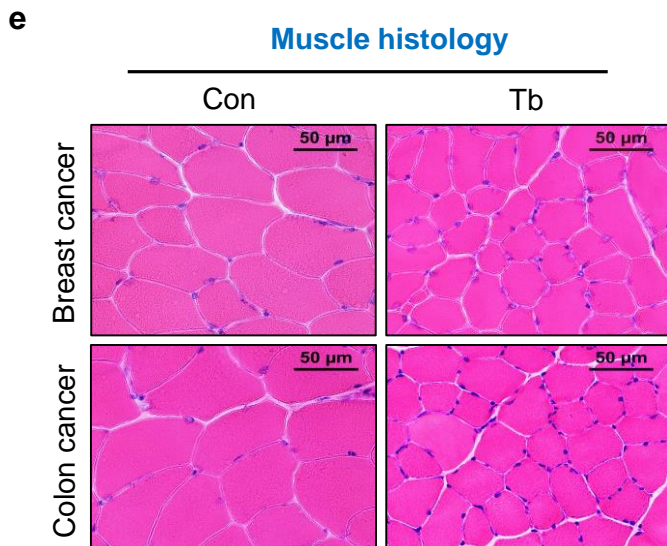
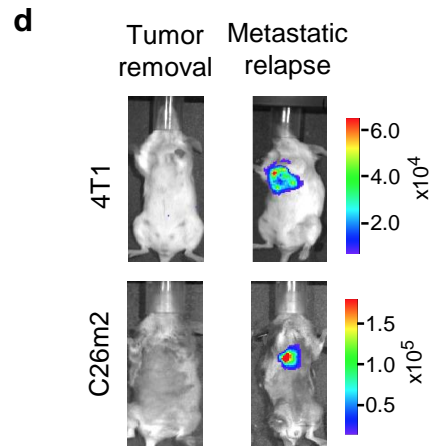
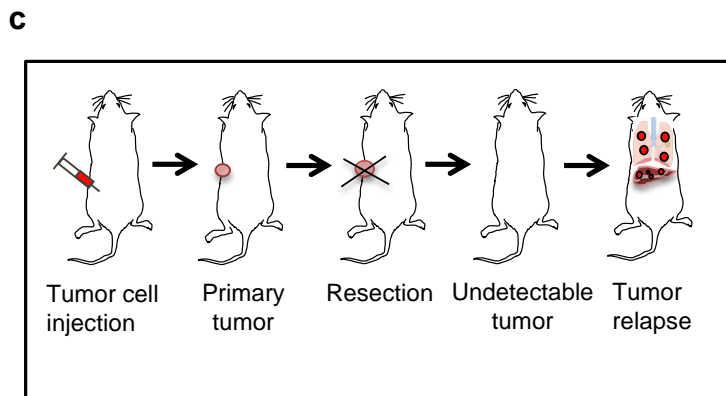
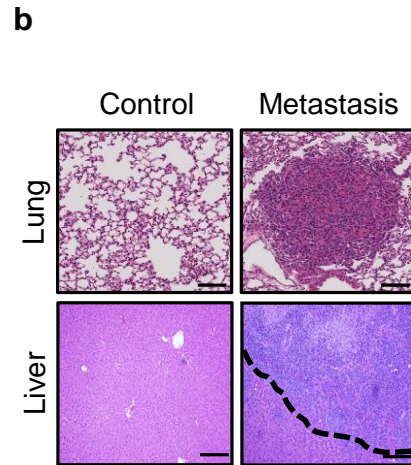
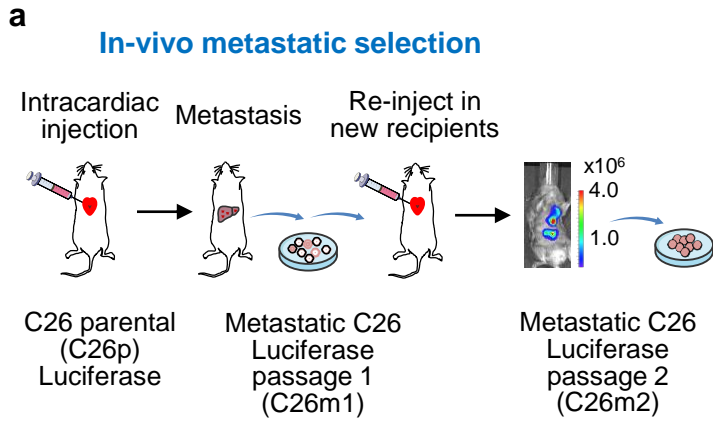
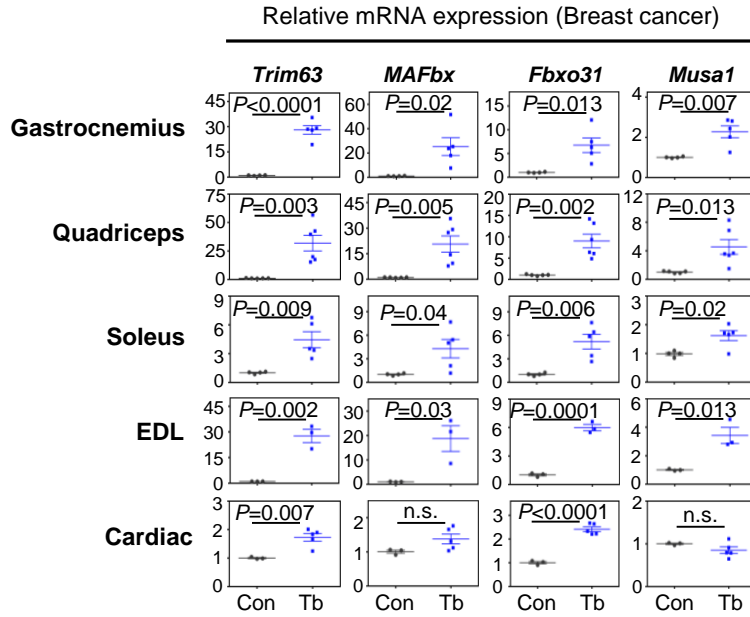


Supplementary Figure 1

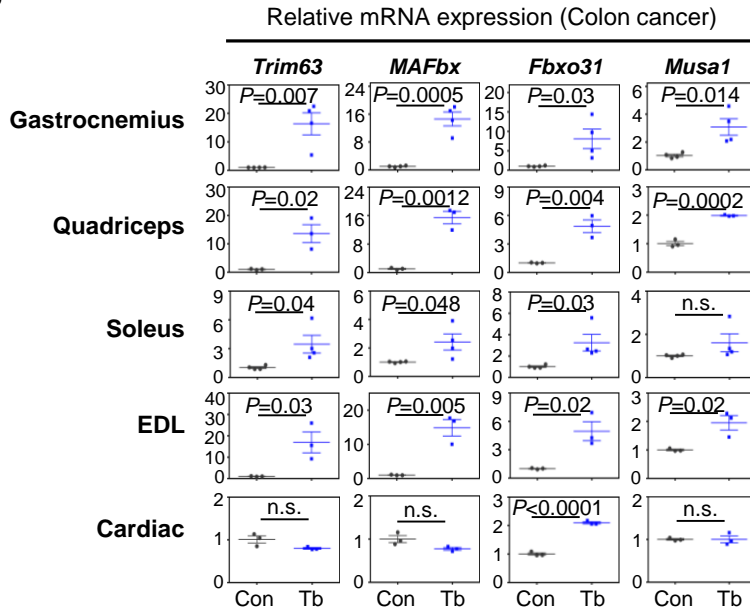


Supplementary Figure 1

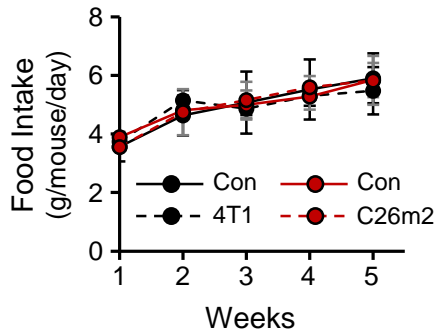
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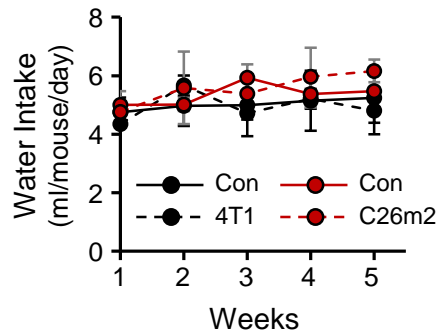
g



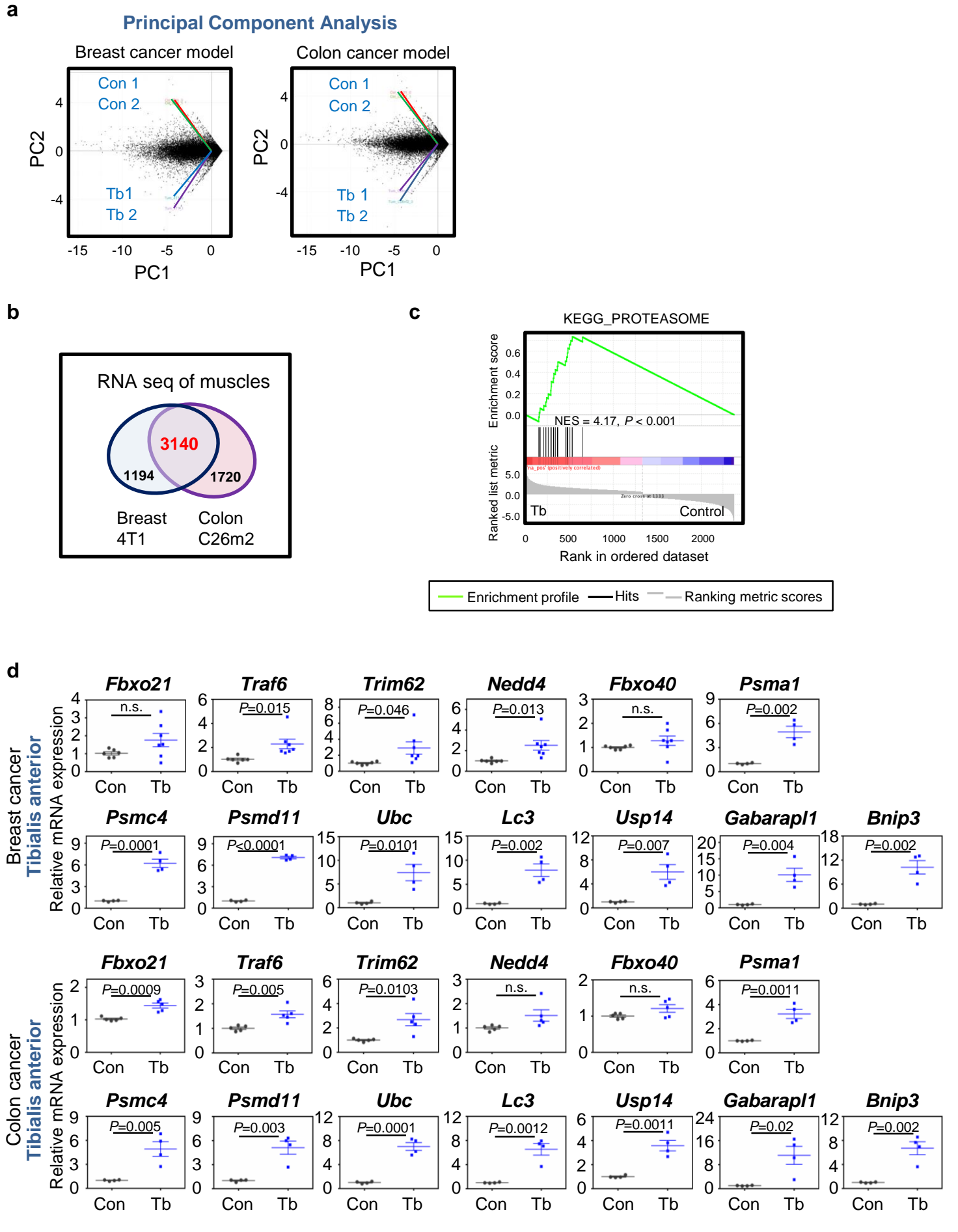
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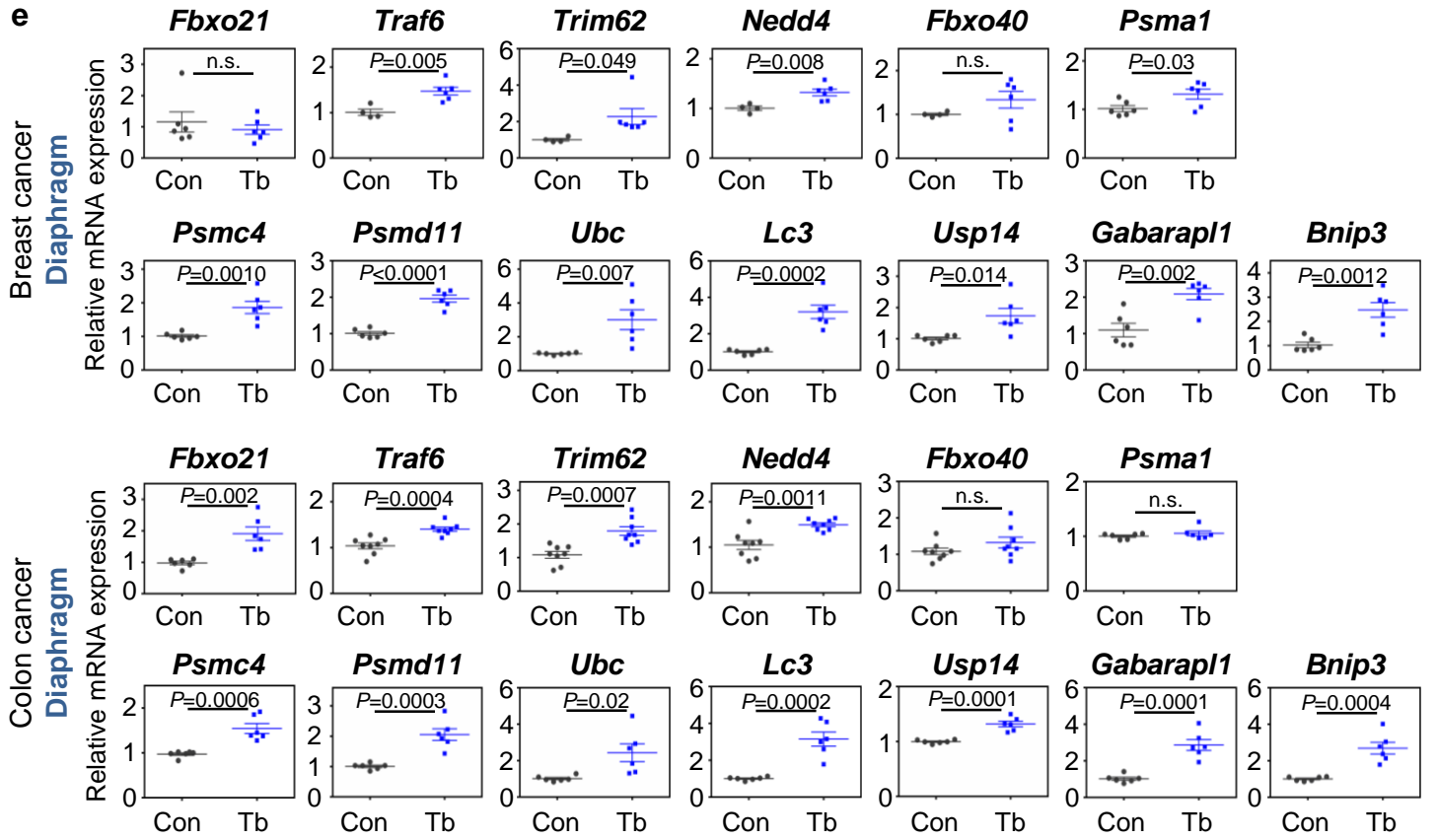
i



