Ras association (RalGDS/AF-6) domain family member 6	0	0	1
7242201	Rasgrp1	RAS guanyl releasing protein 1	1	0	0
28626508	Rheb	Ras homolog enriched in brain	0	0	1
31542143	Rhoa	ras homolog gene family, member A	3	2	2
6680726	Rhob	ras homolog gene family, member B	3	3	3
160415213	Rhoc	ras homolog gene family, member C	3	4	7
9625037	Rhog	ras homolog gene family, member G	0	0	1
13489097	Rhoj	ras homolog gene family, member J	1	1	1
34328361	Rhoq	ras homolog gene family, member Q	1	1	1
22122457	Rhot2	ras homolog gene family, member T2	2	0	3
21704044	Rhov	ras homolog gene family, member V	0	0	1
61676215	Rasip1	Ras interacting protein 1	0	0	1
84993718	Rasa4	RAS p21 protein activator 4 isoform 1	0	1	0
89111131	Rasgrf1	RAS protein-specific guanine nucleotide-releasing factor 1 isoform 1	0	0	1
33859753	Rap1b	RAS related protein 1b	1	6	8
34328471	Rala	ras related v-ral simian leukemia viral oncogene homolog A	3	4	4
295424118	Rreb1	ras responsive element binding protein 1 isoform 1	0	2	0
31982028	Rsu1	Ras suppressor protein 1	1	5	2
21311975	Rab13	RAS-associated protein RAB13	1	2	3
73088862	Rasgef1c	RasGEF domain family, member 1C	0	2	0
124248579	G3bp2	Ras-GTPase-activating protein (GAP120) SH3-domain binding protein 2 isoform a	6	5	0
7305075	G3bp1	ras-GTPase-activating protein SH3-domain binding protein	14	14	3
110625708	Rasl11b	RAS-like, family 11, member B	0	0	1
45592934	Rac1	RAS-related C3 botulinum substrate 1	3	6	7
6679601	Rac2	RAS-related C3 botulinum substrate 2	1	4	5

31541819	Rraga	Ras-related GTP binding A	1	0	0
21704066	Rap1a	RAS-related protein-1a	1	2	3
29789209	Raver1	Raver1	0	8	13
226693374	Rb1cc1	RB1-inducible coiled-coil 1	1	0	0
289666776	Rccd1	RCC1 domain containing 1	0	1	0
33239431	Rcc2	RCC1-like	0	19	0
84781800	Rcsd1	RCSA domain containing 1 isoform a	0	0	1
255958213	Romo1	reactive oxygen species modulator 1	1	0	1
124486604	Rlf	rearranged L-myc fusion sequence	1	0	1
31982699	Rec8	REC8 homolog	1	0	0
161016826	Reep5	receptor accessory protein 5	5	0	0
56606144	Rtp2	receptor transporter protein 2	0	1	0
226060640	Rtp3	receptor transporter protein 3	1	0	0
224967081	Rapsn	receptor-associated protein of the synapse	0	0	1
133778933	Rag1	recombination activating gene 1	1	0	0
188497726	Rag1ap1	recombination activating gene 1 activating protein 1	1	0	1
124286787	Rbpj	recombining binding protein suppressor of hairless isoform 1	0	9	0
326368226	Recql	RecQ protein-like	0	0	1
18485510	Recql5	RecQ protein-like 5	0	1	0
117320554	Reln	reelin precursor	0	0	1
6677739	Rgn	regucalcin	1	0	0
6677717	Resp18	regulated endocrine-specific protein 18	0	1	0
60592786	Rims1	regulating synaptic membrane exocytosis 1 isoform 1	1	0	1
34328077	Rprd1b	regulation of nuclear pre-mRNA domain containing 1B	6	11	7
124486841	Rprd2	regulation of nuclear pre-mRNA domain containing 2	0	3	5
19527092	Rcc1	regulator of chromosome condensation 1	0	16	6
124486718	Rgs11	regulator of G-protein signaling 11	0	1	0
190684665	Rgs16	regulator of G-protein signaling 16	0	0	1
160948569	Rgs3	regulator of G-protein signaling 3 isoform 2	0	1	0
40789289	Rgs8	regulator of G-protein signalling 8	1	0	0
170784813	Upf1	regulator of nonsense transcripts 1 isoform b	5	0	4
115647917	9630025121Rik	regulator of sex-limitation candidate 16	1	0	0
70980523	Rfxank	regulatory factor X-associated ankyrin-containing protein isoform 2	0	1	0
165972315	Rras2	related RAS viral (r-ras) oncogene homolog 2	1	1	2
124486905	Rsf1	remodeling and spacing factor 1	1	1	7
13676837	Ren1	renin 1 structural	0	0	1
257796315	Renbp	renin binding protein	0	0	1
112421060	Rptn	repetin	1	0	0
11177922	Rfc2	replication factor C (activator 1) 2	1	8	1
124249204	Rfc3	replication factor C (activator 1) 3	3	5	3
21703948	Rfc4	replication factor C (activator 1) 4	0	9	3
188219597	Rfc1	replication factor C 1	0	4	1
110625924	Rfc5	replication factor C 5	7	13	3
255982530	Rpa1	replication protein A1	5	1	0
110625961	Rpa2	replication protein A2	3	1	1
13386122	Rpa3	replication protein A3	3	2	0
157042794	Rhox7	reproductive homeobox 7	1	0	0
13385882	Rer1	RER1 homolog	0	0	1
39930559	Rcor1	REST corepressor 1	0	9	1
57634523	Rcor3	REST corepressor 3	0	2	1
23821025	Clip1	restin	0	4	1
124256487	Ret	ret proto-oncogene isoform a	0	0	1

114205428	Rcn2	reticulocalbin 2	4	0	0
56090141	Rtn1	reticulon 1 isoform RTN1-C	1	0	1
54607016	Rtn3	reticulon 3 isoform 4	4	2	3
31543608	Rtn4ip1	reticulon 4 interacting protein 1	2	0	0
34610241	Rtn4	reticulon 4 isoform D	16	0	0
307548909	Rp1	retinitis pigmentosa 1	0	1	0
27881421	Rp11	retinitis pigmentosa 1 homolog (human)-like 1	1	0	1
19526820	Rp2h	retinitis pigmentosa 2 homolog	0	0	1
37694072	Arid4b	retinoblastoma binding protein 1-like 1 isoform 1	0	2	0
47059484	Rbbp4	retinoblastoma binding protein 4	3	18	10
164450487	Rbbp5	retinoblastoma binding protein 5	0	12	0
163937858	Rbbp6	retinoblastoma binding protein 6 isoform 1	0	1	1
157909799	Rbbp7	retinoblastoma binding protein 7	3	12	4
237820660	Zubr1	retinoblastoma-associated factor 600 isoform 1	11	1	0
168823452	D14Abb1e	retinoblastoma-associated protein 140 isoform 1	0	1	1
124487105	Arid4a	retinoblastoma-binding protein 1	0	3	0
213417872	Rbl1	retinoblastoma-like protein 1 isoform 1	0	1	2
257196165	Rai16	retinoic acid induced 16	0	1	0
6755384	Rxra	retinoid X receptor alpha	1	1	0
25141231	Rdh10	retinol dehydrogenase 10	0	0	1
19482172	Rdh11	retinol dehydrogenase 11	4	0	1
30425078	Rdh13	retinol dehydrogenase 13	1	0	4
46309585	Rtl1	retrotransposon-like 1	1	0	0
40254551	Rev1	REV1-like	0	0	1
87299621	Rft1	RFT1 homolog	1	0	0
85701822	Rltpr	RGD motif, leucine rich repeats, tropomodulin domain and proline-rich containing	0	1	0
229092834	Rhcg	Rhesus blood group-associated C glycoprotein	0	0	1
13386354	Rnd3	Rho family GTPase 3	1	0	0
31982030	Arhgdia	Rho GDP dissociation inhibitor (GDI) alpha	9	2	3
225543420	Arhgap1	Rho GTPase activating protein 1 isoform 2	5	0	3
116174786	Arhgap10	Rho GTPase activating protein 10	0	1	0
254750666	Arhgap19	Rho GTPase activating protein 19 isoform 1	0	1	0
203097667	Arhgap21	Rho GTPase activating protein 21 isoform 1	0	0	1
83582813	Arhgap25	Rho GTPase activating protein 25 isoform a	1	0	0
87159826	Arhgap26	Rho GTPase activating protein 26	1	0	0
33563303	Arhgap29	Rho GTPase activating protein 29	1	0	0
86262151	Arhgap5	Rho GTPase activating protein 5	0	1	0
87252731	Arhgap6	Rho GTPase activating protein 6 isoform a	2	0	0
194306553	Arhgef1	Rho guanine nucleotide exchange factor (GEF) 1 isoform a	0	0	1
51491850	Arhgef11	Rho guanine nucleotide exchange factor (GEF) 11	0	0	2
163838664	Arhgef16	Rho guanine nucleotide exchange factor (GEF) 16	0	2	0
124487439	Arhgef17	Rho guanine nucleotide exchange factor (GEF) 17	0	0	1
33563236	Arhgdib	Rho, GDP dissociation inhibitor (GDI) beta	6	0	0
312032462	Arhgef2	rho/rac guanine nucleotide exchange factor (GEF) 2	2	0	1
134949013	Rock2	Rho-associated coiled-coil forming kinase 2	0	14	0
6677759	Rock1	Rho-associated, coiled-coil containing protein kinase 1	0	0	1
170014732	Rhbdd1	rhomboid domain containing 1	1	0	0
21450189	Rhbdl1	rhomboid protease 1	0	1	0
229092577	Rhpn2	rhophilin, Rho GTPase binding protein 2	1	0	0
209977095	Rtkn	rhotekin isoform b	1	0	1
58037097	Rnaseh2b	ribonuclease H2, subunit B	0	1	0
194328670	Rnasen	ribonuclease III, nuclear	0	1	0

13385432	Rpp14	ribonuclease P 14kDa subunit	1	4	0
257196209	Rpp30	ribonuclease P/MRP 30kDa subunit	1	6	0
145279200	Rnaset2a	ribonuclease T2A	4	0	0
285402659	Rnh1	ribonuclease/angiogenin inhibitor 1	1	0	0
121674793	Rnps1	ribonucleic acid binding protein S1 isoform 2	0	2	4
282398108	Rpn1	ribophorin I	31	2	14
34996495	Rpn2	ribophorin II	19	2	17
30794470	Rsl1d1	ribosomal L1 domain containing 1	1	6	14
134254429	Rimklb	ribosomal modification protein rimK-like family member B	0	0	1
16418339	Rpl10	ribosomal protein 10	8	2	9
255003735	Rpl10a	ribosomal protein L10A	10	2	7
13385408	Rpl11	ribosomal protein L11	4	8	5
160333553	Rpl12	ribosomal protein L12	2	6	6
33186863	Rpl13	ribosomal protein L13	5	1	4
31981945	Rpl13a	ribosomal protein L13A	4	1	5
13385472	Rpl14	ribosomal protein L14	1	1	5
13385036	Rpl15	ribosomal protein L15	3	4	9
161484662	Rpl17	ribosomal protein L17	4	2	6
83699424	Rpl18	ribosomal protein L18	7	6	7
58037465	Rpl18a	ribosomal protein L18A	1	0	1
162287138	Gm15427	ribosomal protein L18A family member	7	3	5
226958653	Rpl19	ribosomal protein L19 isoform 1	3	1	3
198442865	Gm6813	ribosomal protein L21 family member	1	0	1
6677775	Rpl22	ribosomal protein L22	1	4	3
13386010	Rpl2211	ribosomal protein L22 like 1	1	3	2
12584986	Rpl23	ribosomal protein L23	1	3	3
46430508	Rpl23a	ribosomal protein L23a	7	9	8
18250296	Rpl24	ribosomal protein L24	5	3	6
38348464	BC003885	ribosomal protein L24-like	0	0	1
6677777	Rpl26	ribosomal protein L26	5	4	5
8567400	Rpl27	ribosomal protein L27	2	7	6
31560517	Rpl27a	ribosomal protein L27a	4	1	4
6677779	Rpl28	ribosomal protein L28	4	1	4
6677781	Rpl29	ribosomal protein L29	3	0	1
255308899	Rpl3	ribosomal protein L3	3	4	5
254553337	Rpl30	ribosomal protein L30	3	5	4
16716589	Rpl31	ribosomal protein L31	3	4	2
25742730	Rpl32	ribosomal protein L32	1	0	2
55742885	Rpl34	ribosomal protein L34 isoform 2	5	1	2
13385044	Rpl35	ribosomal protein L35	1	1	2
194440715	Rpl35a	ribosomal protein L35a	4	1	1
160333837	Rpl36	ribosomal protein L36	4	0	3
13385038	Rpl36al	ribosomal protein L36A-like	1	1	1
6677785	Rpl37a	ribosomal protein L37a	1	2	2
114205444	Rpl38	ribosomal protein L38	5	5	3
13385552	Rpl39	ribosomal protein L39	1	0	0
30794450	Rpl4	ribosomal protein L4	19	0	13
23956082	Rpl5	ribosomal protein L5	2	9	4
84662736	Rpl6	ribosomal protein L6	1	1	10
31981515	Rpl7	ribosomal protein L7	6	4	13
7305443	Rpl7a	ribosomal protein L7A	1	2	13
27754134	Rpl711	ribosomal protein L7-like 1	0	0	4
6755358	Rpl8	ribosomal protein L8	6	2	4
14149647	Rpl9	ribosomal protein L9	1	10	7



13399310	Rps10	ribosomal protein S10	6	9	3
21426889	Rps11	ribosomal protein S11	4	6	9
40254577	Rps12	ribosomal protein S12	1	7	0
13386034	Rps13	ribosomal protein S13	5	3	4
31981100	Rps14	ribosomal protein S14	5	7	4
6677799	Rps15	ribosomal protein S15	2	1	2
24762230	Rps15a	ribosomal protein S15A	3	6	6
158966704	Rps16	ribosomal protein S16	8	6	7
6677801	Rps17	ribosomal protein S17	5	5	4
6755368	Rps18	ribosomal protein S18	7	7	8
12963511	Rps19	ribosomal protein S19	1	7	1
18087805	Rps2	ribosomal protein S2	4	6	10
13385652	Rps20	ribosomal protein S20	2	4	1
21536222	Rps21	ribosomal protein S21	4	2	0
46519160	Rps24	ribosomal protein S24 isoform 2	3	2	4
28372479	Rps25	ribosomal protein S25	5	5	3
26024336	Rps27	ribosomal protein S27	3	3	2
76443694	Rps27a	ribosomal protein S27a	1	0	1
13385958	Rps27l	ribosomal protein S27-like	2	3	2
21426821	Rps28	ribosomal protein S28	3	2	0
6677803	Rps29	ribosomal protein S29	2	1	1
6755372	Rps3	ribosomal protein S3	16	14	13
254553321	Rps3a	ribosomal protein S3A	15	13	8
6677805	Rps4x	ribosomal protein S4, X-linked	5	1	3
254675270	Rps5	ribosomal protein S5	4	8	6
6677809	Rps6	ribosomal protein S6	4	2	6
158636007	Rps6ka1	ribosomal protein S6 kinase polypeptide 1	1	0	0
9910454	Rps6ka4	ribosomal protein S6 kinase, polypeptide 4	0	0	1
23956386	Rps6ka5	ribosomal protein S6 kinase, polypeptide 5	1	0	0
6755376	Rps7	ribosomal protein S7	6	8	7
6677813	Rps8	ribosomal protein S8	10	3	9
33504483	Rps9	ribosomal protein S9-like	13	6	12
224994260	Rpsa	ribosomal protein SA	10	4	3
83745120	Rplp2	ribosomal protein, large P2	6	6	5
6671569	Rplp0	ribosomal protein, large, P0	2	6	11
9256519	Rplp1	ribosomal protein, large, P1	1	3	2
13384904	Mrps22	ribosomal protein, mitochondrial, S22	5	0	0
254911009	Rrp1b	ribosomal RNA processing 1 homolog B isoform 1	0	2	2
40789092	Rrp12	ribosomal RNA processing 12 homolog	0	1	12
257467556	Rrp7a	ribosomal RNA processing 7 homolog A	0	4	1
124486712	Rrbp1	ribosome binding protein 1 isoform a	8	15	0
145864471	Myh7b	RIKEN cDNA 0610038P03	0	0	1
62530188	Ahsa2	RIKEN cDNA 1110064P04	0	1	0
295789144	1700003M02Rik	RIKEN cDNA 1700003M02	1	0	0
21313668	2310001A20Rik	RIKEN cDNA 2310001A20	9	0	0
58037443	2310003C23Rik	RIKEN cDNA 2310003C23	1	0	0
226342951	2310044H10Rik	RIKEN cDNA 2310044H10	1	0	0
145207992	Dis3	RIKEN cDNA 2810028N01	0	5	0
19526956	2900064A13Rik	RIKEN cDNA 2900064A13	2	0	2
61742810	Zc3h13	RIKEN cDNA 3110050K21	0	1	0
168480120	Rictor	RIKEN cDNA 4921505C17	2	0	0

281427155	4930458L03Rik	RIKEN cDNA 4930458L03	1	0	0
262263417	Fam117a	RIKEN cDNA 5730593F17	1	0	0
110665744	Tnip3	RIKEN cDNA 9030611K07	1	0	0
27369505	Ktelc1	RIKEN cDNA 9630046K23	1	2	0
54020730	Efr3a	RIKEN cDNA C920006C10	1	1	2
191252808	Rimbp3	RIMS binding protein 3	0	1	0
26024211	Rfwd2	ring finger and WD repeat domain 2	0	0	1
21311909	Rnf6	ring finger protein (C3H2C3 type) 6	1	0	0
226958428	Ring1	ring finger protein 1	0	6	0
187960114	Rnf103	ring finger protein 103	0	0	1
247301241	Msl21	ring finger protein 184	0	1	0
256225924	Rnf187	ring finger protein 187	1	0	1
33563274	Rnf2	ring finger protein 2	0	6	1
253795509	Rnf20	ring finger protein 20	0	5	0
240849649	Rnf207	ring finger protein 207	0	0	1
30519929	Rnf24	ring finger protein 24	0	1	0
167830481	Rnf43	ring finger protein 43	1	0	0
38348308	Rybp	RING1 and YY1 binding protein	0	4	0
110625737	Riok3	RIO kinase 3	1	0	0
13385938	Rnmt	RNA (guanine-7-) methyltransferase	0	3	0
21312876	Rg9mtd1	RNA (guanine-9-) methyltransferase domain containing 1	0	1	0
148238335	Refbp2	RNA and export factor binding protein 2	1	0	0
269847199	Rbm10	RNA binding motif protein 10	0	3	7
114155125	Rbm12	RNA binding motif protein 12	2	0	0
172088112	Rbm12b	RNA binding motif protein 12B	0	0	1
86262142	Rbm14	RNA binding motif protein 14	1	13	19
124249066	Rbm15	RNA binding motif protein 15	0	5	2
22779924	Rbm17	RNA binding motif protein 17	0	0	2
30794154	Rbm19	RNA binding motif protein 19	0	1	5
110625591	Rbm22	RNA binding motif protein 22	0	1	4
161353449	Rbm25	RNA binding motif protein 25	3	25	9
123701991	Rbm26	RNA binding motif protein 26	0	7	0
166235127	Rbm28	RNA binding motif protein 28	0	0	9
261862342	Rbm3	RNA binding motif protein 3	4	7	5
165972311	Esrp1	RNA binding motif protein 35A	1	2	1
118403314	Rbm39	RNA binding motif protein 39	5	10	7
224922828	Rbm42	RNA binding motif protein 42	1	5	0
85701905	Rbm44	RNA binding motif protein 44	0	1	0
188497701	Rbm47	RNA binding motif protein 47	3	20	2
22507333	Rbm5	RNA binding motif protein 5	0	6	8
27753952	Rbm7	RNA binding motif protein 7	0	2	1
162287294	Rbm8a	RNA binding motif protein 8a isoform b	1	7	8
161016816	Rbm9	RNA binding motif protein 9 isoform 1	1	0	1
83699420	Rbmxt	RNA binding motif protein, X chromosome retrogene	0	2	5
262231769	Rbmx	RNA binding motif protein, X-linked	5	7	10
27734072	Rbmx2	RNA binding motif protein, X-linked 2	0	0	1
65301143	Rbmxl2	RNA binding motif protein, X-linked-like 2	1	0	0
111185961	Rbpms	RNA binding protein gene with multiple splicing isoform 1	2	7	3
166197675	Rnmtl1	RNA methyltransferase like 1	1	0	0
119226251	Polr1c	RNA polymerase 1-1	0	2	0
12328816	Polr1e	RNA polymerase I associated factor 53	0	4	0
224967092	Polr1b	RNA polymerase I polypeptide B	0	2	0

6755364	Sub1	RNA polymerase II transcriptional coactivator	1	5	1
10946950	Rcl1	RNA terminal phosphate cyclase-like 1	0	3	3
84662758	Rnpc3	RNA-binding region (RNP1, RRM) containing 3	1	1	1
13752573	Robld3	roadblock domain-containing protein 3	4	0	0
30039680	Rod1	ROD1 regulator of differentiation 1 isoform 1	2	12	7
37704389	Rttm	rotatin	1	0	0
70794811	Src	Rous sarcoma oncogene isoform 1	0	3	2
227908779	Rrs1	RRS1 ribosome biogenesis regulator homolog	0	0	3
21312036	Rufy3	RUN and FYVE domain containing 3	1	0	0
7949125	Rundc3a	RUN domain containing 3A	1	0	0
225690526	Runx2	runt related transcription factor 2 isoform type II	0	1	1
9790083	Ruvbl1	RuvB-like protein 1	7	13	11
6755382	Ruvbl2	RuvB-like protein 2	9	21	9
145046267	Ryr1	ryanodine receptor 1, skeletal muscle	0	1	0
124486797	Scaper	S phase cyclin A-associated protein in the ER	1	0	1
226443099	Srbd1	S1 RNA binding domain 1	0	6	0
6677833	S100a10	S100 calcium binding protein A10	2	1	0
21886811	S100a11	S100 calcium binding protein A11 (calizzarin)	3	0	2
6677835	S100a13	S100 calcium binding protein A13	1	1	0
254587910	S100a14	S100 calcium binding protein A14 isoform a	1	3	4
21312760	S100a16	S100 calcium binding protein A16	2	3	6
6755392	S100a6	S100 calcium binding protein A6 (calcyclin)	3	2	2
30424711	Rps19bp1	S19 binding protein	1	2	1
13507622	Sacm1l	SAC1 (supressor of actin mutations 1, homolog)-like	7	0	0
119508435	Sac3d1	SAC3 domain containing 1	0	1	0
257153336	Nip7	Saccharomyces cerevisiae Nip7p homolog	0	9	3
262263372	Ahcy	S-adenosylhomocysteine hydrolase	6	0	0
283837832	Ahcy2	S-adenosylhomocysteine hydrolase-like 2	1	1	0
21311907	Sash3	SAM and SH3 domain containing 3	0	0	1
213418079	Samhd1	SAM domain- and HD domain-containing protein 1 isoform 1	4	6	1
124487193	Sap30l	SAP30-like	0	1	0
255918184	Saps3	SAPS domain family, member 3	1	0	1
21703344	Sar1a	SAR1a gene homolog	2	0	2
21313476	Sar1b	SAR1a gene homolog 2	3	0	5
194328794	Sgce	sarcoglycan, epsilon isoform 1	0	1	0
56605992	Simap	sarcolemma associated protein	2	1	0
38259206	Ckmt2	sarcomeric mitochondrial creatine kinase	1	2	1
20149748	Sardh	sarcosine dehydrogenase	2	0	1
153945866	Safb2	scaffold attachment factor B2	0	13	12
134053873	Scand3	SCAN domain containing 3	1	3	0
6680878	Scarb2	scavenger receptor class B, member 2	5	0	0
30425310	5830411N06Rik	scavenger receptor protein family member isoform 1	0	0	1
6755570	Slfn2	schlafen 2	0	1	0
6755572	Slfn3	schlafen 3	1	0	0
238637283	Slfn5	schlafen 5	0	0	1
70909345	Scel	sciellin	1	1	1
226246552	Scin	scinderin isoform 1	19	17	15
238550155	Sost	sclerostin	0	0	1
262118314	Sfmbt1	Scm-like with four mbt domains 1	0	1	0
90991710	Sco1	SCO cytochrome oxidase deficient homolog 1	1	0	1
162329549	Sco2	SCO cytochrome oxidase deficient homolog 2	2	0	1
6677877	Scrg1	scrapie responsive gene 1	1	0	0
58037481	Scfd1	Sec1 family domain containing 1	17	1	5

167900448	Scfd2	sec1 family domain containing 2 isoform a	1	0	0
9910550	Sec11a	Sec11-like 1	3	1	2
29150272	Sec13	SEC13-like 1	0	6	1
84875515	Seh1l	sec13-like protein isoform a	0	7	2
30425210	Sestd1	SEC14 and spectrin domains 1	1	0	1
189181692	Sec14i5	SEC14-like 5	1	0	0
124378050	Sec16a	SEC16 homolog A	3	0	0
6755448	Sec22b	SEC22 vesicle trafficking protein-like 1	8	1	8
254692911	Sec23ip	Sec23 interacting protein	0	1	0
67906177	Sec23a	SEC23A	2	0	0
31980969	Sec23b	SEC23B	1	0	0
116174774	Sec24a	SEC24 related gene family, member A	1	0	0
46402179	Sec24b	Sec24 related gene family, member B	1	0	0
269954700	Sec24c	Sec24 related gene family, member C	5	0	0
244791271	Sec31a	SEC31-like 1	3	0	1
8394252	Sec61a1	Sec61 alpha subunit homolog	5	1	3
13324684	Sec61b	Sec61 beta subunit	3	2	1
10946604	Sec61a2	Sec61, alpha subunit 2	4	0	3
158517836	Sec61g	SEC61, gamma subunit isoform 1	1	0	0
158937300	Sec63	SEC63-like protein	1	0	0
114145548	Sectm1b	secreted and transmembrane 1B	0	0	1
7305093	Sergef	secretion regulating guanine nucleotide exchange factor	0	0	1
258645100	Scg3	secretogranin III	1	0	0
58037395	Scamp1	secretory carrier membrane protein 1	2	0	0
118601011	Scamp3	secretory carrier membrane protein 3	4	0	0
84875513	Sel1l	Sel1 (suppressor of lin-12) 1 homolog isoform a	7	0	0
85701796	Sel1l2	sel-1 suppressor of lin-12-like 2	1	0	0
22164798	Selenbp1	selenium binding protein 1	6	0	0
9507079	Selenbp2	selenium binding protein 2	19	0	1
27804323	Scly	selenocysteine lyase	1	0	0
156713463	Sephs1	selenophosphate synthetase 1	0	2	0
82546883	2700094K13Rik	selenoprotein H	1	8	0
111119001	Selk	selenoprotein K	1	0	0
143770878	2810407C02Rik	selenoprotein T	1	0	0
31543683	Sema3f	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3F	0	1	1
84794605	Sema3g	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3G	0	0	1
164698456	Sema4f	sema domain, immunoglobulin domain (Ig), TM domain, and short cytoplasmic domain isoform a	0	1	0
110625636	Sema4b	semaphorin 4B precursor	0	0	1
49274623	Sema4d	semaphorin 4D	0	0	1
119226253	Sema5a	semaphorin 5A	1	0	0
160333789	Spr	sepiapterin reductase	6	0	0
226442740	Sept10	septin 10 isoform 2	0	4	1
57634518	Sept11	septin 11	1	17	0
321267579	Sept12	septin 12	1	0	0
228480255	Sept2	septin 2 a	4	13	0
117606375	Sept3	septin 3	0	1	0
6755120	Sept4	septin 4	0	6	0
158508501	Sept5	septin 5	0	6	0
39930477	Sept8	septin 8	0	8	0
164698483	Sept9	septin 9 isoform b	2	21	0

6754954	Sqstm1	sequestosome 1	1	0	1
267844860	Serpina3a	serine (or cysteine) proteinase inhibitor, clade A, member 3A isoform 1	0	0	1
148747546	Serpina3k	serine (or cysteine) proteinase inhibitor, clade A, member 3K	0	1	0
269973919	Serpina5	serine (or cysteine) proteinase inhibitor, clade A, member 5	0	0	1
237757332	Serpina10	serine (or cysteine) proteinase inhibitor, clade B (ovalbumin), member 10 isoform 1	0	0	1
41235787	Serpina3d	serine (or cysteine) proteinase inhibitor, clade b, member 3d	0	1	0
255759943	Serpina6a	serine (or cysteine) proteinase inhibitor, clade B, member 6a	7	0	0
229094614	Serpina8	serine (or cysteine) proteinase inhibitor, clade B, member 8 isoform 1	0	0	1
6678101	Serpina9	serine (or cysteine) proteinase inhibitor, clade B, member 9	2	0	0
161377465	Serpind1	serine (or cysteine) proteinase inhibitor, clade D, member 1 precursor	1	0	1
6678099	Serpine2	serine (or cysteine) proteinase inhibitor, clade E, member 2	0	1	0
161353502	Serpinh1	serine (or cysteine) proteinase inhibitor, clade H, member 1	2	1	3
253970508	Scpep1	serine carboxypeptidase 1	7	0	0
13443008	Serhl	serine hydrolase protein	3	0	1
21312298	Shmt2	serine hydroxymethyltransferase 2 (mitochondrial)	21	14	5
29244577	Sptlc1	serine palmitoyltransferase subunit 1	2	0	0
6755656	Sptlc2	serine palmitoyltransferase, long chain base subunit 2	3	1	0
127139427	Spint2	serine protease inhibitor, Kunitz type 2 isoform b	0	0	1
194440687	Srrm1	serine/arginine repetitive matrix 1 isoform 1	1	2	0
126157504	Srrm2	serine/arginine repetitive matrix 2	11	3	1
31982726	Srpk1	serine/arginine-rich protein specific kinase 1	0	1	0
9790111	Srpk3	serine/arginine-rich protein specific kinase 3	0	0	1
47059480	Srpk2	serine/arginine-rich protein-specific kinase 2	1	0	0
226958539	Stk16	serine/threonine kinase 16	1	0	1
257467554	Slk	serine/threonine kinase 2	16	0	0
21703922	Stk24	serine/threonine kinase 24	1	0	0
89337277	Stk25	serine/threonine kinase 25	2	2	0
7106391	Stk30	serine/threonine kinase 30	1	0	0
27370078	Stk38l	serine/threonine kinase 38 like	0	0	1
160707896	Strap	serine/threonine kinase receptor associated protein	2	4	0
160333312	BC033915	serine/threonine-protein kinase QSK	0	0	1
32130521	Sdccag1	serologically defined colon cancer antigen 1	1	0	0
165932377	Serbp1	SERPINE1 mRNA binding protein 1 isoform 1	9	8	0
148540184	Srfbp1	serum response factor binding protein 1	0	1	1
257796265	Sgk1	serum/glucocorticoid regulated kinase 1 isoform e	0	1	0
326381098	Sars	seryl-tRNA synthetase	10	13	0
228008415	Sars2	seryl-tRNA synthetase 2	1	0	0
30840984	Smyd2	SET and MYND domain containing 2	0	1	0
119508422	Setd1a	SET domain containing 1A	0	2	0
197927225	Setd2	SET domain containing 2	0	1	1
268370088	Setd3	SET domain containing 3	1	0	0
227499783	Scmh1	sex comb on midleg 1 isoform 1	2	0	0
31981264	Polr3e	sex-lethal interactor homolog	0	1	0
124358938	Sfi1	Sfi1 homolog, spindle assembly associated	0	1	1

23956176	Sugt1	SGT1, suppressor of G2 allele of SKP1	2	0	1
154090953	Ctr9	SH2 domain binding protein 1 (tetratricopeptide repeat containing)	0	23	0
206597474	Sh2d4a	SH2 domain containing 4A	1	0	0
148368971	Sh3tc1	SH3 domain and tetratricopeptide repeats 1	1	0	1
27369694	Sh3bgrl2	SH3 domain binding glutamic acid-rich protein like 2	0	4	0
18017602	Sh3bgrl3	SH3 domain binding glutamic acid-rich protein-like 3	1	3	0
226371694	Sh3rf2	SH3 domain containing ring finger 2 isoform 2	1	0	0
312176405	Itsn2	SH3 domain protein 1B	0	3	1
7305487	Sh3yl1	SH3 domain YSC-like 1	0	1	0
114145507	Sh3rf1	SH3 multiple domains 2	1	0	0
162287288	Sh3rf3	SH3 multiple domains 4	0	0	1
9910548	Sh3bgrl	SH3-binding domain glutamic acid-rich protein like	3	0	0
109150405	Sh3bp5	SH3-domain binding protein 5 (BTK-associated)	1	0	0
31560792	Sh3gl2	SH3-domain GRB2-like 2	0	0	1
9507097	Sh3glb1	SH3-domain GRB2-like B1	3	0	0
131889222	Sdr39u1	short chain dehydrogenase/reductase family 39U, member 1	6	0	0
31982522	Acads	short-chain acyl-CoA dehydrogenase	16	0	0
94818779	Shroom4	shroom family member 4	0	0	2
23956138	Sbds	Shwachman-Bodian-Diamond syndrome homolog	0	3	0
31560532	Siae	sialate O-acetyltransferase	2	0	0
164518930	Sdk1	sidekick 1	0	0	1
15147224	Sfxn1	sideroflexin 1	9	0	2
295821212	Sfxn3	sideroflexin 3	5	0	1
13385134	Spcs2	signal peptidase complex subunit 2 homolog	4	1	5
125988403	Spcs3	signal peptidase complex subunit 3	4	2	3
52138546	Scube3	signal peptide, CUB domain, EGF-like 3	0	0	1
6678133	Srp14	signal recognition particle 14	1	1	0
31981338	Srp54a	signal recognition particle 54a	1	0	3
47271535	Srp68	signal recognition particle 68	9	0	2
118344452	Srp72	signal recognition particle 72	11	1	3
6755662	Srp9	signal recognition particle 9	3	2	0
27229036	Srpr	signal recognition particle receptor	0	0	1
6678137	Srprb	signal recognition particle receptor, B subunit	4	1	1
165377206	Ssr1	signal sequence receptor, alpha	4	1	2
262050625	Ssr4	signal sequence receptor, delta	3	3	3
21312968	Ssr3	signal sequence receptor, gamma	1	2	1
6755668	Stam	signal transducing adaptor molecule (SH3 domain and ITAM motif) 1	1	0	0
9789975	Stam2	signal transducing adaptor molecule (SH3 domain and ITAM motif) 2	1	0	0
269784721	Sipa111	signal-induced proliferation-associated 1 like 1	1	0	0
124486630	Sipa113	signal-induced proliferation-associated 1 like 3	0	1	0
254540118	1110033M05Rik	similar to 1110033M05Rik protein isoform 6	0	1	0
149251861	EG668804	similar to 14-3-3 protein theta-subtype	0	1	0
149272169	LOC100039828	similar to 40S ribosomal protein S12 isoform 1	1	0	0
82999720	EG632013	similar to 40S ribosomal protein S29	1	0	0
247494016	4930422G04Rik	similar to 4930422G04Rik protein	1	1	0
309263460	LOC638236	similar to 60S ribosomal protein L13a (Transplantation antigen P198) (Tum-P198 antigen)	1	0	0
149233808	EG666644	similar to Ac2-210	0	1	0
94369748	EG668300	similar to Acidic ribosomal phosphoprotein P0	1	1	1

298566265	Adamtsl3	similar to ADAMTS-like protein 3 precursor (ADAMTSL-3) (Punctin-2)	1	1	1
294460012	Aldh3b2	similar to Aldehyde dehydrogenase 3 family, member B1	3	0	0
149265291	LOC635583	similar to Annexin A8	0	1	0
94364066	LOC632433	similar to Arl4c protein	1	0	0
149251179	LOC669780	similar to arylacetamide deacetylase-like 2	0	0	1
149270685	LOC100047762	similar to Aspartate aminotransferase, cytoplasmic (Transaminase A) (Glutamate oxaloacetate transaminase 1)	1	0	0
149253008	LOC675933	similar to AT rich interactive domain 1A (Swi1 like)	0	1	1
149254291	LOC100046123	similar to ATP-binding cassette transporter ABCG3	0	1	0
309268955	Dnahc3	similar to axonemal heavy chain dynein type 3	0	1	0
242247270	Igsf10	similar to bone specific CMF608 isoform 4	1	1	0
253683505	BM948371	similar to Brain-enriched guanylate kinase-associated protein isoform 1	0	1	0
309266482	LOC100048185	similar to Btf3 protein	1	0	0
149271901	LOC100045848	similar to BUD31 homolog (S. cerevisiae) isoform 1	0	2	2
256985117	C530008M17Rik	similar to C530008M17Rik protein isoform 3	0	0	1
149271283	Gm40	similar to CDNA sequence BC049702	0	1	0
149255689	LOC545867	similar to Chain , Calmodulin	0	0	1
82931765	EG620071	similar to Chain C, Structure Of A Hif-1a-Pvhl-Elonginb-Elonginc Complex	0	1	0
94406333	LOC677171	similar to chromosome 10 open reading frame 79	0	1	0
309271759	AU042671	similar to chromosome 12 open reading frame 51	0	0	1
149260570	LOC635524	similar to chromosome 6 open reading frame 97	0	1	1
237874196	Dnahc7b	similar to ciliary dynein heavy chain 7	1	0	0
309264118	E030010N08Rik	similar to ciliary rootlet coiled-coil, rootletin	0	1	1
306482605	Cngb1	similar to Cngb1 protein	0	1	0
309267099	LOC640856	similar to Coenzyme Q9 homolog (yeast)	1	0	0
254692857	Col22a1	similar to collagen, type XXII, alpha 1, isoform 3	1	0	0
83002193	EG546337	similar to conserved nuclear protein Nhn1 isoform 5	1	1	0
258679439	LOC100048644	similar to CSRP2BP	0	1	0
293651591	1700085A12Rik	similar to cysteine-rich perinuclear theca 15	1	0	0
293651623	EG627788	similar to cytoplasmic dynein light chain 1	0	0	1
149233608	LOC100039733	similar to DNA-directed RNA polymerase II largest subunit	1	0	0
309266910	LOC676177	similar to doublesex and mab-3 related transcription factor 8.2	1	0	0
309269554	EG666542	similar to EG210583 protein	0	0	1
237858808	AI462493	similar to Expressed sequence AI462493 isoform 3	1	0	0
149270813	EG240669	similar to Family with sequence similarity 26, member A	0	0	1
309269321	EG623459	similar to Fas apoptotic inhibitory molecule	1	0	0
309267696	Fsip2	similar to fibrous sheath-interacting protein 2	2	2	1
149272377	LOC100047108	similar to FIGF	0	0	1
254911027	Nbeal2	similar to FLJ00341 protein	1	1	1
255069717	Fry	similar to furry homolog (Drosophila)	1	1	0
309265697	EG667035	similar to fusion protein: ubiquitin (bases 43_513); ribosomal protein S27a (bases 217_532)	1	0	0
94372553	LOC664894	similar to fusion protein: ubiquitin (bases 43_513); ribosomal protein S27a (bases 217_532)	1	1	1
149255315	LOC100043516	similar to gag	0	0	1
149255052	LOC100039514	similar to gag protein	1	0	0
149274424	LOC100045495	similar to Gene model 397, (NCBI)	0	0	1

309265876	LOC676974	similar to Glucose phosphate isomerase 1 isoform 2	0	1	0
226958407	Grip2	similar to glutamate receptor interacting protein 2	1	0	0
149260720	EG215974	similar to Glyceraldehyde-3-phosphate dehydrogenase	1	0	1
149275059	LOC100047352	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH)	2	0	1
149257623	LOC100041204	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH)	1	0	0
82996390	EG433184	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH)	1	0	0
94387946	EG666342	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH)	1	0	0
149270673	LOC676923	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH)	1	0	0
149260748	EG668192	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH)	1	0	0
149253819	LOC100039258	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) isoform 1	2	0	0
309266468	LOC100048117	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) isoform 1	2	0	0
149265160	LOC100042427	similar to Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) isoform 4	26	5	16
149272161	EG545741	similar to glyceraldehyde-3-phosphate-dehydrogenase isoform 1	1	0	0
149233991	D230012E17Rik	similar to GPI inositol-deacylase	6	0	5
309272714	EG621605	similar to guanylate binding protein 1	1	0	0
251823773	Tchh	similar to hCG1642996	1	0	1
82879785	EG241084	similar to hCG1645016	1	0	0
94379513	EG243866	similar to hCG1645909	0	0	1
307548934	Gm600	similar to hCG17291	1	0	0
254692843	Dnahc10	similar to hCG1811879	1	1	1
283837762	Dnahc17	similar to hCG1813078	0	1	1
94377283	EG638904	similar to hCG2001479	2	0	0
293629333	LOC100040766	similar to hCG2012694	1	0	1
268607621	Asxl3	similar to hCG2042958	0	1	0
149265633	LOC100042960	similar to hCG28707	0	0	1
149233911	LOC433313	similar to hCG39912, isoform 1	2	1	1
256818750	4921511H13Rik	similar to hCG401196	1	15	4
254675181	Alpk2	similar to heart alpha-kinase isoform 1	0	1	0
309266096	EG628779	similar to heparan sulfate D-glucosaminyl 3-O-sulfotransferase 4	1	0	0
309267107	LOC100045191	similar to heterogeneous nuclear ribonucleoprotein A2/B1	0	0	1
149266569	EG432946	similar to heterogeneous nuclear ribonucleoprotein A3	0	1	0
51769129	EG432946	similar to heterogeneous nuclear ribonucleoprotein A3, isoform 1	0	1	0
149264565	LOC100046853	similar to heterogeneous nuclear ribonucleoprotein K	1	0	1
149270322	LOC100046594	similar to heterogeneous nuclear ribonucleoprotein U-like 2	0	0	1
149258387	LOC100041140	similar to high-mobility group box 1	1	0	0
309262982	EG619937	similar to high-mobility group box 1	1	0	0
38091641	LOC382523	similar to histone H3	1	0	2
149269271	LOC100045318	similar to HLA-B associated transcript 1	0	1	1
149249568	LOC100048439	similar to homeodomain interacting protein kinase 3	1	0	0
149264489	LOC674779	similar to hypothetical protein	0	0	1
251823781	Rgag1	similar to hypothetical protein	0	1	0
325995159	AI607873	similar to interferon activated gene 204	0	0	1



257196179	Irf2bp2	similar to interferon regulatory factor 2 binding protein 2	1	0	0
149241402	LOC640480	similar to isolog of yeast sui1 and rice gos2; putative	0	1	0
309271358	EG278181	similar to KIAA0026	0	1	1
257467664	Mtmr15	similar to KIAA1018	0	1	0
309271872	Gm22	similar to KIAA1858 protein	0	1	0
149266955	EG626280	similar to KIAA1875 protein	0	1	0
149263538	LOC100041194	similar to KIAA2019 protein	0	1	0
305678350	LOC100042970	similar to Kifc1 protein	1	0	0
149254657	EG231836	similar to Kinesin-like protein KIF19	1	1	0
149262700	LOC675403	similar to likely ortholog of H. sapiens myosin XVB (MYO15B)	1	0	1
254540089	Prpsap1	similar to likely ortholog of H. sapiens phosphoribosyl pyrophosphate synthetase-associated protein 1 (PRPSAP1)	7	0	0
149268013	LOC100048441	similar to Lipase member I precursor (Membrane-associated phosphatidic acid-selective phospholipase A1-beta) (mPA-PLA1 beta) (LPD lipase)	0	0	1
38089095	EG384770	similar to Lman2l protein	0	1	0
82965664	LOC638521	similar to LOC152217 protein	1	0	0
307691260	EG627607	similar to LOC314328 protein	1	0	0
149269308	LOC677414	similar to LOC494798 protein	1	0	0
256542283	4930403N07Rik	similar to LOC500668 protein	1	1	0
283483997	Mgam	similar to maltase-glucoamylase	0	0	2
254540144	2700049A03Rik	similar to mKIAA0586 protein	2	0	0
269315858	D830031N03Rik	similar to mKIAA0754 protein	0	0	1
256773220	Synj1	similar to mKIAA0910 protein	1	0	0
30527367	Rbm16	similar to mKIAA1116 protein isoform 1	0	1	1
149275319	LOC100048886	similar to mKIAA1266 protein	0	1	0
244790458	D630023B12Rik	similar to mKIAA1450 protein	0	1	0
237820699	Mocs3	similar to molybdenum cofactor synthesis 3	0	0	1
244790081	Megf6	similar to Multiple epidermal growth factor-like domains 6 precursor (EGF-like domain-containing protein 3) (Multiple EGF-like domain protein 3) isoform 4	0	0	1
82999755	LOC208428	similar to Mus musculus ribosomal protein L19	1	0	0
237874229	Ccdc112	similar to mutated in bladder cancer 1	0	0	1
149250584	LOC100045569	similar to Myef2 protein	0	1	1
257743033	Mll2	similar to myeloid/lymphoid or mixed-lineage leukemia 2	0	26	1
94363510	EG433297	similar to MYL6 protein	0	1	1
254692972	Cdc42bpa	similar to mytonic dystrophy kinase-related Cdc42-binding kinase isoform 12	1	0	1
309272446	EG635702	similar to N-acetylated alpha-linked acidic dipeptidase 2	3	0	1
254588079	Nat11	similar to N-acetyltransferase 11 isoform 9	0	2	3
149270003	LOC100046168	similar to Nedd4 WW domain-binding protein 5	0	1	0
83029991	EG625558	similar to novel KRAB box containing protein	0	1	0
149243283	LOC100043998	similar to nuclear pore complex-associated intranuclear coiled-coil protein TPR	0	1	0
82916707	EG330731	similar to nuclear receptor coactivator 6 interacting protein	1	0	0
309267711	Olf1177	similar to olfactory receptor Olf1177	1	0	1
149267809	LOC100046998	similar to optic atrophy 1 (autosomal dominant)	1	0	0
149256029	EG435927	similar to organic anion transporting polypeptide 2	0	0	1
254553305	Krt33b	similar to ortholog of keratin, hair, acidic, 3B KRTHA3B (Homo sapiens)	0	0	1

242397450	Pcsk6	similar to PACE4A isoform 4	0	0	1
226958612	Rbm27	similar to peri implantation stem cell 1 isoform 5	2	0	0
26024309	Ppat	similar to Phosphoribosyl pyrophosphate amidotransferase isoform 8	1	0	0
149270675	LOC100047698	similar to Pi4k2a protein	0	1	0
254587980	Plac8l1	similar to Plac8l1 protein	0	0	1
94404242	EG664925	similar to pORF1	0	1	0
149253581	LOC100047076	similar to potassium channel erg1a	1	0	0
226958682	Prdm9	similar to PR domain-containing 9 isoform 3	0	1	0
149252767	LOC635091	similar to Predicted gene, OTTMUSG00000007485	0	0	1
149274761	LOC641199	similar to preserine protease	1	0	1
149263001	LOC634933	similar to protein phosphatase 1, catalytic subunit	1	0	0
82801212	LOC622019	similar to protein-tyrosine phosphatase	1	0	0
149249895	LOC668629	similar to PTPRJ	0	1	0
149275157	LOC637110	similar to putative pheromone receptor	1	0	0
149269027	LOC637519	similar to putative pheromone receptor	1	0	0
242397505	Zbtb10	similar to putative RIN zinc finger protein	0	0	1
82918783	LOC631966	similar to putative translation initiation factor A121/Sui1	1	1	0
255003810	Rab3gap2	similar to Rab3 GTPase-activating protein non-catalytic subunit (Rab3 GTPase-activating protein 150 kDa subunit) (Rab3-GAP p150) (Rab3-GAP regulatory subunit) (RAB3-GAP150) isoform 4	0	1	1
226958601	Golgb1	similar to rat GCP360 isoform 9	26	0	0
51771609	EG433251	similar to rat ribosomal protein L13a	0	1	1
149266523	LOC635821	similar to Regulator of G-protein signalling 22	1	1	1
295293136	Gm62	similar to Ret finger protein-like 4B	0	1	0
94395028	EG623505	similar to ribosomal protein	0	0	1
149264584	LOC100047250	similar to ribosomal protein	1	0	0
309266241	EG234159	similar to ribosomal protein	0	1	0
149266455	EG382974	similar to ribosomal protein	0	1	0
309269954	EG630612	similar to ribosomal protein	0	1	0
149261258	EG382371	similar to ribosomal protein	1	0	0
149233917	LOC100043141	similar to ribosomal protein L10a	1	0	1
149233970	LOC667014	similar to ribosomal protein L15	0	0	1
149233662	LOC675046	similar to Ribosomal protein L17	1	0	1
149274710	LOC100047860	similar to ribosomal protein L21	1	0	0
149233972	LOC100045169	similar to ribosomal protein L23a	0	1	0
82904486	EG626330	similar to ribosomal protein L23a	1	0	0
94364049	EG383538	similar to ribosomal protein L35	1	0	0
149263693	LOC100047275	similar to ribosomal protein L7a	0	1	0
149269353	LOC635310	similar to ribosomal protein S2 isoform 2	1	1	0
258613902	4921509A18Rik	similar to RIKEN cDNA 4921509A18 gene	0	0	1
254939609	B230315N10Rik	similar to RIKEN cDNA B230315N10 gene isoform 1	0	1	0
149261303	LOC100045963	similar to Ring finger protein 126	0	1	0
94380478	EG668807	similar to RNP particle component	0	1	0
149262347	LOC100047501	similar to Rps16 protein	0	1	0
149267883	LOC677344	similar to S-adenosylhomocysteine hydrolase	1	0	0
254028159	Safb	similar to Scaffold attachment factor B (Scaffold attachment factor B1) (SAF-B) isoform 18	1	7	6
149269058	LOC100046735	similar to Serine/arginine repetitive matrix protein 2	2	0	0
149269060	LOC100046744	similar to Serine/arginine repetitive matrix protein 2	1	0	0
307574641	EG244495	similar to Shugoshin-like 2 (S. pombe)	0	0	1
149257356	LOC100047155	similar to Small nuclear ribonucleoprotein polypeptide A	0	2	1

82999759	LOC436185	similar to SMPTB	1	1	2
94390815	LOC629924	similar to SMT3B protein	0	0	1
149258111	D030022P06Rik	similar to Snf2-related CBP activator protein	1	0	0
309268993	LOC100043597	similar to Snf2-related CBP activator protein	0	0	1
82954659	EG625730	similar to Snrpf protein	1	1	1
283549150	Shank1	similar to SPANK-1 isoform 1	0	1	0
82998851	Gm1276	similar to sperm protein SSP3111	0	0	1
149274601	LOC100045296	similar to Stat3B	0	0	1
309271465	LOC331476	similar to SUMO-1-specific protease	1	0	0
149273859	LOC100042409	similar to Sycp3 like Y-linked isoform 1	1	0	0
226958463	Synpo2	similar to Synaptopodin-2 (Myopodin) isoform 3	1	0	0
309270935	Syngap1	similar to SynGAP-a	0	1	0
149266187	LOC100043969	similar to T cell receptor alpha	0	1	0
254692944	Ttc18	similar to Tetratricopeptide repeat domain 18	0	1	0
256017222	Tmcc1	similar to Tmcc1 protein isoform 8	0	1	0
94410650	LOC631309	similar to Tmem16h protein	1	1	0
149259424	LOC100039215	similar to translin associated protein X isoform 1	0	1	0
149233754	LOC100047318	similar to transmembrane protein 131	1	0	0
94397122	EG667604	similar to TRAV8-2	1	0	0
94390139	LOC668206	similar to Ubiquitin A-52 residue ribosomal protein fusion product 1	1	0	1
82950513	EG621629	similar to Ubx4 protein	0	0	1
304361750	3425401B19Rik	similar to Uncharacterized protein C10orf71	0	0	1
309268933	Gm1966	similar to very large inducible GTPase 1	1	1	1
256818776	Wdr52	similar to WD repeat domain 52	2	0	1
149258232	ENSMUSG0000046088	similar to Zfp758 protein	1	0	0
33859628	Six2	sine oculis-related homeobox 2 homolog	0	1	0
110625701	Sigirr	single Ig IL-1 receptor related protein	1	0	0
47059026	Ssbp1	single-stranded DNA binding protein 1 isoform 1	5	0	2
30578432	Sirt5	sirtuin 5 (silent mating type information regulation 2 homolog) 5	1	0	0
254939656	Sirt6	sirtuin 6 isoform 1	0	1	0
158636012	Ssb	Sjogren syndrome antigen B	10	11	12
110347531	Mib2	skeletrophin	1	0	0
146149191	Snw1	SKI interacting protein	6	3	10
130502130	Asprv1	skin aspartic protease	1	0	0
56699418	Slitrk5	SLIT and NTRK-like family, member 5	1	0	0
113205055	Ski	Sloan-Kettering viral oncogene homolog	1	0	0
227430375	Snip1	Smad nuclear interacting protein 1	1	1	0
17978282	Kcnn2	small conductance calcium-activated potassium channel protein 2	0	1	0
27229283	Rexo2	small fragment nuclease	2	0	0
21313588	Sgta	small glutamine-rich tetratricopeptide repeat (TPR) containing protein	9	0	0
21450231	Sgtb	small glutamine-rich tetratricopeptide repeat (TPR)-containing, beta	0	0	1
114145487	Rragc	small GTPase homolog	2	0	0
126012517	Aimp1	small inducible cytokine subfamily E, member 1	12	3	0
6678055	Snrpd1	small nuclear ribonucleoprotein D1	3	5	5
58037145	Snrpd2	small nuclear ribonucleoprotein D2	1	7	6
13385598	Snrpd3	small nuclear ribonucleoprotein D3	2	3	3
27883844	Snrpe	small nuclear ribonucleoprotein E	2	5	4
133725813	Snrpn	small nuclear ribonucleoprotein N	6	7	8
114052541	Snrpa	small nuclear ribonucleoprotein polypeptide A	2	7	3

254028189	Snrpf	small nuclear ribonucleoprotein polypeptide F	1	5	3
13385994	Snrpg	small nuclear ribonucleoprotein polypeptide G	2	3	2
30409986	Snapc1	small nuclear RNA activating complex, polypeptide 1	0	0	1
27261820	Snapc4	small nuclear RNA activating complex, polypeptide 4	0	0	1
7657601	Solh	small optic lobes	1	0	0
31981251	2500003M10Rik	small protein rich in arginine and glycine	1	2	4
148839318	Smchd1	SMC hinge domain containing 1	1	83	7
258613892	Smc1a	SMC1 structural maintenance of chromosomes 1-like 1	2	41	29
24415998	Smc6	SMC6 protein	0	1	8
46849745	Smek1	SMEK homolog 1, suppressor of mek1 isoform 1	1	0	0
262231766	Smek2	SMEK homolog 2, suppressor of mek1	4	0	0
27477043	Efha1	Smhs2 homolog	3	2	1
6678489	Sumo1	SMT3 suppressor of mif two 3 homolog 1	0	2	0
19111164	Sumo2	SMT3 supressor of mif two 3 homolog 2	1	1	0
227430367	Smu1	smu-1 suppressor of mec-8 and unc-52 homolog	0	12	14
116089329	P140	Snap-25-interacting protein	0	0	3
257196125	Snrk	SNF related kinase	0	1	0
38569497	Sik2	SNF1-like kinase 2	1	0	0
324021709	Lsm2	snRNP core protein SMX5 isoform 2	4	7	2
270341361	Shoc2	soc-2 (suppressor of clear) homolog	1	3	1
160707887	Scn3a	sodium channel, voltage-gated, type III, alpha	0	0	1
157058300	Scn7a	sodium channel, voltage-gated, type VII, alpha polypeptide	1	0	1
133987591	Scn11a	sodium channel, voltage-gated, type XI, alpha	0	1	0
21313062	Slc10a6	sodium-dependent organic anion transporter	0	0	1
6678001	Slc1a1	solute carrier family 1 (neuronal/epithelial high affinity glutamate transporter, system Xag), member 1	0	1	0
281371456	Slc12a9	solute carrier family 12 (potassium/chloride transporters), member 9	1	0	0
19527112	Slc15a4	solute carrier family 15, member 4	1	1	0
6677995	Slc16a1	solute carrier family 16, member 1	5	0	1
71067107	Slc16a6	solute carrier family 16, member 6 isoform a	0	1	0
165377226	Slc2a1	solute carrier family 2 (facilitated glucose transporter), member 1	1	0	0
226437623	Slc2a12	solute carrier family 2 (facilitated glucose transporter), member 12	0	1	0
156231035	Slc2a9	solute carrier family 2, member 9 isoform 2	0	0	1
21312994	Slc25a11	solute carrier family 25 (mitochondrial carrier oxoglutarate carrier), member 11	10	1	10
148747424	Slc25a4	solute carrier family 25 (mitochondrial carrier, adenine nucleotide translocator), member 4	16	6	13
254826790	Slc25a10	solute carrier family 25 (mitochondrial carrier, dicarboxylate transporter), member 10	15	0	6
294831970	Slc25a22	solute carrier family 25 (mitochondrial carrier, glutamate), member 22	0	0	1
29789024	Slc25a17	solute carrier family 25 (mitochondrial carrier, peroxisomal membrane protein), member 17	1	0	1
19526818	Slc25a3	solute carrier family 25 member 3	14	0	10
23943838	Slc25a1	solute carrier family 25, member 1	9	1	7
27369581	Slc25a12	solute carrier family 25, member 12	29	0	11
294832028	Slc25a13	solute carrier family 25, member 13	33	0	14
49274632	Slc25a23	solute carrier family 25, member 23	0	0	1
85719318	Slc25a34	solute carrier family 25, member 34	0	1	0
56090652	Slc25a42	solute carrier family 25, member 42	0	0	1

22094075	Slc25a5	solute carrier family 25, member 5	1	0	1
31981655	Slc26a6	solute carrier family 26, member 6	1	0	1
45597453	Slc27a4	solute carrier family 27 (fatty acid transporter), member 4	3	0	0
91598783	Slc28a3	solute carrier family 28 (sodium-coupled nucleoside transporter), member 3	0	1	0
238637279	Slc3a2	solute carrier family 3, member 2 isoform b	3	0	0
52630421	Slc30a4	solute carrier family 30 (zinc transporter), member 4	0	0	1
31543730	Slc33a1	solute carrier family 33 (acetyl-CoA transporter), member 1	2	0	0
66793411	Slc34a2	solute carrier family 34 (sodium phosphate), member 2	0	0	1
29244214	Slc35d1	solute carrier family 35 (UDP-glucuronic acid/UDP-N-acetylgalactosamine dual transporter), member D1	0	0	1
21450281	Slc35a3	solute carrier family 35 (UDP-N-acetylglucosamine (UDP-GlcNAc) transporter), member 3	1	0	0
110625963	Slc35b2	solute carrier family 35, member B2	0	1	0
21450265	Slc35c2	solute carrier family 35, member C2	1	0	0
258645135	Slc38a10	solute carrier family 38, member 10	1	0	0
205830420	Slc39a14	solute carrier family 39 (zinc transporter), member 14 isoform a	1	0	0
118150670	Slc39a7	solute carrier family 39, member 7	2	0	1
6755560	Slc4a1	solute carrier family 4 (anion exchanger), member 1	0	0	1
155722992	Slc4a1ap	solute carrier family 4 (anion exchanger), member 1, adaptor protein	0	1	0
117320529	Slc4a7	solute carrier family 4, sodium bicarbonate cotransporter, member 7	0	1	0
227499988	Slc44a1	solute carrier family 44, member 1 isoform A	5	0	0
166197685	Slc47a1	solute carrier family 47, member 1	0	0	1
110347555	Slc5a8	solute carrier family 5 (iodide transporter), member 8	0	0	1
84794617	Slc5a10	solute carrier family 5 (sodium/glucose cotransporter), member 10	1	0	0
31982828	Slc6a6	solute carrier family 6 (neurotransmitter transporter, taurine), member 6	1	0	0
28202019	Slc6a15	solute carrier family 6, member 15	1	1	0
6755566	Slc9a3r1	solute carrier family 9 (sodium/hydrogen exchanger), isoform 3 regulator 1	8	5	0
226246650	Slc9a3r2	solute carrier family 9 isoform 3 regulator 2 isoform B	1	0	0
7305497	Slco1a1	solute carrier organic anion transporter family, member 1a1	1	0	0
58037373	Slco6c1	solute carrier organic anion transporter family, member 6c1	0	0	1
84370258	Sstr3	somatostatin receptor 3	0	0	1
124378037	Son	Son cell proliferation protein	0	5	30
117414170	Sos1	son of sevenless 1	0	1	0
78000179	Sorbs1	sorbin and SH3 domain containing 1 isoform 2	0	2	1
327315370	Sorbs2	sorbin and SH3 domain containing 2	0	3	4
6755504	Sorbs3	sorbin and SH3 domain containing 3	0	0	2
124430543	Sri	sorcic isoform 2	3	0	1
158966696	Sorcs1	SORCS receptor 1	0	1	0
34610211	Sort1	sortilin 1	5	0	0
110625645	Sort1	sortilin-related receptor, LDLR class A repeats-containing	12	2	0
30519943	Samm50	sorting and assembly machinery component 50 homolog	7	0	18
71043944	Snx1	sorting nexin 1	2	0	0
13385878	Snx2	sorting nexin 2	7	0	1
258613896	Snx25	sorting nexin 25	1	1	0

30142699	Snx26	sorting nexin 26	0	0	1
21312778	Snx29	sorting nexin 29	1	1	0
31560433	Snx3	sorting nexin 3	5	0	0
31981209	Snx31	sorting nexin 31	1	1	0
66792896	Snx32	sorting nexin 32	0	0	1
312596940	Snx5	sorting nexin 5	2	0	1
27754031	Snx6	sorting nexin 6	2	0	0
26986581	Snx8	sorting nexin 8	0	1	0
29568084	Snx9	sorting nexin 9	0	2	0
33859789	Snx30	sorting nexin family member 30	0	1	0
61651673	Stt3b	source of immunodominant MHC-associated peptides	2	0	1
148536867	Sp3	Sp3 transcription factor isoform 2	0	5	0
20070390	Spg21	spastic paraplegia 21 homolog	0	1	0
244790112	Spast	spastin isoform 2	0	1	0
20982839	Satb2	special AT-rich sequence binding protein 2	0	1	0
260267630	Spopl	speckle-type POZ protein-like	1	0	0
19526481	Spna1	spectrin alpha 1	1	1	1
295054271	Spna2	spectrin alpha 2	33	163	114
117938334	Spnb2	spectrin beta 2 isoform 1	8	103	70
55926127	Spnb3	spectrin beta 3	15	108	85
312839864	Spnb4	spectrin beta 4	0	4	2
116089351	Abi1	spectrin SH3 domain binding protein 1 isoform 1	1	2	0
291042652	Speg	SPEG complex locus isoform 1	0	2	1
120587001	Spn	SPEN homolog, transcriptional regulator	0	6	1
21312846	Spaca1	sperm acrosome associated 1	1	0	0
148747279	Spag1	sperm associated antigen 1	1	2	0
70887774	Spag16	sperm associated antigen 16 isoform 1	0	1	0
162287182	Spag17	sperm associated antigen 17	1	0	0
110625792	Spef1	sperm flagellar 1	1	0	0
194473671	Ssfa2	sperm specific antigen 2	0	1	1
124001554	Catsper2	sperm-associated cation channel 2	1	0	0
114842377	Strbp	spermatid perinuclear RNA-binding protein	1	26	0
29648322	Dnajb13	spermatogenesis apoptosis-related protein	0	1	0
21311949	Spata1	spermatogenesis associated 1	1	0	0
21313470	Alkbh7	spermatogenesis associated 11	2	0	0
161086959	Speer3	spermatogenesis associated glutamate (E)-rich protein 3	0	1	1
20982833	Spats2	spermatogenesis associated, serine-rich 2	0	0	1
158854016	Skp1a	S-phase kinase-associated protein 1A	1	7	2
257196247	Smpd4	sphingomyelin phosphodiesterase 4	0	0	11
19527104	Smpdl3b	sphingomyelin phosphodiesterase, acid-like 3B	0	0	1
270483850	Sgms1	sphingomyelin synthase 1	0	0	1
170014712	Sphkap	sphingosine kinase type 1-interacting protein	0	0	1
31543694	Sgpl1	sphingosine-1-phosphate lyase 1	5	2	3
13507712	Sgpp1	sphingosine-1-phosphate phosphatase 1	1	0	0
21312862	Spc24	spindle pole body component 24 homolog	0	1	0
30520207	Spin4	spindlin family, member 4	1	0	0
22165378	Spin1	spindlin isoform 2	0	2	2
160707947	Sf1	splicing factor 1 isoform 2	1	9	2
165932270	Sf3a1	splicing factor 3a, subunit 1	11	25	19
158749553	Sf3a2	splicing factor 3a, subunit 2	1	8	2
22095003	Sf3a3	splicing factor 3a, subunit 3	1	23	15
13384692	0610009D07Rik	splicing factor 3B, 14 kDa subunit	1	4	3
153791358	Sf3b1	splicing factor 3b, subunit 1	4	39	35

268837785	Sf3b2	splicing factor 3b, subunit 2	3	19	28
19527174	Sf3b3	splicing factor 3b, subunit 3	13	45	38
23346437	Sf3b4	splicing factor 3b, subunit 4	1	5	6
85540445	Sf3b5	splicing factor 3b, subunit 5	1	3	2
28076967	Sf4	splicing factor 4	1	1	2
23956214	Sfpq	splicing factor proline/glutamine rich (polypyrimidine tract binding protein associated)	12	29	10
13385016	Sfrs9	splicing factor, arginine/serine rich 9	0	4	10
118582271	Sfrs1	splicing factor, arginine/serine-rich 1 isoform 1	10	12	11
6677975	Tra2b	splicing factor, arginine/serine-rich 10	3	5	8
148222073	Sfrs11	splicing factor, arginine/serine-rich 11 isoform 2	0	5	0
27369842	Sfrs12	splicing factor, arginine/serine-rich 12	0	3	0
109150409	Sfrs15	splicing factor, arginine/serine-rich 15	0	8	1
6755478	Sfrs2	splicing factor, arginine/serine-rich 2	2	2	1
117647277	Sfrs2ip	splicing factor, arginine/serine-rich 2, interacting protein	0	16	6
8567402	Sfrs3	splicing factor, arginine/serine-rich 3 (SRp20)	2	8	8
165377173	Sfrs4	splicing factor, arginine/serine-rich 4	1	0	1
119226243	Sfrs5	splicing factor, arginine/serine-rich 5	7	6	5
306774103	Sfrs7	splicing factor, arginine/serine-rich 7	2	4	6
78217391	Sfrs8	splicing factor, arginine/serine-rich 8	0	5	0
6755650	Spry1	sprouty homolog 1	0	1	0
15743554	Spred1	sprouty-related protein 1 with EVH-1 domain	1	0	0
124244096	Sart1	squamous cell carcinoma antigen recognized by T-cells 1	10	23	2
8394239	Sart3	squamous cell carcinoma antigen recognized by T-cells 3	4	0	0
283046784	1810035L17Rik	SRA stem-loop-interacting RNA-binding protein	3	2	0
13384678	Med21	SRB7 (suppressor of RNA polymerase B) homolog	0	2	0
164698470	Shc3	src homology 2 domain-containing transforming protein C3	0	0	1
156938293	Scap	SREBF chaperone	0	0	1
119672912	Cherp	SR-related CTD associated factor 6	0	1	3
117606322	Sox1	SRY (sex determining region Y)-box 1	1	0	0
31543703	St3gal4	ST3 beta-galactoside alpha-2,3-sialyltransferase 4	0	0	1
55742879	Stambpl1	STAM binding protein-like 1	1	0	0
77404392	Snd1	staphylococcal nuclease domain containing 1	30	22	0
9910482	Stard10	START domain containing 10	1	0	0
149249975	Stard9	START domain containing 9	1	0	1
21312812	Stard6	START domain containing protein 6	1	0	0
9789995	Stmn1	stathmin 1	1	0	0
13384630	Stmn2	stathmin-like 2	1	0	1
158186641	Stau1	staufen (RNA binding protein) homolog 1 isoform 3	2	1	0
120300985	Strc	stereocilin	1	0	0
226958514	Samd9l	sterile alpha motif domain containing 9-like isoform 1	3	20	2
27881427	Srd5a3	steroid 5 alpha-reductase 3	1	0	0
87044895	Srd5a1	steroid-5-alpha-reductase 1	1	0	1
110625752	Ccdc80	steroid-sensitive protein 1	1	0	0
45476581	Scp2	sterol carrier protein 2, liver	10	1	0
84619697	Soat1	sterol O-acyltransferase 1	4	0	6
9789907	Stub1	STIP1 homology and U-box containing protein 1	1	1	0
7710018	Stom	stomatin	1	0	0
12963591	Stoml2	stomatin-like protein 2	7	0	4
159032010	Ston1	stonin 1	2	0	0
198278492	Stox1	storkhead box 1	0	0	1

134023662	Sfn	stratifin	5	0	0
34556193	Sbno2	strawberry notch homolog	0	0	1
14389431	Stip1	stress-induced phosphoprotein 1	32	5	0
30425194	Abra	striated muscle activator of Rho-dependent signaling	0	0	1
61098078	Strn	striatin, calmodulin binding protein	4	0	0
40254610	Stag1	stromal antigen 1	0	2	4
118150674	Stag2	stromal antigen 2	0	24	7
226958306	Sdf2	stromal cell derived factor 2	1	1	0
11612505	Sdf2l1	stromal cell-derived factor 2-like 1	2	3	0
281182368	Stim2	stromal interaction molecule 2	2	0	1
62990166	Smc2	structural maintenance of chromosomes 2	1	12	0
29789347	Smc4	structural maintenance of chromosomes 4	0	7	1
24497433	Smc5	structural maintenance of chromosomes 5	1	8	6
209862973	Ssrp1	structure specific recognition protein 1 isoform 1	3	16	11
39204645	Smgc	submandibular gland protein C	1	0	0
14389425	Smr3a	submaxillary gland androgen regulated protein 1	1	0	0
110815822	Sdhaf1	succinate dehydrogenase complex assembly factor 1	1	1	0
34328286	Sdhb	succinate dehydrogenase complex, subunit B, iron sulfur (lp)	9	0	6
228008307	Sdhc	succinate dehydrogenase complex, subunit C, integral membrane protein	3	0	0
54607098	Sdha	succinate dehydrogenase Fp subunit	24	1	3
255958286	Suc1g1	succinate-CoA ligase, GDP-forming alpha subunit	9	0	2
165972309	Suc1g2	succinate-CoA ligase, GDP-forming beta subunit	19	1	3
46849708	Suca2	succinate-Coenzyme A ligase, ADP-forming, beta subunit	12	0	1
244790049	Sqr1	sulfide quinone reductase-like	10	2	11
188219649	Sult1d1	sulfotransferase family 1D, member 1	11	0	14
254939663	Senp3	SUMO/sentrin specific peptidase 3	1	0	0
159032027	Senp5	SUMO/sentrin specific peptidase 5	2	0	0
46560561	Senp6	SUMO/sentrin specific protease 6	0	1	1
9790247	Sae1	SUMO1 activating enzyme subunit 1	3	0	1
159032049	AF366264	SUMO-1 specific protease 4	0	0	1
51593105	Senp7	SUMO1/sentrin specific protease 7 isoform 2	0	1	8
21312352	Skiv2l2	superkiller viralicidic activity 2-like 2	5	30	4
45597447	Sod1	superoxide dismutase 1, soluble	4	0	0
31980762	Sod2	superoxide dismutase 2, mitochondrial	9	3	0
23346601	Svil	supervillin isoform 1	0	1	3
19526912	St13	suppression of tumorigenicity 13	8	0	0
35215307	St18	suppression of tumorigenicity 18	1	0	0
6677983	Clpb	suppressor of K+ transport defect 3	1	0	0
154350222	Supt16h	suppressor of Ty 16 homolog	5	39	16
6678181	Supt4h1	suppressor of Ty 4 homolog 1	0	1	0
22094123	Supt5h	suppressor of Ty 5 homolog	1	26	2
166091434	Supt6h	suppressor of Ty 6 homolog	0	26	9
31088872	Supv3l1	suppressor of var1, 3-like 1	1	0	1
6755702	Suv39h1	suppressor of variegation 3-9 homolog 1	0	0	1
268607629	Suv420h1	suppressor of variegation 4-20 homolog 1	0	0	1
253314523	Suz12	suppressor of zeste 12 homolog isoform 1	0	5	0
160707899	Surf1	surfeit 1	1	0	0
6755698	Surf4	surfeit gene 4	1	0	0
76781479	Med22	surfeit gene 5 isoform 2	0	2	0
6678185	Surf6	surfeit gene 6	0	0	2
27369569	Smndc1	survival motor neuron domain containing 1	0	5	0



153791169	Sned1	sushi, nidogen and EGF-like domains 1	0	1	0
140971050	Srpx2	sushi-repeat containing protein	0	0	1
8394362	Srpx	sushi-repeat-containing protein, X-chromosome	0	0	1
13385536	Armc10	SVH protein	9	0	8
13994192	Tas1r1	sweet taste receptor T1r	0	1	0
229577278	Smarcal1	SWI/SNF related matrix associated, actin dependent regulator of chromatin, subfamily a-like 1	1	1	1
21313112	Smarca2	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 2 isoform 1	0	1	2
67763824	Hltf	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 3 isoform 2	0	0	1
40254124	Smarca5	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 5	0	50	39
240255565	Smarcb1	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily b, member 1 isoform 1	0	7	1
112421097	Smarcc1	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily c, member 1	0	21	7
125347396	Smarcd1	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 1	0	13	0
194328773	Smarcd2	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 2 isoform 2	0	12	2
10181166	Smarce1	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily e, member 1	0	10	3
291463271	Smarca4	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin a4	1	38	20
166235125	Smarcc2	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin c2 isoform 2	1	34	12
226437613	Sympk	symplekin	0	16	4
295293127	Dlg3	synapse-associated protein 102	1	3	0
119120865	Syne1	synaptic nuclear envelope 1 isoform 2	4	2	2
145699091	Syne2	synaptic nuclear envelope 2	214	68	229
21312776	Tprgl	synaptic vesicle associated protein of 30 kD	2	0	0
7106429	Syng2	synaptogyrin 2	1	0	1
13384642	Synj2bp	synaptojanin 2 binding protein	5	0	0
158303337	Synpo	synaptopodin isoform A	0	0	2
295317330	Snap23	synaptosomal-associated protein 23	7	0	1
6755588	Snap25	synaptosomal-associated protein 25	1	0	1
7305507	Snap91	synaptosomal-associated protein 91	1	1	1
70906485	Syt6	synaptotagmin 6	0	0	1
29788787	Syncrip	synaptotagmin binding, cytoplasmic RNA interacting protein isoform 1	11	19	1
225637529	Syt15	synaptotagmin XV isoform a	0	0	1
7305099	Syt14	synaptotagmin-like 4	1	1	0
6755438	Sdc1	syndecan 1	1	0	1
6755442	Sdc4	syndecan 4	2	0	2
148277640	Sdcbp	syndecan binding protein isoform 2	1	0	0
13385314	Nudt16l1	syndesmos	0	12	3
16716495	Ric8	synembryn	0	1	0
258547104	Synv1	synovial apoptosis inhibitor 1, synoviolin	3	0	0
19527102	Stx12	syntaxin 12	5	0	0
156231059	Stx16	syntaxin 16 isoform d	2	0	2
84579893	Stx17	syntaxin 17	1	0	0
15011853	Stx1a	syntaxin 1A (brain)	0	1	0
70778911	Stx3	syntaxin 3 isoform A	0	0	1
6678177	Stx4a	syntaxin 4A (placental)	5	0	1

268370185	Stx5a	syntaxin 5	2	0	0
31560462	Stx7	syntaxin 7	5	0	0
9055356	Stx8	syntaxin 8	1	0	0
165972307	Stxbp1	syntaxin binding protein 1 isoform b	0	0	1
6755688	Stxbp2	syntaxin binding protein 2	12	0	0
6755690	Stxbp3a	syntaxin binding protein 3	2	2	0
6755692	Stxbp4	syntaxin binding protein 4	1	0	0
158749547	Stxbp5	syntaxin binding protein 5 (tomosyn)	1	0	0
160333722	Snta1	syntrophin, acidic 1	0	0	2
6678059	Sntb2	syntrophin, basic 2	0	1	1
31560093	Sntg1	syntrophin, gamma 1	0	0	1
269973907	Sntg2	syntrophin, gamma 2	0	1	0
258613887	Tacr2	tachykinin receptor 2	0	0	1
124486596	Taf1	TAF1 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	3	1
46518499	Taf10	TAF10 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	1	0
30794436	Taf11	TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	2	0
227330588	Taf12	TAF12 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	3	0
30794412	Taf15	TAF15 RNA polymerase II, TATA box binding protein (TBP)-associated factor	2	2	2
124487354	Taf4a	TAF4A RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	5	0
6678215	Taf6	TAF6 RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	15	0
295317365	Taf6l	TAF6-like RNA polymerase II, p300/CBP-associated factor (PCAF)-associated factor	0	1	0
62821772	Taf9	TAF9 RNA polymerase II, TATA box binding protein-associated factor isoform 1	0	3	0
269784727	Taf9b	TAF9-like RNA polymerase II, TATA box binding protein (TBP)-associated factor	0	4	0
227116327	Tln1	talin 1	13	27	6
163310736	Tln2	talin 2	0	3	0
124486923	Tnks1bp1	tankyrase 1 binding protein 1	1	2	0
87239974	Tnks	tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase	0	1	0
124358959	Taok1	TAO kinase 1	0	0	1
314122205	Taok3	TAO kinase 3	0	1	0
56682935	Tardbp	TAR DNA binding protein isoform 1	1	14	14
210147426	Tom1	target of myb1 homolog isoform 1	0	0	2
84875524	Tom1l2	target of myb1-like 2 isoform a	0	2	0
46309605	Tas2r125	taste receptor, type 2, member 125	0	1	0
31044479	Tas2r139	taste receptor, type 2, member 139	0	0	1
172073171	Tbp	TATA box binding protein	0	2	2
20270192	Taf13	TATA box-binding protein-associated factor, RNA polymerase II, K, 18kD	0	2	0
124487429	Tmf1	TATA element modulatory factor 1	1	0	0
21313140	Tax1bp3	Tax1 binding protein 3	1	1	0
91598586	Txlna	taxilin alpha	2	2	0
120587003	Tbc1d1	TBC1 domain family, member 1	1	0	1
29789165	Tbc1d20	TBC1 domain family, member 20	1	0	0
255522831	Tbc1d24	TBC1 domain family, member 24 isoform b	0	0	1
163644270	Tbc1d4	TBC1 domain family, member 4	1	0	0

224809347	Tbc1d8	TBC1 domain family, member 8	1	0	0
162329599	Tbc1d9	TBC1 domain family, member 9 isoform 1	1	0	1
145587102	Tbccd1	TBCC domain containing 1	1	0	0
14030783	Tbx19	T-box 19	0	0	1
38327623	Tbx3	T-box 3 protein isoform 2	1	0	0
156938285	Tbx4	T-box 4 isoform a	0	1	0
124486849	Taf2	TBP-associated factor 2	0	8	0
110665722	Taf5	Tbp-associated factor 5	1	11	0
189409138	Cand1	TBP-interacting protein	25	20	3
7305561	Tcl1b5	T-cell leukemia/lymphoma 1B, 5	1	0	1
225543229	Tiam1	T-cell lymphoma invasion and metastasis 1 isoform 1	0	1	1
268370151	Tcirg1	T-cell, immune regulator 1 isoform 2	0	0	3
110625624	Tcp1	t-complex protein 1	27	11	2
225735589	Tdpoz1	TD and POZ domain containing 1	0	1	0
6678275	Tead1	TEA domain family member 1	0	1	0
7106433	Tead2	TEA domain family member 2	0	3	0
196049389	Tead3	TEA domain family member 3 isoform 2	0	2	0
164698396	Tec	tec protein tyrosine kinase isoform a	0	1	0
31541975	Tctn3	tectonic family member 3	1	0	0
124249058	Tecpr1	tectonin beta-propeller repeat containing 1	0	1	0
239787867	Tecta	tectorin alpha	0	0	1
148225693	Tekt2	tektin 2	0	0	1
255683441	Telo2	TEL2, telomere maintenance 2, homolog	0	0	1
6678285	Tep1	telomerase associated protein 1	0	0	1
146231944	Rif1	telomere-associated protein RIF1	0	4	10
133904142	Terf2	telomeric repeat binding factor 2 isoform 1	1	2	0
160948575	Terf2ip	telomeric repeat binding factor 2, interacting protein	1	12	0
320461717	Tnxb	tenascin XB	0	1	0
134152676	Tns3	tensin 3	1	2	1
238624158	Tns4	tensin 4	1	1	0
19526976	Dnttip1	terminal deoxynucleotidyltransferase interacting factor 1	0	5	0
31981922	Tsp50	testes-specific protease 50	0	0	1
46395466	Tes	testis derived transcript	1	0	1
329299050	Dcun1d1	testis derived transcript 3	0	3	0
124249335	Tex10	testis expressed gene 10	0	2	2
118722338	Tex15	testis expressed gene 15	0	2	0
115299741	Tex16	testis expressed gene 16	1	0	0
61888894	Tex24	testis expressed gene 24	0	1	0
126090463	Tex264	testis expressed gene 264	1	0	0
46402207	Tsga10	testis specific 10	0	1	0
225543141	Tesk2	testis-specific kinase 2	0	1	0
6678445	Tsyp1	testis-specific protein, Y-encoded-like 1	0	0	1
157057152	Tet2	tet oncogene family member 2	1	0	0
22122345	Tspan14	tetraspanin 14	1	0	0
13385482	Tspan31	tetraspanin 31	1	0	0
16716365	Tspan4	tetraspanin 4	1	0	0
274316334	Tspan8	tetraspanin 8	5	0	0
253735731	Fis1	tetratricopeptide repeat domain 11 isoform 1	4	0	0
238637273	Ttc15	tetratricopeptide repeat domain 15 isoform 1	1	0	0
295444831	Ttc19	tetratricopeptide repeat domain 19 isoform 1	0	1	0
114158711	Ttc21b	tetratricopeptide repeat domain 21B	0	1	0
42734471	Ttc26	tetratricopeptide repeat domain 26	0	0	1
164519039	Ttc27	tetratricopeptide repeat domain 27	0	1	0