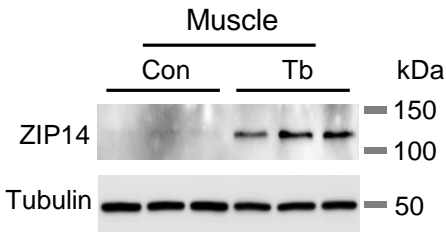
Supplementary Figure 2



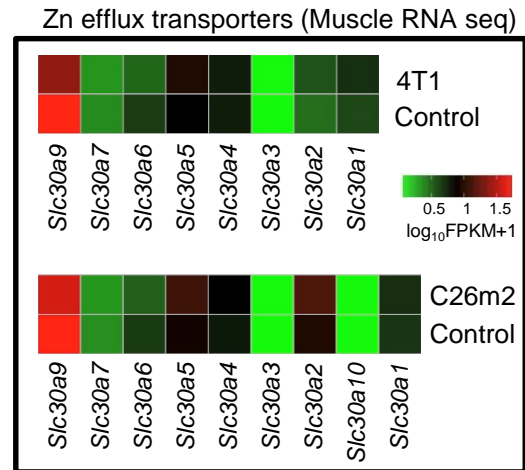
Supplementary Figure 2



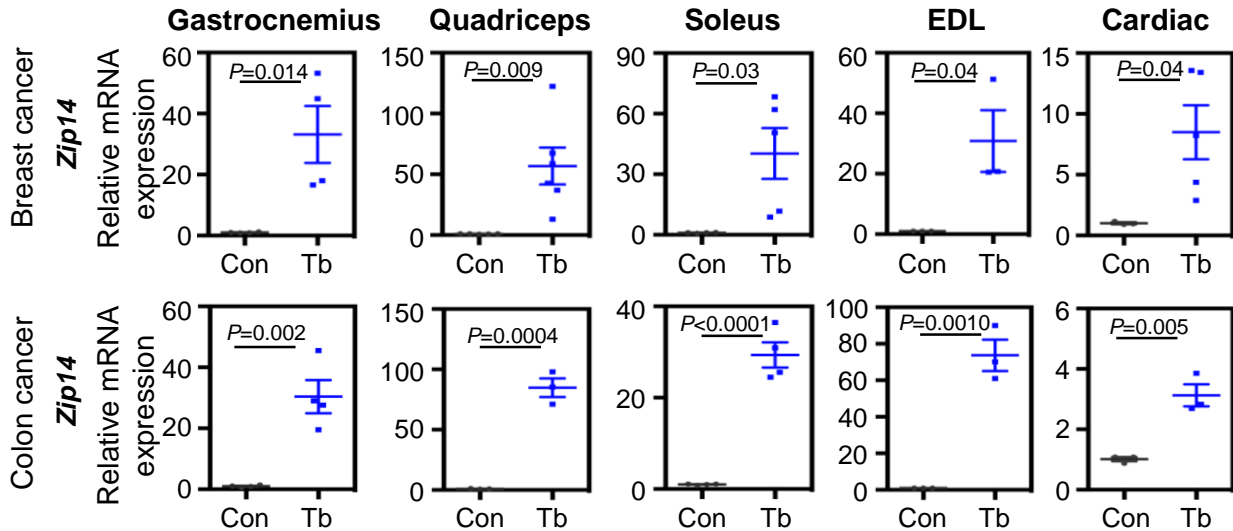
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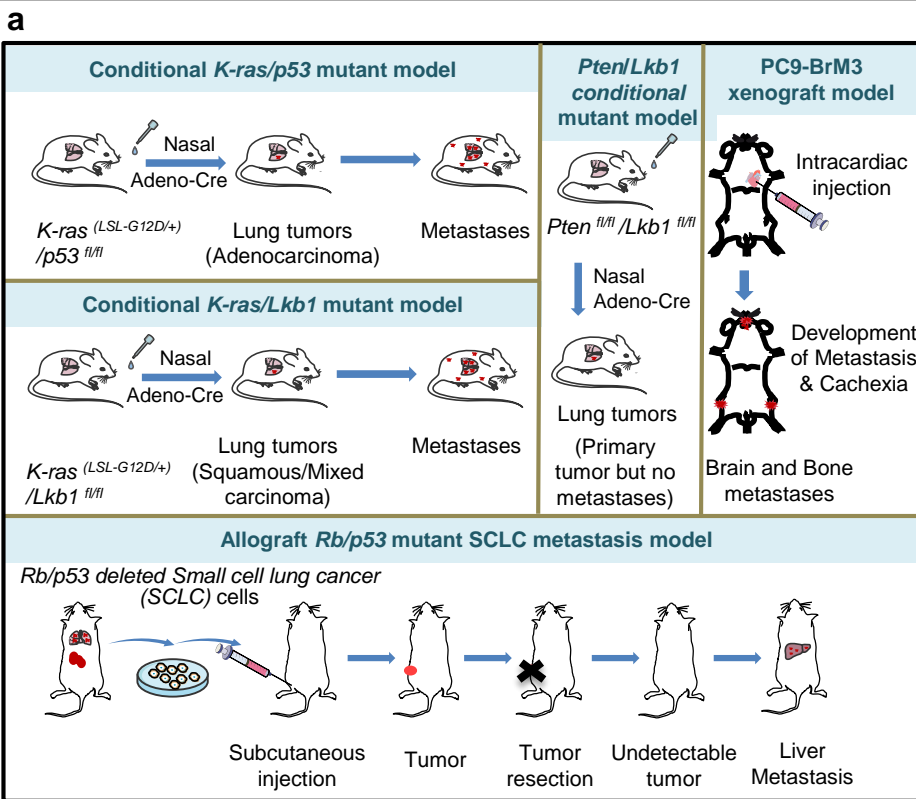
g



h

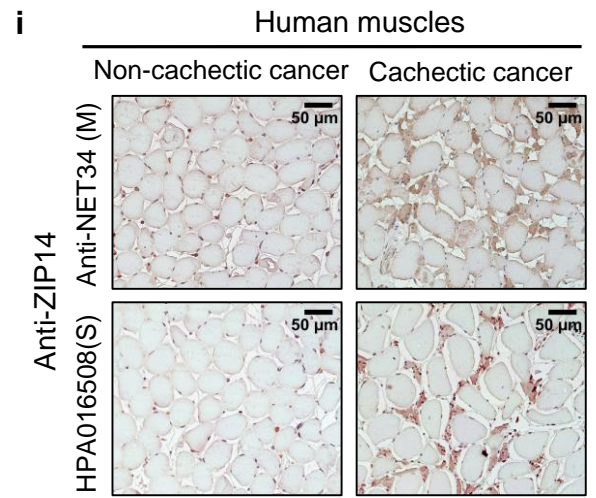
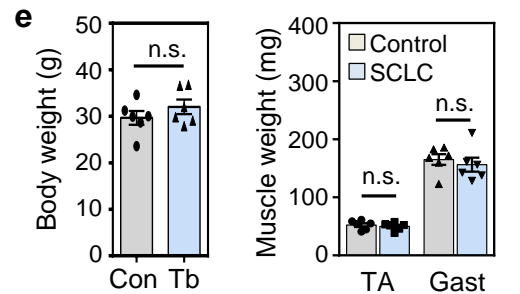
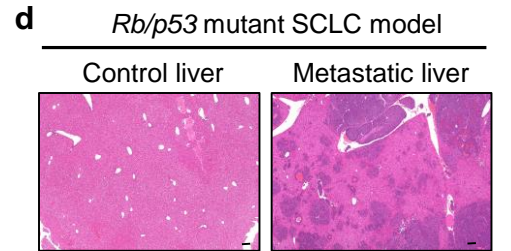
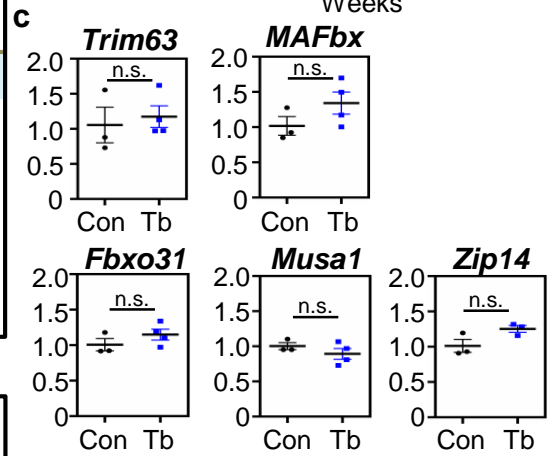
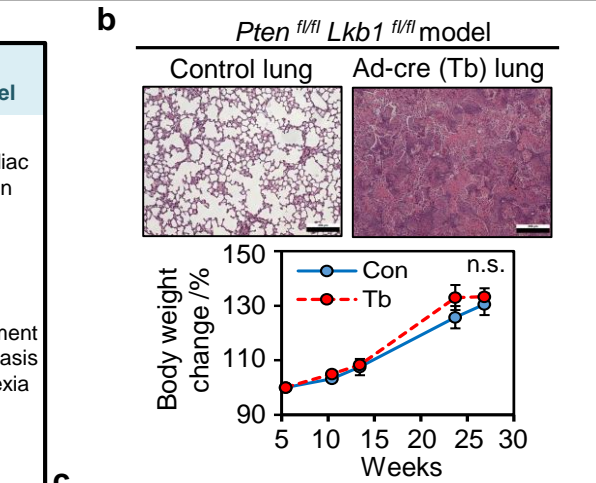
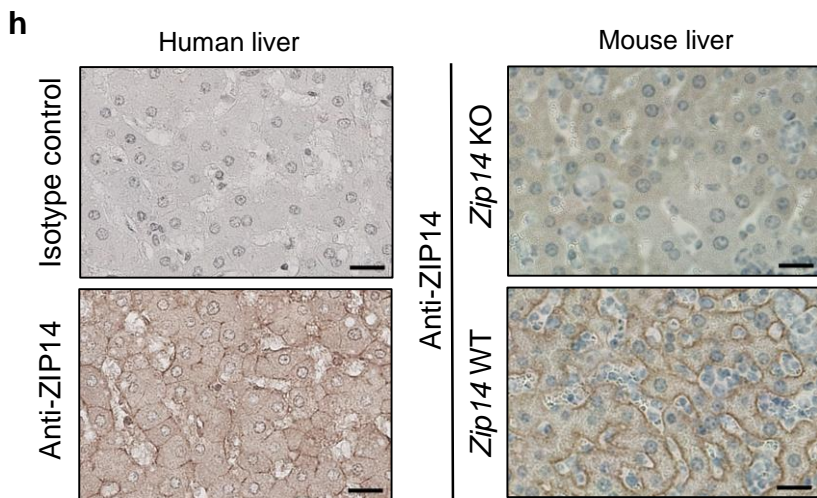
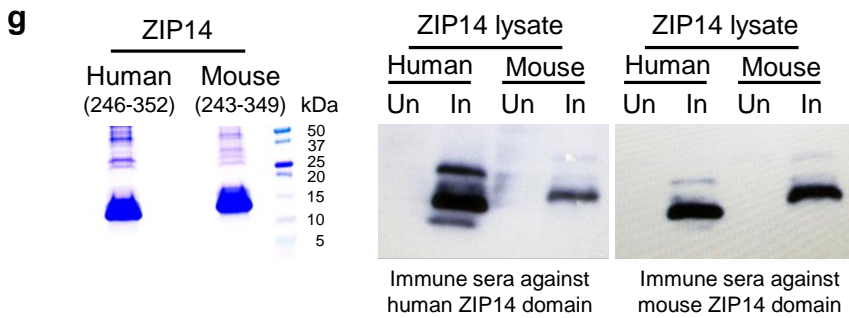


Supplementary Figure 3



f

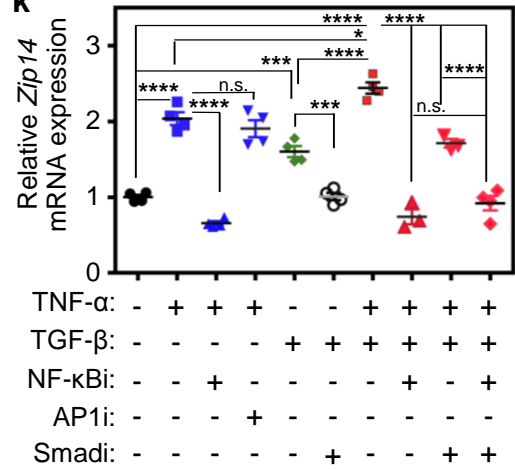
MsZIP14 (aa243-278)	KQKNEHHHGHNHFTSETLPSKDKQEEGVTEKLLQNGD
HsZIP14 (aa246-281)	KQKNEHHHGHSHYASESLPSKDKQEEGVMEKLLQNGD
	*****.*::*:*****
MsZIP14 (aa279-314)	LDHMIPQHCNSELDGKAPGTDEKVIIVNSMSVQDLQA
HsZIP14 (aa282-317)	LDHMIPQHCSSSELDGKAPMVDEKVIIVGSLVQDLQA
	*****.******.*****.*:*****
MsZIP14 (aa315-349)	SQSACYWLKGVRYSDIGTLAWMITLSDGLHNFIDG
HsZIP14 (aa318-352)	SQSACYWLKGVRYSDIGTLAWMITLSDGLHNFIDG



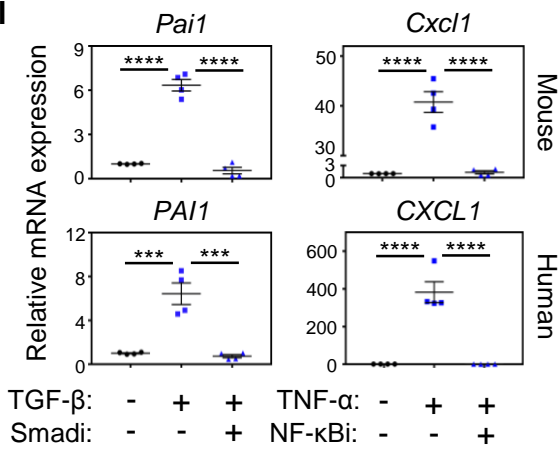
j

Ingenuity (IPA) analysis	
Top Upstream Regulators	
Upstream Regulator	p-value of overlap
Dexamethasone	1.14E-17
PRKAG3	2.34E-17
Bortezomib	1.61E-15
TNF	3.70E-15
TGFB1	6.27E-15

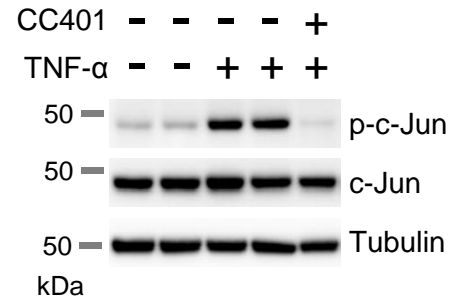
k



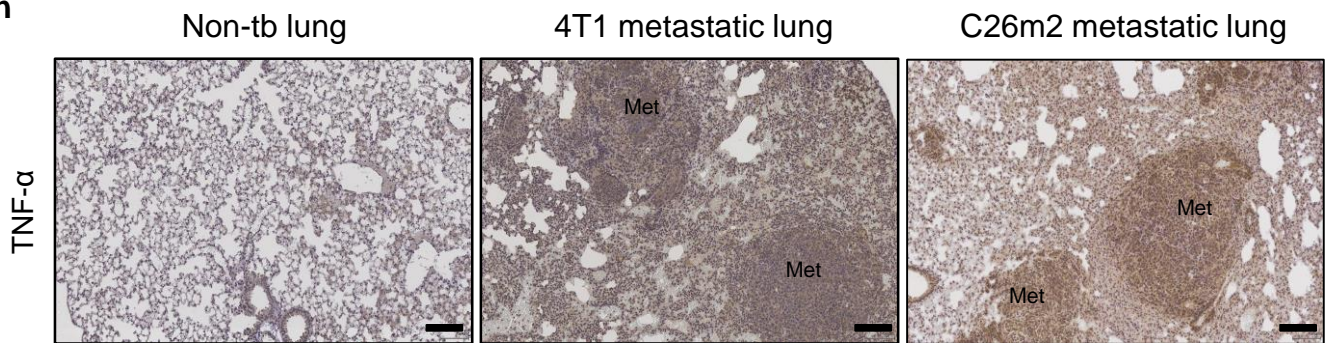
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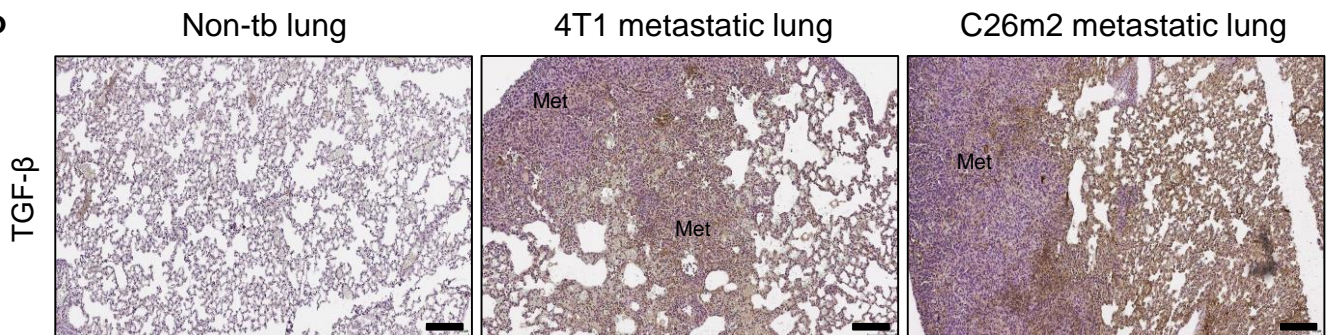
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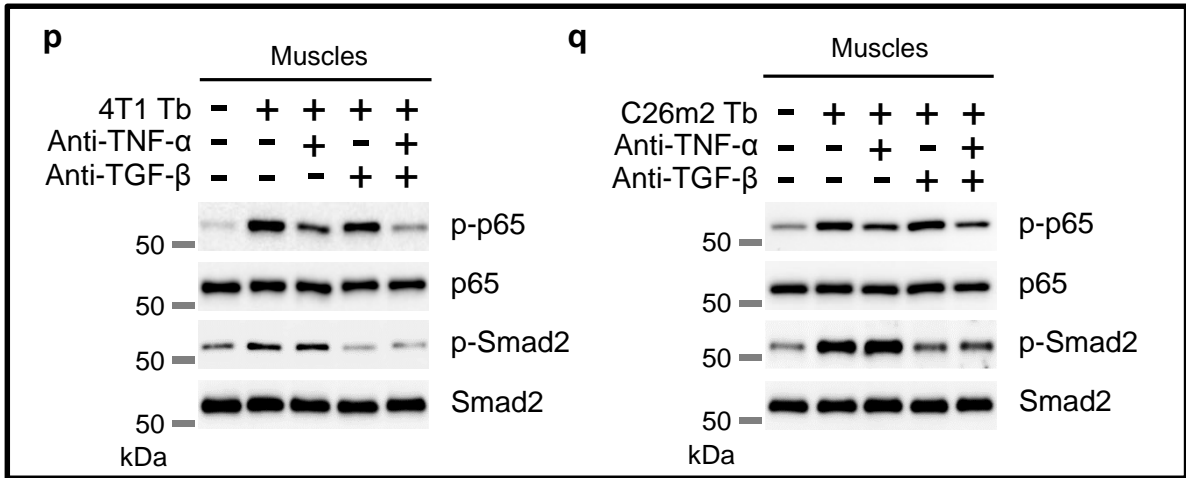
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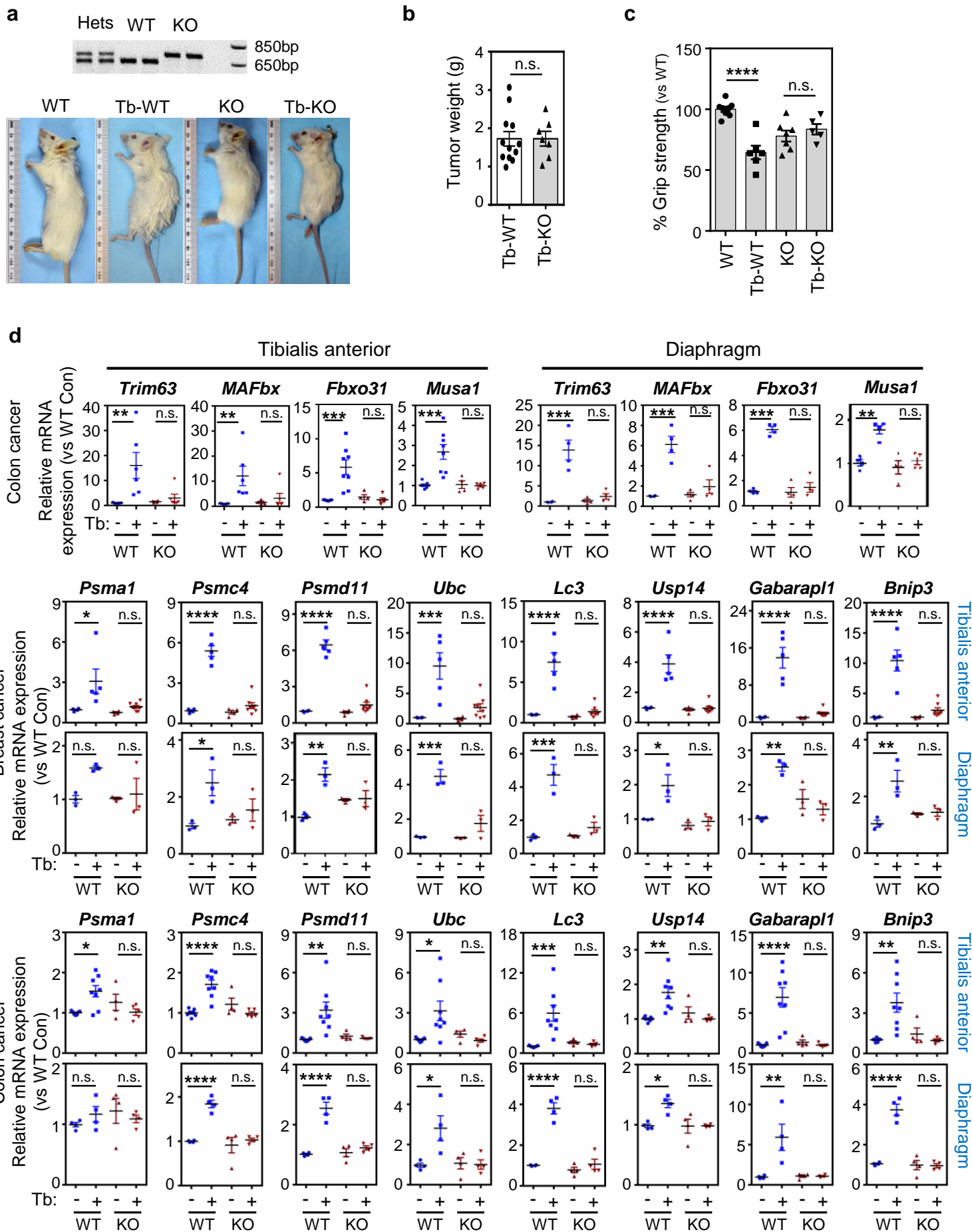
o