225543265	B230396O12Rik	tetratricopeptide repeat domain 34	1	0	0
13385196	Ttc35	tetratricopeptide repeat domain 35	4	0	2
124486883	Ttc37	tetratricopeptide repeat domain 37	2	0	0
285026483	Ttc4	tetratricopeptide repeat domain 4	0	0	1
226494680	Ttc7b	tetratricopeptide repeat domain 7B	1	0	1
110625776	Ttc9c	tetratricopeptide repeat domain 9C	0	2	0
239915965	lft88	Tg737 protein	1	0	0
148540168	5730427N09Rik	TGF beta-inducible nuclear protein 1	0	0	2
91982765	Th1l	TH1 homolog	0	1	0
7305589	Tpk1	thiamin pyrophosphokinase 1	1	0	0
239916005	Thop1	thimet oligopeptidase 1	11	0	0
6755911	Txn1	thioredoxin 1	6	4	1
9903609	Txn2	thioredoxin 2	3	0	0
117606385	Tmx3	thioredoxin domain containing 10	5	0	0
13384700	Txndc12	thioredoxin domain containing 12	1	0	0
52693935	Txndc15	thioredoxin domain containing 15	1	0	0
13386060	Txndc17	thioredoxin domain containing 17	2	0	0
19072792	Erp44	thioredoxin domain containing 4	7	0	0
83921612	Txndc5	thioredoxin domain containing 5	3	1	1
158854007	1110049F12Rik	thioredoxin family Trp26	1	0	0
110224447	Txnrd1	thioredoxin reductase 1 isoform 2	9	1	0
102468565	Txnrd2	thioredoxin reductase 2 precursor	2	0	0
31543902	Txnl1	thioredoxin-like 1	7	0	0
109255214	Txnl4a	thioredoxin-like 4 isoform b	0	1	0
33859722	Tmx1	thioredoxin-related transmembrane protein 1	2	0	0
21313210	Txndc14	thioredoxin-related transmembrane protein 2	3	0	2
112817607	Tmx4	thioredoxin-related transmembrane protein 4	1	0	4
6678449	Tst	thiosulfate sulfurtransferase	1	0	0
23956332	Thoc1	THO complex 1	0	20	0
254553424	Thoc3	THO complex 3	0	7	0
6755763	Thoc4	THO complex 4	3	11	7
27369587	Thoc5	THO complex 5	1	21	0
125656163	Thoc2	THO complex subunit 2	0	35	0
27229277	Tars	threonyl-tRNA synthetase	2	17	0
254692873	Tars2	threonyl-tRNA synthetase 2, mitochondrial isoform 1	0	11	0
21704176	Thumpd1	THUMP domain containing 1	1	0	0
226958341	Tk1	thymidine kinase 1	0	0	1
225543134	Tk2	thymidine kinase 2, mitochondrial	1	0	0
166706901	Tdg	thymine DNA glycosylase isoform 2	0	1	0
21362343	Thyn1	thymocyte protein Thy28	0	1	0
121949779	Tmpo	thymopoietin isoform zeta	7	46	35
124430576	Tg	thyroglobulin	1	0	0
241982820	Thada	thyroid adenoma associated	0	0	1
146134449	Med13l	thyroid hormone receptor associated protein 2	0	1	0
68533246	Thrap3	thyroid hormone receptor associated protein 3	5	3	7
6678343	Thrb	thyroid hormone receptor beta isoform 1	0	0	1
334724453	Trip10	thyroid hormone receptor interactor 10	6	10	0
226531227	Trip11	thyroid hormone receptor interactor 11 isoform 3	3	1	0
91932791	Trip12	thyroid hormone receptor interactor 12	0	7	6
164664516	Tshr	thyroid stimulating hormone receptor isoform 1 precursor	2	0	0
7305593	Trhr	thyrotropin releasing hormone receptor	0	0	1
18875348	Trhr2	thyrotropin releasing hormone receptor 2	1	0	0

6678349	Tial1	Tial1 cytotoxic granule-associated RNA binding protein-like 1	0	3	0
124487251	Tigd2	tigger transposable element derived 2 homolog	0	0	1
254675279	Tjp1	tight junction protein 1 isoform 1	2	17	22
312222765	Tjp2	tight junction protein 2	16	9	9
114052811	Tjp3	tight junction protein 3	3	8	11
255760017	Timeless	timeless homolog isoform 2	0	1	1
21313608	Tipin	timeless interacting protein	1	0	0
110625888	Timp4	tissue inhibitor of metalloproteinase 4	1	0	0
13654268	Tsta3	tissue specific transplantation antigen P35B	1	0	0
77812699	Ttn	titin isoform N2-A	3	6	10
21539617	Tlcd1	TLC domain containing 1	1	0	0
13385998	Trap1	TNF receptor-associated protein 1	26	0	2
75677522	Tradd	TNFRSF1A-associated via death domain	0	0	1
13507603	Tlr1	toll-like receptor 1	0	0	1
45430001	Tlr12	toll-like receptor 12	0	1	0
153945749	Top2a	topoisomerase (DNA) II alpha	0	29	1
34328148	Top2b	topoisomerase (DNA) II beta	0	67	30
31559817	Topbp1	topoisomerase (DNA) II binding protein 1	1	0	0
6678403	Top3a	topoisomerase (DNA) III alpha	1	1	0
6755851	Top3b	topoisomerase (DNA) III beta	0	1	0
21450255	Tor1a	torsin A	2	0	0
229608948	Tor1aip1	torsin A interacting protein 1 isoform 2	1	1	6
237512947	Tor1aip2	torsin A interacting protein 2	5	0	2
3155990	Tor1b	torsin family 1, member B	6	0	1
224809275	Tor3a	torsin family 3, member A	1	0	0
111154067	Tmem165	TPA regulated locus	3	0	0
57164407	Tanc1	TPR domain, ankyrin-repeat and coiled-coil-containing	1	0	1
117606383	Trabd	TraB domain containing	3	0	0
227498519	Traf3ip3	TRAF3-interacting JNK-activating modulator	0	1	2
66730565	Trappc1	trafficking protein particle complex 1	1	0	0
7304929	Trappc3	trafficking protein particle complex 3	2	1	0
157266281	Trappc5	trafficking protein particle complex 5	0	1	0
257467582	Trappc9	trafficking protein particle complex 9 isoform 2	0	0	1
40254203	Trak2	trafficking protein, kinesin binding 2	1	0	0
227116358	Mecr	trans-2-enoyl-CoA reductase, mitochondrial precursor	8	5	0
119226255	Sp1	trans-acting transcription factor 1	0	2	0
33859640	Taldo1	transaldolase 1	16	0	0
229094714	Tcea1	transcription elongation factor A (SII) 1 isoform 2	1	14	0
6678235	Tcea2	transcription elongation factor A protein 2	3	1	0
21312712	Tceb1	transcription elongation factor B (SIII), polypeptide 1	2	0	0
13385800	Tceb2	transcription elongation factor B (SIII), polypeptide 2	3	2	0
31543847	Tceb3	transcription elongation factor B (SIII), polypeptide 3	1	0	1
87196334	Tcerg1	transcription elongation regulator 1	0	40	0
166295206	Tcf12	transcription factor 12	0	1	0
111185898	Tcf15	transcription factor 15	0	1	0
166706889	Tcf20	transcription factor 20 isoform b	0	0	1
218931198	Tcf7l2	transcription factor 7-like 2 isoform 1	0	1	1
6678303	Tfam	transcription factor A, mitochondrial	3	13	5
70609885	Tcfap2b	transcription factor AP-2 beta isoform 1	0	2	1
171846238	Tcfap2a	transcription factor AP-2, alpha isoform a	0	4	1
23346597	Tcfap2d	transcription factor AP-2, delta	0	1	0
120444920	Tcfap2e	transcription factor AP-2, epsilon	0	1	1
228008354	Tcfap2c	transcription factor AP-2, gamma isoform 1	0	2	0

13626034	Tcfap4	transcription factor AP4	0	1	0
22122569	Tfb1m	transcription factor B1, mitochondrial	0	1	0
15628025	Tcfcp2	transcription factor CP2	0	2	0
46810275	Grhl2	transcription factor CP2-like 3	0	7	0
157384992	Tcfe3	transcription factor E3 isoform a	0	1	0
295789156	Prdm16	transcription factor MEL1	1	1	1
22122529	Cdca7l	transcription factor RAM2	0	1	1
83921607	Vps72	transcription factor-like 1	0	2	0
70608137	Brf1	transcription initiation factor IIIB	2	0	1
134053939	Tcfcp2l1	transcription repressor CRTR-1	0	4	0
21314854	Gatad2b	transcription repressor p66 component of the MeCP1 complex	0	5	3
111154070	Ttf1	transcription termination factor 1	0	1	3
254692909	Ttf2	transcription termination factor, RNA polymerase II	0	0	1
21313610	Tada1l	transcriptional adaptor 1-like	0	1	0
76253678	Med27	transcriptional co-activator CRSP8 homolog	0	1	0
160333360	Sin3a	transcriptional regulator, SIN3A isoform 1	0	17	2
33468969	Tbl1x	transducin (beta)-like 1 X-linked	0	5	0
30102935	Tbl3	transducin (beta)-like 3	0	8	8
113204630	Trfr2	transferrin receptor 2	1	0	0
160333077	Trp53bp1	transformation related protein 53 binding protein 1	0	71	2
187960040	Trp53	transformation related protein 53 isoform a	0	3	0
124486949	Trrap	transformation/transcription domain-associated protein	0	99	1
251823820	Mdm1	transformed mouse 3T3 cell double minute 1 isoform 2	0	1	0
111160869	Tra2a	transformer-2 alpha	0	3	5
110681727	Tacc1	transforming acidic coiled-coil containing protein 1 short isoform	0	0	1
194394227	Tbrg4	transforming growth factor beta regulated gene 4	3	0	0
30519911	Tagln2	transgelin 2	9	10	1
9790125	Tagln3	transgelin 3	1	0	0
239787892	Tgm1	transglutaminase 1, K polypeptide	0	0	1
6678329	Tgm2	transglutaminase 2, C polypeptide	1	0	0
227500026	Tgm4	transglutaminase 4 (prostate)	0	1	0
29244202	Tgm6	transglutaminase 6	1	0	0
8394487	Trpc4	transient receptor potential cation channel, subfamily C, member 4	0	1	0
254540210	Trpc4ap	transient receptor potential cation channel, subfamily C, member 4 associated protein isoform 2	1	0	0
6678435	Trpc5	transient receptor potential cation channel, subfamily C, member 5	0	1	0
261878536	Trpm2	transient receptor potential cation channel, subfamily M, member 2	0	0	1
148271109	Trpm5	transient receptor potential cation channel, subfamily M, member 5	0	0	1
256773287	Trpm7	transient receptor potential cation channel, subfamily M, member 7	0	0	2
19527416	Trpm8	transient receptor potential cation channel, subfamily M, member 8	1	0	0
266458389	Trpv3	transient receptor potential cation channel, subfamily V, member 3	0	1	0
269784723	Trpv4	transient receptor potential cation channel, subfamily V, member 4	7	0	4
6678359	Tkt	transketolase	27	1	5
148287022	Tktl2	transketolase-like 2	1	0	0
6755899	Tsn	translin	6	2	0

8394490	Tsnax	translin-associated factor X	2	0	0
29789217	Tsnaxip1	translin-associated factor X (Tsnax) interacting protein 1	1	0	0
158937240	Timm10	translocase of inner mitochondrial membrane 13 homolog a	1	0	0
33468937	Timm17b	translocase of inner mitochondrial membrane 17b	1	0	2
254675168	Timm23	translocase of inner mitochondrial membrane 23 homolog	1	0	1
170763467	Timm44	translocase of inner mitochondrial membrane 44	7	0	1
22094989	Timm50	translocase of inner mitochondrial membrane 50 homolog	8	0	3
7305577	Timm8a1	translocase of inner mitochondrial membrane 8 homolog a	1	4	0
7305579	Timm8b	translocase of inner mitochondrial membrane 8 homolog b	2	4	0
67846109	Timm9	translocase of inner mitochondrial membrane 9 homolog	5	0	1
7305581	Timm13	translocase of inner mitochondrial membrane 9 homolog	3	5	2
13324686	Tomm20	translocase of outer mitochondrial membrane 20 homolog	1	0	4
31982091	Tomm22	translocase of outer mitochondrial membrane 22 homolog	1	0	6
13385500	Tomm34	translocase of outer mitochondrial membrane 34	1	8	0
157909801	Tomm40	translocase of outer mitochondrial membrane 40	5	0	10
197382455	Tomm5	translocase of outer mitochondrial membrane 5 homolog isoform 2	0	0	3
258547111	Tomm6	translocase of outer mitochondrial membrane 6 homolog	0	0	1
27552760	Tomm70a	translocase of outer mitochondrial membrane 70 homolog A	11	9	12
71061477	Dnajc19	translocase of the inner mitochondrial membrane 14 isoform 1	2	1	0
30794386	Tram1	translocating chain-associating membrane protein 1	2	0	1
39930429	Sec62	translocation protein 1	6	0	3
188528894	Tm9sf2	transmembrane 9 superfamily member 2	4	0	2
31542095	Tm9sf4	transmembrane 9 superfamily protein member 4	3	0	0
58037405	4930563P21Rik	transmembrane and coiled-coil domain-containing protein 5B	1	0	0
30725710	Tmcc2	transmembrane and coiled-coil domains 2	1	0	0
26986589	Tmco3	transmembrane and coiled-coil domains 3	1	0	0
21313340	Tmco4	transmembrane and coiled-coil domains 4	1	0	0
75677476	Tmtc3	transmembrane and tetratricopeptide repeat containing 3 isoform 1	1	0	0
58037339	Tmtc4	transmembrane and tetratricopeptide repeat containing 4	1	0	0
71143116	Tapt1	transmembrane anterior posterior transformation 1	1	0	0
283945630	Tmbim6	transmembrane BAX inhibitor motif containing 6	3	0	0
20127392	Tmc1	transmembrane channel-like gene family 1	1	0	0
110665719	Tmc3	transmembrane channel-like gene family 3	0	0	1
304434595	Tmc8	transmembrane channel-like gene family 8	0	1	0
85362703	Tmed1	transmembrane emp24 domain containing 1	3	0	0
281427153	Tmed3	transmembrane emp24 domain containing 3	2	0	0
9790015	Tmed2	transmembrane emp24 domain trafficking protein 2	5	0	2
21312062	Tmed10	transmembrane emp24 domain-containing protein 10	8	2	6
19527236	Tmed4	transmembrane emp24 protein transport domain containing 4	6	0	2
21746165	Tmed5	transmembrane emp24 protein transport domain containing 5	5	1	2

145966911	Tmed9	transmembrane emp24 protein transport domain containing 9	4	0	3
34328226	Tmprss2	transmembrane protease, serine 2	1	0	0
262118243	Tmem101	transmembrane protein 101	1	0	0
145966766	Tmem102	transmembrane protein 102	1	0	0
188035856	Tmem106b	transmembrane protein 106B	3	0	0
19527378	Tmem109	transmembrane protein 109	2	1	1
281182922	Tmem11	transmembrane protein 11	2	0	1
28827824	Tmem111	transmembrane protein 111	2	1	3
30520273	Tmem117	transmembrane protein 117	1	0	0
119637853	Tmem145	transmembrane protein 145	1	0	0
120952692	Tmem147	transmembrane protein 147	1	0	0
13384766	Tmem14c	transmembrane protein 14C	3	0	2
21704194	Tmem161a	transmembrane protein 161A	1	0	0
313569833	Tmem164	transmembrane protein 164	1	0	0
30424705	Tmem177	transmembrane protein 177	1	0	0
68342040	Tmem201	transmembrane protein 201 isoform b	0	0	2
40254356	Tmem209	transmembrane protein 209	0	0	4
31559970	Tmem214	transmembrane protein 214	2	0	1
160333448	Tmem22	transmembrane protein 22	0	0	1
283837771	Tmem26	transmembrane protein 26	0	0	1
68533251	Tmem33	transmembrane protein 33 isoform 2	3	0	2
85662379	Tmem41b	transmembrane protein 41B	2	0	0
21311891	Tmem43	transmembrane protein 43	8	0	5
21450349	Tmem45b	transmembrane protein 45b	1	0	0
20270285	Tmem47	transmembrane protein 47 isoform 1	1	0	0
28077005	Tmem48	transmembrane protein 48	0	0	3
27753991	Tmem49	transmembrane protein 49	1	0	0
23346449	Tmem5	transmembrane protein 5	0	0	1
21313410	Tmem50b	transmembrane protein 50B	0	0	1
21703804	Tmem51	transmembrane protein 51	1	0	0
226342964	Tmem63b	transmembrane protein 63b	0	0	1
158631230	Tmem66	transmembrane protein 66	1	0	0
117647265	Tmem70	transmembrane protein 70 isoform 1	1	0	0
13386014	Tmem85	transmembrane protein 85	1	1	1
160333204	Tmem87a	transmembrane protein 87A isoform 1	1	0	0
19111162	Tm9sf3	transmembrane protein 9 superfamily member 3	7	0	1
281306757	Tmem93	transmembrane protein 93	2	0	0
239835769	Tap1	transporter 1, ATP-binding cassette, sub-family B isoform 1	0	0	1
115385968	Tnpo1	transportin 1 isoform 1	3	0	1
54312056	Tnpo3	transportin 3	1	2	1
6755742	Tcof1	treacle	0	6	0
26892291	Tinf2	TRF1-interacting nuclear factor 2	0	1	0
9910590	Med20	Trf-proximal protein homolog	0	4	0
13994125	Trem2	triggering receptor expressed on myeloid cells 2	0	0	1
58037247	Trem1	triggering receptor expressed on myeloid cells-like 1	1	0	0
170172511	Tnrc18	trinucleotide repeat containing 18 isoform B	1	0	0
88501749	Triobp	TRIO and F-actin binding protein isoform 3	0	4	3
226958349	Tpi1	triosephosphate isomerase 1	16	3	14
165377144	Trim68	tripartite motif containing 68	0	0	1
128485541	Trim26	tripartite motif protein 26 isoform a	0	0	1
170295840	Trim28	tripartite motif protein 28	10	23	8
160333881	Trim29	tripartite motif protein 29	1	0	0



119637830	Trim33	tripartite motif protein 33 isoform 1	1	1	1
167466254	Trim7	tripartite motif protein 7	0	0	1
94420998	Trim24	tripartite motif-containing 24	0	0	1
289063457	Trim40	tripartite motif-containing 40	0	1	0
124358936	Trim41	tripartite motif-containing 41	1	1	0
260099704	Trim45	tripartite motif-containing 45	0	0	1
160333353	Trim69	tripartite motif-containing 69	2	0	0
6678419	Tpp2	tripeptidyl peptidase II	1	1	0
6753448	Tpp1	tripeptidyl-peptidase I	7	2	0
145587082	Trio	triple functional domain (PTPRF interacting)	0	0	1
9790261	Tfg	Trk-fused	6	0	0
261823938	Trmt112	TRM112-like	1	3	0
255958185	Tsen34	tRNA-intron endonuclease 34	1	0	0
291045186	Tyw3	tRNA-yW synthesizing protein 3 homolog	1	0	0
84697031	Tmod2	tropomodulin 2	0	1	0
8394460	Tmod3	tropomodulin 3	4	6	13
256000792	Tpm1	tropomyosin 1, alpha	7	12	7
40254525	Tpm3	tropomyosin 3, gamma	8	7	5
47894398	Tpm4	tropomyosin 4	10	10	2
6678393	Tnni3	troponin I, cardiac 3	0	1	0
51092303	Gm5409	Try10-like trypsinogen	0	3	0
84781771	Try10	trypsin 10	0	1	0
51010909	Try5	trypsin 5	0	2	1
71043961	2210010C04Rik	trypsinogen 7	3	6	3
209862985	Tph1	tryptophan hydroxylase 1 isoform 2	0	1	0
46409250	Wrb	tryptophan rich basic protein	1	0	0
256818806	Wars	tryptophanyl-tRNA synthetase	4	0	0
21313468	Tsfm	Ts translation elongation factor, mitochondrial	7	5	2
254911131	Tufm	Tu translation elongation factor, mitochondrial isoform 1	19	2	5
157057154	Tulp4	tubby like protein 4 isoform b	2	0	0
6755905	Tulp3	tubby-like protein 3	1	0	0
79750409	Tsc1	tuberous sclerosis 1	0	1	0
134288894	Ttll9	tubulin tyrosine ligase like family 9 isoform 1	0	0	1
269954711	Ttll12	tubulin tyrosine ligase-like family, member 12	3	0	0
6755901	Tuba1a	tubulin, alpha 1	1	0	0
34740335	Tuba1b	tubulin, alpha 1B	2	1	2
6678469	Tuba1c	tubulin, alpha 1C	24	6	18
6678467	Tuba4a	tubulin, alpha 4	3	0	1
21746161	Tubb2b	tubulin, beta	10	6	9
33859488	Tubb2a	tubulin, beta 2	1	0	1
22165384	Tubb2c	tubulin, beta 2C	1	0	1
12963615	Tubb3	tubulin, beta 3	1	1	0
31981939	Tubb4	tubulin, beta 4	3	0	2
7106439	Tubb5	tubulin, beta 5	5	3	7
27754056	Tubb6	tubulin, beta 6	14	3	9
19527246	Tubg2	tubulin, gamma 2	1	1	1
228008297	Tubgcp2	tubulin, gamma complex associated protein 2	1	0	0
39930567	Tubgcp3	tubulin, gamma complex associated protein 3	0	0	1
10190660	Tfip11	tuftelin interacting protein 11	0	0	5
114842415	Tnfsf11	tumor necrosis factor (ligand) superfamily, member 11	0	0	1
70778792	Tnfrsf1b	tumor necrosis factor receptor superfamily, member 1b	0	0	1
30519885	Tnfrsf21	tumor necrosis factor receptor superfamily, member 21	0	1	0
70608214	Tpd52	tumor protein D52 isoform 4	5	0	0
6678409	Tpd52l1	tumor protein D52-like 1	1	0	0

31560247	Tpd52l2	tumor protein D52-like 2	5	0	0
112799851	Trp53bp2	tumor protein p53 binding protein, 2	0	1	0
6678437	Tpt1	tumor protein, translationally-controlled 1	5	3	1
6755863	Hsp90b1	tumor rejection antigen gp96	43	1	10
9789955	Tusc2	tumor suppressor candidate 2	0	1	0
124248487	Tusc3	tumor suppressor candidate 3	1	0	1
254588052	Ttyh3	tweety 3	1	0	0
62990169	Twf1	twinfilin 1	1	9	0
6755224	Twf2	twinfilin-like protein	0	2	0
27545207	Twistnb	TWIST neighbor	0	6	0
157057192	Lin9	type I interferon receptor beta chain-associated isoform 2	1	0	0
51092301	Gm5414	type II keratin Kb14	1	0	1
31543974	Ywhab	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, beta polypeptide	8	7	6
226874906	Ywhae	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, epsilon polypeptide	15	3	6
6756037	Ywhah	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, eta polypeptide	9	5	5
6756039	Ywhaq	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide	8	4	7
6756041	Ywhaz	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide	2	6	9
165377181	Yars	tyrosyl-tRNA synthetase	2	3	0
31543595	Ubox5	U box domain containing 5	0	1	0
6755596	Snrpc	U1 small nuclear ribonucleoprotein 1C	0	2	2
67846113	Snrnp70	U1 small nuclear ribonucleoprotein 70 kDa	6	14	3
71067104	Snrnp48	U11/U12 snRNP 48K	1	0	0
254939700	U2af1	U2 small nuclear ribonucleoprotein auxiliary factor (U2AF) 1 isoform 1	1	6	4
6755917	Zrsr1	U2 small nuclear ribonucleoprotein auxiliary factor (U2AF) 1, related sequence 1	0	1	0
327365322	U2af2	U2 small nuclear ribonucleoprotein auxiliary factor (U2AF) 2	6	14	6
23956110	Snrpb2	U2 small nuclear ribonucleoprotein B	2	3	4
228480232	Snrpa1	U2 small nuclear ribonucleoprotein polypeptide A	6	8	9
25072205	U2af1l4	U2 small nuclear RNA auxiliary factor 1-like 4	0	4	0
171460910	2610101N10Rik	U2-associated SR140 protein 2	0	10	12
190684705	Imp4	U3 snoRNP protein 4 homolog	0	0	2
21704248	Rrp9	U3 snoRNP-associated protein	0	2	8
21539655	Prpf6	U5 snRNP-associated 102 kDa protein	3	23	4
115298670	Snrnp40	U5 snRNP-specific protein (Prp8-binding)	0	14	12
40018610	Snrnp200	U5 snRNP-specific protein, 200 kDa	11	86	74
19527156	Lsm8	U6 snRNA-associated Sm-like protein LSM8	3	4	3
253795523	Lsm10	U7 snRNP-specific Sm-like protein LSM10	0	1	0
50054188	Mum1	UBE-1C2 protein	0	1	1
21311819	Ubiad1	UbiA prenyltransferase domain containing 1	0	0	1
125490373	Gm10035	UbiE3 protein	2	0	1
158749567	Ubn2	ubiquitin 2	1	0	0
22726191	Ubqln1	ubiquilin 1 isoform 2	2	0	0
34328236	Ubqln2	ubiquilin 2	7	0	0
38348486	Ubqln3	ubiquilin 3	1	0	0
15805016	Ubqln4	ubiquilin 4	0	1	1
22267442	Uqcrc2	ubiquinol cytochrome c reductase core protein 2	13	2	14
13385726	Uqcrb	ubiquinol-cytochrome c reductase binding protein	2	3	5

37574048	1110020P15Rik	ubiquinol-cytochrome c reductase complex protein	2	2	2
46593021	Uqcrc1	ubiquinol-cytochrome c reductase core protein 1	14	1	13
21539599	Uqcrh	ubiquinol-cytochrome c reductase hinge protein	3	1	2
13385112	Uqcr	ubiquinol-cytochrome c reductase subunit	1	0	0
21539585	Uqcrq	ubiquinol-cytochrome c reductase, complex III subunit VII	1	1	1
13385168	Uqcrfs1	ubiquinol-cytochrome c reductase, Rieske iron-sulfur polypeptide 1	8	4	8
157671923	Ubc	ubiquitin C	0	0	1
139948802	Uchl3	ubiquitin carboxyl-terminal esterase L3	2	0	0
15809026	Uchl4	ubiquitin carboxyl-terminal esterase L4	6	0	0
229577283	Uchl5	ubiquitin carboxyl-terminal hydrolase L5 isoform 1	0	3	0
21703984	Ubt1	ubiquitin domain containing 1	0	0	1
257153392	Ufd1l	ubiquitin fusion degradation 1 like	0	1	0
32189428	Mib1	ubiquitin ligase mind bomb	0	1	0
293651567	Ubr2	ubiquitin protein ligase E3 component n-recogin 2	0	1	1
163310753	Ubr5	ubiquitin protein ligase E3 component n-recogin 5 isoform 1	3	0	0
76880500	Ube3a	ubiquitin protein ligase E3A isoform 2	1	0	0
6678493	Usp10	ubiquitin specific peptidase 10	1	0	0
251823802	Usp16	ubiquitin specific peptidase 16	0	1	1
262050630	Usp26	ubiquitin specific peptidase 26	0	1	0
114145573	Usp29	ubiquitin specific peptidase 29	1	0	0
226442882	Usp36	ubiquitin specific peptidase 36	0	0	1
34328301	Usp38	ubiquitin specific peptidase 38	1	0	0
20070404	Usp39	ubiquitin specific peptidase 39	5	18	1
116686116	Usp42	ubiquitin specific peptidase 42	1	0	1
29243896	Usp46	ubiquitin specific peptidase 46	0	1	0
7305619	Usp5	ubiquitin specific peptidase 5	4	0	0
154146209	Usp7	ubiquitin specific peptidase 7	5	17	1
169646342	Usp1	ubiquitin specific peptidase like 1 isoform A	1	0	0
84452155	Usp14	ubiquitin specific protease 14 isoform 1	3	0	0
126032299	Usp32	ubiquitin specific protease 32	1	0	0
114053325	Usp48	ubiquitin specific protease 48	0	2	0
115511018	Usp9x	ubiquitin specific protease 9, X chromosome	5	0	1
270265851	Usp19	ubiquitin thioesterase 19	0	2	0
310688895	Usp40	ubiquitin thioesterase 40	0	0	1
110625685	Usp22	ubiquitin thioesterase 22	0	1	0
21450103	Usp3	ubiquitin thioesterase 3	0	3	0
162135936	Uba3	ubiquitin-activating enzyme 3 isoform 1	1	0	0
209862989	Uba1	ubiquitin-activating enzyme E1 isoform 2	18	0	2
6755923	Ube1y1	ubiquitin-activating enzyme E1, Chr Y 1	1	0	0
167736371	Ube4a	ubiquitination factor E4A	1	0	0
42741690	Ube2v1	ubiquitin-conjugating enzyme E2 variant 1	1	0	1
31980960	Ube2j1	ubiquitin-conjugating enzyme E2, J1	0	1	1
85662419	Ube2j2	ubiquitin-conjugating enzyme E2, J2 homolog isoform a	0	0	1
9790041	Ube2a	ubiquitin-conjugating enzyme E2A, RAD6 homolog	0	1	0
21312888	Ube2c	ubiquitin-conjugating enzyme E2C	1	0	0
213512454	Gm9762	ubiquitin-conjugating enzyme E2D 2 related protein	1	1	0
6678479	Ube2e1	ubiquitin-conjugating enzyme E2E 1, UBC4/5 homolog	1	0	0
281332144	Ube2h	ubiquitin-conjugating enzyme E2H	1	0	0
294862307	Ube2i	ubiquitin-conjugating enzyme E2I	2	5	1
31542956	Ube2k	ubiquitin-conjugating enzyme E2K	3	0	0
6678481	Ube2l3	ubiquitin-conjugating enzyme E2L 3	4	0	0

270309117	Ube2m	ubiquitin-conjugating enzyme E2M	2	0	0
18017605	Ube2n	ubiquitin-conjugating enzyme E2N	3	2	3
257796272	Ube2q2	ubiquitin-conjugating enzyme E2Q 2	1	0	0
13385778	Ube2r2	ubiquitin-conjugating enzyme E2R 2	1	0	0
31543918	Ube2v2	ubiquitin-conjugating enzyme E2v2 isoform 1	4	0	2
110625675	Ube2w	ubiquitin-conjugating enzyme E2W (putative)	0	1	0
13385932	Ufm1	ubiquitin-fold modifier 1	2	0	0
6755925	Ubl3	ubiquitin-like 3	1	0	0
21703810	Ubl4	ubiquitin-like 4	0	2	0
13384784	Ubl5	ubiquitin-like 5	0	0	1
7709986	Uba2	ubiquitin-like modifier activating enzyme 2	6	0	0
27370032	Uba6	ubiquitin-like modifier activating enzyme 6	1	0	0
237681133	Fau	ubiquitin-like protein ubi and ribosomal protein S30 precursor	1	4	0
162287241	Uhrf1	ubiquitin-like with PHD and ring finger domains 1 isoform B	0	7	2
224809307	Usp21	ubiquitin-specific protease 21	0	1	2
124486616	Zc3h7b	ubiquitous tetratricopeptide containing protein RoXaN	0	1	0
85861252	Ubxn4	UBX domain containing 2	2	0	1
158533976	Faf2	UBX domain containing 8	5	0	3
164450477	Ugt3a1	UDP glycosyltransferases 3 family, polypeptide A1	1	0	0
9506417	B3galt4	UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase 4	0	1	0
66392577	B3galt1	UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 1	0	0	1
9910138	B3galnt1	UDP-GalNAc:betaGlcNAc beta 1,3-galactosaminyltransferase, polypeptide 1	1	0	0
227496327	B3gnt7	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 7	1	0	0
236466498	Ugg1	UDP-glucose ceramide glucosyltransferase-like 1	32	0	0
6678499	Ugdh	UDP-glucose dehydrogenase	3	0	0
21314832	Ugp2	UDP-glucose pyrophosphorylase 2	3	0	0
46877109	Galnt2	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 2	3	0	0
162951828	Galnt3	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 3	13	3	4
7657112	Galnt4	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 4	1	0	0
240120036	Galnt6	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 6	2	0	0
169790937	Galnt9	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 9 isoform A	0	0	1
58000467	Galnt12	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase-like 2	1	0	0
30520375	Uap1	UDP-N-acetylglucosamine pyrophosphorylase 1	1	0	0
31982409	Dpagt1	UDP-N-acetylglucosamine-dolichyl-phosphate N-acetylglucosaminophosphotransferase	1	0	0
84794548	Uap111	UDP-N-acteylglucosamine pyrophosphorylase 1-like 1	9	0	0
269914114	Uhrf1bp1l	UHRF1 (ICBP90) binding protein 1-like	1	0	0
165377065	Cmpk1	UMP-CMP kinase 1	6	0	0
24418903	Fermt3	UNC-112 related protein 2	0	1	1
30425054	Unc119b	unc-119 homolog B	1	0	0
124487217	Unc13c	unc13 homolog 3	1	1	0
283837783	Unc13a	unc-13 homolog A	1	0	0
62243588	Unc13d	unc-13 homolog D	1	1	2
227908790	Unc45a	unc-45 homolog A	2	1	0

85861262	Unc5b	unc-5 homolog B	0	0	1
6678505	Unc5c	unc-5 homolog C	1	0	0
29789243	Unc84a	unc-84 homolog A	0	0	15
329299037	Unc84b	unc-84 homolog B	0	0	23
77404294	Usmg5	upregulated during skeletal muscle growth 5	4	0	0
117938770	2010005J08Rik	up-regulated gene 4 isoform 2	0	1	0
134032032	Ubp1	upstream binding protein 1 isoform b	0	1	0
113205057	Ubtf	upstream binding transcription factor, RNA polymerase I isoform 1	2	16	5
71274162	Urb2	URB2 ribosome biogenesis 2 homolog	2	12	1
33859498	Umps	uridine monophosphate synthase	2	0	0
13507680	Uck2	uridine-cytidine kinase 2	1	0	0
21492632	Ucn3	urocortin 3	0	0	1
58037127	Upk1a	uroplakin 1A	5	0	0
110347606	Urod	uroporphyrinogen decarboxylase	1	0	0
145699097	Ush2a	usherin	0	0	1
23956096	Uso1	USO1 homolog, vesicle docking protein	12	0	6
13385534	Utp11l	UTP11-like, U3 small nucleolar ribonucleoprotein	0	0	5
51889716	Utp14a	UTP14, U3 small nucleolar ribonucleoprotein, homolog A	0	0	2
209977087	Utp14b	UTP14, U3 small nucleolar ribonucleoprotein, homolog B	1	0	0
30725776	Utp15	UTP15, U3 small nucleolar ribonucleoprotein, homolog	0	1	6
61656180	Utp18	UTP18, small subunit processome component	0	0	10
21313442	Utp23	UTP23, small subunit (SSU) processome component, homolog	0	0	1
12746430	Utp3	UTP3, small subunit processome component	0	1	5
21450209	Utp6	UTP6, small subunit (SSU) processome component, homolog	0	2	3
110431378	Utrn	utrophin	12	4	5
31542488	Vac14	Vac14 homolog	1	0	1
71067122	Vrk1	vaccinia related kinase 1 isoform a	0	17	0
19527166	Vrk3	vaccinia related kinase 3	0	11	2
45504359	Atp6v1e1	vacuolar H+ ATPase E1	3	0	2
15617197	Atp6v1g1	vacuolar H+ ATPase G1	1	0	2
19705578	Atp6v1b2	vacuolar H+ATPase B2	15	0	7
66392160	Vps13a	vacuolar protein sorting 13A	2	0	0
122114537	Vps13c	vacuolar protein sorting 13C	1	1	1
254939640	Vps16	vacuolar protein sorting 16	0	0	1
25092662	Vps25	vacuolar protein sorting 25	0	5	0
29825827	Vps26b	vacuolar protein sorting 26 homolog B	2	0	0
164518904	Vps26a	vacuolar protein sorting 26 isoform a	4	0	0
13385320	Vps28	vacuolar protein sorting 28	1	0	0
9790285	Vps29	vacuolar protein sorting 29	3	0	0
13928670	Vps35	vacuolar protein sorting 35	20	0	1
7305631	Vps45	vacuolar protein sorting 45	6	0	1
18699726	Vps4a	vacuolar protein sorting 4a	1	0	1
164698506	Vps4b	vacuolar protein sorting 4b	0	1	1
148747162	Vps52	vacuolar protein sorting 52	1	0	0
225543319	Vcp	valosin containing protein	32	1	2
255069795	Vars	valyl-tRNA synthetase	22	21	6
160333671	Vars2	valyl-tRNA synthetase 2, mitochondrial	1	0	0
170295823	Vcam1	vascular cell adhesion molecule 1	0	0	1
117414176	Vezf1	vascular endothelial zinc finger 1	0	1	0
160707909	Vasp	vasodilator-stimulated phosphoprotein	2	3	1
210031395	Vash1	vasohibin 1	0	0	1

31981693	Vasn	vasorin	1	0	0
31559995	Crk	v-crck sarcoma virus CT10 oncogene homolog	2	0	0
31542421	Crkl	v-crck sarcoma virus CT10 oncogene homolog (avian)-like	3	0	0
6755957	Vax2	ventral anterior homeobox containing gene 2	1	1	0
146134398	ErbB4	v-erb-a erythroblastic leukemia viral oncogene homolog 4	1	0	0
54873610	ErbB2	v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog	2	0	0
197333876	Vcan	versican isoform 5	0	0	1
115270968	Gvin1	very large inducible GTPase 1	1	1	0
238637305	Vldlr	very low density lipoprotein receptor isoform a	2	0	0
100817933	Acad9	very-long-chain acyl-CoA dehydrogenase VLCAD homolog	22	0	2
33859662	Vat1	vesicle amine transport protein 1 homolog (T californica)	11	0	0
31980617	Vti1b	vesicle transport through interaction with t-SNAREs 1B homolog	4	0	0
13928668	Vti1a	vesicle transport through interaction with t-SNAREs homolog 1A	2	0	0
6678551	Vamp2	vesicle-associated membrane protein 2	2	0	0
31543938	Vamp4	vesicle-associated membrane protein 4	1	0	0
33468929	Vamp7	vesicle-associated membrane protein 7	1	0	0
31980629	Vamp8	vesicle-associated membrane protein 8	4	0	1
94721328	Vapa	vesicle-associated membrane protein, associated protein A	9	2	4
31543940	Vapb	vesicle-associated membrane protein, associated protein B and C	7	1	5
31543349	Nsf	vesicle-fusing ATPase	9	0	0
27370298	Exd1	vesicle-fusing ATPase domain-like 1	2	0	0
190684696	Vil1	villin 1	1	1	1
83921618	Ezr	villin 2	12	21	3
257096033	Vill	villin-like	0	1	1
31982755	Vim	vimentin	0	1	1
31543942	Vcl	vinculin	32	33	16
326806988	Yes1	viral oncogene yes homolog	0	0	2
13385626	Med4	vitamin D receptor interacting protein	0	2	0
6754608	Maff	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein F	0	2	0
6754610	Mafg	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein G	0	1	0
6754612	Mafk	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein K	0	1	1
123173782	NalcN	voltage gated channel like 1	0	0	1
6755963	Vdac1	voltage-dependent anion channel 1	18	3	21
6755965	Vdac2	voltage-dependent anion channel 2	15	5	17
6755967	Vdac3	voltage-dependent anion channel 3	11	0	14
157042785	Kcnh2	voltage-gated potassium channel, subfamily H, member 2	0	0	1
121949777	V1ra1	vomer nasal 1 receptor, A1	1	0	0
289666789	V1rd22	vomer nasal 1 receptor, D22	1	0	0
21717795	V1rh20	vomer nasal 1 receptor, H20	1	0	0
21717751	V1rh8	vomer nasal 1 receptor, H8	0	0	1
182765455	Gm6674	vomer nasal 1 receptor-like	1	0	0
157153652	Vmn2r107	vomer nasal 2, receptor 107	0	1	0
157167164	Vmn2r116	vomer nasal 2, receptor 116	0	1	1

157277973	Vmn2r12	vomeronasal 2, receptor 12	1	0	0
157278000	Vmn2r23	vomeronasal 2, receptor 23	1	0	0
157153646	Vmn2r103	vomeronasal receptor Vmn2r103	0	1	0
156938265	Vmn2r114	vomeronasal receptor Vmn2r114	0	1	1
157167162	Vmn2r115	vomeronasal receptor Vmn2r115	0	1	1
156938271	Vmn2r75	vomeronasal receptor Vmn2r75	0	0	1
124248572	Vbp1	von Hippel-Lindau binding protein 1	1	0	0
6678567	Vhl	von Hippel-Lindau syndrome protein homolog	1	0	0
117320533	Vwa3a	von Willebrand factor A domain containing 3A	0	1	3
225543185	Vwa5a	von Willebrand factor A domain containing 5A	1	6	0
82617569	Vprbp	Vpr-binding protein	0	0	1
46849724	Ankrd27	VPS9-ankyrin repeat-containing protein isoform 2	0	1	0
227496776	Araf	v-raf murine sarcoma 3611 viral oncogene homolog isoform 1	0	1	1
11612509	Ralb	v-ral simian leukemia viral oncogene homolog B (ras related)	2	4	4
6677709	Rela	v-rel reticuloendotheliosis viral oncogene homolog A	1	0	0
10946730	Vstm2b	V-set and transmembrane domain containing 2B	0	0	1
87196519	Wfdc10	WAP four-disulfide core domain 10	0	1	0
21312840	Wfdc2	WAP four-disulfide core domain 2	0	1	0
123704807	Wfdc8	WAP four-disulfide core domain 8	1	0	0
23510313	Wasf2	WAS protein family, member 2	0	5	0
40556280	Wdte1	WD and tetratricopeptide repeats 1	0	1	0
21312280	Wdfy1	WD repeat and FYVE domain containing 1 isoform 1	1	1	0
39930599	Wdfy3	WD repeat and FYVE domain containing 3	0	1	1
40254224	Wdhd1	WD repeat and HMG-box DNA binding protein 1	0	0	1
6755995	Wdr1	WD repeat domain 1	15	13	0
312261274	Wdr12	WD repeat domain 12	0	0	3
288541355	Wdr17	WD repeat domain 17	1	0	0
83649741	Wdr18	WD repeat domain 18	0	4	1
154240688	Wdr19	WD repeat domain 19	0	1	0
116089310	Wdr27	WD repeat domain 27	1	0	0
30425338	Wdr3	WD repeat domain 3	0	9	11
21362285	Wdr33	WD repeat domain 33	0	7	3
31542010	Wdr36	WD repeat domain 36 isoform 2	0	10	17
58037455	Wdr38	WD repeat domain 38	0	0	1
241896997	Wdr43	WD repeat domain 43 isoform 9	0	3	11
10181122	Wdr46	WD repeat domain 46	0	0	3
33468987	Wdr48	WD repeat domain 48	0	1	0
18252790	Wdr5	WD repeat domain 5	0	12	1
56605680	Thoc6	WD repeat domain 58	0	13	0
21312318	Wdr5b	WD repeat domain 5B	0	1	0
13878227	Wdr6	WD repeat domain 6	0	1	0
70778817	Wdr61	WD repeat domain 61 isoform a	3	7	0
268370090	Wdr64	WD repeat domain 64	0	1	0
264681545	Wdr67	WD repeat domain 67	1	0	0
124487149	Wdr70	WD repeat domain 70	0	2	0
83523742	Wdr75	WD repeat domain 75	0	0	8
124487321	Wdr76	WD repeat domain 76	0	4	0
226442867	Wdr89	WD repeat domain 89	0	2	0
30725770	Wdr92	WD repeat domain 92	0	1	0
148223079	Wdr82	WD repeat domain containing 82	0	10	1
168480115	Dcaf13	WD repeats and SOF domain containing 1	0	0	3
27229002	Wdr45l	Wdr45 like	1	0	0

171846235	Wee2	WEE1 homolog 2	0	1	0
57862816	Whrn	whirlin isoform 2	0	1	0
294979205	Wiz	widely-interspaced zinc finger motifs isoform 2	0	2	7
15809010	Wbscr16	Williams-Beuren syndrome chromosome region 16 homolog	0	1	0
125988405	Wbscr22	Williams-Beuren syndrome critical region protein 22	1	0	0
165377291	Wtap	Wilms' tumour 1-associating protein isoform a	0	4	0
46909567	Wnt5a	wingless-related MMTV integration site 5A	0	1	0
6678169	Wnt8a	wingless-related MMTV integration site 8A	0	0	1
100815493	Wapal	wings apart-like homolog	0	6	0
37537556	Wipf2	Wire protein	0	1	0
6678581	Was	Wiskott-Aldrich syndrome homolog	0	0	1
268370042	Wasl	Wiskott-Aldrich syndrome-like	3	0	0
312283631	Wnk1	WNK lysine deficient protein kinase 1	1	0	0
295424169	Whsc1	Wolf-Hirschhorn syndrome candidate 1	0	1	0
124486903	Whsc1l1	Wolf-Hirschhorn syndrome candidate 1-like 1 isoform 2	1	1	1
33859652	Whsc2	Wolf-Hirschhorn syndrome candidate 2 homolog	0	1	0
6755997	Wfs1	Wolfram syndrome 1 protein homolog	5	0	1
46402183	Wtip	WT1-interacting protein	0	1	0
267844920	Wbp11	WW domain binding protein 11	0	9	1
8394539	Wbp2	WW domain binding protein 2	2	0	0
115495457	Wbp7	WW domain binding protein 7	0	0	1
226371675	Wac	WW domain containing adaptor with coiled-coil isoform 1	0	1	0
77682555	Xdh	xanthine dehydrogenase	0	0	1
121247429	Xpc	xeroderma pigmentosum, complementation group C	0	3	0
66841385	Xirp2	xin actin-binding repeat containing 2 isoform 1	1	0	2
13385660	Xab2	XPA binding protein 2	0	3	19
76563952	Rexo4	XPMC2 prevents mitotic catastrophe 2 homolog	0	1	0
42476274	Xpnpep1	X-prolyl aminopeptidase (aminopeptidase P) 1, soluble	6	0	0
28893421	Xpnpep3	X-prolyl aminopeptidase (aminopeptidase P) 3, putative	1	2	1
256000811	Xrra1	X-ray radiation resistance associated 1	0	1	0
170295844	Xrcc1	X-ray repair complementing defective repair in Chinese hamster cells 1	2	1	1
160333605	Xrcc5	X-ray repair complementing defective repair in Chinese hamster cells 5	3	7	0
145587104	Xrcc6	X-ray repair complementing defective repair in Chinese hamster cells 6	4	3	0
114205437	4933407N01Rik	XTP3-transactivated protein B	1	0	0
117956377	Ybx2	Y box protein 2	4	3	2
62234443	Ino80	yeast INO80-like protein	0	1	0
225543566	Yeats2	YEATS domain containing 2 isoform 1	1	3	0
13386064	Yeats4	YEATS domain containing 4	0	3	0
283945493	Yap1	yes-associated protein 1	1	0	0
28076889	Yipf4	Yip1 domain family, member 4	1	0	0
25282409	Yif1a	Yip1p-interacting factor	2	0	1
31543971	Ykt6	YKT6 v-SNARE protein	0	0	3
146134507	Ylpm1	YLP motif containing 1	0	1	3
7305635	Yme1l1	YME1-like 1	5	0	0
124430549	Ythdc1	YTH domain containing 1	0	0	1
225543495	Ythdf3	YTH domain family 3 isoform 1	1	1	0
40254385	Yaf2	YY1 associated factor 2	0	1	1
31982421	Yy1	YY1 transcription factor	0	8	0
29244006	Zfp595	zin finger protein 595	0	1	0
113205051	Znrf4	zinc and ring finger 4	1	0	0



31559926	Zadh2	zinc binding alcohol dehydrogenase, domain containing 2	4	0	0
30520189	Zbtb1	zinc finger and BTB domain containing 1	0	0	1
171919772	Zbtb17	zinc finger and BTB domain containing 17	0	1	0
226423893	Zbtb2	zinc finger and BTB domain containing 2	0	1	0
257196201	Zbtb20	zinc finger and BTB domain containing 20	0	1	3
85701534	Zbtb45	zinc finger and BTB domain containing 45	0	1	0
117647238	Zbtb7a	zinc finger and BTB domain containing 7	0	7	0
109627663	Zhx1	zinc finger and homeodomain protein 1	0	6	0
153791380	Zscan10	zinc finger and SCAN domains 10	0	1	0
115270986	Zc3h11a	zinc finger CCCH type containing 11A	1	8	2
26006471	Zc3h3	zinc finger CCCH type containing 3	1	0	0
156717216	Zc3h6	zinc finger CCCH type containing 6	1	0	0
227116322	Zc3hav1	zinc finger CCCH type, antiviral 1 isoform 2	1	0	2
231571026	Zc3h14	zinc finger CCCH-type containing 14 isoform a	0	0	5
161169020	Zc3h4	zinc finger CCCH-type containing 4	1	1	0
27369640	Zc3hav1l	zinc finger CCCH-type, antiviral 1-like	0	0	1
21313088	Zcrb1	zinc finger CCHC-type and RNA binding motif 1	0	2	1
125656178	Zfhx4	zinc finger homeodomain 4	1	0	1
13195658	Zfpl1	zinc finger like protein 1	1	1	1
119120797	Zfp101	zinc finger protein 101	1	0	0
113374173	Zfp105	zinc finger protein 105	1	0	0
27804329	Zfp11	zinc finger protein 11	1	0	0
33504487	Zfp113	zinc finger protein 113	1	0	0
27777687	Zfp13	zinc finger protein 13	0	0	1
121247390	Zfp143	zinc finger protein 143	0	1	0
6756049	Zfp148	zinc finger protein 148	0	3	0
157823865	Zfp185	zinc finger protein 185 isoform a	0	3	1
47059078	Zfp191	zinc finger protein 191	0	0	1
37595742	Zmym2	zinc finger protein 198	0	1	0
194328717	Zfp207	zinc finger protein 207 isoform 1	0	5	0
225007600	Zfp212	Zinc finger protein 212 isoform 1	0	1	0
225543502	Zfp219	zinc finger protein 219	0	1	1
167555112	Zmym4	zinc finger protein 262	0	1	0
158749569	Zfp280b	zinc finger protein 280b	0	1	0
157823982	Zfp318	zinc finger protein 318 isoform 2	1	0	0
56118256	Zfp324	zinc finger protein 324	0	1	0
269784644	Zfp326	zinc finger protein 326	0	2	6
6754396	Zfp346	zinc finger protein 346	0	4	0
238859639	Zfp352	zinc finger protein 352	0	0	1
154350211	Zfp369	zinc finger protein 369	1	0	0
124486594	Zfp382	zinc finger protein 382	0	0	1
62526050	Zfp386	zinc finger protein 386 (Kruppel-like) isoform b	1	0	0
113865966	Zfp397	zinc finger protein 397	0	0	1
139949213	Ggnbp2	zinc finger protein 403	1	0	0
124339857	Zfp418	zinc finger protein 418	0	1	0
28076891	Zfp422	zinc finger protein 422	0	0	5
46359077	Zfp423	zinc finger protein 423	0	2	0
257467538	Zfp438	zinc finger protein 438	0	0	1
29789329	Zfp451	zinc finger protein 451	0	0	1
123702020	Zfp456	zinc finger protein 456	0	1	0
114431238	Zfp462	zinc finger protein 462	0	2	0
194394231	Zfp507	zinc finger protein 507	1	0	1
254553392	Zfp512	zinc finger protein 512	0	4	2

294489298	Zfp516	zinc finger protein 516	0	1	1
295444874	Zfp518b	zinc finger protein 518B	0	1	0
7305637	Zfp53	zinc finger protein 53	1	0	0
46402263	Zfp532	zinc finger protein 532	0	1	0
27369509	Zfp536	zinc finger protein 536	2	0	0
270341364	Zfp574	zinc finger protein 574	1	0	0
154759288	Zfp593	zinc finger protein 593	0	1	0
34147169	Zfp598	zinc finger protein 598	1	0	0
242397406	Zfp618	zinc finger protein 618	0	1	0
160333308	Zfp619	zinc finger protein 619	0	0	1
21313506	Zfp623	zinc finger protein 623	1	0	0
28893273	Zfp629	zinc finger protein 629	0	1	0
30424631	Zfp641	zinc finger protein 641	0	0	1
46358380	Zfp646	zinc finger protein 646	0	1	0
126723513	Zfp664	zinc finger protein 664	0	1	0
27229259	Zfp687	zinc finger protein 687	0	4	0
225543087	Zfp691	zinc finger protein 691	0	1	0
100817090	Zfp692	zinc finger protein 692	0	0	1
18875370	Zfp704	zinc finger protein 704	1	1	1
21312658	Zfp706	zinc finger protein 706	0	2	0
125347348	Zfp711	zinc finger protein 711	0	0	1
123173818	Zfp715	zinc finger protein 715	1	0	1
187608595	Zfp735	zinc finger protein 735	1	0	0
161353500	Zfp74	zinc finger protein 74	1	0	0
119226195	Zfp759	zinc finger protein 759	0	1	1
29789173	Zfp788	zinc finger protein 788	0	1	0
32469497	Zfp828	zinc finger protein 828	0	1	0
31560213	Zfp830	zinc finger protein 830	0	1	1
22165394	Zfp87	zinc finger protein 87	0	0	1
140969612	Zfp871	zinc finger protein 871	0	1	0
90669983	Zfp91	zinc finger protein 91	0	3	1
21704232	Zfp810	zinc finger protein ZFP	0	0	1
122114637	lkzf4	zinc finger protein, subfamily 1A, 4	0	0	1
168480106	Zfr	zinc finger RNA binding protein	0	31	2
194473741	Zkscan17	zinc finger with KRAB and SCAN domains 17 isoform 1	0	1	0
124486745	Zkscan2	zinc finger with KRAB and SCAN domains 2	1	1	0
224809352	Zkscan3	zinc finger with KRAB and SCAN domains 3	0	1	0
27370072	Zc3hc1	zinc finger, C3HC type 1	0	1	0
51491858	Zc4h2	zinc finger, C4H2 domain containing	0	1	1
114326528	Zgpat	zinc finger, CCCH-type with G patch domain	0	0	1
27754058	Zcchc10	zinc finger, CCHC domain containing 10	0	0	1
83977461	Zcchc11	zinc finger, CCHC domain containing 11	0	0	1
170016071	Zcchc2	zinc finger, CCHC domain containing 2 isoform B	0	0	1
169808385	Zcchc8	zinc finger, CCHC domain containing 8	1	5	2
21450253	Zdhhc5	zinc finger, DHHC domain containing 5	0	0	2
112818584	Zfyve26	zinc finger, FYVE domain containing 26	1	0	0
58037197	Znhit1	zinc finger, HIT domain containing 1	0	2	0
124487366	Znhit6	zinc finger, HIT type 6	0	1	0
13385046	Zmat2	zinc finger, matrin type 2	0	0	1
28893005	Zmat4	zinc finger, matrin type 4	0	1	0
49227135	Zmym1	zinc finger, MYM domain containing 1	1	0	0
140972030	Zmym5	zinc finger, MYM-type 5	0	0	1
91064878	Zmynd8	zinc finger, MYND-type containing 8	0	4	1
74315981	Zranb2	zinc finger, RAN-binding domain containing 2	0	1	0

71361674	Zswim5	zinc finger, SWIM domain containing 5	1	0	0
124053451	Zzz3	zinc finger, ZZ domain containing 3	0	9	0
40254321	Zhx3	zinc fingers and homeoboxes 3	0	7	0
40789094	Zhx2	zinc fingers and homeoboxes protein 2	0	1	0
12963579	Slc30a7	zinc transporter like 2	2	0	0
6756081	Zp2	zona pellucida glycoprotein 2	1	0	0
256665241	Zan	zonadhesin	1	0	0
6756085	Zyx	zyxin	1	0	0

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GI Accession No.	Gene Symbol	Protein Name	Location	Transcriptome match
86604724	Atf1	activating transcription factor 1	NE	Yes
68799916	Atf2	activating transcription factor 2 isoform 1	NE	Yes
22122557	Atf7	activating transcription factor 7	NE	No
7304901	Ar	androgen receptor	NE	No
9790013	Aatf	apoptosis antagonizing transcription factor	NP	Yes
110225364	Zfhx3	AT motif binding factor 1	NE	Yes
110225364	Zfhx3	AT motif binding factor 1	NE	Yes
6753020	Aire	autoimmune regulator (autoimmune polyendocrinopathy candidiasis ectodermal dystrophy)	NE	No
31982053	Relb	avian reticuloendotheliosis viral (v-rel) oncogene related B	NP	No
6755680	Bhlhe40	basic helix-loop-helix family, member e40	NP	Yes
70906449	Bclaf1	BCL2-associated transcription factor 1 isoform 2	NE, NP	Yes
46559391	Bmi1	Bmi1 polycomb ring finger oncogene	NE	Yes
161016835	Brc1	breast cancer 1	NP	Yes
164698417	Brd1	bromodomain containing 1	NP	Yes
31542251	C1d	C1D nuclear receptor co-repressor	NE	Yes
30017453	Camta2	calmodulin binding transcription activator 2	NP	Yes
158966707	Creb1	cAMP responsive element binding protein 1 isoform A	NE	Yes
172072595	Casp8ap2	caspase 8 associated protein 2	NP	Yes
6753404	Cebpb	CCAAT/enhancer binding protein beta	NE, NP	Yes
61966683	Cebpg	CCAAT/enhancer binding protein gamma	NE	Yes
67188876	Cebpz	CCAAT/enhancer binding protein zeta	NE, NP	Yes
31044459	Ctcf	CCCTC-binding factor	NE, NP	Yes
22779899	Cdc5l	cell division cycle 5-like	NE, NP	Yes
51093870	Foxn3	checkpoint suppressor 1	NE	No
84871978	Mycbp	c-myc binding protein	NE	Yes
115270977	Med14	cofactor required for Sp1 transcriptional activation, subunit 2 isoform b	NE	No
47059495	Csda	cold shock domain protein A short isoform	NE, NP	Yes
7304971	Cops5	COP9 signalosome subunit 5	NE, NP	Yes
70995311	Crebbp	CREB binding protein	NE	Yes
311893328	Ctbp1	C-terminal binding protein 1	NE	Yes
282721029	Ctbp2	C-terminal binding protein 2	NE	Yes
110835729	Cux1	cut-like homeobox 1 isoform b	NE	Yes
110835729	Cux2	cut-like homeobox 1 isoform b	NE	Yes
172072638	Ccnc	cyclin C isoform 1	NE	No
56550069	Ccnt2	cyclin T2	NP	Yes
6755314	Dpf2	D4, zinc and double PHD fingers family 2	NE, NP	Yes
257900506	Dcp1b	DCP1 decapping enzyme homolog b	NE	No
8393248	Deaf1	deformed epidermal autoregulatory factor 1	NE	No
31981174	Pole3	DNA-directed DNA polymerase epsilon 3	NE	Yes
27754097	Dr1	down-regulator of transcription 1	NE	Yes
21313424	Drap1	Dr1 associated protein 1 (negative cofactor 2 alpha)	NE	Yes
94421034	Ep300	E1A binding protein p300	NE	Yes
257153394	Ets2	E26 avian leukemia oncogene 2, 3' domain	NE	Yes
6679627	Elf1	E74-like factor 1	NE	Yes
253683411	Elf3	E74-like factor 3 isoform 2	NE, NP	Yes
153792362	Elk4	ELK4, member of ETS oncogene family	NE	Yes
10946942	Edf1	endothelial differentiation-related factor 1	NE	Yes

6679685	Erh	enhancer of rudimentary homolog	NE, NP	Yes
166706895	Tox4	epidermal Langerhans cell protein LCP1	NE	Yes
6755100	Pa2g4	ErbB3-binding protein 1	NE	Yes
112293262	Esrra	estrogen related receptor, alpha	NE, NP	Yes
226958367	Esrrb	estrogen-related receptor beta isoform 1	NE, NP	Yes
6681287	Ehf	ets homologous factor	NE	Yes
84370337	Etv6	ets variant 6	NE	Yes
18079341	Eif3h	eukaryotic translation initiation factor 3, subunit H	NE	No
253795477	Fblim1	filamin binding LIM protein 1	NP	Yes
226693376	Foxj1	forkhead box J1	NE	No
82546826	Foxk1	forkhead box K1	NE	Yes
116517340	Fhl1	four and a half LIM domains 1 isoform 2	NP	Yes
34328119	Gabpa	GA repeat binding protein, alpha	NE, NP	Yes
46575942	Gabpb1	GA repeat binding protein, beta 1 isoform a	NE	Yes
6679951	Gata3	GATA binding protein 3	NP	Yes
87299617	Gtf2a2	general transcription factor II A, 2	NE	Yes
21312660	Gtf2e1	general transcription factor II E, polypeptide 1 (alpha subunit)	NE	Yes
268838784	Gtf2e2	general transcription factor II E, polypeptide 2 (beta subunit)	NE	Yes
188035919	Gtf2h1	general transcription factor II H, polypeptide 1	NE	Yes
6754094	Gtf2h4	general transcription factor II H, polypeptide 4	NE	Yes
125625345	Gtf2ird1	general transcription factor II I repeat domain-containing 1 isoform a	NP	Yes
20270031	Gtf2f1	general transcription factor IIF, polypeptide 1	NE	Yes
39930425	Gtf2f2	general transcription factor IIF, polypeptide 2	NE	Yes
31088894	Gtf2h3	general transcription factor IIH, polypeptide 3	NE	Yes
75677510	Gtf3c3	general transcription factor IIIC, polypeptide 3	NE, NP	Yes
90186273	Gli1	GLI family zinc finger 1	NE	No
113866026	Glis3	GLIS family zinc finger 3	NE	Yes
238637263	Grlh1	grainyhead-like 1 isoform 2	NE	No
6680201	Hdgfrp2	hepatoma-derived growth factor-related protein 2	NE, NP	Yes
270132746	Hbp1	high mobility group box transcription factor 1 isoform 1	NP	Yes
6754232	Hoxa5	homeo box A5	NE	Yes
160358780	Hoxb5	homeo box B5	NE	Yes
88014652	Hoxb7	homeo box B7	NP	No
21362265	Hoxb8	homeo box B8	NE	Yes
158508520	Hoxd4	homeo box D4	NE	Yes
154800435	Hoxc4	homeobox C4	NP	No
124107625	Hivep3	human immunodeficiency virus type I enhancer binding protein 3	NE, NP	No
70887767	Hic2	hypermethylated in cancer 2	NE, NP	Yes
94364689	LOC674913	hypothetical protein	NP	No
159110675	A630033E08Rik	hypothetical protein LOC240041 isoform b	NE	Yes
22122835	BC031441	hypothetical protein LOC240120	NP	No
141801938	D330038O06Rik	hypothetical protein LOC330788	NP	Yes
50284537	BC049807	hypothetical protein LOC381066	NE	Yes
142383655	BC066028	hypothetical protein LOC407812	NP	No
70778924	4930432O21Rik	hypothetical protein LOC74670	NP	Yes
31982165	Ikzf5	IKAROS family zinc finger 5	NP	Yes
19111152	Ing4	inhibitor of growth family, member 4	NE, NP	Yes
19111152	Ing4	inhibitor of growth family, member 4	NE, NP	Yes
21313552	Ing5	inhibitor of growth family, member 5	NP	Yes

21313552	Ing5	inhibitor of growth family, member 5	NP	Yes
162287051	Irf2	interferon regulatory factor 2	NE	Yes
114145467	Irf6	interferon regulatory factor 6	NE	Yes
13385872	Ilf2	interleukin enhancer binding factor 2	NE, NP	Yes
334724461	Jmjd1c	jumonji domain containing 1C	NE	Yes
226958545	Jarid1a	jumonji, AT rich interactive domain 1A (Rbp2 like) isoform 1	NE, NP	Yes
6754404	Jund	jun D proto-oncogene	NE	No
144922690	Klf16	Kruppel-like factor 16	NE	Yes
170784840	Klf2	Kruppel-like factor 2 (lung)	NE	Yes
19527168	Psp1	lens epithelium-derived growth factor	NE	Yes
258679524	Lrrrip2	leucine rich repeat (in FLII) interacting protein 2	NE	Yes
239937458	Lmo4	LIM domain only 4	NE	Yes
6678688	Lhx1	LIM homeobox protein 1	NE	Yes
6678688	Lhx1	LIM homeobox protein 1	NE	Yes
31543224	Smad4	MAD homolog 4	NE	Yes
57222238	Bud31	maternal G10 transcript	NE, NP	Yes
226051848	Max	Max protein isoform 1	NE	Yes
125628662	Med12	mediator complex subunit 12	NE	Yes
21450345	Med17	mediator complex subunit 17	NE	No
89363038	Mnat1	menage a trois 1	NE	Yes
295844817	Mitf	microphthalmia-associated transcription factor isoform 2	NE	No
85540473	Morf4l1	mortality factor 4 like 1 isoform b	NE	Yes
146134497	Mpnd	MPN domain containing	NE	Yes
6754740	Msc	musculin	NE, NP	No
114155153	Maz	MYC-associated zinc finger protein	NE	Yes
47271507	Mllt10	myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 10	NP	Yes
76253934	Mef2a	myocyte enhancer factor 2A	NE	Yes
21312790	Myst1	MYST histone acetyltransferase 1	NE	No
303521989	Myst2	MYST histone acetyltransferase 2	NE, NP	Yes
84579827	Gnptab	N-acetylglucosamine-1-phosphate transferase	NE, NP	Yes
6671587	Neurod4	neurogenic differentiation 4	NP	No
194440738	Nfe2l1	nuclear factor erythroid 2-like 1 isoform 1	NE	Yes
117606364	Nfkb1	nuclear factor kappa-B, subunit 1	NE, NP	Yes
270047510	Nfatc4	nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 4	NE	No
40254249	Nfrkb	nuclear factor related to kappaB binding protein	NE	Yes
118026944	Ncoa2	nuclear receptor coactivator 2 isoform a	NP	Yes
119226235	Ncor2	nuclear receptor co-repressor 2	NE	Yes
6671531	Nr0b1	nuclear receptor subfamily 0, group B, member 1	NE	No
170650696	Nr1h5	nuclear receptor subfamily 1, group H, member 5 isoform 2	NE	No
73611910	Nr2f2	nuclear receptor subfamily 2, group F, member 2 isoform 1	NE	Yes
112807199	Nr2f6	nuclear receptor subfamily 2, group F, member 6	NE	Yes
121247453	Nr3c1	nuclear receptor subfamily 3, group C, member 1	NP	Yes
6754216	Nr4a1	nuclear receptor subfamily 4, group A, member 1	NP	Yes
7657397	Nr4a3	nuclear receptor subfamily 4, group A, member 3	NE	No
161016831	Nfyb	nuclear transcription factor Y, alpha isoform b	NE	Yes
6754850	Nfyb	nuclear transcription factor-Y beta	NE	Yes
113205059	Ybx1	nuclease sensitive element binding protein 1	NE, NP	Yes
256574803	Ocel1	occludin/ELL domain containing 1	NP	No

9910472	Ovol1	OVO homolog-like 1	NE, NP	Yes
326537335	Pax2	paired box gene 2	NE	No
6754990	Pax8	paired box gene 8	NE	Yes
34368580	Pknox1	Pbx/knotted 1 homeobox	NE	Yes
284005509	Pwp1	periodic tryptophan protein 1 homolog	NE	Yes
164663880	Ppara	peroxisome proliferator activated receptor alpha	NP	No
255522851	Phf10	PHD finger protein 10	NE	Yes
198442868	Phf12	PHD finger protein 12	NE	Yes
270288744	Phf14	PHD finger protein 14	NE, NP	Yes
40556368	Phf16	PHD finger protein 16	NE	No
194328769	Phf17	PHD finger protein 17	NE, NP	Yes
20982845	Fus	pigpen	NE, NP	Yes
34610215	Plagl2	pleiomorphic adenoma gene-like 2	NP	Yes
160333703	Kdm5b	PLU1	NE, NP	Yes
37574111	Pcgf1	polycomb group ring finger 1	NE	No
28076973	Pcgf6	polycomb group ring finger 6	NE	Yes
31980927	Pqbp1	polyglutamine binding protein 1	NE, NP	Yes
13385826	Polr2g	polymerase (RNA) II (DNA directed) polypeptide G	NE, NP	Yes
6679567	Ptrf	polymerase I and transcript release factor	NE	Yes
172073164	Prdm1	PR domain containing 1, with ZNF domain	NE	No
34365779	Pbx1	pre B-cell leukemia transcription factor 1 isoform a	NE	Yes
7949105	Pbx3	pre B-cell leukemia transcription factor 3	NP	Yes
6679573	Pura	purine rich element binding protein A	NE, NP	Yes
6755252	Purb	purine rich element binding protein B	NE, NP	Yes
295424118	Rreb1	ras responsive element binding protein 1 isoform 1	NE	Yes
124286787	Rbpj	recombining binding protein suppressor of hairless isoform 1	NE	Yes
70980523	Rfxank	regulatory factor X-associated ankyrin-containing protein isoform 2	NE	No
37694072	Arid4b	retinoblastoma binding protein 1-like 1 isoform 1	NE	Yes
164450487	Rbbp5	retinoblastoma binding protein 5	NE	Yes
213417872	Rbl1	retinoblastoma-like protein 1 isoform 1	NE, NP	Yes
6755384	Rxra	retinoid X receptor alpha	NE	Yes
226958428	Ring1	ring finger protein 1	NE	Yes
33563274	Rnf2	ring finger protein 2	NE, NP	Yes
38348308	Rybp	RING1 and YY1 binding protein	NE	Yes
6755364	Sub1	RNA polymerase II transcriptional coactivator	NE, NP	Yes
225690526	Runx2	runt related transcription factor 2 isoform type II	NE, NP	No
9790083	Ruvbl1	RuvB-like protein 1	NE, NP	Yes
6755382	Ruvbl2	RuvB-like protein 2	NE, NP	Yes
153945866	Safb2	scaffold attachment factor B2	NE, NP	Yes
148540184	Srfbp1	serum response factor binding protein 1	NE, NP	Yes
30840984	Smyd2	SET and MYND domain containing 2	NE	Yes
309269554	EG666542	similar to EG210583 protein	NP	No
94379513	EG243866	similar to hCG1645909	NP	No
325995159	AI607873	similar to interferon activated gene 204	NP	No
309271358	EG278181	similar to KIAA0026	NE, NP	No
256542283	4930403N07Rik	similar to LOC500668 protein	NE	No
83029991	EG625558	similar to novel KRAB box containing protein	NE	No
254939609	B230315N10Rik	similar to RIKEN cDNA B230315N10 gene isoform 1	NE	No
254028159	Safb	similar to Scaffold attachment factor B (Scaffold attachment factor B1) (SAF-B) isoform 18	NE, NP	Yes
27261820	Snapc4	small nuclear RNA activating complex, polypeptide 4	NP	No
20982839	Satb2	special AT-rich sequence binding protein 2	NE	Yes

20982839	Satb2	special AT-rich sequence binding protein 2	NE	Yes
160707947	Sf1	splicing factor 1 isoform 2	NE, NP	Yes
6755650	Spry1	sprouty homolog 1	NE	Yes
77404392	Snd1	staphylococcal nuclease domain containing 1	NE	Yes
209862973	Ssrp1	structure specific recognition protein 1 isoform 1	NE, NP	Yes
209862973	Ssrp1	structure specific recognition protein 1 isoform 1	NE, NP	Yes
154350222	Supt16h	suppressor of Ty 16 homolog	NE, NP	Yes
6678181	Supt4h1	suppressor of Ty 4 homolog 1	NE	Yes
22094123	Supt5h	suppressor of Ty 5 homolog	NE, NP	Yes
166091434	Supt6h	suppressor of Ty 6 homolog	NE, NP	Yes
30794412	Taf15	TAF15 RNA polymerase II, TATA box binding protein (TBP)-associated factor	NE, NP	Yes
6678215	Taf6	TAF6 RNA polymerase II, TATA box binding protein (TBP)-associated factor	NE	Yes
295317365	Taf6l	TAF6-like RNA polymerase II, p300/CBP-associated factor (PCAF)-associated factor	NE	Yes
62821772	Taf9	TAF9 RNA polymerase II, TATA box binding protein-associated factor isoform 1	NE	Yes
269784727	Taf9b	TAF9-like RNA polymerase II, TATA box binding protein (TBP)-associated factor	NE	No
20270192	Taf13	TATA box-binding protein-associated factor, RNA polymerase II, K, 18kD	NE	Yes
14030783	Tbx19	T-box 19	NP	No
156938285	Tbx4	T-box 4 isoform a	NE	No
110665722	Taf5	Tbp-associated factor 5	NE	Yes
225735589	Tdpoz1	TD and POZ domain containing 1	NE	No
6678275	Tead1	TEA domain family member 1	NE	No
7106433	Tead2	TEA domain family member 2	NE	Yes
196049389	Tead3	TEA domain family member 3 isoform 2	NE	Yes
19526976	Dnttip1	terminal deoxynucleotidyltransferase interacting factor 1	NE	Yes
68533246	Thrap3	thyroid hormone receptor associated protein 3	NE, NP	Yes
119226255	Sp1	trans-acting transcription factor 1	NE	Yes
119226255	Sp1	trans-acting transcription factor 1	NE	Yes
229094714	Tcea1	transcription elongation factor A (SII) 1 isoform 2	NE	Yes
6678235	Tcea2	transcription elongation factor A protein 2	NE	No
13385800	Tceb2	transcription elongation factor B (SIII), polypeptide 2	NE	Yes
87196334	Tcerg1	transcription elongation regulator 1	NE	Yes
166295206	Tcf12	transcription factor 12	NE	Yes
111185898	Tcf15	transcription factor 15	NE	No
70609885	Tcfap2b	transcription factor AP-2 beta isoform 1	NE, NP	No
171846238	Tcfap2a	transcription factor AP-2, alpha isoform a	NE, NP	Yes
23346597	Tcfap2d	transcription factor AP-2, delta	NE	No
120444920	Tcfap2e	transcription factor AP-2, epsilon	NE, NP	No
228008354	Tcfap2c	transcription factor AP-2, gamma isoform 1	NE	No
13626034	Tcfap4	transcription factor AP4	NE	Yes
15628025	Tcfcp2	transcription factor CP2	NE	Yes
46810275	Grhl2	transcription factor CP2-like 3	NE	Yes
157384992	Tcf3	transcription factor E3 isoform a	NE	Yes
295789156	Prdm16	transcription factor MEL1	NE, NP	No
70608137	Brf1	transcription initiation factor IIIB	NP	Yes
134053939	Tcfcp2l1	transcription repressor CRTR-1	NE	Yes
76253678	Med27	transcriptional co-activator CRSP8 homolog	NE	No
160333360	Sin3a	transcriptional regulator, SIN3A isoform 1	NE, NP	Yes
160333077	Trp53bp1	transformation related protein 53 binding protein 1	NE, NP	Yes



187960040	Trp53	transformation related protein 53 isoform a	NE	Yes
170295840	Trim28	tripartite motif protein 28	NE, NP	Yes
119637830	Trim33	tripartite motif protein 33 isoform 1	NE, NP	Yes
94420998	Trim24	tripartite motif-containing 24	NP	Yes
162287241	Uhrf1	ubiquitin-like with PHD and ring finger domains 1 isoform A	NE	Yes
134032032	Ubp1	upstream binding protein 1 isoform b	NE	Yes
113205057	Ubtf	upstream binding transcription factor, RNA polymerase I isoform 1	NE, NP	Yes
21450209	Utp6	UTP6, small subunit (SSU) processome component, homolog	NE, NP	Yes
117414176	Vezf1	vascular endothelial zinc finger 1	NE	Yes
6755957	Vax2	ventral anterior homeobox containing gene 2	NE	No
6754608	Maff	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein F	NE	Yes
6754610	Mafg	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein G	NE	Yes
6754612	Mafk	v-maf musculoaponeurotic fibrosarcoma oncogene family, protein K	NE, NP	Yes
46402183	Wtip	WT1-interacting protein	NE	Yes
13385660	Xab2	XPA binding protein 2	NE, NP	Yes
117956377	Ybx2	Y box protein 2	NE, NP	No
40254385	Yaf2	YY1 associated factor 2	NE, NP	Yes
31982421	Yy1	YY1 transcription factor	NE	Yes
29244006	Zfp595	zinc finger protein 595	NE	No
30520189	Zbtb1	zinc finger and BTB domain containing 1	NP	Yes
171919772	Zbtb17	zinc finger and BTB domain containing 17	NE	No
226423893	Zbtb2	zinc finger and BTB domain containing 2	NE	Yes
257196201	Zbtb20	zinc finger and BTB domain containing 20	NE, NP	Yes
85701534	Zbtb45	zinc finger and BTB domain containing 45	NE	No
117647238	Zbtb7a	zinc finger and BTB domain containing 7	NE	No
109627663	Zhx1	zinc finger and homeodomain protein 1	NE	Yes
109627663	Zhx1	zinc finger and homeodomain protein 1	NE	Yes
153791380	Zscan10	zinc finger and SCAN domains 10	NE	No
115270986	Zc3h11a	zinc finger CCCH type containing 11A	NE, NP	Yes
125656178	Zfhx4	zinc finger homeodomain 4	NP	No
13195658	Zfp1	zinc finger like protein 1	NE, NP	Yes
27777687	Zfp13	zinc finger protein 13	NP	No
121247390	Zfp143	zinc finger protein 143	NE	Yes
6756049	Zfp148	zinc finger protein 148	NE	Yes
47059078	Zfp191	zinc finger protein 191	NP	Yes
225007600	Zfp212	Zinc finger protein 212 isoform 1	NE	Yes
225543502	Zfp219	zinc finger protein 219	NE, NP	Yes
158749569	Zfp280b	zinc finger protein 280b	NE	No
56118256	Zfp324	zinc finger protein 324	NE	No
6754396	Zfp346	zinc finger protein 346	NE	Yes
238859639	Zfp352	zinc finger protein 352	NP	No
113865966	Zfp397	zinc finger protein 397	NP	Yes
124339857	Zfp418	zinc finger protein 418	NE	No
28076891	Zfp422	zinc finger protein 422	NP	Yes
46359077	Zfp423	zinc finger protein 423	NE	No
257467538	Zfp438	zinc finger protein 438	NP	No
29789329	Zfp451	zinc finger protein 451	NP	Yes
123702020	Zfp456	zinc finger protein 456	NE	No

114431238	Zfp462	zinc finger protein 462	NE	No
254553392	Zfp512	zinc finger protein 512	NE, NP	Yes
294489298	Zfp516	zinc finger protein 516	NE, NP	No
46402263	Zfp532	zinc finger protein 532	NE	No
160333308	Zfp619	zinc finger protein 619	NP	No
28893273	Zfp629	zinc finger protein 629	NE	Yes
30424631	Zfp641	zinc finger protein 641	NP	No
46358380	Zfp646	zinc finger protein 646	NE	No
27229259	Zfp687	zinc finger protein 687	NE	Yes
225543087	Zfp691	zinc finger protein 691	NE	No
100817090	Zfp692	zinc finger protein 692	NP	Yes
18875370	Zfp704	zinc finger protein 704	NE, NP	No
123173818	Zfp715	zinc finger protein 715	NP	Yes
119226195	Zfp759	zinc finger protein 759	NE, NP	No
29789173	Zfp788	zinc finger protein 788	NE	No
22165394	Zfp87	zinc finger protein 87	NP	No
140969612	Zfp871	zinc finger protein 871	NE	Yes
21704232	Zfp810	zinc finger protein ZFP	NP	Yes
122114637	lkzf4	zinc finger protein, subfamily 1A, 4	NP	No
194473741	Zkscan17	zinc finger with KRAB and SCAN domains 17 isoform 1	NE	Yes
224809352	Zkscan3	zinc finger with KRAB and SCAN domains 3	NE	Yes
58037197	Znhit1	zinc finger, HIT domain containing 1	NE	Yes
13385046	Zmat2	zinc finger, matrin type 2	NP	Yes
28893005	Zmat4	zinc finger, matrin type 4	NE	No
91064878	Zmynd8	zinc finger, MYND-type containing 8	NE, NP	Yes
74315981	Zranb2	zinc finger, RAN-binding domain containing 2	NE	Yes
40254321	Zhx3	zinc fingers and homeoboxes 3	NE	Yes
40254321	Zhx3	zinc fingers and homeoboxes 3	NE	Yes
40789094	Zhx2	zinc fingers and homeoboxes protein 2	NE	Yes
40789094	Zhx2	zinc fingers and homeoboxes protein 2	NE	Yes

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GI Accession No.	Gene Symbol	Protein Name	Location	Transcriptome match
160358785	Acvr2a	activin A receptor, type IIA precursor	NP	Yes
190883484	Akt3	AKT3 kinase	NE	Yes
163838660	Atm	ataxia telangiectasia mutated	NE	Yes
18129622	Bmp2k	BMP2 inducible kinase	NP	Yes
6680802	Bmpr1b	bone morphogenetic protein receptor, type IB	NP	No
6753164	Bckdk	branched chain ketoacid dehydrogenase kinase	NE	Yes
162951870	Abl1	c-abl oncogene 1, receptor tyrosine kinase isoform b	NE	Yes
85362742	Camk2g	calcium/calmodulin-dependent protein kinase II gamma isoform 2	NE	Yes
70906479	Camk2d	calcium/calmodulin-dependent protein kinase II, delta isoform 3	NE	Yes
21703722	Camkk2	calcium/calmodulin-dependent protein kinase kinase 2, beta	NE, NP	Yes
133504495	Cask	calcium/calmodulin-dependent serine protein kinase	NP	Yes
31542425	Csnk1e	casein kinase 1 epsilon	NE	Yes
22165382	Csnk1a1	casein kinase 1, alpha 1	NE, NP	Yes
20544149	Csnk1d	casein kinase 1, delta isoform 2	NE, NP	Yes
113462019	Csnk1g3	casein kinase 1, gamma 3	NE	Yes
31542427	Csnk2a1	casein kinase 2, alpha 1 polypeptide	NE	Yes
6753540	Csnk2a2	casein kinase 2, alpha prime polypeptide	NE	Yes
283135190	Cdc42bpb	CDC42 binding protein kinase beta	NE, NP	Yes
111038135	Clk1	CDC-like kinase 1 isoform 2	NP	Yes
254540152	Clk2	CDC-like kinase 2 isoform 1	NP	Yes
83745112	Clk3	CDC-like kinase 3	NE	Yes
31542366	Cdc2a	cell division cycle 2	NE	Yes
126723423	Csf1r	colony stimulating factor 1 receptor	NE	Yes
6753380	Cdk4	cyclin-dependent kinase 4	NE	Yes
6680908	Cdk5	cyclin-dependent kinase 5	NP	Yes
160333726	Cdk7	cyclin-dependent kinase 7	NE	Yes
31652272	Cdk8	cyclin-dependent kinase 8	NE	Yes
18699998	Cdk9	cyclin-dependent kinase 9	NP	Yes
238776837	Dclk3	doublecortin-like kinase 3	NP	No
67846105	Dyrk2	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 2	NP	Yes
111185951	Tek	endothelial-specific receptor tyrosine kinase	NP	No
47777351	Ephb2	Eph receptor B2	NP	Yes
226437671	Ephb6	Eph receptor B6	NP	No
6681275	Eef2k	eukaryotic elongation factor-2 kinase	NP	Yes
166851838	Eif2ak4	eukaryotic translation initiation factor 2 alpha kinase 4	NP	No
6755160	Eif2ak2	eukaryotic translation initiation factor 2-alpha kinase 2	NE	Yes
85861160	Fastk	Fas-activated serine/threonine kinase	NP	No
122937353	Flt3	FMS-like tyrosine kinase 3	NP	No
6679813	Flt4	fms-related tyrosine kinase 4	NE	No
9790077	Gsk3b	glycogen synthase kinase 3 beta	NE	Yes
161333817	Hipk4	homeodomain interacting protein kinase 4	NP	No
309269577	EG626858	hypothetical protein /Sperm motility kinase W	NP	No
309263699	Gm318	hypothetical protein /Sperm motility kinase W	NE	No
240255653	Ilk	integrin-linked kinase	NE	Yes
255522773	Ick	intestinal cell kinase	NP	No
114326480	Jak2	Janus kinase 2	NP	Yes
27777648	Kdr	kinase insert domain protein receptor	NE	No
77404365	Limk2	LIM motif-containing protein kinase 2 isoform b	NE	Yes
122937363	Mark2	MAP/microtubule affinity-regulating kinase 2 isoform 1	NE, NP	Yes
251823812	Mark3	MAP/microtubule affinity-regulating kinase 3 isoform 2	NE	Yes
21489933	Mapk3	mitogen activated protein kinase 3	NP	Yes