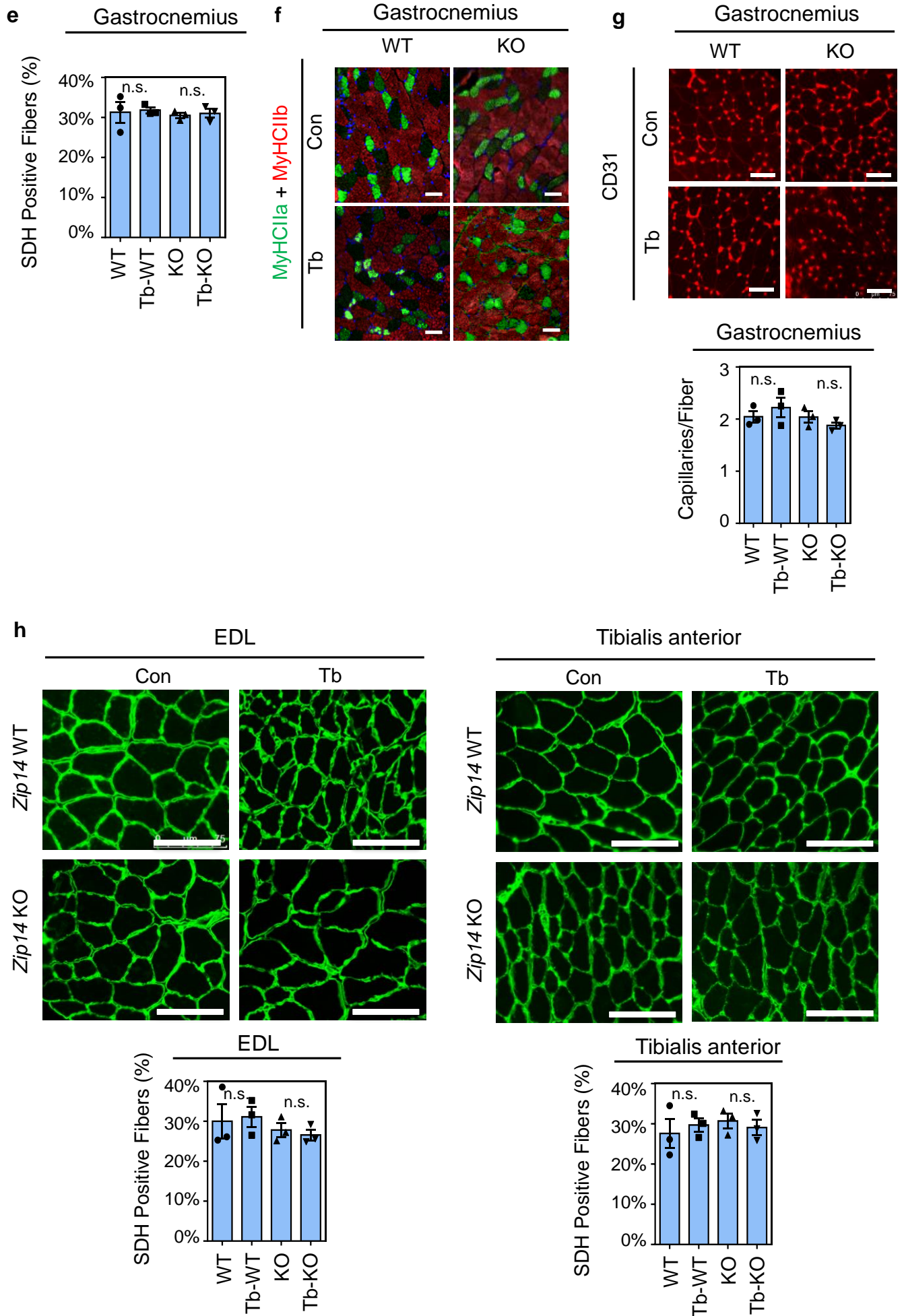
Supplementary Figure 3



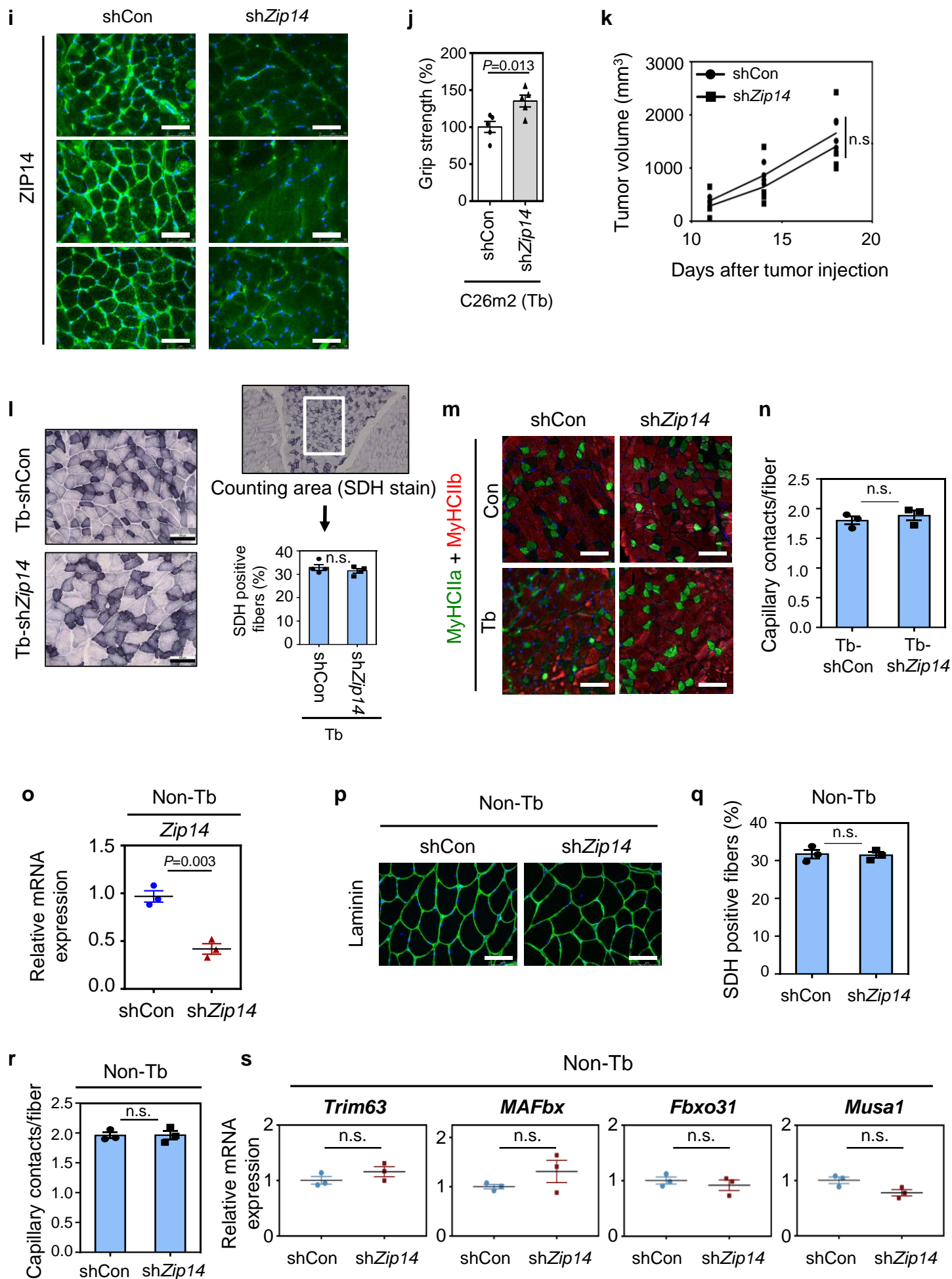
Supplementary Figure 4



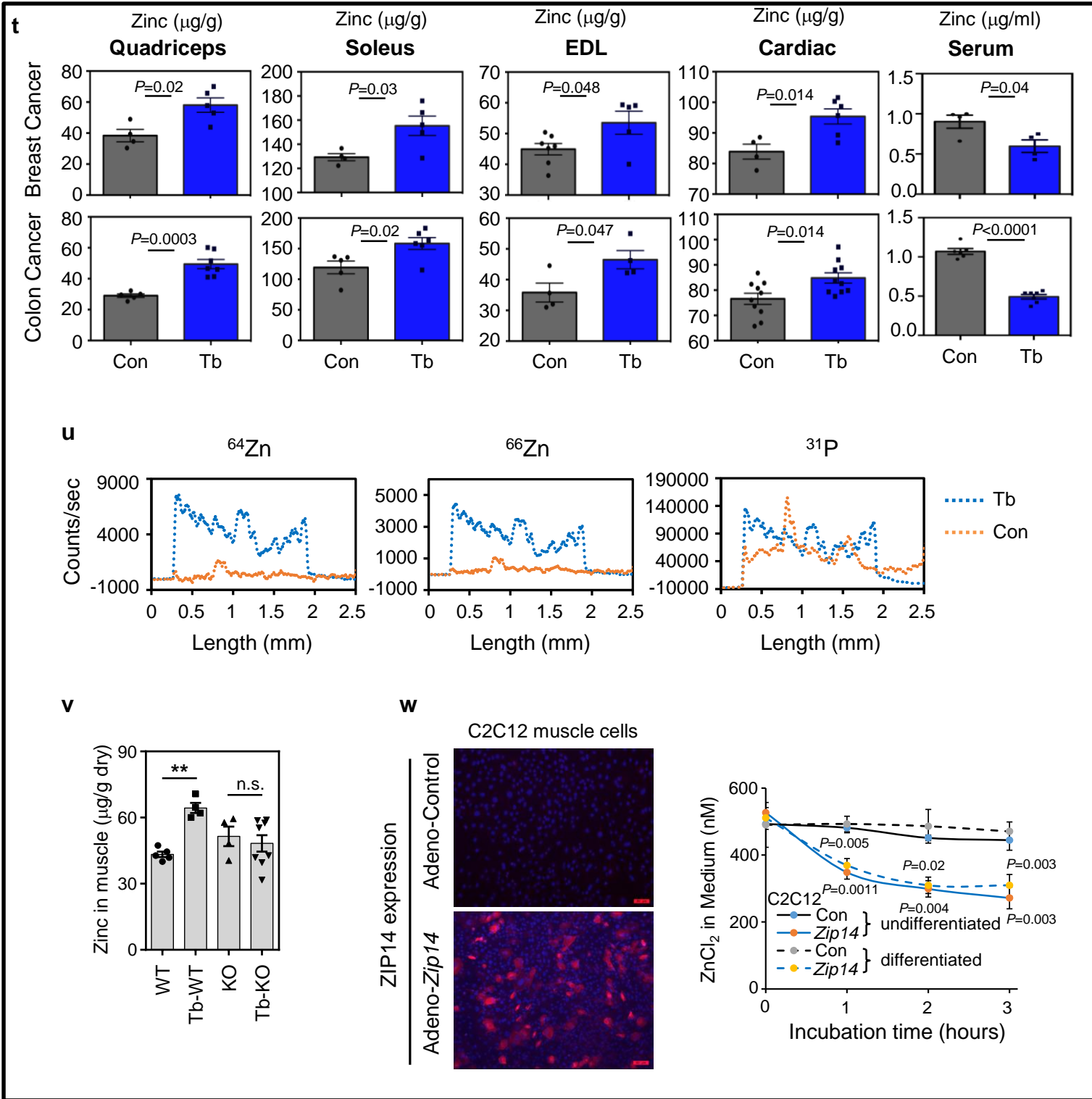
Supplementary Figure 4



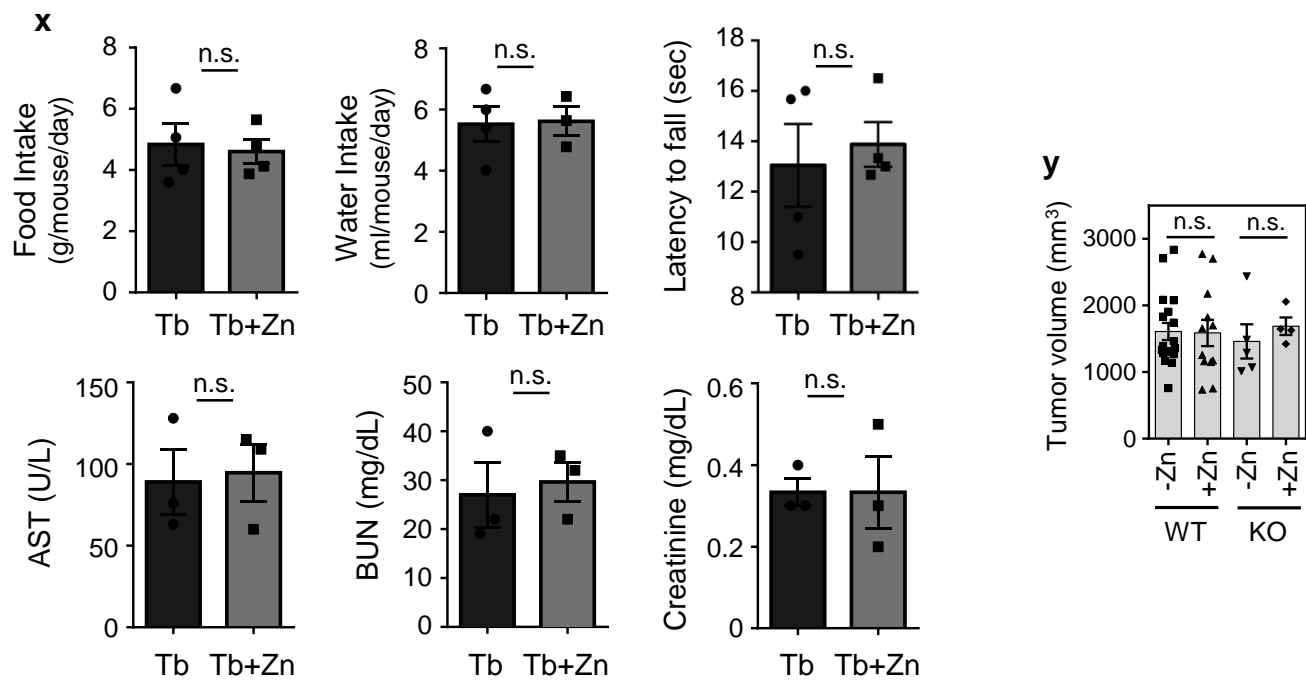
Supplementary Figure 4



Supplementary Figure 4

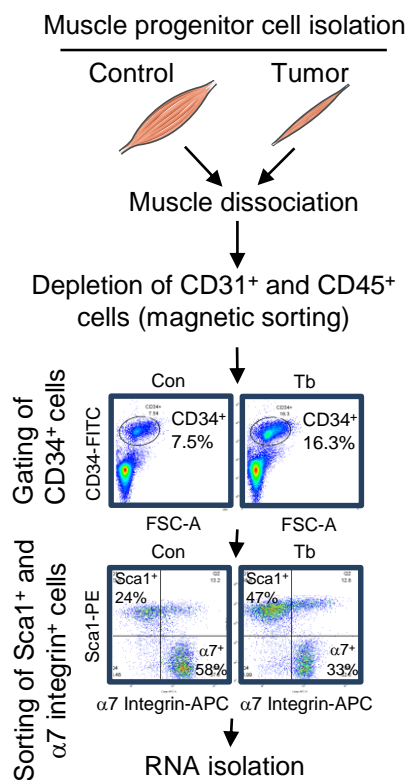


Supplementary Figure 4

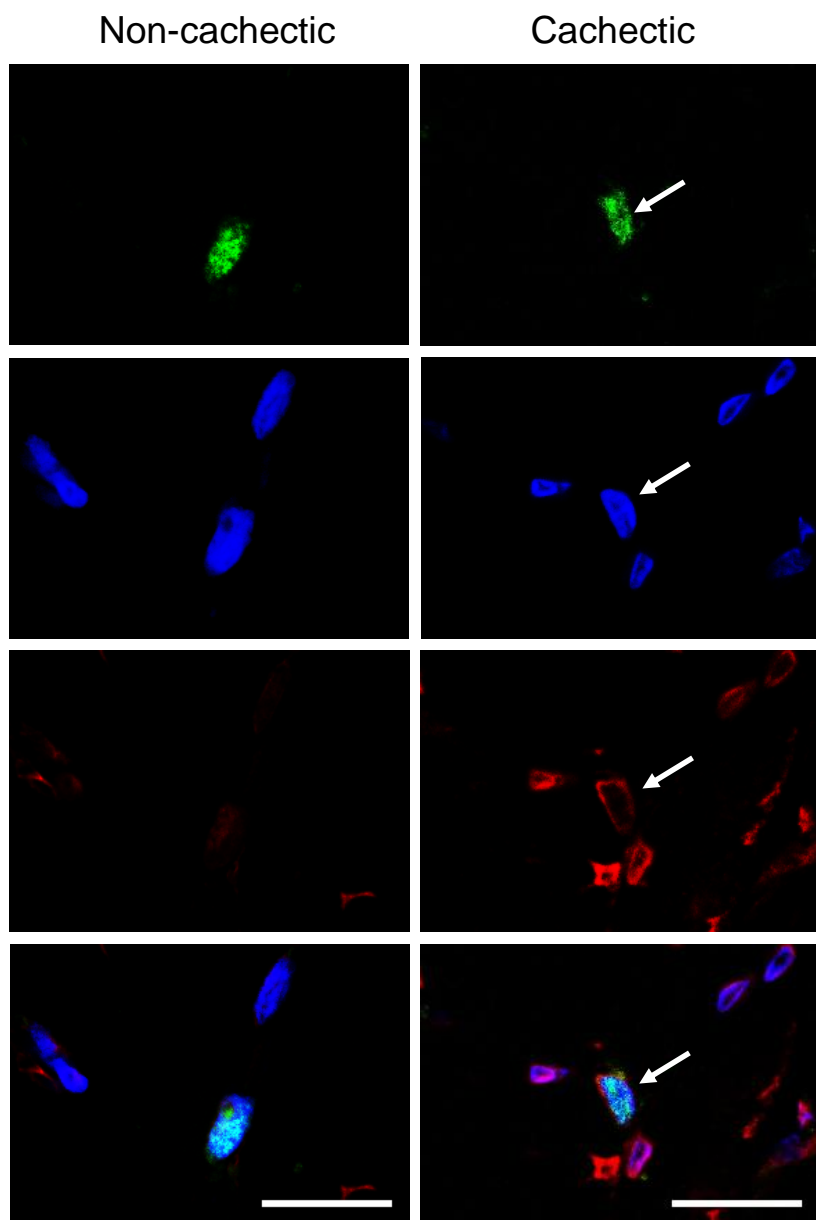


Supplementary Figure 5

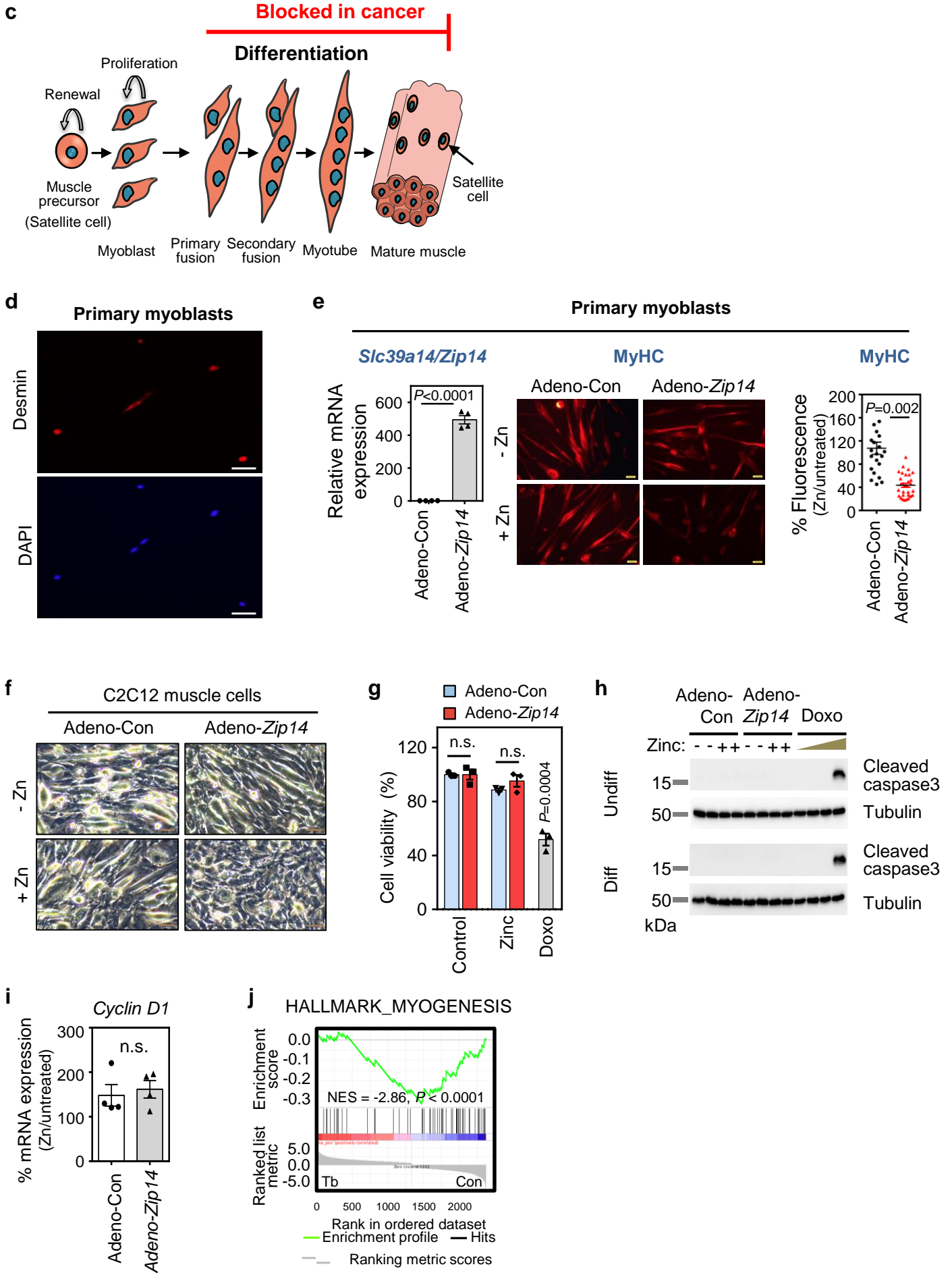
a



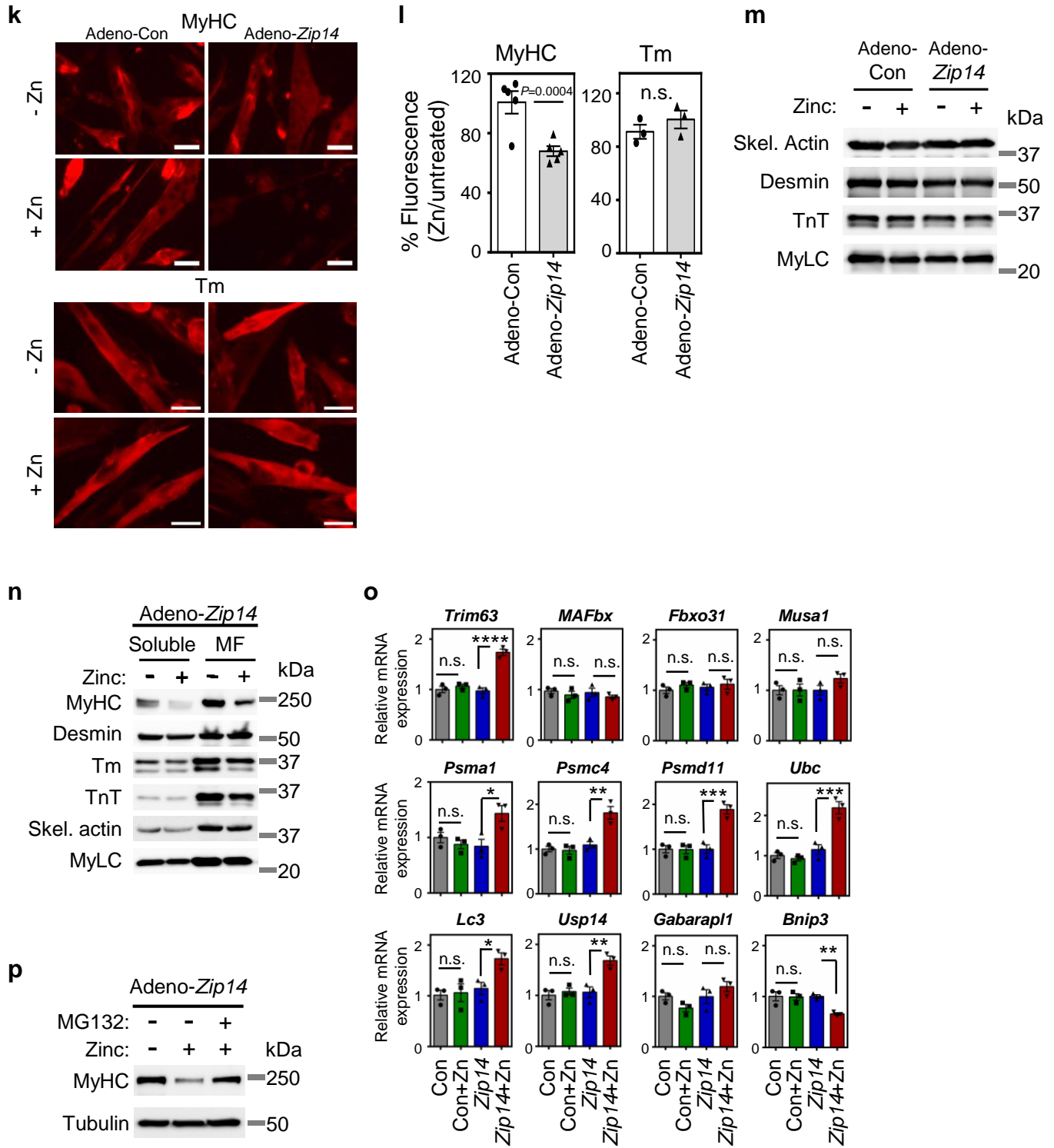
b



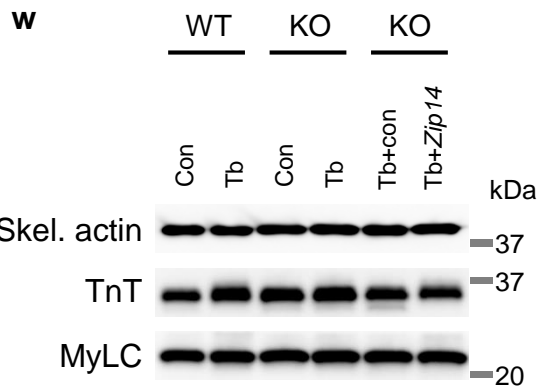
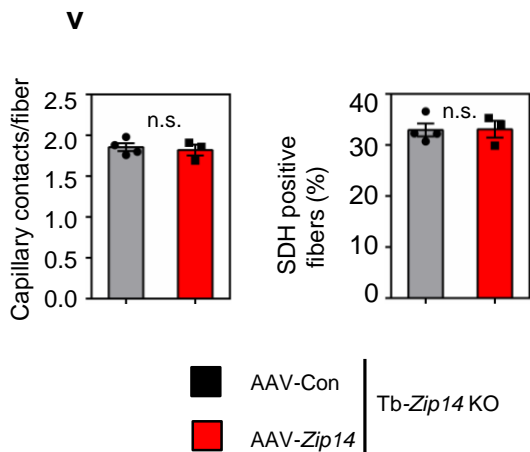
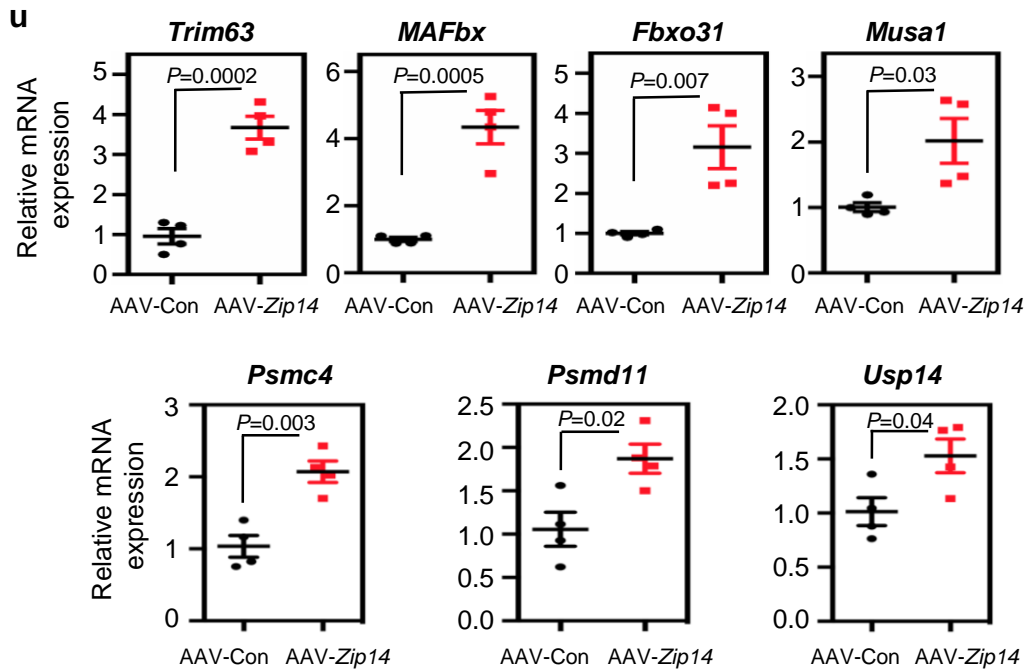
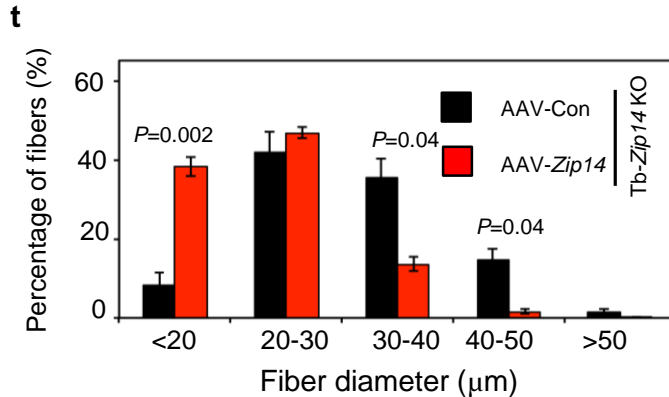
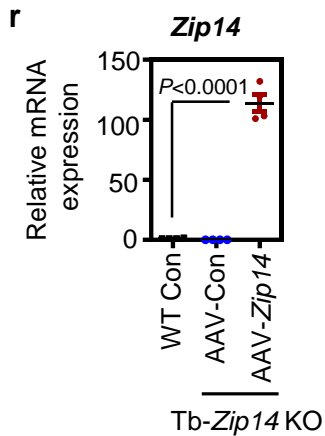
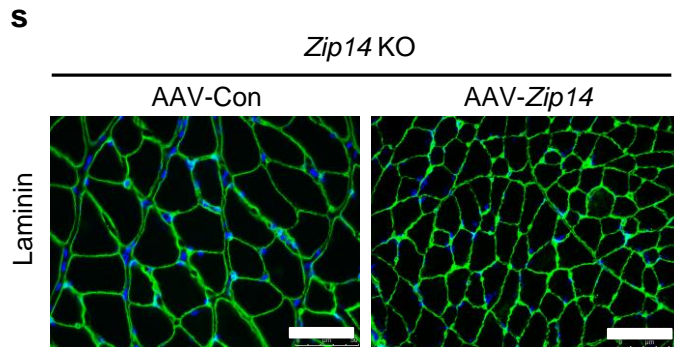
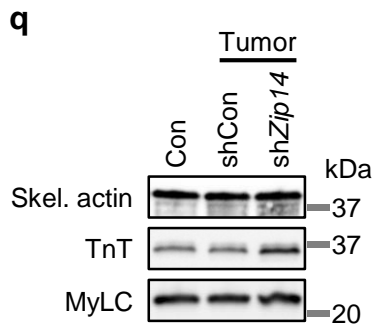
Supplementary Figure 5