89257354	Map3k2	mitogen activated protein kinase kinase kinase 2	NE	Yes
84579909	Mapk1	mitogen-activated protein kinase 1	NE	Yes
226246627	Mapk13	mitogen-activated protein kinase 13	NE	Yes
6754624	Map2k5	mitogen-activated protein kinase kinase 5	NP	Yes
171846249	Map3k5	mitogen-activated protein kinase kinase kinase 5	NE	Yes
77736537	Map4k5	mitogen-activated protein kinase kinase kinase kinase 5	NE	Yes
126157499	Mylk	myosin, light polypeptide kinase	NE, NP	Yes
225543267	Nrk	Nik related kinase	NE, NP	No
304766813	Nek10	NIMA-related kinase 10	NE	No
31559852	Nek5	NIMA-related kinase 5	NE, NP	No
29336032	Pak4	p21-activated kinase 4	NE	Yes
224994209	Pak6	p21-activated kinase 6	NP	Yes
6679233	Pctk3	PCTAIRE protein kinase 3	NE, NP	Yes
7242173	Pctk1	PCTAIRE-motif protein kinase 1	NP	Yes
65508357	Plk5	polo-like kinase 5	NE	No
6755082	Prkcd	protein kinase C, delta	NP	Yes
6755080	Prkcc	protein kinase C, gamma	NP	No
133778989	Prkci	protein kinase C, iota	NE	Yes
6679353	Prkcq	protein kinase C, theta	NE	No
284005389	Prkd3	protein kinase D3	NE	No
94681061	Prkaa1	protein kinase, AMP-activated, alpha 1 catalytic subunit	NP	Yes
7110693	Prkaca	protein kinase, cAMP dependent, catalytic, alpha	NE	Yes
124517706	Prkdc	protein kinase, DNA-activated, catalytic polypeptide	NE, NP	Yes
110625699	Pkmyt1	protein kinase, membrane associated tyrosine/threonine 1	NP	Yes
171543841	Fyn	protein-tyrosine kinase fyn isoform b	NE, NP	No
158854005	Prpf4b	PRP4 pre-mRNA processing factor 4 homolog B	NE, NP	Yes
126215545	Pink1	PTEN induced putative kinase 1	NE	No
6677971	Ptk6	PTK6 protein tyrosine kinase 6	NP	No
72535128	Pxk	PX domain containing serine/threonine kinase short isoform	NE	Yes
110625975	Pdk1	pyruvate dehydrogenase kinase 1	NE	Yes
21704122	Pdk3	pyruvate dehydrogenase kinase 3	NE	Yes
7305375	Pdk4	pyruvate dehydrogenase kinase, isoenzyme 4	NE	No
124256487	Ret	ret proto-oncogene isoform a	NP	No
134949013	Rock2	Rho-associated coiled-coil forming kinase 2	NE	Yes
6677759	Rock1	Rho-associated, coiled-coil containing protein kinase 1	NP	Yes
9910454	Rps6ka4	ribosomal protein S6 kinase, polypeptide 4	NP	Yes
70794811	Src	Rous sarcoma oncogene isoform 1	NE, NP	Yes
31982726	Srpk1	serine/arginine-rich protein specific kinase 1	NE	Yes
9790111	Srpk3	serine/arginine-rich protein specific kinase 3	NP	No
226958539	Stk16	serine/threonine kinase 16	NP	Yes
89337277	Stk25	serine/threonine kinase 25	NE	Yes
27370078	Stk38l	serine/threonine kinase 38 like	NP	Yes
160333312	Qsk	serine/threonine-protein kinase QSK	NP	Yes
257796265	Sgk1	serum/glucocorticoid regulated kinase 1 isoform e	NE	No
254675181	Alpk2	similar to heart alpha-kinase isoform 1	NE	No
254692972	Cdc42bpa	similar to mytonic dystrophy kinase-related Cdc42-binding kinase isoform 12	NP	Yes
257196125	Snrk	SNF related kinase	NE	Yes
291042652	Speg	SPEG complex locus isoform 1	NE, NP	No
225543141	Tesk2	testis-specific kinase 2	NE	No
71067122	Vrk1	vaccinia related kinase 1 isoform a	NE	Yes
19527166	Vrk3	vaccinia related kinase 3	NE, NP	Yes
227496776	Araf	v-raf murine sarcoma 3611 viral oncogene homolog isoform 1	NE, NP	Yes
171846235	Wee2	WEE1 homolog 2	NE	No

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GI Accession No.	Gene Symbol	Protein Name	Location	Transcriptome match
29150253	Acp2	acid phosphatase 2, lysosomal	NE	Yes
13384810	Acyp1	acylphosphatase 1	NE	Yes
110347479	Akp3	alkaline phosphatase 3, intestine, not Mn requiring	NE	No
8394027	Ppp2r1a	alpha isoform of regulatory subunit A, protein phosphatase 2	NE, NP	Yes
12025542	Asna1	arsA arsenite transporter, ATP-binding, homolog 1	NP	Yes
9790225	1500003O03Rik	calcium binding protein P22	NE, NP	Yes
92373436	Cdc25a	cell division cycle 25A	NP	Yes
161621261	Cdc25b	cell division cycle 25B isoform a	NP	Yes
227497222	Dut	deoxyuridine triphosphatase isoform 2	NE	Yes
255683318	Entpd3	ectonucleoside triphosphate diphosphohydrolase 3	NE	No
309262519	LOC631217	hypothetical protein	NE	No
39930415	Ilkap	integrin-linked kinase-associated serine/threonine phosphatase 2C	NE	Yes
224994246	Mttr11	myotubularin related protein 11	NP	Yes
33563378	Mttr9	myotubularin related protein 9	NP	Yes
13384950	Nudt8	nudix-type motif 8	NE	Yes
110431341	Ppap2c	phosphatidic acid phosphatase type 2c	NP	Yes
118601009	Pnkp	polynucleotide kinase &apos; phosphatase	NE	Yes
13994195	Ppp1ca	protein phosphatase 1, catalytic subunit, alpha	NE, NP	Yes
161484668	Ppp1cb	protein phosphatase 1, catalytic subunit, beta isoform	NE, NP	Yes
31980772	Ppp1cc	protein phosphatase 1, catalytic subunit, gamma isoform	NE	Yes
6679443	Ppm1a	protein phosphatase 1A, magnesium dependent, alpha isoform	NP	Yes
9506983	Ppp2ca	protein phosphatase 2a, catalytic subunit, alpha isoform	NE, NP	Yes
45592930	Ppp3cb	protein phosphatase 3, catalytic subunit, beta	NP	Yes
9790175	Ppp4c	protein phosphatase 4, catalytic subunit	NP	Yes
21312758	Ppp6c	protein phosphatase 6, catalytic subunit	NP	Yes
6755226	Ptp4a1	protein tyrosine phosphatase 4a1	NE	Yes
258613926	Ptp4a2	protein tyrosine phosphatase 4a2	NE	Yes
23956130	Ptpmt1	protein tyrosine phosphatase, mitochondrial 1	NE, NP	Yes
134948762	Ptpn13	protein tyrosine phosphatase, non-receptor type 13	NP	Yes
110825986	Ptpn14	protein tyrosine phosphatase, non-receptor type 14	NE, NP	Yes
118130785	Ptpn6	protein tyrosine phosphatase, non-receptor type 6 isoform b	NE	Yes
149249895	LOC668629	similar to PTPRJ	NE	No

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List of all proteins identified in our SILAC study. \* depicts p<.05; # depicts changes greater than 2\*SD/3<sup>0.5</sup> from 0

GI Accession No.	Gene Symbol	Protein Name	Nuclear extract				average log2(treated/ control)	Nuclear pellet				average log2(treated/ control)
			peptide count					peptide count				
			1	2	3	total	1	2	3	total		
6753164	Bckdk	[3-methyl-2-oxobutanoate dehydrogenase [lipoamide]] kinase, mitochondrial precursor	4	11	1	16	-0.05	0	0	1	1	0.15
6680309	Hspe1	10 kDa heat shock protein, mitochondrial	7	3	5	15	-0.16	2	1	0	3	-0.06
6755594	Eftud2	116 kDa U5 small nuclear ribonucleoprotein component isoform a	91	113	127	331	0.00	310	414	430	1154	0.00
58037409	Phpt1	14 kDa phosphohistidine phosphatase	0	0	0	0		0	0	2	2	-0.17
31543974	Ywhab	14-3-3 protein beta/alpha	16	14	19	49	-0.03	33	35	57	125	-0.12
226874906	Ywhae	14-3-3 protein epsilon	23	27	23	73	-0.08	66	44	79	189	-0.07
6756037	Ywhah	14-3-3 protein eta	16	15	15	46	-0.04	12	27	38	77	-0.09
31543976	Ywhag	14-3-3 protein gamma	13	13	18	44	0.00	19	28	48	95	-0.15
134023662	Sfn	14-3-3 protein sigma	0	0	0	0		0	0	15	15	0.16
309262630	LOC100503129	14-3-3 protein theta-like	17	14	23	54	-0.10	24	30	83	137	-0.07
309263398	Gm2423	14-3-3 protein theta-like	6	4	20	30	-0.12	20	14	52	86	-0.24
6756041	Ywhaz	14-3-3 protein zeta/delta	24	23	30	77	-0.05	142	77	170	389	-0.05
16716395	Sep15	15 kDa selenoprotein precursor	11	2	4	17	-0.30 *	1	0	2	3	0.10
124486923	Tnks1bp1	182 kDa tankyrase-1-binding protein	1	6	1	8	-0.59 #	0	0	0	0	
254281341	Agpat1	1-acyl-sn-glycerol-3-phosphate acyltransferase alpha isoform 1	1	1	0	2	-0.31	0	0	0	0	
23956162	Agpat2	1-acyl-sn-glycerol-3-phosphate acyltransferase beta	10	1	4	15	-0.43	0	0	0	0	
27229064	Agpat4	1-acyl-sn-glycerol-3-phosphate acyltransferase delta	1	0	0	1	0.03	0	0	0	0	
27229278	Agpat3	1-acyl-sn-glycerol-3-phosphate acyltransferase gamma	1	0	2	3	-0.57	1	1	2	4	-0.36
31982122	Plcb3	1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase beta-3	42	59	53	154	-0.02	0	8	6	14	0.07
26986603	Plcg2	1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase gamma-2	0	0	0	0		0	0	1	1	-4.02 #
226423909	Cnp	2',3'-cyclic-nucleotide 3'-phosphodiesterase isoform 1	0	1	5	6	1.37 #	0	3	9	12	-0.10
9256529	Cyp39a1	24-hydroxycholesterol 7-alpha-hydroxylase	1	0	0	1	0.27	0	0	0	0	
281332108	Oas1a	2'-5'-oligoadenylate synthase 1A	0	0	0	0		0	1	1	2	-0.22
27754103	Psmc6	26S protease regulatory subunit 10B	0	1	1	2	-1.36 #	0	0	1	1	-0.55 #
6679501	Psmc1	26S protease regulatory subunit 4	0	0	1	1	0.64 #	0	0	0	0	
228008337	Psmc3	26S protease regulatory subunit 6A	0	1	0	1	0.70 #	0	0	3	3	0.03
124248577	Psmc4	26S protease regulatory subunit 6B	0	0	0	0		0	0	1	1	-0.36
33859604	Psmc2	26S protease regulatory subunit 7	0	0	0	0		0	1	4	5	0.03
7110703	Psmc5	26S protease regulatory subunit 8	0	1	1	2	0.22	1	2	16	19	0.06
74315975	Psmd1	26S proteasome non-ATPase regulatory subunit 1	0	0	0	0		0	0	2	2	0.03
134053905	Psmd11	26S proteasome non-ATPase regulatory subunit 11	1	0	2	3	0.03	0	0	7	7	-0.09
13385384	Psmd12	26S proteasome non-ATPase regulatory subunit 12	0	0	1	1	0.05	0	2	5	7	-0.34
6755210	Psmd13	26S proteasome non-ATPase regulatory subunit 13	0	0	0	0		0	0	1	1	0.13
145966883	Psmd14	26S proteasome non-ATPase regulatory subunit 14	0	0	0	0		0	0	1	1	0.01
19882201	Psmd2	26S proteasome non-ATPase regulatory subunit 2	0	0	0	0		0	0	5	5	-0.16

19705424	Psmd3	26S proteasome non-ATPase regulatory subunit 3	2	0	0	2	0.11	0	1	2	3	-0.31
134053913	Psmd5	26S proteasome non-ATPase regulatory subunit 5	0	0	0	0		0	0	14	14	-0.03
46049022	Psmd6	26S proteasome non-ATPase regulatory subunit 6	0	0	1	1	0.21	0	4	4	8	-0.23
6754724	Psmd7	26S proteasome non-ATPase regulatory subunit 7	1	0	0	1	0.47	0	1	3	4	-0.50 #
156713423	Psmd8	26S proteasome non-ATPase regulatory subunit 8	1	0	0	1	-0.14	0	0	0	0	
84781781	Pdap1	28 kDa heat- and acid-stable phosphoprotein	27	27	20	74	-0.02	0	7	8	15	0.20
226246598	Mrps10	28S ribosomal protein S10, mitochondrial isoform 3	7	2	3	12	-0.06	0	0	0	0	
170650663	Mrps11	28S ribosomal protein S11, mitochondrial precursor	0	3	1	4	-0.15	0	0	0	0	
13384894	Mrps14	28S ribosomal protein S14, mitochondrial	3	0	2	5	-0.22 *	0	0	0	0	
48526512	Mrps15	28S ribosomal protein S15, mitochondrial precursor	0	1	0	1	-0.03	0	0	0	0	
13384854	Mrps17	28S ribosomal protein S17, mitochondrial precursor	2	2	1	5	-0.13	0	0	0	0	
17505206	Mrps18a	28S ribosomal protein S18a, mitochondrial precursor	0	1	0	1	-0.16	0	0	0	0	
58037129	Mrps18c	28S ribosomal protein S18c, mitochondrial precursor	1	0	0	1	-1.73 #	0	0	0	0	
260593696	Mrps2	28S ribosomal protein S2, mitochondrial isoform 1	4	2	4	10	-0.10	0	0	0	0	
17505220	Mrps21	28S ribosomal protein S21, mitochondrial	5	1	2	8	-0.15	1	1	0	2	-0.08
13384904	Mrps22	28S ribosomal protein S22, mitochondrial	3	2	2	7	-0.30 *	0	0	2	2	-0.04
27228982	Mrps23	28S ribosomal protein S23, mitochondrial	5	2	2	9	0.18	0	1	1	2	-0.38
13385578	Mrps24	28S ribosomal protein S24, mitochondrial precursor	2	0	0	2	-0.30	0	0	0	0	
31981257	Mrps25	28S ribosomal protein S25, mitochondrial	5	3	2	10	-0.23 *	0	2	1	3	-0.32
46402169	Mrps26	28S ribosomal protein S26, mitochondrial precursor	4	4	3	11	-0.06	0	1	4	5	-0.07
50980303	Mrps27	28S ribosomal protein S27, mitochondrial	4	1	1	6	-0.19	0	1	0	1	-0.85 #
254587936	Mrps28	28S ribosomal protein S28, mitochondrial	3	3	0	6	-0.06	0	0	0	0	
256985205	Dap3	28S ribosomal protein S29, mitochondrial isoform 1	2	0	0	2	0.00	0	1	2	3	-0.24
256985203	Dap3	28S ribosomal protein S29, mitochondrial isoform 2	0	5	5	10	-0.11	0	0	0	0	
29789128	Mrps30	28S ribosomal protein S30, mitochondrial	2	2	6	10	-0.37	0	1	0	1	-0.37
10181116	Mrps31	28S ribosomal protein S31, mitochondrial precursor	3	1	0	4	0.11	0	0	0	0	
33859564	Mrps33	28S ribosomal protein S33, mitochondrial isoform 1	3	1	1	5	1.19 #	0	0	0	0	
13385670	Mrps34	28S ribosomal protein S34, mitochondrial	4	3	4	11	-0.11	0	0	0	0	
148235701	Mrps35	28S ribosomal protein S35, mitochondrial precursor	3	2	2	7	-0.08	0	0	0	0	
17157985	Mrps5	28S ribosomal protein S5, mitochondrial	0	0	0	0		0	0	1	1	0.23
23956244	Mrps6	28S ribosomal protein S6, mitochondrial	1	2	2	5	-0.02	0	0	0	0	
30794474	Mrps7	28S ribosomal protein S7, mitochondrial precursor	6	5	5	16	-0.15	0	3	3	6	0.02
169790909	Mrps9	28S ribosomal protein S9, mitochondrial precursor	5	2	4	11	-0.20	0	4	4	8	-0.16
240120117	Gcat	2-amino-3-ketobutyrate coenzyme A ligase, mitochondrial isoform a	4	0	0	4	-0.31	0	0	0	0	
240120119	Gcat	2-amino-3-ketobutyrate coenzyme A ligase, mitochondrial isoform b	0	0	1	1	-0.24	0	0	0	0	

31543926	Ugt8a	2-hydroxyacylsphingosine 1-beta-galactosyltransferase precursor	1	1	0	2	-0.13		0	0	0	0	
85861164	Ogdh	2-oxoglutarate dehydrogenase, mitochondrial precursor	8	2	4	14	-0.32		9	1	5	15	-0.19
183396774	Bckdha	2-oxoisovalerate dehydrogenase subunit alpha, mitochondrial	0	0	2	2	0.06		0	0	0	0	
40353220	Bckdhb	2-oxoisovalerate dehydrogenase subunit beta, mitochondrial	0	1	0	1	0.28		0	0	0	0	
31981810	Eci1	3,2-trans-enoyl-CoA isomerase, mitochondrial precursor	29	15	17	61	-0.28 *		0	3	3	6	-0.03
22267446	Exosc1	3'-5' exoribonuclease CSL4 homolog isoform 1	11	17	10	38	-0.01		0	0	6	6	0.10
257096005	Exosc1	3'-5' exoribonuclease CSL4 homolog isoform 2	0	0	0	0			0	3	0	3	-0.08
84875528	Mrpl1	39S ribosomal protein L1, mitochondrial isoform 1	0	6	6	12	-0.15		0	0	0	0	
84875532	Mrpl1	39S ribosomal protein L1, mitochondrial isoform 2	0	0	0	0			0	0	1	1	0.00
13385658	Mrpl10	39S ribosomal protein L10, mitochondrial precursor	12	11	10	33	-0.24		0	2	0	2	-0.33
13384980	Mrpl11	39S ribosomal protein L11, mitochondrial precursor	7	7	7	21	-0.16 *		0	0	1	1	-0.52 #
22164792	Mrpl12	39S ribosomal protein L12, mitochondrial precursor	13	18	11	42	-0.16		0	3	4	7	-0.05
21312936	Mrpl13	39S ribosomal protein L13, mitochondrial	3	4	1	8	-0.08		0	2	0	2	-0.18
21312028	Mrpl14	39S ribosomal protein L14, mitochondrial precursor	7	1	3	11	-0.08		1	0	0	1	0.06
295054166	Mrpl15	39S ribosomal protein L15, mitochondrial isoform 1 precursor	0	0	0	0			0	0	2	2	-0.50 #
33468983	Mrpl15	39S ribosomal protein L15, mitochondrial isoform 2 precursor	2	2	4	8	-0.91 #		0	0	0	0	
19424352	Mrpl16	39S ribosomal protein L16, mitochondrial precursor	0	0	0	0			0	3	0	3	-0.16
13384658	Mrpl17	39S ribosomal protein L17, mitochondrial precursor	1	1	0	2	-0.08		0	0	0	0	
13385808	Mrpl18	39S ribosomal protein L18, mitochondrial precursor	3	7	4	14	-0.07		0	0	1	1	1.08 #
13385976	Mrpl19	39S ribosomal protein L19, mitochondrial precursor	2	4	1	7	-0.22		0	0	1	1	0.08
13384660	Mrpl2	39S ribosomal protein L2, mitochondrial precursor	1	2	2	5	-0.11		0	1	1	2	-0.21
20270194	Mrpl20	39S ribosomal protein L20, mitochondrial precursor	3	3	4	10	0.03		0	0	0	0	
31982032	Mrpl21	39S ribosomal protein L21, mitochondrial	3	3	6	12	-0.25		0	1	2	3	-0.28
262263310	Mrpl22	39S ribosomal protein L22, mitochondrial precursor	10	7	8	25	-0.21		0	0	0	0	
6755352	Mrpl23	39S ribosomal protein L23, mitochondrial	3	6	6	15	-0.23		0	2	2	4	-0.33
153792729	Mrpl24	39S ribosomal protein L24, mitochondrial precursor	4	5	4	13	-0.19		0	1	0	1	-0.67 #
16716447	Mrpl27	39S ribosomal protein L27, mitochondrial	3	0	2	5	-0.02		0	0	0	0	
26787989	Mrpl28	39S ribosomal protein L28, mitochondrial precursor	1	4	1	6	-0.14		0	0	0	0	
31981470	Mrpl3	39S ribosomal protein L3, mitochondrial	2	2	2	6	-0.16 *		0	0	1	1	0.35
21312302	Mrpl30	39S ribosomal protein L30, mitochondrial precursor	3	5	3	11	-0.23		0	0	0	0	
21312948	Mrpl32	39S ribosomal protein L32, mitochondrial precursor	4	0	2	6	-0.29		0	0	0	0	
269784741	Mrpl33	39S ribosomal protein L33, mitochondrial	1	1	0	2	-0.08		0	0	0	0	
16716449	Mrpl34	39S ribosomal protein L34, mitochondrial precursor	1	0	1	2	-0.53		0	0	0	0	



22128625	Mrpl37	39S ribosomal protein L37, mitochondrial precursor	2	2	4	8	-0.06	0	0	0	0	
124430535	Mrpl38	39S ribosomal protein L38, mitochondrial precursor	0	0	3	3	-0.28	0	0	0	0	
31560438	Mrpl39	39S ribosomal protein L39, mitochondrial	4	3	3	10	-0.18	0	0	1	1	0.22
119508437	Mrpl4	39S ribosomal protein L4, mitochondrial	7	7	7	21	-0.16	0	0	0	0	
255003746	Mrpl40	39S ribosomal protein L40, mitochondrial precursor	7	8	5	20	-0.20 *	0	2	2	4	0.23
113461980	Mrpl41	39S ribosomal protein L41, mitochondrial precursor	8	3	6	17	-0.12	0	0	0	0	
13385564	Mrpl42	39S ribosomal protein L42, mitochondrial precursor	1	0	3	4	-0.13	0	0	0	0	
17298676	Mrpl43	39S ribosomal protein L43, mitochondrial	1	1	1	3	-1.43 #	0	0	0	0	
124487075	Mrpl44	39S ribosomal protein L44, mitochondrial precursor	1	2	4	7	1.04 #	1	0	2	3	4.10 #
13385418	Mrpl45	39S ribosomal protein L45, mitochondrial precursor	1	5	3	9	-0.21	0	2	1	3	-0.49 #
12963643	Mrpl46	39S ribosomal protein L46, mitochondrial precursor	7	10	9	26	-0.17	0	0	0	0	
29826332	Mrpl47	39S ribosomal protein L47, mitochondrial precursor	1	4	1	6	0.11	0	0	2	2	-0.26
148368964	Mrpl48	39S ribosomal protein L48, mitochondrial precursor	4	3	1	8	-0.14	0	0	0	0	
13385752	Mrpl49	39S ribosomal protein L49, mitochondrial	6	9	5	20	0.10	0	1	2	3	-0.10
30519921	Mrpl50	39S ribosomal protein L50, mitochondrial	0	1	3	4	-0.22	0	0	0	0	
13385050	Mrpl51	39S ribosomal protein L51, mitochondrial precursor	3	0	0	3	-0.06	0	0	0	0	
30348981	Mrpl52	39S ribosomal protein L52, mitochondrial precursor	3	0	0	3	-0.22	0	0	0	0	
21313040	Mrpl53	39S ribosomal protein L53, mitochondrial precursor	4	2	4	10	-0.18	2	0	0	2	-0.13
13384682	Mrpl54	39S ribosomal protein L54, mitochondrial precursor	4	0	2	6	-0.21	0	0	0	0	
21313400	Mrpl55	39S ribosomal protein L55, mitochondrial precursor	8	2	5	15	-0.18	1	0	2	3	-1.36 #
29789253	Mrpl9	39S ribosomal protein L9, mitochondrial precursor	7	8	7	22	-0.13	0	3	0	3	-0.19
6681255	Ebp	3-beta-hydroxysteroid-Delta(8),Delta(7)-isomerase	2	0	1	3	-0.56	9	0	2	11	-0.36
84872191	Ptplb	3-hydroxyacyl-CoA dehydratase 2	2	2	2	6	-0.33	0	2	2	4	-0.33
171184435	Ptplad1	3-hydroxyacyl-CoA dehydratase 3	1	2	0	3	-0.13	0	1	1	2	-0.22
61888838	Hsd17b10	3-hydroxyacyl-CoA dehydrogenase type-2	62	92	97	251	-0.14	17	56	47	120	-0.08 *
21704140	Hibadh	3-hydroxyisobutyrate dehydrogenase, mitochondrial precursor	17	5	14	36	-0.19	1	0	2	3	-0.23
22122625	Hibch	3-hydroxyisobutyryl-CoA hydrolase, mitochondrial precursor	4	0	0	4	-0.18	0	0	0	0	
18700004	Acaa1a	3-ketoacyl-CoA thiolase A, peroxisomal precursor	33	28	32	93	-0.07	0	8	12	20	-0.17
22122797	Acaa1b	3-ketoacyl-CoA thiolase B, peroxisomal precursor	0	0	0	0		4	0	0	4	0.37
29126205	Acaa2	3-ketoacyl-CoA thiolase, mitochondrial	51	53	75	179	0.02	20	41	46	107	-0.14
110625780	Kdsr	3-ketodihydrosphingosine reductase precursor	1	0	0	1	-0.20	0	0	0	0	
244789999	Mpst	3-mercaptopyruvate sulfurtransferase	5	1	3	9	-0.27	0	1	3	4	-0.06
13399310	Rps10	40S ribosomal protein S10	13	8	6	27	0.00	4	12	2	18	-0.10
21426889	Rps11	40S ribosomal protein S11	6	4	4	14	-0.22	18	13	15	46	-0.04
149250091	Gm14059	40S ribosomal protein S12-like	14	22	15	51	-0.03	0	1	6	7	-0.41
309267082	Gm12270	40S ribosomal protein S13-like	0	0	0	0		0	11	0	11	0.02
309271989	Gm12270	40S ribosomal protein S13-like	0	11	0	11	-0.18	14	0	12	26	0.01

309266131	Gm15483	40S ribosomal protein S13-like	5	0	2	7	0.01	0	0	0	0		
31981100	Rps14	40S ribosomal protein S14	22	20	9	51	-0.11	29	7	16	52	-0.02	
6677799	Rps15	40S ribosomal protein S15	7	5	5	17	-0.08	13	15	14	42	0.04	
24762230	Rps15a	40S ribosomal protein S15a	5	1	1	7	-0.06	11	2	0	13	-0.21	
158966704	Rps16	40S ribosomal protein S16	7	6	4	17	-0.20	21	5	14	40	0.01	
6677801	Rps17	40S ribosomal protein S17	19	23	9	51	-0.13	40	23	25	88	-0.04	
149264635	Gm10260	40S ribosomal protein S18-like	2	5	1	8	0.35	0	0	14	14	0.00	
309262972	Gm10260	40S ribosomal protein S18-like	0	0	0	0		39	19	0	58	-0.01	
309262784	LOC100503302	40S ribosomal protein S19-like	13	16	8	37	-0.13 *	6	4	5	15	0.00	
18087805	Rps2	40S ribosomal protein S2	7	0	0	7	-0.01	0	11	36	47	0.00	
309264869	Gm4332	40S ribosomal protein S20-like, partial	7	9	9	25	-0.17	6	4	7	17	-0.21	
21536222	Rps21	40S ribosomal protein S21	6	7	6	19	-0.32	0	0	0	0		
149240882	Gm8618	40S ribosomal protein S23-like	0	0	0	0		0	0	1	1	-0.81 #	
46519156	Rps24	40S ribosomal protein S24 isoform 1	6	3	3	12	-0.16	35	11	14	60	-0.05	
82943174	Gm6988	40S ribosomal protein S25-like	11	12	7	30	-0.15 *	8	8	7	23	-0.35	
255003793	Rps26	40S ribosomal protein S26	3	5	4	12	-0.06	33	10	17	60	0.01	
13385958	Rps27l	40S ribosomal protein S27-like	0	0	0	0		0	7	0	7	0.01	
21426821	Rps28	40S ribosomal protein S28	9	5	7	21	-0.08	4	2	2	8	-0.04	
94383782	Gm8841	40S ribosomal protein S2-like	0	0	0	0		18	0	0	18	0.04	
309263479	Gm10237	40S ribosomal protein S2-like	0	0	0	0		0	0	2	2	-0.01	
309263641	Gm8225	40S ribosomal protein S2-like	0	0	3	3	-0.19	0	5	2	7	-0.16	
309266362	Gm8841	40S ribosomal protein S2-like	0	6	0	6	-0.51	0	0	0	0		
82902507	LOC639606	40S ribosomal protein S2-like isoform 1	5	6	0	11	-0.68 #	12	17	26	55	0.10	
6755372	Rps3	40S ribosomal protein S3	21	23	22	66	-0.13	34	50	70	154	-0.06	
149265827	Gm10119	40S ribosomal protein S3a-like	19	17	15	51	-0.34	33	20	41	94	-0.29	
6677805	Rps4x	40S ribosomal protein S4, X isoform	20	20	7	47	-0.26	33	53	41	127	-0.05	
254675270	Rps5	40S ribosomal protein S5	27	33	21	81	-0.19 *	70	40	51	161	-0.07	
94367038	Gm13654	40S ribosomal protein S6-like isoform 2	3	4	0	7	0.00	42	31	41	114	-0.08	
6755376	Rps7	40S ribosomal protein S7	28	32	12	72	0.01	40	29	18	87	0.04	
309265774	LOC100502877	40S ribosomal protein S8-like	0	0	0	0		0	0	27	27	-2.21 #	
309265983	Gm15501	40S ribosomal protein S8-like, partial	9	9	10	28	-0.23	54	48	40	142	-0.07	
33504483	Rps9	40S ribosomal protein S9	2	3	1	6	-0.14	29	16	10	55	-0.08	
309264022	LOC100505031	40S ribosomal protein SA-like	15	18	15	48	-0.39 *	19	33	59	111	0.08	
20127399	Nt5m	5'(3')-deoxyribonucleotidase, mitochondrial precursor	1	1	1	3	-0.08 *	0	0	0	0		
117606214	Xrn2	5'-3' exoribonuclease 2	27	40	18	85	0.14	17	44	45	106	0.44	
94681061	Prkaa1	5'-AMP-activated protein kinase catalytic subunit alpha-1	0	0	0	0		0	1	0	1	-2.51 #	
124107596	Prkag1	5'-AMP-activated protein kinase subunit gamma-1	1	1	1	3	-0.22	0	9	11	20	-0.18	
21312554	2010107E04Rik	6.8 kDa mitochondrial proteolipid	1	0	0	1	-0.15	0	0	0	0		
183396771	Hspd1	60 kDa heat shock protein, mitochondrial	107	48	74	229	-0.11	59	37	29	125	-0.10	
6671569	Rplp0	60S acidic ribosomal protein P0	7	15	18	40	-0.13 *	55	47	65	167	-0.10	
309266351	Gm8730	60S acidic ribosomal protein P0-like	14	12	19	45	-0.22 *	37	37	65	139	-0.04	
9256519	Rplp1	60S acidic ribosomal protein P1	8	9	7	24	-0.15	16	7	9	32	-0.07	
83745120	Rplp2	60S acidic ribosomal protein P2	26	16	27	69	-0.06	81	9	16	106	0.05	
16418339	Rpl10	60S ribosomal protein L10	0	9	0	9	-0.17	0	27	32	59	-0.14	
255003735	Rpl10a	60S ribosomal protein L10a	5	9	4	18	-0.08	24	29	18	71	-0.03	
309266590	Gm5621	60S ribosomal protein L10-like	8	0	0	8	0.06	28	0	0	28	0.06	
82931053	Gm5621	60S ribosomal protein L10-like isoform 2	0	0	4	4	-0.52	0	0	0	0		
13385408	Rpl11	60S ribosomal protein L11	9	14	7	30	-0.14	26	15	34	75	-0.07	
160333553	Rpl12	60S ribosomal protein L12	20	16	21	57	-0.01	76	27	34	137	0.03	
31981945	Rpl13a	60S ribosomal protein L13a	1	1	0	2	-0.02	3	6	0	9	-0.97 #	
309263460	LOC638236	60S ribosomal protein L13a-like	0	0	1	1	-0.17	0	0	0	0		
149251177	Gm10071	60S ribosomal protein L13-like	5	9	2	16	-0.02	33	20	27	80	-0.02	
13385472	Rpl14	60S ribosomal protein L14	5	9	4	18	0.01	42	30	24	96	-0.02	
82896911	Gm5292	60S ribosomal protein L15-like	2	5	3	10	-0.12	0	5	5	10	-0.14	

82984224	LOC634785	60S ribosomal protein L15-like	0	0	0	0			20	21	11	52	-0.06	
161484662	Rpl17	60S ribosomal protein L17	6	2	1	9	-0.09		17	26	11	54	-0.02	
83699424	Rpl18	60S ribosomal protein L18	5	9	3	17	-0.15		74	33	29	136	-0.14	
58037465	Rpl18a	60S ribosomal protein L18a	3	3	3	9	0.01		22	15	14	51	-0.11	
82904428	Gm4883	60S ribosomal protein L18a-like	0	1	0	1	9.84 #		0	0	0	0		
226958657	Rpl19	60S ribosomal protein L19 isoform 2	3	9	5	17	-0.15		22	11	11	44	0.00	
309262317	Gm4478	60S ribosomal protein L21-like	0	0	0	0			0	5	0	5	0.74 #	
309262452	Gm11703	60S ribosomal protein L21-like	6	8	6	20	-0.06		28	22	22	72	-0.02	
309265792	LOC100504863	60S ribosomal protein L22-like	11	10	6	27	0.00		36	5	8	49	-0.02	
13386010	Rpl2211	60S ribosomal protein L22-like 1	2	6	3	11	-0.08		3	0	3	6	0.07	
12584986	Rpl23	60S ribosomal protein L23	0	14	0	14	-0.19		56	0	0	56	0.08	
149265809	Gm10132	60S ribosomal protein L23a-like	6	7	0	13	-0.08		11	12	0	23	0.16	
309263233	Gm3362	60S ribosomal protein L23a-like	0	0	3	3	-0.10		0	0	6	6	-0.10	
149269218	LOC100044627	60S ribosomal protein L24	15	0	6	21	-0.14		0	17	33	50	-0.03	
18250296	Rpl24	60S ribosomal protein L24	7	5	4	16	-0.12		27	15	15	57	-0.04	
6677777	Rpl26	60S ribosomal protein L26	1	5	2	8	0.07		1	3	4	8	0.03	
149262383	Gm11518	60S ribosomal protein L27	11	10	10	31	-0.02		18	7	10	35	0.03	
309264589	Gm14044	60S ribosomal protein L27a	0	2	0	2	-0.24		6	4	4	14	0.18	
309265674	Gm8213	60S ribosomal protein L27a-like	1	0	0	1	0.13		0	0	1	1	-0.15	
6677779	Rpl28	60S ribosomal protein L28	0	0	0	0			0	3	1	4	-0.26	
309265470	Gm10051	60S ribosomal protein L28-like	0	0	0	0			0	0	1	1	-0.39	
309265894	Gm6887	60S ribosomal protein L29-like	0	0	0	0			0	1	0	1	-0.58 #	
309263481	LOC100503125	60S ribosomal protein L29-like	0	0	0	0			0	1	0	1	-0.17	
309262958	Gm8210	60S ribosomal protein L29-like	0	0	0	0			0	3	0	3	-0.25	
255308899	Rpl3	60S ribosomal protein L3	0	9	11	20	0.08		0	28	34	62	-0.29	
309266869	LOC100504405	60S ribosomal protein L30-like	20	17	22	59	-0.07		61	17	19	97	-0.08	
149251558	Gm6570	60S ribosomal protein L30-like	1	0	0	1	0.18		0	0	0	0		
82898755	LOC638399	60S ribosomal protein L31-like isoform 1	5	10	6	21	-0.10		41	7	9	57	-0.03	
25742730	Rpl32	60S ribosomal protein L32	7	7	2	16	-0.06		0	10	3	13	-0.12	
309263511	LOC100504872	60S ribosomal protein L32-like	0	0	0	0			36	0	14	50	0.00	
309262801	Gm10029	60S ribosomal protein L35a-like	0	0	0	0			2	0	0	2	0.04	
149245216	Gm2000	60S ribosomal protein L35-like	3	3	1	7	-0.15 *		16	8	7	31	-0.07	
94385943	Gm5745	60S ribosomal protein L36-like	0	0	0	0			5	5	2	12	0.25	
82887594	Gm14173	60S ribosomal protein L37a-like	3	1	0	4	-0.20		12	4	5	21	0.05	
114205444	Rpl38	60S ribosomal protein L38	5	4	2	11	-0.06		18	3	3	24	0.03	
309268181	Gm12816	60S ribosomal protein L3-like	4	6	11	21	0.17		20	28	51	99	0.03	
309266996	Gm12816	60S ribosomal protein L3-like, partial	0	0	0	0			0	0	2	2	-0.17	
30794450	Rpl4	60S ribosomal protein L4	2	0	7	9	0.07		103	98	120	321	-0.01	
309265383	LOC100503670	60S ribosomal protein L5-like isoform 3	28	36	28	92	-0.11		15	27	38	80	-0.06	
82881056	Gm6136	60S ribosomal protein L6-like	0	0	11	11	-0.03		0	31	0	31	-0.02	
309267059	LOC100046435	60S ribosomal protein L6-like	2	7	0	9	0.09		76	33	82	191	-0.09	
31981515	Rpl7	60S ribosomal protein L7	5	4	7	16	0.03		39	40	44	123	0.03	
7305443	Rpl7a	60S ribosomal protein L7a	3	1	3	7	-0.16		51	50	58	159	-0.04	
82950040	Gm11362	60S ribosomal protein L7a-like	0	0	0	0			17	0	17	34	-0.02	
27754134	Rpl711	60S ribosomal protein L7-like 1	0	0	0	0			4	6	7	17	0.04	
6755358	Rpl8	60S ribosomal protein L8	3	10	6	19	-0.08		26	29	30	85	-0.10	
14149647	Rpl9	60S ribosomal protein L9	50	52	27	129	-0.12		52	47	34	133	-0.12	
257153336	Nip7	60S ribosome subunit biogenesis protein NIP7 homolog isoform 1	8	12	4	24	0.10		0	15	9	24	0.08	
257153334	Nip7	60S ribosome subunit biogenesis protein NIP7 homolog isoform 2	0	0	0	0			4	0	0	4	0.24	
9790051	Pfkl	6-phosphofruktokinase type C	0	0	0	0			0	7	64	71	-0.33	
31560653	Pfkl	6-phosphofruktokinase, liver type	6	4	2	12	-0.14		21	59	138	218	-0.55 #	
124486895	Pgd	6-phosphogluconate dehydrogenase, decarboxylating	0	1	2	3	-0.01		0	0	1	1	0.08	
13384778	Pgls	6-phosphogluconolactonase	0	1	0	1	0.50		0	8	12	20	0.13	

254540166	Hspa5	78 kDa glucose-regulated protein precursor	45	32	50	127	-0.15	132	32	109	273	-0.11
109627648	Mcm3ap	80 kDa MCM3-associated protein	15	29	18	62	-0.01	0	2	6	8	0.00
269784760	Abhd10	abhydrolase domain-containing protein 10, mitochondrial precursor	0	1	2	3	-0.06	0	0	0	0	
299473805	Abhd11	abhydrolase domain-containing protein 11 isoform 2	1	2	0	3	-0.10	0	0	0	0	
171460960	Abhd14b	abhydrolase domain-containing protein 14B	1	1	2	4	0.15	0	5	5	10	-0.05
21313408	Abi3	ABI gene family member 3 isoform 1	0	0	1	1	0.50	0	0	0	0	
116089351	Abi1	abl interactor 1 isoform 5	4	8	4	16	-0.47 *	0	0	0	0	
163965368	Aim1	absent in melanoma 1 protein	0	4	0	4	1.62 #	0	0	1	1	0.52 #
21313520	Aacs	acetoacetyl-CoA synthetase	0	0	0	0		0	0	2	2	-0.12
30424591	Ilvbl	acetolactate synthase-like protein	3	0	0	3	-0.49	1	2	0	3	0.05
21450129	Acat1	acetyl-CoA acetyltransferase, mitochondrial precursor	64	70	63	197	-0.14	6	20	18	44	-0.11
31543730	Slc33a1	acetyl-coenzyme A transporter 1	0	0	0	0		2	0	0	2	-0.13
9790019	Asah1	acid ceramidase precursor	50	39	42	131	0.05	22	16	18	56	0.09
19527104	Smpdl3b	acid sphingomyelinase-like phosphodiesterase 3b precursor	0	0	0	0		1	3	0	4	0.59 #
40254600	Anp32a	acidic leucine-rich nuclear phosphoprotein 32 family member A	5	5	6	16	0.02	37	26	40	103	-0.15
18700032	Anp32b	acidic leucine-rich nuclear phosphoprotein 32 family member B	0	4	1	5	0.24 *	4	2	6	12	-0.12
254587996	Anp32e	acidic leucine-rich nuclear phosphoprotein 32 family member E	2	3	4	9	-0.14	16	23	44	83	-0.12
18079339	Aco2	aconitate hydratase, mitochondrial precursor	41	21	34	96	-0.15	9	12	28	49	-0.15
14192922	Actc1	actin, alpha cardiac muscle 1	46	53	63	162	0.33	0	65	0	65	0.14
6671509	Actb	actin, cytoplasmic 1	191	256	231	678	0.31	565	637	640	1842	0.31
157823889	Actg2	actin, gamma-enteric smooth muscle	25	41	47	113	0.34	184	105	216	505	0.28
157057174	Ablim1	actin-binding LIM protein 1 isoform 2	1	0	0	1	0.19	0	0	0	0	
157057554	Ablim1	actin-binding LIM protein 1 isoform 3	0	2	0	2	0.77 #	0	0	0	0	
251823794	Anln	actin-binding protein anillin	1	5	2	8	0.27	0	0	0	0	
189181668	Actl6a	actin-like protein 6A	52	59	47	158	0.27	33	50	42	125	0.18
226246593	Actr10	actin-related protein 10	2	2	0	4	0.43	0	0	0	0	
22122825	Actr2	actin-related protein 2	40	43	22	105	0.22	17	36	23	76	0.69 #
9790221	Arpc1a	actin-related protein 2/3 complex subunit 1A	5	5	0	10	0.27	0	0	0	0	
160837788	Arpc1b	actin-related protein 2/3 complex subunit 1B	14	21	11	46	0.27	6	14	12	32	0.47 *,#
112363072	Arpc2	actin-related protein 2/3 complex subunit 2	27	29	27	83	0.24	3	20	16	39	0.54 *,#
9790141	Arpc3	actin-related protein 2/3 complex subunit 3	12	18	10	40	0.24	8	5	7	20	0.46 #
13386054	Arpc4	actin-related protein 2/3 complex subunit 4 isoform 1	21	20	21	62	0.27	14	17	12	43	0.42 *
224809382	Arpc5	actin-related protein 2/3 complex subunit 5	21	19	10	50	0.23	7	7	4	18	0.46 *,#
21312654	Arpc5l	actin-related protein 2/3 complex subunit 5-like protein	8	7	5	20	0.35	1	4	1	6	0.49 *,#
23956222	Actr3	actin-related protein 3	50	51	30	131	0.21	32	35	36	103	0.54 *,#
91176335	Actr5	actin-related protein 5	7	9	1	17	0.22	0	0	0	0	
21313172	Actr6	actin-related protein 6	0	2	3	5	-0.10	0	3	1	4	-0.02
188528622	Actr8	actin-related protein 8	1	8	2	11	0.15	0	1	0	1	0.94 #
6755364	Sub1	activated RNA polymerase II transcriptional coactivator p15	19	56	25	100	-0.10	9	7	13	29	-0.08
22122515	Ahsa1	activator of 90 kDa heat shock protein ATPase homolog 1	0	0	0	0		1	5	4	10	-0.07
30424711	Rps19bp1	active regulator of SIRT1	10	13	3	26	-0.18	1	4	11	16	0.06
90093349	Adnp	activity-dependent neuroprotector homeobox protein	8	15	11	34	0.31 *	18	62	70	150	0.38 *

149258261	Gm4459	acyl carrier protein, mitochondrial-like	3	2	4	9	-0.22		10	0	4	14	0.07
74271799	Acad11	acyl-CoA dehydrogenase family member 11	2	2	2	6	-0.03		0	0	0	0	
100817933	Acad9	acyl-CoA dehydrogenase family member 9, mitochondrial precursor	2	1	0	3	-0.41		0	1	1	2	-0.13
24418933	Acsf2	acyl-CoA synthetase family member 2, mitochondrial precursor	3	0	0	3	-0.15		0	3	3	6	-0.27
6681137	Dbi	acyl-CoA-binding protein isoform 2	0	0	1	1	-0.30		0	0	0	0	
30520215	Acsm5	acyl-coenzyme A synthetase ACSM5, mitochondrial precursor	1	0	1	2	-3.86 #		1	0	1	2	-5.57 #
13385260	Acot13	acyl-coenzyme A thioesterase 13	8	4	3	15	-0.82 #		0	0	0	0	
238624114	Acot2	acyl-coenzyme A thioesterase 2, mitochondrial precursor	4	0	0	4	0.27		0	0	0	0	
254587964	Acot8	acyl-coenzyme A thioesterase 8	17	15	15	47	-0.15		0	0	0	0	
31980998	Acot9	acyl-coenzyme A thioesterase 9, mitochondrial	1	0	0	1	0.02		0	0	2	2	-0.60 #
13384810	Acyp1	acylphosphatase-1	4	2	4	10	0.15		0	0	0	0	
6678760	Lypla1	acyl-protein thioesterase 1	1	0	1	2	0.04		0	0	0	0	
7242156	Lypla2	acyl-protein thioesterase 2	0	0	0	0			0	0	1	1	0.18
31559995	Crk	adapter molecule crk	0	0	0	0			0	4	8	12	-0.16
118601013	Aprt	adenine phosphoribosyltransferase	0	0	0	0			0	5	5	10	0.01
262263372	Ahcy	adenosylhomocysteinase	0	0	2	2	-0.65 #		0	0	0	0	
34328230	Ak2	adenylate kinase 2, mitochondrial isoform b	10	5	9	24	-0.11		0	0	1	1	-0.19
18079237	Taf9	adenylate kinase isoenzyme 6 isoform 1	7	19	9	35	0.20 *		0	0	0	0	
6671519	Adssl1	adenylosuccinate synthetase isozyme 1	1	1	5	7	0.26		2	3	17	22	0.20 *
31560737	Adss	adenylosuccinate synthetase isozyme 2	0	0	0	0			0	0	1	1	0.23
21313668	2310001A20Rik	adipocyte plasma membrane-associated protein	2	0	0	2	-0.45		0	0	0	0	
148747424	Slc25a4	ADP/ATP translocase 1	14	16	18	48	0.02		35	19	18	72	0.04
22094075	Slc25a5	ADP/ATP translocase 2	23	15	16	54	0.01		73	23	21	117	0.02
134288869	Bst1	ADP-ribosyl cyclase 2	0	0	0	0			1	8	1	10	0.56 #
6680716	Arf1	ADP-ribosylation factor 1	0	0	17	17	-0.23		0	0	31	31	-0.09
6680718	Arf3	ADP-ribosylation factor 3	16	17	0	33	0.06		30	9	0	39	-0.02
6680720	Arf4	ADP-ribosylation factor 4	6	3	12	21	-0.16		0	10	23	33	-0.23
6680722	Arf5	ADP-ribosylation factor 5	5	8	15	28	-0.11		34	6	22	62	-0.05
6680724	Arf6	ADP-ribosylation factor 6	10	13	8	31	-0.16		5	8	11	24	-0.05
260763917	Arfgap2	ADP-ribosylation factor GTPase-activating protein 2 isoform 2	0	1	1	2	0.05		0	0	1	1	0.01
153792526	Arl1	ADP-ribosylation factor-like protein 1	6	1	1	8	-0.12		1	3	4	8	-0.15
31980988	Arl2	ADP-ribosylation factor-like protein 2	1	0	0	1	0.51		0	1	0	1	-0.62 #
9789881	Arl3	ADP-ribosylation factor-like protein 3	0	2	0	2	0.25		0	0	3	3	0.04
13384792	Arl4d	ADP-ribosylation factor-like protein 4D	0	0	0	0			0	0	1	1	1.60 #
188528681	Arl6	ADP-ribosylation factor-like protein 6	0	2	0	2	0.46		0	0	2	2	-0.16
21362283	Arl6ip4	ADP-ribosylation factor-like protein 6-interacting protein 4	1	5	3	9	-0.01		0	0	0	0	
254281227	Arl6ip6	ADP-ribosylation factor-like protein 6-interacting protein 6	2	4	3	9	-0.13		4	4	2	10	-0.23
23956194	Arl8a	ADP-ribosylation factor-like protein 8A	0	0	1	1	-0.60 #		1	0	0	1	-0.05
13385518	Arl8b	ADP-ribosylation factor-like protein 8B	6	4	1	11	0.01		0	2	1	3	-0.04
60593059	Acd	adrenocortical dysplasia protein	0	0	2	2	-0.33		0	0	0	0	
90017457	Fdx1l	adrenodoxin-like protein, mitochondrial precursor	1	0	0	1	-1.10 #		0	0	0	0	
226246550	Scin	adseverin isoform 1	19	34	17	70	0.17		15	28	32	75	0.28
226246552	Scin	adseverin isoform 2	0	0	0	0			0	0	1	1	0.12
17298672	Aff4	AF4/FMR2 family member 4	0	2	0	2	0.22		0	0	0	0	
145587092	Milt4	afadin	7	26	9	42	0.67 *,#		0	1	4	5	0.10
110625761	Afg3l2	AFG3-like protein 2	1	1	0	2	-0.05		0	0	0	0	

240120054	Akr7a5	aflatoxin B1 aldehyde reductase member 2	1	0	0	1	-0.12	0	0	0	0		
7709982	Aip	AH receptor-interacting protein	0	0	0	0		0	0	2	2	-0.17	
61743961	Ahnak	AHNAK nucleoprotein isoform 1	496	###	904	2539	0.54*	20	68	31	119	0.64*#	
90403607	Ahnak	AHNAK nucleoprotein isoform 3	0	0	0	0		0	2	0	2	-0.07	
31560394	Akap8	A-kinase anchor protein 8	10	16	8	34	0.11	11	17	15	43	0.25*	
70780373	Akap8l	A-kinase anchor protein 8-like	0	0	0	0		1	1	4	6	-1.80#	
125661048	Akap9	A-kinase anchor protein 9	0	0	1	1	-10.32#	0	0	0	0		
241982696	Aaas	aladin	12	11	10	33	0.04	5	25	8	38	-0.03	
21450213	Aarsd1	alanyl-tRNA editing protein Aarsd1	0	1	1	2	0.40	0	0	0	0		
34610207	Aars	alanyl-tRNA synthetase, cytoplasmic	0	0	0	0		0	0	7	7	-0.22	
227430284	2810432D09Rik	alba-like protein C9orf23 homolog	2	1	3	6	0.06	0	0	0	0		
10946870	Akr1a4	alcohol dehydrogenase [NADP+]	1	0	0	1	-0.30	0	1	5	6	-0.42	
83019564	1700055N04Rik	aldehyde dehydrogenase family 3 member B1 isoform 4	0	0	0	0		0	1	0	1	0.01	
6753036	Aldh2	aldehyde dehydrogenase, mitochondrial precursor	1	0	0	1	-0.48	0	0	0	0		
85719330	Akr1c12	aldo-keto reductase family 1, member C12	0	0	0	0		0	1	2	3	-0.13	
282398141	Akr1c19	aldo-keto reductase family 1, member C19	0	0	0	0		0	9	15	24	-0.26	
312922382	Aldoart1	aldolase 1 A retrogene 1	0	0	0	0		0	1	0	1	10.07#	
160707894	Akr1b3	aldose reductase	0	0	0	0		1	9	14	24	-0.04	
295444834	Agps	alkyldihydroxyacetonephosphate synthase, peroxisomal precursor	19	21	11	51	-0.11	1	5	3	9	0.16	
21553105	Aif1l	allograft inflammatory factor 1-like	8	8	8	24	0.36	0	0	0	0		
24528555	Mettl11a	alpha N-terminal protein methyltransferase 1A	4	5	4	13	0.08	0	1	1	2	-0.04	
19527202	Alg9	alpha-1,2-mannosyltransferase ALG9	0	1	0	1	-0.67#	0	0	0	0		
158711698	Mgat1	alpha-1,3-mannosyl-glycoprotein 2-beta-N-acetylglucosaminyltransferase	0	0	0	0		0	1	0	1	10.07#	
63999380	Lrpap1	alpha-2-macroglobulin receptor-associated protein precursor	3	1	1	5	0.02	0	0	0	0		
61097906	Actn1	alpha-actinin-1	63	56	54	173	0.06	77	90	162	329	0.10	
157951643	Actn2	alpha-actinin-2	0	10	14	24	0.04	0	0	0	0		
11230802	Actn4	alpha-actinin-4	54	57	64	175	0.16	56	58	89	203	0.11	
156255171	Add1	alpha-adducin isoform 1	9	0	0	9	0.74#	0	0	0	0		
7304861	Add1	alpha-adducin isoform 2	2	14	11	27	0.66#	1	0	0	1	1.81#	
227330565	Ctnnal1	alpha-catulin	0	0	1	1	-10.32#	0	1	0	1	10.07#	
8392847	Actr1a	alpha-centractin	8	10	8	26	0.19	1	8	8	17	0.14	
6753530	Cryab	alpha-crystallin B chain	0	0	0	0		0	0	1	1	-0.35	
71061466	Ensa	alpha-endosulfine isoform b	2	0	0	2	-0.03	0	0	0	0		
309265192	LOC100503183	alpha-enolase-like isoform 10	2	0	0	2	-0.46	0	0	0	0		
309265194	LOC100503183	alpha-enolase-like isoform 3	0	0	0	0		0	2	56	58	-0.23	
15628025	Tcfcp2	alpha-globin transcription factor CP2	7	12	5	24	-0.13	0	2	2	4	0.00	
61098162	Alkbh2	alpha-ketoglutarate-dependent dioxygenase alkB homolog 2	3	6	3	12	-0.09	0	0	0	0		
168693635	Naga	alpha-N-acetylgalactosaminidase precursor	65	103	90	258	0.05	18	48	55	121	0.40	
254910995	Naglu	alpha-N-acetylglucosaminidase	2	6	2	10	-0.08	1	2	5	8	0.19	
31982526	Parva	alpha-parvin	7	9	8	24	-0.01	1	5	7	13	-0.96#	
13385392	Napa	alpha-soluble NSF attachment protein	8	7	8	23	-0.12	0	1	0	1	0.39	
91598586	Txlna	alpha-taxilin	0	3	5	8	0.23	0	0	0	0		
126012517	Aimp1	aminoacyl tRNA synthase complex-interacting multifunctional protein 1	0	0	1	1	-0.22	0	0	0	0		
288541337	Aimp2	aminoacyl tRNA synthase complex-interacting multifunctional protein 2 isoform 1	1	0	0	1	-0.78#	0	0	0	0		
62000670	Amt	aminomethyltransferase, mitochondrial precursor	3	10	4	17	-0.06	0	0	0	0		
227499234	Rnpep	aminopeptidase B isoform 2	0	0	0	0		0	0	1	1	0.15	

229092834	Rhcg	ammonium transporter Rh type C	0	0	0	0			1	0	0	1	0.49	#
47271504	App	amyloid beta A4 protein isoform 2 precursor	2	0	2	4	-0.59	#	0	0	0	0		
31982674	Zfand1	AN1-type zinc finger protein 1	1	0	2	3	1.02	#	0	0	0	0		
228008323	Anapc1	anaphase-promoting complex subunit 1	2	5	1	8	0.30		0	0	0	0		
35900980	Anapc10	anaphase-promoting complex subunit 10	1	2	0	3	-0.07		0	0	0	0		
84039696	Anapc11	anaphase-promoting complex subunit 11	0	2	1	3	0.06		0	0	0	0		
13384936	Anapc16	anaphase-promoting complex subunit 16	3	2	0	5	0.09		0	0	0	0		
109809751	Anapc5	anaphase-promoting complex subunit 5 isoform a	0	4	0	4	0.14		0	0	0	0		
109809753	Anapc5	anaphase-promoting complex subunit 5 isoform b	0	0	3	3	0.38		0	0	0	0		
254281282	Anapc7	anaphase-promoting complex subunit 7	8	7	2	17	-0.01		0	0	0	0		
21314828	Cdc26	anaphase-promoting complex subunit CDC26	3	1	2	6	0.37		0	0	0	0		
261862329	Rai14	ankycorbin	1	5	3	9	0.58	#	0	0	0	0		
116256491	Ank3	ankyrin 3, epithelial isoform a	5	8	0	13	0.42		0	0	0	0		
116256499	Ank3	ankyrin 3, epithelial isoform i	0	0	5	5	0.28		0	0	0	0		
124487033	Ankrd11	ankyrin repeat domain 11	0	1	0	1	0.36		0	0	0	0		
125628652	Ankrd36	ankyrin repeat domain 36	0	0	2	2	-4.72	#	0	0	0	0		
124517663	Anxa1	annexin A1	44	69	59	172	-0.22		6	50	106	162	-0.09	
160707921	Anxa11	annexin A11	5	12	2	19	0.03		0	1	2	3	-0.08	
6996913	Anxa2	annexin A2	75	121	100	296	-0.15		66	90	86	242	-0.13	*
160707925	Anxa3	annexin A3	8	3	5	16	-0.29		0	0	0	0		
161016799	Anxa4	annexin A4	25	23	26	74	-0.22		4	12	34	50	-0.19	
6753060	Anxa5	annexin A5	18	12	15	45	-0.24		3	13	41	57	-0.03	
158966670	Anxa6	annexin A6 isoform b	1	2	0	3	0.46		0	1	7	8	-5.02	#
160707956	Anxa7	annexin A7	0	2	2	4	-2.05	#	0	0	1	1	-0.13	
145864475	Anxa9	annexin A9	53	42	38	133	0.70	*,#	15	43	27	85	0.80	*,#
169234624	Mki67	antigen KI-67	57	46	39	142	-0.19	*	33	40	146	219	-0.24	
88853578	Ap1b1	AP-1 complex subunit beta-1	7	9	12	28	0.19		0	0	4	4	-0.11	
56744242	Ap1g1	AP-1 complex subunit gamma-1	2	0	0	2	-0.02		0	0	1	1	-0.13	
160333508	Ap1m2	AP-1 complex subunit mu-2 isoform 2	1	1	1	3	0.12		0	2	5	7	-0.17	
6671559	Ap1s1	AP-1 complex subunit sigma-1A	3	2	4	9	0.02		0	0	0	0		
116256510	Ap2a1	AP-2 complex subunit alpha-1 isoform b	6	9	4	19	0.61	#	0	4	4	8	0.11	
163644277	Ap2a2	AP-2 complex subunit alpha-2	4	22	7	33	0.54	*	0	6	8	14	-0.01	
21313640	Ap2b1	AP-2 complex subunit beta isoform b	15	35	22	72	0.24		3	22	31	56	0.20	*
6753074	Ap2m1	AP-2 complex subunit mu	8	15	12	35	0.35	*	0	11	5	16	0.28	
161086984	Ap2s1	AP-2 complex subunit sigma	7	0	2	9	0.32	*	0	0	0	0		
163310776	Ap3b1	AP-3 complex subunit beta-1	1	1	0	2	-0.24		0	0	0	0		
254281313	Ap3m1	AP-3 complex subunit mu-1	4	6	3	13	-0.44		0	0	0	0		
6753078	Ap3s1	AP-3 complex subunit sigma-1	0	2	1	3	-0.22	*	0	0	0	0		
160707971	Ap3s2	AP-3 complex subunit sigma-2	1	3	1	5	-0.35	*	0	0	0	0		
21553309	Apoa1bp	apolipoprotein A-I-binding protein precursor	8	4	8	20	-0.13		0	0	0	0		
313569763	ApoO	apolipoprotein O isoform 3	4	0	2	6	0.08		0	0	0	0		
13386062	Apool	apolipoprotein O-like precursor	5	2	0	7	0.19		4	2	6	12	0.49	#
94158994	Api5	apoptosis inhibitor 5	94	94	69	257	0.02		12	40	20	72	0.02	
6755004	Aifm1	apoptosis-inducing factor 1, mitochondrial precursor	25	11	5	41	-0.05		2	12	7	21	0.19	
85861162	Aifm2	apoptosis-inducing factor 2 isoform 2	0	0	0	0			0	2	2	4	1.93	#
146231985	Acin1	apoptotic chromatin condensation inducer in the nucleus isoform 2	0	0	0	0			0	125	138	263	0.22	
194394195	Acin1	apoptotic chromatin condensation inducer in the nucleus isoform 3	4	15	14	33	-0.22		0	10	31	41	-0.06	
194394197	Acin1	apoptotic chromatin condensation inducer in the nucleus isoform 4	57	65	68	190	0.22		217	105	123	445	0.14	*
31541860	Ap1f	aprataxin and PNK-like factor isoform 2	0	1	0	1	-0.55		0	0	0	0		

33563260	Agfg1	arf-GAP domain and FG repeats-containing protein 1	1	2	2	5	-0.35	0	0	0	0		
134152669	Arglu1	arginine and glutamate-rich protein 1	0	3	0	3	-0.05	0	1	0	1	-0.06	
53988372	Rsrc2	arginine/serine-rich coiled-coil protein 2 isoform 2	0	11	2	13	0.20	0	0	6	6	0.19	
224967104	Srsf6	arginine/serine-rich splicing factor 6	5	6	4	15	-0.05	2	16	9	27	0.05	
262118273	Rars	arginyl-tRNA synthetase, cytoplasmic	0	2	0	2	0.31	0	2	4	6	0.03	
21312676	Armc1	armadillo repeat-containing protein 1	1	0	0	1	-0.06	0	0	0	0		
13385536	Armc10	armadillo repeat-containing protein 10	7	8	11	26	0.15	6	9	9	24	0.06	
67972647	Arsa	arylsulfatase A precursor	0	0	1	1	0.13	0	0	0	0		
19527038	AI597479	ashwin	0	10	0	10	0.32	0	0	0	0		
33469123	Asns	asparagine synthetase [glutamine-hydrolyzing]	0	0	0	0		0	0	3	3	0.72	#
219275596	Nars	asparaginyl-tRNA synthetase, cytoplasmic isoform 2	6	8	8	22	-0.02	0	1	5	6	0.02	
6754036	Got2	aspartate aminotransferase, mitochondrial	34	19	14	67	-0.19	*	14	11	5	30	-0.11
295390633	Asph	aspartyl/asparaginyl beta-hydroxylase isoform 10	9	4	4	17	-0.42	*	0	7	7	14	-0.39
295390525	Asph	aspartyl/asparaginyl beta-hydroxylase isoform 3	23	11	16	50	-0.41	*	26	8	6	40	-0.29
211065507	Dars	aspartyl-tRNA synthetase, cytoplasmic isoform 1	10	12	13	35	0.04		0	20	17	37	-0.08
21426847	Pea15a	astrocytic phosphoprotein PEA-15 isoform 2	1	0	0	1	-0.92	#	0	0	2	2	-0.39
145553997	Arid1b	AT rich interactive domain 1B (Swi1 like)	16	30	18	64	0.48	*	0	7	0	7	0.25
262231796	Arid2	AT rich interactive domain 2 (ARID, RFX-like)	20	36	17	73	0.06		0	0	0	0	
83649709	Atxn10	ataxin-10	0	0	0	0			0	0	3	3	-0.06
124487221	Samd1	atherin	4	2	0	6	-0.18		0	0	0	0	
254826716	Atl3	atlastin-3 isoform 1	7	0	0	7	0.24		0	2	2	4	-0.57
167716841	ATP8	ATP synthase F0 subunit 8	2	1	2	5	-0.24	*	3	0	1	4	-0.34
238776839	Atpaf2	ATP synthase mitochondrial F1 complex assembly factor 2	3	0	0	3	-0.42		0	0	0	0	
6680748	Atp5a1	ATP synthase subunit alpha, mitochondrial precursor	51	16	29	96	-0.28	*	163	24	22	209	-0.29
78214312	Atp5f1	ATP synthase subunit b, mitochondrial precursor	7	1	1	9	-0.30		18	3	0	21	-0.38
31980648	Atp5b	ATP synthase subunit beta, mitochondrial precursor	78	32	34	144	-0.25		306	38	44	388	-0.26
21313679	Atp5h	ATP synthase subunit d, mitochondrial	14	7	9	30	-0.13		27	6	5	38	-0.31
166851828	Atp5d	ATP synthase subunit delta, mitochondrial precursor	3	5	5	13	-0.22	*	16	0	6	22	-0.17
83715998	Atp5k	ATP synthase subunit e, mitochondrial	4	0	3	7	0.12		11	0	0	11	-0.40
149253631	Gm10221	ATP synthase subunit g, mitochondrial-like	4	3	2	9	-0.21		1	0	0	1	-0.20
163838648	Atp5c1	ATP synthase subunit gamma, mitochondrial isoform b	4	3	2	9	-0.39		8	4	4	16	-0.23
149251053	LOC100047429	ATP synthase subunit O, mitochondrial-like	17	13	11	41	-0.39	*	47	9	9	65	-0.32
7949005	Atp5j	ATP synthase-coupling factor 6, mitochondrial precursor	5	0	0	5	-0.37		2	0	0	2	-0.25
12025542	Asna1	ATPase Asna1	1	0	0	1	-0.14		0	0	1	1	0.03
31560168	Atad1	ATPase family AAA domain-containing protein 1	0	0	0	0			0	0	1	1	0.67
91199557	Atad2	ATPase family AAA domain-containing protein 2	0	0	0	0			91	174	319	584	-0.06
153791220	Atad2b	ATPase family AAA domain-containing protein 2B	0	0	0	0			31	65	137	233	-0.02
239985513	Atad3a	ATPase family AAA domain-containing protein 3	0	0	0	0			0	2	0	2	0.09
31982864	Atpif1	ATPase inhibitor, mitochondrial precursor	1	3	1	5	-0.10		0	1	0	1	-0.04



116292744	Abca13	ATP-binding cassette sub-family A member 13	0	0	0	0			0	1	0	1	5.22	#
60218877	Abcd3	ATP-binding cassette sub-family D member 3	10	9	5	24	0.08		64	49	26	139	0.17	
114205431	Abce1	ATP-binding cassette sub-family E member 1	3	5	0	8	-0.04		0	2	5	7	0.09	
39930335	Abcf1	ATP-binding cassette sub-family F member 1	6	3	5	14	-0.13		0	1	1	2	0.14	
299473734	Abcf2	ATP-binding cassette sub-family F member 2 isoform 2	4	5	3	12	0.24		0	0	1	1	0.08	
29293809	Acly	ATP-citrate synthase isoform 2	0	0	0	0			0	0	5	5	-0.35	
113205069	Clpx	ATP-dependent Clp protease ATP-binding subunit clpX-like, mitochondrial isoform 2	0	0	0	0			0	0	2	2	-0.10	
110625690	Recql	ATP-dependent DNA helicase Q1 isoform 1	0	1	0	1	0.15		0	0	0	0		
150456419	Dhx9	ATP-dependent RNA helicase A	224	304	224	752	-0.14		845	###	###	3442	-0.06	*
19527256	Ddx1	ATP-dependent RNA helicase DDX1	15	31	12	58	0.03		2	1	9	12	-0.17	
31981163	Ddx18	ATP-dependent RNA helicase DDX18	38	47	26	111	0.07		34	55	68	157	0.16	
170932536	Ddx19a	ATP-dependent RNA helicase DDX19A	7	10	14	31	-0.07		0	4	0	4	-0.33	
26986593	Ddx19b	ATP-dependent RNA helicase DDX19B isoform 2	0	0	8	8	-0.13		0	0	0	0		
299890779	Ddx19b	ATP-dependent RNA helicase DDX19B isoform 3	0	0	0	0			0	0	3	3	0.05	
226958385	Ddx24	ATP-dependent RNA helicase DDX24 isoform 1	0	0	0	0			0	19	33	52	0.27	
34328253	Ddx24	ATP-dependent RNA helicase DDX24 isoform 2	1	7	4	12	-0.20		1	0	1	2	0.48	#
38372907	Ddx39	ATP-dependent RNA helicase DDX39A	34	52	64	150	0.12		73	112	112	297	0.07	
6753620	Ddx3x	ATP-dependent RNA helicase DDX3X	26	38	28	92	-0.08		64	79	136	279	0.02	
25141235	Ddx3y	ATP-dependent RNA helicase DDX3Y	5	3	5	13	-0.14		0	16	25	41	0.01	
157838001	Ddx42	ATP-dependent RNA helicase DDX42	22	40	26	88	0.26	*	0	9	6	15	0.61	#
16716475	Ddx50	ATP-dependent RNA helicase DDX50	1	5	2	8	-0.07		3	26	26	55	0.15	
40538825	Ddx51	ATP-dependent RNA helicase DDX51	6	9	6	21	0.05		0	11	14	25	-0.09	
28076989	Ddx54	ATP-dependent RNA helicase DDX54	0	0	0	0			0	10	31	41	0.07	
56699440	Dhx8	ATP-dependent RNA helicase DHX8	0	13	15	28	0.16		0	14	5	19	0.18	
31088872	Supv311	ATP-dependent RNA helicase SUPV3L1, mitochondrial precursor	3	14	10	27	-0.16	*	0	1	2	3	-0.54	#
124249109	Arid1a	AT-rich interactive domain-containing protein 1A	38	67	57	162	0.50	*	0	11	9	20	0.39	
124487105	Arid4a	AT-rich interactive domain-containing protein 4A	3	2	2	7	0.22		0	0	0	0		
37694070	Arid4b	AT-rich interactive domain-containing protein 4B isoform 2	2	3	4	9	-0.04		0	0	0	0		
59859890	Birc5	baculoviral IAP repeat-containing protein 5 isoform 3	0	0	0	0			0	3	0	3	-0.31	
284507286	Bag1	BAG family molecular chaperone regulator 1 isoform 1S	0	0	1	1	0.22		0	0	0	0		
21703784	Bag2	BAG family molecular chaperone regulator 2	6	10	5	21	0.18		7	20	9	36	0.11	
54873604	Epb4.111	band 4.1-like protein 1 isoform b	0	0	1	1	-1.15	#	0	0	1	1	-0.02	
157041260	Epb4.112	band 4.1-like protein 2	0	0	0	0			0	0	1	1	-0.86	#
164663872	Epb4.115	band 4.1-like protein 5 isoform 2	2	3	2	7	-0.30		40	62	66	168	0.07	
46519149	Heatr1	BAP28 protein	18	15	31	64	-0.47		69	240	386	695	0.00	
6753178	Banf1	barrier-to-autointegration factor	8	8	15	31	0.10		139	30	16	185	0.17	
10048460	Bcam	basal cell adhesion molecule	0	0	0	0			0	0	3	3	-0.22	
183979966	Hspg2	basement membrane-specific heparan sulfate proteoglycan core protein	0	0	0	0			1	26	98	125	-3.31	#
31981160	Bzw2	basic leucine zipper and W2 domain-containing protein 2	1	1	1	3	0.03		0	0	1	1	-0.33	

283945627	Tmbim6	bax inhibitor 1	0	0	0	0				3	1	1	5	-0.41 *
22296593	Bcl7a	B-cell CLL/lymphoma 7 protein family member A	2	7	1	10	0.31			1	4	1	6	0.41 *
159032025	Bcl7b	B-cell CLL/lymphoma 7 protein family member B	0	1	0	1	-0.01			0	0	0	0	
6753176	Bcl7c	B-cell CLL/lymphoma 7 protein family member C	1	3	2	6	0.16			0	1	4	5	0.28
91206400	Bcl9l	B-cell CLL/lymphoma 9-like protein	1	0	1	2	5.26 #			0	0	0	0	
31981310	Bcap31	B-cell receptor-associated protein 31	10	7	1	18	-0.21			30	13	13	56	-0.22 *
111955302	Bak1	bcl-2 homologous antagonist/killer	3	1	0	4	0.19			5	7	2	14	0.17
24496776	Bclaf1	bcl-2-associated transcription factor 1 isoform 2	0	0	0	0				0	10	0	10	0.47 #
70906449	Bclaf1	bcl-2-associated transcription factor 1 isoform 3	2	16	10	28	0.18			5	0	12	17	-0.05
7949082	Bok	bcl-2-related ovarian killer protein	0	1	0	1	-0.05			0	0	0	0	
39841055	Bend3	BEN domain-containing protein 3	0	0	1	1	0.79 #			0	0	0	0	
40254314	Bend6	BEN domain-containing protein 6	0	0	1	1	4.44 #			0	0	0	0	
31981890	B2m	beta-2-microglobulin precursor	0	0	1	1	-1.21 #			0	0	0	0	
6678059	Sntb2	beta-2-syntrophin	1	1	0	2	0.26			0	3	2	5	0.02
30425250	Actb2	beta-actin-like protein 2	21	50	52	123	0.37			68	46	66	180	0.34
254540032	Ctnnb1	beta-catenin-like protein 1	21	32	12	65	0.21			9	10	3	22	0.05
6680812	Btc	betacellulin preproprotein	2	0	0	2	0.34			0	0	0	0	
6679651	Eno3	beta-enolase isoform 1	6	8	13	27	-0.03			95	60	147	302	-0.13
6753190	Glb1	beta-galactosidase precursor	1	0	0	1	0.11			0	0	0	0	
67514549	Hexa	beta-hexosaminidase subunit alpha precursor	3	3	4	10	0.24			0	0	0	0	
6754186	Hexb	beta-hexosaminidase subunit beta precursor	14	15	11	40	0.12			0	4	4	8	0.10
158533990	Manba	beta-mannosidase precursor	28	43	46	117	-0.01			0	47	43	90	0.01
319918850	Papss2	bifunctional 3'-phosphoadenosine 5'-phosphosulfate synthase 2 isoform 2	0	0	0	0				0	0	1	1	-0.15
82617575	Eprs	bifunctional aminoacyl-tRNA synthetase	0	0	2	2	-0.11			0	0	5	5	-0.33
27229125	Coasy	bifunctional coenzyme A synthase	0	0	0	0				0	0	1	1	-0.02
6678952	Mthfd2	bifunctional methylenetetrahydrofolate dehydrogenase/cyclohydrolase, mitochondrial	10	15	19	44	-0.02			0	0	1	1	0.66 #
118601009	Pnkp	bifunctional polynucleotide phosphatase/kinase	7	12	10	29	0.21			0	0	2	2	1.54 #
227908823	Atic	bifunctional purine biosynthesis protein PURH	0	0	0	0				0	0	2	2	-0.58 #
31980697	Bloc1s1	biogenesis of lysosome-related organelles complex 1 subunit 1	1	1	0	2	-0.22			0	0	0	0	
124487265	Bod1l	biorientation of chromosomes in cell division 1-like	12	98	56	166	0.38 *			0	0	0	0	
58037151	Bola1	bolA-like protein 1	7	1	1	9	-0.02			0	0	0	0	
30424938	Bola3	bolA-like protein 3	0	0	1	1	-0.38			0	0	0	0	
31982487	Bmp7	bone morphogenetic protein 7 precursor	0	0	1	1	-0.09			0	0	0	0	
227116268	Cdca8	borealin	0	0	0	0				0	2	7	9	-0.09
45598372	Basp1	brain acid soluble protein 1	17	28	14	59	-0.14			24	9	21	54	0.15
83642836	Baiap2	brain-specific angiogenesis inhibitor 1-associated protein 2 isoform b	16	50	21	87	-0.16			0	3	0	3	-0.25
83649713	Baiap2	brain-specific angiogenesis inhibitor 1-associated protein 2 isoform c	1	0	0	1	0.30			0	0	0	0	
21313234	Baiap2l1	brain-specific angiogenesis inhibitor 1-associated protein 2-like protein 1	0	1	0	1	1.15 #			0	1	0	1	1.22 #
33859514	Bcat2	branched-chain-amino-acid aminotransferase, mitochondrial precursor	1	0	0	1	-0.27			0	0	0	0	
41281945	Bre	BRCA1-A complex subunit BRE isoform II	1	0	1	2	-0.10			0	0	2	2	0.16

21617851	Bre	BRCA1-A complex subunit BRE isoform V	0	2	0	2	0.05		0	0	0	0	
19527392	Brms1	breast cancer metastasis-suppressor 1 homolog	3	3	1	7	0.10		0	1	0	1	-0.39
83649717	Brms1l	breast cancer metastasis-suppressor 1-like protein	3	4	3	10	0.27		0	1	0	1	0.08
58037467	Bri3bp	BRI3-binding protein	11	9	9	29	-0.33 *		3	8	7	18	-0.18
10946638	Bin3	bridging integrator 3	1	1	0	2	-0.16		0	2	1	3	-0.04
189339272	Baz1a	bromodomain adjacent to zinc finger domain protein 1A	33	45	23	101	-0.04		1	16	29	46	-0.05
114205435	Baz2a	bromodomain adjacent to zinc finger domain protein 2A	4	5	6	15	0.54		25	39	63	127	-0.08
62177117	Baz2b	bromodomain adjacent to zinc finger domain, 2B	1	0	0	1	0.91 #		0	1	0	1	0.18
157057182	Brwd1	bromodomain and WD repeat-containing protein 1 isoform B	0	0	0	0			0	3	4	7	-0.14
125490358	Brwd3	bromodomain and WD repeat-containing protein 3	0	0	0	0			0	0	4	4	-0.15
164698417	Brd1	bromodomain containing 1	0	0	0	0			0	6	9	15	-0.11
140969817	Bptf	bromodomain PHD finger transcription factor	27	76	38	141	0.29 *		4	43	33	80	0.25
71067345	Brd2	bromodomain-containing protein 2	14	23	15	52	-0.21		0	0	16	16	0.10
71067347	Brd2	bromodomain-containing protein 2 isoform b	0	0	0	0			1	13	0	14	-0.09
165972333	Brd3	bromodomain-containing protein 3 isoform 2	15	22	15	52	-0.21		1	21	24	46	-0.07
226342873	Brd4	bromodomain-containing protein 4 isoform 1	19	42	23	84	0.14		0	0	0	0	
226246640	Brd4	bromodomain-containing protein 4 isoform 2	2	1	3	6	-0.18		0	2	2	4	0.17
6755234	Brd7	bromodomain-containing protein 7	15	34	14	63	0.01		1	3	1	5	0.11
185134208	Brd8	bromodomain-containing protein 8	8	14	3	25	0.47 *		0	0	0	0	
112817628	Brd9	bromodomain-containing protein 9	0	1	1	2	-2.39 #		0	0	0	0	
29725637	Kctd10	BTB/POZ domain-containing adapter for CUL3-mediated RhoA degradation protein 3 isoform 2	1	2	0	3	1.45 #		0	0	0	0	
22122737	Kctd15	BTB/POZ domain-containing protein KCTD15	1	0	0	1	0.00		0	0	0	0	
22122459	Bud13	BUD13 homolog	0	0	1	1	0.35		0	0	0	0	
164698440	Bysl	bystin	2	1	1	4	-0.10		1	10	19	30	0.12
261878543	Mthfd1	C-1-tetrahydrofolate synthase, cytoplasmic	3	2	3	8	-0.01		0	3	12	15	-0.28
13384836	Sc4mol	C-4 methylsterol oxidase	1	0	1	2	-0.11		0	0	0	0	
27370012	Zmpste24	CAAX prenyl protease 1 homolog	1	0	0	1	-0.62 #		2	0	0	2	-0.58 #
12963507	Rce1	CAAX prenyl protease 2	2	0	0	2	-0.24		0	0	0	0	
6753374	Cdh1	cadherin-1	5	4	0	9	0.82 #		1	6	7	14	0.72 #
6680900	Cdh16	cadherin-16 precursor	7	1	7	15	-0.22		0	2	11	13	-0.25
6753242	Calb1	calbindin	1	0	0	1	-5.43 #		0	0	0	0	
70995287	Cabin1	calcineurin binding protein 1	2	18	2	22	-0.02		0	0	0	0	
84794597	Ppp3r1	calcineurin subunit B type 1	0	2	1	3	-0.29		0	0	0	0	
119672912	Cherp	calcium homeostasis endoplasmic reticulum protein	6	9	14	29	0.12		3	8	3	14	0.12
21450201	Cbara1	calcium uptake protein 1, mitochondrial	1	0	0	1	-4.02 #		0	0	0	0	
18158420	Camk2d	calcium/calmodulin-dependent protein kinase type II subunit delta isoform 3	7	14	14	35	0.19		0	11	12	23	0.22
85362729	Camk2g	calcium/calmodulin-dependent protein kinase type II subunit gamma isoform 3	0	0	4	4	0.08		0	0	0	0	
27369581	Slc25a12	calcium-binding mitochondrial carrier protein Aralar1	0	0	0	0			4	1	0	5	-0.64 #
294832028	Slc25a13	calcium-binding mitochondrial carrier protein Aralar2 isoform 2	0	0	0	0			3	1	1	5	0.08

27369998	Slc25a24	calcium-binding mitochondrial carrier protein SCaMC-1	2	1	7	10	-0.22	11	2	9	22	-0.19
161086893	Cab39	calcium-binding protein 39	1	0	0	1	0.09	0	0	0	0	
9790225	1500003O03Rik	calcium-binding protein p22	5	0	0	5	-0.56	0	0	0	0	
309270749	LOC100504089	calcium-binding protein p22-like, partial	0	1	6	7	0.43	0	1	2	3	-0.06
33468885	Cacybp	calcyclin-binding protein	3	2	1	6	0.24	0	0	0	0	
21704156	Cald1	caldesmon 1	1	3	0	4	0.11	0	0	0	0	
100816903	Clmn	calmin isoform b	0	1	0	1	1.17 #	0	5	1	6	1.52 #
6753244	Calm1	calmodulin	35	49	28	112	0.05	33	27	31	91	0.16
255069776	2310057J16Rik	calmodulin-regulated spectrin-associated protein 3 isoform 2	5	6	5	16	-0.29	0	0	1	1	-0.28
160333216	Canx	calnexin precursor	29	6	9	44	-0.19	121	11	27	159	-0.28 *
110227381	Capns1	calpain small subunit 1	6	18	16	40	-0.02	0	6	5	11	-0.09
160333229	Capn1	calpain-1 catalytic subunit	2	17	14	33	-0.09	0	7	10	17	0.09
157951598	Capn2	calpain-2 catalytic subunit	0	0	0	0		0	1	6	7	-0.59 #
6680846	Capn5	calpain-5	2	5	3	10	0.26	4	7	7	18	1.53 #
33563246	Cast	calpastatin	0	5	3	8	0.18	0	0	0	0	
6680952	Cnn2	calponin-2	3	1	2	6	0.55	0	0	2	2	0.19
21312564	Cnn3	calponin-3	11	2	1	14	1.22 #	0	10	5	15	-0.69 #
6680836	Calr	calreticulin precursor	26	4	9	39	-0.05	24	10	27	61	-0.18
6680840	Calu	calumenin isoform 1	4	0	0	4	-1.48 #	0	0	1	1	-2.52 #
41282022	Calu	calumenin isoform 2	0	0	0	0		2	0	0	2	-0.58 #
7110693	Prkaca	cAMP-dependent protein kinase catalytic subunit alpha	0	2	2	4	0.21	0	2	6	8	0.23
255958318	Prkacb	cAMP-dependent protein kinase catalytic subunit beta isoform 2	0	0	0	0		0	2	4	6	-0.20
45598396	Prkar2b	cAMP-dependent protein kinase type II-beta regulatory subunit	0	0	0	0		0	1	9	10	-0.04
10946986	Arpp19	cAMP-regulated phosphoprotein 19 isoform 1	0	3	2	5	0.23	0	0	0	0	
13385098	Ntpcr	cancer-related nucleoside-triphosphatase homolog	0	1	0	1	0.61 #	0	0	0	0	
51093867	Cad	carbamoyl-phosphate synthetase 2, aspartate transcarbamylase, and dihydroorotase	1	0	0	1	11.03 #	0	0	3	3	-0.33
298676452	Carkd	carbohydrate kinase domain-containing protein isoform 2	2	0	0	2	-0.07	0	0	0	0	
157951596	Car2	carbonic anhydrase 2	0	1	0	1	1.02 #	0	0	0	0	
211057396	Car5b	carbonic anhydrase 5B, mitochondrial precursor	2	0	2	4	-0.31 *	0	0	0	0	
113680352	Cbr1	carbonyl reductase [NADPH] 1	0	0	0	0		0	0	6	6	-0.04
6671688	Cbr2	carbonyl reductase [NADPH] 2	10	7	12	29	0.12	0	9	5	14	-0.01
27413160	Cbr3	carbonyl reductase 3	0	0	0	0		0	1	1	2	-0.14
269784762	Cbr4	carbonyl reductase family member 4	18	18	19	55	-0.14	0	5	4	9	-0.02
189458849	Cpm	carboxypeptidase M precursor	0	0	0	0		0	8	2	10	0.56 #
6681075	Ctf1	cardiotrophin-1	1	0	1	2	-0.12	0	0	1	1	0.68 #
85662408	Crat	carnitine O-acetyltransferase	1	3	1	5	-0.16	0	0	0	0	
162287142	Cpt1a	carnitine O-palmitoyltransferase 1, liver isoform	8	5	8	21	-0.01	0	3	1	4	0.07
225543173	Crtap	cartilage-associated protein precursor	0	1	0	1	0.46	0	0	0	0	
22165382	Csnk1a1	casein kinase I isoform alpha	16	30	12	58	-0.10	1	10	11	22	-0.01
20544147	Csnk1d	casein kinase I isoform delta isoform 2	6	12	2	20	0.08	0	0	0	0	
31542425	Csnk1e	casein kinase I isoform epsilon	0	2	0	2	0.20	0	0	0	0	
31542427	Csnk2a1	casein kinase II subunit alpha	13	20	11	44	0.04	0	5	9	14	0.04
6753540	Csnk2a2	casein kinase II subunit alpha'	11	9	4	24	0.09	0	0	0	0	
7106277	Csnk2b	casein kinase II subunit beta	18	21	21	60	0.00	1	13	10	24	0.10
161086929	Card11	caspase recruitment domain-containing protein 11	0	0	0	0		0	0	1	1	-10.24 #
6753284	Casp3	caspase-3	0	0	0	0		0	0	3	3	-0.06

157951736	Casp6	caspase-6 precursor	0	1	0	1	-0.96 #	0	0	0	0		
122056578	Casp8	caspase-8 precursor	0	0	0	0		0	0	1	1	0.52 #	
157951741	Cat	catalase	4	0	0	4	-0.02	0	0	0	0		
161484634	Comt	catechol O-methyltransferase	26	5	3	34	-0.13	5	11	11	27	-0.21	
33468999	Comtd1	catechol O-methyltransferase domain-containing protein 1	1	0	0	1	-0.12	0	0	0	0		
6753294	Ctnna1	catenin alpha-1	62	79	70	211	0.18	65	110	147	322	0.57 *,#	
157951727	Ctnna2	catenin alpha-2 isoform 1	0	5	0	5	0.38	7	10	19	36	1.83 #	
6671684	Ctnnb1	catenin beta-1	17	17	13	47	0.51	29	47	85	161	0.65 *,#	
146219849	Ctnnd1	catenin delta-1 isoform 3	33	36	21	90	0.28	15	12	65	92	0.59 #	
6681079	Ctsb	cathepsin B preproprotein	20	22	18	60	-0.02	1	5	8	14	-0.05	
6753556	Ctsd	cathepsin D precursor	25	18	30	73	0.03	0	6	5	11	-0.03	
166235890	Ctsh	cathepsin H preproprotein	9	10	9	28	0.00	0	2	1	3	-0.36	
6753558	Ctsl	cathepsin L1 preproprotein	4	9	5	18	-0.09	0	1	0	1	-0.47 #	
11968166	Ctsz	cathepsin Z preproprotein	1	0	5	6	0.03	0	0	0	0		
6680854	Cav1	caveolin-1	0	3	1	4	0.58 #	0	1	1	2	0.06	
18702317	Cav2	caveolin-2	0	0	1	1	0.03	0	2	2	4	0.43	
6753404	Cebpb	CCAAT/enhancer-binding protein beta	1	3	2	6	0.45 *	3	2	7	12	0.37	
61966683	Cebpg	CCAAT/enhancer-binding protein gamma	0	1	2	3	0.13	0	0	0	0		
67188876	Cebpz	CCAAT/enhancer-binding protein zeta	3	8	1	12	-0.13	0	34	46	80	0.03	
189458844	Cnot1	CCR4-NOT transcription complex subunit 1 isoform 2	3	2	0	5	0.58 #	0	0	0	0		
6755126	Cnot7	CCR4-NOT transcription complex subunit 7	0	1	0	1	0.15	0	0	0	0		
17505208	Cd2bp2	CD2 antigen cytoplasmic tail-binding protein 2	3	4	3	10	0.33	0	1	1	2	-0.09	
125987599	Cd2ap	CD2-associated protein	9	17	16	42	0.16	0	0	0	0		
19526794	Cd81	CD81 antigen	1	0	1	2	-0.16	0	0	0	0		
6680894	Cd9	CD9 antigen	4	2	3	9	-0.25	0	1	1	2	0.29	
9910142	Cdc42ep4	cdc42 effector protein 4	0	1	2	3	-0.11	0	0	0	0		
27369483	Cdc42se1	CDC42 small effector protein 1 isoform 1	2	1	1	4	0.18 *	0	1	0	1	0.31	
19527354	Trip10	cdc42-interacting protein 4	5	14	19	38	0.14	0	1	1	2	-0.02	
19527228	Cisd1	CDGSH iron-sulfur domain-containing protein 1	5	3	5	13	-0.14	7	1	2	10	0.11	
21728370	Cisd2	CDGSH iron-sulfur domain-containing protein 2	4	3	6	13	-0.24 *	19	0	1	20	-0.16	
168229148	Cisd3	CDGSH iron-sulfur domain-containing protein 3, mitochondrial precursor	0	1	0	1	-0.02	1	2	1	4	0.16	
50657347	Cdk5rap2	CDK5 regulatory subunit-associated protein 2	1	1	2	4	-2.94 #	1	3	2	6	-2.73 #	
89363038	Mnat1	CDK-activating kinase assembly factor MAT1	5	6	2	13	0.26	0	0	0	0		
27369527	Cdkn2aip	CDKN2A-interacting protein	22	36	22	80	0.21 *	0	7	4	11	0.42	
21313402	Cdkn2aipnl	CDKN2AIP N-terminal-like protein	7	3	2	12	0.14	0	0	1	1	0.18	
28076897	Cdipt	CDP-diacylglycerol--inositol 3-phosphatidyltransferase isoform 1	10	1	0	11	-0.27	11	1	3	15	-0.30	
133922586	4933424B01Rik	cell cycle regulator Mat89Bb homolog	3	7	3	13	0.27	0	1	0	1	0.15	
10946722	Rqcd1	cell differentiation protein RCD1 homolog	8	5	4	17	-0.02	0	2	1	3	-0.47 #	
6753364	Cdc42	cell division control protein 42 homolog precursor	13	17	11	41	-0.05	15	13	11	39	0.03	
22779899	Cdc5l	cell division cycle 5-related protein	55	66	58	179	0.07	73	75	90	238	0.17	
33563288	Ccar1	cell division cycle and apoptosis regulator protein 1	58	90	71	219	0.19 *	5	24	27	56	-0.03	
30387632	Cdc23	cell division cycle protein 23 homolog	0	1	0	1	0.20	0	0	0	0		
124378022	Cdc27	cell division cycle protein 27 homolog	0	1	0	1	0.59 #	0	0	0	0		
22122529	Cdca7l	cell division cycle-associated 7-like protein	0	0	0	0		1	4	3	8	0.07	
21313220	Cdca7	cell division cycle-associated protein 7	0	0	0	0		0	4	4	8	-0.36	
309264229	LOC640611	cell division protein kinase 4-like	0	0	0	0		0	0	1	1	-2.81 #	

188219567	Lyar	cell growth-regulating nucleolar protein	35	29	29	93	0.11		5	18	24	47	0.07
157909782	Cnbp	cellular nucleic acid-binding protein isoform 2	6	13	12	31	0.10		0	0	0	0	
157909784	Cnbp	cellular nucleic acid-binding protein isoform 3	13	14	13	40	0.07		1	11	13	25	0.34
187960040	Trp53	cellular tumor antigen p53 isoform b	12	30	22	64	0.41		0	12	8	20	0.06
10257421	Cetn2	centrin-2	14	13	8	35	0.06		2	8	4	14	0.13 *
309264720	LOC100503098	centrin-2-like	1	0	0	1	-0.07		0	0	0	0	
6680922	Cetn3	centrin-3	5	7	5	17	-0.07		1	4	2	7	0.22
164698406	Cenpc1	centromere protein C 1	0	0	0	0			0	3	8	11	0.02
189458891	Cenpf	centromere protein F	23	33	5	61	0.61 *,#		0	0	0	0	
22122337	Cenpi	centromere protein I	0	0	0	0			0	1	4	5	-0.37
122939139	Cenpm	centromere protein M isoform 3	0	0	0	0			0	2	1	3	-0.02
29336049	Cenpo	centromere protein O	1	0	0	1	-0.19		0	5	1	6	-0.30
29789150	Cenpp	centromere protein P	0	0	0	0			0	0	1	1	1.34 #
13994186	Cenpq	centromere protein Q	3	3	0	6	-0.06		0	0	7	7	-0.10
13385850	Itgb3bp	centromere protein R	2	3	1	6	-0.14		0	0	0	0	
21312474	Apid1	centromere protein S	0	1	0	1	-0.03		0	0	1	1	-1.26 #
47523382	Mif1ip	centromere protein U	2	2	3	7	0.42		0	6	6	12	0.11
225703070	Cenpv	centromere protein V	0	0	0	0			0	1	1	2	-0.21
145208006	Stra13	centromere protein X	0	0	0	0			0	0	2	2	-0.09
39841057	Cep135	centrosomal protein of 135 kDa	0	0	0	0			0	1	0	1	-0.08
160420304	Cep164	centrosomal protein of 164 kDa	0	1	0	1	5.38 #		0	0	0	0	
16033432	Cep57	centrosomal protein of 57 kDa	0	0	0	0			0	1	0	1	1.29 #
75677520	Cln6	ceroid-lipofuscinosis, neuronal 6	2	0	0	2	-0.40		0	4	2	6	-0.05
30520001	Cggbp1	CGG triplet repeat-binding protein 1	29	37	21	87	0.02		0	3	5	8	0.30
30794432	Chmp2b	charged multivesicular body protein 2b	0	3	0	3	0.42		0	0	0	0	
31541959	Vps24	charged multivesicular body protein 3	1	1	1	3	-0.13		0	1	0	1	0.67 #
28077049	Chmp4b	charged multivesicular body protein 4b	1	6	4	11	0.38		0	0	5	5	0.33
218083710	Chid1	chitinase domain-containing protein 1 isoform 1	0	7	0	7	-0.56		0	0	0	0	
31541939	Chid1	chitinase domain-containing protein 1 isoform 2	5	0	2	7	-0.09 *		0	0	0	0	
295293090	Clcc1	chloride channel CLIC-like protein 1 isoform 2 precursor	1	0	0	1	-0.04		0	0	0	0	
15617203	Clic1	chloride intracellular channel protein 1	9	2	10	21	0.09		23	36	69	128	-0.08
27229085	Clic3	chloride intracellular channel protein 3	0	1	0	1	1.19 #		0	0	1	1	-0.32
7304963	Clic4	chloride intracellular channel protein 4	12	9	6	27	0.22		0	1	3	4	-0.17
30425036	Chdh	choline dehydrogenase, mitochondrial precursor	3	0	0	3	-0.21		0	0	1	1	-0.43
31559983	Cept1	choline/ethanolaminephosphotransferase 1	0	1	0	1	-0.20		0	0	0	0	
29164513	Pcyt1b	choline-phosphate cytidyltransferase B isoform 2	0	0	0	0			0	1	0	1	0.32
18860511	Chrac1	chromatin accessibility complex protein 1	2	5	2	9	0.17		0	0	0	0	
7304957	Chaf1a	chromatin assembly factor 1 subunit A	15	26	17	58	0.24		0	19	2	21	-0.01
21312470	Chaf1b	chromatin assembly factor 1 subunit B	14	21	14	49	0.23 *		7	15	14	36	0.05
295054298	0610010K14Rik	chromatin complexes subunit BAP18 isoform 2	0	3	0	3	0.10		0	0	0	0	
294862282	0610010K14Rik	chromatin complexes subunit BAP18 isoform 3	0	5	8	13	0.09		0	0	0	0	
21389318	0610010K14Rik	chromatin complexes subunit BAP18 isoform 4	3	3	0	6	0.14		0	0	0	0	
294862289	0610010K14Rik	chromatin complexes subunit BAP18 isoform 5	1	2	0	3	0.13		0	0	0	0	
294862292	0610010K14Rik	chromatin complexes subunit BAP18 isoform 6	0	0	0	0			2	2	1	5	0.14
21312536	Meaf6	chromatin modification-related protein MEAF6	10	9	4	23	-0.23		5	20	11	36	0.01

6671696	Cbx1	chromobox protein homolog 1	19	30	27	76	0.03	111	73	69	253	-0.07	
309264319	LOC100504483	chromobox protein homolog 3-like	27	40	34	101	-0.09	199	91	91	381	-0.06	
309262917	Gm5196	chromobox protein homolog 3-like	0	0	0	0		0	8	13	21	-0.13	
309269987	Gm6917	chromobox protein homolog 3-like	0	0	0	0		0	2	0	2	-0.17	
6671694	Cbx5	chromobox protein homolog 5	46	56	50	152	-0.24	190	102	91	383	-0.21	
61657984	Cbx6	chromobox protein homolog 6	1	1	0	2	0.27	0	3	3	6	0.12	
7304947	Cbx8	chromobox protein homolog 8	8	8	1	17	0.00	0	8	3	11	0.00	
189458810	Chd2	chromodomain helicase DNA binding protein 2	0	5	2	7	-0.19	4	23	24	51	-0.08	
124358950	Chd3	chromodomain helicase DNA binding protein 3	35	55	54	144	0.17	30	56	55	141	0.21	
189458814	Chd5	chromodomain helicase DNA binding protein 5 isoform 2	0	25	46	71	0.28	0	0	66	66	0.39	
183396792	Cdyl	chromodomain Y-like protein isoform 2	0	2	0	2	-0.04	0	6	4	10	0.31	
239985588	Chd1	chromodomain-helicase-DNA-binding protein 1	2	0	0	2	0.14	0	13	13	26	-0.04	
13386044	Chd11	chromodomain-helicase-DNA-binding protein 1-like	0	0	2	2	0.02	0	0	0	0		
39204553	Chd4	chromodomain-helicase-DNA-binding protein 4	177	257	219	653	0.20	133	403	517	1053	0.30	*
119392064	Chd8	chromodomain-helicase-DNA-binding protein 8	4	9	4	17	0.62*#	0	0	0	0		
162287089	Kif4	chromosome-associated kinesin KIF4	4	7	6	17	0.00	0	1	0	1	0.13	
189458807	Cgn	cingulin	30	55	46	131	0.05	0	3	0	3	0.53	#
56550079	Cgnl1	cingulin-like protein 1	0	1	0	1	-4.26#	0	0	0	0		
163954951	Cirh1a	cirhin	0	2	0	2	-0.32	3	18	14	35	-0.01	
256220113	Clybl	citrate lyase subunit beta-like protein, mitochondrial precursor	3	2	7	12	-0.07	0	0	0	0		
13385942	Cs	citrate synthase, mitochondrial precursor	19	19	17	55	-0.13	8	9	6	23	-0.22	
6755680	Bhlhe40	class E basic helix-loop-helix protein 40	1	2	0	3	1.63#	1	0	0	1	9.98	#
51491845	Cltc	clathrin heavy chain 1	115	180	89	384	0.64*#	63	256	407	726	0.30	
154240730	Clint1	clathrin interactor 1	0	0	3	3	-0.31	0	0	0	0		
122939196	Clta	clathrin light chain A isoform d	0	1	0	1	0.13	0	0	0	0		
30794164	Cltb	clathrin light chain B	1	1	0	2	0.59#	0	0	0	0		
6753438	Cldn3	claudin-3	4	5	7	16	-0.43	15	7	11	33	0.44	*
6753440	Cldn4	claudin-4	3	2	5	10	0.05	3	4	6	13	0.40	
9055190	Cldn6	claudin-6	0	0	0	0		0	3	0	3	0.20	
302318906	Cldn7	claudin-7	3	4	5	12	-0.12	15	5	8	28	0.26	*
9055192	Cldn8	claudin-8	2	2	0	4	0.16	0	2	4	6	0.43	
61098102	Cldn9	claudin-9	3	2	2	7	-0.33*	1	0	4	5	0.52	#
16751835	Cpsf1	cleavage and polyadenylation specificity factor subunit 1 isoform 2	107	115	75	297	0.18	16	56	65	137	0.07	
8393762	Cpsf2	cleavage and polyadenylation specificity factor subunit 2	26	35	15	76	0.19	2	20	8	30	0.13	
31980904	Cpsf3	cleavage and polyadenylation specificity factor subunit 3	20	23	19	62	0.17	0	7	5	12	0.11	
30466247	Cpsf4	cleavage and polyadenylation specificity factor subunit 4	24	26	14	64	0.13	0	3	2	5	0.06	
13386106	Nudt21	cleavage and polyadenylation specificity factor subunit 5	47	59	26	132	0.13	32	47	21	100	0.13	
62909983	Cpsf6	cleavage and polyadenylation specificity factor subunit 6	54	63	35	152	0.15	17	27	9	53	0.22	*
256665245	Cpsf7	cleavage and polyadenylation specificity factor subunit 7 isoform 2	66	62	42	170	0.10	12	20	18	50	0.29	
13195628	Cstf1	cleavage stimulation factor subunit 1	23	29	20	72	0.12	1	17	5	23	0.08	
18875338	Cstf2	cleavage stimulation factor subunit 2	59	57	49	165	0.20	0	2	0	2	0.15	
148277061	Cstf2t	cleavage stimulation factor subunit 2 tau variant	6	20	13	39	0.22	0	0	0	0		

21704042	Cstf3	cleavage stimulation factor subunit 3 isoform 1	60	65	41	166	0.10		8	43	18	69	0.11
22122537	Clptm1l	clef lip and palate transmembrane protein 1-like protein	1	0	0	1	-0.57		0	0	0	0	
163644247	Clasp1	CLIP-associating protein 1 isoform 3	0	3	0	3	1.53#		0	0	0	0	
84871978	Mycbp	C-Myc-binding protein	5	3	6	14	0.11		2	2	1	5	0.08*
226823359	Copa	coatomer subunit alpha	11	9	15	35	-0.19		1	9	34	44	0.22
15426055	Copb1	coatomer subunit beta	3	1	2	6	0.18		0	6	18	24	-0.22
29789080	Copb2	coatomer subunit beta'	1	1	2	4	-0.20		0	1	4	5	-0.38
148747410	Arcn1	coatomer subunit delta	1	0	0	1	-0.18		0	0	4	4	0.46#
10946972	Cope	coatomer subunit epsilon	7	0	5	12	-0.38		0	1	3	4	-0.29
8567338	Copg	coatomer subunit gamma isoform 1	0	0	0	0			0	0	3	3	-0.62#
8567340	Copg2	coatomer subunit gamma-2	1	1	1	3	-0.10		3	2	4	9	-0.10
9789913	Copz1	coatomer subunit zeta-1	6	4	6	16	-0.17*		0	0	1	1	-0.10
21313396	Mmab	cob(I)yrinic acid a,c-diamide adenosyltransferase, mitochondrial precursor	4	7	7	18	-0.16		0	0	0	0	
6680924	Cfl1	cofilin-1	34	32	25	91	0.00		32	40	43	115	-0.08
149255823	LOC100048522	cofilin-1-like	1	0	0	1	-0.01		0	0	0	0	
6671746	Cfl2	cofilin-2	6	8	4	18	0.11		0	0	0	0	
40254610	Stag1	cohesin subunit SA-1	26	47	37	110	0.07		4	51	36	91	0.17
118150674	Stag2	cohesin subunit SA-2	46	70	54	170	0.27*		5	56	48	109	0.27
157738617	Cchcr1	coiled-coil alpha-helical rod protein 1	1	0	1	2	-0.16		0	0	0	0	
110835702	Cc2d1a	coiled-coil and C2 domain-containing protein 1A	0	5	2	7	-0.59#		0	1	0	1	-0.17
28892935	Cc2d1b	coiled-coil and C2 domain-containing protein 1B	0	1	3	4	0.25		0	0	0	0	
168823441	Ccdc109a	coiled-coil domain-containing protein 109A	3	1	1	5	0.41		13	7	8	28	-0.16
58037169	Ccdc115	coiled-coil domain-containing protein 115	0	2	1	3	-0.30		0	0	0	0	
227496903	Ccdc12	coiled-coil domain-containing protein 12	0	2	2	4	0.17		0	1	2	3	0.24
47059143	Ccdc124	coiled-coil domain-containing protein 124	3	10	6	19	0.00		0	0	0	0	
13195630	Ccdc127	coiled-coil domain-containing protein 127 isoform 1	0	0	0	0			0	0	1	1	0.80#
116268089	Ccdc134	coiled-coil domain-containing protein 134 precursor	11	2	1	14	-0.04		0	0	0	0	
22779893	Ccdc137	coiled-coil domain-containing protein 137	3	5	2	10	0.01		0	1	1	2	-0.11
85702181	Ccdc160	coiled-coil domain-containing protein 160	1	1	1	3	-1.81#		5	1	0	6	-1.81#
58037313	Ccdc18	coiled-coil domain-containing protein 18	1	0	0	1	-4.36#		0	0	0	0	
27229249	Ccdc41	coiled-coil domain-containing protein 41	0	0	0	0			2	0	1	3	-6.26#
13385406	Ccdc43	coiled-coil domain-containing protein 43	1	2	2	5	-0.14		0	0	0	0	
125628650	Ccdc47	coiled-coil domain-containing protein 47 precursor	3	2	3	8	-0.46*		5	0	2	7	-0.49#
59858549	Ccdc55	coiled-coil domain-containing protein 55	1	1	0	2	0.00		0	0	0	0	
226874940	Ccdc58	coiled-coil domain-containing protein 58 isoform 3	12	12	13	37	-0.39		0	0	0	0	
19526948	Ccdc71	coiled-coil domain-containing protein 71	0	0	0	0			0	0	2	2	-0.04
194473718	Ccdc75	coiled-coil domain-containing protein 75	0	1	1	2	0.10		0	0	0	0	
165905619	Ccdc86	coiled-coil domain-containing protein 86	0	0	0	0			2	4	4	10	0.19
21450195	Ccdc92	coiled-coil domain-containing protein 92	1	1	1	3	-0.01		0	1	1	2	-0.09
21312171	Ccdc94	coiled-coil domain-containing protein 94	0	0	4	4	0.38		0	1	0	1	-0.34
13384734	Chchd1	coiled-coil-helix-coiled-coil-helix domain-containing protein 1	4	1	1	6	-0.29		0	0	0	0	
34013514	Chchd10	coiled-coil-helix-coiled-coil-helix domain-containing protein 10, mitochondrial	1	0	2	3	0.14		0	0	0	0	
149274502	LOC100045688	coiled-coil-helix-coiled-coil-helix domain-containing protein 2, mitochondrial-like	24	18	16	58	-0.20		7	3	8	18	-0.18
21313618	Chchd3	coiled-coil-helix-coiled-coil-helix domain-containing protein 3, mitochondrial precursor	1	2	1	4	0.89#		25	15	9	49	0.32



267844806	Chchd6	coiled-coil-helix-coiled-coil-helix domain-containing protein 6 isoform 2	1	0	0	1	0.15		4	3	6	13	0.51	#
31088924	Chchd7	coiled-coil-helix-coiled-coil-helix domain-containing protein 7	10	3	9	22	-0.13		0	2	0	2	0.13	
34304060	Chchd8	coiled-coil-helix-coiled-coil-helix domain-containing protein 8	1	0	0	1	-0.27		0	0	0	0		
134053929	Coil	coilin	2	0	0	2	0.20		0	5	5	10	-0.51	#
240255574	Csde1	cold shock domain-containing protein E1 isoform 2	1	4	6	11	0.06		0	2	1	3	-2.49	#
6680946	Cirbp	cold-inducible RNA-binding protein	32	30	20	82	-0.12		58	30	16	104	0.06	
161484654	Col4a1	collagen alpha-1(IV) chain precursor	1	0	0	1	-0.50		0	0	0	0		
40789282	Col18a1	collagen alpha-1(XVIII) chain isoform 2	17	22	7	46	0.04		4	31	34	69	-0.03	
269315863	Col6a5	collagen alpha-5(VI) chain precursor	0	1	0	1	9.84	#	0	0	0	0		
22296603	Comm3	COMM domain-containing protein 3	0	0	0	0			0	1	0	1	-0.57	#
309266718	LOC100048759	complement C3-like, partial	1	0	0	1	-0.28		0	0	0	0		
112181167	C1qbp	complement component 1 Q subcomponent-binding protein, mitochondrial	9	9	12	30	-0.14		16	21	31	68	-0.06	
22165392	Ncapd2	condensin complex subunit 1	6	13	6	25	0.05		0	2	2	4	-0.08	
161016797	Ncapd3	condensin-2 complex subunit D3	10	9	8	27	0.47	*	0	2	2	4	-0.05	
91208439	Ncapg2	condensin-2 complex subunit G2	0	2	1	3	0.63	#	0	0	0	0		
126090857	Fam120a	constitutive coactivator of PPAR-gamma-like protein 1	1	0	3	4	0.03		0	0	11	11	-0.40	
295424139	Gps1	COP9 signalosome complex subunit 1 isoform 2	1	4	4	9	0.09		0	1	0	1	0.29	
70909327	Cops2	COP9 signalosome complex subunit 2	3	11	8	22	0.22		0	1	0	1	0.30	
6753488	Cops3	COP9 signalosome complex subunit 3	7	11	5	23	0.28	*	0	2	1	3	0.33	
6753490	Cops4	COP9 signalosome complex subunit 4	6	10	15	31	0.22		0	0	0	0		
7304971	Cops5	COP9 signalosome complex subunit 5	7	6	7	20	0.05		0	0	0	0		
33563284	Cops6	COP9 signalosome complex subunit 6	5	6	7	18	0.60	#	0	0	0	0		
7242142	Cops7a	COP9 signalosome complex subunit 7a isoform 1	5	15	5	25	0.18		0	4	0	4	0.45	#
114158691	Cops8	COP9 signalosome complex subunit 8	8	17	7	32	0.13		0	4	6	10	0.05	
25141330	Cpne1	copine-1	0	0	1	1	-0.31		0	0	0	0		
23943807	Cpne2	copine-2	2	2	3	7	-0.03		0	0	2	2	-0.08	
25141335	Cpne3	copine-3	0	0	0	0			0	1	0	1	-0.46	#
21630253	Cpne8	copine-8 isoform 1	2	9	3	14	0.06		0	0	0	0		
165932339	Cutc	copper homeostasis protein cutC homolog isoform 2	2	4	2	8	0.41	*	0	0	0	0		
161484660	Cpox	coproporphyrinogen-III oxidase, mitochondrial precursor	15	5	12	32	-0.20		0	3	4	7	0.11	
189458847	Cobll1	cordon-bleu protein-like 1 isoform 2	0	2	0	2	0.39		0	0	0	0		
283945579	H2afy	core histone macro-H2A.1 isoform 4	4	15	5	24	-0.23		466	335	349	1150	-0.02	
238814333	Cbfb	core-binding factor subunit beta isoform 2	6	7	5	18	-0.06		1	5	4	10	0.12	
6753494	Coro1b	coronin-1B	7	7	6	20	0.18		0	0	3	3	-0.26	
31542413	Coro1c	coronin-1C	14	15	15	44	0.15		0	0	1	1	0.01	
30794278	Coro2a	coronin-2A	0	6	0	6	0.08		0	0	0	0		
133778913	Hsd11b2	corticosteroid 11-beta-dehydrogenase isozyme 2	15	7	5	27	-0.36		20	9	4	33	0.02	
45598394	Nr2f2	COUP transcription factor 2 isoform 1	13	14	10	37	-0.07		0	4	1	5	0.06	
21735441	Cmc1	COX assembly mitochondrial protein homolog	1	1	2	4	0.03		0	0	0	0		
18390325	Cxxc1	cpG-binding protein	0	2	3	5	0.28		0	0	0	0		
6753412	Cfdp1	craniofacial development protein 1	0	1	1	2	-0.21	*	0	1	0	1	0.16	
6753428	Ckmt1	creatine kinase U-type, mitochondrial precursor	9	13	15	37	0.05		1	6	8	15	0.23	
70995311	Crebbp	CREB-binding protein	2	15	9	26	0.62	*,#	0	0	0	0		
13385288	Crnk1	crooked neck-like protein 1	0	3	11	14	0.19		20	26	26	72	0.12	
219689066	1500010J02Rik	CST complex subunit CTC1 isoform c	0	1	0	1	0.48		0	1	0	1	0.10	

28827826	Obfc1	CST complex subunit STN1	0	1	0	1	0.37	0	1	0	1	0.14
254675210	2310004N24Rik	CST complex subunit TEN1	0	2	0	2	2.29#	0	0	0	0	
23956160	Ctdnep1	CTD nuclear envelope phosphatase 1	1	1	0	2	-0.21	0	3	0	3	-0.26
47059059	Ctdspl2	CTD small phosphatase-like protein 2	0	0	0	0		14	14	10	38	-0.22
311893326	Ctbp1	C-terminal-binding protein 1 isoform 2	5	8	6	19	0.19	0	3	0	3	0.23
6753548	Ctbp2	C-terminal-binding protein 2 isoform 2	5	10	7	22	0.26	0	1	0	1	0.52#
38570084	Celf1	CUGBP Elav-like family member 1 isoform 2	66	73	61	200	-0.08	2	29	12	43	0.18
159032039	Celf2	CUGBP Elav-like family member 2 isoform 5	36	0	0	36	-0.03	0	0	0	0	
237757269	Celf2	CUGBP Elav-like family member 2 isoform 7	0	44	37	81	-0.31	0	13	4	17	-0.14
158711665	Cul4b	cullin 4B	0	0	0	0		0	11	12	23	0.05
7549752	Cul1	cullin-1	0	3	0	3	0.38	0	0	0	0	
167466258	Cul4a	cullin-4A	0	0	1	1	0.10	1	9	7	17	-0.12
189409138	Cand1	cullin-associated NEDD8-dissociated protein 1	18	29	32	79	0.01	0	6	6	12	0.09
124487291	Cwf19l1	CWF19-like protein 1	0	1	0	1	0.13	0	0	0	0	
30842792	Cwf19l2	CWF19-like protein 2	0	0	0	0		0	0	1	1	0.12
19526854	Cxxc5	CXXC-type zinc finger protein 5	6	7	6	19	-0.13	11	0	1	12	-0.16
86604724	Atf1	cyclic AMP-dependent transcription factor ATF-1	1	3	4	8	-0.46	0	0	0	0	
149252744	LOC100047997	cyclic AMP-dependent transcription factor ATF-2-like isoform 1	0	0	0	0		0	2	0	2	0.15
22122557	Atf7	cyclic AMP-dependent transcription factor ATF-7	2	2	0	4	0.10	0	1	0	1	-0.26
158966707	Creb1	cyclic AMP-responsive element-binding protein 1 isoform C	7	4	8	19	0.15	0	5	5	10	0.13
172072638	Ccnc	cyclin-C isoform 2	7	6	5	18	0.97#	0	1	0	1	0.50#
31542366	Cdk1	cyclin-dependent kinase 1	5	3	1	9	0.02	1	9	11	21	-0.13
33695123	Cdk11b	cyclin-dependent kinase 11	1	7	4	12	0.07	0	4	1	5	0.14
157816961	Cdk12	cyclin-dependent kinase 12 isoform 2	0	6	0	6	0.29	0	0	0	0	
157824204	Cdk12	cyclin-dependent kinase 12 isoform 3	2	0	0	2	0.33	0	0	0	0	
189409171	Cdk13	cyclin-dependent kinase 13 isoform 2	0	1	1	2	0.07	0	0	0	0	
6679233	Cdk18	cyclin-dependent kinase 18	0	0	0	0		0	0	1	1	0.37
7949020	Cdk2	cyclin-dependent kinase 2 isoform 2	3	2	2	7	0.26*	0	2	3	5	-0.13
49355794	Cdk2ap1	cyclin-dependent kinase 2-associated protein 1	3	1	1	5	0.33*	0	0	0	0	
6753380	Cdk4	cyclin-dependent kinase 4	0	0	0	0		0	2	0	2	-0.21
6680908	Cdk5	cyclin-dependent kinase 5	0	0	0	0		0	4	3	7	-0.16
160333726	Cdk7	cyclin-dependent kinase 7	5	7	3	15	0.35*	0	0	0	0	
31652272	Cdk8	cyclin-dependent kinase 8	0	1	0	1	1.33#	0	0	0	0	
18699998	Cdk9	cyclin-dependent kinase 9	2	3	3	8	0.45	0	0	2	2	0.14
31542372	Cdkn1b	cyclin-dependent kinase inhibitor 1B	4	4	4	12	0.40	0	1	0	1	0.72#
6753390	Cdkn2a	cyclin-dependent kinase inhibitor 2A, isoform 3 isoform 1	6	21	10	37	0.07	16	13	18	47	-0.08
34304105	Cdkl1	cyclin-dependent kinase-like 1	2	0	2	4	-0.41	0	1	0	1	0.11
51317387	Gak	cyclin-G-associated kinase	0	0	0	0		0	0	1	1	0.13
12963599	Ccnh	cyclin-H	3	8	5	16	0.19	0	2	0	2	-0.19
157841168	Ccnk	cyclin-K	3	10	9	22	0.32*	4	3	7	14	0.31*
70906460	Ccnl1	cyclin-L1	0	5	1	6	-0.02	0	2	0	2	0.22
37574068	Fam58b	cyclin-related protein FAM58A	2	2	1	5	0.18	0	2	0	2	0.17
6681069	Csrp1	cysteine and glycine-rich protein 1	12	16	11	39	0.05	0	0	3	3	0.21
160707987	Csrp2	cysteine and glycine-rich protein 2	5	6	2	13	0.11	0	0	0	0	
161016824	Nfs1	cysteine desulfurase, mitochondrial	1	1	2	4	-0.05	0	1	0	1	-0.29
55742749	Chic1	cysteine-rich hydrophobic domain 1 protein	0	0	0	0		1	0	0	1	-5.74#
9910166	Cript	cysteine-rich PDZ-binding protein	1	2	2	5	0.06	0	0	0	0	

6681015	Crip1	cysteine-rich protein 1	1	1	1	3	-0.18	0	0	0	0		
13195646	Crip2	cysteine-rich protein 2	22	16	19	57	0.00	0	4	5	9	0.05	
19527148	Creld1	cysteine-rich with EGF-like domain protein 1 precursor	1	0	0	1	-0.48	0	0	0	0		
21313278	Creld2	cysteine-rich with EGF-like domain protein 2 precursor	1	0	0	1	0.00	0	0	0	0		
167716849	CYTB	cytochrome b	0	0	0	0		0	1	0	1	-0.05	
13385268	Cyb5	cytochrome b5	2	0	0	2	-0.29	1	0	0	1	-0.09	
31542438	Cyb5b	cytochrome b5 type B precursor	8	6	5	19	-0.13	25	3	5	33	-0.10	
46593021	Uqcrc1	cytochrome b-c1 complex subunit 1, mitochondrial precursor	2	7	19	28	0.00	17	7	17	41	0.06	
13385112	Uqcrc11	cytochrome b-c1 complex subunit 10	0	0	0	0		9	0	0	9	-0.31	
22267442	Uqcrc2	cytochrome b-c1 complex subunit 2, mitochondrial precursor	12	13	23	48	-0.10	60	17	41	118	0.00	
21539599	Uqcrh	cytochrome b-c1 complex subunit 6, mitochondrial	0	0	0	0		1	0	0	1	0.02	
13385726	Uqcrb	cytochrome b-c1 complex subunit 7	3	2	8	13	0.04	4	1	3	8	0.04	
21539585	Uqcrq	cytochrome b-c1 complex subunit 8	1	2	2	5	0.03	0	0	0	0		
37574048	Uqcr10	cytochrome b-c1 complex subunit 9	0	0	1	1	-0.11	2	0	2	4	0.04	
13385168	Uqcrcfs1	cytochrome b-c1 complex subunit Rieske, mitochondrial	11	9	13	33	-0.11	7	5	6	18	-0.08	
258679439	Pet117	cytochrome c oxidase assembly factor-like	0	1	0	1	-0.38	0	0	0	0		
31541932	Cox15	cytochrome c oxidase assembly protein COX15 homolog	0	0	1	1	0.12	1	0	0	1	0.04	
6753498	Cox4i1	cytochrome c oxidase subunit 4 isoform 1, mitochondrial precursor	6	5	4	15	-0.01	41	2	7	50	0.03	
112181182	Cox5a	cytochrome c oxidase subunit 5A, mitochondrial precursor	3	3	4	10	0.03	39	6	3	48	0.06	
149263037	LOC100046079	cytochrome c oxidase subunit 5B, mitochondrial-like	0	0	1	1	0.19	6	0	3	9	0.25	
13385090	Cox6b1	cytochrome c oxidase subunit 6B1	4	2	2	8	0.06	15	3	5	23	0.13	
149263103	Gm6265	cytochrome c oxidase subunit 6C-like	0	0	0	0		2	0	0	2	-0.75	#
31981830	Cox7a2	cytochrome c oxidase subunit 7A2, mitochondrial precursor	1	0	0	1	-0.23	15	0	6	21	0.01	
6677977	Cox7a2l	cytochrome c oxidase subunit 7A-related protein, mitochondrial isoform 2	2	0	1	3	0.48	3	0	1	4	0.14	
167716840	COX2	cytochrome c oxidase subunit II	0	0	3	3	0.19	0	0	24	24	0.29	
34538601	COX2	cytochrome c oxidase subunit II	11	10	0	21	-0.10	90	25	0	115	-0.06	
226453481	COX3	cytochrome c oxidase subunit III	0	0	0	0		0	0	2	2	0.24	
149270456	Gm10053	cytochrome c, somatic-like isoform 2	31	19	25	75	-0.01	0	0	2	2	0.08	
13385006	Cyc1	cytochrome c1, heme protein, mitochondrial	22	21	24	67	-0.07	7	10	6	23	-0.53	#
110347487	Aco1	cytoplasmic aconitate hydratase	0	0	0	0		0	0	1	1	-2.14	#
134288917	Dync1h1	cytoplasmic dynein 1 heavy chain 1	146	434	304	884	0.23	9	141	284	434	0.17	
6753658	Dync1i2	cytoplasmic dynein 1 intermediate chain 2 isoform 5	8	6	13	27	0.31	0	0	1	1	-0.13	
22122795	Dync1li1	cytoplasmic dynein 1 light intermediate chain 1	10	7	9	26	0.33	0	0	0	0		
225543181	Dync1li2	cytoplasmic dynein 1 light intermediate chain 2	2	5	10	17	0.16	0	2	0	2	0.66	#
26986541	Dync2li1	cytoplasmic dynein 2 light intermediate chain 1	0	0	0	0		0	0	1	1	-0.39	
164698474	Cyfp1	cytoplasmic FMR1-interacting protein 1 isoform a	25	33	36	94	-0.22	0	24	21	45	-0.02	
258547119	Cyfp1	cytoplasmic FMR1-interacting protein 1 isoform b	0	0	1	1	-0.23	0	7	15	22	-0.13	
84370256	Cyfp2	cytoplasmic FMR1-interacting protein 2	10	18	18	46	-0.19	0	0	7	7	-0.25	
260166721	Ckap5	cytoskeleton-associated protein 5 isoform 1	0	0	12	12	-0.07	0	0	0	0		

260166719	Ckap5	cytoskeleton-associated protein 5 isoform 2	20	49	0	69	0.18		0	0	0	0	
255069715	Lap3	cytosol aminopeptidase	3	0	0	3	-0.48		0	0	0	0	
225690614	Acot7	cytosolic acyl coenzyme A thioester hydrolase isoform 2	0	9	8	17	-0.24		0	0	5	5	0.05
225690618	Acot7	cytosolic acyl coenzyme A thioester hydrolase isoform 3	5	0	0	5	-0.13		0	2	0	2	-0.12
27369816	Engase	cytosolic endo-beta-N-acetylglucosaminidase	0	1	1	2	1.07 #		0	0	0	0	
6754908	Nubp2	cytosolic Fe-S cluster assembly factor NUBP2	0	0	0	0			0	0	1	1	-0.14
31981273	Cndp2	cytosolic non-specific dipeptidase	0	0	0	0			0	1	0	1	-0.68 #
256665238	Nt5c2	cytosolic purine 5'-nucleotidase isoform 3	1	3	0	4	-0.25		0	1	2	3	-0.10
224922835	Specc1l	cytospin-A isoform b	0	1	0	1	0.86 #		0	0	0	0	
71979930	Specc1	cytospin-B	0	1	0	1	0.42		0	0	0	0	
29126213	D19Bwg1357e	D19Bwg1357e protein	0	0	0	0			22	31	34	87	0.08
52353955	Phgdh	D-3-phosphoglycerate dehydrogenase	0	0	2	2	-0.18		1	11	24	36	0.43
42734496	Fam3c	D6Wsu176e protein precursor	6	1	5	12	-0.51		5	2	1	8	-0.09
169790818	Dazap1	DAZ-associated protein 1 isoform a	67	66	36	169	-0.08		46	30	31	107	-0.11
170014720	Bdh1	D-beta-hydroxybutyrate dehydrogenase, mitochondrial precursor	0	1	0	1	-0.21		0	0	1	1	-0.01
86476044	Dcun1d1	DCN1-like protein 1 isoform 2	10	15	8	33	0.04		0	7	3	10	0.03
23956220	Dcun1d5	DCN1-like protein 5	2	2	0	4	0.35		0	0	0	0	
168480115	Dcaf13	DDB1- and CUL4-associated factor 13	0	0	0	0			4	16	19	39	-0.01
58037257	Dcaf7	DDB1- and CUL4-associated factor 7	0	0	4	4	0.30		0	1	3	4	0.15
254675193	Ddx31	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 31	2	0	0	2	0.11		2	5	3	10	0.06
226246667	Dhx16	DEAH (Asp-Glu-Ala-His) box polypeptide 16	13	15	16	44	0.06		0	21	12	33	0.22
112181185	Daxx	death domain-associated protein 6	0	2	1	3	0.63 #		0	0	0	0	
51556456	Dido1	death-inducer obliterator 1 isoform 1	0	0	0	0			1	0	0	1	-0.23
76096375	Dido1	death-inducer obliterator 1 isoform 3	14	34	17	65	0.41 *		0	0	0	0	
88853584	Dock1	dedicator of cytokinesis protein 1	8	15	13	36	-0.20		0	0	0	0	
124358946	Dock5	dedicator of cytokinesis protein 5	0	2	2	4	-0.21		0	0	0	0	
78191789	Dock7	dedicator of cytokinesis protein 7	0	3	1	4	0.52		0	0	0	0	
190194401	Dock9	dedicator of cytokinesis protein 9 isoform 4	0	2	1	3	0.75 #		0	0	0	0	
31980844	Dhrs1	dehydrogenase/reductase SDR family member 1	11	1	2	14	-1.05 #		1	0	3	4	-0.27
117647267	Dhrs13	dehydrogenase/reductase SDR family member 13 precursor	4	0	0	4	-0.99 #		0	0	1	1	-1.01 #
256220343	Dhrs4	dehydrogenase/reductase SDR family member 4 isoform 1	32	29	19	80	-0.04		0	0	0	0	
13507612	Dhrs4	dehydrogenase/reductase SDR family member 4 isoform 2	0	0	0	0			0	3	3	6	0.02
226958616	Dhrs7	dehydrogenase/reductase SDR family member 7 precursor	2	0	0	2	-0.23		0	0	0	0	
285403538	Dhrs7b	dehydrogenase/reductase SDR family member 7B isoform 1	2	0	1	3	0.01		0	3	5	8	-0.11
117414164	Tm7sf2	delta(14)-sterol reductase	0	0	0	0			0	0	6	6	0.04
114155129	Dhcr24	delta(24)-sterol reductase precursor	0	1	0	1	9.84 #		0	7	5	12	-0.30
7949037	Ech1	delta(3,5)-Delta(2,4)-dienoyl-CoA isomerase, mitochondrial precursor	12	7	9	28	-0.04		0	0	0	0	
255958294	Aldh18a1	delta-1-pyrroline-5-carboxylate synthase isoform 2	9	1	0	10	0.05		3	1	3	7	-0.22 *
147904706	Dennd2d	DENN domain-containing protein 2D isoform 2	0	2	1	3	0.16		0	0	1	1	-0.35
124486710	Dennd3	DENN domain-containing protein 3	0	0	0	0			0	0	1	1	-10.24 #
13386092	Denr	density-regulated protein	6	8	6	20	-0.02		0	0	0	0	

247269645	Dguok	deoxyguanosine kinase, mitochondrial isoform 2	2	0	0	2	-0.25	0	0	0	0		
19526976	Dnttip1	deoxynucleotidyltransferase terminal-interacting protein 1	21	20	17	58	-0.17	0	3	2	5	0.09	
24418931	Dnttip2	deoxynucleotidyltransferase terminal-interacting protein 2	19	15	19	53	-0.19	70	102	132	304	-0.02	
148539953	Dnase1l2	deoxyribonuclease-1-like 2 precursor	4	0	2	6	0.18	0	0	2	2	0.19	
21281687	Dut	deoxyuridine triphosphatase isoform 2	11	9	8	28	-0.20	0	3	2	5	-0.06	
27754054	Dcakd	dephospho-CoA kinase domain-containing protein	10	7	3	20	-0.17 *	8	4	8	20	-0.12	
13195638	Derl1	derlin-1	2	0	0	2	-0.12	0	0	0	0		
7305007	Dsc2	desmocollin-2	0	0	0	0		0	2	2	4	1.51 #	
161016843	Dsg2	desmoglein-2 precursor	0	0	0	0		0	2	6	8	0.83 #	
309263796	LOC100044500	desmoglein-2-like	0	1	0	1	1.75 #	1	9	3	13	0.87 *,#	
190194418	Dsp	desmoplakin	15	64	23	102	-0.01	90	262	343	695	0.61 *,#	
9790219	Dstn	destrin	12	15	8	35	0.10	10	18	10	38	0.02	
189491666	Dda1	DET1- and DDB1-associated protein 1	1	0	0	1	0.04	0	0	0	0		
6681225	Drg1	developmentally-regulated GTP-binding protein 1	3	2	8	13	-0.10	0	0	0	0		
10946678	Drg2	developmentally-regulated GTP-binding protein 2	0	0	0	0		0	1	4	5	-0.31	
9506541	Dgke	diacylglycerol kinase epsilon	0	1	0	1	0.11	0	2	1	3	-0.06	
6753632	Dgat1	diacylglycerol O-acyltransferase 1	0	0	0	0		0	0	1	1	0.25	
56790942	Diexf	digestive organ expansion factor homolog	1	2	4	7	-0.01	0	9	7	16	0.04	
7106289	Dhfr	dihydrofolate reductase	1	0	0	1	-0.36	4	7	6	17	-0.18	
31982856	Dld	dihydrolipoyl dehydrogenase, mitochondrial precursor	25	12	24	61	-0.22	9	7	5	21	-0.04	
257796245	Dlat	dihydrolipoyllysine-residue acetyltransferase component of pyruvate dehydrogenase complex, mitochondrial	17	11	11	39	0.02	8	12	15	35	-0.11	
21313536	Dlst	dihydrolipoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondrial	16	21	14	51	0.14	0	0	0	0		
40254595	Dpysl2	dihydropyrimidinase-related protein 2	5	4	0	9	0.46	0	0	0	0		
160298207	Gnpat	dihydroxyacetone phosphate acyltransferase	1	0	0	1	2.88 #	0	0	0	0		
22122569	Tfb1m	dimethyladenosine transferase 1, mitochondrial	1	0	0	1	-0.04	0	0	0	0		
160707990	Ctsc	dipeptidyl peptidase 1 preproprotein	6	4	4	14	-0.02	0	0	0	0		
150378458	Adam10	disintegrin and metalloproteinase domain-containing protein 10 precursor	4	2	3	9	0.18	0	1	0	1	-0.03	
40254642	Dlg1	disks large homolog 1	12	22	8	42	0.31	0	5	1	6	0.55 #	
313661491	Dnmt1	DNA (cytosine-5)-methyltransferase 1 isoform 1	165	168	222	555	-0.03	88	76	151	315	-0.08 *	
313661495	Dnmt1	DNA (cytosine-5)-methyltransferase 1 isoform 2	157	138	218	513	-0.04	0	65	149	214	-0.10	
313661497	Dnmt1	DNA (cytosine-5)-methyltransferase 1 isoform 3	0	0	0	0		0	32	73	105	-0.17	
313661499	Dnmt1	DNA (cytosine-5)-methyltransferase 1 isoform 4	0	0	0	0		0	33	0	33	-0.20	
6681209	Dnmt3a	DNA (cytosine-5)-methyltransferase 3A isoform 1	0	0	2	2	0.05	40	65	97	202	0.05	
24371231	Dnmt3a	DNA (cytosine-5)-methyltransferase 3A isoform 2	0	0	0	0		0	3	3	6	0.30	
7657011	Ddb1	DNA damage-binding protein 1	6	14	10	30	0.11	30	103	121	254	-0.01	
29150251	Ddb2	DNA damage-binding protein 2	1	1	2	4	0.04	0	0	0	0		
187960064	Ercc1	DNA excision repair protein ERCC-1 isoform a	0	1	0	1	0.20	0	0	0	0		
133892266	Lig1	DNA ligase 1	7	21	27	55	0.32 *	0	0	4	4	0.06	

71061470	Lig3	DNA ligase 3	3	3	1	7	0.15		0	0	0	0	
12963557	Dmap1	DNA methyltransferase 1-associated protein 1	7	10	9	26	0.24*		1	12	3	16	0.12
6678938	Msh2	DNA mismatch repair protein Msh2	0	5	1	6	0.31*		0	12	28	40	0.01
6754744	Msh6	DNA mismatch repair protein Msh6	5	17	13	35	0.15		1	11	42	54	0.08
6679409	Pola1	DNA polymerase alpha catalytic subunit	0	5	2	7	0.33		0	0	0	0	
21729749	Polb	DNA polymerase beta	4	4	3	11	-0.01		0	0	0	0	
254587977	Pold1	DNA polymerase delta catalytic subunit	14	11	17	42	0.11		0	0	0	0	
226423863	Pold2	DNA polymerase delta subunit 2	6	10	10	26	0.14		0	2	4	6	1.81#
29789321	Pold3	DNA polymerase delta subunit 3	0	4	0	4	0.07		0	0	0	0	
21312396	Pold4	DNA polymerase delta subunit 4	3	0	5	8	0.27*		0	0	0	0	
195947387	Pole	DNA polymerase epsilon catalytic subunit A	1	3	3	7	-0.97#		0	0	0	0	
31981174	Pole3	DNA polymerase epsilon subunit 3	18	17	17	52	0.05		0	0	0	0	
13385366	Pole4	DNA polymerase epsilon subunit 4	12	12	5	29	-0.05		0	0	0	0	
6679461	Prim2	DNA primase large subunit	6	3	3	12	-0.03		0	5	2	7	-0.13
6679459	Prim1	DNA primase small subunit	0	3	1	4	0.06		0	0	0	0	
241666402	Ercc4	DNA repair endonuclease XPF	1	3	1	5	0.39		0	1	0	1	-0.17
121247429	Xpc	DNA repair protein complementing XP-C cells homolog	10	7	3	20	0.25		0	1	1	2	0.13
153945822	Rad50	DNA repair protein RAD50	43	74	46	163	0.52*		0	11	4	15	0.31
40254551	Rev1	DNA repair protein REV1	0	0	1	1	-10.32#		0	0	0	0	
170295844	Xrcc1	DNA repair protein XRCC1	2	4	3	9	0.02		0	0	1	1	0.78#
31982546	Cdt1	DNA replication factor Cdt1	1	2	0	3	0.15		0	0	0	0	
172088119	Mcm2	DNA replication licensing factor MCM2	87	49	77	213	0.17		44	82	169	295	-0.15
33859484	Mcm3	DNA replication licensing factor MCM3	36	46	36	118	0.12*		68	118	181	367	-0.08
255918149	Mcm4	DNA replication licensing factor MCM4	33	34	26	93	0.17*		35	88	138	261	-0.03
112293273	Mcm5	DNA replication licensing factor MCM5	27	21	26	74	0.09		54	82	145	281	-0.11
6678832	Mcm6	DNA replication licensing factor MCM6	47	33	48	128	0.21		136	118	249	503	-0.08
10242373	Mcm7	DNA replication licensing factor MCM7	34	32	25	91	0.13		83	101	215	399	-0.07
227908825	Fam50b	DNA segment, human D6S2654E	3	0	4	7	0.20		0	1	0	1	-0.32
112734855	Top1	DNA topoisomerase 1	96	148	96	340	-0.19		102	107	168	377	-0.16*
153945749	Top2a	DNA topoisomerase 2-alpha	133	117	98	348	-0.13		22	83	104	209	-0.10
34328148	Top2b	DNA topoisomerase 2-beta	133	130	110	373	-0.08		99	269	252	620	-0.04
31559817	Topbp1	DNA topoisomerase 2-binding protein 1	1	0	0	1	1.16#		0	0	0	0	
6753086	Apex1	DNA-(apurinic or apyrimidinic site) lyase	55	85	50	190	0.04		19	22	32	73	0.04
33859684	Kin	DNA/RNA-binding protein KIN17	6	8	4	18	0.12*		0	0	0	0	
268370034	Mpg	DNA-3-methyladenine glycosylase	12	8	5	25	-0.07		0	0	0	0	
20806532	Csda	DNA-binding protein A short isoform	4	3	10	17	-0.18		0	2	11	13	-0.22
6677731	Rfx2	DNA-binding protein RFX2 isoform 2	1	0	0	1	0.02		0	1	0	1	0.66#
309267227	LOC100048268	DNA-binding protein RFXANK-like, partial	0	4	2	6	0.12		0	0	0	0	
124517706	Prkdc	DNA-dependent protein kinase catalytic subunit	27	104	46	177	-0.09		0	9	19	28	0.14
256985188	Polr1a	DNA-directed RNA polymerase I subunit RPA1	34	55	69	158	0.11		0	14	46	60	0.40
12963545	Znr1	DNA-directed RNA polymerase I subunit RPA12	7	5	4	16	0.06		0	0	0	0	
224967092	Polr1b	DNA-directed RNA polymerase I subunit RPA2	9	19	16	44	0.16		0	2	4	6	0.29
22003860	Cd3eap	DNA-directed RNA polymerase I subunit RPA34	1	3	5	9	0.12		0	2	2	4	0.26
27545207	Twistnb	DNA-directed RNA polymerase I subunit RPA43	3	5	7	15	-0.06		0	0	0	0	
12328816	Polr1e	DNA-directed RNA polymerase I subunit RPA49	6	5	5	16	0.32		0	2	0	2	0.55#
6677795	Polr2a	DNA-directed RNA polymerase II subunit RPB1	23	55	40	118	0.18		94	231	327	652	0.02

188219604	Polr2j	DNA-directed RNA polymerase II subunit RPB11	4	0	2	6	0.13	8	0	5	13	0.00
226958589	Polr2b	DNA-directed RNA polymerase II subunit RPB2	15	27	15	57	0.01	42	179	203	424	0.05 *
29336059	Polr2c	DNA-directed RNA polymerase II subunit RPB3	8	8	11	27	0.21	29	32	22	83	0.02
21312246	Polr2d	DNA-directed RNA polymerase II subunit RPB4 isoform 1	14	20	11	45	0.14	29	16	11	56	0.07
13385826	Polr2g	DNA-directed RNA polymerase II subunit RPB7	14	18	11	43	0.06	12	27	24	63	-0.24
110625757	Polr2i	DNA-directed RNA polymerase II subunit RPB9	9	10	7	26	0.19	24	7	3	34	0.12
198278473	Polr3c	DNA-directed RNA polymerase III subunit RPC3	0	0	0	0		0	1	0	1	-0.31
119226251	Polr1c	DNA-directed RNA polymerases I and III subunit RPAC1	5	5	6	16	0.11	0	3	5	8	0.13
6677791	Polr1d	DNA-directed RNA polymerases I and III subunit RPAC2 isoform 1	5	7	7	19	0.07	0	0	0	0	
124249077	Polr2e	DNA-directed RNA polymerases I, II, and III subunit RPABC1	11	16	9	36	0.07	23	23	13	59	0.09
58037181	Polr2f	DNA-directed RNA polymerases I, II, and III subunit RPABC2	0	0	2	2	0.73 #	0	3	0	3	0.13
21704118	Polr2h	DNA-directed RNA polymerases I, II, and III subunit RPABC3	15	9	14	38	0.15	23	2	11	36	0.11 *
219881031	Polr2l	DNA-directed RNA polymerases I, II, and III subunit RPABC5	1	1	1	3	0.28	2	0	2	4	0.11
247494234	Dnajc13	DnaJ (Hsp40) homolog, subfamily C, member 13	1	3	3	7	0.09	0	0	1	1	-0.35
6680297	Dnaja1	dnaJ homolog subfamily A member 1	10	23	16	49	-0.44	2	25	29	56	-0.04
9789937	Dnaja2	dnaJ homolog subfamily A member 2	23	23	23	69	-0.22	58	42	82	182	0.11
205361114	Dnaja3	dnaJ homolog subfamily A member 3, mitochondrial isoform 2	5	8	1	14	-0.08	7	18	22	47	0.02
9055242	Dnajb1	dnaJ homolog subfamily B member 1	9	9	13	31	-0.03	0	4	6	10	0.11
299890784	Dnajb11	dnaJ homolog subfamily B member 11 precursor	7	7	7	21	-0.10	9	11	19	39	-0.11
31982701	Dnajb12	dnaJ homolog subfamily B member 12	2	2	1	5	-0.21	0	2	0	2	0.17
21313156	Dnajb4	dnaJ homolog subfamily B member 4	11	17	17	45	-0.01	0	3	3	6	-0.12
83816907	Dnajb6	dnaJ homolog subfamily B member 6 isoform a	0	0	0	0		0	3	8	11	0.17
188219644	Dnajb6	dnaJ homolog subfamily B member 6 isoform d	1	1	0	2	-0.05	0	4	4	8	-0.01
119508443	Dnajc10	dnaJ homolog subfamily C member 10	8	10	6	24	-0.10	0	5	8	13	0.02
254540074	Dnajc17	dnaJ homolog subfamily C member 17	5	10	7	22	-0.08	0	0	0	0	
6677659	Dnajc2	dnaJ homolog subfamily C member 2	0	2	0	2	0.30	0	0	0	0	
31542563	Dnajc3	dnaJ homolog subfamily C member 3 precursor	5	2	6	13	-0.09	0	1	1	2	-0.35
157951606	Dnajc8	dnaJ homolog subfamily C member 8	13	13	11	37	0.06	1	4	6	11	0.16 *
23956266	Dnajc9	dnaJ homolog subfamily C member 9	21	20	23	64	-0.24	15	27	35	77	-0.08
6753670	Dpm1	dolichol-phosphate mannosyltransferase	14	1	2	17	-0.45	11	7	4	22	-0.09
58037125	Dpm3	dolichol-phosphate mannosyltransferase subunit 3	1	1	0	2	-0.38	1	0	0	1	-0.61 #
9966770	Dolpp1	dolichyldiphosphatase 1	2	0	0	2	-0.21	1	0	0	1	-0.08
309265149	LOC100504754	dolichyl-diphosphooligosaccharide--protein glycosyltransferase 48 kDa subunit-like isoform 1	19	24	18	61	-0.30 *	40	15	18	73	-0.28 *
282398108	Rpn1	dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1	31	28	21	80	-0.29	149	27	18	194	-0.28 *
34996495	Rpn2	dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 2	43	25	37	105	-0.29	197	58	61	316	-0.24 *

164518942	Dad1	dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit DAD1	4	4	4	12	-0.33	*	5	0	2	7	-0.19	
148747128	Stt3a	dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit STT3A	3	1	0	4	-0.38		2	0	0	2	1.61	#
61651673	Stt3b	dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit STT3B	0	5	3	8	-0.39		1	3	1	5	0.24	
21728372	Alg5	dolichyl-phosphate beta-glucosyltransferase	1	0	0	1	-0.36		0	0	0	0		
255003748	Alg3	dolichyl-P-Man:Man(5)GlcNAc(2)-PP-dolichyl mannosyltransferase	1	0	0	1	-0.29		0	0	0	0		
9055282	Mre11a	double-strand break repair protein MRE11A	13	19	8	40	0.61	*,#	0	1	1	2	0.38	
254692855	Rad21	double-strand-break repair protein rad21 homolog	47	48	40	135	0.36	*	31	66	65	162	0.24	*
226371684	Adar	double-stranded RNA-specific adenosine deaminase isoform 2	1	2	3	6	-0.16		0	0	0	0		
67625743	Adarb1	double-stranded RNA-specific editase 1 isoform 1	3	10	6	19	0.19	*	0	0	1	1	-0.23	
261245007	Dpy19l2	dpy-19-like 2	0	0	0	0			0	1	0	1	-9.93	#
21313424	Drap1	dr1-associated corepressor	5	7	5	17	0.03		0	2	1	3	0.64	#
226423873	Dbnl	drebrin-like protein isoform 3	16	11	13	40	0.17		0	0	0	0		
13384676	Dtd1	D-tyrosyl-tRNA(Tyr) deacylase 1	4	2	2	8	-0.12		0	0	0	0		
6678794	Map2k1	dual specificity mitogen-activated protein kinase kinase 1	0	0	1	1	-0.42		0	0	4	4	-0.02	
31560267	Map2k2	dual specificity mitogen-activated protein kinase kinase 2	0	0	0	0			0	1	0	1	-1.04	#
22094081	Map2k3	dual specificity mitogen-activated protein kinase kinase 3	0	0	0	0			0	1	1	2	-0.17	
24418935	Dyrk1a	dual specificity tyrosine-phosphorylation-regulated kinase 1A	0	0	0	0			3	0	1	4	-2.06	#
311893360	Dctn1	dynactin subunit 1 isoform 3	11	10	9	30	0.23	*	0	0	0	0		
28076935	Dctn2	dynactin subunit 2 isoform 3	12	12	8	32	0.26		1	1	1	3	0.14	
227116273	Dctn3	dynactin subunit 3 isoform A	3	2	1	6	0.12		0	1	0	1	-0.21	
188219518	Dctn5	dynactin subunit 5	0	2	1	3	0.04		0	0	0	0		
6756009	Dctn6	dynactin subunit 6	1	1	0	2	0.75	#	0	0	0	0		
87299637	Dnm2	dynamamin-2	0	0	0	0			0	0	3	3	-0.70	#
27369922	Dnm3	dynamamin-3 isoform 2	0	0	0	0			0	1	0	1	0.59	#
36796741	Dnmbp	dynamamin-binding protein	0	1	0	1	7.84	#	0	0	0	0		
19526960	Opa1	dynamamin-like 120 kDa protein, mitochondrial isoform 2 precursor	1	0	0	1	1.76	#	0	0	0	0		
213688406	Dynll1	dynein light chain 1, cytoplasmic	31	23	30	84	0.10		12	11	10	33	0.12	
281182473	Dynll2	dynein light chain 2, cytoplasmic	21	18	20	59	0.19		5	5	5	15	0.25	*
254540041	Dynlrb1	dynein light chain roadblock-type 1	6	8	6	20	0.13		0	0	0	0		
262231811	Dynlt1f	dynein light chain Tctex-type 1F	8	4	13	25	0.30		0	0	0	0		
111154082	Dst	dystonin isoform a	0	3	1	4	0.67	#	0	0	0	0		
94421034	Ep300	E1A binding protein p300	5	13	10	28	0.55	*	0	0	0	0		
190194425	Ep400	E1A-binding protein p400 isoform 2	15	61	22	98	0.44	*	0	2	5	7	0.34	
161353508	Cbx4	E3 SUMO-protein ligase CBX4	1	0	0	1	-0.13		0	0	0	0		
257196205	Nsmce2	E3 SUMO-protein ligase NSE2 isoform 1	9	0	7	16	-0.05		0	0	5	5	-0.12	
257196207	Nsmce2	E3 SUMO-protein ligase NSE2 isoform 2	0	7	0	7	-0.06		0	7	2	9	-0.05	
31543478	Pias1	E3 SUMO-protein ligase PIAS1	1	0	0	1	-0.56		0	0	0	0		
255918221	Pias2	E3 SUMO-protein ligase PIAS2 isoform 5	0	0	0	0			0	0	1	1	-0.36	
124249349	Pias4	E3 SUMO-protein ligase PIAS4	1	4	2	7	-0.87	#	0	1	0	1	0.36	
153792534	Ranbp2	E3 SUMO-protein ligase RanBP2	111	204	101	416	0.30	*	50	154	181	385	-0.01	
145207948	Trim25	E3 ubiquitin/ISG15 ligase TRIM25	1	0	0	1	-0.05		0	0	0	0		
33859829	Rnf20	E3 ubiquitin-protein ligase BRE1A	9	7	7	23	0.38	*	0	0	0	0		
229093990	Rnf40	E3 ubiquitin-protein ligase BRE1B	5	3	5	13	0.31		0	0	0	0		



133930784	Dtx3l	E3 ubiquitin-protein ligase DTX3L	3	5	0	8	0.39		0	0	0	0	
256773303	March5	E3 ubiquitin-protein ligase MARCH5 isoform 3	1	0	0	1	0.82#		0	0	0	0	
56699423	Nedd4	E3 ubiquitin-protein ligase NEDD4	1	2	3	6	-0.76*#		0	1	8	9	-0.28
163937858	Rbbp6	E3 ubiquitin-protein ligase RBBP6 isoform 1	4	18	0	22	0.32		0	1	2	3	0.19
226958428	Ring1	E3 ubiquitin-protein ligase RING1	12	13	10	35	0.09		0	13	5	18	0.09
33563274	Rnf2	E3 ubiquitin-protein ligase RING2	19	29	17	65	0.13		4	18	14	36	0.18
47078289	Rlim	E3 ubiquitin-protein ligase RLIM	0	0	0	0			0	0	1	1	0.08
169790808	Rnf168	E3 ubiquitin-protein ligase RNF168	0	1	0	1	-1.65#		0	0	0	0	
21311909	Rnf6	E3 ubiquitin-protein ligase RNF6	0	0	0	0			0	1	1	2	0.02
118150662	Shprh	E3 ubiquitin-protein ligase SHPRH isoform a	0	1	0	1	0.05		0	0	0	0	
118150666	Shprh	E3 ubiquitin-protein ligase SHPRH isoform b	3	1	0	4	5.05#		0	0	0	0	
119637830	Trim33	E3 ubiquitin-protein ligase TRIM33 isoform 2	0	1	2	3	0.49*		0	0	0	0	
124358936	Trim41	E3 ubiquitin-protein ligase TRIM41	0	0	0	0			0	1	5	6	-0.04
41235779	Trim56	E3 ubiquitin-protein ligase TRIM56	0	2	2	4	-0.13		0	0	1	1	0.05
163310753	Ubr5	E3 ubiquitin-protein ligase UBR5 isoform 2	0	0	0	0			0	0	1	1	0.58#
161621269	Uhrf1	E3 ubiquitin-protein ligase UHRF1 isoform A	15	19	0	34	0.08		85	58	62	205	0.01
161621273	Uhrf1	E3 ubiquitin-protein ligase UHRF1 isoform B	2	1	7	10	-0.52		0	11	21	32	-0.12
124430766	Uhrf2	E3 ubiquitin-protein ligase UHRF2	0	0	0	0			0	4	10	14	-0.19
90669983	Zfp91	E3 ubiquitin-protein ligase ZFP91	6	2	1	9	0.11		0	2	2	4	0.32
167234435	Eml4	echinoderm microtubule-associated protein-like 4 1	5	1	4	10	0.50		0	0	0	0	
71061462	Entpd5	ectonucleoside triphosphate diphosphohydrolase 5 isoform b	1	0	0	1	-0.48		0	0	0	0	
27477043	Efha1	EF-hand domain-containing family member A1	2	2	4	8	-0.03		0	0	0	0	
13386360	Efhd1	EF-hand domain-containing protein D1	0	0	0	0			0	1	3	4	1.33#
31981086	Efhd2	EF-hand domain-containing protein D2	3	0	1	4	0.99#		0	0	5	5	0.11
7106303	Ehd1	EH domain-containing protein 1	0	1	3	4	-0.06		0	1	2	3	-0.18
31981592	Ehd4	EH domain-containing protein 4	2	7	2	11	-0.14		0	5	8	13	0.24
31542602	Elavl1	ELAV-like protein 1	86	107	95	288	-0.12		171	125	123	419	-0.06
227500281	Etfa	electron transfer flavoprotein subunit alpha, mitochondrial precursor	28	24	37	89	-0.11		7	18	30	55	0.00
38142460	Etfb	electron transfer flavoprotein subunit beta	32	20	28	80	-0.15		0	11	7	18	-0.12
254588014	Etfdh	electron transfer flavoprotein-ubiquinone oxidoreductase, mitochondrial precursor	2	0	0	2	-0.04		0	1	1	2	-0.26
255003740	1200014J11Rik	ELG protein	4	4	6	14	0.18		11	15	16	42	0.05
120300971	Erc1	ELKS/Rab6-interacting/CAST family member 1 isoform 1	1	0	0	1	0.70#		0	0	0	0	
126032329	Eef1a1	elongation factor 1-alpha 1	177	222	202	601	0.02		251	283	357	891	0.02
31980922	Eef1b2	elongation factor 1-beta	14	29	24	67	0.01		2	9	14	25	0.11
54287684	Eef1d	elongation factor 1-delta isoform b	35	41	45	121	-0.03		7	25	17	49	-0.01
110625979	Eef1g	elongation factor 1-gamma	21	62	52	135	-0.06		2	23	23	48	0.11
33859482	Eef2	elongation factor 2	59	59	56	174	-0.12		83	151	349	583	-0.04
21313468	Tsfm	elongation factor Ts, mitochondrial precursor	25	39	15	79	-0.13		1	11	10	22	-0.09
227908782	Eftud1	elongation factor Tu GTP-binding domain-containing protein 1	0	0	0	0			0	0	1	1	-0.81#
27370092	Tufm	elongation factor Tu, mitochondrial isoform 1	10	0	14	24	-0.12*		5	28	37	70	-0.10
254911131	Tufm	elongation factor Tu, mitochondrial isoform 2	0	13	0	13	-0.26		0	1	1	2	-0.39

85702351	Elov1	elongation of very long chain fatty acids protein 1 isoform 2	4	2	1	7	-0.42 *	6	1	0	7	-1.04 #
18496985	Elov6	elongation of very long chain fatty acids protein 6	4	1	1	6	-0.50	0	0	0	0	
6679641	Emd	emerin	0	1	0	1	-0.20	2	7	6	15	0.09
18079312	Emid1	EMI domain-containing protein 1 precursor	0	0	0	0		0	0	2	2	-8.50 #
21553119	Emilin2	EMILIN-2 precursor	0	0	0	0		0	1	0	1	8.12 #
22094129	Neil1	endonuclease 8-like 1	0	1	0	1	-10.16 #	0	0	0	0	
6679647	Endog	endonuclease G, mitochondrial precursor	6	11	6	23	0.21	0	0	0	0	
227908769	Nth1	endonuclease III-like protein 1	6	2	4	12	-0.05	3	10	12	25	-0.08
124487057	Ermp1	endoplasmic reticulum metalloproteinase 1	9	0	3	12	-0.43	14	0	1	15	-0.48 #
19526463	Erp29	endoplasmic reticulum resident protein 29 precursor	30	16	22	68	-0.05	1	4	5	10	0.24
19072792	Erp44	endoplasmic reticulum resident protein 44 precursor	2	0	2	4	-0.20	0	0	0	0	
13384938	Ergic3	endoplasmic reticulum-Golgi intermediate compartment protein 3	1	0	0	1	-0.04	0	0	0	0	
6755863	Hsp90b1	endoplasmic reticulum chaperone protein	33	1	7	41	-0.20	62	26	73	161	-0.15
309262489	Gm11964	endothelial differentiation-related factor 1-like	9	9	9	27	-0.02	0	3	2	5	0.10
255683297	Elmo3	engulfment and cell motility protein 3	3	8	3	14	-0.09	0	0	0	0	
31712002	Edc4	enhancer of mRNA-decapping protein 4	0	1	1	2	-0.73 #	0	0	0	0	
157042787	Epc2	enhancer of polycomb homolog 2	0	2	0	2	0.37	0	0	0	0	
149258586	Gm10131	enhancer of rudimentary homolog	22	21	23	66	-0.06	48	16	7	71	0.08
30023855	Eny2	enhancer of yellow 2 transcription factor homolog	3	5	3	11	-0.10	2	1	4	7	-0.29
158854022	Echdc1	enoyl-CoA hydratase domain-containing protein 1 isoform b	0	0	0	0		0	1	1	2	0.10
225543400	Echdc2	enoyl-CoA hydratase domain-containing protein 2, mitochondrial precursor	3	1	2	6	-0.14 *	0	0	0	0	
31980955	Echdc3	enoyl-CoA hydratase domain-containing protein 3, mitochondrial precursor	3	0	3	6	-0.36	0	0	0	0	
29789289	Echs1	enoyl-CoA hydratase, mitochondrial precursor	39	38	35	112	-0.09	1	13	7	21	0.07
21312210	Eci3	enoyl-Coenzyme A delta isomerase 3	0	0	2	2	-0.24	0	0	0	0	
159110787	Mtap7	ensconsin isoform 1	0	0	1	1	-0.05	0	0	0	0	
111185907	Evpl	envoplakin	3	8	8	19	0.87 *,#	0	0	0	0	
6681283	Egfr	epidermal growth factor receptor isoform 2	0	0	0	0		0	0	1	1	0.08
12963667	Npc2	epididymal secretory protein E1 precursor	3	1	4	8	0.00	0	0	0	0	
227330625	Man2b2	epididymis-specific alpha-mannosidase precursor	2	0	1	3	-1.48 #	0	0	0	0	
131889222	Sdr39u1	epimerase family protein SDR39U1	1	1	2	4	-0.25	0	1	2	3	-0.19
37537522	Eppk1	epiplakin	0	6	1	7	0.50	5	16	2	23	0.22
112293275	Epcam	epithelial cell adhesion molecule	8	0	11	19	-0.15	7	6	21	34	0.01
165972311	Esrp1	epithelial splicing regulatory protein 1	5	10	4	19	0.09	0	2	1	3	0.02
28849887	Esrp2	epithelial splicing regulatory protein 2	0	3	5	8	0.32 *	0	0	0	0	
33468893	Epn2	epsin-2	2	0	0	2	0.71 #	0	0	0	0	
30794400	Epn3	epsin-3	0	0	1	1	1.94 #	0	0	0	0	
19527170	Kdelr1	ER lumen protein retaining receptor 1	0	0	0	0		1	0	0	1	-0.11
13385318	Kdelr2	ER lumen protein retaining receptor 2	0	0	0	0		1	0	0	1	-0.18
33859765	Eri3	ERI1 exoribonuclease 3	0	1	0	1	0.38	0	0	1	1	9.76 #
256355015	Erlin1	erlin-1	0	0	0	0		14	6	16	36	-0.37 *
23956396	Erlin2	erlin-2	6	5	0	11	-0.54	50	26	41	117	-0.34 *
7657067	Ero1l	ERO1-like protein alpha precursor	9	1	3	13	0.24	0	0	2	2	0.24
149274885	LOC100046684	ES1 protein homolog, mitochondrial-like isoform 1	6	10	6	22	-0.14	0	3	0	3	-0.41
149274887	LOC100046684	ES1 protein homolog, mitochondrial-like isoform 2	0	0	0	0		4	0	5	9	-0.08

124487344	Esf1	ESF1 homolog	0	0	2	2	0.05	0	6	9	15	0.03
16716597	Hsd17b11	estradiol 17-beta-dehydrogenase 11	7	1	0	8	-0.06	0	1	1	2	-0.25
9789991	Hsd17b12	estradiol 17-beta-dehydrogenase 12	36	31	24	91	-0.27	12	22	10	44	-0.22
157951743	H2-Ke6	estradiol 17-beta-dehydrogenase 8	21	30	20	71	-0.23	0	1	1	2	-0.56 #
6681289	Ei24	etoposide-induced protein 2.4	1	0	1	2	-7.59 #	0	0	0	0	
6681287	Ehf	ETS homologous factor	3	3	3	9	-0.08	0	0	1	1	0.26
6679627	Elf1	ETS-related transcription factor Elf-1	1	7	5	13	0.46	0	0	0	0	
12963705	Elf2	ETS-related transcription factor Elf-2	0	4	0	4	-0.05	0	0	0	0	
253683411	Elf3	ETS-related transcription factor Elf-3 isoform 1	2	6	3	11	1.19 *,#	0	1	0	1	1.14 #
21450625	Eif4a1	eukaryotic initiation factor 4A-I isoform 1	0	19	26	45	0.01	0	79	85	164	-0.14
226823309	Eif4a1	eukaryotic initiation factor 4A-I isoform 2	12	0	0	12	0.02	54	0	43	97	0.22
176865892	Eif4a2	eukaryotic initiation factor 4A-II isoform a	0	7	20	27	-0.49	0	12	0	12	-0.29
176866061	Eif4a2	eukaryotic initiation factor 4A-II isoform c	9	0	0	9	0.07	0	0	65	65	-0.02
20149756	Eif4a3	eukaryotic initiation factor 4A-III	14	12	30	56	0.12	75	76	145	296	0.00
82902181	Gm5576	eukaryotic initiation factor 4A-III-like	9	22	30	61	0.10	94	84	202	380	0.02
309265677	LOC100504817	eukaryotic initiation factor 4A-III-like	0	0	0	0		0	9	0	9	0.09
124286826	Etf1	eukaryotic peptide chain release factor subunit 1	13	12	10	35	-0.01	0	1	5	6	0.12
22165347	Eif1	eukaryotic translation initiation factor 1	15	6	0	21	0.12	0	0	0	0	
158631225	Eif1a	eukaryotic translation initiation factor 1A	3	4	0	7	0.00	1	0	0	1	0.05
31541824	Eif1ax	eukaryotic translation initiation factor 1A, X-chromosomal	7	4	2	13	-0.13	0	0	0	0	
21312159	Eif1b	eukaryotic translation initiation factor 1b	8	0	0	8	-0.11	0	0	0	0	
13385624	Eif2s1	eukaryotic translation initiation factor 2 subunit 1	29	37	23	89	-0.14	2	12	24	38	-0.12
14149756	Eif2s2	eukaryotic translation initiation factor 2 subunit 2	13	10	12	35	-0.07	0	0	0	0	
149258752	Gm9892	eukaryotic translation initiation factor 2 subunit 2-like isoform 1	0	0	0	0		0	0	2	2	0.14
309267251	Gm2223	eukaryotic translation initiation factor 2 subunit 3-like	16	18	16	50	-0.10	1	11	11	23	0.22
54020676	Eif2a	eukaryotic translation initiation factor 2A	7	4	1	12	0.05	0	0	1	1	-0.26
229577222	Eif2d	eukaryotic translation initiation factor 2D isoform 2	0	1	1	2	-0.07	0	0	0	0	
146219837	Eif3a	eukaryotic translation initiation factor 3 subunit A	1	4	3	8	0.12	0	1	11	12	-0.29
29789343	Eif3b	eukaryotic translation initiation factor 3 subunit B	0	0	3	3	0.18	0	0	6	6	-0.19
125628629	Eif3d	eukaryotic translation initiation factor 3 subunit D	0	1	1	2	0.05	0	1	1	2	-0.21
45476573	Eif3e	eukaryotic translation initiation factor 3 subunit E	0	0	0	0		1	2	3	6	-0.95 #
225637531	Eif3f	eukaryotic translation initiation factor 3 subunit F	3	3	2	8	0.13	0	0	3	3	0.00
18079341	Eif3h	eukaryotic translation initiation factor 3 subunit H	2	1	1	4	0.20	8	6	15	29	0.01
9055370	Eif3i	eukaryotic translation initiation factor 3 subunit I	2	0	1	3	-0.22	0	3	2	5	-0.26
21312044	Eif3k	eukaryotic translation initiation factor 3 subunit K	2	2	3	7	-0.03	0	3	4	7	-0.37
51093840	Eif3l	eukaryotic translation initiation factor 3 subunit L	0	0	0	0		1	4	10	15	-0.21
21703762	Eif3m	eukaryotic translation initiation factor 3 subunit M	0	1	0	1	2.77 #	0	2	3	5	-0.34
167234372	Eif4b	eukaryotic translation initiation factor 4B	25	17	13	55	-0.87 *,#	6	8	7	21	-0.43
83627717	Eif4e	eukaryotic translation initiation factor 4E	3	1	1	5	0.16	0	0	0	0	
85677506	Eif4e2	eukaryotic translation initiation factor 4E type 2 isoform 3	0	0	0	0		0	0	3	3	0.41

15808988	Eif4h	eukaryotic translation initiation factor 4H	10	9	7	26	0.01	0	1	0	1	0.40
262359885	Eif5a	eukaryotic translation initiation factor 5A-1	17	27	16	60	-0.11	0	7	10	17	-0.10
29243942	Eif5a2	eukaryotic translation initiation factor 5A-2	0	0	0	0		15	0	0	15	0.08
84043961	Eif5b	eukaryotic translation initiation factor 5B	8	21	9	38	0.14	0	0	0	0	
149261435	LOC100047658	eukaryotic translation initiation factor 5-like isoform 1	1	2	1	4	-0.14	3	2	6	11	-0.57 #
27501448	Eif6	eukaryotic translation initiation factor 6	6	15	13	34	-0.18	24	30	26	80	0.13
309266187	LOC100503956	EVI5-like protein-like isoform 2	0	0	0	0		0	1	0	1	10.07 #
83921574	Exoc4	exocyst complex component 4	1	0	2	3	-0.20	0	1	6	7	0.43
30794378	Exosc6	exosome complex exonuclease MTR3	12	15	9	36	0.09	0	3	5	8	-0.08
21450259	Exosc2	exosome complex exonuclease RRP4	15	17	20	52	0.01	0	7	10	17	0.00
39930417	Exosc3	exosome complex exonuclease RRP40	20	20	16	56	0.03	0	6	6	12	0.08
29611663	Exosc4	exosome complex exonuclease RRP41	10	22	11	43	-0.13	0	6	0	6	-0.02
124487127	Exosc7	exosome complex exonuclease RRP42	19	24	20	63	0.05	0	3	7	10	0.03
254692991	Exosc8	exosome complex exonuclease RRP43 isoform 2	16	17	21	54	-0.02	0	6	6	12	0.09
145207992	Dis3	exosome complex exonuclease RRP44	5	22	13	40	0.18	0	3	7	10	0.36
9506981	Exosc9	exosome complex exonuclease RRP45	8	12	12	32	-0.05	0	3	0	3	0.77 #
20070392	Exosc5	exosome complex exonuclease RRP46	23	29	23	75	-0.02	0	6	3	9	0.04
227116266	Exosc10	exosome component 10	8	20	7	35	0.04	0	7	7	14	0.23
38604071	Xpo1	exportin-1	0	2	1	3	0.33	3	57	73	133	-0.17
12963737	Cse1l	exportin-2	0	0	0	0		17	31	103	151	-0.16
24429570	Xpo5	exportin-5	0	0	0	0		2	11	25	38	-0.20
12746422	Xpo7	exportin-7	0	1	1	2	0.27	0	2	6	8	1.31 #
33859650	Esyt1	extended synaptotagmin-1	2	0	1	3	-0.11	0	0	1	1	-0.30
67782360	Esyt2	extended synaptotagmin-2	2	3	1	6	-0.72 *,#	0	0	0	0	
126157515	Fras1	extracellular matrix protein FRAS1 precursor	0	0	0	0		0	1	0	1	5.88 #
83921618	Ezr	ezrin	30	45	69	144	0.15	13	30	32	75	-0.17
309263097	LOC100505120	FACT complex subunit SPT16-like	58	80	70	208	-0.15	122	245	189	556	-0.29
111154063	Ssrp1	FACT complex subunit SSRP1 isoform 1	19	32	22	73	-0.26	80	57	49	186	-0.12
161086971	Capza1	F-actin-capping protein subunit alpha-1	26	34	25	85	0.12	6	16	13	35	0.13
6671672	Capza2	F-actin-capping protein subunit alpha-2	13	21	15	49	0.11	3	8	12	23	0.30
6753262	Capzb	F-actin-capping protein subunit beta isoform b	19	28	20	67	0.07	2	11	8	21	0.35
268370105	Fam101b	family with sequence similarity 101, member B	5	9	4	18	0.23	0	0	0	0	
262073031	Fam50a	family with sequence similarity 50, member A	0	5	0	5	0.37	0	0	0	0	
110625847	Fam57a	family with sequence similarity 57, member A	1	0	0	1	-0.17	0	0	0	0	
84993237	Fam60a	family with sequence similarity 60, member A	0	0	1	1	0.09	0	0	0	0	
269914118	Fam83h	family with sequence similarity 83, member H	0	1	2	3	-0.02	0	0	8	8	0.65 #
61098124	Fam98b	family with sequence similarity 98, member B	3	14	11	28	0.25	0	2	0	2	0.24
224922832	Fubp3	far upstream element (FUSE) binding protein 3	63	58	42	163	-0.07	17	34	22	73	-0.05
84662730	Fubp1	far upstream element-binding protein 1	49	60	37	146	0.11	1	13	9	23	0.12
163954948	Khsrp	far upstream element-binding protein 2	126	171	111	408	0.05	157	149	99	405	0.04
19882207	Fdps	farnesyl pyrophosphate synthase	3	2	2	7	-0.06	0	0	3	3	0.33
158533976	Faf2	FAS-associated factor 2	0	0	1	1	-0.32	0	0	1	1	-0.25
27369557	Fastkd2	FAST kinase domain-containing protein 2	0	1	1	2	-0.04	0	0	0	0	
22164784	Fads1	fatty acid desaturase 1	4	0	0	4	-1.17 #	1	0	2	3	-0.65 #
9790071	Fads2	fatty acid desaturase 2	4	0	0	4	-0.11	0	0	1	1	-0.48 #
93102409	Fasn	fatty acid synthase	0	0	0	0		0	0	105	105	-0.26
74096448	Far1	fatty acyl-CoA reductase 1	1	0	0	1	0.58 #	0	0	1	1	1.06 #