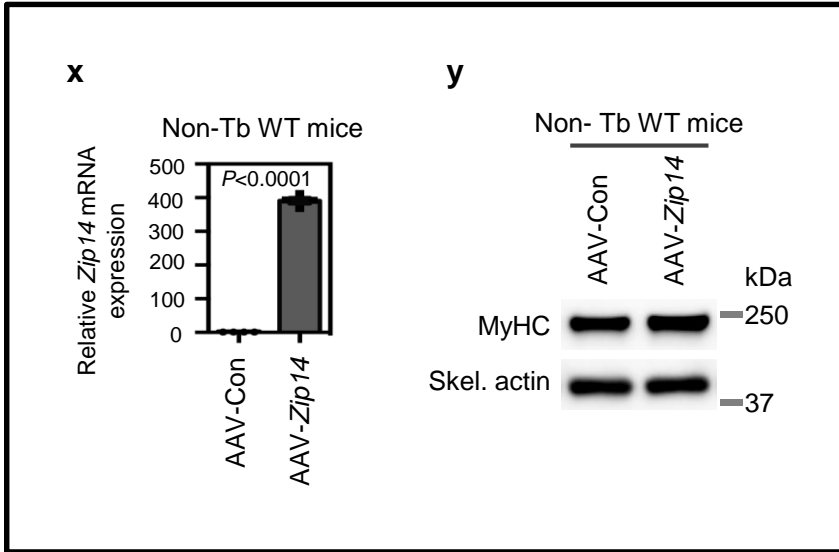
Supplementary Figure 5



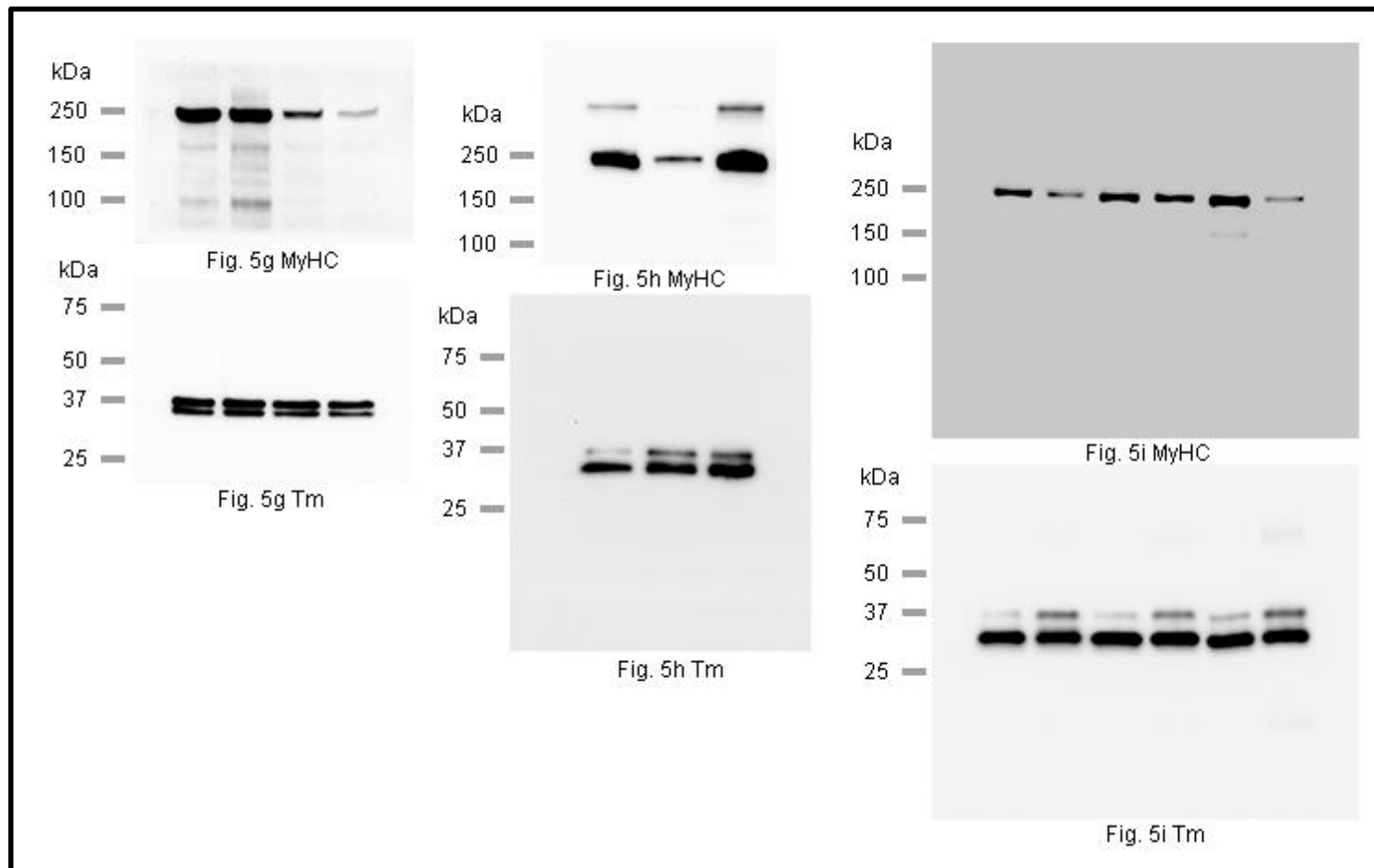
Supplementary Figure 5



Supplementary Figure 5



Supplementary Figure 6



Supplemental table 1: Differentially expressed genes between muscles from mice bearing C26m2 and 4T1 metastases or from non-tumor bearing control from transcriptomic analysis by RNA sequencing. Common genes with significant p- and q-values (cutoff=0.05), sorted by decreasing log2 fold change of C26m2 are listed from RNA seq data (see Figure 2a-b). RNA-sequencing data is available in the Gene Expression Omnibus (GEO) with accession number GSE112204.

Genes	C26m2 model			4T1 model		
	log2 fold change	p value	q value	log2 fold change	p value	q value
Fam65c	7.62578	5.00E-05	0.00032	4.54131	5.00E-05	0.00038
Mt2	6.60907	5.00E-05	0.00032	7.06735	5.00E-05	0.00038
Doc2b	6.37904	5.00E-05	0.00032	6.83145	5.00E-05	0.00038
Clnkb	6.05644	0.01335	0.03852	3.34784	0.0018	0.00842
Acot1	5.93372	5.00E-05	0.00032	6.5275	5.00E-05	0.00038
Armc2	5.89909	0.00095	0.00425	2.85873	0.00015	0.00102
Mt1	5.82281	5.00E-05	0.00032	6.63242	5.00E-05	0.00038
Il6ra	5.28983	5.00E-05	0.00032	5.59273	5.00E-05	0.00038
Slc39a14	5.26324	5.00E-05	0.00032	4.97143	5.00E-05	0.00038
Ampd3	5.1855	5.00E-05	0.00032	5.59895	5.00E-05	0.00038
8430408G22Rik	5.14799	5.00E-05	0.00032	6.27522	5.00E-05	0.00038
Cbx8	5.06976	1.00E-04	0.0006	-5.9708	5.00E-05	0.00038
Cdkn1a	5.00789	5.00E-05	0.00032	3.76426	5.00E-05	0.00038
Pnmt	4.96775	5.00E-05	0.00032	3.77925	5.00E-05	0.00038
Fah	4.95461	5.00E-05	0.00032	5.13093	5.00E-05	0.00038
Serpine1	4.9095	5.00E-05	0.00032	2.36004	5.00E-05	0.00038
Ddit4	4.84367	5.00E-05	0.00032	5.22706	5.00E-05	0.00038
2410006H16Rik	4.74236	5.00E-05	0.00032	5.95773	5.00E-05	0.00038
Trim63	4.72891	5.00E-05	0.00032	4.57203	5.00E-05	0.00038
Serpina3n	4.69669	5.00E-05	0.00032	4.06373	5.00E-05	0.00038
Wdr62	4.59427	5.00E-05	0.00032	5.62127	5.00E-05	0.00038
Maff	4.58787	5.00E-05	0.00032	6.00904	5.00E-05	0.00038
Sesn1	4.54081	5.00E-05	0.00032	4.32566	5.00E-05	0.00038
Tmem82	4.53145	5.00E-05	0.00032	3.27844	5.00E-05	0.00038
Inhbb	4.47969	5.00E-05	0.00032	2.41203	5.00E-05	0.00038
Fkbp5	4.43001	5.00E-05	0.00032	3.68796	5.00E-05	0.00038
Fam134b	4.42913	5.00E-05	0.00032	4.52806	5.00E-05	0.00038
Acss1	4.34291	5.00E-05	0.00032	4.63063	5.00E-05	0.00038
Gdf5	4.34057	0.00115	0.005	3.99017	5.00E-05	0.00038
Lcn2	4.33243	5.00E-05	0.00032	6.73825	5.00E-05	0.00038
Wbscr27	4.31509	5.00E-05	0.00032	2.41112	0.0014	0.00681
Sphk1	4.27919	5.00E-05	0.00032	3.41545	5.00E-05	0.00038
Ggn	4.23835	3.00E-04	0.00158	3.94397	0.00715	0.02598
Sik1	4.2175	5.00E-05	0.00032	5.08018	5.00E-05	0.00038

Adamts2	4.17393	5.00E-05	0.00032	4.29205	5.00E-05	0.00038
Cebpd	4.15688	5.00E-05	0.00032	4.55169	5.00E-05	0.00038
Map3k6	4.15607	5.00E-05	0.00032	5.66728	5.00E-05	0.00038
Gm11827	4.13967	5.00E-05	0.00032	4.22723	5.00E-05	0.00038
Spsb1	4.07632	5.00E-05	0.00032	4.28801	5.00E-05	0.00038
Stc1	4.0562	3.00E-04	0.00158	2.43903	5.00E-05	0.00038
Ctsl	3.97948	5.00E-05	0.00032	4.25205	5.00E-05	0.00038
Fbxo32	3.9738	5.00E-05	0.00032	4.23441	5.00E-05	0.00038
2310008H04Rik	3.79733	5.00E-05	0.00032	4.64727	5.00E-05	0.00038
Zap70	3.76607	0.0141	0.04025	3.55426	0.00015	0.00102
Osbp2	3.74005	5.00E-05	0.00032	5.34914	5.00E-05	0.00038
Aacs	3.72422	5.00E-05	0.00032	2.95983	5.00E-05	0.00038
D230025D16Rik	3.71236	5.00E-05	0.00032	4.12116	5.00E-05	0.00038
Eif4ebp1	3.67998	5.00E-05	0.00032	3.87891	5.00E-05	0.00038
E230001N04Rik	3.66771	5.00E-05	0.00032	2.43134	1.00E-04	0.00072
Gm3129	3.64779	0.00955	0.02937	2.24603	5.00E-05	0.00038
Cnksr1	3.64586	5.00E-05	0.00032	3.69211	5.00E-05	0.00038
S100a8	3.63757	5.00E-05	0.00032	11.0028	0.0103	0.03481
Gm6907	3.63705	5.00E-05	0.00032	3.35974	5.00E-05	0.00038
D17H6S56E-5	3.62397	0.0016	0.00663	3.50525	0.01145	0.03798
Arhgap26	3.6051	5.00E-05	0.00032	3.00607	5.00E-05	0.00038
Lrrc58	3.6008	5.00E-05	0.00032	3.49342	5.00E-05	0.00038
Arl4d	3.57753	5.00E-05	0.00032	5.56736	5.00E-05	0.00038
Ctxn3	3.57437	5.00E-05	0.00032	4.002	2.00E-04	0.00131
Mafk	3.57387	5.00E-05	0.00032	3.60778	5.00E-05	0.00038
Hspb7	3.57186	5.00E-05	0.00032	1.48465	0.01215	0.03973
Mocs1	3.57149	5.00E-05	0.00032	3.7814	5.00E-05	0.00038
Hgs	3.55057	5.00E-05	0.00032	3.38834	5.00E-05	0.00038
Runx1	3.54441	5.00E-05	0.00032	4.42588	5.00E-05	0.00038
Ppp1r15a	3.54053	5.00E-05	0.00032	3.9156	5.00E-05	0.00038
Aspg	3.53637	0.00515	0.01761	3.75536	0.00445	0.01765
Krt80	3.52616	5.00E-05	0.00032	6.0081	5.00E-05	0.00038
Taf1d	3.47479	5.00E-05	0.00032	3.59523	5.00E-05	0.00038
Arntl	3.44069	5.00E-05	0.00032	2.17766	5.00E-05	0.00038
Snhg12	3.43475	5.00E-05	0.00032	4.57641	5.00E-05	0.00038
Gabarapl1	3.42503	5.00E-05	0.00032	4.96391	5.00E-05	0.00038
Syt11	3.40822	0.012	0.0353	3.594	0.0041	0.0165
Tmbim1	3.39769	5.00E-05	0.00032	4.62547	5.00E-05	0.00038
Tgif1	3.37704	5.00E-05	0.00032	3.88579	5.00E-05	0.00038
Clec18a	3.37476	0.0013	0.00554	3.04525	0.0154	0.04794
Gm4511	3.36639	5.00E-05	0.00032	2.47096	5.00E-05	0.00038