75677435	Aldh3a2	fatty aldehyde dehydrogenase	3	0	3	6	-0.22		1	3	2	6	0.14
226443015	Faah	fatty-acid amide hydrolase 1	0	0	0	0			1	0	0	1	-0.60 #
28201989	Fbxo28	F-box only protein 28	2	6	4	12	0.17		10	15	18	43	0.12
160333600	Fbxo38	F-box only protein 38	1	6	1	8	0.28 *		0	4	8	12	0.41
256665259	Fbxo4	F-box only protein 4	0	0	0	0			1	0	0	1	1.86 #
120407054	Fbxw8	F-box/WD repeat-containing protein 8	0	0	0	0			0	0	1	1	-0.72 #
33468969	Tbl1x	F-box-like/WD repeat-containing protein TBL1X	2	2	2	6	1.85 #		0	0	0	0	
31543001	Tbl1xr1	F-box-like/WD repeat-containing protein TBL1XR1	10	9	11	30	0.43 *		0	4	4	8	0.47 #
164698444	Frrs1	ferric-chelate reductase 1	0	0	1	1	-0.23		0	0	0	0	
6753912	Fth1	ferritin heavy chain	1	0	0	1	0.61 #		0	0	0	0	
114326466	Ftl1	ferritin light chain 1	18	7	19	44	0.09		0	2	9	11	0.23
20452466	Fech	ferrochelatase, mitochondrial	3	4	4	11	-0.15		0	0	0	0	
47777353	Fgfr1op	FGFR1 oncogene partner isoform 2	0	0	1	1	-0.24		0	0	0	0	
83745139	Fndc3a	fibronectin type-III domain-containing protein 3A	0	0	3	3	-0.08		0	0	0	0	
125347376	Flna	filamin-A	80	73	46	199	0.23		0	0	0	0	
145966915	Flnb	filamin-B	158	179	130	467	0.48 *		9	9	28	46	0.02
124487139	FlnC	filamin-C	4	6	9	19	0.44 *		0	0	0	0	
46048490	Fen1	flap endonuclease 1	30	33	34	97	0.07		1	10	13	24	0.02
21450325	Blvrb	flavin reductase	0	1	0	1	0.74 #		0	0	1	1	0.18
6679809	Flot1	flotillin-1	0	2	0	2	0.57		0	4	1	5	0.39
6679811	Flot2	flotillin-2 isoform 2	0	0	0	0			0	1	0	1	0.08
160333158	Fiz1	flt3-interacting zinc finger protein 1	2	1	0	3	-0.12		0	1	0	1	-0.12
21553307	Flywch2	FLYWCH family member 2	0	1	0	1	0.70 #		0	0	0	0	
82546826	Foxk1	forkhead box protein K1	3	6	5	14	0.29		0	2	2	4	3.24 #
238018071	Foxk2	forkhead box protein K2	0	1	0	1	0.97 #		0	0	0	0	
309243073	Foxp1	forkhead box protein P1 isoform 3	0	1	0	1	0.34		0	0	0	0	
161016780	Foxp4	forkhead box protein P4 isoform 3	1	0	0	1	0.51		0	0	0	0	
9055220	Fnbp4	formin-binding protein 4	0	3	1	4	0.88 #		0	0	0	0	
124378048	Fmn2	formin-like protein 2	0	0	1	1	-1.49 #		0	0	5	5	0.10
38708163	Fmn3	formin-like protein 3	0	0	0	0			0	5	0	5	0.72 #
34328117	Fosl2	fos-related antigen 2	2	4	4	10	1.28 #		0	1	2	3	-0.64 #
6753866	Fhl2	four and a half LIM domains protein 2	0	1	0	1	0.12		0	0	0	0	
51036613	Fmr1	fragile X mental retardation protein 1 homolog	1	4	1	6	-0.06		0	0	0	0	
163954943	Fxr1	fragile X mental retardation syndrome-related protein 1 isoform 2	0	1	0	1	0.65 #		0	0	0	0	
6679863	Fxn	frataxin, mitochondrial precursor	2	0	0	2	-0.07		0	0	0	0	
31981251	2500003M10Rik	Friend of PRMT1 protein	29	32	25	86	0.02		60	33	41	134	0.06
6671539	Aldoa	fructose-bisphosphate aldolase A isoform 2	19	22	21	62	-0.24		0	2	8	10	0.07
21450291	Aldob	fructose-bisphosphate aldolase B	0	1	0	1	2.26 #		0	0	0	0	
60687506	Aldoc	fructose-bisphosphate aldolase C	0	0	4	4	-0.44		0	0	0	0	
226823367	Fh1	fumarate hydratase, mitochondrial precursor	5	4	6	15	-0.17 *		0	2	1	3	-0.28
12963697	Fahd1	fumarylacetoacetate hydrolase domain-containing protein 1	5	5	5	15	-0.17		0	0	0	0	
29366814	Fahd2a	fumarylacetoacetate hydrolase domain-containing protein 2A	2	2	3	7	0.01		0	0	0	0	
21312526	Fundc1	FUN14 domain-containing protein 1	2	3	2	7	-0.19 *		0	0	0	0	
262050556	Fundc2	FUN14 domain-containing protein 2	4	2	2	8	-0.21		0	0	0	0	
125991228	Gpkow	G patch domain and KOW motifs-containing protein	0	2	4	6	0.05		0	1	0	1	0.03
226958329	Gpatch8	G patch domain containing 8	0	5	0	5	-0.08		0	0	7	7	-0.01
160948592	Gpatch4	G patch domain-containing protein 4	0	0	0	0			0	0	4	4	-0.34

309263335	Gm5806	G/T mismatch-specific thymine DNA glycosylase-like	0	3	0	3	0.16	0	0	0	0		
34328119	Gabpa	GA-binding protein alpha chain	6	12	5	23	0.18	0	0	0	0		
46575942	Gabpb1	GA-binding protein subunit beta-1 isoform a	0	1	0	1	0.26	0	0	0	0		
6753934	Gabpb1	GA-binding protein subunit beta-1 isoform b	1	0	0	1	0.01	0	0	0	0		
93102411	Galc	galactocerebrosidase precursor	2	2	0	4	-0.04	0	7	8	15	0.06	
93102413	Galk1	galactokinase	0	0	0	0		0	0	3	3	0.05	
13195672	B3gat3	galactosylgalactosylxylosylprotein 3-beta-glucuronosyltransferase 3	0	1	0	1	2.76 #	0	0	0	0		
6678682	Lgals1	galectin-1	21	8	16	45	-0.09	17	2	8	27	-0.13	
225543163	Lgals3	galectin-3	3	4	4	11	0.00	0	0	2	2	0.11	
9256551	Lgals8	galectin-8	0	2	0	2	0.16	0	0	0	0		
226531139	Lgals9	galectin-9 isoform 2	2	1	1	4	0.09	0	6	4	10	0.03	
255759890	Add3	gamma-adducin isoform b	4	4	1	9	0.58 #	0	0	0	0		
149253627	Gm3724	gamma-aminobutyric acid receptor-associated protein-like 2-like	0	0	1	1	0.06	0	0	0	0		
100815972	Ggh	gamma-glutamyl hydrolase precursor	1	0	0	1	-0.32	0	0	0	0		
125628657	Ifi30	gamma-interferon-inducible lysosomal thiol reductase	10	4	4	18	0.05	0	0	0	0		
110625902	Napg	gamma-soluble NSF attachment protein	1	0	0	1	-2.79 #	0	0	0	0		
39930567	Tubgcp3	gamma-tubulin complex component 3	0	0	0	0		0	0	1	1	0.39	
6806917	Gm2a	ganglioside GM2 activator precursor	2	2	5	9	0.13	0	0	0	0		
269954702	Gsdmc2	gasdermin-C2	2	2	0	4	0.90 #	0	3	0	3	0.72 #	
161086973	Gatad1	GATA zinc finger domain-containing protein 1	6	6	7	19	0.05	0	1	1	2	0.16	
47059159	Gatc	gatC-like protein	3	0	0	3	-0.11	0	0	0	0		
112807186	Gcn11	GCN1 general control of amino-acid synthesis 1-like 1	3	1	7	11	0.06	4	12	39	55	0.10	
226437608	Gcfc1	GC-rich sequence DNA-binding factor 1	7	9	6	22	0.15	0	12	3	15	0.21	
31982147	H6pd	GDH/6PGL endoplasmic bifunctional protein	1	0	0	1	-0.08	0	0	0	0		
19525731	Pofut2	GDP-fucose protein O-fucosyltransferase 2 precursor	1	0	0	1	-0.02	0	0	0	0		
13654268	Tsta3	GDP-L-fucose synthase	0	0	0	0		0	0	2	2	0.07	
28916693	Gsn	gelsolin isoform 1 precursor	6	14	8	28	0.02	8	12	33	53	0.19	
262331526	Gemin4	gemin 4	0	0	0	0		0	0	3	3	-0.24	
225543576	Gtl3	gene trap locus 3	12	15	5	32	-0.03	2	5	4	11	-0.07	
46402235	Gtf3c1	general transcription factor 3C polypeptide 1	46	90	41	177	0.15	2	12	9	23	0.00	
85861229	Gtf3c2	general transcription factor 3C polypeptide 2	4	16	7	27	0.03	0	2	1	3	0.26	
75677510	Gtf3c3	general transcription factor 3C polypeptide 3	12	13	7	32	0.18	6	19	11	36	0.06	
260436918	Gtf3c4	general transcription factor 3C polypeptide 4 isoform 1	13	19	10	42	0.18	0	0	4	4	0.00	
260447060	Gtf3c4	general transcription factor 3C polypeptide 4 isoform 2	0	0	0	0		0	5	0	5	0.01	
22507323	Gtf3c5	general transcription factor 3C polypeptide 5	3	2	2	7	0.25 *	0	1	2	3	-1.57 #	
27754091	Gtf3c6	general transcription factor 3C polypeptide 6	4	1	1	6	0.19	0	0	0	0		
268838606	Gtf2e2	general transcription factor IIE subunit 2	6	8	5	19	-0.15	0	0	1	1	0.10	
20270031	Gtf2f1	general transcription factor IIF subunit 1	5	10	7	22	0.22	0	1	3	4	0.31	
39930425	Gtf2f2	general transcription factor IIF subunit 2	7	12	7	26	0.17	0	1	0	1	0.70 #	
188035919	Gtf2h1	general transcription factor IIH subunit 1	2	4	1	7	0.20	0	0	0	0		
225543398	Gtf2h2	general transcription factor IIH subunit 2	3	3	1	7	0.13	0	0	0	0		
31088894	Gtf2h3	general transcription factor IIH subunit 3	0	2	1	3	0.32	0	1	0	1	-9.93 #	

6754094	Gtf2h4	general transcription factor IIH subunit 4	3	3	1	7	0.30		0	0	1	1	0.07
157951657	Gtf2h5	general transcription factor IIH subunit 5	1	0	2	3	0.11		0	0	0	0	
124001570	Gtf2i	general transcription factor II-I isoform 4	74	76	44	194	0.15*		0	7	5	12	0.20
160333071	Gmcl1	germ cell-less protein-like 1	0	0	1	1	-0.01		0	9	6	15	0.04
188528613	Gmfb	glia maturation factor beta	4	4	2	10	-1.54#		0	0	0	0	
228480230	Gltscr2	glioma tumor suppressor candidate region gene 2	0	0	0	0			0	0	1	1	0.25
7305085	Gfpt1	glucosamine--fructose-6-phosphate aminotransferase [isomerizing] 1	0	0	0	0			0	0	2	2	0.98#
254553458	Gpi1	glucose-6-phosphate isomerase	9	7	15	31	-0.01		31	54	116	201	-0.17
6679465	Prkcsh	glucosidase 2 subunit beta precursor	10	0	0	10	-0.44		3	0	0	3	0.32
116734815	Gba	glucosylceramidase isoform 2	1	1	2	4	0.14		0	0	1	1	0.23
6680027	Glud1	glutamate dehydrogenase 1, mitochondrial precursor	15	0	1	16	-0.13		1	1	0	2	-0.08
6680019	Gclm	glutamate--cysteine ligase regulatory subunit	0	0	0	0			0	0	3	3	0.20
163937861	Grwd1	glutamate-rich WD repeat-containing protein 1	12	14	11	37	0.06		0	13	9	22	-0.01
164607135	Gls	glutaminase isoform 2	3	0	0	3	-0.15		0	0	0	0	
269954679	Qars	glutamyl-tRNA synthetase isoform 2	0	0	0	0			0	0	1	1	-0.32
84370330	Glrx2	glutaredoxin-2, mitochondrial isoform b	0	0	1	1	-0.20		0	0	0	0	
21312153	Glrx5	glutaredoxin-related protein 5, mitochondrial	8	2	13	23	-0.16		0	3	1	4	-0.09
113680425	Gcdh	glutaryl-CoA dehydrogenase, mitochondrial precursor	1	2	1	4	-0.09		0	0	0	0	
84871986	Gpx1	glutathione peroxidase 1	4	8	4	16	0.14		1	7	4	12	0.25
160298213	Gsr	glutathione reductase, mitochondrial precursor	3	0	0	3	0.05		0	1	0	1	0.04
31981724	Gsta3	glutathione S-transferase A3	0	0	0	0			0	4	2	6	-0.09
160298217	Gsta4	glutathione S-transferase A4	0	1	0	1	0.14		1	15	9	25	-0.02
21313138	Gstk1	glutathione S-transferase kappa 1	7	11	11	29	0.02		0	1	0	1	0.62#
6754084	Gstm1	glutathione S-transferase Mu 1	20	28	35	83	0.37		6	22	27	55	0.94#
6680121	Gstm2	glutathione S-transferase Mu 2	16	22	25	63	0.21		17	28	35	80	0.02
33468899	Gstm3	glutathione S-transferase Mu 3	2	2	0	4	0.34		0	0	0	0	
6754086	Gstm5	glutathione S-transferase Mu 5	0	0	0	0			0	4	5	9	0.00
6754090	Gsto1	glutathione S-transferase omega-1	2	3	2	7	-0.09		0	4	2	6	-0.44
10092608	Gstp1	glutathione S-transferase P 1	22	14	14	50	0.14		1	13	13	27	0.12
160298219	Gstt1	glutathione S-transferase theta-1	0	0	0	0			0	1	0	1	0.52#
21536248	Gstt3	glutathione S-transferase, theta 3	0	0	1	1	-0.77#		0	8	7	15	-0.02
309262504	LOC100046480	glyceraldehyde-3-phosphate dehydrogenase-like	0	3	0	3	0.55		0	0	0	0	
149273202	LOC100042025	glyceraldehyde-3-phosphate dehydrogenase-like isoform 2	79	79	67	225	-0.15		428	459	553	1440	-0.09
6753966	Gpd1	glycerol-3-phosphate dehydrogenase [NAD+], cytoplasmic	2	2	0	4	-0.17		0	0	1	1	-0.09
224922803	Gpd2	glycerol-3-phosphate dehydrogenase, mitochondrial precursor	13	0	1	14	-0.12		2	0	2	4	0.00
23956140	Gdpd1	glycerophosphodiester phosphodiesterase domain-containing protein 1	3	0	0	3	-0.24		0	0	0	0	
13386066	Gcsh	glycine cleavage system H protein, mitochondrial precursor	2	0	2	4	-0.07		0	0	0	0	
31560022	Gys1	glycogen [starch] synthase, muscle	0	3	3	6	0.44		1	16	29	46	0.13
24418919	Pygb	glycogen phosphorylase, brain form	0	0	0	0			0	1	3	4	-0.60#
9790077	Gsk3b	glycogen synthase kinase-3 beta	0	2	6	8	-0.03		0	0	0	0	
31560404	Gltp	glycolipid transfer protein	1	0	0	1	0.26		0	0	1	1	-0.32
6754046	Gpaa1	glycosylphosphatidylinositol anchor attachment 1 protein	1	0	0	1	-1.48#		0	0	0	0	

260166652	Glt2d2	glycosyltransferase 28 domain containing 1-like	5	1	2	8	-0.07	0	0	0	0	
6679082	Nmt1	glycylpeptide N-tetradecanoyltransferase 1	6	11	6	23	-0.06	0	1	3	4	0.36
93102417	Gars	glycyl-tRNA synthetase	1	0	0	1	0.11	0	0	0	0	
255003777	Glod4	glyoxalase domain-containing protein 4	1	0	0	1	-0.63 #	0	2	4	6	-0.11
28565287	Gpc5	glypican-5 precursor	0	0	0	0		1	0	0	1	-5.68 #
85861218	Gmps	GMP synthase [glutamine-hydrolyzing]	5	12	7	24	0.16	0	3	3	6	0.02
6677905	Glg1	Golgi apparatus protein 1 precursor	46	34	54	134	-0.14 *	7	10	6	23	0.01
226958601	Golgb1	golgi autoantigen, golgin subfamily b, macrogolgin 1	2	7	1	10	0.04	0	0	0	0	
78190502	Golm1	Golgi membrane protein 1	0	0	0	0		1	0	0	1	-0.73 #
14140240	Golph3	Golgi phosphoprotein 3	4	0	0	4	-0.18	0	0	0	0	
31542904	Gosr1	Golgi SNAP receptor complex member 1	0	1	0	1	-0.56	0	0	0	0	
24528553	Gosr2	Golgi SNAP receptor complex member 2	1	0	1	2	-0.82 #	0	2	0	2	-0.88 #
254281178	Get4	Golgi to ER traffic protein 4 homolog isoform 2	0	0	0	0		1	2	5	8	-0.13
124378030	Golga2	Golgin subfamily A member 2 isoform b	4	4	1	9	-0.13	0	0	0	0	
20127150	Golga4	Golgin subfamily A member 4	0	0	1	1	0.73 #	0	0	0	0	
109809747	Golga7	Golgin subfamily A member 7	1	0	2	3	0.17	0	0	0	0	
239937480	Pigo	GPI ethanolamine phosphate transferase 3	0	0	0	0		0	1	0	1	-1.68 #
254028203	Pgap1	GPI inositol-deacylase	5	10	7	22	-0.23 *	21	10	22	53	-0.27 *
41351529	Pigs	GPI transamidase component PIG-S	2	1	3	6	-0.18 *	14	5	1	20	-0.27
29788753	Pigk	GPI-anchor transamidase isoform 1	1	0	0	1	-0.56	3	2	0	5	-0.31
160333231	Gprc5c	G-protein coupled receptor family C group 5 member C isoform a	2	3	3	8	0.76 #	2	4	0	6	1.35 #
160333233	Gprc5c	G-protein coupled receptor family C group 5 member C isoform b	0	1	0	1	0.44	0	0	0	0	
46810275	Grhl2	grainyhead-like protein 2 homolog	9	9	3	21	-0.26	0	0	0	0	
27369870	Gramd4	GRAM domain-containing protein 4 isoform 1	0	2	0	2	0.02	0	0	0	0	
224967126	Grn	granulins	44	44	38	126	0.09	14	20	13	47	0.01
148596982	Grsf1	G-rich sequence factor 1 isoform 2	0	0	0	0		0	0	1	1	0.04
85701616	Gcom1	GRINL1A complex locus protein 1	0	0	0	0		0	1	0	1	0.00
21312546	Fam162a	growth and transformation-dependent protein	24	19	23	66	-0.14	41	6	7	54	-0.11
269315840	Gadd45gip1	growth arrest and DNA damage-inducible proteins-interacting protein 1	1	3	0	4	-0.32	0	0	0	0	
6680083	Grb2	growth factor receptor-bound protein 2	2	4	3	9	0.06	0	2	0	2	0.47 #
312283736	Ghitm	growth hormone-inducible transmembrane protein	2	3	2	7	-0.09	0	3	2	5	0.15
13277394	Grpel1	grpE protein homolog 1, mitochondrial precursor	8	5	6	19	-0.19 *	3	1	2	6	0.20
23956104	Ak3	GTP:AMP phosphotransferase, mitochondrial	23	11	14	48	-0.17 *	0	3	4	7	-0.26
165377197	Eral1	GTPase Era, mitochondrial	1	3	1	5	-0.22	0	0	0	0	
266458391	Kras	GTPase KRas	3	6	6	15	-0.16	0	2	1	3	-0.03
149260287	LOC100045999	GTP-binding nuclear protein Ran-like	18	27	12	57	0.10	60	37	24	121	0.03
70778897	Gtpbp1	GTP-binding protein 1	1	0	1	2	-0.16	0	0	0	0	
21313623	Gtpbp8	GTP-binding protein 8 isoform 1	12	21	13	46	-0.05	0	0	0	0	
226693391	Gtpbp8	GTP-binding protein 8 isoform 2	0	0	0	0		0	3	0	3	0.04
28626508	Rheb	GTP-binding protein Rheb precursor	1	0	0	1	-0.40	0	1	0	1	0.03
21703344	Sar1a	GTP-binding protein SAR1a	5	0	3	8	-0.32	0	7	8	15	-0.18
41054806	Gnai2	guanine nucleotide-binding protein G(i) subunit alpha-2	17	27	20	64	0.07	54	43	63	160	0.30
294774560	Gng12	guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-12	11	8	10	29	0.04	14	6	8	28	0.33



309262910	Gm3785	guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-5-like	0	1	0	1	-0.03	0	0	0	0	
229608938	Gnb1	guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1	13	21	20	54	0.08	28	17	22	67	0.26 *
13937391	Gnb2	guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-2	16	34	26	76	0.13	62	36	35	133	0.25
33563256	Gnai3	guanine nucleotide-binding protein G(k) subunit alpha	8	18	8	34	0.14	25	19	17	61	0.40
6754004	Gna11	guanine nucleotide-binding protein subunit alpha-11	0	0	2	2	-0.07	0	1	2	3	0.09
6754006	Gna12	guanine nucleotide-binding protein subunit alpha-12	0	4	3	7	-0.33	0	0	0	0	
89001109	Gna13	guanine nucleotide-binding protein subunit alpha-13	2	0	4	6	0.10	11	4	2	17	0.31
160298199	Gna14	guanine nucleotide-binding protein subunit alpha-14	0	3	0	3	0.27	0	0	0	0	
6680047	Gnb2l1	guanine nucleotide-binding protein subunit beta-2-like 1	43	38	49	130	-0.08	10	46	67	123	-0.09
31542899	Gnb4	guanine nucleotide-binding protein subunit beta-4	0	3	0	3	-0.46	0	0	0	0	
30524920	Gnl3	guanine nucleotide-binding protein-like 3 long isoform	4	4	4	12	0.19	12	33	47	92	0.14
13384710	Gar1	H/ACA ribonucleoprotein complex subunit 1	22	22	22	66	-0.08	11	17	15	43	-0.07
13386120	Nhp2	H/ACA ribonucleoprotein complex subunit 2	16	20	18	54	0.00	36	23	19	78	-0.10 *
13384790	Nop10	H/ACA ribonucleoprotein complex subunit 3	16	20	14	50	-0.16	4	5	3	12	-0.04
91064867	Dkc1	H/ACA ribonucleoprotein complex subunit 4	45	46	30	121	-0.10	43	64	32	139	-0.07 *
133922588	H2-K1	H-2 class I histocompatibility antigen, K-W28 alpha chain isoform 1	1	0	0	1	-0.50	0	0	0	0	
158937262	2200002D01Rik	HAI-2 related small protein	0	1	0	1	-0.70 #	0	0	0	0	
21312204	Hdh3	haloacid dehalogenase-like hydrolase domain-containing protein 3	1	0	0	1	1.14 #	0	0	0	0	
269954704	Haus4	HAUS augmin-like complex subunit 4	0	0	0	0		0	1	0	1	-0.13
110611224	Hbs1l	HBS1-like protein isoform 2	0	1	0	1	-0.02	0	0	0	0	
160948577	Hs1bp3	HCLS1-binding protein 3	0	0	0	0		0	0	1	1	0.27
28076933	2010305A19Rik	hcp beta-lactamase-like protein C1orf163 homolog	2	1	0	3	-0.05	0	0	0	0	
38505263	Heatr5a	HEAT repeat-containing protein 5A	0	1	0	1	0.54	0	0	0	0	
82880662	Hspa14	heat shock 70 kDa protein 14 isoform 1	0	1	0	1	0.24	0	0	0	0	
124339829	Hspa1a	heat shock 70 kDa protein 1A	2	9	0	11	0.09	96	53	147	296	0.07
124339826	Hspa1b	heat shock 70 kDa protein 1B	50	64	60	174	0.18 *	0	49	105	154	0.09
124339838	Hspa1l	heat shock 70 kDa protein 1-like	14	18	33	65	0.12	52	25	149	226	0.09
112293266	Hspa4	heat shock 70 kDa protein 4	5	9	17	31	-0.03	0	0	3	3	-0.40
40254361	Hspa4l	heat shock 70 kDa protein 4L	0	0	0	0		0	0	1	1	-0.17
31981690	Hspa8	heat shock cognate 71 kDa protein	76	99	102	277	0.09	318	210	456	984	0.09
21311873	Hsbp1	heat shock factor-binding protein 1	5	4	2	11	0.18	5	0	4	9	0.41
13385998	Trap1	heat shock protein 75 kDa, mitochondrial precursor	11	4	6	21	-0.02	76	55	72	203	-0.06
158937312	Hspb1	heat shock protein beta-1	0	0	0	0		0	0	5	5	0.24
6754254	Hsp90aa1	heat shock protein HSP 90-alpha	9	14	9	32	0.13	114	93	265	472	-0.05
40556608	Hsp90ab1	heat shock protein HSP 90-beta	12	11	8	31	0.12	93	129	330	552	-0.08
31560686	Hspa2	heat shock-related 70 kDa protein 2	2	17	33	52	0.14	0	15	54	69	0.03
39573709	Hn1l	hematological and neurological expressed 1-like protein	4	4	2	10	0.17	0	0	0	0	
209862939	Hmox2	heme oxygenase 2	17	1	5	23	-0.24 *	6	3	5	14	-0.28
170172560	Hs2st1	heparan sulfate 2-O-sulfotransferase 1	0	3	3	6	-0.16	0	1	2	3	0.13

237820655	Hbxip	hepatitis B virus X-interacting protein homolog	0	1	0	1	-0.04	0	0	0	0	
111185900	Hnf1b	hepatocyte nuclear factor 1-beta	4	6	2	12	-0.01	0	0	0	0	
66793398	Foxa1	hepatocyte nuclear factor 3-alpha	0	1	0	1	0.04	0	0	0	0	
188497724	Hdgf	hepatoma-derived growth factor	35	48	34	117	0.08	2	10	10	22	0.26
6680201	Hdgfrp2	hepatoma-derived growth factor-related protein 2	9	10	9	28	0.11	16	36	42	94	0.03
34787412	Hdgfrp3	hepatoma-derived growth factor-related protein 3	15	14	12	41	0.00	7	7	11	25	-0.15
171543869	Hp1bp3	heterochromatin protein 1-binding protein 3 isoform 1	33	46	16	95	-0.03	111	78	94	283	-0.08 *
171543871	Hp1bp3	heterochromatin protein 1-binding protein 3 isoform 2	0	2	2	4	-0.18	0	2	6	8	-0.04
6754222	Hnrnpab	heterogeneous nuclear ribonucleoprotein A/B isoform 2	135	141	130	406	-0.14 *	262	235	231	728	-0.08 *
226443091	Hnrnpa0	heterogeneous nuclear ribonucleoprotein A0	105	77	66	248	-0.13	218	150	149	517	-0.10
6754220	Hnrnpa1	heterogeneous nuclear ribonucleoprotein A1 isoform a	244	241	209	694	-0.03	457	360	299	1116	-0.09
37674277	Hnrnpa3	heterogeneous nuclear ribonucleoprotein A3 isoform a	170	241	0	411	-0.03	0	0	0	0	
309264948	Gm11847	heterogeneous nuclear ribonucleoprotein A3-like	0	0	156	156	-0.01	538	204	152	894	-0.05
309263242	LOC100505153	heterogeneous nuclear ribonucleoprotein A3-like isoform 2	26	20	21	67	-0.04	0	251	267	518	-0.09
116256514	Hnrnpd	heterogeneous nuclear ribonucleoprotein D0 isoform c	36	85	63	184	-0.09	72	66	57	195	-0.09
116256516	Hnrnpd	heterogeneous nuclear ribonucleoprotein D0 isoform d	38	11	11	60	-0.12	71	75	56	202	-0.14
148664250	Hnrpdl	heterogeneous nuclear ribonucleoprotein D-like	44	42	38	124	-0.01	102	75	65	242	-0.07
261878597	Hnrnpf	heterogeneous nuclear ribonucleoprotein F	82	110	128	320	-0.05	321	245	354	920	-0.01
83699420	Rbmxt	heterogeneous nuclear ribonucleoprotein G	67	67	39	173	-0.16 *	187	120	115	422	-0.10
10946928	HnrnpH1	heterogeneous nuclear ribonucleoprotein H	72	103	147	322	-0.07	218	254	354	826	0.00
9845253	HnrnpH2	heterogeneous nuclear ribonucleoprotein H2	37	42	71	150	-0.08	118	112	156	386	-0.04
119637823	HnrnpH3	heterogeneous nuclear ribonucleoprotein H3	40	45	39	124	-0.05	73	65	62	200	-0.05
13384620	Hnrnpk	heterogeneous nuclear ribonucleoprotein K	349	400	325	1074	-0.01	630	520	575	1725	0.01
183980004	HnrnpL	heterogeneous nuclear ribonucleoprotein L	372	405	269	1046	-0.09	616	661	710	1987	-0.08
110347535	Hnrpll	heterogeneous nuclear ribonucleoprotein L-like	47	76	62	185	-0.02	10	26	15	51	-0.15
21313308	HnrnpM	heterogeneous nuclear ribonucleoprotein M isoform a	0	0	0	0		0	403	0	403	0.07
158186704	HnrnpM	heterogeneous nuclear ribonucleoprotein M isoform b	212	254	177	643	-0.05	734	356	928	2018	0.11
114145493	Syncrip	heterogeneous nuclear ribonucleoprotein Q isoform 1	71	83	65	219	-0.12	0	61	61	122	-0.19
29788787	Syncrip	heterogeneous nuclear ribonucleoprotein Q isoform 2	14	20	8	42	-0.72 #	66	23	41	130	-0.23
33859724	HnrnpR	heterogeneous nuclear ribonucleoprotein R	71	82	62	215	-0.14	105	119	108	332	-0.12 *
160333923	HnrnpU	heterogeneous nuclear ribonucleoprotein U	317	387	376	1080	-0.04	786	###	990	2784	-0.09
21450323	HnrnpU1	heterogeneous nuclear ribonucleoprotein U-like protein 1 isoform 1	0	2	0	2	-1.10 #	2	16	19	37	0.10

30017405	Hnrnpul1	heterogeneous nuclear ribonucleoprotein U-like protein 1 isoform 2	1	0	0	1	-0.03	0	0	0	0		
124487099	Hnrnpul2	heterogeneous nuclear ribonucleoprotein U-like protein 2	67	73	117	257	-0.07 *	396	493	485	1374	-0.11	
32880197	Hnrnpa2b1	heterogeneous nuclear ribonucleoproteins A2/B1 isoform 2	140	151	194	485	-0.05	0	39	83	122	-0.09	
309267107	LOC100045191	heterogeneous nuclear ribonucleoproteins A2/B1-like	127	180	206	513	-0.04	546	454	262	1262	-0.08	
8393544	Hnrnpc	heterogeneous nuclear ribonucleoproteins C1/C2 isoform 1	67	53	87	207	-0.23 *	204	109	115	428	-0.05	
283436176	Hnrnpc	heterogeneous nuclear ribonucleoproteins C1/C2 isoform 2	48	64	94	206	-0.31 *	220	146	201	567	-0.08	
283436182	Hnrnpc	heterogeneous nuclear ribonucleoproteins C1/C2 isoform 4	7	0	1	8	-0.03	0	13	13	26	-0.02	
225735584	Hk1	hexokinase-1 isoform HK1	91	62	62	215	0.46 *	81	88	83	252	0.34 *	
7305143	Hk2	hexokinase-2	15	4	10	29	0.45 *	0	0	11	11	0.38	
9789977	Higd1a	HIG1 domain family member 1A	2	0	0	2	-0.43	0	2	0	2	0.37	
21313298	Hmg3	high mobility group nucleosome-binding domain-containing protein 3 isoform Hmg3a	17	23	13	53	-0.13 *	37	9	14	60	-0.20	
133778915	Hmg5	high mobility group nucleosome-binding domain-containing protein 5	23	37	17	77	0.31	9	20	26	55	0.32	
15022805	Hmg20a	high mobility group protein 20A	0	0	2	2	0.23	8	8	11	27	0.00	
6754208	Hmgb1	high mobility group protein B1	0	58	70	128	0.07	0	0	0	0		
162329617	Hmg111	high mobility group protein B1	0	0	55	55	-0.10	0	0	0	0		
309262982	Gm6115	high mobility group protein B1-like	0	0	0	0		0	2	0	2	0.67 #	
83014391	LOC637733	high mobility group protein B1-like	68	0	0	68	-0.29	0	39	30	69	0.22	
82952271	Gm6115	high mobility group protein B1-like	0	23	43	66	0.04	0	0	0	0		
6680229	Hmgb2	high mobility group protein B2	89	95	89	273	-0.11	47	59	42	148	-0.04	
6680231	Hmgb3	high mobility group protein B3	31	41	31	103	0.07	1	8	6	15	-0.02	
262072972	Hmga1-rs1	high mobility group protein HMG-I/HMG-Y isoform 2	8	8	6	22	-0.11	16	9	8	33	-0.08	
86198323	Hmga1	high mobility group protein HMG-I/HMG-Y isoform a	7	16	18	41	-0.12	0	10	15	25	-0.13	
262331509	Hmga1	high mobility group protein HMG-I/HMG-Y isoform c	7	0	0	7	-0.14	27	0	0	27	-0.06	
262331515	Hmga1	high mobility group protein HMG-I/HMG-Y isoform e	0	9	16	25	-0.15	0	0	0	0		
6754210	Hmga2	high mobility group protein HMGI-C	35	41	33	109	0.01	88	27	38	153	-0.02	
7949055	Hpcal1	hippocalcin-like protein 1	7	8	10	25	-0.82 #	1	2	3	6	-4.73 #	
33468857	Hint1	histidine triad nucleotide-binding protein 1	3	1	2	6	0.01	0	1	2	3	-0.10	
110625719	Hint2	histidine triad nucleotide-binding protein 2, mitochondrial precursor	3	1	3	7	-0.07	0	0	0	0		
160333390	H2-Q1	histocompatibility 2, Q region locus 1	1	0	0	1	4.77 #	0	0	0	0		
300116314	Kat2b	histone acetyltransferase KAT2B isoform 2	0	1	0	1	0.77 #	0	0	0	0		
303521989	Myst2	histone acetyltransferase MYST2 isoform 2	0	0	0	0		33	36	50	119	-0.15 *	
29244000	Myst2	histone acetyltransferase MYST2 isoform 3	3	6	1	10	-0.07	0	4	1	5	-0.19	
28076885	Hat1	histone acetyltransferase type B catalytic subunit	0	0	0	0		0	6	11	17	-0.42	
13384964	Asf1a	histone chaperone ASF1A	7	9	4	20	0.12	2	2	3	7	0.40	
6680193	Hdac1	histone deacetylase 1	40	59	29	128	0.22	60	84	56	200	0.18	
87162464	Hdac2	histone deacetylase 2	25	27	33	85	0.19	35	39	41	115	0.23	
89257352	Hdac3	histone deacetylase 3	5	6	4	15	0.48 *	0	0	1	1	0.62 #	
194353997	Hdac6	histone deacetylase 6	19	19	20	58	0.08	0	4	4	8	0.03	
27881435	Sap130	histone deacetylase complex subunit SAP130	0	2	2	4	0.77 #	0	0	0	0		

12408290	Sap30	histone deacetylase complex subunit SAP30	0	1	0	1	0.01	0	0	0	0		
124487193	Sap30l	histone deacetylase complex subunit SAP30L	3	5	3	11	-0.37	0	0	0	0		
31560697	H1f0	histone H1.0	41	51	31	123	-0.10	249	190	133	572	-0.14	*
21426823	Hist1h1a	histone H1.1	28	33	23	84	-0.18	105	88	65	258	-0.20	*
9845257	Hist1h1c	histone H1.2	53	68	52	173	-0.16	252	151	129	532	-0.21	*
254588110	Hist1h1d	histone H1.3	0	0	0	0		0	253	75	328	-0.16	
13430890	Hist1h1e	histone H1.4	42	49	32	123	-0.13	244	224	187	655	-0.20	
21426893	Hist1h1b	histone H1.5	25	36	8	69	-0.16	195	178	82	455	-0.18	*
30061327	Hist1h2ah	histone H2A type 1-H	5	18	42	65	-0.23	151	92	157	400	-0.11	*
30061399	Hist2h2aa2	histone H2A type 2-A	0	0	0	0		0	52	0	52	-0.21	
119433657	Hist2h2ab	histone H2A type 2-B	25	19	29	73	-0.22	113	121	172	406	-0.08	*
30089710	Hist2h2ac	histone H2A type 2-C	32	0	0	32	0.14	147	54	72	273	-0.09	*
29244126	H2afj	histone H2A.J	0	0	0	0		0	50	0	50	-0.17	
256773209	H2afv	histone H2A.V	13	0	0	13	0.05	158	22	65	245	-0.12	*
7106331	H2afx	histone H2A.x	0	0	0	0		119	90	0	209	-0.12	
7949045	H2afz	histone H2A.Z	0	11	15	26	-0.35	0	72	0	72	-0.21	
28316760	Hist1h2bb	histone H2B type 1-B	120	20	88	228	-0.18	0	374	281	655	-0.13	
294997245	Hist1h2be	histone H2B type 1-C/E/G	0	43	0	43	-0.72	580	232	239	1051	-0.10	
30089704	Hist1h2bk	histone H2B type 1-K	0	0	0	0		0	74	0	74	-0.13	
68226431	Hist2h2be	histone H2B type 2-E	0	40	0	40	-0.66	0	47	0	47	-0.31	
13386452	Hist3h2ba	histone H2B type 3-A	0	0	0	0		545	79	0	624	-0.10	
30061345	Hist1h3i	histone H3.1	0	0	0	0		20	12	0	32	-0.04	
30061339	Hist1h3b	histone H3.2	3	0	0	3	-0.10	155	57	2	214	-0.02	
6680161	H3f3b	histone H3.3	0	0	0	0		0	29	0	29	-0.23	
94395561	Gm10257	histone H3.3-like isoform 1	0	0	0	0		69	0	0	69	0.21	
6680920	Cenpa	histone H3-like centromeric protein A	0	1	0	1	-0.78	0	0	0	0		
309265743	LOC674678	histone H4-like	90	95	122	307	-0.22	704	624	364	1692	-0.10	*
164518891	Phf8	histone lysine demethylase PHF8 isoform b	0	5	0	5	0.11	0	0	0	0		
47059484	Rbbp4	histone-binding protein RBBP4	18	13	16	47	0.27	23	31	18	72	0.20	
157909799	Rbbp7	histone-binding protein RBBP7	6	11	10	27	0.15	12	15	8	35	0.16	
157838004	Ehmt1	histone-lysine N-methyltransferase EHMT1 isoform 3	1	0	5	6	0.29	7	5	26	38	0.07	
157838009	Ehmt1	histone-lysine N-methyltransferase EHMT1 isoform 4	0	0	0	0		0	30	0	30	0.03	
22219432	Ehmt2	histone-lysine N-methyltransferase EHMT2 isoform G9a short	3	4	4	11	0.43	7	40	63	110	0.20	
6679719	Ezh1	histone-lysine N-methyltransferase EZH1	0	2	4	6	0.21	0	3	9	12	0.18	
226442803	Ezh2	histone-lysine N-methyltransferase EZH2 isoform 1	5	7	7	19	0.06	0	19	30	49	-0.08	
226442807	Ezh2	histone-lysine N-methyltransferase EZH2 isoform 2	0	0	0	0		10	0	13	23	-0.09	
124486682	Mll1	histone-lysine N-methyltransferase MLL	6	7	2	15	0.06	2	4	12	18	0.17	
257743033	Mll2	histone-lysine N-methyltransferase MLL2	16	90	20	126	0.57	0	0	0	0		
48958537	Whsc1l1	histone-lysine N-methyltransferase NSD3 isoform 1	2	6	1	9	-0.04	0	2	2	4	-0.15	
31543790	Suv39h2	histone-lysine N-methyltransferase SUV39H2	0	0	0	0		0	3	4	7	-0.17	
169234797	Suv420h2	histone-lysine N-methyltransferase SUV420H2	0	0	0	0		0	4	0	4	-0.25	
23956212	Htatsf1	HIV Tat-specific factor 1 homolog	0	0	2	2	0.72	0	0	0	0		
6754232	Hoxa5	homeobox protein Hox-A5	0	2	0	2	0.67	0	0	0	0		
21886813	Hoxb6	homeobox protein Hox-B6	1	5	1	7	-0.14	0	0	0	0		
88014652	Hoxb7	homeobox protein Hox-B7	1	3	0	4	-0.58	0	0	1	1	0.26	
21362265	Hoxb8	homeobox protein Hox-B8	8	6	4	18	-0.38	0	4	4	8	0.13	
31560501	Hoxd10	homeobox protein Hox-D10	1	0	2	3	0.05	0	0	1	1	-0.17	

158508520	Hoxd4	homeobox protein Hox-D4	0	2	0	2	0.16	0	0	0	0		
112807184	Hoxd8	homeobox protein Hox-D8	6	4	1	11	0.02	0	1	4	5	0.19	
300796099	Meis1	homeobox protein Meis1 isoform B	0	1	0	1	0.09	0	0	0	0		
227330557	Meis2	homeobox protein Meis2 isoform 6	0	1	0	1	0.73#	0	0	0	0		
31542626	Hmbox1	homeobox-containing protein 1	4	7	6	17	-0.71*#	0	1	0	1	-0.61#	
171846263	Homer1	homer protein homolog 1 isoform L	0	0	1	1	2.77#	0	0	0	0		
225903402	Homer3	homer protein homolog 3 isoform 2	0	0	1	1	0.58#	0	0	0	0		
25092696	Psmc3ip	homologous-pairing protein 2 homolog	1	2	0	3	-0.64#	0	0	0	0		
34328130	Hcfc1	host cell factor 1	66	79	56	201	0.46*	0	3	0	3	0.16	
124487041	Hcfc2	host cell factor 2	1	5	6	12	0.01	0	2	1	3	-0.10	
19526912	St13	hsc70-interacting protein	2	1	1	4	-0.12	0	0	2	2	0.08	
7949018	Cdc37	hsp90 co-chaperone Cdc37	0	0	0	0		0	0	1	1	-0.04	
225007582	Hip1	huntingtin-interacting protein 1	0	1	0	1	0.33	0	0	0	0		
255308928	Hip1r	huntingtin-interacting protein 1-related protein	0	4	2	6	0.22	0	0	0	0		
27229055	2310003F16Rik	huntingtin-interacting protein K	5	2	4	11	-0.03	0	0	0	0		
111038118	Hadh	hydroxyacyl-coenzyme A dehydrogenase, mitochondrial precursor	24	27	32	83	-0.01	1	3	7	11	-0.06	
227499240	Hagh	hydroxyacylglutathione hydrolase, mitochondrial isoform 2	1	8	4	13	0.01	0	0	0	0		
125656150	Hsd12	hydroxysteroid dehydrogenase-like protein 2	3	0	0	3	0.06	0	0	0	0		
149252246	Gm12751	hypothetical protein LOC100039220	1	0	0	1	-0.36	0	0	0	0		
309264231	Gm15431	hypothetical protein LOC100041098	1	2	2	5	0.02	0	0	0	0		
153945763	1700047117Rik2	hypothetical protein LOC100101807	0	1	2	3	0.06	0	0	0	0		
309264063	LOC100502623	hypothetical protein LOC100502623	0	1	0	1	-0.24	0	0	0	0		
30425010	D330045A20Rik	hypothetical protein LOC102871	0	0	0	0		1	0	0	1	-10.02#	
110625732	AI314976	hypothetical protein LOC106821	5	8	4	17	-0.23	0	0	0	0		
237858808	AI462493	hypothetical protein LOC107197 precursor	3	1	0	4	-0.16	0	0	0	0		
19527218	1810008A18Rik	hypothetical protein LOC108707	0	3	0	3	-0.02	0	4	1	5	0.07	
116812912	E330016A19Rik	hypothetical protein LOC214763	0	0	0	0		3	12	9	24	0.02	
21450219	BC017643	hypothetical protein LOC217370	2	0	0	2	-0.49	0	0	1	1	0.35	
226958568	BC002230	hypothetical protein LOC217827	0	1	0	1	-0.07	0	0	0	0		
21450053	Fam49b	hypothetical protein LOC223601	0	0	0	0		0	0	1	1	0.06	
210147428	C030006K11Rik	hypothetical protein LOC223665 isoform 2	1	1	0	2	-0.16	0	0	0	0		
161484644	AI661453	hypothetical protein LOC224833	0	2	0	2	0.44	0	0	0	0		
40254190	BC027072	hypothetical protein LOC225004	0	0	0	0		2	0	0	2	6.50#	
23956330	BC029214	hypothetical protein LOC227622	2	8	6	16	-0.14	0	1	0	1	0.06	
305682577	D2Wsu81e	hypothetical protein LOC227695	4	12	8	24	-0.17	2	6	10	18	-0.11	
21450249	BC005624	hypothetical protein LOC227707	0	2	2	4	0.47	0	0	0	0		
85701806	Gm561	hypothetical protein LOC228715	0	1	1	2	-0.08	0	0	0	0		
255003755	Fam76a	hypothetical protein LOC230789 isoform B	1	0	1	2	-0.34	0	0	0	0		
85861260	C230096C10Rik	hypothetical protein LOC230866 isoform 2	2	6	4	12	-0.32	9	13	11	33	-0.28	
170650679	E130309D02Rik	hypothetical protein LOC231868	4	5	7	16	0.26*	0	6	2	8	0.45#	
254553410	C130039O16Rik	hypothetical protein LOC238317	12	12	9	33	0.00	0	1	0	1	-0.17	
148225566	Gm4987	hypothetical protein LOC245405	0	2	0	2	-0.44	0	0	0	0		
148539955	D4Wsu53e	hypothetical protein LOC27981	0	0	0	0		0	1	1	2	0.66#	
149588667	D11Wsu99e	hypothetical protein LOC28081	1	0	0	1	0.17	0	0	0	0		
18250288	D17Wsu104e	hypothetical protein LOC28106 precursor	4	3	2	9	0.03	0	0	0	0		
70794816	Gm5506	hypothetical protein LOC433182	22	21	40	83	0.04	208	194	320	722	-0.09	
26553441	D1Bwg0212e	hypothetical protein LOC52846	0	1	1	2	0.37	0	0	0	0		
293651623	Gm6788	hypothetical protein LOC627788	4	11	4	19	-0.05	5	4	1	10	0.07	
158517961	Gm6900	hypothetical protein LOC628596	0	0	19	19	-0.24	0	0	3	3	-0.01	
13384686	0610009B22Rik	hypothetical protein LOC66050	0	0	1	1	-0.22	0	0	0	0		
13384876	1810009A15Rik	hypothetical protein LOC66276	3	1	1	5	-0.01	0	0	0	0		
224177530	1810013D10Rik	hypothetical protein LOC66278	2	0	0	2	-0.17	0	0	2	2	0.08	
13384880	1810029B16Rik	hypothetical protein LOC66282	7	5	6	18	-0.17	0	0	1	1	-0.42	

13384908	1700011A15Rik	hypothetical protein LOC66322	0	0	0	0			0	0	1	1	4.73 #
170650653	2310022A10Rik	hypothetical protein LOC66367 isoform 2	3	0	1	4	0.18		0	2	1	3	0.19
21313500	2310011J03Rik	hypothetical protein LOC66374	1	0	0	1	0.16		0	0	0	0	
30794468	2410001C21Rik	hypothetical protein LOC66404	7	9	10	26	0.22		0	1	3	4	0.17
13384984	2410004B18Rik	hypothetical protein LOC66421	0	3	2	5	1.90		0	0	0	0	
13385042	Fam136a	hypothetical protein LOC66488	4	5	5	14	-0.07		0	0	0	0	
165932364	2610528E23Rik	hypothetical protein LOC66497	4	7	4	15	0.03		0	1	4	5	0.43
268836896	2810004N23Rik	hypothetical protein LOC66523	1	3	0	4	0.08		0	1	3	4	-0.03
13385088	Fam107b	hypothetical protein LOC66540	2	2	4	8	0.05		0	0	0	0	
13385182	4921524J17Rik	hypothetical protein LOC66714	2	2	2	6	-0.01		0	0	0	0	
309268884	Gm8556	hypothetical protein LOC667284	0	0	68	68	-0.13		18	0	0	18	-0.37
13385560	2900010M23Rik	hypothetical protein LOC67267	16	18	13	47	-0.12		5	0	2	7	-0.23
13385576	3110040N11Rik	hypothetical protein LOC67290	1	2	2	5	-0.05		0	0	0	0	
13385590	1700037H04Rik	hypothetical protein LOC67326	1	1	0	2	0.16		0	0	0	0	
31981066	2410127L17Rik	hypothetical protein LOC67383	0	1	2	3	0.31		0	0	0	0	
113931152	4930453N24Rik	hypothetical protein LOC67609	0	0	0	0			0	1	0	1	0.75 #
268837283	5830433M19Rik	hypothetical protein LOC67770	0	1	0	1	0.65 #		0	1	0	1	-0.67 #
13385904	1700021F05Rik	hypothetical protein LOC67851	4	12	6	22	-0.12		0	0	4	4	-0.27
30424683	1810063B05Rik	hypothetical protein LOC67892	7	5	7	19	-0.09		0	0	0	0	
13385950	Fam32a	hypothetical protein LOC67922	0	2	1	3	-0.06		0	0	0	0	
13386026	2700060E02Rik	hypothetical protein LOC68045	25	31	34	90	0.00		0	21	6	27	-0.03
13386028	2700062C07Rik	hypothetical protein LOC68046	5	6	1	12	0.40		0	1	0	1	0.29
145587094	9430016H08Rik	hypothetical protein LOC68115 precursor	2	2	0	4	-0.24		0	2	1	3	0.06
46810273	9530077C05Rik	hypothetical protein LOC68283	0	1	0	1	-2.96 #		0	0	0	0	
58037115	0610011F06Rik	hypothetical protein LOC68347	2	3	3	8	0.04		0	2	3	5	0.12
85362708	2310036O22Rik	hypothetical protein LOC68544	4	9	2	15	0.06		0	1	3	4	0.28
294345430	1110001A16Rik	hypothetical protein LOC68554	0	0	0	0			0	0	1	1	0.12
254540116	Fam172a	hypothetical protein LOC68675 isoform 2	0	0	1	1	0.28		0	0	0	0	
268370114	1110057K04Rik	hypothetical protein LOC68832 isoform 2	4	0	0	4	-0.52		1	1	0	2	-0.19
110625730	1810027O10Rik	hypothetical protein LOC69186 precursor	0	0	2	2	-0.14		3	0	2	5	0.09
117647251	2010321M09Rik	hypothetical protein LOC69882	11	8	10	29	0.26 *		2	6	5	13	0.20
21312460	2010107G23Rik	hypothetical protein LOC69894	1	0	1	2	-0.39 *		0	0	0	0	
121583673	2510012J08Rik	hypothetical protein LOC70312	0	3	0	3	-0.09		0	2	4	6	-0.93 #
27229101	5730469M10Rik	hypothetical protein LOC70564 precursor	10	3	7	20	-0.05		8	2	11	21	-0.18
28076961	5730508B09Rik	hypothetical protein LOC70617	2	2	2	6	-0.38 *		0	0	0	0	
281371374	4921524L21Rik	hypothetical protein LOC70901	0	1	0	1	-2.75 #		0	0	0	0	
229576969	2310007B03Rik	hypothetical protein LOC71874	0	1	0	1	1.42 #		0	0	0	0	
242332520	2010109K11Rik	hypothetical protein LOC72123	0	0	0	0			0	2	1	3	0.00
226442859	1300018I17Rik	hypothetical protein LOC72325	0	0	1	1	9.68 #		0	0	0	0	
257467492	2210021J22Rik	hypothetical protein LOC72355	0	0	2	2	0.12		0	0	0	0	
39930441	2210016L21Rik	hypothetical protein LOC72357	4	5	3	12	0.04		0	0	0	0	
198278498	2700029M09Rik	hypothetical protein LOC72612	7	14	7	28	0.17		0	1	0	1	-0.98 #
139948818	Fam98a	hypothetical protein LOC72722	1	3	4	8	-0.29		0	0	0	0	
28849885	Fam76b	hypothetical protein LOC72826	4	11	10	25	-0.01		0	0	0	0	
153791468	3110003A17Rik	hypothetical protein LOC73112	1	0	2	3	-0.11		3	1	3	7	-0.02
146134371	3110082I17Rik	hypothetical protein LOC73212	5	5	10	20	-0.13		5	6	5	16	-0.01
28077031	4931414P19Rik	hypothetical protein LOC74359 precursor	1	1	1	3	1.16 #		0	0	0	0	
124487358	1700009N14Rik	hypothetical protein LOC75471	0	0	0	0			0	0	5	5	-0.10
254939620	2410003K15Rik	hypothetical protein LOC75593	0	0	1	1	-0.40		0	0	0	0	
198278417	1700029F09Rik	hypothetical protein LOC75623	2	7	1	10	-0.45		0	0	0	0	
256000814	4933432B09Rik	hypothetical protein LOC75729	3	0	1	4	-3.93 #		0	1	1	2	-1.71 #
113461996	6330578E17Rik	hypothetical protein LOC76178	4	6	6	16	-0.06		0	0	1	1	0.17
21313286	Fam54b	hypothetical protein LOC76824	0	0	0	0			0	2	0	2	0.39
244790037	2610029I01Rik	hypothetical protein LOC77032	1	0	0	1	-0.28		0	0	0	0	
166063959	C330007P06Rik	hypothetical protein LOC77644	5	10	8	23	0.10		0	5	3	8	0.30
21704218	8430410K20Rik	hypothetical protein LOC78100	1	0	0	1	0.43		0	0	0	0	
31044487	B230219D22Rik	hypothetical protein LOC78521	13	7	6	26	0.15		10	9	14	33	0.03

117935034	1700061G19Rik	hypothetical protein LOC78625	0	1	0	1	-10.16 #	0	0	0	0		
13384892	BC003266	hypothetical protein LOC80284	0	0	1	1	0.13	0	0	0	0		
75677516	C77080	hypothetical protein LOC97130	3	0	1	4	-0.41	0	0	0	0		
247300747	A430005L14Rik	hypothetical protein LOC97159 isoform 1	1	5	4	10	0.31	0	0	4	4	0.07	
247300872	A430005L14Rik	hypothetical protein LOC97159 isoform 2	0	0	0	0		0	2	0	2	0.00	
85701612	AU015228	hypothetical protein LOC99169	2	2	3	7	0.11	0	1	1	2	0.36	
157951706	Hyou1	hypoxia up-regulated protein 1 precursor	32	7	29	68	-0.16	0	0	0	0		
13384796	Ier3ip1	immediate early response 3-interacting protein 1	1	2	0	3	-0.58 #	6	0	0	6	-0.30	
30455605	Igbbp1	immunoglobulin-binding protein 1	0	1	0	1	0.45	0	0	1	1	0.04	
31543047	Kpna1	importin subunit alpha-1	11	14	5	30	0.06	0	8	5	13	0.11	
149268945	Gm10184	importin subunit alpha-2-like isoform 1	18	11	11	40	0.22	2	8	4	14	0.16	
6680596	Kpna3	importin subunit alpha-3	14	6	13	33	0.13	0	7	5	12	0.38	
6680598	Kpna4	importin subunit alpha-4	18	20	24	62	0.23	11	23	19	53	0.25 *	
227116300	Kpna6	importin subunit alpha-7	3	7	8	18	0.08	7	18	12	37	0.00	
88014720	Kpnb1	importin subunit beta-1	77	87	61	225	0.14 *	160	184	266	610	0.11	
19745156	Ipo4	importin-4	0	0	0	0		0	0	1	1	-0.21	
29789199	Ipo5	importin-5	0	0	0	0		0	0	1	1	-0.69 #	
74229034	Ipo7	importin-7	0	0	0	0		0	0	1	1	-0.37	
112734861	Ipo9	importin-9	0	0	0	0		0	0	15	15	-0.13	
19527166	Vrk3	inactive serine/threonine-protein kinase VRK3	16	24	17	57	0.05	1	11	11	23	-0.04	
55769581	Inadl	inaD-like protein isoform 2	0	1	0	1	1.93 #	0	1	0	1	1.15 #	
6678281	Inmt	indolethylamine N-methyltransferase	0	0	0	0		0	2	0	2	0.66 #	
29336057	Ing1	inhibitor of growth protein 1	4	4	2	10	0.19	0	1	0	1	0.39	
31542996	Ing2	inhibitor of growth protein 2	2	3	1	6	0.07	0	0	0	0		
139948756	Ing3	inhibitor of growth protein 3	1	1	1	3	0.68 *,#	0	0	0	0		
19111152	Ing4	inhibitor of growth protein 4	0	1	1	2	0.02	0	6	7	13	-0.01	
21313552	Ing5	inhibitor of growth protein 5	4	1	1	6	-0.22	2	9	11	22	-0.07	
153792192	Incnp	inner centromere protein	0	0	0	0		1	1	3	5	0.14 *	
145864461	Lemd3	inner nuclear membrane protein Man1	6	22	27	55	0.01	31	36	61	128	-0.08	
12963729	Ino80b	INO80 complex subunit B	1	0	1	2	0.43	0	0	0	0		
27369894	Ino80c	INO80 complex subunit C	13	29	11	53	0.09	0	1	0	1	0.22	
23956376	Ino80e	INO80 complex subunit E	6	6	7	19	0.10	0	0	2	2	0.04	
27754065	Ppa1	inorganic pyrophosphatase	0	0	0	0		0	1	1	2	-1.37 #	
22203753	Ppa2	inorganic pyrophosphatase 2, mitochondrial precursor	5	0	2	7	-0.32	0	0	0	0		
31982664	Itpa	inosine triphosphate pyrophosphatase	1	1	1	3	0.14	0	1	0	1	0.39	
31981382	Impdh2	inosine-5'-monophosphate dehydrogenase 2	1	0	1	2	0.34	0	2	4	6	-0.41	
61102728	Itp3	inositol 1,4,5-trisphosphate receptor type 3	2	2	2	6	-0.18	3	1	34	38	0.11	
166706913	Ppip5k2	inositol hexakisphosphate and diphosphoinositol-pentakisphosphate kinase 2	0	3	0	3	0.95 #	0	0	0	0		
6753518	Igf2bp1	insulin-like growth factor 2 mRNA-binding protein 1	1	6	3	10	-0.21	0	0	0	0		
145207996	Igf2bp2	insulin-like growth factor 2 mRNA-binding protein 2	9	14	6	29	-0.09	2	9	12	23	0.52 #	
226958445	Igfbp7	insulin-like growth factor-binding protein 7 isoform 2	3	7	9	19	-0.35	0	0	0	0		
294832004	Ints1	integrator complex subunit 1	37	69	65	171	0.23	5	38	26	69	-2.13 #	
27229115	Ints10	integrator complex subunit 10	7	8	6	21	0.33	0	4	1	5	0.18	
21312614	Cpsf3l	integrator complex subunit 11	2	6	2	10	0.16	0	3	1	4	0.22	
21313674	Ints12	integrator complex subunit 12	7	2	7	16	0.14	1	4	4	9	0.53 #	
86476084	Ints2	integrator complex subunit 2	16	13	17	46	0.44 *	1	21	13	35	0.14	
31652266	Ints3	integrator complex subunit 3	17	34	23	74	0.30	0	31	8	39	0.31	
30794414	Ints4	integrator complex subunit 4	8	19	19	46	0.33 *	0	30	14	44	0.22	

28849895	Ints5	integrator complex subunit 5	0	3	4	7	0.34	0	6	0	6	0.67#
51467749	Ints6	integrator complex subunit 6	2	13	16	31	0.35	0	9	4	13	0.24
153791768	Ints7	integrator complex subunit 7	7	20	13	40	0.18	0	35	15	50	0.19
227430333	Ints8	integrator complex subunit 8	0	8	6	14	0.40*	0	8	1	9	0.23
31981980	Ints9	integrator complex subunit 9	5	12	7	24	0.01	3	6	0	9	0.70#
7305189	Itga3	integrin alpha-3	1	0	2	3	-0.48*	0	4	18	22	0.27
31982236	Itga6	integrin alpha-6	0	0	0	0		0	1	18	19	0.00
154240716	Itgav	integrin alpha-V precursor	2	0	0	2	-0.67#	1	0	3	4	-1.51#
45504394	Itgb1	integrin beta-1 precursor	4	0	1	5	-0.30*	7	4	25	36	0.20
110735428	Itgb4	integrin beta-4 isoform 2	0	0	0	0		0	0	6	6	0.21
39930415	Ilkap	integrin-linked kinase-associated serine/threonine phosphatase 2C	0	1	0	1	0.43	0	0	0	0	
240255653	Ilk	integrin-linked protein kinase	5	8	2	15	-0.04	0	4	5	9	0.25
27734112	9930111J21Rik2	interferon inducible GTPase	0	1	0	1	9.84#	0	0	0	0	
162287051	Irf2	interferon regulatory factor 2	1	3	1	5	-0.07	0	0	0	0	
22003884	6430527G18Rik	interferon regulatory factor 2-binding protein-like	4	3	7	14	0.33	0	1	0	1	0.65#
164519150	Ifi202b	interferon-activable protein 202	0	0	0	0		0	0	1	1	0.38
309261908	LOC100044068	interferon-activable protein 202-like	0	0	0	0		0	4	0	4	0.29
21312544	Ifi35	interferon-induced 35 kDa protein homolog	4	4	4	12	0.29	0	0	0	0	
6755160	Eif2ak2	interferon-induced, double-stranded RNA-activated protein kinase	0	2	1	3	0.31	0	0	0	0	
6755162	Prkra	interferon-inducible double stranded RNA-dependent protein kinase activator A	0	0	0	0		0	1	0	1	-0.12
29244084	Isg20l2	interferon-stimulated 20 kDa exonuclease-like 2	6	2	1	9	-0.01	26	12	20	58	-0.03
15805028	Isg20	interferon-stimulated gene 20 kDa protein	5	7	5	17	-0.08	0	0	1	1	-0.02
13385872	Ilf2	interleukin enhancer-binding factor 2	55	66	62	183	0.00	132	88	96	316	-0.03*
111607432	Ilf3	interleukin enhancer-binding factor 3 isoform 2	59	99	89	247	0.02	90	146	113	349	-0.04
111607436	Ilf3	interleukin enhancer-binding factor 3 isoform 4	0	0	1	1	0.03	0	11	42	53	0.18
134288904	Itns1	intersectin-1 isoform 1	0	1	0	1	0.16	0	0	0	0	
163644327	Aqr	intron-binding protein aquarius	16	34	31	81	0.08	8	121	112	241	0.11
189491859	Iqch	IQ domain-containing protein H	0	0	0	0		1	0	0	1	9.98#
118344446	Iqgap3	IQ motif containing GTPase activating protein 3	1	0	0	1	-10.10#	0	0	0	0	
149264021	AK157302	iron-sulfur cluster assembly 1 homolog, mitochondrial	0	0	1	1	-0.29	0	0	0	0	
254039596	IscA2	iron-sulfur cluster assembly 2 homolog, mitochondrial precursor	10	0	12	22	-0.10	0	0	0	0	
21313484	Iscu	iron-sulfur cluster assembly enzyme ISCU, mitochondrial precursor	6	5	4	15	-0.03	0	0	0	0	
225703114	Hscb	iron-sulfur cluster co-chaperone protein HscB, mitochondrial precursor	1	0	0	1	-0.57#	0	0	0	0	
167234411	Nubpl	iron-sulfur protein NUBPL	2	1	1	4	0.00	0	1	2	3	-0.06
118403322	Acad8	isobutyryl-CoA dehydrogenase, mitochondrial precursor	7	6	1	14	-0.08	0	0	0	0	
197333728	Isoc2a	isochorismatase domain-containing protein 2A, mitochondrial precursor	1	0	0	1	-0.79#	0	0	0	0	
18250284	Ildh3a	isocitrate dehydrogenase [NAD] subunit alpha, mitochondrial precursor	18	2	4	24	-0.16*	0	3	6	9	-0.45#
6680345	Ildh3g	isocitrate dehydrogenase [NAD] subunit gamma 1, mitochondrial precursor	4	0	0	4	-0.17	0	0	0	0	
225579033	Ildh2	isocitrate dehydrogenase [NADP], mitochondrial precursor	29	13	21	63	-0.14*	9	18	34	61	-0.16
18700024	Ildh3b	isocitrate dehydrogenase 3, beta subunit	11	11	10	32	-0.11	0	9	15	24	-0.13
38490690	Iars2	isoleucyl-tRNA synthetase, mitochondrial precursor	2	0	0	2	1.31#	0	0	3	3	0.05



281604088	Idi1	isopentenyl-diphosphate Delta-isomerase 1	5	2	2	9	-0.09	0	0	0	0		
21312626	2400003C14Rik	IST1 homolog	0	2	4	6	-0.56	0	0	0	0		
28395018	Jup	junction plakoglobin	8	20	8	36	0.33	81	87	151	319	0.70	*,#
47078285	Kdelc2	KDEL (Lys-Asp-Glu-Leu) containing 2 protein	3	1	0	4	-0.09	0	0	0	0		
12963767	Kdelc1	KDEL motif-containing protein 1 precursor	4	0	1	5	-0.01	0	0	0	0		
6754480	Krt13	keratin, type I cytoskeletal 13	1	6	0	7	-2.40#	0	5	19	24	-0.78#	
21489935	Krt14	keratin, type I cytoskeletal 14	2	5	3	10	-1.63#	0	0	13	13	-5.70#	
6680604	Krt16	keratin, type I cytoskeletal 16	0	0	1	1	-5.80#	0	0	5	5	-6.44#	
7106335	Krt17	keratin, type I cytoskeletal 17	12	0	17	29	-0.50	36	30	39	105	0.49	*,#
254540068	Krt18	keratin, type I cytoskeletal 18	142	229	132	503	0.50	812	638	623	2073	0.75	*,#
6680606	Krt19	keratin, type I cytoskeletal 19	95	129	105	329	0.56*	623	489	511	1623		
21592285	Krt20	keratin, type I cytoskeletal 20	32	58	52	142	0.72*,#	197	214	275	686	0.58#	
154090941	Krt42	keratin, type I cytoskeletal 42	2	7	3	12	-1.92#	35	0	33	68	-0.24	
126116585	Krt1	keratin, type II cytoskeletal 1	0	0	0	0		8	0	0	8	-6.27#	
51092293	Krt77	keratin, type II cytoskeletal 1b	4	5	0	9	0.05	10	0	0	10	-5.69#	
124487419	Krt2	keratin, type II cytoskeletal 2 epidermal	0	0	0	0		0	1	8	9	2.40#	
20911031	Krt5	keratin, type II cytoskeletal 5	20	21	4	45	-1.89#	9	29	26	64	-2.57#	
54607171	Krt6a	keratin, type II cytoskeletal 6A	0	0	0	0		0	0	9	9	-8.37#	
14861854	Krt7	keratin, type II cytoskeletal 7	89	121	89	299	0.65#	737	658	695	2090	0.70#	
9910294	Krt71	keratin, type II cytoskeletal 71	2	4	4	10	-0.83#	14	19	23	56	-0.68#	
47059013	Krt73	keratin, type II cytoskeletal 73	0	3	0	3	4.37#	4	0	0	4	-5.64#	
29789317	Krt75	keratin, type II cytoskeletal 75	0	5	7	12	1.85#	20	4	7	31	0.65#	
22164776	Krt79	keratin, type II cytoskeletal 79	0	5	3	8	0.32	4	5	15	24	-1.59#	
114145561	Krt8	keratin, type II cytoskeletal 8	176	224	180	580	0.71*,#	992	994	###	3006	0.64	*,#
13384696	Krtcap2	keratinocyte-associated protein 2	4	0	1	5	-0.42	9	0	3	12	-0.30	
110626031	Khdrbs1	KH domain-containing, RNA-binding, signal transduction-associated protein 1	50	62	37	149	-0.08	42	42	23	107	0.03	
144922638	Ktn1	kinectin	3	9	11	23	-0.23	0	0	0	0		
256985168	Kif23	kinesin family member 23	0	0	0	0		0	3	18	21	-0.13	
61657921	Kif5b	kinesin-1 heavy chain	26	16	7	49	-0.01	1	12	29	42	-0.09	
124487163	Kif13b	kinesin-like protein KIF13B	0	2	0	2	0.16	0	1	11	12	-0.15	
6679597	Kif20a	kinesin-like protein KIF20A	0	0	0	0		0	2	1	3	0.25	
133505571	Kif20b	kinesin-like protein KIF20B	25	8	2	35	0.14	0	0	0	0		
21704182	Kif22	kinesin-like protein KIF22	1	1	0	2	0.11	0	1	0	1	0.31	
224809373	Kif2a	kinesin-like protein KIF2A isoform 2	1	1	3	5	0.14	0	0	0	0		
309261975	LOC100044006	kinesin-like protein KIFC1-like	3	2	2	7	0.47*	1	0	0	1	-5.29#	
254540034	Dsn1	kinetochore-associated protein DSN1 homolog	0	0	1	1	-0.34	0	0	0	0		
213512857	Nsl1	kinetochore-associated protein NSL1 homolog	2	3	2	7	-0.45	0	2	1	3	0.40	
254911014	Klraq1	KLRAQ motif-containing protein 1	0	0	1	1	0.07	0	0	0	0		
226442952	Krr1	KRR1 small subunit processome component homolog	3	6	6	15	0.03	4	6	11	21	0.00	
144922690	Klf16	Krueppel-like factor 16	0	1	0	1	0.29	0	0	0	0		
6680582	Klf3	Krueppel-like factor 3	1	0	0	1	0.07	0	0	0	0		
31981873	Klf5	Krueppel-like factor 5	4	5	1	10	-0.46*	0	1	0	1	0.12	
124487297	Lct	lactase-phlorizin hydrolase preproprotein	0	2	0	2	9.55#	0	0	0	0		
51921295	A4galt	lactosylceramide 4-alpha-galactosyltransferase	0	0	1	1	0.13	0	0	0	0		
31981555	Lad1	ladinin-1	70	60	44	174	-0.02	0	4	5	9	0.32	
22095015	Lass2	LAG1 longevity assurance homolog 2	2	0	1	3	-0.27	3	1	1	5	-0.52	*,#
121949760	Tmpo	lamina-associated polypeptide 2 isoform alpha	217	264	310	791	0.16	250	187	386	823	0.23	*
121949767	Tmpo	lamina-associated polypeptide 2 isoform delta	139	161	320	620	-0.03	0	155	250	405	0.07	

121949765	Tmpo	lamina-associated polypeptide 2 isoform epsilon	128	146	290	564	-0.07	418	199	225	842	-0.02		
229608895	Lbr	lamin-B receptor	10	11	10	31	-0.02	142	169	176	487	-0.07	*	
188219589	Lmnb1	lamin-B1	114	175	117	406	-0.32	###	748	776	2603	-0.08	*	
113195686	Lmnb2	lamin-B2	41	94	51	186	-0.04	369	330	323	1022	-0.04		
226423935	Lama3	laminin subunit alpha-3	0	0	0	0		0	0	69	69	-0.44		
114326497	Lamb1	laminin subunit beta-1	22	9	14	45	-0.33	0	0	0	0			
113865981	Lamb3	laminin subunit beta-3 precursor	0	0	0	0		0	2	318	320	-0.60	#	
110624798	Lamc2	laminin subunit gamma-2	1	0	2	3	-0.42	0	0	174	174	-0.41		
227500024	Lao1	L-amino acid oxidase 1	1	0	0	1	-10.10	#	0	0	0	0		
71061451	Cyp51	lanosterol 14-alpha demethylase	2	0	0	2	-0.42	0	0	0	0			
22122469	Lss	lanosterol synthase	2	0	0	2	-0.27	0	0	0	0			
110665742	Larp7	la-related protein 7	13	12	17	42	-0.06	27	31	70	128	-0.05		
71979675	Las1l	LAS1-like	8	7	11	26	0.22	*	1	10	6	17	0.32	
31980632	Lxn	latexin	1	0	0	1	0.07	0	0	1	1	0.07		
228480219	Mesdc2	LDLR chaperone MESD	10	4	5	19	-0.01	0	0	0	0			
7242187	Lgmn	legumain precursor	4	4	5	13	0.09	0	2	3	5	0.10		
165972321	Lemd2	LEM domain-containing protein 2	2	1	2	5	-0.26	8	26	20	54	0.00		
6678696	Ligl1	lethal(2) giant larvae protein homolog 1 isoform 2	0	1	0	1	0.89	#	0	0	0	0		
144922656	Ligl2	lethal(2) giant larvae protein homolog 2	0	7	1	8	0.12	0	0	1	1	0.06		
9789997	Letm1	LETM1 and EF-hand domain-containing protein 1, mitochondrial precursor	5	4	1	10	0.13	0	0	0	0			
194473729	Lzts2	leucine zipper putative tumor suppressor 2	0	0	0	0		0	1	0	1	6.75	#	
134031976	Lrpprc	leucine-rich PPR motif-containing protein, mitochondrial precursor	35	7	6	48	-0.07	0	3	12	15	-0.36		
166851848	Lrwd1	leucine-rich repeat and WD repeat-containing protein 1	3	10	3	16	0.39	1	11	8	20	-0.20	*	
162417949	Lrrfp1	leucine-rich repeat flightless-interacting protein 1 isoform 1	0	0	3	3	-0.06	0	0	0	0			
110625827	Lrrfp2	leucine-rich repeat flightless-interacting protein 2 isoform 2	6	15	10	31	0.21	0	0	0	0			
270341361	Shoc2	leucine-rich repeat protein SHOC-2	2	5	0	7	0.37	0	0	0	0			
225690587	Lrrc1	leucine-rich repeat-containing protein 1 isoform 1	0	1	0	1	0.40	0	1	0	1	0.44		
225690585	Lrrc1	leucine-rich repeat-containing protein 1 isoform 2	0	1	0	1	0.60	#	0	0	1	1	0.04	
154146185	Lrrc16a	leucine-rich repeat-containing protein 16A	2	3	1	6	0.34	*	0	1	0	1	-1.61	#
31541911	Lrrc40	leucine-rich repeat-containing protein 40	1	2	3	6	0.09	0	2	0	2	0.59	#	
41152116	Lrrc47	leucine-rich repeat-containing protein 47	0	6	2	8	0.29	0	0	0	0			
19527026	Lrrc59	leucine-rich repeat-containing protein 59	40	37	26	103	-0.36	*	5	5	6	16	-0.42	*
68299752	Lrig2	leucine-rich repeats and immunoglobulin-like domains protein 2 precursor	0	0	0	0		0	0	1	1	4.94	#	
120537241	Lars	leucyl-tRNA synthetase, cytoplasmic	0	0	0	0		0	0	2	2	0.27		
27370082	Leng8	leukocyte receptor cluster member 8 homolog	0	0	1	1	-2.53	#	0	0	0	0		
6754382	Cd47	leukocyte surface antigen CD47	0	0	4	4	-0.08	0	3	3	6	0.27		
116734870	Lta4h	leukotriene A-4 hydrolase	0	0	0	0		0	0	1	1	-0.21		
56090602	D8Ertd738e	leydig cell tumor 10 kDa protein homolog	2	1	0	3	-0.18	0	0	0	0			
26024345	Lcor	ligand-dependent corepressor	0	0	0	0		0	1	0	1	-2.53	#	
84794647	Lims1	LIM and senescent cell antigen-like-containing domain protein 1 isoform 1	6	14	12	32	-0.01	0	2	2	4	0.10		
6754508	Lasp1	LIM and SH3 domain protein 1	10	4	4	18	0.11	0	0	0	0			
158518433	Lima1	LIM domain and actin-binding protein 1 isoform b	13	36	16	65	0.31	8	18	19	45	0.60	*,#	
157311641	Lmo7	LIM domain only 7	2	3	2	7	-0.45	0	0	0	0			
254939582	Lmf1	lipase maturation factor 1	0	0	1	1	1.78	#	0	3	5	8	-0.15	
30725786	Lmf2	lipase maturation factor 2	9	1	3	13	-0.28	3	2	0	5	-0.27		

170172520	Dbt	lipoamide acyltransferase component of branched-chain alpha-keto acid dehydrogenase complex, mitochondrial	21	33	33	87	-0.01	0	15	13	28	-0.19
117956397	Lrba	lipopolysaccharide-responsive and beige-like anchor protein isoform beta	0	0	0	0		0	1	2	3	0.28
117956395	Lrba	lipopolysaccharide-responsive and beige-like anchor protein isoform gamma	0	0	1	1	-0.91 #	0	0	0	0	
13277380	Lias	lipoyl synthase, mitochondrial precursor	0	8	6	14	-0.17	0	0	0	0	
158853994	Lipt1	lipoyltransferase 1, mitochondrial precursor	0	1	2	3	-0.41	0	0	0	0	
6754524	Ldha	L-lactate dehydrogenase A chain isoform 1	18	25	25	68	0.03	9	10	22	41	0.00
274319427	Lonp2	lon protease homolog 2, peroxisomal isoform 2	1	2	0	3	0.84 #	0	0	0	0	
116089322	Lonp1	lon protease homolog, mitochondrial precursor	18	35	26	79	-0.12	9	44	57	110	-0.07
45597453	Slc27a4	long-chain fatty acid transport protein 4	1	0	0	1	-0.44	0	0	0	0	
31982520	Acadl	long-chain specific acyl-CoA dehydrogenase, mitochondrial precursor	6	3	5	14	0.49	1	7	6	14	-0.31
209977076	Acsl3	long-chain-fatty-acid--CoA ligase 3 isoform b	2	0	0	2	-0.02	0	0	0	0	
58218988	Acsl5	long-chain-fatty-acid--CoA ligase 5	3	0	0	3	-0.26	0	0	0	0	
82932679	LOC631286	low molecular weight phosphotyrosine protein phosphatase-like	1	2	1	4	-0.01	0	0	1	1	-0.13
309266116	Srcap	LOW QUALITY PROTEIN: helicase SRCAP	2	5	3	10	0.06	0	0	0	0	
309265426	Gm15800	LOW QUALITY PROTEIN: probable E3 ubiquitin-protein ligase KIAA0614	0	10	1	11	0.25	0	0	0	0	
309262466	Rnf213	LOW QUALITY PROTEIN: RING finger protein 213	1	2	0	3	0.31	0	0	1	1	0.08
58037525	Lsmd1	LSM domain-containing protein 1	0	1	0	1	0.10	0	0	0	0	
23956166	Luc7l3	luc7-like protein 3	18	39	19	76	-0.10 *	24	46	60	130	-0.02
31982246	D11Wsu47e	lung cancer-related protein 8	1	0	0	1	0.09	0	0	0	0	
6678143	Ssb	lupus La protein homolog	30	38	42	110	-0.04	192	119	121	432	-0.01
12232371	Hells	lymphocyte-specific helicase	16	18	10	44	0.18	32	57	68	157	0.11
41235733	Lym4	LYR motif-containing protein 4	1	0	2	3	-0.23 *	0	0	0	0	
22165366	Brcc3	lys-63-specific deubiquitinase BRCC36	1	0	1	2	0.01	0	0	0	0	
21704142	Krcc1	lysine-rich coiled-coil protein 1	1	0	3	4	-0.25	0	0	0	0	
100818178	Kdm2a	lysine-specific demethylase 2A	28	22	23	73	0.10 *	6	47	43	96	0.17
84662717	Kdm3a	lysine-specific demethylase 3A	5	8	6	19	0.19	0	0	0	0	
124486935	Kdm3b	lysine-specific demethylase 3B	2	1	3	6	0.54 *	0	0	0	0	
26006857	Kdm4b	lysine-specific demethylase 4B	4	12	5	21	0.23	0	3	1	4	0.29
21450133	Kdm4c	lysine-specific demethylase 4C isoform 1	0	3	1	4	0.19	0	0	0	0	
226958545	Kdm5a	lysine-specific demethylase 5A	2	6	6	14	0.38	0	0	0	0	
160333703	Kdm5b	lysine-specific demethylase 5B	2	2	2	6	0.10	8	23	53	84	-0.02
33859626	Kdm5d	lysine-specific demethylase 5D	2	0	0	2	0.24	0	0	0	0	
33859492	Kdm6a	lysine-specific demethylase 6A	1	18	3	22	0.56	0	0	0	0	
257743021	2410016O06Rik	lysine-specific demethylase NO66	0	0	0	0		0	12	0	12	0.12
224994233	Kdm1a	lysine-specific histone demethylase 1A	59	62	44	165	0.16	7	54	24	85	0.09
26986559	Kdm1b	lysine-specific histone demethylase 1B	0	3	1	4	0.05	0	0	0	0	
227496223	Lyplal1	lysophospholipase-like protein 1	1	1	1	3	-0.25 *	0	1	0	1	-1.18 #
23956314	Mboat1	lysophospholipid acyltransferase 1	0	0	0	0		0	0	2	2	-0.37
31542014	Mboat7	lysophospholipid acyltransferase 7	0	0	0	0		0	2	1	3	-0.37
46402175	Lpcat4	lysophospholipid acyltransferase LPCAT4	0	0	0	0		0	0	1	1	-0.45 #
226693369	Gaa	lysosomal alpha-glucosidase precursor	0	0	1	1	0.15	0	0	0	0	
113195690	Man2b1	lysosomal alpha-mannosidase precursor	1	0	1	2	-0.25	0	0	0	0	
84042523	Ctsa	lysosomal protective protein isoform b	8	7	4	19	-0.11	0	0	1	1	0.05
113195678	Lamp1	lysosome-associated membrane glycoprotein 1	3	0	0	3	-0.60 #	0	0	0	0	
7305247	Lyz1	lysozyme C-1 precursor	0	0	0	0		2	0	0	2	-5.54 #

170650601	Macrocl1	MACRO domain-containing protein 1	9	9	10	28	-0.14	0	3	1	4	-0.13
6754696	Mif	macrophage migration inhibitory factor	0	3	1	4	0.18	0	1	0	1	-0.23
110227377	Capg	macrophage-capping protein isoform 2	4	5	7	16	-0.05	3	21	38	62	-0.10
254826797	Mad2l1bp	MAD2L1-binding protein	8	12	8	28	0.00	0	4	4	8	0.06
298676496	Magt1	magnesium transporter protein 1 precursor	3	5	4	12	-0.23 *	1	2	2	5	-0.29
12963663	Mdp1	magnesium-dependent phosphatase 1	0	0	4	4	-0.22	0	0	0	0	
257900520	Mpp6	MAGUK p55 subfamily member 6 isoform b	2	1	1	4	0.41 *	0	0	0	0	
239051572	Mpp7	MAGUK p55 subfamily member 7 isoform 1	18	35	5	58	0.06	0	5	0	5	0.23
239051602	Mpp7	MAGUK p55 subfamily member 7 isoform 2	0	2	1	3	-0.45	0	0	2	2	-0.05
34328105	Cenpb	major centromere autoantigen B	0	0	0	0		0	3	4	7	0.24
13386144	Mfsd10	major facilitator superfamily domain-containing protein 10	4	3	3	10	-0.32 *	10	4	7	21	-0.26
239052674	Mvp	major vault protein	0	0	0	0		0	0	1	1	-0.12
254540027	Mdh1	malate dehydrogenase, cytoplasmic	6	3	4	13	0.19	0	1	3	4	0.19
31982186	Mdh2	malate dehydrogenase, mitochondrial precursor	65	67	65	197	-0.15 *	89	37	54	180	-0.03
188497650	Mlec	malectin precursor	15	18	14	47	-0.24 *	25	11	16	52	-0.14
166091474	Msl1	male-specific lethal 1 homolog	1	1	2	4	-0.14	0	0	0	0	
11545735	Msl3	male-specific lethal 3 homolog	0	1	1	2	-0.40 *	0	0	0	0	
6754092	Gstz1	maleylacetoacetate isomerase	6	0	1	7	-0.11	0	0	1	1	0.20
21312175	Mcts1	malignant T cell-amplified sequence 1	9	16	11	36	-0.09	0	0	0	0	
13384966	Mcts2	malignant T cell-amplified sequence 2	12	11	15	38	-0.09	0	2	2	4	0.30
71725343	Mcat	malonyl-CoA-acyl carrier protein transacylase, mitochondrial precursor	4	3	6	13	-0.09	0	0	0	0	
282165729	Epdr1	mammalian ependymin-related protein 1 precursor	0	4	3	7	-0.29	0	0	0	0	
255958162	Fam89b	mammary tumor virus receptor 2 isoform 2	1	0	0	1	0.37	0	0	0	0	
31981340	Mpdu1	mannose-P-dolichol utilization defect 1 protein	4	0	2	6	-0.39	5	0	1	6	-0.57 #
6754620	Man1a2	mannosyl-oligosaccharide 1,2-alpha-mannosidase IB	0	0	0	0		0	0	1	1	0.07
31981106	Mogs	mannosyl-oligosaccharide glucosidase	4	3	3	10	-0.42 *	11	2	3	16	-0.29 *
251823812	Mark3	MAP/microtubule affinity-regulating kinase 3 isoform 2	1	0	3	4	-1.99 #	0	0	0	0	
21703882	Mbip	MAP3K12-binding inhibitory protein 1	2	6	2	10	0.30	0	0	0	0	
6754706	Marcks1	MARCKS-related protein	5	4	6	15	-0.24	0	1	1	2	0.09
25141233	Matr3	matrin-3	124	144	143	411	-0.08	342	403	435	1180	-0.08
188528637	Mmp14	matrix metalloproteinase-14	1	0	0	1	0.41	0	0	0	0	
269308211	Mau2	MAU2 chromatid cohesion factor homolog isoform 2	2	2	1	5	0.50 *	0	5	1	6	0.34
158508479	Mbtd1	MBT domain-containing protein 1	1	0	1	2	0.20	0	0	0	0	
10946816	Mecom	MDS1 and EVI1 complex locus protein EVI1 isoform 2	1	2	1	4	0.03	0	0	5	5	0.04
132626693	Mdc1	mediator of DNA damage checkpoint protein 1	119	135	90	344	0.20 *	47	37	55	139	-0.05
121582430	Med1	mediator of RNA polymerase II transcription subunit 1 isoform 1	7	19	8	34	0.61 *,#	0	0	0	0	
20070410	Med10	mediator of RNA polymerase II transcription subunit 10	8	5	2	15	0.38	0	2	0	2	0.31
27754138	Med11	mediator of RNA polymerase II transcription subunit 11	4	3	7	14	0.42	0	0	0	0	
125628662	Med12	mediator of RNA polymerase II transcription subunit 12	19	38	21	78	0.47 *	0	2	0	2	0.35
242397421	Med12l	mediator of RNA polymerase II transcription subunit 12-like protein	1	0	0	1	0.48	0	0	0	0	

124286862	Med13	mediator of RNA polymerase II transcription subunit 13	6	21	11	38	0.63	*,#	0	0	0	0	
146134449	Med13l	mediator of RNA polymerase II transcription subunit 13-like	0	2	0	2	0.51		0	0	0	0	
115270977	Med14	mediator of RNA polymerase II transcription subunit 14 isoform a	0	0	20	20	0.74	#	0	0	0	0	
115270972	Med14	mediator of RNA polymerase II transcription subunit 14 isoform b	25	37	0	62	0.49		0	0	0	0	
100817039	Med15	mediator of RNA polymerase II transcription subunit 15 isoform b	0	0	2	2	0.44		0	0	0	0	
253970419	Med16	mediator of RNA polymerase II transcription subunit 16 isoform 2	5	11	4	20	0.29	*	0	0	0	0	
21450345	Med17	mediator of RNA polymerase II transcription subunit 17	8	7	10	25	0.38		0	0	1	1	0.55 #
21313064	Med18	mediator of RNA polymerase II transcription subunit 18	0	2	0	2	0.32		0	0	0	0	
21313194	Med19	mediator of RNA polymerase II transcription subunit 19	4	6	2	12	0.42		0	1	0	1	-0.41
9910590	Med20	mediator of RNA polymerase II transcription subunit 20	6	10	3	19	0.39		0	5	2	7	0.44
13384678	Med21	mediator of RNA polymerase II transcription subunit 21	7	11	5	23	0.48	*	0	0	0	0	
6755700	Med22	mediator of RNA polymerase II transcription subunit 22 isoform 1	10	10	6	26	0.54		0	0	0	0	
261878547	Med23	mediator of RNA polymerase II transcription subunit 23 isoform 2	26	33	28	87	0.46	*	0	22	2	24	0.34
119220579	Med24	mediator of RNA polymerase II transcription subunit 24	8	17	8	33	0.28		0	4	1	5	0.28
20149312	Med25	mediator of RNA polymerase II transcription subunit 25	0	4	1	5	0.58	#	0	0	0	0	
76253678	Med27	mediator of RNA polymerase II transcription subunit 27	9	11	12	32	0.43		0	2	3	5	0.38
13385388	Med28	mediator of RNA polymerase II transcription subunit 28	3	9	3	15	0.52		0	0	0	0	
27754101	Med29	mediator of RNA polymerase II transcription subunit 29	2	6	6	14	0.48	*	0	0	0	0	
19882231	Med30	mediator of RNA polymerase II transcription subunit 30	5	9	6	20	0.39		0	3	1	4	0.38
56119162	Med31	mediator of RNA polymerase II transcription subunit 31	5	4	4	13	0.39		0	0	0	0	
13385626	Med4	mediator of RNA polymerase II transcription subunit 4	13	16	13	42	0.44		0	2	2	4	0.41
27754027	Med6	mediator of RNA polymerase II transcription subunit 6	2	4	5	11	0.42		0	1	2	3	0.65 #
157266302	Med7	mediator of RNA polymerase II transcription subunit 7	5	6	5	16	0.64	*,#	0	0	0	0	
114155155	Med8	mediator of RNA polymerase II transcription subunit 8 isoform 1	0	11	0	11	0.35		0	0	0	0	
29366816	Med8	mediator of RNA polymerase II transcription subunit 8 isoform 2	5	0	5	10	0.58	#	0	0	2	2	-10.24 #
31981674	Med9	mediator of RNA polymerase II transcription subunit 9	0	1	0	1	0.39		0	0	0	0	
6680618	Acadm	medium-chain specific acyl-CoA dehydrogenase, mitochondrial precursor	10	10	11	31	-0.12		0	8	8	16	-0.02
240848585	Mnd1	meiotic nuclear division protein 1 homolog	1	0	0	1	0.51		0	0	0	0	
12963595	Ndn12	melanoma-associated antigen G1	5	6	7	18	0.24		5	7	10	22	-0.17 *
22122803	Mmgt1	membrane magnesium transporter 1 precursor	1	0	0	1	-0.02		0	0	0	0	
134031962	Magi1	membrane-associated guanylate kinase, WW and PDZ domain-containing protein 1 isoform d	0	1	0	1	1.16	#	0	0	0	0	

226823238	Magi3	membrane-associated guanylate kinase, WW and PDZ domain-containing protein 3 isoform 1	0	2	0	2	0.73 #	0	0	0	0		
19527074	Magi3	membrane-associated guanylate kinase, WW and PDZ domain-containing protein 3 isoform 2	1	0	0	1	1.11 #	0	0	0	0		
31980806	Pgrmc1	membrane-associated progesterone receptor component 1	9	5	4	18	-0.22	19	2	5	26	-0.20	
226442772	Pgrmc2	membrane-associated progesterone receptor component 2	12	6	7	25	-0.31 *	10	2	1	13	-0.28 *	
6678858	Men1	menin isoform b	16	15	11	42	-0.10 *	0	13	10	23	-0.18	
270309153	Men1	menin isoform c	0	0	0	0		1	0	5	6	-0.22	
110625813	Manf	mesencephalic astrocyte-derived neurotrophic factor precursor	26	42	26	94	0.00	1	15	7	23	1.55 #	
7305285	Mt1	metallothionein-1	6	6	5	17	0.05	0	0	0	0		
33468863	Mt2	metallothionein-2	4	6	5	15	0.14	0	0	0	0		
6678942	Mt4	metallothionein-4	0	0	0	0		1	0	0	1	-10.02 #	
70887769	Mtf2	metal-response element-binding transcription factor 2	0	0	1	1	-0.49	0	1	1	2	0.67 #	
91598896	Mta1	metastasis-associated protein MTA1	10	11	23	44	0.59 #	29	38	29	96	0.34 *	
51491880	Mta2	metastasis-associated protein MTA2	17	30	23	70	0.38	29	35	21	85	0.18	
283806536	Mta3	metastasis-associated protein MTA3 isoform 1	0	15	0	15	0.23	0	27	0	27	0.30	
283806541	Mta3	metastasis-associated protein MTA3 isoform 4	8	8	11	27	0.30	9	0	15	24	0.27	
241982742	Mtx1	metaxin-1 isoform 2	4	1	4	9	0.30	0	2	3	5	0.49 #	
228480241	Mtx2	metaxin-2	2	2	0	4	0.15	2	9	5	16	0.42	
28202007	Metap1	methionine aminopeptidase 1	26	38	23	87	-0.02	12	19	24	55	0.02	
9789873	Metap2	methionine aminopeptidase 2	1	2	2	5	0.21	0	0	1	1	0.01	
227499995	Mtfmt	methionyl-tRNA formyltransferase, mitochondrial precursor	0	0	0	0		1	0	0	1	5.39 #	
51491852	Mars	methionyl-tRNA synthetase, cytoplasmic isoform 2	0	0	0	0		0	0	4	4	0.22	
157817372	Mbd1	methyl-CpG-binding domain protein 1	1	0	0	1	0.31	12	13	6	31	-0.04 *	
218931229	Mbd2	methyl-CpG-binding domain protein 2	12	11	9	32	0.10	3	13	5	21	0.09	
7305261	Mbd3	methyl-CpG-binding domain protein 3	24	24	23	71	0.47 *	19	22	18	59	0.44 *	
14149645	Mecp2	methyl-CpG-binding protein 2 isoform 2	6	15	10	31	-0.03	12	26	30	68	0.01	
186700620	Mccc1	methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial	1	0	0	1	0.86 #	0	0	0	0		
124301198	Mthfd2l	methylenetetrahydrofolate dehydrogenase 2-like	1	9	11	21	0.12	0	0	0	0		
116268115	Auh	methylglutaconyl-CoA hydratase, mitochondrial precursor	4	4	2	10	-0.06	0	0	0	0		
19527258	Aldh6a1	methylmalonate-semialdehyde dehydrogenase [acylating], mitochondrial precursor	3	0	0	3	-0.24	0	0	0	0		
58037329	Mcee	methylmalonyl-CoA epimerase, mitochondrial precursor	1	2	0	3	-0.26	0	0	0	0		
61098178	Mettl7a2	methyltransferase like 7A2	0	3	0	3	0.68 #	0	0	1	1	0.48 #	
260099682	Mettl14	methyltransferase-like protein 14	2	1	0	3	0.97 #	0	0	0	0		
33563290	Mettl7a1	methyltransferase-like protein 7A	5	0	2	7	-1.16 #	0	0	0	0		
219521935	H2-Gs10	MHC class I like protein GS10	1	0	0	1	-1.22 #	0	0	0	0		
239916007	Rfx1	MHC class II regulatory factor RFX1	0	2	0	2	0.31	0	0	0	0		
254553310	Micall2	MICAL-like 2	0	1	0	1	0.72 #	0	0	0	0		
126517472	Mfap1b	microfibrillar-associated protein 1B	1	11	3	15	0.02	4	15	9	28	0.07	
41152099	Dgcr8	microprocessor complex subunit DGCR8	1	0	1	2	0.51	0	0	0	0		
31981068	Mgst1	microsomal glutathione S-transferase 1	2	4	3	9	-0.10	1	0	2	3	0.02	
13385010	Mgst3	microsomal glutathione S-transferase 3	7	4	5	16	0.24 *	12	2	2	16	0.33	
255918178	Mcrs1	microspherule protein 1 isoform 2	6	0	4	10	0.31	0	0	0	0		

309265166	LOC100505102	microspherule protein 1-like	0	6	0	6	0.04	0	0	0	0		
312433957	Macf1	microtubule-actin cross-linking factor 1 isoform 2	1	41	9	51	0.06	0	0	0	0		
171543853	Mtap1b	microtubule-associated protein 1B	0	7	2	9	0.28	0	0	0	0		
162287131	Mtap1s	microtubule-associated protein 1S	0	6	1	7	-1.62#	0	0	0	0		
90186270	Mtap2	microtubule-associated protein 2 isoform 1	0	0	1	1	-1.75#	0	0	0	0		
148747189	Mtap4	microtubule-associated protein 4 isoform 2	17	11	4	32	0.16	0	0	0	0		
114520594	Mtap6	microtubule-associated protein 6 isoform 3	0	1	1	2	0.02	0	0	0	0		
7106301	Mapre1	microtubule-associated protein RP/EB family member 1	8	12	8	28	0.11	0	1	1	2	0.30	
13385664	Map1lc3b	microtubule-associated proteins 1A/1B light chain 3B	1	1	0	2	0.28	0	0	0	0		
124487133	Mdn1	midasin	131	137	72	340	0.29	0	7	22	29	0.48#	
188035926	Ndufaf2	mimitin, mitochondrial precursor	1	0	0	1	-0.23	0	0	0	0		
31044421	Mis18bp1	mis18-binding protein 1	0	0	0	0		0	0	2	2	-0.30	
110625710	Mitd1	MIT domain-containing protein 1	4	2	0	6	0.30	0	0	0	0		
21312994	Slc25a11	mitochondrial 2-oxoglutarate/malate carrier protein	12	14	11	37	0.06	30	21	13	64	-0.01	
10048462	Slc25a20	mitochondrial carnitine/acylcarnitine carrier protein	0	0	0	0		1	0	3	4	0.00	
9790055	Mtch2	mitochondrial carrier homolog 2	1	2	1	4	0.32	10	5	13	28	0.22	
254826790	Slc25a10	mitochondrial dicarboxylate carrier	10	4	11	25	-0.10	33	10	11	54	0.00	
253735731	Fis1	mitochondrial fission 1 protein isoform 2	7	7	7	21	-0.17	1	0	0	1	-2.46#	
188528646	Mtg1	mitochondrial GTPase 1 precursor	4	5	7	16	-0.19	0	0	0	0		
158937240	Timm10	mitochondrial import inner membrane translocase subunit Tim10	3	0	0	3	-1.52#	1	0	0	1	0.00	
7305581	Timm13	mitochondrial import inner membrane translocase subunit Tim13	17	24	15	56	-0.10	14	5	9	28	0.06	
309268906	LOC100503724	mitochondrial import inner membrane translocase subunit TIM14-like	2	1	1	4	0.00	0	0	0	0		
309262139	Gm9803	mitochondrial import inner membrane translocase subunit Tim16-like	8	3	6	17	-0.14*	0	0	1	1	-0.38	
33468937	Timm17b	mitochondrial import inner membrane translocase subunit Tim17-B	2	0	0	2	-0.11	0	0	0	0		
254675168	Timm23	mitochondrial import inner membrane translocase subunit Tim23	0	0	0	0		3	0	2	5	-0.08	
170763467	Timm44	mitochondrial import inner membrane translocase subunit TIM44 precursor	13	1	7	21	-0.28	2	4	8	14	-0.04	
22094989	Timm50	mitochondrial import inner membrane translocase subunit TIM50 precursor	2	0	0	2	-0.24	5	6	7	18	-0.31	
7305577	Timm8a1	mitochondrial import inner membrane translocase subunit Tim8 A	12	5	10	27	-0.03	3	2	2	7	-0.10	
7305579	Timm8b	mitochondrial import inner membrane translocase subunit Tim8 B	6	10	8	24	0.01	7	3	5	15	0.09*	
67846109	Timm9	mitochondrial import inner membrane translocase subunit Tim9	2	1	0	3	0.02	1	0	0	1	-0.16	
31982091	Tomm22	mitochondrial import receptor subunit TOM22 homolog	3	1	4	8	0.15	10	4	6	20	0.08	
13385500	Tomm34	mitochondrial import receptor subunit TOM34	15	17	20	52	0.08	0	0	2	2	0.07	
157909797	Tomm40	mitochondrial import receptor subunit TOM40 homolog	0	0	0	0		6	2	5	13	0.33	
309265294	Gm8069	mitochondrial import receptor subunit TOM5 homolog	0	0	0	0		1	0	0	1	0.52#	
27552760	Tomm70a	mitochondrial import receptor subunit TOM70	6	11	17	34	0.12	1	1	1	3	0.12	
70608131	Immt	mitochondrial inner membrane protein	0	0	0	0		57	25	29	111	0.51*#	

19527144	Chchd4	mitochondrial intermembrane space import and assembly protein 40	1	1	1	3	-0.29	0	0	0	0		
227908787	1110008L16Rik	mitochondrial ribonuclease P protein 3 precursor	0	0	1	1	0.02	0	0	0	0		
27502349	Pmpca	mitochondrial-processing peptidase subunit alpha precursor	3	0	1	4	-0.21	0	0	0	0		
95113671	Pmpcb	mitochondrial-processing peptidase subunit beta precursor	5	1	3	9	-0.21 *	0	0	0	0		
6754632	Mapk1	mitogen-activated protein kinase 1	11	16	9	36	-0.08	1	8	22	31	-0.09	
226246627	Mapk13	mitogen-activated protein kinase 13	3	10	4	17	0.35 *	0	0	0	0		
21489933	Mapk3	mitogen-activated protein kinase 3	0	0	0	0		0	2	0	2	0.19	
77736537	Map4k5	mitogen-activated protein kinase kinase kinase 5	0	3	2	5	0.14	0	0	1	1	-0.31	
31560618	Bub3	mitotic checkpoint protein BUB3	35	47	25	107	0.23 *	7	22	18	47	0.10	
88014564	Mad1l1	mitotic spindle assembly checkpoint protein MAD1	28	32	18	78	-0.06	3	5	4	12	0.86 #	
31543218	Mad2l1	mitotic spindle assembly checkpoint protein MAD2A	11	11	7	29	-0.01	0	7	0	7	-0.33	
149262068	LOC100045924	mitotic spindle assembly checkpoint protein MAD2A-like	0	0	0	0		2	0	3	5	-0.10	
30424884	Mzt1	mitotic-spindle organizing protein 1	1	2	2	5	-0.20	0	0	2	2	-0.15	
21312988	Mzt2	mitotic-spindle organizing protein 2	2	1	1	4	0.15	0	0	0	0		
224809384	Mki67ip	MKI67 FHA domain-interacting nucleolar phosphoprotein	1	1	0	2	0.04	16	31	28	75	0.15	
76559944	1500001M20Rik	MMP37-like protein, mitochondrial precursor	0	2	0	2	-0.27	0	0	2	2	-0.85 #	
70778915	Msn	moesin	19	27	40	86	0.11	0	4	8	12	-0.23	
161484622	Mocs1	molybdenum cofactor biosynthesis protein 1 isoform 2	0	0	1	1	0.01	0	0	0	0		
159110817	Abhd12	monoacylglycerol lipase ABHD12	1	0	1	2	-0.25	1	0	0	1	0.11	
31560264	Abhd6	monoacylglycerol lipase ABHD6	18	10	17	45	-0.24	0	4	6	10	-0.23	
6677995	Slc16a1	monocarboxylate transporter 1	0	0	1	1	-0.12	0	0	4	4	-0.02	
283135110	Mthfd1l	monofunctional C1-tetrahydrofolate synthase, mitochondrial precursor	41	35	43	119	-0.14	4	22	47	73	-0.22	
37718976	Morc2a	MORC family CW-type zinc finger protein 2A isoform 2	5	8	3	16	0.26 *	0	0	0	0		
13385746	Mrfap1	MORF4 family-associated protein 1	8	4	3	15	-0.36	0	0	0	0		
269996027	Morf4l2	mortality factor 4-like protein 2	0	6	0	6	0.34	0	0	0	0		
19526848	Mosc2	MOSC domain-containing protein 2, mitochondrial precursor	6	6	8	20	-0.05	4	12	13	29	0.16 *	
31543224	Smad4	mothers against decapentaplegic homolog 4	0	4	0	4	0.44	0	0	0	0		
254675302	Mospd4	motile sperm domain containing 4	1	0	0	1	-10.10 #	0	0	0	0		
21312048	Mphosph6	M-phase phosphoprotein 6	10	8	6	24	0.02	0	1	0	1	-0.02	
225543402	Mphosph8	M-phase phosphoprotein, mpp8	0	0	0	0		0	4	1	5	0.09	
146134497	Mpnd	MPN domain-containing protein	0	0	0	0		0	6	1	7	-0.21	
21704148	Mobk1b	mps one binder kinase activator-like 1B	0	1	0	1	0.41	0	0	0	0		
40254521	Mobk3	mps one binder kinase activator-like 3	3	4	3	10	0.91 *,#	0	0	1	1	0.25	
110625965	1600027N09Rik	MRG-binding protein	6	6	7	19	0.23 *	0	1	3	4	0.25	
13385938	Rnmt	mRNA cap guanine-N7 methyltransferase isoform 1	0	1	0	1	-0.44	0	0	0	0		
28201956	Rae1	mRNA export factor	25	46	28	99	-0.08	18	53	49	120	0.03	
37537520	Mrto4	mRNA turnover protein 4 homolog	9	11	6	26	-0.04	18	10	9	37	-0.04	
149262895	Gm5633	mRNA turnover protein 4 homolog isoform 2	5	0	5	10	-0.02	0	6	7	13	0.07	
120587001	Spen	msx2-interacting protein	0	4	0	4	0.90 #	0	0	0	0		
7305293	Muc1	mucin-1	0	3	0	3	0.64 #	0	3	0	3	0.94 #	
167736365	Muc4	mucin-4	1	0	1	2	0.88 #	0	0	0	0		
6755046	Abcb1b	multidrug resistance protein 1	0	0	0	0		0	1	1	2	-0.56 #	



13385434	Paics	multifunctional protein ADE2	0	0	0	0			0	1	2	3	-0.16
13259376	2310033P09Rik	multiple myeloma tumor-associated protein 2 homolog	5	5	5	15	0.08		5	2	5	12	0.03
21312058	Fam125a	multivesicular body subunit 12A	0	0	1	1	-0.61 #		0	0	0	0	
46411182	Mbnl1	muscleblind-like protein 1	2	0	0	2	-0.02		0	0	0	0	
46411185	Mbnl2	muscleblind-like protein 2 isoform 2	0	4	0	4	0.04		0	0	0	0	
31982724	Mybbp1a	myb-binding protein 1A	522	602	560	1684	-0.03		355	718	833	1906	0.01
134053947	Bin1	myc box-dependent-interacting protein 1 isoform 2	0	0	1	1	0.00		0	0	0	0	
114155153	Maz	myc-associated zinc finger protein	5	26	5	36	-0.15		0	0	0	0	
256355182	Mina	myc-induced nuclear antigen	4	7	6	17	0.18		0	0	0	0	
244790087	Myef2	myelin expression factor 2 isoform 1	21	24	7	52	-0.03		0	33	66	99	0.09
244790091	Myef2	myelin expression factor 2 isoform 2	0	31	0	31	-0.30		0	0	0	0	
244790095	Myef2	myelin expression factor 2 isoform 3	37	0	16	53	-0.25		72	40	101	213	0.07
118130868	Mllt6	myeloid/lymphoid or mixed lineage-leukemia translocation to 6 homolog	0	1	2	3	-0.47		0	0	3	3	0.05
148271073	Myadm	myeloid-associated differentiation marker	2	5	2	9	0.41		2	4	3	9	0.64 *,#
153791796	Myof	myoferlin	0	0	3	3	-0.15		0	2	2	4	-3.00 #
164664497	Myl1	myosin light chain 1/3, skeletal muscle isoform isoform 3f	4	7	5	16	-0.30		7	0	3	10	-0.10
126157499	Mylk	myosin light chain kinase, smooth muscle	29	61	12	102	0.44		0	0	0	0	
71037403	2900073G15Rik	myosin light chain, regulatory B-like	21	18	24	63	-0.37		29	17	0	46	-0.27
33620739	Myl6	myosin light polypeptide 6	27	31	15	73	-0.33		70	0	0	70	-0.15
94363510	Gm5526	myosin light polypeptide 6-like	0	0	0	0			0	18	15	33	-0.47 #
21728376	Myl12b	myosin regulatory light chain 12B	21	23	21	65	-0.33		37	22	30	89	-0.31
33598964	Myh10	myosin-10	28	56	38	122	-0.39		0	69	97	166	-0.65 #
29336026	Myh14	myosin-14	0	0	0	0			29	0	41	70	-0.33
114326446	Myh9	myosin-9 isoform 1	243	433	327	1003	-0.37		469	819	997	2285	-0.38
124487037	Myo1a	myosin-Ia	0	0	1	1	4.14 #		0	0	0	0	
124494244	Myo1c	myosin-Ic isoform b	6	14	7	27	0.05		24	60	52	136	0.27 *
118026911	Myo1d	myosin-I d	0	1	0	1	0.05		0	7	5	12	0.34
46399202	Myo5b	myosin-Vb	1	0	0	1	0.33		0	5	1	6	0.67 #
124486759	Myo5c	myosin-Vc	0	0	0	0			0	1	0	1	0.49 #
261823961	Myo6	myosin-VI	33	37	22	92	-0.05		28	95	134	257	-0.01
22094119	Myo18a	myosin-XVIIIa	31	63	18	112	0.17		0	0	0	0	
6679961	Mtpn	myotrophin	0	0	2	2	-0.19		0	0	0	0	
6678768	Marcks	myristoylated alanine-rich C-kinase substrate	6	6	6	18	-0.10		0	1	4	5	0.34
299522791	Ddah2	N(G),N(G)-dimethylarginine dimethylaminohydrolase 2 isoform 1	3	0	1	4	-0.31		0	0	0	0	
77627973	Mettl3	N6-adenosine-methyltransferase 70 kDa subunit	0	1	1	2	0.39		0	0	0	0	
6755566	Slc9a3r1	Na(+)/H(+) exchange regulatory cofactor NHE-RF1	1	3	2	6	0.40 *		0	0	0	0	
226246650	Slc9a3r2	Na(+)/H(+) exchange regulatory cofactor NHE-RF2 isoform B	0	1	0	1	0.93 #		0	0	0	0	
309264703	Naaladl2	N-acetylated alpha-linked acidic dipeptidase-like 2	0	0	0	0			0	0	1	1	0.08
23346561	Nat10	N-acetyltransferase 10	23	28	24	75	0.01		34	131	188	353	0.00
124487021	Esco1	N-acetyltransferase ESCO1	2	3	4	9	0.17		0	1	4	5	-0.06
247269309	Cmas	N-acylneuraminate cytidyltransferase	23	32	22	77	0.02		2	5	7	14	-0.02
13385586	Nanp	N-acylneuraminate-9-phosphatase	0	0	0	0			0	1	1	2	-0.07
94400773	Nqo1	NAD(P)H dehydrogenase [quinone] 1	1	2	1	4	0.22		0	3	4	7	-0.23
254939656	Sirt6	NAD-dependent deacetylase sirtuin-6 isoform 2	4	4	0	8	0.16		0	1	3	4	0.17
165932356	Sirt7	NAD-dependent deacetylase sirtuin-7	2	2	2	6	-0.17		0	0	0	0	
309263866	LOC100505264	NAD-dependent malic enzyme, mitochondrial-like	3	0	1	4	-0.13		0	0	0	0	

13195624	Ndufa10	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial precursor	4	3	1	8	0.11	10	8	11	29	0.01
226437665	Ndufa11	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11	7	0	3	10	-0.75#	2	1	0	3	0.00
27228985	Ndufa12	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12	7	4	5	16	-0.02	0	0	4	4	0.13
12963633	Ndufa13	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13	3	4	2	9	-0.03	0	0	0	0	
31981600	Ndufa2	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2	0	0	1	1	0.23	2	1	2	5	0.06
33563266	Ndufa4	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 4	3	2	1	6	0.01	2	0	3	5	0.39
13386100	Ndufa5	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5	2	0	2	4	0.00	4	0	2	6	0.21
13385492	Ndufa6	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6	0	0	1	1	0.36	0	0	0	0	
12963571	Ndufa7	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7	6	3	2	11	-0.05	3	0	1	4	0.08
21312012	Ndufa8	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8	6	5	2	13	-0.06	1	2	2	5	0.04
254692859	Ndufa9	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 9, mitochondrial precursor	1	6	8	15	0.00	16	15	18	49	0.23
58037109	Ndufb10	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10	11	6	7	24	-0.01	13	13	13	39	0.08
158631246	Ndufb11	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial	5	4	6	15	-0.01	2	0	3	5	0.05
13385054	Ndufb3	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 3	0	0	4	4	0.07	1	2	1	4	-0.02
149266669	Gm3244	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4-like	1	2	2	5	0.07	3	1	1	5	0.21
27754144	Ndufb5	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial precursor	5	2	2	9	-0.03	8	0	1	9	-0.17
84781779	Ndufb6	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6	4	3	3	10	0.01	1	2	2	5	0.02
13385322	Ndufb7	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7	2	0	0	2	-0.19	0	0	0	0	
13385558	Ndufb8	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial precursor	3	2	3	8	0.09	0	0	2	2	0.29
29789148	Ndufb9	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9	1	0	2	3	0.01	0	2	2	4	0.16
19526814	Ndufv1	NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial precursor	6	4	7	17	0.00	4	3	7	14	0.06
110625954	Ndufv2	NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial precursor	7	10	11	28	-0.09	0	3	4	7	0.10
140972309	Ndufv3	NADH dehydrogenase [ubiquinone] flavoprotein 3, mitochondrial isoform 1	0	0	1	1	0.16	0	0	0	0	
23346461	Ndufs2	NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial precursor	0	0	0	0		0	1	4	5	0.06
58037117	Ndufs3	NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial precursor	14	6	10	30	0.00	16	12	11	39	-0.02
281485615	Ndufs4	NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial	5	3	4	12	-0.11	0	0	3	3	0.16
72004262	Ndufs5	NADH dehydrogenase [ubiquinone] iron-sulfur protein 5	4	0	4	8	-0.12*	5	2	4	11	-0.14
56711244	Ndufs6	NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial precursor	4	0	4	8	-0.12	3	0	0	3	-0.15

309265963	Gm6415	NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial-like	0	2	0	2	-0.08	0	0	2	2	0.28
21312950	Ndufs7	NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial precursor	4	3	2	9	0.02	0	3	3	6	0.05
46195430	Ndufs8	NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial precursor	4	4	3	11	-0.60 #	2	3	1	6	-0.24
167716837	ND1	NADH dehydrogenase subunit 1	2	2	1	5	0.30	0	2	2	4	0.41
167716838	ND2	NADH dehydrogenase subunit 2	1	1	1	3	-0.11	1	3	2	6	0.10
226453482	ND3	NADH dehydrogenase subunit 3	2	3	1	6	0.13	1	0	1	2	-0.18
167716846	ND4	NADH dehydrogenase subunit 4	1	5	1	7	-0.05	7	3	0	10	-0.13
34538607	ND4	NADH dehydrogenase subunit 4	0	0	0	0		0	0	2	2	-0.04
34538608	ND5	NADH dehydrogenase subunit 5	0	0	0	0		2	0	0	2	0.16
21312524	Cyb5r1	NADH-cytochrome b5 reductase 1	0	0	2	2	-0.38	0	1	1	2	0.09
19745150	Cyb5r3	NADH-cytochrome b5 reductase 3	42	18	36	96	-0.18 *	73	8	21	102	-0.16
229892318	Ndufs1	NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial precursor	4	5	8	17	-0.18	11	3	11	25	0.10
312147392	Me1	NADP-dependent malic enzyme isoform 2	0	0	0	0		0	0	1	1	0.03
6679767	Fdxr	NADPH:adrenodoxin oxidoreductase, mitochondrial precursor	1	0	3	4	-0.03	0	0	0	0	
6679421	Por	NADPH--cytochrome P450 reductase	13	2	5	20	-0.21	35	2	3	40	-0.28
295789090	Naa10	N-alpha-acetyltransferase 10, NatA catalytic subunit isoform 2	4	5	5	14	0.13	0	0	3	3	-0.04
225543482	Naa15	N-alpha-acetyltransferase 15, NatA auxiliary subunit	0	1	0	1	-0.19	0	0	0	0	
213972579	Naa20	N-alpha-acetyltransferase 20, NatB catalytic subunit isoform 1	3	5	6	14	-0.03	0	0	0	0	
55742803	Naa25	N-alpha-acetyltransferase 25, NatB auxiliary subunit	0	7	8	15	0.11	0	1	2	3	0.04
19527156	Naa38	N-alpha-acetyltransferase 38, NatC auxiliary subunit	24	22	16	62	0.05	12	11	0	23	0.09
254588079	Naa40	N-alpha-acetyltransferase 40, NatD catalytic subunit	6	6	0	12	0.40	26	32	22	80	0.10
21312422	Naa50	N-alpha-acetyltransferase 50, NatE catalytic subunit	18	19	13	50	0.00	1	0	2	3	-0.25
31559918	Nrd1	nardilysin precursor	1	1	1	3	0.14	0	0	0	0	
41350312	Naca	nascent polypeptide-associated complex subunit alpha isoform b	14	14	17	45	-0.27	0	3	10	13	0.03
28395023	Nckap1	nck-associated protein 1	13	28	26	67	-0.15	0	4	10	14	0.17
31981859	N4bp3	NEDD4-binding protein 3	0	0	0	0		1	0	0	1	-10.02 #
6679034	Nedd8	NEDD8 precursor	0	1	0	1	-0.06	0	0	0	0	
21704162	Ube2m	NEDD8-conjugating enzyme Ubc12 isoform 1	3	2	3	8	0.24	0	1	4	5	0.15
31560083	Fam192a	NEFA-interacting nuclear protein NIP30	0	0	0	0		0	1	0	1	10.07 #
33859652	Whsc2	negative elongation factor A	0	5	1	6	0.04	0	0	0	0	
165377251	Cobra1	negative elongation factor B	9	9	2	20	-0.08	0	1	0	1	-0.09
91982765	Th1l	negative elongation factor D	8	4	1	13	-0.62 #	0	1	1	2	0.03
114052228	Rdbp	negative elongation factor E	3	6	5	14	0.14	0	2	0	2	0.21
6754870	Cox4nb	neighbor of COX4	4	11	9	24	-0.30 *	4	4	5	13	-0.34
71067128	Npnt	nephronectin isoform b	0	0	0	0		0	0	24	24	-1.07 #
119120865	Syne1	nesprin-1 isoform 3	0	3	0	3	-1.74 #	0	0	0	0	
145699091	Syne2	nesprin-2	731	###	###	2923	0.20 *	###	###	###	4950	0.11
111607453	483142619Rik	nesprin-3 isoform alpha	0	0	0	0		0	36	32	68	-0.01
111607451	483142619Rik	nesprin-3 isoform beta	0	0	0	0		1	0	0	1	-0.41
13384818	Nenf	neudesin precursor	1	0	0	1	-0.01	0	0	0	0	
58037133	Ngdn	neuroguidin	0	0	0	0		0	5	7	12	0.11
6679891	Ganab	neutral alpha-glucosidase AB	11	0	1	12	-0.40 *	6	4	13	23	-0.66 #
30520239	Nceh1	neutral cholesterol ester hydrolase 1	8	0	1	9	-0.18	0	0	0	0	
21312616	Nkiras2	NF-kappa-B inhibitor-interacting Ras-like protein 2	0	2	0	2	0.23	0	0	0	0	

257153408	Nkap	NF-kappa-B-activating protein	0	1	0	1	0.06		0	10	2	12	0.07	
282154801	Nfu1	NFU1 iron-sulfur cluster scaffold homolog, mitochondrial isoform 2 precursor	7	0	1	8	-0.06		0	1	1	2	0.46	#
31543307	Nab1	NGFI-A-binding protein 1	0	1	1	2	0.46		0	0	0	0		
187960092	Ogg1	N-glycosylase/DNA lyase	4	2	1	7	-0.08		0	0	0	0		
309261987	LOC100505330	NHP2-like protein 1-like	1	24	25	50	-0.05		105	44	3	152	0.52	#
309266474	Gm5616	NHP2-like protein 1-like	0	0	0	0			0	1	27	28	-0.05	
82930015	Gm5616	NHP2-like protein 1-like	30	0	0	30	-0.05		0	0	0	0		
22122641	Fam129b	niban-like protein 1	0	1	0	1	0.31		0	0	0	0		
145386524	Nbn	nibrin	0	5	1	6	0.03		0	0	0	0		
224809376	Ncstn	nicastrin precursor	0	0	0	0			1	0	0	1	-3.13	#
21362329	Nmnat3	nicotinamide mononucleotide adenylyltransferase 3	8	3	0	11	0.14		0	1	0	1	-3.94	#
257153454	Nampt	nicotinamide phosphoribosyltransferase	0	0	0	0			3	11	33	47	-0.12	
51371928	Nipbl	nipped-B-like protein isoform B	61	59	52	172	0.14		10	141	125	276	-0.10	
254826728	Nosip	nitric oxide synthase-interacting protein isoform 2	17	12	12	41	0.19	*	0	0	4	4	0.01	
24431937	Nmral1	nmrA-like family domain-containing protein 1	0	0	0	0			0	1	2	3	-0.58	#
33469125	Nmi	N-myc-interactor	0	1	0	1	1.10	#	0	0	0	0		
227908803	Nomo1	nodal modulator 1	12	0	1	13	-0.44		0	0	0	0		
149257848	LOC100044391	non-histone chromosomal protein HMG-14-like	27	21	17	65	0.06		35	33	16	84	-0.10	
309271129	LOC100503331	non-histone chromosomal protein HMG-17-like	16	19	9	44	-0.13	*	94	22	0	116	-0.23	
309268322	LOC100503799	non-histone chromosomal protein HMG-17-like	0	0	0	0			0	21	0	21	-0.14	
149263574	Gm6750	non-histone chromosomal protein HMG-17-like	15	9	5	29	-0.14	*	0	0	0	0		
158517917	Nhej1	non-homologous end-joining factor 1	1	0	0	1	-0.09		0	0	0	0		
255958247	Nono	non-POU domain-containing octamer-binding protein	207	200	151	558	-0.03		176	200	147	523	-0.06	
133922607	Tyk2	non-receptor tyrosine-protein kinase TYK2 isoform 2	0	0	0	0			0	0	1	1	0.23	
169234780	Ncapg	non-SMC condensin I complex, subunit G	3	7	2	12	0.31		0	2	2	4	-0.02	
242246981	Nsmce4a	non-SMC element 4 homolog A	12	13	8	33	0.02		8	25	19	52	-0.21	
45476581	Scp2	non-specific lipid-transfer protein	28	11	23	62	-0.08	*	0	0	1	1	0.02	
34328291	Nsmce1	non-structural maintenance of chromosomes element 1 homolog	4	14	7	25	0.02		4	10	6	20	-0.06	
238624156	Nle1	notchless protein homolog 1	0	0	0	0			0	1	1	2	0.02	
294459934	Gm13698	novel protein containing MIF4G and MA3 domains	0	6	5	11	0.00		28	56	60	144	0.21	
38198665	Nsfl1c	NSFL1 cofactor p47	0	0	0	0			0	0	3	3	-0.06	
12963867	Scyl1	N-terminal kinase-like protein	0	0	1	1	0.62	#	0	0	2	2	0.04	
158749551	Nxt1	NTF2-related export protein 1	6	6	5	17	-0.06		1	2	1	4	0.04	
238637330	Nxt2	NTF2-related export protein 2	2	2	3	7	-0.02		0	0	0	0		
37059816	Naif1	nuclear apoptosis-inducing factor 1	0	2	0	2	-0.35		0	0	0	0		
126090505	Nasp	nuclear autoantigenic sperm protein isoform 1	0	0	0	0			0	0	1	1	0.33	
144922627	Ncbp1	nuclear cap-binding protein subunit 1	24	34	21	79	0.06		13	25	25	63	-0.07	
13386056	Ncbp2	nuclear cap-binding protein subunit 2	4	6	5	15	0.02		1	0	0	1	-0.40	
166197654	Nde1	nuclear distribution protein nudE homolog 1 isoform b	1	2	0	3	-1.34	#	0	1	0	1	0.80	#
156231054	Pom121	nuclear envelope pore membrane protein POM 121	0	2	1	3	0.27		0	2	0	2	-0.33	
148747370	Nfib	nuclear factor 1 B-type isoform 3	8	16	4	28	0.12		0	1	0	1	-0.59	#
84370351	Nfic	nuclear factor 1 C-type isoform b	12	16	7	35	0.27	*	0	1	0	1	0.27	
117606364	Nfkb1	nuclear factor NF-kappa-B p105 subunit	3	2	1	6	-0.36	*	0	2	0	2	-0.75	#

40254249	Nfrkb	nuclear factor related to kappa-B-binding protein	3	13	3	19	-0.40	0	0	0	0		
22122685	Ppp1r8	nuclear inhibitor of protein phosphatase 1	11	20	17	48	-0.01	0	4	4	8	0.03	
6754910	Nudc	nuclear migration protein nudC	0	0	0	0		0	0	1	1	-0.24	
254675300	Numa1	nuclear mitotic apparatus protein 1	413	519	438	1370	0.22*	283	396	363	1042	0.20	
29789351	Nup107	nuclear pore complex protein Nup107	39	48	36	123	-0.15	30	60	53	143	0.06	
283806543	Nup133	nuclear pore complex protein Nup133	89	109	123	321	-0.10	60	158	174	392	0.04*	
165932389	Nup155	nuclear pore complex protein Nup155	133	135	123	391	-0.12	86	217	211	514	0.00	
10946932	Nup160	nuclear pore complex protein Nup160	124	154	111	389	-0.18*	58	202	156	416	-0.03	
124378033	Nup214	nuclear pore complex protein Nup214	38	74	40	152	0.07	2	9	15	26	0.19	
38016154	Nup50	nuclear pore complex protein Nup50	32	41	39	112	0.07	28	37	29	94	0.27*	
39930543	Nup54	nuclear pore complex protein Nup54	46	36	37	119	-0.05	7	31	9	47	-0.20	
108773813	Nup85	nuclear pore complex protein Nup85	32	39	20	91	-0.14	24	33	15	72	-1.02#	
111955409	Nup88	nuclear pore complex protein Nup88 isoform 1	20	28	15	63	-0.13	8	8	17	33	-0.07	
27369533	Nup93	nuclear pore complex protein Nup93	47	64	29	140	-0.17	74	73	69	216	-0.03*	
270309140	Tpr	nuclear pore complex-associated protein Tpr	600	615	457	1672	-0.02	106	125	24	255	0.10	
16716349	Nup62	nuclear pore glycoprotein p62	46	49	29	124	-0.14	5	16	5	26	-0.08	
172073152	Nup210	nuclear pore membrane glycoprotein 210 precursor	136	178	170	484	-0.19	125	233	152	510	0.05	
303324586	Nploc4	nuclear protein localization protein 4 homolog isoform A	0	0	2	2	-0.21	0	0	0	0		
41054974	Nploc4	nuclear protein localization protein 4 homolog isoform B	4	3	0	7	0.20	0	0	0	0		
21450271	Ncoa5	nuclear receptor coactivator 5	16	32	14	62	-0.05	7	21	7	35	-0.16	
145587671	Ncoa6	nuclear receptor coactivator 6	2	3	0	5	0.08	0	0	0	0		
119226235	Ncor2	nuclear receptor corepressor 2	0	3	1	4	0.53	0	0	0	0		
171846245	Nr2c1	nuclear receptor subfamily 2 group C member 1	0	1	0	1	0.14	0	0	0	0		
67906168	Nr2c2	nuclear receptor subfamily 2 group C member 2	0	1	0	1	0.47	0	0	0	0		
112807199	Nr2f6	nuclear receptor subfamily 2 group F member 6	12	11	11	34	0.01	0	5	2	7	0.06	
255982548	Nrf1	nuclear respiratory factor 1 isoform c	1	4	1	6	0.09	0	0	0	0		
31980798	Nxf1	nuclear RNA export factor 1	33	58	27	118	0.04	46	82	66	194	-0.21	
6754848	Nfya	nuclear transcription factor Y subunit alpha isoform b	25	25	16	66	-0.12	0	5	3	8	-0.01	
6754850	Nfyb	nuclear transcription factor Y subunit beta	4	4	1	9	0.06	0	0	0	0		
31560663	Nfyc	nuclear transcription factor Y subunit gamma	14	14	5	33	-0.12	0	1	0	1	0.19	
82995559	Gm10349	nuclear transport factor 2-like	5	2	2	9	0.12	0	0	0	0		
224809563	Nucks1	nuclear ubiquitous casein and cyclin-dependent kinases substrate isoform 2	2	4	5	11	-0.26	1	5	10	16	-0.01	
33468981	Nvl	nuclear valosin-containing protein-like	3	4	3	10	0.15	0	9	15	24	0.49#	
27370072	Zc3hc1	nuclear-interacting partner of ALK	17	8	3	28	0.06	5	16	6	27	-0.02	
113205059	Ybx1	nuclease-sensitive element-binding protein 1	10	15	21	46	0.11	21	22	42	85	-0.07	
254750698	Nucb1	nucleobindin-1 isoform 1	1	0	0	1	-5.16#	0	0	0	0		
86198327	Nolc1	nucleolar and coiled-body phosphoprotein 1 isoform B	27	41	33	101	-0.02	64	113	74	251	-0.08	
124301227	Noc2l	nucleolar complex protein 2 homolog	2	5	2	9	0.02	4	17	39	60	0.12	
188497644	Noc3l	nucleolar complex protein 3 homolog	2	2	0	4	0.20	6	11	29	46	0.12	
31981994	Noc4l	nucleolar complex protein 4 homolog	1	3	1	5	-0.47	1	20	18	39	-0.05	
31560110	Gtpbp4	nucleolar GTP-binding protein 1	0	0	0	0		3	10	16	29	0.03	
240120093	Gnl2	nucleolar GTP-binding protein 2	0	0	0	0		0	1	12	13	-0.04	
134288861	Nom1	nucleolar MIF4G domain-containing protein 1	0	0	0	0		0	2	3	5	0.26	

256818750	Urb1	nucleolar pre-ribosomal-associated protein 1	41	92	51	184	-0.07	11	94	125	230	-0.07	*
56606027	Nol10	nucleolar protein 10	0	0	0	0		1	11	15	27	-0.07	
238550126	Nol11	nucleolar protein 11 isoform 2	0	1	0	1	-0.15	10	7	5	22	0.01	
31542287	Nol12	nucleolar protein 12	0	0	0	0		0	0	1	1	-0.02	
114158701	Nop14	nucleolar protein 14	0	0	0	0		5	39	29	73	-0.02	
30519925	Nop16	nucleolar protein 16	1	1	0	2	-0.43	1	9	13	23	0.45	#
126090932	Nop56	nucleolar protein 56	111	122	85	318	-0.11	467	397	588	1452	-0.04	
120407050	Nop58	nucleolar protein 58	94	109	65	268	-0.08	313	277	414	1004	-0.01	
118026904	Nol6	nucleolar protein 6	18	18	9	45	0.01	8	55	79	142	-0.20	
117647257	Nol7	nucleolar protein 7	1	0	3	4	-0.17	11	20	16	47	-0.04	
72384374	Ddx21	nucleolar RNA helicase 2	165	202	185	552	0.02	228	443	551	1222	0.03	
113205053	Ubtf	nucleolar transcription factor 1 isoform 2	20	42	20	82	-0.24	26	40	52	118	-0.26	
84875537	Ncl	nucleolin	61	87	87	235	0.03	385	362	349	1096	0.05	
6755783	Tia1	nucleolysin TIA-1 isoform 1	9	6	0	15	-0.07	0	9	0	9	0.25	
255760009	Tia1	nucleolysin TIA-1 isoform 2	0	11	0	11	-0.24	0	0	0	0		
255760011	Tia1	nucleolysin TIA-1 isoform 3	9	0	8	17	-0.05	5	5	3	13	-0.12	
6678349	Tial1	nucleolysin TIAR	10	20	13	43	-0.09	0	11	8	19	0.04	
6679108	Npm1	nucleophosmin	124	0	143	267	0.09	*	258	141	157	556	0.03
149251776	LOC100046628	nucleophosmin-like	117	316	137	570	0.03	0	1	6	7	0.04	
6679110	Npm3	nucleoplasmin-3	14	16	10	40	0.05	9	13	10	32	-0.05	
254588102	Nup153	nucleoporin 153	23	40	20	83	0.02	2	4	1	7	0.37	
226437676	Nup205	nucleoporin 205	197	297	203	697	-0.11	96	278	307	681	0.00	
39930413	Nup98	nucleoporin 98	15	17	11	43	0.00	0	18	9	27	-0.08	
58037369	Gle1	nucleoporin GLE1	0	2	0	2	-0.51	0	7	11	18	0.13	
28077005	Tmem48	nucleoporin NDC1	13	6	4	23	-0.16	2	24	10	36	-0.24	
38678526	Nup188	nucleoporin NUP188 homolog	75	105	66	246	-0.08	8	71	83	162	-0.08	
210032861	Nup37	nucleoporin Nup37	21	34	14	69	-0.12	7	17	14	38	-0.02	
166295220	Nup43	nucleoporin Nup43	13	17	14	44	-0.26	7	11	11	29	-0.06	
298231198	Nup35	nucleoporin NUP53 isoform 2	34	40	30	104	-0.18	24	19	26	69	-0.04	
24497431	Nupl1	nucleoporin p58/p45	23	29	17	69	-0.15	3	13	1	17	-0.40	
20532338	Seh1l	nucleoporin SEH1 isoform b	33	34	27	94	-0.19	*	7	20	9	36	0.02
254540171	Nupl2	nucleoporin-like protein 2	0	0	0	0		0	1	0	1	0.58	#
255308888	Nme3	nucleoside diphosphate kinase 3	6	3	2	11	0.29	0	0	1	1	0.25	
9055290	Nme6	nucleoside diphosphate kinase 6	1	5	2	8	-0.04	0	0	0	0		
37700232	Nme1	nucleoside diphosphate kinase A	5	4	7	16	0.29	*	0	0	0	0	
6679078	Nme2	nucleoside diphosphate kinase B	9	4	13	26	0.15	0	0	3	3	0.04	
13384950	Nudt8	nucleoside diphosphate-linked moiety X motif 8, mitochondrial precursor	0	1	0	1	-0.17	0	0	0	0		
7657357	Nap11l	nucleosome assembly protein 1-like 1 isoform 2	4	5	5	14	-0.19	1	7	8	16	-0.13	
6679012	Nap11l4	nucleosome assembly protein 1-like 4	2	2	5	9	-0.63	#	0	1	2	3	-0.28
268837281	Nacc1	nucleus accumbens-associated protein 1	1	2	0	3	-0.44	0	2	0	2	0.72	#
80861479	Nacc2	nucleus accumbens-associated protein 2 isoform 1	0	1	0	1	0.89	#	0	0	0	0	
133922575	Nudcd2	nudC domain-containing protein 2	0	0	0	0		0	1	2	3	-0.43	
19527352	Nrm	nurim	7	10	5	22	-0.16	8	14	10	32	-0.12	
21313144	Ola1	obg-like ATPase 1 isoform a	0	6	8	14	0.08	0	0	14	14	0.08	
76677915	Ola1	obg-like ATPase 1 isoform b	4	0	0	4	0.02	6	6	4	16	0.03	
6679162	Ocln	occludin	0	1	1	2	5.09	#	0	0	0	0	
229577360	Ociad1	OCIA domain-containing protein 1 isoform 3	1	0	1	2	0.26	2	1	3	6	0.40	
22129141	Olfr1008	olfactory receptor 1008	0	0	0	0		0	0	1	1	-0.57	#
13384930	Ostc	oligosaccharyltransferase complex subunit OSTC	2	2	3	7	-0.28	7	0	5	12	-0.65	#
110625722	Opa3	optic atrophy 3 protein homolog	0	2	0	2	-0.36	0	0	0	0		
158517935	Orc1	origin recognition complex subunit 1 isoform A	0	0	0	0		0	8	12	20	-0.11	

6679176	Orc2	origin recognition complex subunit 2 isoform A	0	0	0	0				2	4	0	6	0.05
70909306	Orc2	origin recognition complex subunit 2 isoform B	4	3	2	9	0.26*			0	0	0	0	
227116263	Orc3	origin recognition complex subunit 3 isoform 2	9	10	1	20	0.08			0	11	7	18	-0.12
124286818	Orc4	origin recognition complex subunit 4 isoform 1	2	2	2	6	0.08			0	6	4	10	-0.20
6754948	Orc5	origin recognition complex subunit 5	5	6	1	12	-0.01			1	6	4	11	-0.51#
255069719	Orc6	origin recognition complex subunit 6 isoform a	3	3	0	6	0.02			0	0	0	0	
22267440	Ostf1	osteoclast-stimulating factor 1	3	1	2	6	-0.06			0	6	8	14	-0.30
170932556	Oxnad1	oxidoreductase NAD-binding domain-containing protein 1 precursor	1	1	1	3	-0.05			0	0	0	0	
110625616	Nr1h3	oxysterols receptor LXR-alpha	0	1	0	1	-0.70#			0	0	0	0	
145046259	Pak1ip1	p21-activated protein kinase-interacting protein 1	26	25	16	67	0.04			0	10	18	28	0.16
226958577	2610301G19Rik	p30 DBC protein	77	94	89	260	0.23			14	59	59	132	0.10
11528520	Perp	p53 apoptosis effector related to PMP-22	0	0	0	0				0	0	1	1	1.95#
160333357	Sin3a	paired amphipathic helix protein Sin3a isoform 1	47	62	53	162	0.22*			2	11	2	15	0.23
164420770	Sin3b	paired amphipathic helix protein Sin3b isoform 1	7	7	12	26	0.03			0	1	0	1	0.17
164420772	Sin3b	paired amphipathic helix protein Sin3b isoform 2	0	0	0	0				0	0	1	1	-0.07
153945775	Pax2	paired box protein Pax-2	23	35	23	81	0.04			1	10	7	18	-0.02
6754990	Pax8	paired box protein Pax-8	43	74	38	155	-0.20			8	11	12	31	0.31*
9790039	Pldn	pallidin	1	1	2	4	-0.19			0	0	0	0	
121674797	Ppt1	palmitoyl-protein thioesterase 1 precursor	3	2	6	11	0.03			0	0	0	0	
256818788	Papd5	PAP-associated domain-containing protein 5 isoform b	0	0	0	0				0	0	2	2	-0.04
15809012	Prcc	papillary renal cell carcinoma translocation-associated gene product	5	10	9	24	0.33			0	0	0	0	
22122445	Cdc73	parafibromin	20	40	23	83	0.00			3	14	9	26	0.17*
225543409	Pspc1	paraspeckle component 1	82	84	57	223	0.00			85	68	62	215	-0.05
62460366	Ptms	parathyrosin	0	1	0	1	0.15			0	0	0	0	
157841170	Pddc1	Parkinson disease 7 domain-containing protein 1 precursor	9	6	6	21	0.28			0	1	0	1	0.28
283945600	Wibg	partner of Y14 and mago isoform 2	4	3	2	9	0.16			0	0	0	0	
42734451	Paxip1	PAX-interacting protein 1	2	3	4	9	0.45			0	0	0	0	
19527168	Psip1	PC4 and SFRS1-interacting protein	115	145	110	370	-0.16*			76	95	113	284	-0.15
119372296	Pcid2	PCI domain-containing protein 2	16	20	8	44	0.05			2	8	4	14	-0.30
71773932	2810417H13Rik	PCNA-associated factor	6	5	1	12	-0.14			0	0	0	0	
82881784	Gm15428	PCNA-associated factor isoform 1	3	4	0	7	-0.05			0	0	0	0	
22122423	Pdlim2	PDZ and LIM domain protein 2	6	5	5	16	0.58#			0	1	1	2	1.36#
166197681	Pdlim7	PDZ and LIM domain protein 7 isoform a	0	3	0	3	-0.09			0	0	0	0	
124053449	Intu	PDZ domain containing 6	0	0	0	0				1	0	0	1	-1.02#
21312244	Pdzd11	PDZ domain-containing protein 11	3	6	2	11	0.66*#			1	0	1	2	0.84#
9055336	Gipc1	PDZ domain-containing protein GIPC1	0	8	6	14	-0.14			0	1	0	1	2.41#
8394258	Gipc2	PDZ domain-containing protein GIPC2	25	27	14	66	0.12			0	7	7	14	0.05
33469980	Ptcd3	pentatricopeptide repeat-containing protein 3, mitochondrial precursor	0	0	1	1	0.24			0	0	0	0	
30425080	Mtrf1l	peptide chain release factor 1-like, mitochondrial precursor	0	0	1	1	-0.08			0	0	0	0	
255003823	Pdf	peptide deformylase-like protein	0	1	0	1	2.72#			0	0	3	3	-0.01
85702071	Pin1-ps1	peptidylprolyl cis/trans isomerase, NIMA-interacting 1, pseudogene 1	0	0	0	0				0	0	1	1	-0.04
6679439	Ppia	peptidyl-prolyl cis-trans isomerase A	70	88	68	226	0.03			121	81	60	262	-0.03

71774133	Ppib	peptidyl-prolyl cis-trans isomerase B precursor	77	80	55	212	-0.05		79	51	39	169	0.04
110625681	Cwc27	peptidyl-prolyl cis-trans isomerase CWC27 homolog	2	3	1	6	1.65#		0	1	0	1	-0.31
13385854	Ppid	peptidyl-prolyl cis-trans isomerase D	0	0	2	2	-0.36		0	1	4	5	-0.19
14196340	Ppie	peptidyl-prolyl cis-trans isomerase E	8	6	12	26	0.16		10	14	17	41	0.16
19527310	Ppif	peptidyl-prolyl cis-trans isomerase F, mitochondrial precursor	15	24	15	54	-0.07		0	9	3	12	0.02
6679803	Fkbp1a	peptidyl-prolyl cis-trans isomerase FKBP1A	1	0	0	1	1.98#		0	0	2	2	0.81#
6679805	Fkbp2	peptidyl-prolyl cis-trans isomerase FKBP2 precursor	24	19	14	57	-0.01		0	4	3	7	0.03
7305061	Fkbp3	peptidyl-prolyl cis-trans isomerase FKBP3	24	23	17	64	0.01		0	1	3	4	0.57#
6753882	Fkbp4	peptidyl-prolyl cis-trans isomerase FKBP4	6	2	10	18	0.10		0	1	1	2	-0.02
6753884	Fkbp5	peptidyl-prolyl cis-trans isomerase FKBP5	0	1	3	4	0.08		0	10	16	26	-0.23
161484656	Fkbp8	peptidyl-prolyl cis-trans isomerase FKBP8 isoform b	1	0	6	7	-0.36		4	4	7	15	-0.05
124487333	Ppig	peptidyl-prolyl cis-trans isomerase G	1	28	10	39	0.08		1	32	33	66	0.04
21312022	Ppih	peptidyl-prolyl cis-trans isomerase H isoform 1	28	45	24	97	0.03		3	18	6	27	0.24
12963653	Pin1	peptidyl-prolyl cis-trans isomerase NIMA-interacting 1	8	18	6	32	-0.01		0	3	0	3	0.12
82905251	Gm6851	peptidyl-prolyl cis-trans isomerase NIMA-interacting 4-like	11	9	10	30	0.06		0	0	0	0	
21312784	Ppil1	peptidyl-prolyl cis-trans isomerase-like 1	11	16	13	40	-0.01		27	10	8	45	0.05
30025020	Ppil2	peptidyl-prolyl cis-trans isomerase-like 2	8	11	4	23	0.05		0	6	10	16	0.50#
21746159	Ppil3	peptidyl-prolyl cis-trans isomerase-like 3 isoform 1	7	13	0	20	0.07		1	0	0	1	-0.09
169790966	Ppil3	peptidyl-prolyl cis-trans isomerase-like 3 isoform 2	0	0	6	6	-0.42		0	0	0	0	
165972339	Ppil4	peptidyl-prolyl cis-trans isomerase-like 4	2	5	1	8	0.02		0	1	0	1	0.21
255683299	Ppwd1	peptidylprolyl isomerase domain and WD repeat-containing protein 1	23	29	20	72	0.15		0	11	3	14	0.08
149363634	Ptrh2	peptidyl-tRNA hydrolase 2, mitochondrial isoform b	8	10	8	26	-0.17		4	2	1	7	-0.26
19387848	Ict1	peptidyl-tRNA hydrolase ICT1, mitochondrial	2	5	2	9	-0.08		0	0	0	0	
30794210	Brpf1	peregrin	0	0	0	0			0	4	4	8	0.03
93004085	Pcnt	pericentrin	0	0	0	0			0	0	1	1	-0.43
13385312	Plin3	perilipin-3	0	0	0	0			0	0	1	1	0.07
284005509	Pwp1	periodic tryptophan protein 1 homolog	0	0	0	0			0	8	4	12	0.13
30102930	Pwp2	periodic tryptophan protein 2 homolog	1	7	8	16	-0.15		22	81	82	185	0.09
158749615	BC016423	peripheral benzodiazepine receptor associated protein	0	0	0	0			0	0	2	2	0.35
133779004	Pphln1	periphilin-1 isoform 3	0	0	0	0			0	0	1	1	1.03#
112421039	Ppl	periplakin	219	287	234	740	0.76*#		21	63	46	130	0.55#
268370173	Pxdn	peroxidasin homolog precursor	1	0	0	1	-0.85#		0	0	1	1	-1.20#
6754976	Prdx1	peroxiredoxin-1	13	23	18	54	0.08		3	21	12	36	0.12
148747558	Prdx2	peroxiredoxin-2	6	10	8	24	0.05		0	5	10	15	0.11
7948999	Prdx4	peroxiredoxin-4	9	5	1	15	-0.18		2	2	1	5	0.05
6755114	Prdx5	peroxiredoxin-5, mitochondrial precursor	30	19	25	74	-0.12		48	13	36	97	-0.29*
6671549	Prdx6	peroxiredoxin-6	3	3	1	7	0.22		0	0	0	0	
6753622	Decr2	peroxisomal 2,4-dienoyl-CoA reductase	22	21	13	56	-0.02		1	6	9	16	0.08
160333195	Eci2	peroxisomal 3,2-trans-enoyl-CoA isomerase isoform b	9	3	4	16	-0.16		0	0	0	0	
66793429	Acox1	peroxisomal acyl-coenzyme A oxidase 1	29	22	29	80	-0.12		0	2	7	9	-0.35
31541815	Ehhadh	peroxisomal bifunctional enzyme	0	1	2	3	-0.03		0	0	0	0	
17157983	Crot	peroxisomal carnitine O-octanoyltransferase	2	0	0	2	0.11		0	0	1	1	0.57#



254675122	Tysnd1	peroxisomal leader peptide-processing protease	0	1	0	1	-0.40	0	0	0	0	
241666485	Pex11b	peroxisomal membrane protein 11B isoform 2	4	2	1	7	-0.28	0	4	3	7	-0.38
21735445	Pex11c	peroxisomal membrane protein 11C	1	0	0	1	0.11	0	0	0	0	
29789024	Slc25a17	peroxisomal membrane protein PMP34	5	2	0	7	-0.02	0	2	1	3	-0.22
31982273	Hsd17b4	peroxisomal multifunctional enzyme type 2	73	84	91	248	0.03	2	10	34	46	-0.03
159032016	Gigyf2	PERQ amino acid-rich with GYF domain-containing protein 2 isoform b	0	0	0	0		0	5	5	10	0.10
12584984	Pes1	pescadillo homolog	2	1	0	3	0.00	13	15	26	54	-0.01
71480098	Pcnp	PEST proteolytic signal-containing nuclear protein	21	22	24	67	0.03	0	5	5	10	0.39
255522851	Phf10	PHD finger protein 10	10	20	14	44	-0.10*	0	8	2	10	0.01
198442868	Phf12	PHD finger protein 12	1	6	0	7	0.17	0	0	1	1	-0.25
270288742	Phf14	PHD finger protein 14 isoform 1	0	0	0	0		0	44	39	83	0.06
270288744	Phf14	PHD finger protein 14 isoform 2	1	6	4	11	0.24	3	3	2	8	-0.02
31543476	Phf2	PHD finger protein 2	4	3	0	7	0.33	0	3	9	12	0.19
124487309	Phf3	PHD finger protein 3	1	10	7	18	0.23	0	0	0	0	
33563292	Phf6	PHD finger protein 6	15	12	14	41	-0.13	0	2	3	5	-0.12
24415990	Phf5a	PHD finger-like domain-containing protein 5A	8	10	10	28	0.02	27	14	8	49	-0.04
162138894	Farsa	phenylalanyl-tRNA synthetase alpha chain	7	6	2	15	-0.04	0	2	3	5	-0.55#
31981400	Farsb	phenylalanyl-tRNA synthetase beta chain	4	15	2	21	-0.02	0	0	0	0	
124487035	Phip	PH-interacting protein	0	0	0	0		25	89	169	283	0.01
149258501	LOC100046151	phosphate carrier protein, mitochondrial-like	24	12	17	53	-0.13	89	25	15	129	-0.15
20149726	Cds2	phosphatidate cytidyltransferase 2	2	0	0	2	-0.44	2	0	0	2	-0.45
84794552	Pebp1	phosphatidylethanolamine-binding protein 1	7	7	4	18	0.22	1	2	5	8	-0.10
13507622	Sacm1l	phosphatidylinositol phosphatase SAC1	9	0	1	10	-0.05	1	0	1	2	0.01
241982771	Pi4ka	phosphatidylinositol 4-kinase type 3 alpha	0	0	1	1	0.64#	0	0	0	0	
52630436	Pigu	phosphatidylinositol glycan anchor biosynthesis class U protein	4	1	2	7	-0.43*	1	2	4	7	-0.29
41872422	Pigh	phosphatidylinositol N-acetylglucosaminyltransferase subunit H	1	2	0	3	-0.32	0	0	0	0	
31981380	Pigq	phosphatidylinositol N-acetylglucosaminyltransferase subunit Q	0	0	0	0		0	0	1	1	-0.20
145279206	Pik3c2a	phosphatidylinositol-4-phosphate 3-kinase C2 domain-containing subunit alpha	0	1	1	2	-0.18	3	0	0	3	-7.35#
17298686	Pip4k2c	phosphatidylinositol-5-phosphate 4-kinase type-2 gamma	1	2	1	4	0.48	2	0	3	5	-0.19
32567788	Picalm	phosphatidylinositol-binding clathrin assembly protein	0	3	1	4	0.48	0	0	0	0	
28077029	Pck2	phosphoenolpyruvate carboxykinase [GTP], mitochondrial	4	2	2	8	-0.19	0	6	11	17	-0.40
227330633	Pgm2	phosphoglucomutase-1	0	1	0	1	-0.66#	1	0	3	4	0.14
70778976	Pgk1	phosphoglycerate kinase 1	23	17	32	72	0.02	55	62	128	245	-0.15
114326546	Pgam1	phosphoglycerate mutase 1	24	23	30	77	-0.07	107	72	118	297	-0.24
7242181	Pld3	phospholipase D3	7	8	6	21	-0.16	0	2	0	2	0.12
90903235	Gpx4	phospholipid hydroperoxide glutathione peroxidase, nuclear isoform 2 precursor	10	11	6	27	0.23	1	2	2	5	0.23
31982115	Plscr2	phospholipid scramblase 2	0	0	1	1	2.25#	0	0	0	0	
254588058	Pmvk	phosphomevalonate kinase isoform 2	0	0	0	0		0	0	1	1	-0.12
309266230	LOC100047252	phosphoserine aminotransferase-like isoform 2	4	0	2	6	-0.23	2	19	41	62	0.15
18129616	Pinx1	PIN2/TERF1-interacting telomerase inhibitor 1	2	1	1	4	-0.12	0	8	9	17	-0.29
112420990	Pnn	pinin	3	11	5	19	0.15	105	131	148	384	0.04

124286797	1600029D21Rik	placenta-expressed transcript 1 protein precursor	3	3	6	12	0.36	16	17	23	56	0.59	*,#	
9790161	Pkp1	plakophilin-1	0	0	0	0		0	0	1	1	-10.24	#	
21312960	Pkp2	plakophilin-2	15	13	17	45	-0.18	24	46	53	123	0.99	*,#	
242332585	Pkp3	plakophilin-3 isoform 1	5	2	2	9	-0.55	0	0	3	3	0.71	#	
147899467	Pkp4	plakophilin-4 isoform 2	0	0	0	0		0	1	3	4	0.77	#	
269784615	Atp2b4	plasma membrane calcium ATPase 4 isoform x/b	0	0	0	0		0	0	2	2	0.17		
165932381	Serbp1	plasminogen activator inhibitor 1 RNA-binding protein isoform 4	67	41	50	158	-0.10	21	20	35	76	0.05		
85986577	Pls1	plastin-1	4	4	4	12	0.13	0	0	0	0			
262050551	Pls3	plastin-3	13	13	7	33	0.00	0	3	1	4	0.34		
7305363	Pafah1b1	platelet-activating factor acetylhydrolase IB subunit alpha	3	4	6	13	0.16	0	0	0	0			
40254624	Pafah1b2	platelet-activating factor acetylhydrolase IB subunit beta	0	0	0	0		0	1	1	2	0.50	#	
6679201	Pafah1b3	platelet-activating factor acetylhydrolase IB subunit gamma	2	0	0	2	-0.05	0	6	3	9	-0.13		
237681204	Plekha6	pleckstrin homology domain-containing family A member 6 isoform 2	0	8	3	11	-0.20	0	1	2	3	-0.18		
254675265	Plec	pectin isoform 1a	0	348	0	348	0.50	0	0	0	0			
254675251	Plec	pectin isoform 1d	97	0	0	97	0.61	#	99	125	194	418	0.63	*,#
256000745	Plec	pectin isoform 1hij	15	21	181	217	0.03	0	60	130	190	0.45		
31980791	Plrg1	pleiotropic regulator 1	40	53	43	136	0.11	12	35	22	69	0.02		
226958474	Plxnb2	plexin B2	0	0	0	0		0	3	3	6	-0.34		
6679389	Plxna1	plexin-A1 precursor	0	0	0	0		4	0	0	4	-0.05		
260099684	Pogz	pogo transposable element with ZNF domain isoform 1	0	0	0	0		0	46	0	46	0.23		
260099686	Pogz	pogo transposable element with ZNF domain isoform 2	9	5	5	19	0.32	*	23	24	92	139	0.09	
20806109	Parp1	poly [ADP-ribose] polymerase 1	31	42	41	114	0.08	2	23	17	42	0.12		
166197700	Parp14	poly [ADP-ribose] polymerase 14	1	0	0	1	2.65	#	0	0	0	0		
6752992	Parp2	poly [ADP-ribose] polymerase 2	0	1	0	1	-0.38	0	4	5	9	-0.42		
25014095	Parp3	poly [ADP-ribose] polymerase 3	6	5	1	12	0.12	0	0	0	0			
112807189	Parp6	poly [ADP-ribose] polymerase 6 isoform 2	0	0	0	0		0	1	0	1	1.90	#	
13384918	Parp9	poly [ADP-ribose] polymerase 9	0	2	0	2	0.19	0	0	0	0			
21914853	Papola	poly(A) polymerase alpha	0	1	0	1	9.84	#	0	0	0	0		
19527122	Papd4	poly(A) RNA polymerase GLD2	0	0	0	0		0	0	1	1	0.21		
21311877	Parn	poly(A)-specific ribonuclease PARN	1	5	3	9	0.23	2	4	7	13	-0.35		
6754994	Pcbp1	poly(rC)-binding protein 1	82	107	85	274	0.06	109	75	121	305	0.17		
157041229	Pcbp2	poly(rC)-binding protein 2 isoform 1	0	89	0	89	-0.02	0	0	0	0			
157042772	Pcbp2	poly(rC)-binding protein 2 isoform 3	80	0	65	145	-0.04	114	54	59	227	0.07		
291327528	Pcbp2	poly(rC)-binding protein 2 isoform 4	0	0	1	1	0.51	0	43	76	119	0.02		
257196183	Puf60	poly(U)-binding-splicing factor PUF60 isoform a	0	15	0	15	0.05	0	0	0	0			
257196186	Puf60	poly(U)-binding-splicing factor PUF60 isoform c	83	111	79	273	0.00	43	77	39	159	0.13		
31560656	Pabpc1	polyadenylate-binding protein 1	0	0	4	4	-1.42	#	0	8	5	13	-0.27	
9506945	Pabpn1	polyadenylate-binding protein 2	7	17	19	43	0.14	9	31	11	51	0.19		
309267080	LOC100503296	polyadenylate-binding protein 4-like, partial	0	2	0	2	-0.26	0	0	3	3	-0.09		
13385420	Pmf1	polyamine-modulated factor 1	9	4	4	17	-0.11	0	9	2	11	0.14		
46559391	Bmi1	polycomb complex protein BMI-1	1	0	0	1	-0.07	0	0	0	0			
37574111	Pcgf1	polycomb group RING finger protein 1	0	1	0	1	-0.18	0	0	0	0			
254028183	Pcgf2	polycomb group RING finger protein 2	1	1	0	2	0.13	0	0	0	0			
21313116	Pcgf5	polycomb group RING finger protein 5	0	2	1	3	0.33	0	0	0	0			
11230770	Eed	polycomb protein EED	9	9	4	22	0.09	0	3	5	8	0.06		
253314523	Suz12	polycomb protein Suz12 isoform 2	7	10	2	19	0.06	2	10	12	24	-0.03		
31980927	Pqbp1	polyglutamine-binding protein 1	5	9	6	20	0.07	2	0	5	7	0.16		

309266798	LOC631302	polyglutamine-binding protein 1-like	0	0	0	0			0	2	0	2	0.29
304434574	Phc2	polyhomeotic-like protein 2 isoform B	2	3	0	5	0.17		0	1	0	1	-0.08
14780884	Poldip2	polymerase delta-interacting protein 2	0	1	2	3	-0.19 *		0	1	1	2	-0.28
30519969	Poldip3	polymerase delta-interacting protein 3	83	92	54	229	0.03		4	18	25	47	0.19
6679567	Ptrf	polymerase I and transcript release factor	1	3	9	13	0.18		0	4	6	10	-0.17
227430356	Nol9	polynucleotide 5'-hydroxyl-kinase NOL9 isoform 2	8	13	10	31	0.27 *		0	3	4	7	0.24
46877109	Galnt2	polypeptide N-acetylgalactosaminyltransferase 2	0	0	0	0			0	0	1	1	-0.44
162951828	Galnt3	polypeptide N-acetylgalactosaminyltransferase 3	4	0	2	6	-0.19		1	0	3	4	-0.28
116517303	Ptbp1	polypyrimidine tract-binding protein 1 isoform 2	279	244	223	746	-0.02		332	300	282	914	-0.04
9507003	Ptbp2	polypyrimidine tract-binding protein 2	28	29	25	82	0.05		7	14	3	24	-0.01
25188204	Pnpt1	polyribonucleotide nucleotidyltransferase 1, mitochondrial precursor	5	9	5	19	-0.31		0	0	0	0	
6755919	Ubb	polyubiquitin-B	20	5	16	41	0.02		0	63	59	122	-0.13
229577268	Kctd18	potassium channel tetramerization domain containing 18 isoform 2	0	1	0	1	0.16		0	0	0	0	
114431256	Pou2f1	POU domain, class 2, transcription factor 1 isoform L	0	3	0	3	0.47		0	0	0	0	
20070422	Praf2	PRA1 family protein 2	2	0	0	2	-0.40		0	0	0	0	
14149750	Arl6ip5	PRA1 family protein 3	12	5	7	24	-0.21		0	1	0	1	-0.15
7110681	Pbx1	pre-B-cell leukemia transcription factor 1 isoform b	7	10	9	26	0.13		0	1	0	1	-0.11
8567384	Pbx2	pre-B-cell leukemia transcription factor 2	2	3	3	8	0.10		0	0	0	0	
7949105	Pbx3	pre-B-cell leukemia transcription factor 3	2	5	0	7	0.23		0	0	0	0	
154759295	Gm15450	predicted gene 15450	9	4	3	16	-0.17		19	4	10	33	-0.05
260304980	Gm5803	predicted gene 5803	0	66	0	66	-0.04		0	28	0	28	-0.08
309263447	Gm6747	predicted gene 6747 isoform 1	28	28	19	75	0.00		0	0	0	0	
309263449	Gm6747	predicted gene 6747 isoform 2	0	0	0	0			0	6	5	11	0.07
218505708	Gm8994	predicted gene, EG668137	0	0	0	0			60	10	0	70	-0.01
298231238	Gm9846	predicted gene, ENSMUSG00000050621	10	8	4	22	-0.02		13	0	14	27	0.01
215490077	Gm10094	predicted gene, ENSMUSG00000061104	29	36	26	91	0.09		83	41	21	145	0.00
31981577	Pfdn2	prefoldin subunit 2	1	0	3	4	0.37		0	0	0	0	
55741463	Pfdn5	prefoldin subunit 5	1	0	0	1	0.50		0	0	0	0	
162287370	Lmna	prelamin-A/C isoform A	308	499	405	1212	-0.21	###	###	###	4038		-0.06
149254324	LOC100046650	PRELI domain-containing protein 1, mitochondrial-like	0	2	0	2	-0.34		0	0	0	0	
227330595	Fip11	pre-mRNA 3'-end-processing factor FIP1 isoform 1	22	0	0	22	0.22		0	0	0	0	
227330598	Fip11	pre-mRNA 3'-end-processing factor FIP1 isoform 3	0	42	24	66	0.11		3	11	6	20	0.18
13384692	0610009D07Rik	pre-mRNA branch site protein p14	19	17	13	49	-0.01		48	14	16	78	0.06
268370153	Pcf11	pre-mRNA cleavage complex II protein Pcf11	0	2	0	2	0.68 #		0	0	0	0	
198278501	Cdc40	pre-mRNA-processing factor 17	0	0	0	0			0	9	3	12	0.10
19527358	Prpf19	pre-mRNA-processing factor 19	54	47	43	144	0.08		109	100	76	285	0.12
9055218	Prpf40a	pre-mRNA-processing factor 40 homolog A	71	85	77	233	0.02		80	80	76	236	0.03
21539655	Prpf6	pre-mRNA-processing factor 6	36	41	43	120	0.00		5	76	49	130	-0.02
115583687	Prpf8	pre-mRNA-processing-splicing factor 8	230	297	264	791	-0.02		246	627	740	1613	0.01
40254503	Prpf18	pre-mRNA-splicing factor 18	2	6	4	12	0.61 #		0	1	0	1	-0.32
227497256	Prpf38a	pre-mRNA-splicing factor 38A	5	21	10	36	0.00		6	16	19	41	-0.08
30794464	Prpf38b	pre-mRNA-splicing factor 38B	23	63	30	116	-0.05		3	11	13	27	-0.19
30410010	Dhx38	pre-mRNA-splicing factor ATP-dependent RNA helicase PRP16	13	19	14	46	0.43 *		0	8	4	12	0.16
20149316	Isy1	pre-mRNA-splicing factor ISY1 homolog	7	9	10	26	0.07		16	11	14	41	0.17 *
110625591	Rbm22	pre-mRNA-splicing factor RBM22	3	9	11	23	0.22		10	32	15	57	0.09

39812173	Slu7	pre-mRNA-splicing factor SLU7	0	1	0	1	0.43	0	2	1	3	1.52	#
70906453	Bcas2	pre-mRNA-splicing factor SPF27	44	49	36	129	0.04	4	20	9	33	0.00	
13385660	Xab2	pre-mRNA-splicing factor SYF1	0	3	8	11	0.10*	9	55	64	128	0.10	
21312064	Syf2	pre-mRNA-splicing factor SYF2	1	4	0	5	0.60#	0	5	1	6	0.23	
165377291	Wtap	pre-mRNA-splicing regulator WTAP isoform a	13	13	16	42	0.27	0	2	0	2	0.48	#
33946271	Wtap	pre-mRNA-splicing regulator WTAP isoform b	0	0	0	0		0	0	1	1	0.78	#
13385294	Pcyox1	prenylcysteine oxidase precursor	18	0	2	20	-0.14	0	0	2	2	-0.11	
27370248	Pcyox1l	prenylcysteine oxidase-like precursor	1	0	0	1	-0.25	0	0	0	0		
21699068	Pitrm1	presequence protease, mitochondrial precursor	6	3	18	27	-0.23	0	1	2	3	0.04	
87196490	Pawr	PRKC apoptosis WT1 regulator protein	5	8	7	20	0.11	0	0	0	0		
13385244	Prkrip1	PRKR-interacting protein 1	1	0	0	1	-10.10#	0	0	0	0		
13385656	Hoga1	probable 4-hydroxy-2-oxoglutarate aldolase, mitochondrial precursor	3	0	0	3	-0.46	0	0	0	0		
31044423	Alkbh5	probable alpha-ketoglutarate-dependent dioxygenase ABH5	11	14	14	39	-0.11	0	4	3	7	0.31	
240120047	Rars2	probable arginyl-tRNA synthetase, mitochondrial precursor	1	1	0	2	0.32	0	1	0	1	0.21	
189491668	Ddx10	probable ATP-dependent RNA helicase DDX10	0	2	0	2	0.14	0	29	15	44	0.23	
40068489	Ddx17	probable ATP-dependent RNA helicase DDX17 isoform 3	3	0	0	3	0.03	0	0	0	0		
93587673	Ddx17	probable ATP-dependent RNA helicase DDX17 isoform 4	102	112	72	286	-0.02	180	165	277	622	0.00	
124430514	Ddx23	probable ATP-dependent RNA helicase DDX23	20	32	27	79	-0.13	1	17	11	29	-0.12	
124249330	Ddx27	probable ATP-dependent RNA helicase DDX27	0	0	0	0		3	31	38	72	0.02	
270047502	Ddx41	probable ATP-dependent RNA helicase DDX41	2	3	0	5	0.89#	0	3	2	5	0.22	
160420299	Ddx46	probable ATP-dependent RNA helicase DDX46	32	53	43	128	0.07	2	11	26	39	-0.04	
27229058	Ddx47	probable ATP-dependent RNA helicase DDX47	21	24	23	68	-0.07	8	18	26	52	-0.01	
67972435	Ddx49	probable ATP-dependent RNA helicase DDX49	4	7	6	17	0.01	0	5	4	9	0.07	
83816893	Ddx5	probable ATP-dependent RNA helicase DDX5	77	92	62	231	-0.06	161	178	285	624	0.05	
256985213	Ddx52	probable ATP-dependent RNA helicase DDX52	7	15	2	24	0.10	5	17	6	28	-0.07	
21312650	Ddx56	probable ATP-dependent RNA helicase DDX56	0	0	0	0		11	25	27	63	0.28	
6681159	Ddx6	probable ATP-dependent RNA helicase DDX6	13	6	17	36	-0.01	0	7	5	12	0.15	
148540198	Dhx34	probable ATP-dependent RNA helicase DHX34	0	0	2	2	0.29	0	1	0	1	-0.58	#
240848573	Dhx36	probable ATP-dependent RNA helicase DHX36	1	4	1	6	0.20	0	2	1	3	0.38	
42600571	Dhx37	probable ATP-dependent RNA helicase DHX37	6	9	2	17	-0.18	0	17	14	31	-0.01	
283135194	Atp13a1	probable cation-transporting ATPase 13A1	0	5	2	7	-0.08	0	6	15	21	-0.21	
21313560	Dimt1	probable dimethyladenosine transferase	8	5	3	16	-0.11	0	0	3	3	-0.15	
31324532	6530401N04Rik	probable D-tyrosyl-tRNA(Tyr) deacylase 2	5	1	4	10	0.02	0	0	0	0		
10946822	0610007P14Rik	probable ergosterol biosynthetic protein 28	0	0	0	0		1	0	0	1	-1.26	#
262050608	Smarca1	probable global transcription activator SNF2L1	0	0	0	0		0	1	0	1	-3.50	#