Btg2	3.36274	5.00E-05	0.00032	4.73607	5.00E-05	0.00038
Ctps2	3.35479	5.00E-05	0.00032	4.15947	5.00E-05	0.00038
Cd300lf	3.35148	0.00255	0.00979	6.63553	0.00165	0.00782
lfi30	3.32271	5.00E-05	0.00032	4.68496	5.00E-05	0.00038
Gm826	3.31745	5.00E-05	0.00032	1.94099	1.00E-04	0.00072
Egln3	3.29569	5.00E-05	0.00032	1.62927	5.00E-05	0.00038
Cyp1b1	3.29026	5.00E-05	0.00032	3.64683	0.00045	0.00262
Figf	3.28577	5.00E-05	0.00032	2.58376	5.00E-05	0.00038
Irs2	3.2728	5.00E-05	0.00032	4.74579	5.00E-05	0.00038
GpnmB	3.26434	5.00E-05	0.00032	4.70506	5.00E-05	0.00038
Tfdp2	3.25722	5.00E-05	0.00032	4.0199	5.00E-05	0.00038
Hmgb2	3.24685	5.00E-05	0.00032	3.94083	5.00E-05	0.00038
Ankrd55	3.24539	0.00365	0.01315	3.51657	5.00E-05	0.00038
Npc1	3.24055	5.00E-05	0.00032	3.25793	5.00E-05	0.00038
Lmod2	3.23443	5.00E-05	0.00032	3.10346	5.00E-05	0.00038
Csrnp1	3.23281	5.00E-05	0.00032	4.34865	5.00E-05	0.00038
Ranbp9	3.19713	5.00E-05	0.00032	3.82251	5.00E-05	0.00038
Slc15a4	3.19552	5.00E-05	0.00032	3.34717	5.00E-05	0.00038
Fibin	3.17616	5.00E-05	0.00032	3.11407	5.00E-05	0.00038
Shroom3	3.16928	0.00025	0.00135	3.13039	0.00265	0.01149
Gm11730	3.1688	0.00045	0.00224	3.523	0.0029	0.01242
Gm9864	3.16736	5.00E-05	0.00032	2.54622	5.00E-05	0.00038
Arid5a	3.1544	5.00E-05	0.00032	3.90374	5.00E-05	0.00038
Sap30	3.1505	5.00E-05	0.00032	3.06086	5.00E-05	0.00038
Tuba1c	3.13742	5.00E-05	0.00032	3.05291	5.00E-05	0.00038
Slc25a34	3.13084	5.00E-05	0.00032	1.92077	5.00E-05	0.00038
Csf2rb	3.12306	5.00E-05	0.00032	3.17078	5.00E-05	0.00038
3110062M04Rik	3.11338	5.00E-05	0.00032	2.69669	5.00E-05	0.00038
Slc10a6	3.08922	5.00E-05	0.00032	4.19472	5.00E-05	0.00038
Acot2	3.08788	5.00E-05	0.00032	1.65642	5.00E-05	0.00038
Sgip1	3.06363	5.00E-05	0.00032	3.05568	5.00E-05	0.00038
Aph1c	3.06255	1.00E-04	0.0006	3.19214	3.00E-04	0.00184
Junb	3.04611	5.00E-05	0.00032	4.31631	5.00E-05	0.00038
Slc7a8	3.04507	5.00E-05	0.00032	3.23876	5.00E-05	0.00038
Foxo1	3.03254	5.00E-05	0.00032	3.25836	5.00E-05	0.00038
Gm12240	3.02968	0.00055	0.00266	Inf	5.00E-05	0.00038
Gas5	3.02466	5.00E-05	0.00032	4.01519	5.00E-05	0.00038
Mocos	3.01897	5.00E-05	0.00032	2.80635	5.00E-05	0.00038
Gm2783	3.00127	5.00E-05	0.00032	2.26129	0.01005	0.03423
Plin4	2.99072	5.00E-05	0.00032	2.51292	5.00E-05	0.00038
Cxcl13	2.98757	5.00E-04	0.00244	2.03627	0.0083	0.02932

Arrdc5	2.97803	6.00E-04	0.00286	1.92118	0.0032	0.01343
Kcnk5	2.96524	5.00E-05	0.00032	4.70251	5.00E-05	0.00038
Arrdc2	2.94626	5.00E-05	0.00032	3.32979	5.00E-05	0.00038
D16H22S680E	2.93163	5.00E-05	0.00032	2.93287	5.00E-05	0.00038
Fam55c	2.91038	5.00E-05	0.00032	3.44763	5.00E-05	0.00038
Atf3	2.90608	5.00E-05	0.00032	3.49949	5.00E-05	0.00038
Zwint	2.90283	5.00E-05	0.00032	2.71305	5.00E-05	0.00038
E030010A14Rik	2.88914	5.00E-05	0.00032	2.57063	5.00E-05	0.00038
Klf15	2.87976	5.00E-05	0.00032	3.61386	5.00E-05	0.00038
Nr1h4	2.87936	0.00175	0.00715	5.2299	0.00315	0.01327
ltpkc	2.87645	5.00E-05	0.00032	5.22749	5.00E-05	0.00038
Mknk2	2.87045	5.00E-05	0.00032	2.364	5.00E-05	0.00038
Bdnf	2.86557	5.00E-05	0.00032	2.23222	5.00E-05	0.00038
2410004N09Rik	2.84484	5.00E-05	0.00032	4.66499	5.00E-05	0.00038
Hif3a	2.84243	5.00E-05	0.00032	2.4564	0.01385	0.04424
Kcnh6	2.83521	5.00E-05	0.00032	3.5126	5.00E-05	0.00038
Gm11974	2.82197	2.00E-04	0.00111	2.39493	5.00E-05	0.00038
Gprc5a	2.82009	5.00E-05	0.00032	2.53692	0.00015	0.00102
Bnip3	2.80675	5.00E-05	0.00032	2.9095	5.00E-05	0.00038
Gm9992	2.79598	0.00185	0.00749	Inf	5.00E-05	0.00038
Setdb2	2.78789	5.00E-05	0.00032	2.91528	5.00E-05	0.00038
Errfi1	2.78361	5.00E-05	0.00032	2.59729	5.00E-05	0.00038
Gm3662	2.78327	5.00E-05	0.00032	2.37318	5.00E-05	0.00038
Tbc1d15	2.77831	5.00E-05	0.00032	2.96084	5.00E-05	0.00038
Sim2	2.77476	5.00E-05	0.00032	1.78931	5.00E-05	0.00038
Rasd1	2.7708	5.00E-05	0.00032	4.16613	5.00E-05	0.00038
Akt1	2.76836	5.00E-05	0.00032	2.91567	5.00E-05	0.00038
1810032O08Rik	2.7681	5.00E-05	0.00032	3.43925	5.00E-05	0.00038
Trp53inp1	2.75293	5.00E-05	0.00032	4.5894	5.00E-05	0.00038
Ctla2a	2.75251	5.00E-05	0.00032	2.04611	5.00E-05	0.00038
Igfbp3	2.74436	5.00E-05	0.00032	2.97562	5.00E-05	0.00038
Apold1	2.74383	5.00E-05	0.00032	1.86327	5.00E-05	0.00038
Arl8a	2.74257	5.00E-05	0.00032	2.69799	5.00E-05	0.00038
Kcnip2	2.74191	5.00E-05	0.00032	4.79362	5.00E-05	0.00038
1190002H23Rik	2.73437	5.00E-05	0.00032	2.15944	5.00E-05	0.00038
Map3k14	2.73018	5.00E-05	0.00032	2.29486	5.00E-05	0.00038
Fdft1	2.72968	5.00E-05	0.00032	2.79513	0.00255	0.01114
Pank1	2.72963	5.00E-05	0.00032	2.30569	5.00E-05	0.00038
Tmem37	2.71352	5.00E-05	0.00032	3.32549	5.00E-05	0.00038
S100a9	2.70872	5.00E-05	0.00032	9.48047	5.00E-05	0.00038
Ccdc136	2.70625	5.00E-05	0.00032	2.03598	3.00E-04	0.00184

Gabrr1	2.70498	0.0016	0.00663	2.61918	0.0096	0.03306
Plaur	2.69013	5.00E-05	0.00032	3.60181	5.00E-05	0.00038
Mrpl41	2.67745	5.00E-05	0.00032	2.88858	5.00E-05	0.00038
Ddx56	2.67156	5.00E-05	0.00032	1.9294	5.00E-05	0.00038
Fam132b	2.67121	4.00E-04	0.00203	2.09041	0.0023	0.01029
Nploc4	2.66786	5.00E-05	0.00032	2.50537	5.00E-05	0.00038
Slc38a6	2.66587	5.00E-05	0.00032	2.42658	5.00E-05	0.00038
Bcl2l1	2.66563	5.00E-05	0.00032	3.57464	5.00E-05	0.00038
Pla2g12a	2.65938	5.00E-05	0.00032	2.37902	5.00E-05	0.00038
Scgb3a1	2.6546	0.0152	0.04286	4.40976	0.00035	0.00212
Napb	2.64794	5.00E-05	0.00032	2.6718	5.00E-05	0.00038
Tcta	2.64424	5.00E-05	0.00032	1.18426	1.00E-04	0.00072
Enc1	2.63855	5.00E-05	0.00032	1.64485	5.00E-05	0.00038
4931428F04Rik	2.63204	5.00E-05	0.00032	1.83188	0.01185	0.03901
Zbtb16	2.63115	5.00E-05	0.00032	2.7727	5.00E-05	0.00038
RP23-344J14.1	2.61898	5.00E-05	0.00032	1.76205	5.00E-05	0.00038
Armcx5	2.61448	5.00E-05	0.00032	1.92312	0.00855	0.02999
Dio2	2.60647	5.00E-05	0.00032	2.1201	5.00E-05	0.00038
Plin5	2.6049	5.00E-05	0.00032	1.48927	5.00E-05	0.00038
Ubxn4	2.58981	5.00E-05	0.00032	2.3336	5.00E-05	0.00038
Usp3	2.58733	5.00E-05	0.00032	2.49975	5.00E-05	0.00038
Pnpla2	2.57386	5.00E-05	0.00032	2.59429	5.00E-05	0.00038
Dmxi2	2.55908	5.00E-05	0.00032	3.09625	5.00E-05	0.00038
Elk4	2.54588	5.00E-05	0.00032	2.46946	5.00E-05	0.00038
Pim3	2.534	5.00E-05	0.00032	3.61052	5.00E-05	0.00038
Myh14	2.53262	5.00E-05	0.00032	2.35357	5.00E-05	0.00038
Anapc16	2.52013	5.00E-05	0.00032	2.59087	5.00E-05	0.00038
Rnf125	2.51539	5.00E-05	0.00032	1.70514	5.00E-05	0.00038
Gm14634	2.51073	9.00E-04	0.00406	2.05096	0.00415	0.01665
Ccrn4l	2.50227	5.00E-05	0.00032	2.22373	5.00E-05	0.00038
Dync1li1	2.49597	5.00E-05	0.00032	2.92824	5.00E-05	0.00038
Gpr157	2.4922	5.00E-05	0.00032	3.10968	5.00E-05	0.00038
Ppig	2.48519	5.00E-05	0.00032	2.4121	5.00E-05	0.00038
Lgals4	2.4813	5.00E-05	0.00032	1.99928	5.00E-05	0.00038
Nfil3	2.47526	5.00E-05	0.00032	3.97303	5.00E-05	0.00038
Gclm	2.4741	6.00E-04	0.00286	2.79195	0.00905	0.03147
Mustn1	2.47126	5.00E-05	0.00032	3.05319	5.00E-05	0.00038
Atp6v1h	2.46569	5.00E-05	0.00032	2.31508	5.00E-05	0.00038
Anubl1	2.45078	5.00E-05	0.00032	2.19056	5.00E-05	0.00038
Slc35f5	2.43946	5.00E-05	0.00032	2.10272	5.00E-05	0.00038
Ankrd2	2.43587	5.00E-05	0.00032	1.75585	3.00E-04	0.00184