21312790	Myst1	probable histone acetyltransferase MYST1	1	3	2	6	0.07*	0	0	0	0	
295424166	Whsc1	probable histone-lysine N-methyltransferase NSD2 isoform 2	5	3	0	8	0.18	0	5	7	12	-0.05
226531205	Jmjd1c	probable JmjC domain-containing histone demethylation protein 2C	0	2	0	2	0.76#	0	0	0	0	
258613873	Apip	probable methylthioribulose-1-phosphate dehydratase	3	0	6	9	0.49	0	3	0	3	-0.47#
197927090	2810006K23Rik	probable peptide chain release factor C12orf65 homolog, mitochondrial isoform a	5	9	6	20	-0.10	0	0	0	0	
30519902	Pthr1	probable peptidyl-tRNA hydrolase	1	2	3	6	-0.25	0	0	0	0	
27881427	Srd5a3	probable polyprenol reductase	2	2	2	6	-0.23	0	2	1	3	-0.11
139948347	Pars2	probable prolyl-tRNA synthetase, mitochondrial isoform 1	0	1	1	2	-0.41	0	0	0	0	
30794154	Rbm19	probable RNA-binding protein 19	2	2	3	7	0.16	4	29	46	79	0.21
21312728	Ebna1bp2	probable rRNA-processing protein EBP2	0	0	0	0		4	14	16	34	0.12
30520019	Sccpdh	probable saccharopine dehydrogenase	0	0	3	3	0.02	0	0	0	0	
27229243	Mettl15	probable S-adenosyl-L-methionine-dependent methyltransferase METT5D1	4	8	1	13	-0.43	0	0	0	0	
13385534	Utp11l	probable U3 small nucleolar RNA-associated protein 11	0	0	0	0		4	8	10	22	-0.09
115511018	Usp9x	probable ubiquitin carboxyl-terminal hydrolase FAF-X	0	0	0	0		0	0	6	6	-0.63#
28893421	Xpnpep3	probable Xaa-Pro aminopeptidase 3	3	3	5	11	-0.03	0	5	8	13	-0.06
21312814	Pop1	processing of precursor 1 isoform 2	6	4	8	18	0.32	0	0	3	3	0.35
170784829	Glt25d1	procollagen galactosyltransferase 1 precursor	1	0	0	1	0.08	0	0	0	0	
218931165	Plod2	procollagen-lysine,2-oxoglutarate 5-dioxygenase 2 isoform 2	6	5	3	14	-0.37	0	0	0	0	
6755110	Plod3	procollagen-lysine,2-oxoglutarate 5-dioxygenase 3 precursor	1	0	0	1	0.12	0	0	0	0	
6755040	Pfn1	profilin-1	21	9	14	44	-0.03	108	35	87	230	-0.05
12963841	Paqr4	progesterin and adipoQ receptor family member 4	1	0	0	1	-0.44	0	0	0	0	
258547156	Pdcd6ip	programmed cell death 6-interacting protein isoform 3	0	0	0	0		0	0	1	1	-1.02#
31560391	Pdcd10	programmed cell death protein 10	15	12	16	43	0.19	0	2	2	4	1.16#
270309159	Pdcd4	programmed cell death protein 4	0	0	0	0		0	0	1	1	-0.14
309264292	Gm3837	programmed cell death protein 5-like	3	3	5	11	0.01	0	0	0	0	
6755000	Pdcd6	programmed cell death protein 6	0	0	0	0		0	1	1	2	-0.16
148271093	Pdcd7	programmed cell death protein 7	1	1	0	2	0.06	0	0	0	0	
6679299	Phb	prohibitin	14	12	12	38	-0.26	54	22	9	85	-0.11
126723336	Phb2	prohibitin-2	17	15	16	48	-0.12	84	32	43	159	-0.15
7242171	Pcna	proliferating cell nuclear antigen	37	37	31	105	-0.17	25	46	31	102	-0.32
6755100	Pa2g4	proliferation-associated protein 2G4	30	33	32	95	-0.13	0	4	8	12	0.16
153791304	Prr12	proline rich 12	2	4	1	7	0.57*,#	0	0	0	0	
16930823	Prosc	proline synthase co-transcribed bacterial homolog protein isoform a	0	0	0	0		0	1	0	1	-0.89#
84872182	Prosc	proline synthase co-transcribed bacterial homolog protein isoform b	2	0	0	2	-0.03	0	0	2	2	0.00
257900472	Pelp1	proline-, glutamic acid- and leucine-rich protein 1	41	45	33	119	0.34*	1	12	2	15	0.20
298231158	Psrc1	proline/serine-rich coiled-coil protein 1	0	1	0	1	0.25	0	0	0	0	
22122505	Prr15l	proline-rich protein 15-like protein	1	1	3	5	0.09	0	0	0	0	
27734076	Leprel1	prolyl 3-hydroxylase 2 precursor	0	1	0	1	-3.47#	0	0	0	0	
33859596	P4ha1	prolyl 4-hydroxylase subunit alpha-1 precursor	18	14	12	44	-0.11	0	5	5	10	-0.07

13385310	Pccb	propionyl-CoA carboxylase beta chain, mitochondrial precursor	2	0	0	2	-0.40	0	0	0	0		
260763900	Ptges2	prostaglandin E synthase 2	4	0	0	4	-0.16	0	0	3	3	-0.19	
149255697	LOC100048119	prostaglandin E synthase 3-like	2	6	4	12	-0.13	13	19	14	46	-0.12	
6679537	Ptgs1	prostaglandin G/H synthase 1 precursor	5	0	0	5	-0.27	0	0	0	0		
16716569	Prss1	protease, serine, 1	8	0	0	8	-8.00#	6	0	8	14	-8.40#	
6755212	Psme1	proteasome activator complex subunit 1	0	0	0	0		0	1	2	3	0.36	
6755214	Psme3	proteasome activator complex subunit 3	1	0	0	1	0.36	0	0	0	0		
33563282	Psma1	proteasome subunit alpha type-1	2	2	2	6	-0.03	0	0	0	0		
134031994	Psma2	proteasome subunit alpha type-2	4	10	7	21	0.05	0	0	4	4	-0.06	
261824000	Psma3	proteasome subunit alpha type-3	0	3	1	4	-0.08	0	0	0	0		
6755196	Psma4	proteasome subunit alpha type-4	7	12	18	37	0.11	1	1	1	3	0.89#	
7106387	Psma5	proteasome subunit alpha type-5	8	7	11	26	0.48	0	3	4	7	-0.15	
6755198	Psma6	proteasome subunit alpha type-6	4	7	4	15	0.11	0	2	1	3	0.07	
7106389	Psma7	proteasome subunit alpha type-7	10	10	12	32	0.07	0	2	3	5	0.12	
7242197	Psmb1	proteasome subunit beta type-1 precursor	6	8	9	23	-0.01	0	1	3	4	0.23	
227116345	Psmb2	proteasome subunit beta type-2	7	7	5	19	0.16*	0	2	2	4	-0.06	
6755202	Psmb3	proteasome subunit beta type-3	5	6	7	18	0.06	0	2	2	4	-0.03	
254540082	Psmb4	proteasome subunit beta type-4 precursor	5	6	4	15	0.08	0	0	0	0		
6755204	Psmb5	proteasome subunit beta type-5	10	13	7	30	0.10	0	1	3	4	0.04	
238231384	Psmb6	proteasome subunit beta type-6 precursor	2	3	3	8	0.04	0	1	2	3	1.00#	
6755206	Psmb7	proteasome subunit beta type-7 precursor	3	0	0	3	0.29	0	0	0	0		
37718970	AI314180	proteasome-associated protein ECM29 homolog	0	0	0	0		0	0	2	2	-0.37	
190684673	Epb4.1	protein 4.1 isoform 3	0	2	0	2	1.60#	0	0	1	1	0.05	
9790013	Aatf	protein AATF	0	0	0	0		2	12	12	26	0.06	
309272904	LOC100503606	protein AHNAK2-like	10	44	41	95	0.95#	0	0	0	0		
117959930	Gnas	protein ALEX GNASL	0	6	11	17	0.09	0	7	0	7	0.15	
117959928	Gnas	protein ALEX isoform g	3	0	0	3	0.31	0	0	3	3	0.24	
312222726	Angel2	protein angel homolog 2 isoform 2	0	0	1	1	-0.09	0	0	0	0		
9790109	Prmt1	protein arginine N-methyltransferase 1	0	2	2	4	0.77#	0	1	3	4	0.04	
219842353	Eif2c2	protein argonaute-2	2	2	3	7	0.15	0	1	1	2	-0.11	
21312118	Arv1	protein ARV1	0	0	0	0		0	2	0	2	0.18	
158534069	Banp	protein BANP isoform 1	0	2	0	2	0.02	0	0	0	0		
19527154	6720456B07Rik	protein BRICK1	3	3	2	8	-0.08	0	0	0	0		
57222238	Bud31	protein BUD31 homolog	11	14	10	35	0.00	4	4	3	11	0.10	
149271901	LOC100045848	protein BUD31 homolog isoform 2	12	12	8	32	-0.01	3	11	0	14	0.09	
7305107	Grc10	protein C10	2	1	0	3	0.33	0	0	0	0		
158966725	2310008H09Rik	protein C16orf88 homolog isoform 1	0	0	0	0		0	0	1	1	2.29#	
58037443	2310003C23Rik	protein C20orf11 homolog	2	2	1	5	0.35	0	1	0	1	-0.15	
9903607	Cnpy2	protein canopy homolog 2 precursor	16	7	8	31	-0.01	2	5	3	10	-0.47#	
21312510	Cnpy3	protein canopy homolog 3 precursor	5	5	8	18	-0.16	0	0	0	0		
30519939	Cnpy4	protein canopy homolog 4 precursor	3	0	0	3	0.78#	0	0	0	0		
158631198	Cic	protein capicua homolog isoform b	0	1	0	1	0.62#	0	0	0	0		
110835729	Cux1	protein CASP isoform a	31	43	35	109	0.39*	0	0	0	0		
110815859	Cux1	protein CASP isoform b	2	9	10	21	0.54*	0	0	0	0		
268607692	BC003965	protein CCSMST1	1	1	0	2	-0.15	0	0	0	0		
197313683	Cdv3	protein CDV3 isoform c	2	4	3	9	-0.01	0	0	0	0		
162135966	Cobl	protein cordon-bleu	0	1	0	1	0.73#	0	0	0	0		
12963537	Cwc15	protein CWC15 homolog	17	14	8	39	0.14	7	9	11	27	0.20*	
253795498	Dek	protein DEK	72	69	51	192	-0.08	48	40	37	125	-0.10	
6681183	Diap1	protein diaphanous homolog 1	1	1	2	4	0.00	0	0	0	0		
112293264	Pdia3	protein disulfide-isomerase A3 precursor	63	24	36	123	-0.21*	81	40	47	168	-0.12*	
86198316	Pdia4	protein disulfide-isomerase A4	25	20	31	76	-0.10	3	6	15	24	-0.10	
30794140	Pdia5	protein disulfide-isomerase A5 precursor	9	9	4	22	-0.14	0	0	0	0		
58037267	Pdia6	protein disulfide-isomerase A6	22	0	13	35	-0.11	18	7	8	33	-0.17	
309262617	LOC100046302	protein disulfide-isomerase A6-like	0	6	0	6	-0.31	0	0	0	0		

42415475	P4hb	protein disulfide-isomerase precursor	39	12	26	77	-0.07		34	14	19	67	0.16	
117606385	Tmx3	protein disulfide-isomerase TMX3 precursor	2	0	0	2	-0.71 #		0	0	0	0		
31541998	Dpcd	protein DPCD	0	1	0	1	-0.34		0	0	0	0		
226246654	Dpy30	protein dpy-30 homolog	24	18	7	49	0.18		38	13	7	58	0.16 *	
27754097	Dr1	protein Dr1	3	7	4	14	0.13		0	1	1	2	0.24	
54020730	Efr3a	protein EFR3 homolog A	0	0	0	0			0	0	2	2	0.76 #	
158508460	Ahctf1	protein ELYS	51	72	50	173	-0.08		17	54	74	145	-0.03	
11612511	Milt1	protein ENL	0	1	2	3	0.06		0	0	0	0		
11528490	Flii	protein flightless-1 homolog	19	47	23	89	0.22		0	4	13	17	-0.06	
225543552	Frg1	protein FRG1	9	15	12	36	-0.09		0	8	5	13	0.19	
52426778	Hira	protein HIRA	7	20	9	36	0.49		1	3	3	7	0.31	
30352010	Iws1	protein IWS1 homolog	11	14	14	39	0.07		2	14	14	30	-0.16	
40556384	Phf17	protein Jade-1	0	0	0	0			0	0	6	6	-0.20	
13385862	Jagn1	protein jagunal homolog 1 isoform 1	5	0	1	6	-0.24		4	1	0	5	-0.42	
28077027	Pacsin3	protein kinase C and casein kinase II substrate protein 3	6	5	9	20	-0.04		0	0	0	0		
7106381	Pacsin2	protein kinase C and casein kinase substrate in neurons protein 2	0	5	1	6	-0.66 #		0	0	0	0		
91064878	Zmynd8	protein kinase C-binding protein 1	22	28	22	72	0.30 *		2	13	4	19	0.09	
157909778	Kri1	protein KRI1 homolog	3	6	5	14	0.04		0	8	8	16	0.20	
54607112	Erb2ip	protein LAP2 isoform 2	0	0	2	2	0.43		0	0	8	8	0.70 #	
21313004	Lin37	protein lin-37 homolog	1	0	1	2	0.37 *		0	0	0	0		
82935391	Gm7020	protein lin-52 homolog	1	1	2	4	0.25		0	0	0	0		
6755973	Lin7c	protein lin-7 homolog C	9	16	8	33	0.17		0	7	4	11	0.14	
157057190	Lin9	protein lin-9 homolog isoform 2	0	1	0	1	0.19		0	0	0	0		
149270995	Gm14535	protein LLP homolog	0	1	0	1	-0.16		0	3	2	5	0.76 #	
31711990	Lsm12	protein LSM12 homolog	2	1	2	5	0.22		0	0	0	0		
31982233	Mtdh	protein LYRIC	20	24	17	61	-0.48 *		0	1	0	1	3.01 #	
6754616	Magoh	protein mago nashi homolog	8	11	10	29	0.15		63	6	12	81	-0.03	
33468997	Mak16	protein MAK16 homolog	0	0	0	0			3	11	11	25	-0.07	
30725780	Mal2	protein MAL2	0	1	0	1	0.44		0	0	0	0		
254540070	Manbal	protein MANBAL	4	3	4	11	-0.66 #		7	0	2	9	-0.36	
226051848	Max	protein max isoform 2	5	14	3	22	0.11		0	3	2	5	0.09	
21313120	Mis12	protein MIS12 homolog	3	5	1	9	0.03		0	2	0	2	-0.19	
70909369	2610039C10Rik	protein Mis18-alpha	0	0	0	0			0	1	1	2	0.15	
6678926	Mpv17	protein Mpv17	3	2	4	9	0.11		1	0	0	1	0.43	
118150658	Ndr1	protein NDRG1	11	2	6	19	-0.42		0	0	10	10	-0.23	
241982745	Fam129a	protein Niban	0	0	3	3	-0.22		1	7	41	49	-0.12	
6679066	Nipsnap1	protein NipSnap homolog 1	8	8	8	24	-0.17		0	0	1	1	0.09	
160298168	Gbas	protein NipSnap homolog 2	7	6	2	15	-0.25		0	0	0	0		
13385084	Nipsnap3b	protein NipSnap homolog 3A	1	0	2	3	-0.22		0	0	0	0		
116805317	BC003331	protein odr-4 homolog isoform 2	0	0	1	1	-0.16		0	2	1	3	-0.72 #	
27369505	Poglut1	protein O-glucosyltransferase 1 precursor	8	14	9	31	-0.03		0	1	1	2	-0.02	
86439951	Mtcp1	protein p8 MTCP-1 isoform a	2	0	0	2	0.04		0	0	0	0		
164698448	Pelo	protein pelota homolog	0	1	1	2	0.05		0	0	6	6	-0.01	
95772123	Ppp1r12a	protein phosphatase 1 regulatory subunit 12A	13	24	20	57	0.55		0	0	2	2	0.36	
124249341	Ppp1r12c	protein phosphatase 1 regulatory subunit 12C	0	1	0	1	9.84 #		0	0	0	0		
254911016	Ppm1d	protein phosphatase 1D	0	0	0	0			0	2	2	4	-0.02	
6679793	Ppm1g	protein phosphatase 1G	0	0	0	0			0	1	2	3	-0.45 #	
160333286	Pml	protein PML isoform 1	4	0	0	4	0.33		16	15	10	41	0.19	
160333282	Pml	protein PML isoform 2	0	13	9	22	0.05		0	79	79	158	0.31	
124486951	Pbrm1	protein polybromo-1	120	154	118	392	-0.06		15	44	26	85	0.08	
258613904	Ptar1	protein prenyltransferase alpha subunit repeat containing 1	0	0	0	0			0	1	0	1	10.07 #	

124486835	Prrc2c	protein PRRC2C	1	4	0	5	-0.45	0	0	0	0		
27597069	Prune	protein prune homolog	0	0	0	0		0	0	1	1	0.02	
23346595	Z410015M20Rik	protein QIL1	10	0	2	12	-0.17	7	0	1	8	0.03	
226958438	Qk	protein quaking isoform 2	10	25	6	41	-0.04	0	1	0	1	-0.29	
33239431	Rcc2	protein RCC2	34	29	25	88	0.07	0	9	11	20	0.34	
33468955	lk	protein Red	7	21	23	51	0.08	9	33	17	59	0.03	
188219557	Prc1	protein regulator of cytokinesis 1	1	0	0	1	0.67#	0	0	0	0		
13385882	Rer1	protein RER1	4	3	3	10	-0.33	2	1	0	3	0.02	
124486767	C030046E11Rik	protein RIC1 homolog	0	0	0	0		0	1	0	1	10.07#	
54607128	Pdcd11	protein RRP5 homolog	72	114	60	246	-0.12	95	219	425	739	-0.02	
6755386	S100a1	protein S100-A1	2	2	2	6	-0.06	0	0	4	4	-0.30	
6677833	S100a10	protein S100-A10	8	5	8	21	-0.16	3	4	4	11	0.01	
309265057	LOC100502897	protein S100-A11-like isoform 1	14	11	14	39	-0.08	7	8	8	23	0.16	
6677835	S100a13	protein S100-A13	3	5	4	12	-0.45	0	0	0	0		
254587904	S100a14	protein S100-A14 isoform a	14	20	14	48	0.29	9	3	7	19	0.51*#	
6755392	S100a6	protein S100-A6	0	0	0	0		0	2	0	2	-0.70#	
30527367	Scaf8	protein SCAF8	6	10	10	26	-0.03	0	0	0	0		
86198339	Scai	protein SCAI	0	0	0	0		0	9	7	16	-0.01	
20373163	Scrib	protein scribble homolog	1	8	0	9	1.54#	0	0	0	0		
29150272	Sec13	protein SEC13 homolog	17	28	12	57	-0.20	12	14	15	41	0.01	
46309573	Sel1l	protein sel-1 homolog 1 isoform b	2	0	0	2	-1.08#	0	0	0	0		
309266563	Gm9531	protein SET-like, partial	13	14	9	36	0.12	0	6	8	14	0.00	
21312548	1500002O20Rik	protein SMG9	0	0	0	0		1	0	0	1	-3.80#	
124358955	Son	protein SON	0	60	32	92	0.20	0	47	49	96	0.34	
124378037	Son	protein SON truncated isoform	9	0	0	9	0.09	16	0	20	36	0.63#	
66955868	Srek1ip1	protein SREK1IP1	0	1	0	1	-0.27	0	0	1	1	-0.43	
238624176	Ss18	protein SSXT isoform 4	2	0	2	4	0.58#	0	1	1	2	0.57#	
13385314	Nudt16l1	protein syndesmos	33	47	25	105	-0.04	3	21	12	36	-0.01	
57164407	Tanc1	protein TANC1	0	0	0	0		0	0	1	1	2.63#	
209862977	Timeless	protein timeless homolog isoform 1	0	0	0	0		0	1	0	1	-0.03	
67906177	Sec23a	protein transport protein Sec23A	0	0	2	2	-0.23	0	1	4	5	-0.15	
31980969	Sec23b	protein transport protein Sec23B	4	6	2	12	-0.34	0	2	8	10	-0.08	
46402179	Sec24b	protein transport protein Sec24B	2	4	1	7	-0.40	0	0	1	1	-0.19	
244791271	Sec31a	protein transport protein Sec31A	0	0	0	0		0	0	1	1	0.32	
8394252	Sec61a1	protein transport protein Sec61 subunit alpha isoform 1	3	4	1	8	-0.24	0	3	0	3	-0.10	
149255928	LOC100044742	protein tyrosine phosphatase type IVA 1-like isoform 1	0	4	4	8	0.08	0	0	0	0		
258613926	Ptp4a2	protein tyrosine phosphatase type IVA 2	7	10	6	23	0.00	0	0	1	1	0.45#	
30425054	Unc119b	protein unc-119 homolog B	2	0	2	4	0.19*	0	0	2	2	-0.01	
124487145	1110037F02Rik	protein virilizer homolog	13	36	23	72	0.45*	0	0	0	0		
46909563	Wiz	protein Wiz isoform 2	3	6	1	10	0.15	4	14	13	31	-0.03	
98986316	Wls	protein wntless homolog precursor	1	0	0	1	-0.18	0	0	0	0		
25282409	Yif1a	protein YIF1A	2	0	0	2	0.36	1	1	1	3	0.07	
156938252	Padi4	protein-arginine deiminase type-4	85	128	105	318	-0.20	34	61	108	203	-0.19	
226530884	Pcmt1	protein-L-isoaspartate(D-aspartate) O-methyltransferase	4	5	3	12	-0.02	0	2	3	5	0.21	
23956130	Ptpmt1	protein-tyrosine phosphatase mitochondrial 1	3	3	3	9	-0.24	2	2	2	6	-0.14	
7110705	Ptma	prothymosin alpha	13	8	10	31	0.31	0	0	5	5	0.08	
6679445	Ppox	protoporphyrinogen oxidase	0	0	0	0		0	0	2	2	-0.08	
13384608	Pcbd1	pterin-4-alpha-carbinolamine dehydratase	2	4	0	6	0.08	0	0	0	0		
52421794	Pcbd2	pterin-4-alpha-carbinolamine dehydratase 2	1	2	2	5	-0.13	0	0	0	0		
169646352	2610027L16Rik	pumilio domain-containing protein C14orf21 homolog	3	0	0	3	-0.21	0	7	5	12	-0.06	
237649087	Pum2	pumilio homolog 2 isoform 3	0	0	1	1	-0.66#	0	0	0	0		
7305395	Pnp	purine nucleoside phosphorylase	2	2	3	7	-0.12	0	0	0	0		



8393156	Clpp	putative ATP-dependent Clp protease proteolytic subunit, mitochondrial precursor	7	3	5	15	-0.28	0	0	0	0		
19111156	Dhx30	putative ATP-dependent RNA helicase DHX30	0	0	0	0		0	0	2	2	0.13	
46560585	Dhx33	putative ATP-dependent RNA helicase DHX33	0	1	0	1	0.42	0	0	2	2	-0.03	
62234443	Ino80	putative DNA helicase INO80 complex homolog 1	12	24	9	45	0.04	0	0	0	0		
165972313	Gtpbp6	putative GTP-binding protein 6	3	4	9	16	-0.05	0	0	4	4	-0.18	
254540179	Mov10	putative helicase MOV-10 isoform b	0	0	0	0		0	0	4	4	-0.23	
21703836	Hkdc1	putative hexokinase HKDC1	0	2	0	2	0.40	0	0	0	0		
229577004	Lipt2	putative lipoyltransferase 2, mitochondrial precursor	1	4	3	8	-0.02	0	0	0	0		
21312938	Mettl16	putative methyltransferase METT10D	1	2	1	4	0.19 *	0	0	0	0		
154146245	Nsun5	putative methyltransferase NSUN5	1	1	1	3	0.19	0	0	1	1	0.94 #	
119392074	Glyr1	putative oxidoreductase GLYR1 isoform 1	0	33	0	33	0.16	164	92	0	256	-0.12	
119392066	Glyr1	putative oxidoreductase GLYR1 isoform 2	54	50	23	127	-0.15	0	28	208	236	-0.17	
31560090	Plbd2	putative phospholipase B-like 2	5	3	7	15	-0.09	0	0	0	0		
153792093	Asxl2	putative Polycomb group protein ASXL2	0	4	0	4	0.42	0	0	0	0		
110835726	Dhx15	putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX15 isoform 1	2	0	1	3	-0.36	0	35	23	58	0.02	
110835723	Dhx15	putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX15 isoform 2	44	70	41	155	-0.06	167	150	239	556	0.10	
158966689	Nop2	putative ribosomal RNA methyltransferase NOP2	13	30	9	52	0.05	44	76	90	210	0.08	
241896855	Rbm15b	putative RNA-binding protein 15B	2	4	1	7	-0.98 #	0	0	1	1	-0.18	
261862337	Rbm3	putative RNA-binding protein 3 isoform 1	0	14	0	14	0.14	0	0	0	0		
261862339	Rbm3	putative RNA-binding protein 3 isoform 2	26	20	23	69	0.03	31	13	8	52	-0.03	
149234330	Gm15453	putative RNA-binding protein 3-like	0	0	19	19	-0.15	0	0	0	0		
21536228	Luc7l	putative RNA-binding protein Luc7-like 1 isoform 1	4	9	3	16	-0.03	3	14	17	34	-0.01	
283806685	Luc7l2	putative RNA-binding protein Luc7-like 2 isoform 3	13	21	9	43	-0.05	12	19	25	56	0.14	
13384672	Ftsj3	putative rRNA methyltransferase 3	0	0	0	0		8	42	67	117	0.15 *	
9910472	Ovol1	putative transcription factor Ovo-like 1	1	2	0	3	-0.12	0	0	0	0		
50054188	Mum1	PWWP domain-containing protein MUM1	1	6	1	8	0.01	0	2	0	2	0.03	
72535128	Pxk	PX domain-containing protein kinase-like protein short isoform	0	1	0	1	1.13 #	0	0	0	0		
21450149	Pycr1	pyrroline-5-carboxylate reductase 1, mitochondrial	8	7	23	38	-0.06	0	0	0	0		
19526878	Pycr2	pyrroline-5-carboxylate reductase 2	30	36	45	111	0.00	19	23	35	77	0.05	
6679261	Pdha1	pyruvate dehydrogenase E1 component subunit alpha, somatic form, mitochondrial precursor	6	9	15	30	-0.07	1	2	3	6	-0.05	
18152793	Pdhb	pyruvate dehydrogenase E1 component subunit beta, mitochondrial precursor	20	14	19	53	-0.10	3	7	7	17	-0.13	
226958643	Pdk2	pyruvate dehydrogenase kinase, isoenzyme 2 precursor	1	2	2	5	-0.13 *	0	0	1	1	-0.10	
110625975	Pdk1	pyruvate dehydrogenase kinase, isozyme 1 precursor	11	13	18	42	-0.11 *	3	11	20	34	-0.61 #	
21704122	Pdk3	pyruvate dehydrogenase kinase, isozyme 3 precursor	8	15	15	38	-0.22	0	4	8	12	-0.06	
28201978	Pdhx	pyruvate dehydrogenase protein X component, mitochondrial	6	1	8	15	-0.04	0	0	1	1	-0.01	
31981562	Pkm2	pyruvate kinase isozymes M1/M2	47	31	58	136	-0.01	56	71	106	233	0.06	
33859560	Gdi1	rab GDP dissociation inhibitor alpha	0	0	0	0		0	0	5	5	0.19	
116089273	Gdi2	rab GDP dissociation inhibitor beta	15	14	29	58	-0.01	3	7	27	37	0.23	
146134336	Rabl2	RAB, member of RAS oncogene family-like 2A	0	0	0	0		0	0	2	2	-0.39	

51556219	Rab3ip	rab-3A-interacting protein	1	0	1	2	-0.67	#	0	0	0	0		
21313026	Rabl5	rab-like protein 5	0	0	0	0			0	0	1	1	-0.01	
6755266	Racgap1	rac GTPase-activating protein 1	0	0	0	0			0	1	1	2	0.22	
157277948	Rdx	radixin isoform a	14	18	38	70	0.16		0	3	5	8	0.04	
157277952	Rdx	radixin isoform b	0	0	0	0			0	1	0	1	2.59	#
242332593	Z400001E08Rik	regulator complex protein LAMTOR1	1	0	0	1	0.02		0	0	0	0		
13752573	Lamtor2	regulator complex protein LAMTOR2	3	0	2	5	-0.69	#	0	0	0	0		
9910452	Lamtor3	regulator complex protein LAMTOR3	2	0	0	2	0.37		0	0	0	0		
163310721	Ralgapa1	ral GTPase-activating protein subunit alpha-1 isoform 2	0	2	0	2	0.29		0	0	0	0		
158187505	Ralgapa2	ral GTPase-activating protein subunit alpha-2	0	1	1	2	0.97	#	0	0	0	0		
124487299	Ralgapb	ral GTPase-activating protein subunit beta	5	4	6	15	0.38	*	0	0	0	0		
31982627	Rgl3	ral guanine nucleotide dissociation stimulator-like 3	0	0	0	0			0	2	1	3	-0.56	#
226062635	Rangap1	ran GTPase-activating protein 1	12	17	7	36	0.68	*,#	2	5	1	8	0.54	*,#
83523744	Ranbp3	ran-binding protein 3	0	0	0	0			1	1	7	9	-0.14	
53850664	Ranbp6	ran-binding protein 6	0	0	0	0			0	0	2	2	0.39	
153792001	Ranbp1	ran-specific GTPase-activating protein	3	8	4	15	-0.01		1	2	5	8	-0.04	
62945396	Rasef	ras and EF-hand domain-containing protein homolog	0	1	1	2	0.07		0	0	1	1	-1.51	#
7305075	G3bp1	ras GTPase-activating protein-binding protein 1	23	16	16	55	-0.34		0	3	5	8	-0.35	
124248575	G3bp2	ras GTPase-activating protein-binding protein 2 isoform b	8	8	3	19	-0.15		0	0	0	0		
242332572	Iqgap1	ras GTPase-activating-like protein IQGAP1	29	22	26	77	-0.06		5	16	111	132	0.24	
31982028	Rsu1	ras suppressor protein 1	8	9	8	25	-0.20		0	3	6	9	0.15	
45592934	Rac1	ras-related C3 botulinum toxin substrate 1 precursor	9	12	4	25	0.01		1	9	5	15	0.29	
7710086	Rab10	ras-related protein Rab-10	22	13	11	46	-0.12		35	12	9	56	-0.10	
31980840	Rab11a	ras-related protein Rab-11A	0	14	0	14	0.56		3	8	0	11	0.43	
6679583	Rab11b	ras-related protein Rab-11B	13	0	11	24	-0.37		0	0	7	7	0.11	
106507168	Rab12	ras-related protein Rab-12	3	1	0	4	0.37		0	0	0	0		
21311975	Rab13	ras-related protein Rab-13	3	7	1	11	-0.05		0	4	1	5	0.04	
18390323	Rab14	ras-related protein Rab-14	17	11	10	38	-0.10		6	10	8	24	-0.19	*
30841008	Rab18	ras-related protein Rab-18	7	2	4	13	-0.15		2	1	4	7	-0.21	
6679587	Rab1	ras-related protein Rab-1A	12	6	12	30	-0.38		31	12	16	59	-0.20	
21313162	Rab1b	ras-related protein Rab-1B	14	8	13	35	-0.20	*	24	11	13	48	-0.16	
33859751	Rab21	ras-related protein Rab-21	8	7	5	20	-0.24		1	2	1	4	-0.36	
148747177	Rab22a	ras-related protein Rab-22A	0	1	1	2	0.06	*	0	0	0	0		
31980838	Rab25	ras-related protein Rab-25	6	4	3	13	0.11		0	8	3	11	0.24	
10946940	Rab2a	ras-related protein Rab-2A	13	4	4	21	-0.27		2	3	7	12	-0.09	
37718983	Rab35	ras-related protein Rab-35	14	18	12	44	0.16		9	13	7	29	-0.05	
15042957	Rab3d	ras-related protein Rab-3D	4	0	0	4	0.00		0	0	0	0		
13385374	Rab5a	ras-related protein Rab-5A	10	20	17	47	-0.18	*	4	17	15	36	-0.09	
28916687	Rab5b	ras-related protein Rab-5B isoform 1	7	11	15	33	-0.19		0	11	11	22	0.02	
113866024	Rab5c	ras-related protein Rab-5C	31	35	38	104	-0.25		18	29	21	68	-0.06	
13195674	Rab6	ras-related protein Rab-6A isoform 2	11	6	2	19	-0.16		3	7	5	15	0.04	
148747526	Rab7	ras-related protein Rab-7a	16	12	14	42	-0.13		21	8	8	37	-0.11	
38372905	Rab8a	ras-related protein Rab-8A	17	15	17	49	-0.18	*	11	10	17	38	-0.05	
27734154	Rab8b	ras-related protein Rab-8B	4	7	4	15	0.01		0	4	3	7	-0.04	
34328471	Rala	ras-related protein Ral-A precursor	7	11	9	27	-0.32		0	7	6	13	-0.18	
11612509	Ralb	ras-related protein Ral-B precursor	9	17	8	34	-0.47		0	10	3	13	-0.38	
21704066	Rap1a	ras-related protein Rap-1A precursor	9	14	12	35	-0.67	*,#	10	13	13	36	-0.53	*,#
33859753	Rap1b	ras-related protein Rap-1b precursor	9	10	13	32	-0.83	*,#	8	0	12	20	-0.59	#
13386338	Rap2b	ras-related protein Rap-2b precursor	0	0	1	1	-0.13		0	0	1	1	0.39	
6677819	Rras	ras-related protein R-Ras precursor	1	1	4	6	-0.10		0	2	3	5	-0.12	
165972315	Rras2	ras-related protein R-Ras2 precursor	1	3	3	7	0.21		0	3	2	5	0.07	

295424113	Rreb1	ras-responsive element-binding protein 1 isoform 1	0	1	0	1	-1.75#	0	0	0	0		
295424118	Rreb1	ras-responsive element-binding protein 1 isoform 2	0	2	1	3	0.20	0	0	0	0		
254675343	Rest	RE1-silencing transcription factor	7	7	0	14	0.22	0	0	5	5	-0.18	
30519927	Reep3	receptor expression-enhancing protein 3 isoform 2	5	2	7	14	0.00	0	0	0	0		
30725847	Reep4	receptor expression-enhancing protein 4	2	2	0	4	-0.06	0	1	0	1	-0.12	
161016826	Reep5	receptor expression-enhancing protein 5	2	0	0	2	-0.34	0	0	0	0		
21314830	Reep6	receptor expression-enhancing protein 6 isoform 1	6	2	2	10	-0.10	0	0	0	0		
87162480	4933421E11Rik	receptor-interacting factor 1 isoform 2	1	0	0	1	-0.31	0	4	5	9	0.07	
115648048	Ptprf	receptor-type tyrosine-protein phosphatase F precursor	0	0	1	1	-0.45	0	0	0	0		
124286785	Rbpj	recombining binding protein suppressor of hairless isoform 3	10	17	4	31	-0.19	0	2	0	2	0.06	
21450083	Rprd1a	regulation of nuclear pre-mRNA domain-containing protein 1A	5	0	6	11	-0.14	0	7	14	21	0.12	
34328077	Rprd1b	regulation of nuclear pre-mRNA domain-containing protein 1B	14	25	22	61	0.11	18	42	46	106	0.09	
124486841	Rprd2	regulation of nuclear pre-mRNA domain-containing protein 2	7	9	6	22	0.29	13	22	20	55	0.07	
19527092	Rcc1	regulator of chromosome condensation isoform 2	28	43	24	95	0.02	48	44	43	135	-0.09*	
30039680	Rod1	regulator of differentiation 1 isoform 2	56	69	65	190	-0.04	28	62	52	142	-0.04	
31560255	Fam82b	regulator of microtubule dynamics protein 1	3	1	0	4	-0.18	0	0	0	0		
85701644	Fam82a2	regulator of microtubule dynamics protein 3	0	0	0	0		0	0	1	1	0.79#	
170784811	Upf1	regulator of nonsense transcripts 1 isoform b	0	0	0	0		0	0	3	3	-0.47#	
71037397	Rfx5	regulatory factor X, 5	0	4	4	8	-0.05	0	0	0	0		
18875392	Rfxap	regulatory factor X-associated protein	2	1	1	4	0.32	0	0	0	0		
124486905	Rsf1	remodeling and spacing factor 1	0	0	1	1	0.12	49	71	94	214	-0.05	
21361250	Atp6ap2	renin receptor precursor	0	1	1	2	-0.78#	0	0	0	0		
188219597	Rfc1	replication factor C subunit 1	42	40	20	102	0.08	6	11	18	35	0.10	
11177922	Rfc2	replication factor C subunit 2	29	25	15	69	-0.18	2	11	14	27	-0.13	
124249204	Rfc3	replication factor C subunit 3	24	25	8	57	0.00	16	13	28	57	-0.02	
21703948	Rfc4	replication factor C subunit 4	20	18	10	48	0.06	1	9	8	18	0.04	
110625924	Rfc5	replication factor C subunit 5	27	33	18	78	-0.02	15	26	28	69	-0.02	
13386122	Rpa3	replication protein A 14 kDa subunit	5	0	5	10	0.06	0	0	0	0		
110625961	Rpa2	replication protein A 32 kDa subunit	0	1	0	1	-0.30	0	0	0	0		
39930559	Rcor1	REST corepressor 1	19	25	17	61	0.18	7	21	10	38	0.23*	
114205428	Rcn2	reticulocalbin-2 precursor	0	0	0	0		0	0	1	1	-0.22	
16716353	Rtn3	reticulon-3 isoform 4	5	4	2	11	-0.04	1	1	0	2	-0.17	
34610233	Rtn4	reticulon-4 isoform B1	10	0	0	10	-0.19	0	0	0	0		
34610237	Rtn4	reticulon-4 isoform D	0	0	1	1	0.26	0	0	0	0		
6679245	Pde6d	retinal rod rhodopsin-sensitive cGMP 3',5'-cyclic phosphodiesterase subunit delta	0	1	0	1	-0.02	0	0	0	0		
9055300	Rp9	retinitis pigmentosa 9 protein homolog	0	1	1	2	0.02	0	0	0	0		
164450487	Rbbp5	retinoblastoma-binding protein 5	8	14	3	25	0.20	1	3	0	4	0.37	
112181202	Rarg	retinoic acid receptor gamma isoform 1	0	1	0	1	-0.06	0	0	0	0		
112181196	Rarg	retinoic acid receptor gamma isoform 2	3	0	2	5	0.04	0	0	0	0		
6755384	Rxra	retinoic acid receptor RXR-alpha	4	8	8	20	0.07	0	0	0	0		
83649745	Rai1	retinoic acid-induced protein 1	0	0	0	0		0	1	0	1	-0.07	
225543465	Gprc5a	retinoic acid-induced protein 3	1	8	2	11	0.60*,#	17	33	17	67	0.62*,#	
253970508	Scpep1	retinoid-inducible serine carboxypeptidase precursor	5	3	4	12	-0.06	0	0	1	1	0.03	
19482172	Rdh11	retinol dehydrogenase 11	4	0	0	4	-0.23	0	2	0	2	-0.73#	

58037513	Rdh12	retinol dehydrogenase 12	0	0	1	1	0.21	0	3	0	3	-0.36		
30425078	Rdh13	retinol dehydrogenase 13	1	0	0	1	-0.09	3	4	7	14	0.64	#	
31982030	Arhgdia	rho GDP-dissociation inhibitor 1	5	5	6	16	0.02	1	10	16	27	-0.09		
225543420	Arhgap1	rho GTPase-activating protein 1 isoform 2	0	0	0	0		0	1	0	1	0.21		
100818170	Arhgap11a	rho GTPase-activating protein 11A	0	0	0	0		0	0	2	2	0.00		
169790947	Arhgap17	rho GTPase-activating protein 17 isoform e	0	1	0	1	-0.05	0	0	0	0			
86262151	Arhgap5	rho GTPase-activating protein 5	0	3	3	6	0.45	0	0	0	0			
257467504	Arhgap8	rho GTPase-activating protein 8	0	0	1	1	-0.32	0	0	0	0			
312032462	Arhgef2	rho guanine nucleotide exchange factor 2 isoform 4	2	7	5	14	-0.27	0	1	4	5	-0.10		
6677759	Rock1	rho-associated protein kinase 1	0	2	2	4	0.98	#	0	0	0	0		
134949013	Rock2	rho-associated protein kinase 2	5	13	11	29	0.28		0	0	0	0		
170014732	Rhbdd1	rhomboid domain-containing protein 1	0	1	0	1	-0.69	#	0	4	4	8	-0.05	
160415213	Rhoc	rho-related GTP-binding protein RhoC precursor	0	5	0	5	-0.15		0	5	9	14	-0.32	
9625037	Rhog	rho-related GTP-binding protein RhoG precursor	2	1	1	4	-1.21	#	0	0	1	1	-0.68	#
226246542	Rnaseh1	ribonuclease H1	1	0	0	1	-0.10		0	0	0	0		
58037175	Rnaseh2a	ribonuclease H2 subunit A	5	5	5	15	0.13		0	1	2	3	0.44	
58037097	Rnaseh2b	ribonuclease H2 subunit B	4	7	2	13	0.05		0	0	0	0		
13386102	Rnaseh2c	ribonuclease H2 subunit C	4	3	2	9	0.15		0	0	0	0		
13385432	Rpp14	ribonuclease P protein subunit p14	6	1	8	15	0.25		0	0	0	0		
13899215	Pop7	ribonuclease P protein subunit p20	1	2	1	4	-0.23		0	0	0	0		
13384772	Pop4	ribonuclease P protein subunit p29	4	5	4	13	0.26	*	0	0	0	0		
257196209	Rpp30	ribonuclease P protein subunit p30	19	36	19	74	0.00		0	2	2	4	0.17	
247300905	Rpp38	ribonuclease P protein subunit p38	0	1	1	2	0.18		0	0	0	0		
20270200	Pop5	ribonuclease P/MRP protein subunit POP5	5	4	5	14	0.19		0	0	0	0		
40807498	Hrsp12	ribonuclease UK114	6	0	5	11	-0.35		0	0	0	0		
29789209	Raver1	ribonucleoprotein PTB-binding 1	73	74	36	183	0.08		28	30	48	106	0.16	
7106399	Rrm2	ribonucleoside-diphosphate reductase subunit M2	0	0	0	0			1	0	0	1	-10.02	#
10946854	Prps1	ribose-phosphate pyrophosphokinase 1	0	3	0	3	0.42		0	1	0	1	0.32	
30794470	Rsl1d1	ribosomal L1 domain-containing protein 1	19	14	9	42	-0.17		176	112	148	436	0.04	
13385888	Mrp63	ribosomal protein 63, mitochondrial	1	0	0	1	-0.53		0	0	0	0		
295842468	Gm10136	ribosomal protein L26-like	0	0	0	0			0	3	0	3	0.00	
13385038	Rpl36a1	ribosomal protein L36A-like	0	1	0	1	-0.17		0	0	0	0		
158636007	Rps6ka1	ribosomal protein S6 kinase alpha-1	0	0	0	0			0	2	2	4	-0.16	
22507357	Rps6ka3	ribosomal protein S6 kinase alpha-3	0	0	0	0			0	1	2	3	-0.26	
9910454	Rps6ka4	ribosomal protein S6 kinase alpha-4	0	0	0	0			0	0	1	1	0.07	
117676367	Rrp1	ribosomal RNA processing protein 1 homolog A	0	0	1	1	-0.45		13	12	11	36	0.25	
254911011	Rrp1b	ribosomal RNA processing protein 1 homolog B isoform 2	0	6	3	9	-0.23		1	5	14	20	0.00	
21450075	Rrp36	ribosomal RNA processing protein 36 homolog	0	0	0	0			0	4	14	18	0.05	
7305109	Emg1	ribosomal RNA small subunit methyltransferase NEP1	32	34	33	99	-0.16	*	13	36	22	71	-0.07	
257467556	Rrp7a	ribosomal RNA-processing protein 7 homolog A	9	9	6	24	-0.36		5	8	13	26	-0.01	
20270198	Rrp8	ribosomal RNA-processing protein 8 isoform 2	0	0	0	0			0	2	2	4	0.17	
39930555	Bms1	ribosome biogenesis protein BMS1 homolog	7	9	6	22	-0.06		4	42	57	103	0.32	
7304931	Bop1	ribosome biogenesis protein BOP1	0	0	0	0			7	37	56	100	0.01	
141802630	Brix1	ribosome biogenesis protein BRX1 homolog	0	0	0	0			8	24	5	37	0.25	
149270710	Gm5515	ribosome biogenesis protein NSA2 homolog	0	0	0	0			1	6	6	13	0.13	

10946614	Wdr12	ribosome biogenesis protein WDR12	0	0	0	0				2	26	29	57	0.13
227908779	Rrs1	ribosome biogenesis regulatory protein homolog	0	0	0	0				3	6	6	15	0.08
23956138	Sbds	ribosome maturation protein SBDS	14	18	15	47	-0.01			0	1	1	2	0.17
169790907	Rpf1	ribosome production factor 1 isoform 2	0	0	0	0				0	1	8	9	-0.02
110347521	Rpf2	ribosome production factor 2 homolog isoform 2	0	0	0	0				8	29	25	62	0.05
124486712	Rrbp1	ribosome-binding protein 1 isoform a	2	22	7	31	-0.01			0	1	0	1	0.39
19482168	Rrbp1	ribosome-binding protein 1 isoform b	7	0	7	14	0.12			0	0	0	0	
21312752	Mrrf	ribosome-recycling factor, mitochondrial precursor	44	53	47	144	-0.10			0	18	13	31	-0.04
19526956	2900064A13Rik	RIKEN cDNA 2900064A13 precursor	5	8	5	18	-0.30			0	0	0	0	
61742810	Zc3h13	RIKEN cDNA 3110050K21	3	3	8	14	0.41 *			0	1	0	1	0.24
21362321	Rnf126	RING finger protein 126	0	0	1	1	-0.09			0	3	7	10	0.03
38348308	Rybp	RING1 and YY1-binding protein	11	13	11	35	0.05			0	2	2	4	0.12
254587958	Rtcd1	RNA 3'-terminal phosphate cyclase	0	0	0	0				0	1	2	3	-0.25
10946950	Rcl1	RNA 3'-terminal phosphate cyclase-like protein	5	4	3	12	-0.26			6	14	13	33	-0.01
148238335	Refbp2	RNA and export factor-binding protein 2	2	0	0	2	-0.14			0	0	0	0	
262527218	Gm15455	RNA binding motif protein 10-like	0	0	0	0				0	0	2	2	-0.58 #
124249066	Rbm15	RNA binding motif protein 15	27	36	25	88	0.03			10	14	12	36	0.11
161016811	Rbfox2	RNA binding protein fox-1 homolog 2 isoform 3	0	0	0	0				0	6	7	13	0.17
76563952	Rexo4	RNA exonuclease 4	0	1	0	1	-0.09			0	1	3	4	0.29
172088095	Ssu72	RNA polymerase II subunit A C-terminal domain phosphatase SSU72	3	5	6	14	-0.11			0	0	0	0	
31980912	Paf1	RNA polymerase II-associated factor 1 homolog	19	24	11	54	-0.03			3	8	5	16	-0.03
154090953	Ctr9	RNA polymerase-associated protein CTR9 homolog	36	38	37	111	0.02			0	10	3	13	0.00
87299619	Leo1	RNA polymerase-associated protein LEO1	7	6	4	17	0.29			0	2	1	3	0.35
27734072	RbmX2	RNA-binding motif protein, X-linked 2	3	4	7	14	-0.02			6	5	9	20	-0.04 *
213513185	Rbms1	RNA-binding motif, single-stranded-interacting protein 1 isoform 2	7	5	4	16	-0.34 *			0	0	2	2	0.46 #
84872207	Rbms2	RNA-binding motif, single-stranded-interacting protein 2 isoform b	3	2	4	9	-0.43			0	3	7	10	0.01
287324984	Rbms3	RNA-binding motif, single-stranded-interacting protein 3 isoform 6	0	0	0	0				0	1	0	1	0.06
269847199	Rbm10	RNA-binding protein 10 isoform 3	9	8	5	22	0.03			3	10	5	18	0.07
86262142	Rbm14	RNA-binding protein 14	51	56	25	132	-0.01			78	81	119	278	0.24 *
161353449	Rbm25	RNA-binding protein 25	48	61	57	166	0.08			16	50	44	110	0.14 *
123701991	Rbm26	RNA-binding protein 26	14	17	15	46	0.36 *			0	2	3	5	0.24
226958612	Rbm27	RNA-binding protein 27	0	2	0	2	-0.18			0	0	0	0	
166235127	Rbm28	RNA-binding protein 28	0	0	0	0				8	14	22	44	0.19
42794007	Rbm34	RNA-binding protein 34	0	0	0	0				0	6	14	20	0.10
134053933	Rbm38	RNA-binding protein 38	0	2	0	2	0.24			0	0	0	0	
118403314	Rbm39	RNA-binding protein 39	71	125	45	241	-0.11			109	125	117	351	-0.07
86262144	Rbm4	RNA-binding protein 4	2	9	4	15	0.12			2	12	13	27	0.21
31981077	Rnpc3	RNA-binding protein 40	0	3	1	4	2.40 #			0	0	0	0	
224922828	Rbm42	RNA-binding protein 42	21	21	16	58	-0.15			0	6	5	11	-0.25
23510273	Rbm45	RNA-binding protein 45	9	9	11	29	-0.19			0	10	5	15	-0.04
188497701	Rbm47	RNA-binding protein 47	34	45	28	107	-0.17			4	25	11	40	-0.10
27754120	Rbm4b	RNA-binding protein 4B	0	5	0	5	-1.52 #			0	5	9	14	0.18
22507333	Rbm5	RNA-binding protein 5	10	15	9	34	0.04			2	15	14	31	0.08
27753952	Rbm7	RNA-binding protein 7	1	4	3	8	0.72 *,#			0	1	0	1	-0.24
162287294	Rbm8a	RNA-binding protein 8A isoform b	20	29	19	68	0.15			55	34	31	120	0.10
88853581	Ewsr1	RNA-binding protein EWS	41	40	15	96	-0.01			10	7	7	24	0.15
20982845	Fus	RNA-binding protein FUS	67	84	46	197	-0.08			56	56	53	165	-0.02

17157989	Msi2	RNA-binding protein Musashi homolog 2	30	23	24	77	-0.26	46	36	48	130	-0.08
13384846	Pno1	RNA-binding protein PNO1	6	6	10	22	-0.17	5	11	20	36	-0.08
213417799	Raly	RNA-binding protein Raly short isoform	49	66	51	166	-0.25	165	123	118	406	-0.02
33342267	Rbpms	RNA-binding protein with multiple splicing isoform 1	0	53	36	89	0.01	6	23	17	46	0.11
111185959	Rbpms	RNA-binding protein with multiple splicing isoform 3	34	0	0	34	0.04	0	0	0	0	
121674799	Rnps1	RNA-binding protein with serine-rich domain 1 isoform 2	5	13	8	26	-0.36	50	48	41	139	0.00
225543191	Crocc	rootletin isoform 1	17	35	23	75	0.29	0	0	0	0	
37704389	Rttn	rotatin	1	0	0	1	8.73 #	0	0	0	0	
67906201	Rsb1	round spermatid basic protein 1	0	1	0	1	-0.60 #	0	0	0	0	
149251501	LOC100044829	rRNA 2'-O-methyltransferase fibrillarin-like isoform 1	52	69	49	170	-0.04	113	117	108	338	0.00
89337263	Mrm1	rRNA methyltransferase 1, mitochondrial precursor	0	0	1	1	-0.72 #	0	0	0	0	
51921297	Fbl1	rRNA/tRNA 2'-O-methyltransferase fibrillarin-like protein 1	9	16	7	32	-0.04	11	6	13	30	-0.04
268607601	Fcf1	rRNA-processing protein FCF1 homolog	7	7	2	16	-0.26	14	11	10	35	0.08
21313442	Utp23	rRNA-processing protein UTP23 homolog	0	0	0	0		0	3	5	8	-0.07
40789092	Rrp12	RRP12-like protein	3	3	6	12	-0.14	4	93	151	248	-0.17
126362985	Rrp15	RRP15-like protein	0	0	0	0		0	1	2	3	0.20
9790083	Ruvbl1	ruvB-like 1	67	68	57	192	0.20	54	78	48	180	0.03
6755382	Ruvbl2	ruvB-like 2	46	58	50	154	0.22 *	22	73	33	128	0.06
226443099	Srbd1	S1 RNA-binding domain-containing protein 1	7	15	9	31	0.09	0	6	4	10	0.20
21312760	S100a16	S100 calcium binding protein A16	10	12	5	27	0.12	10	3	0	13	0.65 #
62243852	Sltm	SAFB-like transcription modulator isoform b	37	43	35	115	0.08	8	25	27	60	0.06
228008310	Ccdc101	SAGA-associated factor 29 homolog	6	10	5	21	-0.02	0	0	0	0	
213418055	Samhd1	SAM domain and HD domain-containing protein 1 isoform 1	0	0	2	2	0.36	0	0	0	0	
213418079	Samhd1	SAM domain and HD domain-containing protein 1 isoform 2	1	2	0	3	0.25	0	0	0	0	
13384730	Sarnp	SAP domain-containing ribonucleoprotein	44	42	43	129	-0.13 *	30	19	21	70	0.01
31560336	Sap30bp	SAP30-binding protein	0	0	2	2	0.31	0	1	1	2	0.40
82885488	LOC639905	SAP30-binding protein-like	0	2	0	2	0.00	0	0	0	0	
36031132	Atp2a1	sarcoplasmic/endoplasmic reticulum calcium ATPase 1	0	0	0	0		0	0	1	1	-0.69 #
6806903	Atp2a2	sarcoplasmic/endoplasmic reticulum calcium ATPase 2 isoform b	6	0	1	7	-0.49 *	17	7	20	44	-0.34 *
254028159	Safb	scaffold attachment factor B	33	46	67	146	0.12	92	91	143	326	0.08
153945866	Safb2	scaffold attachment factor B2	32	45	77	154	0.23	69	73	127	269	0.12
21312256	Dcps	scavenger mRNA-decapping enzyme DcpS	0	0	0	0		0	0	2	2	0.10
70909345	Scel	sciellin	0	1	0	1	0.33	0	0	0	0	
58037481	Scfd1	sec1 family domain-containing protein 1	5	8	4	17	-0.18	1	7	8	16	-0.15
269954700	Sec24c	Sec24 related gene family, member C isoform 2	0	2	0	2	0.71 #	0	0	0	0	
156713463	Sephs1	selenide, water dikinase 1	7	15	10	32	0.18 *	0	3	5	8	0.18
22164798	Selenbp1	selenium-binding protein 1	0	0	3	3	0.22	0	3	1	4	-0.23
12746442	Eefsec	selenocysteine-specific elongation factor	0	1	0	1	4.29 #	0	0	0	0	
82546883	2700094K13Rik	selenoprotein H	13	11	17	41	-0.09	6	3	5	14	-0.03
143770878	2810407C02Rik	selenoprotein T precursor	2	2	2	6	-0.34	2	0	2	4	-0.38
6677917	Sepw1	selenoprotein W	0	1	0	1	0.30	0	0	0	0	
21450063	Senp1	sentrin-specific protease 1	0	0	0	0		0	0	3	3	0.37
254939659	Senp3	sentrin-specific protease 3	3	8	3	14	0.52 *	0	2	0	2	0.23
42734351	Senp7	sentrin-specific protease 7 isoform 1	0	0	0	0		0	0	45	45	-0.13
51593105	Senp7	sentrin-specific protease 7 isoform 2	0	0	0	0		15	35	17	67	-0.06

51593102	Senp7	sentrin-specific protease 7 isoform 4	0	0	0	0			0	3	0	3	-0.26
67906175	Sept10	septin-10 isoform 2	4	7	6	17	0.08		0	0	0	0	
57634518	Sept11	septin-11	25	29	39	93	0.12		0	12	6	18	0.15
6754816	Sept2	septin-2 a	32	33	35	100	0.15		0	21	14	35	0.14
228480253	Sept2	septin-2 b	0	0	0	0			7	1	4	12	0.31
6755120	Sept4	septin-4	2	1	2	5	0.04		0	0	0	0	
158508501	Sept5	septin-5	1	4	10	15	0.31		0	0	0	0	
293597551	Sept6	septin-6 isoform 3	0	6	11	17	0.03		0	3	0	3	0.43
28173550	Sept7	septin-7 isoform 1	43	52	52	147	0.18		0	7	8	15	0.12
39930477	Sept8	septin-8	17	18	16	51	0.13		0	6	1	7	0.14
164698481	Sept9	septin-9 isoform b	46	66	45	157	0.26		5	8	10	23	0.34
13507666	Lactb	serine beta-lactamase-like protein LACTB, mitochondrial precursor	4	6	1	11	-0.28		0	0	0	0	
13443008	Serhl	serine hydrolase-like protein	2	0	1	3	-0.31		0	0	0	0	
21312298	Shmt2	serine hydroxymethyltransferase, mitochondrial	39	52	57	148	-0.19		14	37	43	94	-0.13
29244577	Sptlc1	serine palmitoyltransferase 1	2	0	0	2	-0.27		0	0	0	0	
6755656	Sptlc2	serine palmitoyltransferase 2	3	0	0	3	-0.81 #		0	0	0	0	
254281222	Htra2	serine protease HTRA2, mitochondrial	0	1	0	1	-0.15		0	0	0	0	
194440687	Srrm1	serine/arginine repetitive matrix protein 1 isoform 2	27	42	32	101	-0.11 *		1	15	7	23	-0.08
126157504	Srrm2	serine/arginine repetitive matrix protein 2	14	76	47	137	0.35 *		1	8	24	33	0.16
13385292	Rsrc1	serine/Arginine-related protein 53	1	2	0	3	0.17		0	1	4	5	0.26
34328400	Srsf1	serine/arginine-rich splicing factor 1 isoform 1	34	40	29	103	-0.10		109	19	27	155	-0.08
118582271	Srsf1	serine/arginine-rich splicing factor 1 isoform 2	0	0	0	0			0	44	27	71	-0.04
6753820	Srsf10	serine/arginine-rich splicing factor 10 isoform 1	20	32	22	74	-0.03		56	56	44	156	-0.06
6755478	Srsf2	serine/arginine-rich splicing factor 2	13	17	14	44	-0.10		17	22	17	56	0.01
8567402	Srsf3	serine/arginine-rich splicing factor 3	35	51	42	128	-0.10		64	45	34	143	-0.13
309262406	LOC100502754	serine/arginine-rich splicing factor 3-like	3	0	0	3	-0.10		0	0	1	1	0.00
149266876	Gm7083	serine/arginine-rich splicing factor 3-like	0	0	0	0			0	3	0	3	-0.20
165377173	Srsf4	serine/arginine-rich splicing factor 4	2	4	4	10	-0.07		10	7	7	24	-0.09
119226245	Srsf5	serine/arginine-rich splicing factor 5	10	15	7	32	-0.08		19	15	15	49	0.01
309265106	Gm12966	serine/arginine-rich splicing factor 5-like	0	0	0	0			0	5	6	11	-0.07
306774103	Srsf7	serine/arginine-rich splicing factor 7 isoform 4	14	39	25	78	-0.11 *		38	32	37	107	-0.05
13385016	Srsf9	serine/arginine-rich splicing factor 9	16	23	15	54	-0.09		50	23	20	93	-0.06
126362973	Stk10	serine/threonine-protein kinase 10	0	2	0	2	0.48		0	0	0	0	
51317394	Aurkb	serine/threonine-protein kinase 12	0	0	0	0			0	3	5	8	0.13
9507153	Stk19	serine/threonine-protein kinase 19	1	0	0	1	-0.09		0	0	0	0	
21703922	Stk24	serine/threonine-protein kinase 24	6	0	8	14	0.09		0	0	0	0	
89337277	Stk25	serine/threonine-protein kinase 25	0	1	0	1	0.50		0	0	0	0	
122937355	Mark2	serine/threonine-protein kinase MARK2 isoform 2	0	2	3	5	-0.08		0	0	1	1	-0.30
283135190	Cdc42bbp	serine/threonine-protein kinase MRCK beta	19	20	7	46	0.19		0	0	0	0	
19526920	2610018G03Rik	serine/threonine-protein kinase MST4	0	0	0	0			0	0	1	1	-0.15
260099670	Pkn2	serine/threonine-protein kinase N2	0	0	1	1	-0.22		0	0	0	0	
11037792	Nek7	serine/threonine-protein kinase Nek7	0	1	1	2	0.20		0	0	0	0	
46559406	Pak2	serine/threonine-protein kinase PAK 2	0	0	0	0			0	4	7	11	0.02
29336032	Pak4	serine/threonine-protein kinase PAK 4	0	3	0	3	0.42		0	0	0	0	
65508357	Plk5	serine/threonine-protein kinase PLK5	1	0	0	1	-5.93 #		0	0	0	0	
158854005	Prpf4b	serine/threonine-protein kinase PRP4 homolog	24	86	45	155	0.03		2	22	23	47	-0.68 #
124358959	Taok1	serine/threonine-protein kinase TAO1	2	7	5	14	-0.06		0	0	0	0	
314122203	Taok3	serine/threonine-protein kinase TAO3	5	9	10	24	-0.05		0	0	0	0	

224994273	Tlk1	serine/threonine-protein kinase tousled-like 1	0	3	0	3	0.36	0	0	0	0	
166063978	Tlk2	serine/threonine-protein kinase tousled-like 2 isoform B	0	2	0	2	1.34#	0	0	0	0	
6755985	Vrk1	serine/threonine-protein kinase VRK1 isoform a	0	0	58	58	-0.08	0	0	0	0	
71067120	Vrk1	serine/threonine-protein kinase VRK1 isoform c	60	64	2	126	0.00	23	45	37	105	-0.08
160333463	Vrk2	serine/threonine-protein kinase VRK2	0	0	0	0		0	3	2	5	0.04
255308879	Ppp1r10	serine/threonine-protein phosphatase 1 regulatory subunit 10 isoform 2	28	47	24	99	0.16	3	13	9	25	0.01
110625886	Ppp2r2a	serine/threonine-protein phosphatase 2A 55 kDa regulatory subunit B alpha isoform isoform 1	0	0	1	1	-0.28	0	0	0	0	
67972402	Ppp2r2b	serine/threonine-protein phosphatase 2A 55 kDa regulatory subunit B beta isoform isoform 1	0	0	0	0		0	0	1	1	0.24
8394027	Ppp2r1a	serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha isoform	22	36	34	92	0.23*	15	26	68	109	-0.03
254587947	Ppp2r4	serine/threonine-protein phosphatase 2A activator	0	0	0	0		0	0	3	3	-0.08
9506983	Ppp2ca	serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform	8	9	17	34	0.21	3	0	20	23	0.21
8394024	Ppp2cb	serine/threonine-protein phosphatase 2A catalytic subunit beta isoform	8	10	0	18	0.18	0	16	1	17	-0.09
9790175	Ppp4c	serine/threonine-protein phosphatase 4 catalytic subunit	1	3	3	7	0.31	0	1	0	1	-0.04
33636709	Ppp4r2	serine/threonine-protein phosphatase 4 regulatory subunit 2	0	0	0	0		0	0	1	1	-0.33
254587960	Pgam5	serine/threonine-protein phosphatase PGAM5, mitochondrial isoform 2	1	7	3	11	0.10	3	6	7	16	0.04
13994195	Ppp1ca	serine/threonine-protein phosphatase PP1-alpha catalytic subunit	44	54	65	163	0.11	41	40	61	142	0.18*
161484668	Ppp1cb	serine/threonine-protein phosphatase PP1-beta catalytic subunit	38	51	68	157	0.12*	23	31	87	141	0.18*
31980772	Ppp1cc	serine/threonine-protein phosphatase PP1-gamma catalytic subunit	29	34	74	137	0.10	26	49	79	154	0.26
163838660	Atm	serine-protein kinase ATM	13	32	10	55	0.46*	0	1	1	2	0.19
160707896	Strap	serine-threonine kinase receptor-associated protein	11	13	6	30	0.07	0	1	0	1	-0.21
161353502	Serpinh1	serpin H1 precursor	14	12	19	45	-0.19	2	7	6	15	0.08
158186674	Srrt	serrate RNA effector molecule homolog isoform 3	46	33	40	119	0.05	29	48	50	127	0.02
163310765	Alb	serum albumin precursor	0	1	22	23	-1.37#	0	1	2	3	-1.02#
148540184	Srfbp1	serum response factor-binding protein 1	7	8	7	22	-0.16	1	7	11	19	0.19
33468931	Sars	seryl-tRNA synthetase, cytoplasmic isoform 1	7	11	14	32	-0.05	0	1	2	3	0.14
119508422	Setd1a	SET domain containing 1A	1	10	5	16	0.61*#	0	0	0	0	
197927225	Setd2	SET domain containing 2	1	0	1	2	-0.34	0	0	0	0	
268370088	Setd3	SET domain-containing protein 3	3	4	3	10	-0.38	0	0	0	0	
124248550	Ash2l	set1/Ash2 histone methyltransferase complex subunit ASH2 isoform b	18	21	16	55	0.25*	0	4	4	8	0.10
13937355	Esd	S-formylglutathione hydrolase	0	1	2	3	0.00	0	2	9	11	0.00
206597474	Sh2d4a	SH2 domain-containing protein 4A	1	1	0	2	-0.60#	0	0	0	0	
9910548	Sh3bgrl	SH3 domain-binding glutamic acid-rich-like protein	1	2	1	4	0.08	0	0	0	0	
27369694	Sh3bgrl2	SH3 domain-binding glutamic acid-rich-like protein 2	12	7	9	28	-0.02	0	0	0	0	
18017602	Sh3bgrl3	SH3 domain-binding glutamic acid-rich-like protein 3	1	2	2	5	-0.30	0	0	0	0	



85838509	Sh3bp1	SH3 domain-binding protein 1	2	14	11	27	-0.02		0	0	0	0	
9790207	Scoc	short coiled-coil protein isoform b	1	0	0	1	-0.11		0	0	0	0	
17647119	Acadseb	short/branched chain specific acyl-CoA dehydrogenase, mitochondrial	3	2	6	11	-0.03		0	2	2	4	-0.23
31982522	Acads	short-chain specific acyl-CoA dehydrogenase, mitochondrial precursor	22	14	17	53	-0.06		0	7	14	21	-0.15
16716467	Nans	sialic acid synthase	0	0	0	0			0	1	6	7	-0.27
46358401	Etl4	sickle tail protein isoform b	0	0	0	0			0	0	1	1	1.43#
294979218	Etl4	sickle tail protein isoform e	0	0	0	0			0	0	1	1	0.44
15147224	Sfxn1	sideroflexin-1	0	0	1	1	0.21		2	0	3	5	-0.20
295821212	Sfxn3	sideroflexin-3 isoform 3	0	0	0	0			0	0	4	4	0.13
9910550	Sec11a	signal peptidase complex catalytic subunit SEC11A	10	6	5	21	-0.40*		20	4	0	24	-0.28
21313554	Sec11c	signal peptidase complex catalytic subunit SEC11C	1	0	0	1	0.70#		0	0	0	0	
193788663	Spes1	signal peptidase complex subunit 1	0	0	0	0			2	0	0	2	-0.17
13385134	Spes2	signal peptidase complex subunit 2	6	10	6	22	-0.56		12	12	13	37	-0.34*
125988403	Spes3	signal peptidase complex subunit 3	3	2	2	7	-0.34*		12	4	4	20	-0.20
309264544	LOC100504988	signal recognition particle 14 kDa protein-like	3	7	3	13	-0.65*#		0	0	0	0	
160333840	Srp19	signal recognition particle 19 kDa protein	11	16	10	37	-0.10		0	1	4	5	-0.11
153791789	Srp54b	signal recognition particle 54 kDa protein	7	5	6	18	-0.10		3	12	16	31	-0.11
47271535	Srp68	signal recognition particle 68 kDa protein	3	3	5	11	-0.06		0	5	9	14	-0.01
118344452	Srp72	signal recognition particle 72	1	7	7	15	-0.02		0	2	5	7	-0.18
309264494	LOC100503508	signal recognition particle 9 kDa protein-like	2	2	2	6	-0.14		1	0	0	1	-0.26
27229036	Srpr	signal recognition particle receptor subunit alpha	2	1	0	3	-0.57		0	0	0	0	
6678137	Srprb	signal recognition particle receptor subunit beta	16	12	11	39	-0.23		5	11	5	21	-0.14
22094115	Stat3	signal transducer and activator of transcription 3 isoform 3	0	0	0	0			0	0	1	1	-0.63#
269784713	Sipa111	signal-induced proliferation-associated 1-like protein 1 isoform 1	0	0	1	1	0.33		0	0	0	0	
169881247	Suds3	sin3 histone deacetylase corepressor complex component SDS3 isoform a	2	4	4	10	0.06		0	1	0	1	0.28
47059026	Ssbp1	single-stranded DNA-binding protein, mitochondrial isoform 1	7	23	13	43	0.04		14	23	23	60	0.12*
124486765	Pds5a	sister chromatid cohesion protein PDS5 homolog A	102	142	131	375	0.23		5	61	63	129	0.18*
66955886	Pds5b	sister chromatid cohesion protein PDS5 homolog B	117	158	109	384	0.18		13	60	96	169	0.10
166064058	Slit2	slit homolog 2 protein precursor	0	2	2	4	-0.08		0	0	0	0	
227430375	Snip1	smad nuclear-interacting protein 1	0	1	0	1	-0.28		0	1	2	3	0.13
309264991	LOC100503839	small EDRK-rich factor 2-like	2	4	0	6	-0.06		0	1	0	1	-0.21
27883844	Snrpe	small nuclear ribonucleoprotein E	30	24	17	71	0.01		21	13	6	40	0.01
254028189	Snrpf	small nuclear ribonucleoprotein F	28	34	39	101	-0.03		44	16	26	86	0.00
94401818	Gm8186	small nuclear ribonucleoprotein G-like	13	14	20	47	0.03		8	1	5	14	0.03
309265133	Gm8186	small nuclear ribonucleoprotein G-like	0	0	2	2	0.04		0	0	4	4	-0.04
6678055	Snrpd1	small nuclear ribonucleoprotein Sm D1	66	78	63	207	0.03		112	57	49	218	0.04
309264642	Gm14277	small nuclear ribonucleoprotein Sm D1-like	1	0	0	1	-0.11		0	0	2	2	-0.18
58037145	Snrpd2	small nuclear ribonucleoprotein Sm D2	24	47	30	101	-0.02		79	35	24	138	0.01
13385598	Snrpd3	small nuclear ribonucleoprotein Sm D3	37	50	30	117	-0.12		70	30	30	130	0.13
6678053	Snrpb	small nuclear ribonucleoprotein-associated protein B	45	50	37	132	-0.01		52	43	25	120	-0.02
226437674	Utp20	small subunit processome component 20 homolog	50	111	74	235	-0.15		2	116	170	288	-0.04
6678489	Sumo1	small ubiquitin-related modifier 1 precursor	1	2	1	4	0.46		0	1	0	1	0.22
309263434	Gm10241	small ubiquitin-related modifier 2-like	4	8	6	18	0.30		0	2	2	4	0.11

19923056	Snapi	SNARE-associated protein Snapi	0	1	0	1	-0.26	0	0	0	0		
146149191	Snw1	SNW domain-containing protein 1	6	22	10	38	0.06	37	39	33	109	0.10	
124487197	Sclt1	sodium channel and clathrin linker 1	1	1	0	2	0.44	0	0	0	0		
254675275	Scnm1	sodium channel modifier 1 isoform 2	2	3	0	5	-0.16	0	0	0	0		
84875498	Scn5a	sodium channel protein type 5 subunit alpha	0	1	0	1	-0.49	0	0	0	0		
21450277	Atp1a1	sodium/potassium-transporting ATPase subunit alpha-1 precursor	30	12	20	62	-0.25	107	44	206	357	-0.10	
30409956	Atp1a2	sodium/potassium-transporting ATPase subunit alpha-2 precursor	0	0	0	0		0	0	1	1	-0.34	
6753138	Atp1b1	sodium/potassium-transporting ATPase subunit beta-1	5	2	1	8	-0.51	1	0	1	2	-0.78	#
213513245	Nkain4	sodium/potassium-transporting ATPase subunit beta-1-interacting protein 4 isoform 2	0	0	0	0		2	0	0	2	-0.14	
16554572	Fxyd2	sodium/potassium-transporting ATPase subunit gamma isoform b	2	0	1	3	-0.32	0	0	0	0		
56090652	Slc25a42	solute carrier family 25 member 42	0	0	0	0		0	0	4	4	-0.11	
254692847	Slc25a48	solute carrier family 25 member 48	0	0	1	1	-0.24	0	0	0	0		
23943838	Slc25a1	solute carrier family 25, member 1	7	3	5	15	-0.03	6	8	5	19	0.03	
7949137	Slc35b1	solute carrier family 35 member B1	1	0	0	1	-0.16	0	2	0	2	-0.31	
28893565	Slc41a2	solute carrier family 41 member 2	0	0	0	0		0	1	0	1	-0.31	
12746430	Utp3	something about silencing protein 10	3	5	2	10	-0.13	13	22	19	54	0.04	
124301206	Sorbs2	sorbin and SH3 domain-containing protein 2	1	4	0	5	0.10	0	0	0	0		
124430543	Sri	sorcin isoform 2	1	3	1	5	-0.27	0	1	1	2	1.69	#
13385902	Cdca5	sororin	4	4	0	8	0.31	0	0	0	0		
110625645	Sorl1	sortilin-related receptor	6	5	4	15	-0.07	0	2	1	3	0.12	
30519943	Samm50	sorting and assembly machinery component 50 homolog	0	0	0	0		5	18	14	37	0.53	*,#
160333832	Snx12	sorting nexin-12 isoform 1	1	1	1	3	0.24	0	0	0	0		
31560433	Snx3	sorting nexin-3	3	4	4	11	-0.29	0	2	4	6	-0.18	
18034769	Snx5	sorting nexin-5	0	0	0	0		0	0	1	1	-0.09	
149269540	LOC100039155	sorting nexin-9-like	0	0	1	1	0.36	0	0	0	0		
28076937	Obfc2b	SOSS complex subunit B1	8	12	5	25	0.28*	0	1	0	1	-0.06	
126723205	Obfc2a	SOSS complex subunit B2	0	1	0	1	0.50	0	0	0	0		
62526128	1110054O05Rik	SOSS complex subunit C	3	6	4	13	0.41	0	1	0	1	0.16	
295054266	Spna2	spectrin alpha chain, brain isoform 2	187	325	356	868	0.34	63	108	0	171	0.40	
295054271	Spna2	spectrin alpha chain, brain isoform 3	231	267	354	852	0.36	0	37	45	82	0.60	#
116174793	Spnb4	spectrin beta 4 isoform sigma1	0	1	0	1	0.18	0	0	0	0		
117938332	Spnb2	spectrin beta chain, brain 1 isoform 1	164	205	204	573	0.40	7	0	5	12	0.73	#
117938334	Spnb2	spectrin beta chain, brain 1 isoform 2	114	156	185	455	0.43	0	23	1	24	0.19	
55926127	Spnb3	spectrin beta chain, brain 2	134	240	104	478	0.55*	13	55	25	93	0.68	*,#
13385180	Spesp1	sperm equatorial segment protein 1 precursor	0	0	0	0		0	1	0	1	-0.01	
264681516	Spag7	sperm-associated antigen 7 isoform 1	0	1	1	2	0.37	0	0	0	0		
114842377	Strbp	spermatid perinuclear RNA-binding protein	16	24	18	58	0.06	2	11	7	20	0.06	
254553468	Spata5	spermatogenesis-associated protein 5 isoform 2	0	0	0	0		0	0	2	2	-0.24	
20982833	Spats2	spermatogenesis-associated serine-rich protein 2	0	2	2	4	0.02	0	0	0	0		
158854016	Skp1a	S-phase kinase-associated protein 1	28	30	20	78	0.00	7	8	11	26	0.15	
6681175	Degs1	sphingolipid delta(4)-desaturase DES1	1	0	0	1	-0.66#	2	0	1	3	-0.40	
257196247	Smpd4	sphingomyelin phosphodiesterase 4 isoform 2	0	0	9	9	-0.18	6	0	23	29	0.04	
257196245	Smpd4	sphingomyelin phosphodiesterase 4 isoform 3	10	11	0	21	-0.17	0	26	0	26	-0.01	
289191399	Sphk2	sphingosine kinase 2	0	1	0	1	-0.14	0	0	0	0		
31543694	Sgpl1	sphingosine-1-phosphate lyase 1	14	13	13	40	-0.20	0	10	5	15	-0.22	

6755620	Spin1	spindlin-1 isoform 1	9	11	5	25	-0.06	1	8	10	19	-0.04
30520207	Spin4	spindlin-4	0	0	0	0		0	1	2	3	-0.16
9790069	Ddx39b	spliceosome RNA helicase Ddx39b	65	73	83	221	-0.02	108	194	137	439	0.03
160707945	Sf1	splicing factor 1 isoform 2	42	72	32	146	0.07	11	30	23	64	0.24 *
165932270	Sf3a1	splicing factor 3A subunit 1	72	77	92	241	0.02	146	174	198	518	0.02
158749553	Sf3a2	splicing factor 3A subunit 2	25	21	15	61	-0.03	51	26	13	90	0.03
22095003	Sf3a3	splicing factor 3A subunit 3	32	38	29	99	0.03	27	53	27	107	-0.05
153791358	Sf3b1	splicing factor 3B subunit 1	171	251	247	669	0.00	372	676	732	1780	-0.04
19527174	Sf3b3	splicing factor 3B subunit 3	125	128	165	418	0.03	356	512	500	1368	-0.03
23346437	Sf3b4	splicing factor 3B subunit 4	11	19	10	40	-0.01	20	31	26	77	-0.03
85540445	Sf3b5	splicing factor 3B subunit 5	10	15	9	34	-0.24	28	5	10	43	-0.07
268837785	Sf3b2	splicing factor 3B, subunit 2	50	61	80	191	0.07	75	141	131	347	-0.01
22779924	Rbm17	splicing factor 45	4	13	12	29	0.16 *	7	14	7	28	0.19
254939694	U2af1	splicing factor U2AF 35 kDa subunit isoform 1	50	54	35	139	0.00	56	55	73	184	0.00
164565377	U2af2	splicing factor U2AF 65 kDa subunit isoform 2	52	82	54	188	0.03	79	70	51	200	0.01
309271453	Gm7061	splicing factor U2AF 65 kDa subunit-like	10	7	15	32	-0.23 *	0	3	4	7	-0.11
147898671	Srsf11	splicing factor, arginine/serine-rich 11 isoform 1	25	45	29	99	0.16	7	16	21	44	0.09
109150409	Scaf4	splicing factor, arginine/serine-rich 15	10	15	18	43	0.07	2	20	18	40	0.23
226437597	Sf3b18	splicing factor, arginine/serine-rich 18	0	3	0	3	0.16	0	0	1	1	0.32
56605682	Scaf1	splicing factor, arginine/serine-rich 19	0	0	0	0		0	0	5	5	-0.72 #
117647277	Scaf11	splicing factor, arginine/serine-rich 2, interacting protein	35	28	31	94	0.19 *	48	62	103	213	0.40 *
78217391	Sfswap	splicing factor, arginine/serine-rich 8	3	7	3	13	0.24 *	0	0	1	1	0.12
23956214	Sfpq	splicing factor, proline- and glutamine-rich	237	249	186	672	-0.05	191	270	179	640	-0.07
27369842	Srek1	splicing regulatory glutamine/lysine-rich protein 1	14	35	15	64	0.13	0	3	12	15	0.11
58037095	Spryd4	SPRY domain-containing protein 4	4	3	2	9	-0.11	0	0	0	0	
8394239	Sart3	squamous cell carcinoma antigen recognized by T-cells 3	0	0	0	0		0	0	1	1	0.04
283046784	1810035L17Rik	SRA stem-loop-interacting RNA-binding protein, mitochondrial precursor	2	1	1	4	-0.14	1	0	0	1	-0.12
75677414	Cttn	src substrate cortactin	22	45	19	86	0.42 *	0	3	1	4	0.05
309262863	Hist1h2al	src substrate cortactin	13	42	77	132	-0.21	0	46	41	87	-0.10
58037285	Supt7l	STAGA complex 65 subunit gamma	0	0	1	1	-0.34	0	0	0	0	
77404392	Snd1	staphylococcal nuclease domain-containing protein 1	40	44	30	114	0.03	0	17	20	37	-0.17
9789995	Stmn1	stathmin	1	0	3	4	-1.20 #	0	0	0	0	
257467552	Slk	STE20-like serine/threonine-protein kinase isoform 1	0	1	3	4	0.16	0	0	0	0	
226958514	Samd9l	sterile alpha motif domain-containing protein 9-like	37	59	61	157	-0.02	0	13	26	39	0.15
112293262	Esrra	steroid hormone receptor ERR1	14	21	18	53	-0.03	0	11	7	18	-0.02
226958367	Esrrb	steroid hormone receptor ERR2 isoform 2	6	5	0	11	0.15	0	0	0	0	
84619697	Soat1	sterol O-acyltransferase 1	0	0	0	0		15	6	12	33	-0.28 *
31982437	Nsdhl	sterol-4-alpha-carboxylate 3-dehydrogenase, decarboxylating	4	0	0	4	-0.21	0	0	0	0	
9789907	Stub1	STIP1 homology and U box-containing protein 1	6	7	13	26	0.14	0	0	3	3	-0.05
12963591	Stoml2	stomatin-like protein 2	0	0	1	1	-0.08	6	4	3	13	-0.13
162461907	Hspa9	stress-70 protein, mitochondrial	42	30	41	113	-0.13	22	17	21	60	-0.16
237820671	Serp2	stress-associated endoplasmic reticulum protein 2	0	0	0	0		0	1	0	1	-0.62 #
14389431	Stip1	stress-induced-phosphoprotein 1	12	12	11	35	-0.19	0	1	1	2	0.24
226958306	Sdf2	stromal cell-derived factor 2	1	5	0	6	-0.20	0	0	2	2	0.32
11612505	Sdf2l1	stromal cell-derived factor 2-like protein 1 precursor	11	11	5	27	-0.15	0	6	4	10	0.05

281182368	Stim2	stromal interaction molecule 2 precursor	0	0	1	1	-0.20	0	0	0	0		
148839318	Smchd1	structural maintenance of chromosomes flexible hinge domain-containing protein 1	139	221	126	486	0.15	28	120	131	279	0.11	
258613892	Smc1a	structural maintenance of chromosomes protein 1A	98	126	106	330	0.10	73	120	119	312	0.13	
62990166	Smc2	structural maintenance of chromosomes protein 2	20	33	28	81	0.22	0	6	4	10	0.07	
36031035	Smc3	structural maintenance of chromosomes protein 3	121	125	144	390	0.18	104	178	235	517	0.14 *	
29789347	Smc4	structural maintenance of chromosomes protein 4	13	25	19	57	0.29	0	2	0	2	-0.19	
24497433	Smc5	structural maintenance of chromosomes protein 5	10	15	13	38	0.15	2	33	34	69	-0.29	
24415998	Smc6	structural maintenance of chromosomes protein 6	17	18	15	50	-0.02	0	39	41	80	-0.15	
54607098	Sdha	succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial precursor	8	1	0	9	-0.36	5	0	0	5	-0.37	
34328286	Sdhb	succinate dehydrogenase [ubiquinone] iron-sulfur subunit, mitochondrial precursor	10	1	3	14	-0.15	2	2	0	4	-0.41	
228008307	Sdhc	succinate dehydrogenase cytochrome b560 subunit, mitochondrial precursor	1	0	0	1	-0.17	3	0	0	3	-0.32	
27369748	Aldh5a1	succinate-semialdehyde dehydrogenase, mitochondrial precursor	1	0	0	1	-0.26	0	0	0	0		
46849708	Sucla2	succinyl-CoA ligase [ADP-forming] subunit beta, mitochondrial precursor	3	0	1	4	-0.03	0	3	7	10	-0.36	
255958286	Suclg1	succinyl-CoA ligase [GDP-forming] subunit alpha, mitochondrial precursor	9	4	7	20	-0.04	0	4	11	15	-0.17	
165972309	Suclg2	succinyl-CoA ligase [GDP-forming] subunit beta, mitochondrial precursor	7	2	8	17	-0.20 *	0	4	8	12	-0.19	
18266680	Oxct1	succinyl-CoA:3-ketoacid-coenzyme A transferase 1, mitochondrial precursor	8	0	8	16	-0.08	0	4	2	6	0.04	
188497726	Slc50a1	sugar transporter SWEET1	1	0	0	1	0.01	0	0	0	0		
144094256	Sumf1	sulfatase-modifying factor 1 precursor	0	2	5	7	-0.13	0	0	0	0		
225735655	Psap	sulfated glycoprotein 1 isoform E preproprotein	26	11	20	57	0.08	5	1	5	11	0.17	
244790045	Sqrdl	sulfide:quinone oxidoreductase, mitochondrial precursor	11	14	13	38	-0.09	33	45	53	131	0.14	
188219649	Sult1d1	sulfotransferase family 1D, member 1	0	0	0	0		1	7	4	12	-0.03	
9790247	Sae1	SUMO-activating enzyme subunit 1	0	0	0	0		0	0	4	4	0.17	
7709986	Uba2	SUMO-activating enzyme subunit 2	0	0	0	0		0	0	1	1	0.22	
149269919	LOC100044900	SUMO-conjugating enzyme UBC9-like	21	23	19	63	0.28	0	3	2	5	0.40	
29789243	Sun1	SUN domain-containing protein 1	3	2	10	15	-0.20	93	166	156	415	-0.12	
168693641	Sun2	SUN domain-containing protein 2 isoform 3	42	57	68	167	-0.06	325	282	338	945	-0.15 *	
21312352	Skiv2l2	superkiller viralicidic activity 2-like 2	23	36	38	97	0.19	0	27	26	53	0.27	
45597447	Sod1	superoxide dismutase [Cu-Zn]	4	6	5	15	0.09	0	0	0	0		
31980762	Sod2	superoxide dismutase [Mn], mitochondrial precursor	6	3	0	9	-0.10	0	0	0	0		
23956176	Sugt1	suppressor of G2 allele of SKP1 homolog	0	0	1	1	-0.20	0	0	0	0		
255683374	Ppan	suppressor of SWI4 1 homolog	0	0	0	0		5	26	18	49	0.11 *	
7363445	St14	suppressor of tumorigenicity 14 protein homolog	2	0	2	4	-0.03	0	0	1	1	0.54 #	
6755698	Surf4	surfeit locus protein 4	4	2	2	8	-0.36	11	2	2	15	-0.36 *	
6678185	Surf6	surfeit locus protein 6	0	0	0	0		1	6	10	17	0.67 #	
28076967	Supg1	SURP and G-patch domain-containing protein 1	3	7	3	13	0.25	1	5	8	14	-0.01	
27369569	Smndc1	survival of motor neuron-related-splicing factor 30	18	17	18	53	-0.04	2	8	11	21	0.07	
112421097	Smarcc1	SWI/SNF complex subunit SMARCC1	96	124	114	334	0.29	42	64	49	155	0.30 *	

37718972	Smarcc2	SWI/SNF complex subunit SMARCC2 isoform 3	89	123	88	300	0.22		24	73	46	143	0.15
10181166	Smarce1	SWI/SNF-related matrix-associated actin-dependent regulator chromatin subfamily E member 1	47	37	41	125	0.28		33	43	23	99	0.24 *
40254124	Smarca5	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A member 5	76	89	59	224	0.08		262	426	482	1170	-0.03
6755578	Smarcb1	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily B member 1 isoform 1	12	13	19	44	0.20		0	14	0	14	0.03
24025565	Smarcb1	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily B member 1 isoform 2	8	15	18	41	0.23		12	18	18	48	0.15
125347396	Smarcd1	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily D member 1	12	12	12	36	0.14 *		0	6	0	6	0.05
194328771	Smarcd2	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily D member 2 isoform 2	48	27	37	112	0.25 *		46	47	21	114	0.15
77404373	Smarcd3	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily D member 3	4	0	6	10	0.15		0	4	0	4	0.32
11528488	Hmg20b	SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily E member 1-related	4	6	7	17	0.11		0	0	0	0	
226437613	Sympk	symplekin	69	124	89	282	0.21		4	45	28	77	0.09
33859662	Vat1	synaptic vesicle membrane protein VAT-1 homolog	4	0	0	4	-0.39		0	0	0	0	
13384642	Synj2bp	synaptojanin-2-binding protein	1	0	0	1	-0.20		2	0	0	2	-0.10
295317330	Snap23	synaptosomal-associated protein 23 isoform b	0	4	4	8	0.69 #		0	1	0	1	0.91 #
21362303	Snap47	synaptosomal-associated protein 47	0	0	0	0			0	0	5	5	0.28
8394392	Syt5	synaptotagmin-5	0	0	0	0			0	1	0	1	10.07 #
6755438	Sdc1	syndecan-1 precursor	0	1	0	1	0.68 #		0	0	1	1	-0.29
6755442	Sdc4	syndecan-4 precursor	0	0	0	0			0	2	4	6	-0.09
268370185	Stx5a	syntaxin-5	1	1	5	7	-0.16		0	0	0	0	
31560462	Stx7	syntaxin-7	1	0	1	2	1.76 #		0	0	0	0	
6755690	Stxbp3a	syntaxin-binding protein 3	0	7	0	7	-0.03		0	0	0	0	
148277591	Sdcbp	syntenin-1 isoform 2	0	2	2	4	-0.13		0	0	0	0	
19527184	Taf5l	TAF5-like RNA polymerase II p300/CBP-associated factor-associated factor 65 kDa subunit 5L	1	9	1	11	0.12		0	0	0	0	
295317363	Taf6l	TAF6-like RNA polymerase II p300/CBP-associated factor-associated factor 65 kDa subunit 6L isoform 1	3	10	1	14	0.25		0	1	0	1	0.37
227116327	Tln1	talin-1	4	11	0	15	0.76 #		0	4	30	34	0.27
6678219	Tapbp	tapasin isoform 2	1	1	0	2	-0.61 #		1	0	0	1	0.89 #
190014629	Tprn	taperin	8	13	3	24	0.35		0	0	1	1	0.49 #
21704096	Tardbp	TAR DNA-binding protein 43 isoform 1	65	90	115	270	-0.10 *		293	259	265	817	-0.04
56682931	Tardbp	TAR DNA-binding protein 43 isoform 3	4	0	0	4	0.08		0	0	0	0	
56682935	Tardbp	TAR DNA-binding protein 43 isoform 5	61	72	91	224	-0.13 *		0	0	0	0	
21311839	Toe1	target of EGR1 protein 1	1	3	2	6	-0.14		0	0	1	1	-0.46 #
6680624	Acp5	tartrate-resistant acid phosphatase type 5 precursor	0	1	0	1	-0.11		0	0	0	0	
6755811	Tbpl1	TATA box-binding protein-like protein 1	0	1	0	1	-0.13		0	0	1	1	0.04
123858774	Btaf1	TATA-binding protein-associated factor 172	0	1	1	2	0.39		0	1	2	3	0.15
30794412	Taf15	TATA-binding protein-associated factor 2N	11	12	14	37	0.08		16	15	20	51	-0.06

172073171	Tbp	TATA-box-binding protein	8	8	6	22	-0.20 *	2	7	2	11	-0.16	
21313140	Tax1bp3	tax1-binding protein 3	4	2	2	8	-0.04	0	0	2	2	-0.60 #	
167614490	Tbc1d10b	TBC1 domain family member 10B	1	0	0	1	-0.54	0	0	0	0		
163644270	Tbc1d4	TBC1 domain family member 4	0	0	0	0		0	0	1	1	0.02	
7304953	Cd4	T-cell surface glycoprotein CD4 precursor	0	0	0	0		0	1	0	1	10.07 #	
13122606	Tfpt	TCF3 fusion partner homolog	0	0	1	1	0.41	0	0	0	0		
110625624	Tcp1	T-complex protein 1 subunit alpha	4	12	11	27	0.05	2	8	9	19	0.19	
126521835	Cct2	T-complex protein 1 subunit beta	14	10	33	57	-0.05	0	27	29	56	-0.01	
6753322	Cct4	T-complex protein 1 subunit delta	10	12	12	34	0.11	2	21	21	44	0.15	
6671702	Cct5	T-complex protein 1 subunit epsilon	11	10	13	34	-0.07	1	12	11	24	-0.05	
238814391	Cct7	T-complex protein 1 subunit eta	18	8	16	42	-0.02	1	11	14	26	-0.16 *	
6753320	Cct3	T-complex protein 1 subunit gamma	9	13	9	31	0.06	0	10	9	19	-0.07	
126723461	Cct8	T-complex protein 1 subunit theta	18	14	15	47	0.03	0	12	18	30	-0.08	
6753324	Cct6a	T-complex protein 1 subunit zeta	6	6	8	20	0.04	10	11	25	46	-0.07	
226693361	Cct6b	T-complex protein 1 subunit zeta-2	0	0	2	2	0.03	0	0	2	2	0.12	
146231944	Rif1	telomere-associated protein RIF1	90	72	89	251	0.05	3	19	4	26	0.49 #	
6678287	Terf1	telomeric repeat-binding factor 1	4	0	0	4	0.05	1	1	0	2	-0.07	
133904142	Terf2	telomeric repeat-binding factor 2 isoform 1	0	14	0	14	-0.09	0	0	0	0		
133904140	Terf2	telomeric repeat-binding factor 2 isoform 2	8	7	11	26	-0.20	1	5	5	11	-0.29	
160948575	Terf2ip	telomeric repeat-binding factor 2-interacting protein 1	11	16	8	35	-0.14 *	1	9	4	14	-0.23	
119372288	Tenc1	tensin-like C1 domain-containing phosphatase	0	0	1	1	2.71 #	0	0	0	0		
26892291	Tinf2	TERF1-interacting nuclear factor 2	0	1	0	1	-0.27	0	0	0	0		
46395466	Tes	testin	0	0	0	0		0	1	2	3	-0.19	
126090463	Tex264	testis expressed gene 264	1	0	0	1	-0.02	0	0	0	0		
124249335	Tex10	testis-expressed sequence 10 protein	11	7	8	26	0.30 *	1	8	4	13	0.36	
22122475	Tspan8	tetraspanin 8	10	3	11	24	-0.21 *	0	1	3	4	0.16	
22122345	Tspan14	tetraspanin-14	3	2	3	8	0.49	0	0	0	0		
22122703	Tspan33	tetraspanin-33	0	0	2	2	0.54	0	0	0	0		
124430551	Ttc17	tetratricopeptide repeat domain 17	0	1	0	1	3.65 #	0	0	0	0		
13385196	Ttc35	tetratricopeptide repeat protein 35	11	8	6	25	-0.39	9	4	7	20	-0.03	
110625776	Ttc9c	tetratricopeptide repeat protein 9C	0	1	0	1	0.05	0	0	0	0		
19526800	Ercc3	TFIIH basal transcription factor complex helicase XPB subunit	1	3	2	6	0.22	0	1	0	1	-0.47 #	
31542614	Ercc2	TFIIH basal transcription factor complex helicase XPD subunit	3	8	2	13	0.29	0	0	0	0		
6755911	Txn1	thioredoxin	5	2	4	11	0.00	3	1	2	6	0.42	
13384700	Txndc12	thioredoxin domain-containing protein 12 precursor	8	0	5	13	-0.41	0	0	0	0		
13386060	Txndc17	thioredoxin domain-containing protein 17	1	1	2	4	0.39	0	0	2	2	0.14	
13569841	Txnrd1	thioredoxin reductase 1, cytoplasmic isoform 2	3	0	1	4	0.06	0	0	1	1	0.19	
102468565	Txnrd2	thioredoxin reductase 2, mitochondrial precursor	0	0	1	1	-0.09	0	0	0	0		
9903609	Txn2	thioredoxin, mitochondrial precursor	1	0	0	1	0.22	0	0	0	0		
6680690	Prdx3	thioredoxin-dependent peroxide reductase, mitochondrial precursor	17	5	7	29	-0.17	0	0	0	0		
254553444	Txnip	thioredoxin-interacting protein isoform 2	2	0	1	3	-0.44	0	1	0	1	0.41	
13384656	Txnl4a	thioredoxin-like protein 4A isoform a	13	7	10	30	-0.13 *	0	0	0	0		
109255210	Txnl4a	thioredoxin-like protein 4A isoform b	0	0	0	0		3	2	2	7	0.07	
33859722	Tmx1	thioredoxin-related transmembrane protein 1 precursor	11	0	4	15	-0.44	7	0	1	8	-0.92 #	
112817607	Tmx4	thioredoxin-related transmembrane protein 4 precursor	11	19	24	54	-0.43	9	4	9	22	-0.11	
23956332	Thoc1	THO complex subunit 1	13	29	11	53	-0.01	0	0	2	2	0.03	
125656163	Thoc2	THO complex subunit 2	98	123	103	324	0.04	3	30	19	52	-0.06	
254553424	Thoc3	THO complex subunit 3	8	9	2	19	0.18	0	0	0	0		

6755763	Thoc4	THO complex subunit 4	66	69	49	184	-0.10		70	38	48	156	0.05	
27369587	Thoc5	THO complex subunit 5 homolog	14	23	13	50	0.00		0	4	4	8	-0.05	
56605680	Thoc6	THO complex subunit 6 homolog	31	38	25	94	0.06		1	5	1	7	-0.09	
13384834	Thoc7	THO complex subunit 7 homolog isoform 1	17	28	16	61	0.03		0	10	5	15	0.05	
227496421	Tasp1	threonine aspartase 1 isoform b	1	0	1	2	-0.11		0	0	0	0		
27229277	Tars	threonyl-tRNA synthetase, cytoplasmic	1	13	2	16	-0.02		0	0	2	2	-0.39	
254692865	Tars2	threonyl-tRNA synthetase, mitochondrial isoform 1	0	12	13	25	-0.07		0	0	0	0		
254692871	Tars2	threonyl-tRNA synthetase, mitochondrial isoform 3	10	0	0	10	-0.11		0	0	0	0		
254692873	Tars2	threonyl-tRNA synthetase, mitochondrial isoform 4	0	0	0	0			0	1	1	2	4.88	#
226958341	Tk1	thymidine kinase, cytosolic	0	0	0	0			0	1	2	3	-0.14	
157785665	Dtymk	thymidylate kinase isoform 1	0	0	0	0			0	0	2	2	0.25	
12963517	Dtymk	thymidylate kinase isoform 2	0	0	0	0			0	1	0	1	-0.58	#
21362343	Thyn1	thymocyte nuclear protein 1	9	8	5	22	-0.20		0	0	0	0		
226531227	Trip11	thyroid hormone receptor interactor 11	1	1	1	3	-3.46	#	0	0	0	0		
91932791	Trip12	thyroid hormone receptor interactor 12	105	151	81	337	0.03		41	127	140	308	-0.08	
68533246	Thrap3	thyroid hormone receptor-associated protein 3	41	62	49	152	-0.23		73	114	115	302	0.02	
254675277	Tjp1	tight junction protein ZO-1 isoform 1	0	29	0	29	0.37		0	0	0	0		
254675279	Tjp1	tight junction protein ZO-1 isoform 2	12	1	17	30	0.55		1	3	7	11	0.91	*,#
160333863	Tjp2	tight junction protein ZO-2 isoform 2	5	9	3	17	0.77	*,#	0	0	1	1	0.41	
114052811	Tjp3	tight junction protein ZO-3	2	2	4	8	0.51	*	1	9	18	28	0.58	*,#
21539617	Tlcd1	TLC domain-containing protein 1 precursor	2	0	0	2	-0.29		0	0	0	0		
114842403	Traf3	TNF receptor-associated factor 3 isoform b	0	1	0	1	3.53	#	0	0	0	0		
13591860	Tollip	toll-interacting protein	0	0	1	1	0.30		0	0	0	0		
84875526	Tom1l2	TOM1-like protein 2 isoform c	0	0	0	0			0	0	1	1	9.76	#
229608944	Tor1aip1	torsin-1A-interacting protein 1 isoform 2	17	17	26	60	-0.26		11	21	23	55	-0.14	
31559990	Tor1b	torsin-1B precursor	3	0	0	3	3.06	#	0	0	1	1	-0.21	
224809275	Tor3a	torsin-3A precursor	1	0	0	1	0.07		0	0	0	0		
166706895	Tox4	TOX high mobility group box family member 4	6	10	4	20	0.09		0	1	0	1	0.26	
31560052	Trp53rk	TP53-regulating kinase	0	0	0	0			0	0	1	1	-0.11	
281427253	Tprkb	TP53RK-binding protein	0	1	1	2	0.18		0	0	0	0		
88900517	Tpx2	TPX2, microtubule-associated protein homolog	0	2	2	4	0.16		0	0	0	0		
66730565	Trappc1	trafficking protein particle complex subunit 1	3	0	2	5	-0.58	#	0	0	0	0		
10946914	Trappc2l	trafficking protein particle complex subunit 2-like protein	1	0	0	1	0.00		0	0	0	0		
7304929	Trappc3	trafficking protein particle complex subunit 3	3	2	6	11	-0.15		0	0	0	0		
11140825	Trappc4	trafficking protein particle complex subunit 4	0	0	2	2	-0.71	#	0	0	0	0		
157266281	Trappc5	trafficking protein particle complex subunit 5	0	1	0	1	-0.15		0	0	0	0		
58037519	Trappc6b	trafficking protein particle complex subunit 6B	2	0	0	2	-0.30		0	0	0	0		
226342960	Tecr	trans-2,3-enoyl-CoA reductase isoform 2	10	15	9	34	-0.36	*	23	13	10	46	-0.25	*
227116358	Mecr	trans-2-enoyl-CoA reductase, mitochondrial precursor	12	9	10	31	-0.15		0	0	0	0		
6679951	Gata3	trans-acting T-cell-specific transcription factor GATA-3	2	7	1	10	-0.27	*	14	32	41	87	0.01	
33859640	Taldo1	transaldolase	3	1	2	6	0.03		0	0	0	0		
291463271	Smarca4	transcription activator BRG1 isoform 3	165	195	147	507	0.24		65	208	146	419	0.13	*
25140989	Elof1	transcription elongation factor 1 homolog	4	2	3	9	0.00		0	0	0	0		

6755728	Tcea1	transcription elongation factor A protein 1 isoform 2	26	0	0	26	-0.19		0	0	0	0	
229094709	Tcea1	transcription elongation factor A protein 1 isoform 3	0	22	13	35	0.21		0	5	3	8	0.42
149249090	LOC100045866	transcription elongation factor B polypeptide 1-like	9	8	6	23	0.11		3	2	2	7	-0.07
13385800	Tceb2	transcription elongation factor B polypeptide 2	6	5	4	15	0.16 *		0	0	0	0	
6678181	Supt4h1	transcription elongation factor SPT4 1	8	4	5	17	0.01		2	0	0	2	1.02 #
22094123	Supt5h	transcription elongation factor SPT5	49	68	38	155	0.06 *		3	41	49	93	0.03
166091434	Supt6h	transcription elongation factor SPT6	60	76	54	190	0.10		18	100	175	293	0.09
134053922	1110002N22Rik	transcription elongation factor, mitochondrial	8	11	8	27	-0.04		0	0	0	0	
87196334	Tcerg1	transcription elongation regulator 1	50	60	53	163	0.22		0	8	0	8	0.58 #
166706889	Tcf20	transcription factor 20 isoform b	0	0	0	0			0	4	11	15	0.24
218931186	Tcf712	transcription factor 7-like 2 isoform 4	0	1	1	2	-0.30		0	0	1	1	0.03
6678303	Tfam	transcription factor A, mitochondrial precursor	28	44	28	100	-0.08		4	15	14	33	-0.01
31981462	Tcfap2a	transcription factor AP-2-alpha isoform a	0	20	0	20	-0.20		0	5	0	5	0.00
171846238	Tcfap2a	transcription factor AP-2-alpha isoform b	12	0	8	20	-0.21		6	11	12	29	-0.35 *
23346597	Tcfap2d	transcription factor AP-2-delta	0	1	0	1	-0.65 #		0	1	1	2	-0.70 #
13626034	Tcfap4	transcription factor AP-4	1	0	0	1	2.12 #		0	1	0	1	-1.35 #
29789195	Btf3l4	transcription factor BTF3 homolog 4	2	2	3	7	-0.20		0	0	0	0	
281485611	Btf3	transcription factor BTF3 isoform 2	6	13	11	30	-0.17		0	0	0	0	
134053939	Tcfcp2l1	transcription factor CP2-like protein 1	17	15	8	40	-0.33		0	14	7	21	-0.03
6678305	Tfdp1	transcription factor Dp-1	2	4	1	7	0.49 *		0	0	0	0	
6680512	Junb	transcription factor jun-B	2	1	1	4	1.86 * #		0	0	1	1	3.21 #
6754404	Jund	transcription factor jun-D	8	6	4	18	0.10		0	1	1	2	1.68 #
6754608	Maff	transcription factor MafF	1	1	2	4	0.48 *		0	0	0	0	
6754610	Mafg	transcription factor MafG	2	2	0	4	0.03		0	2	4	6	-0.15
6754612	Mafk	transcription factor MafK	1	0	0	1	0.88 #		0	1	1	2	0.44
34328189	Rfx3	transcription factor RFX3	0	4	0	4	-0.28		0	0	0	0	
56118239	Sox4	transcription factor SOX-4	1	6	5	12	-0.27 *		1	0	3	4	0.30
119226255	Sp1	transcription factor Sp1	3	2	2	7	0.29 *		0	1	0	1	0.02
125625320	Sp2	transcription factor Sp2 isoform 2	1	0	0	1	0.28		0	0	0	0	
148536867	Sp3	transcription factor Sp3 isoform 2	6	5	1	12	0.03		0	0	0	0	
149262290	LOC100046289	transcription initiation factor IIA subunit 2-like	0	1	0	1	0.24		0	0	0	0	
21704076	Gtf2b	transcription initiation factor IIB	20	20	12	52	-0.06		0	0	4	4	0.11
124486596	Taf1	transcription initiation factor TFIID subunit 1	1	8	6	15	0.55		0	0	0	0	
46518499	Taf10	transcription initiation factor TFIID subunit 10	5	5	7	17	0.42		0	1	1	2	0.08
30794436	Taf11	transcription initiation factor TFIID subunit 11	8	11	4	23	0.12		0	0	0	0	
227330588	Taf12	transcription initiation factor TFIID subunit 12	0	1	0	1	0.08		0	0	0	0	
20270192	Taf13	transcription initiation factor TFIID subunit 13	2	1	0	3	-0.09		0	0	0	0	
124486849	Taf2	transcription initiation factor TFIID subunit 2	13	13	9	35	0.38		0	0	0	0	
262231748	Taf3	transcription initiation factor TFIID subunit 3	0	1	0	1	-1.22 #		0	0	0	0	
124487354	Taf4a	transcription initiation factor TFIID subunit 4	5	11	10	26	0.33		0	0	0	0	
110665722	Taf5	transcription initiation factor TFIID subunit 5	3	13	3	19	0.30		0	2	0	2	0.23
6678215	Taf6	transcription initiation factor TFIID subunit 6	3	21	10	34	-0.39		0	0	0	0	



28461141	Taf7	transcription initiation factor TFIID subunit 7 isoform 1	1	2	0	3	0.09		0	0	0	0	
11528498	Taf8	transcription initiation factor TFIID subunit 8	1	5	2	8	0.20		0	0	0	0	
30520009	Supt3h	transcription initiation protein SPT3 homolog	1	7	6	14	0.28 *		0	2	0	2	0.51 #
94420998	Trim24	transcription intermediary factor 1-alpha	0	0	0	0			0	0	1	1	0.05
170295840	Trim28	transcription intermediary factor 1-beta	98	76	76	250	0.25 *		148	189	207	544	0.11
111154070	Ttf1	transcription termination factor 1	0	0	0	0			0	4	7	11	0.16
6679573	Pura	transcriptional activator protein Pur-alpha	5	5	9	19	-0.08		0	1	1	2	-0.04
6755252	Purb	transcriptional activator protein Pur-beta	12	10	12	34	-0.09 *		1	4	6	11	-0.05
21313610	Tada1	transcriptional adapter 1	1	1	3	5	0.31		0	0	0	0	
27369796	Tada2a	transcriptional adapter 2-alpha	0	2	0	2	-0.14		0	0	0	0	
20149314	Tada3	transcriptional adapter 3	4	10	4	18	0.20		0	1	0	1	-1.04 #
298676444	Tada2b	transcriptional adaptor 2B	1	0	1	2	0.24		0	0	0	0	
262205252	Tead1	transcriptional enhancer factor TEF-1 isoform 3	1	4	2	7	0.08		0	3	0	3	-0.03
148352316	Tead4	transcriptional enhancer factor TEF-3 isoform b	0	0	0	0			0	1	0	1	-0.29
196049389	Tead3	transcriptional enhancer factor TEF-5 isoform 2	7	8	0	15	-0.02		0	2	0	2	0.62 #
154091016	Atrx	transcriptional regulator ATRX	0	2	2	4	0.14		40	70	103	213	0.07
118442832	Zbtb33	transcriptional regulator Kaiso	0	1	0	1	0.23		0	0	0	0	
31044459	Ctcf	transcriptional repressor CTCF	36	37	26	99	0.13		74	150	119	343	-0.11 *
164519132	Gatad2a	transcriptional repressor p66 alpha isoform b	17	25	17	59	0.21		10	25	10	45	0.34
21314854	Gatad2b	transcriptional repressor p66-beta	16	21	19	56	0.40		11	23	5	39	0.46 *,#
31982421	Yy1	transcriptional repressor protein YY1	6	7	1	14	0.08		0	0	0	0	
31543845	Tbl2	transducin beta-like protein 2	5	3	1	9	-0.41 *		0	1	0	1	-0.35
30102935	Tbl3	transducin beta-like protein 3	3	7	7	17	-0.01		34	90	141	265	-0.05
124486949	Trrap	transformation/transcription domain-associated protein	196	374	167	737	0.26 *		5	124	144	273	0.25 *
111160869	Tra2a	transformer-2 protein homolog alpha	6	6	6	18	-0.03		34	26	25	85	-0.07
6677975	Tra2b	transformer-2 protein homolog beta	16	22	15	53	-0.05		116	67	62	245	-0.10
31542143	Rhoa	transforming protein RhoA precursor	14	7	6	27	-0.08		5	5	10	20	-0.06
30519911	Tagln2	transgelin-2	28	26	24	78	0.07		4	1	13	18	0.61 #
225543319	Vcp	transitional endoplasmic reticulum ATPase	16	11	13	40	-0.15 *		7	7	17	31	-0.04
6678359	Tkt	transketolase	18	20	17	55	-0.01		43	47	92	182	0.02
148287022	Tktl2	transketolase-like protein 2	0	2	2	4	0.53		0	0	2	2	0.19
21703744	Eif2b1	translation initiation factor eIF-2B subunit alpha	0	0	0	0			0	0	2	2	0.17
110625866	Mtif2	translation initiation factor IF-2, mitochondrial precursor	1	3	4	8	-0.07		0	0	1	1	-0.21
21313176	Mtif3	translation initiation factor IF-3, mitochondrial precursor	1	0	1	2	-1.48 #		0	0	0	0	
6678437	Tpt1	translationally-controlled tumor protein	13	20	16	49	0.01		2	7	12	21	0.27
6755899	Tsn	translin	3	2	0	5	0.24		0	1	0	1	0.30
30794386	Tram1	translocating chain-associated membrane protein 1	3	0	0	3	-0.04		3	1	2	6	-0.64 #
39930429	Sec62	translocation protein SEC62	2	2	2	6	-0.25		3	2	2	7	-0.24 *
158937300	Sec63	translocation protein SEC63 homolog	1	1	2	4	-0.13		0	0	0	0	
165377206	Ssr1	translocon-associated protein subunit alpha precursor	6	5	4	15	-0.59 #		21	5	4	30	-0.23 *
6678145	Ssr4	translocon-associated protein subunit delta isoform 2 precursor	8	18	8	34	-0.34 *		22	8	7	37	-0.29 *
21312968	Ssr3	translocon-associated protein subunit gamma	4	3	4	11	-0.32		12	4	4	20	-0.26 *
87116677	Tmco1	transmembrane and coiled-coil domain-containing protein 1	1	6	0	7	-0.44		0	3	4	7	-0.30

254939557	1110021J02Rik	transmembrane and coiled-coil domain-containing protein C6orf129 homolog isoform 2	2	0	2	4	-0.38	0	0	0	0	
85362703	Tmed1	transmembrane emp24 domain-containing protein 1 precursor	1	0	0	1	-1.27 #	0	0	0	0	
21312062	Tmed10	transmembrane emp24 domain-containing protein 10 precursor	21	19	18	58	-0.43	44	9	24	77	-0.27 *
149259896	Gm10698	transmembrane emp24 domain-containing protein 2-like	14	6	6	26	-0.34	10	6	7	23	-0.06
19527236	Tmed4	transmembrane emp24 domain-containing protein 4 precursor	4	0	5	9	-0.32	0	0	5	5	-0.20
21746165	Tmed5	transmembrane emp24 domain-containing protein 5 precursor	2	2	3	7	-0.35 *	5	2	3	10	-0.32
145966911	Tmed9	transmembrane emp24 domain-containing protein 9 precursor	7	7	6	20	-0.59 *,#	13	7	6	26	-0.18
255003819	Tmed7	transmembrane emp24 protein transport domain containing 7	0	0	0	0		0	1	1	2	-0.28
41235747	Tmem106c	transmembrane protein 106C	0	0	1	1	0.02	0	0	0	0	
19527378	Tmem109	transmembrane protein 109 precursor	6	2	4	12	-0.30 *	9	1	3	13	-0.15
28827824	Tmem111	transmembrane protein 111	7	5	5	17	-0.31	5	4	2	11	-0.17
120952692	Tmem147	transmembrane protein 147	2	0	0	2	-0.41	0	0	0	0	
13384766	Tmem14c	transmembrane protein 14C	6	1	3	10	-0.33	11	0	1	12	0.13
160333150	Tmem188	transmembrane protein 188	1	1	2	4	-0.28 *	0	0	0	0	
19526846	Tmem19	transmembrane protein 19	2	0	0	2	-0.27	0	0	0	0	
68342040	Tmem201	transmembrane protein 201 isoform b	0	0	0	0		8	8	10	26	0.03
31982159	Tmem205	transmembrane protein 205	2	3	2	7	-0.29	4	3	2	9	-0.19
13384906	Tmem208	transmembrane protein 208	1	0	2	3	0.03	0	0	0	0	
40254356	Tmem209	transmembrane protein 209	5	0	1	6	0.22	0	17	11	28	0.05
31559970	Tmem214	transmembrane protein 214	18	14	5	37	-0.04	0	2	0	2	-0.23
68533251	Tmem33	transmembrane protein 33 isoform 2	5	5	3	13	-0.18	2	2	3	7	-0.22
21311891	Tmem43	transmembrane protein 43	0	1	0	1	-0.36	15	20	23	58	-0.26 *
13386014	Tmem85	transmembrane protein 85	3	4	2	9	-0.42	1	3	2	6	-0.59 *,#
13384684	Tmem93	transmembrane protein 93	0	1	0	1	-0.61 #	0	0	0	0	
19526880	Tmem97	transmembrane protein 97	1	0	0	1	-0.19	0	0	0	0	
224967102	2010011I20Rik	transmembrane protein C20orf108 homolog	1	0	0	1	-0.40	0	0	0	0	
188497646	4930471M23Rik	transmembrane protein C2orf18 homolog precursor	0	0	0	0		0	0	1	1	-0.09
21312800	5033414D02Rik	transmembrane protein C9orf46 homolog	0	1	0	1	0.56	0	0	0	0	
115385966	Tnpo1	transportin-1 isoform 2	0	0	0	0		0	1	3	4	-0.66 #
54312056	Tnpo3	transportin-3	0	2	1	3	0.45	0	2	2	4	-0.05
6755742	Tcof1	treacle protein isoform 2	53	68	38	159	0.07	3	8	15	26	0.12
10946884	Treh	trehalase precursor	0	0	2	2	0.45	0	0	1	1	0.29
33859811	Hadha	trifunctional enzyme subunit alpha, mitochondrial precursor	52	57	48	157	-0.06	65	43	42	150	-0.05
21704100	Hadhb	trifunctional enzyme subunit beta, mitochondrial precursor	24	26	21	71	-0.19	3	7	8	18	-0.23
93102415	Gart	trifunctional purine biosynthetic protein adenosine-3	0	0	0	0		0	1	9	10	-0.36
88501745	Triobp	TRIO and F-actin-binding protein isoform 1	5	12	1	18	0.48	0	0	0	0	
226958349	Tpi1	triosephosphate isomerase	41	47	73	161	-0.12	396	196	414	1006	-0.18
6753448	Tpp1	tripeptidyl-peptidase 1 precursor	2	5	7	14	0.15	1	3	7	11	0.13
6678419	Tpp2	tripeptidyl-peptidase 2	0	0	4	4	0.09	0	0	0	0	
295054316	Nsun2	tRNA (cytosine-5-)-methyltransferase NSUN2	12	19	11	42	0.13	0	4	10	14	-0.12
224994263	Trpt1	tRNA 2'-phosphotransferase 1	1	2	0	3	-0.05	0	0	0	0	
309265174	LOC100503161	tRNA methyltransferase 112 homolog	6	2	2	10	0.01	0	3	0	3	-0.69 #
70906472	Pus1	tRNA pseudouridine synthase A, mitochondrial isoform 3	0	0	0	0		0	1	0	1	-0.73 #

241896974	Pusl1	tRNA pseudouridine synthase-like 1	1	0	0	1	-0.14	0	0	0	0		
255003775	Dus3l	tRNA-dihydrouridine synthase 3-like	0	3	1	4	0.23	0	0	0	0		
228008361	Tsen15	tRNA-splicing endonuclease subunit Sen15	0	1	0	1	-0.09	0	0	0	0		
255958183	Tsen34	tRNA-splicing endonuclease subunit Sen34 isoform a	0	0	0	0		0	0	1	1	-0.20	
255958185	Tsen34	tRNA-splicing endonuclease subunit Sen34 isoform b	0	0	0	0		0	0	2	2	0.20	
21703842	D10Wsu52e	tRNA-splicing ligase RtcB homolog	19	21	21	61	-0.06	3	5	8	16	-0.11	
8394460	Tmod3	tropomodulin-3	13	18	16	47	0.24	3	18	14	35	0.30 *	
256000796	Tpm1	tropomyosin alpha-1 chain isoform 10	0	0	0	0		2	0	0	2	0.11	
256000784	Tpm1	tropomyosin alpha-1 chain isoform 4	6	6	9	21	-0.12	0	0	0	0		
256000788	Tpm1	tropomyosin alpha-1 chain isoform 6	0	0	0	0		0	1	0	1	0.11	
256000790	Tpm1	tropomyosin alpha-1 chain isoform 7	12	11	6	29	-0.04	0	0	0	0		
40254525	Tpm3	tropomyosin alpha-3 chain	7	19	10	36	-0.02	0	3	3	6	-0.22	
47894398	Tpm4	tropomyosin alpha-4 chain	14	10	8	32	-0.08	0	1	2	3	-0.22	
11875203	Tpm2	tropomyosin beta chain	0	6	0	6	0.19	0	0	0	0		
84781771	Try10	trypsin 10	0	0	0	0		43	36	14	93	-2.52 #	
224809300	Tubal3	tubulin alpha chain-like 3	0	0	0	0		0	4	2	6	-0.29	
6755901	Tuba1a	tubulin alpha-1A chain	5	0	0	5	0.64 #	99	39	388	526	-0.06	
34740335	Tuba1b	tubulin alpha-1B chain	15	0	26	41	0.27	160	276	536	972	-0.13	
82930689	Gm5620	tubulin alpha-1B chain isoform 4	0	13	0	13	0.18	0	0	0	0		
6678469	Tuba1c	tubulin alpha-1C chain	6	0	0	6	0.81 #	116	36	480	632	-0.10	
6678467	Tuba4a	tubulin alpha-4A chain	12	0	0	12	0.79 #	0	48	306	354	-0.30	
33859488	Tubb2a	tubulin beta-2A chain	0	0	0	0		0	38	135	173	-0.22	
21746161	Tubb2b	tubulin beta-2B chain	7	0	0	7	0.68 #	63	37	121	221	-0.04	
22165384	Tubb2c	tubulin beta-2C chain	14	7	18	39	0.32	58	80	325	463	-0.04	
12963615	Tubb3	tubulin beta-3 chain	5	7	0	12	0.40	36	25	178	239	-0.11	
31981939	Tubb4	tubulin beta-4 chain	9	0	15	24	0.22	49	67	298	414	-0.03	
7106439	Tubb5	tubulin beta-5 chain	13	11	20	44	0.25	117	131	462	710	-0.02	
27754056	Tubb6	tubulin beta-6 chain	0	2	0	2	0.28	21	30	159	210	-0.02	
19527242	Tubg1	tubulin gamma-1 chain	0	1	0	1	0.03	0	0	0	0		
269954711	Ttl12	tubulin--tyrosine ligase-like protein 12	0	0	0	0		0	0	1	1	-1.27 #	
10190660	Tfip11	tuftelin-interacting protein 11	3	3	7	13	0.22 *	0	3	2	5	0.16	
295444883	Tnfaip8	tumor necrosis factor alpha-induced protein 8 isoform 3	0	0	1	1	-0.22	0	0	0	0		
75677522	Tradd	tumor necrosis factor receptor type 1-associated DEATH domain protein	0	0	0	0		0	0	1	1	-0.43	
6678407	Tpd52	tumor protein D52 isoform 5	4	1	1	6	-0.06	0	0	0	0		
6678409	Tpd52l1	tumor protein D53	1	0	0	1	-6.15 #	0	0	0	0		
124248487	Tusc3	tumor suppressor candidate 3	4	8	2	14	-0.17	0	3	1	4	-0.26	
160333077	Trp53bp1	tumor suppressor p53-binding protein 1	170	347	172	689	0.27	5	27	6	38	-0.13 *	
31560359	Tacstd2	tumor-associated calcium signal transducer 2 precursor	1	0	1	2	0.45	0	0	0	0		
62990169	Twf1	twinfilin-1	9	5	4	18	-0.07	0	0	4	4	-0.34	
6755224	Twf2	twinfilin-2	3	1	0	4	0.50	0	0	0	0		
170295818	Baz1b	tyrosine-protein kinase BAZ1B	82	85	38	205	0.03	197	376	541	1114	-0.14 *	
31560712	Csk	tyrosine-protein kinase CSK	0	1	0	1	0.17	0	0	0	0		
111607496	Jak1	tyrosine-protein kinase JAK1	0	0	0	0		0	0	1	1	-0.03	
7106355	Mertk	tyrosine-protein kinase Mer precursor	0	0	0	0		0	0	1	1	-10.24 #	
133505845	Ptpn1	tyrosine-protein phosphatase non-receptor type 1	0	0	0	0		1	0	0	1	0.16	
134948762	Ptpn13	tyrosine-protein phosphatase non-receptor type 13	1	2	0	3	0.14	0	0	1	1	0.07	
118130771	Ptpn6	tyrosine-protein phosphatase non-receptor type 6 isoform a	3	6	0	9	0.41	0	1	0	1	0.27	
61098100	Ptpn9	tyrosine-protein phosphatase non-receptor type 9	1	0	1	2	-0.44 *	0	0	0	0		

162417986	Tdp1	tyrosyl-DNA phosphodiesterase 1	1	0	1	2	-0.04		0	0	0	0	
165377181	Yars	tyrosyl-tRNA synthetase, cytoplasmic	2	2	2	6	-0.05		0	0	0	0	
39930579	Yars2	tyrosyl-tRNA synthetase, mitochondrial precursor	0	2	3	5	0.50		0	2	1	3	0.05
67846113	Snrnp70	U1 small nuclear ribonucleoprotein 70 kDa	13	27	12	52	-0.04		18	9	13	40	0.01
114052106	Snrpa	U1 small nuclear ribonucleoprotein A	49	51	44	144	0.03		40	25	28	93	0.13
6755596	Snrpc	U1 small nuclear ribonucleoprotein C	13	23	14	50	-0.03		10	8	8	26	-0.02
262118251	Snrnp25	U11/U12 small nuclear ribonucleoprotein 25 kDa protein	0	1	0	1	0.39		0	0	0	0	
21624627	Snrnp35	U11/U12 small nuclear ribonucleoprotein 35 kDa protein	1	1	0	2	-0.12		0	1	1	2	0.07
228480232	Snrpa1	U2 small nuclear ribonucleoprotein A'	35	35	41	111	0.05 *		48	39	30	117	0.09
23956110	Snrpb2	U2 small nuclear ribonucleoprotein B''	16	19	13	48	-0.02		23	13	9	45	-0.06
171460910	2610101N10Rik	U2 snRNP-associated SURP motif-containing protein 1	0	0	31	31	0.10		0	0	0	0	
171460908	2610101N10Rik	U2 snRNP-associated SURP motif-containing protein 2	19	47	0	66	0.13		14	53	46	113	0.33
19527196	Imp3	U3 small nucleolar ribonucleoprotein protein IMP3	5	8	1	14	-0.27		29	10	14	53	0.02
190684705	Imp4	U3 small nucleolar ribonucleoprotein protein IMP4	1	0	1	2	-0.64 #		5	9	10	24	0.02
68303650	Mphosph10	U3 small nucleolar ribonucleoprotein protein MPP10	0	2	1	3	-0.13		14	25	25	64	0.06
51889716	Utp14a	U3 small nucleolar RNA-associated protein 14 homolog A	0	2	0	2	-1.37 #		1	14	20	35	0.09
75992943	Utp14b	U3 small nucleolar RNA-associated protein 14 homolog B	0	0	0	0			0	0	2	2	0.24
30725776	Utp15	U3 small nucleolar RNA-associated protein 15 homolog	2	2	5	9	-0.16		19	39	37	95	0.01
61656180	Utp18	U3 small nucleolar RNA-associated protein 18 homolog	1	5	4	10	-0.29		31	33	32	96	0.01
21450209	Utp6	U3 small nucleolar RNA-associated protein 6 homolog	3	6	0	9	-0.40		9	16	18	43	0.03
21704248	Rrp9	U3 small nucleolar RNA-interacting protein 2	10	3	8	21	-0.16		14	35	29	78	0.03
31980657	Prpf3	U4/U6 small nuclear ribonucleoprotein Prp3	25	39	27	91	-0.07		6	11	13	30	0.02
228480236	Prpf31	U4/U6 small nuclear ribonucleoprotein Prp31 isoform 1	19	0	28	47	-0.01		0	0	0	0	
228480238	Prpf31	U4/U6 small nuclear ribonucleoprotein Prp31 isoform 2	7	18	4	29	0.06		4	17	11	32	-0.17 *
55925589	Prpf4	U4/U6 small nuclear ribonucleoprotein Prp4	28	28	28	84	-0.04		10	17	17	44	-0.09
27228990	Snrnp27	U4/U6.U5 small nuclear ribonucleoprotein 27 kDa protein	8	17	9	34	0.00		0	5	3	8	0.02
124244096	Sart1	U4/U6.U5 tri-snRNP-associated protein 1	67	71	60	198	-0.03		14	48	50	112	0.02
20070404	Usp39	U4/U6.U5 tri-snRNP-associated protein 2	26	44	31	101	-0.01		11	19	15	45	-0.16
40018610	Snrnp200	U5 small nuclear ribonucleoprotein 200 kDa helicase	295	385	307	987	-0.05		434	876	###	2388	-0.01
115298670	Snrnp40	U5 small nuclear ribonucleoprotein 40 kDa protein	38	43	31	112	0.01		41	49	41	131	0.03
110625667	Lsm1	U6 snRNA-associated Sm-like protein LSm1	1	0	2	3	0.08		0	0	0	0	
158533995	Lsm2	U6 snRNA-associated Sm-like protein LSm2 isoform 2	31	33	30	94	0.03		19	2	8	29	0.14
13385806	Lsm3	U6 snRNA-associated Sm-like protein LSm3	2	2	0	4	0.03		0	0	1	1	0.21
159032056	Lsm4	U6 snRNA-associated Sm-like protein LSm4	21	25	17	63	-0.01		6	7	1	14	-0.01

113865835	Lsm6	U6 snRNA-associated Sm-like protein LSM6	2	3	4	9	-0.07	2	0	1	3	-0.14
13384714	Lsm7	U6 snRNA-associated Sm-like protein LSM7	7	0	0	7	0.11	0	0	0	0	
31541947	Fytd1	UAP56-interacting factor isoform 1	0	0	7	7	0.13	0	17	21	38	0.14
226823218	Fytd1	UAP56-interacting factor isoform 2	3	4	0	7	0.25	17	0	0	17	-0.06
125490373	Gm10035	UbiE3 protein	0	0	0	0		0	1	0	1	0.60 #
71534247	Ubn1	ubinnuclein-1	0	1	1	2	-0.05	0	0	0	0	
34328236	Ubqln2	ubiquilin-2	0	0	2	2	0.50	0	0	0	0	
15805016	Ubqln4	ubiquilin-4	0	0	5	5	0.53	0	0	0	0	
213512915	Uqcc	ubiquinol-cytochrome c reductase complex chaperone CBP3 homolog	14	18	14	46	-0.01	1	7	6	14	-0.14
33859690	Coq9	ubiquinone biosynthesis protein COQ9, mitochondrial precursor	2	0	0	2	-0.37	0	0	0	0	
34328057	Usp12	ubiquitin carboxyl-terminal hydrolase 12	2	0	0	2	-1.28 #	0	0	0	0	
84452155	Usp14	ubiquitin carboxyl-terminal hydrolase 14 isoform 2	0	0	0	0		0	0	1	1	0.06
270265851	Usp19	ubiquitin carboxyl-terminal hydrolase 19 isoform 5	0	1	1	2	0.23	0	0	0	0	
21450103	Usp3	ubiquitin carboxyl-terminal hydrolase 3	19	18	16	53	-0.03	0	19	13	32	-0.20
85986575	Usp30	ubiquitin carboxyl-terminal hydrolase 30	0	0	0	0		1	0	0	1	-10.02 #
29243896	Usp46	ubiquitin carboxyl-terminal hydrolase 46	0	3	2	5	-0.01	0	0	0	0	
114053325	Usp48	ubiquitin carboxyl-terminal hydrolase 48	2	2	1	5	0.22	0	0	0	0	
7305619	Usp5	ubiquitin carboxyl-terminal hydrolase 5	0	0	0	0		0	0	6	6	0.02
154146209	Usp7	ubiquitin carboxyl-terminal hydrolase 7	21	25	27	73	0.16	0	11	10	21	0.19
28076917	Bap1	ubiquitin carboxyl-terminal hydrolase BAP1	0	1	0	1	1.05 #	0	0	0	0	
139948802	Uchl3	ubiquitin carboxyl-terminal hydrolase isozyme L3	0	0	0	0		0	10	16	26	-0.24
229577281	Uchl5	ubiquitin carboxyl-terminal hydrolase isozyme L5 isoform 1	0	7	0	7	-0.10	0	0	0	0	
229577283	Uchl5	ubiquitin carboxyl-terminal hydrolase isozyme L5 isoform 2	9	7	8	24	0.32	0	3	2	5	-0.05
21703984	Ubd1	ubiquitin domain-containing protein 1	0	0	0	0		0	1	0	1	-0.05
257153392	Ufd11	ubiquitin fusion degradation protein 1 homolog	2	2	0	4	0.00	0	0	0	0	
226442882	Usp36	ubiquitin specific peptidase 36	0	0	1	1	0.68 #	0	2	13	15	0.29
19527388	Otub1	ubiquitin thioesterase OTUB1	0	0	2	2	-0.32	12	23	45	80	-0.06
13195690	Rps27a	ubiquitin-40S ribosomal protein S27a	10	24	18	52	-0.23	87	54	41	182	-0.11
90568036	Ubac2	ubiquitin-associated domain-containing protein 2 precursor	1	1	0	2	-0.31	0	0	0	0	
260166715	Ubab2l	ubiquitin-associated protein 2-like isoform 6	1	1	1	3	-0.32	0	0	0	0	
9790041	Ube2a	ubiquitin-conjugating enzyme E2 A	1	3	2	6	-2.27 #	0	0	0	0	
9910600	Ube2d2	ubiquitin-conjugating enzyme E2 D2	10	0	0	10	-0.11	0	0	0	0	
13384718	Ube2d3	ubiquitin-conjugating enzyme E2 D3	0	5	8	13	0.11	3	0	1	4	0.19
6678479	Ube2e1	ubiquitin-conjugating enzyme E2 E1	0	3	2	5	-0.13	0	0	0	0	
21450233	Ube2e2	ubiquitin-conjugating enzyme E2 E2	3	1	3	7	0.24	0	0	1	1	-0.12
6678477	Ube2e3	ubiquitin-conjugating enzyme E2 E3	2	3	0	5	0.11	0	0	0	0	
27754105	Ube2g1	ubiquitin-conjugating enzyme E2 G1	0	0	0	0		0	0	2	2	0.15
20806111	Ube2g2	ubiquitin-conjugating enzyme E2 G2	4	2	1	7	-0.26	0	0	0	0	
281332142	Ube2h	ubiquitin-conjugating enzyme E2 H isoform 2	0	0	0	0		0	0	1	1	-0.52 #
31542956	Ube2k	ubiquitin-conjugating enzyme E2 K	0	0	1	1	-0.30	0	4	1	5	0.01
6678481	Ube2l3	ubiquitin-conjugating enzyme E2 L3	0	0	7	7	-0.16	0	0	0	0	
309262120	Gm10145	ubiquitin-conjugating enzyme E2 L3-like	6	3	0	9	0.32	0	0	0	0	
18017605	Ube2n	ubiquitin-conjugating enzyme E2 N	8	7	7	22	-0.02	20	2	9	31	-0.24
19527004	Ube2s	ubiquitin-conjugating enzyme E2 S	2	1	0	3	0.16	0	0	0	0	
42741690	Ube2v1	ubiquitin-conjugating enzyme E2 variant 1	6	4	7	17	0.06	3	8	10	21	0.04

31543918	Ube2v2	ubiquitin-conjugating enzyme E2 variant 2 isoform 1	0	4	7	11	0.11	0	0	0	0			
13385932	Ufm1	ubiquitin-fold modifier 1 precursor	0	2	1	3	-0.09	0	0	0	0			
6678483	Uba1	ubiquitin-like modifier-activating enzyme 1 isoform 1	0	0	0	0		0	6	40	46	-0.54	#	
6755925	Ubl3	ubiquitin-like protein 3 precursor	0	0	1	1	0.12	0	0	0	0			
21703810	Ubl4	ubiquitin-like protein 4A	2	0	4	6	0.03	0	0	0	0			
13384784	Ubl5	ubiquitin-like protein 5	7	10	14	31	-0.01	3	1	7	11	-0.01		
149268096	Gm9843	ubiquitin-like protein FUBI-like	2	1	1	4	0.17	0	0	1	1	-0.28		
149260017	Gm7866	ubiquitin-like protein ISG15-like	0	5	5	10	3.76	#	0	16	24	40	-1.66	#
309266537	Gm7866	ubiquitin-like protein ISG15-like	10	7	0	17	-1.20	#	28	0	0	28	-6.81	#
85861252	Ubxn4	UBX domain-containing protein 4	7	7	9	23	-0.01	1	5	4	10	0.09		
236466498	Uggt1	UDP-glucose:glycoprotein glucosyltransferase 1 precursor	37	2	7	46	-0.20	0	1	9	10	-0.01		
13195608	Alg14	UDP-N-acetylglucosamine transferase subunit ALG14 homolog	1	0	1	2	-0.24	0	0	0	0			
46909607	Ogt	UDP-N-acetylglucosamine--peptide N-acetylglucosaminyltransferase 110 kDa subunit	3	8	12	23	0.30	0	0	0	0			
20149754	Ufsp2	ufm1-specific protease 2	1	3	4	8	-0.27	0	0	0	0			
165377065	Cmpk1	UMP-CMP kinase	0	1	1	2	0.25	0	4	4	8	-0.16		
149272574	LOC100039181	uncharacterized protein C4orf3 homolog	9	2	2	13	-0.35	*	1	0	0	1	-0.22	
309264842	Gm4540	uncharacterized protein C8orf59 homolog	0	1	0	1	-0.06		0	0	0	0		
82918901	2210011C24Rik	uncharacterized protein LOC113230 isoform 3	14	18	11	43	0.06		0	7	4	11	-0.23	
71274162	Urb2	unhealthy ribosome biogenesis protein 2 homolog	6	11	14	31	0.02		0	10	2	12	-0.06	
149251573	Gm10704	UPF0568 protein C14orf166 homolog	0	0	0	0			2	0	0	2	-0.18	
309265053	LOC100504912	up-regulated during skeletal muscle growth protein 5-like	3	0	1	4	-0.34	*	3	0	1	4	0.06	
6678521	Usf1	upstream stimulatory factor 1	9	5	4	18	-0.15		0	0	0	0		
309265861	LOC100504922	upstream stimulatory factor 2-like	0	6	3	9	0.23		0	0	0	0		
7305605	Ubp1	upstream-binding protein 1 isoform b	9	13	6	28	0.01		0	2	0	2	0.00	
101943421	Ung	uracil-DNA glycosylase isoform b	1	1	1	3	0.33		0	2	1	3	-0.15	
33859498	Umps	uridine 5'-monophosphate synthase	0	0	0	0			0	4	7	11	-0.11	
58037127	Upk1a	uroplakin-1a	11	0	0	11	-0.27		0	2	0	2	-0.35	
110431378	Utrn	utrophin	0	1	0	1	0.06		0	0	0	0		
171906578	Rad23b	UV excision repair protein RAD23 homolog B	2	2	0	4	0.02		0	0	0	0		
28077007	Uaca	uveal autoantigen with coiled-coil domains and ankyrin repeats	8	16	4	28	0.73	*,#	0	0	0	0		
254675217	Vps18	vacuolar protein sorting-associated protein 18 homolog	0	0	0	0			0	0	1	1	-0.19	
19526826	Vps26a	vacuolar protein sorting-associated protein 26A isoform a	0	0	0	0			0	1	1	2	-0.35	
13385320	Vps28	vacuolar protein sorting-associated protein 28 homolog	0	2	1	3	-0.06		0	3	0	3	-0.41	
9790285	Vps29	vacuolar protein sorting-associated protein 29	1	0	2	3	-0.26		0	2	5	7	-0.40	
13928670	Vps35	vacuolar protein sorting-associated protein 35	1	1	0	2	-0.05		0	3	21	24	-0.18	
7305631	Vps45	vacuolar protein sorting-associated protein 45	2	1	1	4	0.06		0	0	0	0		
18699726	Vps4a	vacuolar protein sorting-associated protein 4A	0	0	0	0			0	1	0	1	0.18	
164698506	Vps4b	vacuolar protein sorting-associated protein 4B	0	0	0	0			0	0	1	1	-0.24	
31980873	Vps53	vacuolar protein sorting-associated protein 53 homolog	0	0	0	0			0	0	1	1	-0.05	

83921607	Vps72	vacuolar protein sorting-associated protein 72 homolog	4	2	2	8	0.01	0	3	2	5	0.13
25092662	Vps25	vacuolar protein-sorting-associated protein 25	4	11	6	21	0.02	0	4	3	7	-0.13
15809002	Snf8	vacuolar-sorting protein SNF8	0	2	3	5	-0.38	0	1	0	1	0.07
21624609	Bph1	valacyclovir hydrolase precursor	11	1	3	15	-0.26 *	0	1	2	3	-0.15
255069795	Vars	valyl-tRNA synthetase	20	41	48	109	-0.05	0	23	55	78	-0.17
30578384	Vps39	vam6/Vps39-like protein isoform 2	0	1	1	2	1.67 #	0	0	0	0	
117414176	Vezf1	vascular endothelial zinc finger 1	1	4	0	5	-0.13	1	4	0	5	0.04
160707909	Vasp	vasodilator-stimulated phosphoprotein	3	2	7	12	-0.12	0	0	0	0	
23956084	Acadv1	very long-chain specific acyl-CoA dehydrogenase, mitochondrial precursor	17	8	4	29	-0.23	0	4	1	5	0.40
13385354	Golt1b	vesicle transport protein GOT1B	5	0	2	7	-0.31 *	3	0	0	3	-0.18
255003752	Bnip1	vesicle transport protein SEC20	1	0	0	1	0.25	0	0	0	0	
6678553	Vamp3	vesicle-associated membrane protein 3	1	1	2	4	0.03	0	0	0	0	
94721328	Vapa	vesicle-associated membrane protein-associated protein A	18	31	26	75	-0.14	36	13	25	74	-0.17
31543940	Vapb	vesicle-associated membrane protein-associated protein B	11	11	17	39	0.01	11	7	10	28	0.04
31543349	Nsf	vesicle-fusing ATPase	2	0	0	2	-0.36	0	0	0	0	
6755448	Sec22b	vesicle-trafficking protein SEC22b	33	34	30	97	-0.25	45	23	23	91	-0.18
34328278	Lman2	vesicular integral-membrane protein VIP36 precursor	3	1	2	6	-0.42	2	2	3	7	-0.39
19527028	Hdlbp	vigilin	24	26	34	84	0.08	0	0	1	1	-0.20
257096033	Vill	villin-like protein isoform 2	0	4	3	7	0.17	0	1	4	5	0.61 #
31543942	Vcl	vinculin	23	24	12	59	0.26	0	4	21	25	0.40
6755504	Sorbs3	vinexin	0	3	0	3	0.21	0	0	0	0	
61656186	Lman2l	VIP36-like protein precursor	0	0	1	1	-0.81 #	0	0	0	0	
46309457	Vkorc111	vitamin K epoxide reductase complex subunit 1-like protein 1 isoform 1	2	0	0	2	-0.31	0	0	0	0	
6755963	Vdac1	voltage-dependent anion-selective channel protein 1	21	16	22	59	0.23 *	125	50	79	254	0.33
6755965	Vdac2	voltage-dependent anion-selective channel protein 2	18	11	12	41	0.36 *	117	40	62	219	0.37 *
6755967	Vdac3	voltage-dependent anion-selective channel protein 3 isoform 2	11	6	12	29	0.23 *	102	27	39	168	0.35 *
114145503	Vmn2r1	vomeroneasal type-2 receptor 1 precursor	0	1	0	1	-0.15	0	0	0	0	
225543183	Vwa5a	von Willebrand factor A domain-containing protein 5A	6	7	7	20	0.25	0	0	1	1	-0.26
12025532	Atp6v0a1	V-type proton ATPase 116 kDa subunit a isoform 1	0	0	0	0		2	0	7	9	0.40
6753144	Atp6v0c	V-type proton ATPase 16 kDa proteolipid subunit	1	0	2	3	0.44	11	2	7	20	0.35
31560731	Atp6v1a	V-type proton ATPase catalytic subunit A	1	0	0	1	0.09	0	1	1	2	1.03 #
19705578	Atp6v1b2	V-type proton ATPase subunit B, brain isoform	1	1	0	2	-0.02	0	3	0	3	0.02
189339262	Atp6v1c1	V-type proton ATPase subunit C 1	0	0	0	0		1	2	3	6	0.08
12963799	Atp6v1d	V-type proton ATPase subunit D	0	0	0	0		0	0	1	1	0.69 #
31981304	Atp6v0d1	V-type proton ATPase subunit d 1	0	0	0	0		6	11	10	27	0.56 *,#
45504359	Atp6v1e1	V-type proton ATPase subunit E 1	2	2	0	4	0.06	0	0	3	3	0.34
21314824	Atp6v1f	V-type proton ATPase subunit F	1	0	0	1	0.28	0	0	0	0	
15617197	Atp6v1g1	V-type proton ATPase subunit G 1	3	2	4	9	0.08	1	0	0	1	0.36
126090572	A230046K03Rik	WASH complex subunit 7	1	1	3	5	-0.51	0	0	1	1	-0.22
46048300	E430025E21Rik	WASH complex subunit strumpellin	0	3	1	4	-0.28	0	0	1	1	0.29
40254224	Wdhd1	WD repeat and HMG-box DNA-binding protein 1	0	6	1	7	0.48	0	0	0	0	
21362285	Wdr33	WD repeat domain 33 isoform 1	13	34	13	60	0.24 *	0	2	0	2	0.38
158517942	Wdr36	WD repeat domain 36 isoform 2	3	9	3	15	-0.16	18	71	71	160	-0.01
31542010	Wdr36	WD repeat domain 36 isoform 3	0	0	0	0		0	0	2	2	0.01

27229002	Wdr45l	WD repeat domain phosphoinositide-interacting protein 3	0	1	0	1	0.26	0	0	0	0		
6755995	Wdr1	WD repeat-containing protein 1	5	6	0	11	0.41	0	1	3	4	-0.30	
227908800	Wdr11	WD repeat-containing protein 11	0	0	1	1	0.13	0	0	0	0		
83649741	Wdr18	WD repeat-containing protein 18	9	19	16	44	0.25	1	4	7	12	0.31	
21735451	Wdr20b	WD repeat-containing protein 20	0	0	1	1	-0.83 #	0	0	0	0		
264681550	Wdr26	WD repeat-containing protein 26	0	0	0	0		0	1	0	1	-2.02 #	
30425338	Wdr3	WD repeat-containing protein 3	0	4	8	12	-0.26	21	81	143	245	0.01	
226958503	Wdr35	WD repeat-containing protein 35 isoform 2	0	0	1	1	-0.31	0	0	0	0		
241896997	Wdr43	WD repeat-containing protein 43	3	10	4	17	-0.21	68	57	92	217	0.04	
10181122	Wdr46	WD repeat-containing protein 46	0	0	0	0		21	23	35	79	0.04	
33468967	Wdr48	WD repeat-containing protein 48	1	2	0	3	-0.04	0	0	0	0		
18252790	Wdr5	WD repeat-containing protein 5	18	24	22	64	0.18	6	11	18	35	0.08	
13878227	Wdr6	WD repeat-containing protein 6	0	1	0	1	-0.26	0	0	0	0		
70778817	Wdr61	WD repeat-containing protein 61 isoform a	16	18	13	47	0.42	7	15	19	41	-0.11	
124487149	Wdr70	WD repeat-containing protein 70	0	1	0	1	0.29	0	0	0	0		
19527374	Wdr74	WD repeat-containing protein 74	1	0	0	1	0.12	0	3	5	8	0.08	
83523742	Wdr75	WD repeat-containing protein 75	1	1	0	2	0.21	8	61	64	133	-0.09	
124487321	Wdr76	WD repeat-containing protein 76	1	0	0	1	-1.10 #	0	0	0	0		
148223079	Wdr82	WD repeat-containing protein 82	28	26	17	71	0.20	10	14	19	43	0.15 *	
149256553	Wdr88	WD repeat-containing protein 88	0	0	0	0		0	1	0	1	-0.15	
226442867	Wdr89	WD repeat-containing protein 89	0	3	2	5	0.02	0	0	0	0		
255003812	Wdr90	WD repeat-containing protein 90	0	1	0	1	-0.79 #	0	0	0	0		
227430367	Smu1	WD40 repeat-containing protein SMU1	40	39	39	118	-0.07	32	80	46	158	-0.02	
15809010	Wbscr16	Williams-Beuren syndrome chromosomal region 16 protein homolog	1	3	4	8	0.03	0	0	0	0		
125988405	Wbscr22	Williams-Beuren syndrome critical region protein 22	1	2	6	9	-0.07	0	0	0	0		
100815493	Wapal	wings apart-like protein homolog	24	52	10	86	0.35	0	1	0	1	0.01	
23510313	Wasf2	wiskott-Aldrich syndrome protein family member 2	1	3	1	5	0.28	0	0	0	0		
6755997	Wfs1	wolframín	1	1	1	3	-0.45	0	0	0	0		
267844920	Wbp11	WW domain-binding protein 11	14	28	16	58	0.08	4	18	17	39	0.09	
84871981	Wbp4	WW domain-binding protein 4	0	0	2	2	0.26	0	2	0	2	0.05	
145046246	Xirp2	xin actin-binding repeat-containing protein 2 isoform 2	1	1	1	3	-2.17 #	0	0	0	0		
160333605	Xrcc5	X-ray repair cross-complementing protein 5	0	11	2	13	-0.28	0	0	0	0		
145587104	Xrcc6	X-ray repair cross-complementing protein 6	2	7	4	13	-0.66 *,#	0	6	1	7	-0.24	
225543568	Yeats2	YEATS domain-containing protein 2 isoform 2	6	17	5	28	0.64 *,#	0	0	0	0		
13386064	Yeats4	YEATS domain-containing protein 4	12	16	12	40	0.30	0	5	2	7	0.06	
146134507	Ylpm1	YLP motif-containing protein 1	16	13	10	39	0.49 *	0	1	0	1	0.41	
124430549	Ythdc1	YTH domain containing 1	0	0	0	0		0	6	1	7	0.37	
30424609	Ythdf1	YTH domain family protein 1	0	2	0	2	-0.21	0	0	0	0		
225543497	Ythdf3	YTH domain family protein 3 isoform 2	1	1	3	5	-0.71 #	0	0	0	0		
40254385	Yaf2	YY1-associated factor 2	1	7	0	8	0.04	0	2	0	2	0.14	
258645088	Zbtb11	zinc finger and BTB domain containing 11	0	0	0	0		0	0	1	1	0.57 #	
117938320	Zbtb38	zinc finger and BTB domain containing 38	0	0	0	0		0	0	1	1	6.58 #	
171919772	Zbtb17	zinc finger and BTB domain-containing protein 17	0	0	1	1	0.05	0	0	0	0		
257196203	Zbtb20	zinc finger and BTB domain-containing protein 20 isoform S	10	24	1	35	-0.26	4	12	8	24	0.43 *	
38016187	Zbtb40	zinc finger and BTB domain-containing protein 40	2	4	2	8	0.09	0	0	0	0		
117647238	Zbtb7a	zinc finger and BTB domain-containing protein 7A	14	17	12	43	0.17	0	2	0	2	0.23	



113374186	Zscan21	zinc finger and SCAN domain-containing protein 21	3	6	2	11	0.43 *	0	0	0	0	
113930733	Zfa	zinc finger autosomal protein	1	2	0	3	0.24	0	0	0	0	
115270986	Zc3h11a	zinc finger CCCH domain-containing protein 11A	4	6	7	17	0.61 *,#	3	6	4	13	0.31
231570775	Zc3h14	zinc finger CCCH domain-containing protein 14 isoform c	0	1	0	1	-0.07	0	1	0	1	0.00
34368584	Zc3h15	zinc finger CCCH domain-containing protein 15	1	0	0	1	0.13	0	0	0	0	
71725355	Zc3h18	zinc finger CCCH domain-containing protein 18 isoform b	0	2	4	6	0.09	1	21	17	39	0.06 *
161169020	Zc3h4	zinc finger CCCH domain-containing protein 4	2	7	7	16	0.43 *	0	0	0	0	
27754058	Zcchc10	zinc finger CCHC domain-containing protein 10	0	0	0	0		0	2	4	6	-0.08
169646700	Zcchc7	zinc finger CCHC domain-containing protein 7	0	0	0	0		0	0	1	1	0.14
169808385	Zcchc8	zinc finger CCHC domain-containing protein 8	0	5	5	10	0.82 #	0	0	0	0	
117647247	Zcchc9	zinc finger CCHC domain-containing protein 9	0	2	0	2	-0.08	0	1	0	1	-0.10
21313088	Zcrb1	zinc finger CCHC-type and RNA-binding motif-containing protein 1	3	4	3	10	0.00	0	2	0	2	-0.01
256985192	Zfyve27	zinc finger FYVE domain-containing protein 27 isoform 2	0	0	1	1	0.00	0	0	0	0	
58037197	Znhit1	zinc finger HIT domain-containing protein 1	1	4	1	6	0.18	0	0	1	1	0.11
110225364	Zfhx3	zinc finger homeobox protein 3	0	8	0	8	0.48	0	0	0	0	
13385046	Zmat2	zinc finger matrin-type protein 2	8	13	7	28	-0.03	3	7	3	13	0.01
13385520	Zmat5	zinc finger matrin-type protein 5	0	1	0	1	-0.23	0	1	0	1	4.55 #
37595742	Zmym2	zinc finger MYM-type protein 2	26	44	22	92	0.52 *	0	0	0	0	
295789153	Zmym3	zinc finger MYM-type protein 3 isoform 5	0	1	0	1	-0.54	0	0	0	0	
167555112	Zmym4	zinc finger MYM-type protein 4	0	3	0	3	0.44	0	0	0	0	
109948269	Zfp106	zinc finger protein 106	2	6	7	15	0.36	0	1	20	21	0.56 #
121247390	Zfp143	zinc finger protein 143	0	7	0	7	-0.26	0	0	0	0	
6756049	Zfp148	zinc finger protein 148	6	9	5	20	0.13	0	7	9	16	-0.09
6678637	Zfp161	zinc finger protein 161	0	2	0	2	0.13	0	0	0	0	
157823865	Zfp185	zinc finger protein 185 isoform b	1	7	2	10	-0.37 *	0	0	0	0	
6756051	Zfp207	zinc finger protein 207 isoform 4	12	17	15	44	0.02	1	5	2	8	0.16
225543502	Zfp219	zinc finger protein 219	0	0	0	0		0	4	1	5	0.57 #
28076891	Zfp422	zinc finger protein 22	0	0	0	0		1	1	3	5	0.06
47059078	Zfp191	zinc finger protein 24	0	4	2	6	0.08	0	0	0	0	
31544063	Zfp260	zinc finger protein 260	0	2	0	2	0.01	0	0	0	0	
165377130	Zfp276	zinc finger protein 276	0	0	0	0		0	0	2	2	0.13
262263378	Zfp280c	zinc finger protein 280C isoform 3	0	0	0	0		2	1	0	3	-0.29
169234810	Zfp292	zinc finger protein 292	0	0	0	0		0	0	4	4	-0.13
255708390	Zfp316	zinc finger protein 316	0	1	0	1	-0.66 #	0	0	0	0	
29244118	Zfp637	zinc finger protein 32	0	0	0	0		0	0	1	1	-0.28
269784644	Zfp326	zinc finger protein 326	16	27	28	71	-0.06	69	45	65	179	-0.06
6754396	Zfp346	zinc finger protein 346	3	7	1	11	-0.05	0	0	0	0	
51592078	Zfp354c	zinc finger protein 354C	0	1	0	1	0.24	0	0	0	0	
126352391	Zfp384	zinc finger protein 384	0	0	0	0		0	5	1	6	0.02
113462002	Zfp41	zinc finger protein 41	0	0	0	0		0	1	0	1	-0.24
254553392	Zfp512	zinc finger protein 512	23	23	4	50	-0.02	48	65	83	196	-0.06
295444870	Zfp513	zinc finger protein 513 isoform 2	1	0	0	1	0.06	1	0	3	4	0.04
270483835	Zfp592	zinc finger protein 592	1	1	0	2	0.50	0	0	0	0	
154759288	Zfp593	zinc finger protein 593	2	1	2	5	-0.07	0	0	0	0	
242397406	Zfp618	zinc finger protein 618	0	1	0	1	0.02	0	0	0	0	
67763828	Zfp62	zinc finger protein 62 isoform 2	0	0	0	0		0	0	3	3	0.22

21362307	Zfp622	zinc finger protein 622	0	1	0	1	-0.29	0	0	0	0		
261823966	Zfml	zinc finger protein 638 isoform 1	0	19	8	27	0.59 #	0	0	0	0		
261823968	Zfml	zinc finger protein 638 isoform 2	8	0	0	8	0.24	0	0	0	0		
124378028	Zfp652	zinc finger protein 652	0	0	0	0		0	0	1	1	-0.09	
309267193	LOC637365	zinc finger protein 665-like	0	1	0	1	9.84 #	0	0	0	0		
27229259	Zfp687	zinc finger protein 687	13	20	29	62	0.32 *	4	10	6	20	0.11	
225543083	Zfp691	zinc finger protein 691	0	1	0	1	0.16	0	0	0	0		
21312658	Zfp706	zinc finger protein 706	2	0	1	3	3.19 #	0	0	0	0		
23397413	Zfp740	zinc finger protein 740	4	3	0	7	0.03	1	11	2	14	0.00	
27369882	Zfp523	zinc finger protein 76	0	2	0	2	-0.06	0	0	0	0		
29244498	Zfp786	zinc finger protein 786	0	1	0	1	0.18	0	0	0	0		
67846115	Zfp787	zinc finger protein 787	2	0	0	2	0.06	0	2	0	2	0.20	
126157488	Zfp800	zinc finger protein 800	0	0	0	0		1	7	16	24	0.09	
32469497	Zfp828	zinc finger protein 828	4	2	2	8	0.13	1	2	1	4	0.13	
31560213	Zfp830	zinc finger protein 830	7	9	11	27	0.17	1	1	4	6	0.33	
75677466	Zfp865	zinc finger protein 865	0	1	0	1	-0.29	0	5	2	7	0.17	
125347389	Trim27	zinc finger protein RFP	0	0	0	0		0	6	2	8	0.04	
124486604	Rlf	zinc finger protein Rlf	0	0	2	2	-0.40	0	1	0	1	0.07	
6755314	Dpf2	zinc finger protein ubi-d4	34	40	39	113	0.37	10	28	19	57	0.43	
68510029	Zkscan1	zinc finger protein with KRAB and SCAN domains 1 isoform 2	1	0	0	1	0.66 #	0	1	1	2	1.10 #	
224809350	Zkscan3	zinc finger protein with KRAB and SCAN domains 3	0	3	1	4	0.30	0	0	0	0		
13195658	Zfp1	zinc finger protein-like 1	0	2	5	7	-0.30	0	0	1	1	-0.24	
74315981	Zranb2	zinc finger Ran-binding domain-containing protein 2	3	1	2	6	0.07	0	0	0	0		
168480106	Zfr	zinc finger RNA-binding protein	66	97	95	258	0.11	27	62	31	120	0.01	
34328156	Zhx1	zinc fingers and homeoboxes protein 1	1	5	5	11	0.27 *	0	0	0	0		
40789094	Zhx2	zinc fingers and homeoboxes protein 2	0	1	0	1	0.41	0	0	0	0		
40254321	Zhx3	zinc fingers and homeoboxes protein 3	4	3	1	8	0.56 *	0	0	0	0		
12963579	Slc30a7	zinc transporter 7	2	0	2	4	-0.21	0	2	1	3	0.14	
31559926	Zadh2	zinc-binding alcohol dehydrogenase domain-containing protein 2	1	0	1	2	-0.21	0	0	0	0		
21326440	Zwint	ZW10 interactor	0	0	0	0		0	0	1	1	0.43	
124053451	Zzz3	ZZ-type zinc finger-containing protein 3	0	8	4	12	0.30 *	0	0	0	0		

## Suppl. Tab. 7

Quantification results are given as average log<sub>2</sub>(dDAVP/control) for all changes statistically significantly different (P <0.05) AND outside of the 95% confidence interval defined by the background distribution (Fig. 2A). Protein category may be redundant and was performed combining Gene Ontology term, Swissprot protein annotation and Panther protein class

Protein category in Fig. 3	GI Accession No.	Gene Symbol	Protein Name	average log <sub>2</sub> (dDAVP/control)	
				Nuclear extract	Nuclear pellet
Cytoskeleton	160837788	Arpc1b	actin-related protein 2/3 complex subunit 1B		0.47
Cytoskeleton	112363072	Arpc2	actin-related protein 2/3 complex subunit 2		0.54
Cytoskeleton	224809382	Arpc5	actin-related protein 2/3 complex subunit 5		0.46
Cytoskeleton	21312654	Arpc5l	actin-related protein 2/3 complex subunit 5-like protein		0.49
Cytoskeleton	23956222	Actr3	actin-related protein 3		0.54
Cell junction, Cytoskeleton	145587092	Mllt4	afadin	0.67	
Calcium signaling	61743961	Ahnak	AHNAK nucleoprotein isoform 1		0.64
Calcium signaling, Cell junction	145864475	Anxa9	annexin A9	0.70	0.80
Cell junction, WNT signaling	6753294	Ctnna1	catenin alpha-1		0.57
Cell junction, Transcription cofactor, WNT signaling	6671684	Ctnnb1	catenin beta-1		0.65
Cell cycle/ Mitosis, Vesicle trafficking	189458891	Cenpf	centromere protein F	0.61	
Chromatin modification, Regulation of apoptosis	119392064	Chd8	chromodomain-helicase-DNA-binding protein 8	0.62	
Vesicle trafficking	51491845	Cltc	clathrin heavy chain 1	0.64	
Chromatin modification, Transcription cofactor	70995311	Crebbp	CREB-binding protein	0.62	
Calcium signaling, Cell junction	309263796	Dsg2	desmoglein-2-like		0.87
Cell junction	190194418	Dsp	desmoplakin		0.61
Genomic maintenance	9055282	Mre11a	double-strand break repair protein MRE11A	0.61	
Posttranslational modification	56699423	Nedd4	E3 ubiquitin-protein ligase NEDD4	-0.76	
Cell junction	111185907	Evpl	envoplakin	0.87	
Transcription factor	253683411	Elf3	ETS-related transcription factor Elf-3 isoform 1	1.19	
RNA processing	167234372	Eif4b	eukaryotic translation initiation factor 4B	-0.87	
Calcium signaling	67782360	Esyt2	extended synaptotagmin-2	-0.72	
Transcription factor	31542626	Hmbox1	homeobox-containing protein 1	-0.71	
Chromatin modification	139948756	Ing3	inhibitor of growth protein 3	0.68	
Cell junction, Cytoskeleton	28395018	Jup	junction plakoglobin		0.70
Cytoskeleton	7106335	Krt17	keratin, type I cytoskeletal 17		0.49
Cytoskeleton	254540068	Krt18	keratin, type I cytoskeletal 18		0.75
Cytoskeleton	21592285	Krt20	keratin, type I cytoskeletal 20	0.72	
Cytoskeleton	114145561	Krt8	keratin, type II cytoskeletal 8	0.71	0.64
Others	22095015	Lass2	LAG1 longevity assurance homolog 2		-0.52
Cytoskeleton	158518433	Lima1	LIM domain and actin-binding protein 1 isoform b		0.60

Mediator complex	121582430	Med1	mediator of RNA polymerase II transcription subunit 1 isoform 1	0.61	
Mediator complex	124286862	Med13	mediator of RNA polymerase II transcription subunit 13	0.63	
Mediator complex	157266302	Med7	mediator of RNA polymerase II transcription subunit 7	0.64	
Others	70608131	Immt	mitochondrial inner membrane protein		0.51
Cell cycle/ Mitosis	40254521	Mobkl3	mps one binder kinase activator-like 3	0.91	
Others	148271073	Myadm	myeloid-associated differentiation marker		0.64
Others	21312244	Pdzd11	PDZ domain-containing protein 11	0.66	
Cell junction	112421039	Ppl	periplakin	0.76	
Others	124286797	Plet1	placenta-expressed transcript 1 protein precursor		0.59
Cell junction	21312960	Pkp2	plakophilin-2		0.99
Cytoskeleton	254675251	Plec	plectin isoform 1d		0.63
Others	153791304	Prr12	proline rich 12	0.57	
WNT signaling	254587904	S100a14	protein S100-A14 isoform a		0.51
Nuclear transport	226062635	Rangap1	ran GTPase-activating protein 1	0.68	0.54
Cyclic AMP signaling	21704066	Rap1a	ras-related protein Rap-1A precursor	-0.67	-0.53
Cyclic AMP signaling	33859753	Rap1b	ras-related protein Rap-1b precursor	-0.83	
Others	225543465	Gprc5a	retinoic acid-induced protein 3	0.60	0.62
RNA processing	27753952	Rbm7	RNA-binding protein 7	0.72	
Others	119508422	Setd1a	SET domain containing 1A	0.61	
Others	309264544	Srp14	signal recognition particle 14 kDa protein-like	-0.65	
Others	30519943	Samm50	sorting and assembly machinery component 50 homolog		0.53
Cytoskeleton	55926127	Spnb3	spectrin beta chain, brain 2		0.68
Cell junction, Transcription cofactor	254675279	Tjp1	tight junction protein ZO-1 isoform 2		0.91
Cell junction	160333863	Tjp2	tight junction protein ZO-2 isoform 2	0.77	
Cell junction	114052811	Tjp3	tight junction protein ZO-3		0.58
Transcription factor	6680512	Junb	transcription factor jun-B	1.86	
Transcription factor	21314854	Gatad2b	transcriptional repressor p66-beta		0.46
Others	145966911	Tmed9	transmembrane emp24 domain-containing protein 9 precursor	-0.59	
Regulation of apoptosis	13386014	Tmem85	transmembrane protein 85		-0.59
Regulation of apoptosis	28077007	Uaca	uveal autoantigen with coiled-coil domains and ankyrin repeats	0.73	
Others	31981304	Atp6v0d1	V-type proton ATPase subunit d 1		0.56
Transcription cofactor, Genomic maintenance	145587104	Xrcc6	X-ray repair cross-complementing protein 6	-0.66	
Chromatin modification	225543568	Yeats2	YEATS domain-containing protein 2 isoform 2	0.64	
Transcription cofactor	115270986	Zc3h11a	zinc finger CCCH domain-containing protein 11A	0.61	

## Suppl. Tab. 8

List of cytoskeleton and cell junction proteins changed after 30 or 60 minutes of dDAVP stimulation compared to control

GI Accession No.	Gene Symbol	Nuclear Fraction	log <sub>2</sub> (dDAVP/vehicle), 30min	log <sub>2</sub> (dDAVP/vehicle), 60min
224809382	Arpc5	NP	0.64	0.46
160837788	Arpc1b	NP	1.03	0.47
21312654	Arpc5l	NP	0.042	0.49
112363072	Arpc2	NP	0.12	0.54
329664973	Actr3	NP	0.0069	0.54
6753294	Ctnna1	NP	0.2	0.57
114052811	Tjp3	NP	0.13	0.58
190194418	Dsp	NP	-0.28	0.61
114145561	Krt8	NP	0.01	0.64
145587092	Mllt4	NE	0.17	0.67
55926127	Spnb3	NP	0.046	0.68
28395018	Jup	NP	0.15	0.7
114145561	Krt8	NE	0.014	0.71
21592285	Krt20	NE	0.09	0.72
254540068	Krt18	NP	0.033	0.75
112421039	Ppl	NE	-0.025	0.76
312222765	Tjp2	NE	0.38	0.77
111185907	Evpl	NE	0.00068	0.87
254675277	Tjp1	NP	0.059	0.91
21312960	Pkp2	NP	0.0024	0.99