lfrd1	2.43461	5.00E-05	0.00032	3.7963	5.00E-05	0.00038
Il4ra	2.434	5.00E-05	0.00032	2.31876	5.00E-05	0.00038
Slc20a1	2.42689	5.00E-05	0.00032	2.49453	5.00E-05	0.00038
BC027231	2.42667	5.00E-05	0.00032	1.96912	0.0016	0.00763
Csf3r	2.41975	1.00E-04	0.0006	5.37194	5.00E-05	0.00038
4931406P16Rik	2.41541	5.00E-05	0.00032	2.52362	5.00E-05	0.00038
Gm9889	2.4154	0.0144	0.04093	1.88009	0.0145	0.04576
1110038D17Rik	2.41116	5.00E-05	0.00032	2.63124	5.00E-05	0.00038
Fam63a	2.40479	5.00E-05	0.00032	1.71307	0.0074	0.02672
Galnt12	2.40042	5.00E-05	0.00032	2.98474	5.00E-05	0.00038
Pnpla7	2.39955	5.00E-05	0.00032	2.61438	5.00E-05	0.00038
Zfp189	2.39659	5.00E-05	0.00032	2.17533	5.00E-05	0.00038
Arrdc3	2.39352	5.00E-05	0.00032	2.95149	5.00E-05	0.00038
Csf2rb2	2.39106	5.00E-05	0.00032	2.99264	5.00E-05	0.00038
Psma7	2.3904	5.00E-05	0.00032	2.10816	5.00E-05	0.00038
Zfp36	2.39014	5.00E-05	0.00032	3.45557	5.00E-05	0.00038
Tcp11l2	2.38903	5.00E-05	0.00032	3.70098	5.00E-05	0.00038
Ednrb	2.38404	5.00E-05	0.00032	1.48178	5.00E-05	0.00038
Mmp9	2.38254	0.01075	0.03222	5.00689	5.00E-05	0.00038
Lrrc30	2.37476	5.00E-05	0.00032	2.47403	5.00E-05	0.00038
Psmc4	2.37015	5.00E-05	0.00032	2.44113	5.00E-05	0.00038
Paox	2.36753	5.00E-05	0.00032	2.81497	5.00E-05	0.00038
Avil	2.35186	0.00065	0.00308	2.34876	0.00025	0.00159
Slc43a2	2.34646	5.00E-05	0.00032	1.65418	0.00015	0.00102
Cldn5	2.34595	5.00E-05	0.00032	0.7837	0.01275	0.04138
Snhg1	2.33694	5.00E-05	0.00032	2.54961	5.00E-05	0.00038
Ubb	2.33035	5.00E-05	0.00032	2.53124	5.00E-05	0.00038
Psmc4	2.32138	5.00E-05	0.00032	1.95786	5.00E-05	0.00038
Cidea	2.31832	0.00895	0.02781	3.42824	5.00E-05	0.00038
Adamts12	2.31525	6.00E-04	0.00286	2.94391	5.00E-05	0.00038
Prom1	2.31343	5.00E-05	0.00032	1.39441	5.00E-05	0.00038
Ldlrad3	2.31212	5.00E-05	0.00032	2.56581	5.00E-05	0.00038
Whamm	2.30838	5.00E-05	0.00032	2.12232	5.00E-05	0.00038
Dgat2	2.3061	5.00E-05	0.00032	1.97177	5.00E-05	0.00038
Gm1821	2.30054	0.00335	0.01227	2.36744	1.00E-04	0.00072
Sertad2	2.29856	5.00E-05	0.00032	2.38629	5.00E-05	0.00038
Sctr	2.29798	5.00E-05	0.00032	1.32455	5.00E-05	0.00038
Adig	2.29271	1.00E-04	0.0006	2.10404	4.00E-04	0.00237
Car4	2.29206	5.00E-05	0.00032	2.38109	5.00E-05	0.00038
Cdkal1	2.28276	5.00E-05	0.00032	3.72009	5.00E-05	0.00038
Cry2	2.27803	5.00E-05	0.00032	4.07133	5.00E-05	0.00038

Acer2	2.27683	5.00E-05	0.00032	1.9168	5.00E-05	0.00038
Greb1	2.27523	0.00545	0.01845	3.37911	5.00E-05	0.00038
RP24-201C14.5	2.27226	5.00E-05	0.00032	2.51083	5.00E-05	0.00038
Abcc8	2.26718	5.00E-05	0.00032	0.85227	0.01135	0.03772
Ankrd33b	2.2669	5.00E-05	0.00032	3.03229	5.00E-05	0.00038
Nt5dc1	2.2629	5.00E-05	0.00032	1.92276	5.00E-05	0.00038
Got1	2.25621	5.00E-05	0.00032	2.81914	5.00E-05	0.00038
Zfp346	2.25532	5.00E-05	0.00032	2.55165	5.00E-05	0.00038
Mnt	2.25444	5.00E-05	0.00032	2.34721	5.00E-05	0.00038
Gm12840	2.25234	5.00E-05	0.00032	4.05826	5.00E-05	0.00038
Trafd1	2.25203	5.00E-05	0.00032	2.64001	5.00E-05	0.00038
Litaf	2.24673	5.00E-05	0.00032	2.14073	5.00E-05	0.00038
Ddx21	2.24075	5.00E-05	0.00032	2.13797	5.00E-05	0.00038
Grrp1	2.23891	5.00E-05	0.00032	2.50626	5.00E-05	0.00038
Ticam1	2.23734	5.00E-05	0.00032	2.67436	5.00E-05	0.00038
Cobll1	2.22764	5.00E-05	0.00032	3.39685	5.00E-05	0.00038
Per1	2.22486	5.00E-05	0.00032	2.88536	5.00E-05	0.00038
MIIt10	2.22468	5.00E-05	0.00032	2.32725	5.00E-05	0.00038
Tex264	2.22395	5.00E-05	0.00032	2.33005	5.00E-05	0.00038
Ern1	2.22147	5.00E-05	0.00032	2.84659	5.00E-05	0.00038
Taf7	2.21874	5.00E-05	0.00032	1.03807	0.00515	0.01983
Gaa	2.21189	5.00E-05	0.00032	2.427	5.00E-05	0.00038
Sbds	2.21185	5.00E-05	0.00032	2.82459	5.00E-05	0.00038
Med15	2.21003	5.00E-05	0.00032	2.39113	5.00E-05	0.00038
2310028H24Rik	2.20951	5.00E-05	0.00032	2.00343	5.00E-05	0.00038
Mnd1	2.20475	0.01195	0.0352	2.34183	5.00E-05	0.00038
Hspb1	2.20391	5.00E-05	0.00032	2.28089	5.00E-05	0.00038
A930001N09Rik	2.19969	5.00E-05	0.00032	2.41105	5.00E-05	0.00038
Pnrc1	2.19775	5.00E-05	0.00032	3.03777	5.00E-05	0.00038
Twf2	2.19766	5.00E-05	0.00032	2.3621	5.00E-05	0.00038
Hist2h4	2.19487	0.002	0.00799	1.37659	0.01605	0.04955
Rhbdf2	2.18771	5.00E-05	0.00032	2.89646	5.00E-05	0.00038
Inca1	2.18762	5.00E-05	0.00032	1.55954	1.00E-04	0.00072
Klf10	2.1821	5.00E-05	0.00032	1.68157	1.00E-04	0.00072
Foxo3	2.17931	5.00E-05	0.00032	2.11155	5.00E-05	0.00038
Pir	2.17416	5.00E-05	0.00032	2.1686	5.00E-05	0.00038
Tspyl2	2.17386	5.00E-05	0.00032	2.67111	5.00E-05	0.00038
Sbno2	2.17338	5.00E-05	0.00032	2.40677	5.00E-05	0.00038
Tenc1	2.17336	5.00E-05	0.00032	2.05549	5.00E-05	0.00038
Malt1	2.17298	5.00E-05	0.00032	2.8708	5.00E-05	0.00038
Xirp1	2.16776	5.00E-05	0.00032	2.28413	5.00E-05	0.00038

3230401D17Rik	2.16425	5.00E-05	0.00032	2.26987	5.00E-05	0.00038
Arfgap3	2.16244	5.00E-05	0.00032	3.59137	5.00E-05	0.00038
Sema6b	2.16082	5.00E-05	0.00032	2.25425	5.00E-05	0.00038
Gm129	2.16053	5.00E-05	0.00032	3.04779	5.00E-05	0.00038
Acacb	2.15671	5.00E-05	0.00032	1.68379	5.00E-05	0.00038
Mlycd	2.15609	5.00E-05	0.00032	1.59368	5.00E-05	0.00038
Spns2	2.15529	5.00E-05	0.00032	3.44977	5.00E-05	0.00038
Ip6k3	2.15459	5.00E-05	0.00032	2.0435	5.00E-05	0.00038
Mfap1a	2.14599	5.00E-05	0.00032	1.72469	5.00E-05	0.00038
Myo5a	2.14439	5.00E-05	0.00032	3.687	5.00E-05	0.00038
Zkscan6	2.14144	5.00E-05	0.00032	2.97434	5.00E-05	0.00038
Psm11	2.1405	5.00E-05	0.00032	1.72288	5.00E-05	0.00038
Kdsr	2.13873	5.00E-05	0.00032	1.65287	5.00E-05	0.00038
Wdr81	2.1352	5.00E-05	0.00032	2.90565	5.00E-05	0.00038
Ivns1abp	2.12936	5.00E-05	0.00032	2.033	5.00E-05	0.00038
Ubc	2.12436	5.00E-05	0.00032	3.81618	5.00E-05	0.00038
Sqstm1	2.12387	5.00E-05	0.00032	2.50029	5.00E-05	0.00038
Heatr7a	2.12162	5.00E-05	0.00032	2.25287	5.00E-05	0.00038
4931408A02Rik	2.12049	0.0052	0.01776	2.12542	0.00295	0.01259
Ctdp1	2.12024	5.00E-05	0.00032	2.75837	5.00E-05	0.00038
Gda	2.12011	5.00E-05	0.00032	2.58394	5.00E-05	0.00038
Uvrag	2.11437	5.00E-05	0.00032	2.6137	5.00E-05	0.00038
Lrrc29	2.11376	0.00015	0.00086	2.60957	0.00055	0.00312
Sdc4	2.11295	5.00E-05	0.00032	2.74339	5.00E-05	0.00038
Tmem87b	2.11176	5.00E-05	0.00032	2.76402	5.00E-05	0.00038
Map3k8	2.11016	5.00E-05	0.00032	2.21941	5.00E-05	0.00038
Pik3r1	2.1097	5.00E-05	0.00032	2.35653	5.00E-05	0.00038
Mex3d	2.10536	5.00E-05	0.00032	2.03135	5.00E-05	0.00038
Fam164c	2.1041	5.00E-05	0.00032	1.86847	5.00E-05	0.00038
Tbx1	2.10397	5.00E-05	0.00032	2.5595	5.00E-05	0.00038
Timm10	2.10223	5.00E-05	0.00032	1.65814	5.00E-05	0.00038
Gm16516	2.10147	5.00E-05	0.00032	1.12287	0.00265	0.01149
Gpr160	2.10126	0.00175	0.00715	2.85389	5.00E-05	0.00038
Snrnp48	2.09878	5.00E-05	0.00032	2.46196	5.00E-05	0.00038
Bex1	2.09861	9.00E-04	0.00406	2.61157	0.0034	0.01416
Eif3a	2.09396	5.00E-05	0.00032	2.74294	5.00E-05	0.00038
Filip1	2.09038	5.00E-05	0.00032	1.81917	5.00E-05	0.00038
Odf2	2.08584	5.00E-05	0.00032	2.65426	5.00E-05	0.00038
Fbxo30	2.08557	5.00E-05	0.00032	1.82845	5.00E-05	0.00038
Zfand2a	2.08261	5.00E-05	0.00032	2.29312	5.00E-05	0.00038
1500012F01Rik	2.07831	2.00E-04	0.00111	3.37467	5.00E-05	0.00038

Sox4	2.07277	5.00E-05	0.00032	3.99965	5.00E-05	0.00038
Psmid8	2.0661	5.00E-05	0.00032	1.96676	5.00E-05	0.00038
Bnip3l	2.06335	5.00E-05	0.00032	2.37301	5.00E-05	0.00038
Cebpb	2.06136	5.00E-05	0.00032	2.84698	5.00E-05	0.00038
Bach1	2.06085	5.00E-05	0.00032	2.10825	5.00E-05	0.00038
Ptp4a1	2.0588	5.00E-05	0.00032	1.39092	0.00055	0.00312
Aspscr1	2.05551	5.00E-05	0.00032	2.47651	5.00E-05	0.00038
Zfp617	2.05518	5.00E-05	0.00032	1.27265	1.00E-04	0.00072
Trp53i11	2.04687	5.00E-05	0.00032	-0.8476	0.01395	0.04445
Nfkbib	2.04237	0.00045	0.00224	2.21157	0.00865	0.0303
Gnl3	2.04205	5.00E-05	0.00032	1.74516	0.00745	0.02687
Psmid3	2.04146	5.00E-05	0.00032	1.52332	5.00E-05	0.00038
Nudt16	2.04054	5.00E-05	0.00032	2.41574	5.00E-05	0.00038
Zfp771	2.03998	5.00E-05	0.00032	2.24978	3.00E-04	0.00184
Gtf3c4	2.03468	5.00E-05	0.00032	1.18616	1.00E-04	0.00072
Idua	2.03426	5.00E-05	0.00032	1.54607	0.00565	0.02137
Fam105b	2.02952	5.00E-05	0.00032	2.12879	5.00E-05	0.00038
Abhd4	2.02713	5.00E-05	0.00032	2.07268	5.00E-05	0.00038
Edem1	2.02348	5.00E-05	0.00032	2.52488	5.00E-05	0.00038
Nsmce1	2.02246	5.00E-05	0.00032	2.27298	5.00E-05	0.00038
Slc9a1	2.02185	5.00E-05	0.00032	1.63676	5.00E-05	0.00038
Amotl2	2.02009	5.00E-05	0.00032	2.42884	5.00E-05	0.00038
Gm9774	2.01289	0.0064	0.02114	2.21096	0.0046	0.01814
Catsper4	2.01066	5.00E-04	0.00244	2.0769	5.00E-04	0.00287
Baiap2l1	2.00464	0.0087	0.02717	3.3405	5.00E-05	0.00038
Gtpbp4	2.00414	5.00E-05	0.00032	1.98568	5.00E-05	0.00038
Sorbs3	2.00313	5.00E-05	0.00032	2.93554	5.00E-05	0.00038
Gm17672	1.99997	0.0035	0.01272	2.70452	5.00E-05	0.00038
Zxdc	1.99853	5.00E-05	0.00032	2.35526	5.00E-05	0.00038
Accn3	1.99709	0.00515	0.01761	2.88929	5.00E-05	0.00038
Zfyve1	1.99372	5.00E-05	0.00032	2.28399	5.00E-05	0.00038
Zc3h6	1.99308	5.00E-05	0.00032	1.98481	5.00E-05	0.00038
Cd68	1.99249	5.00E-05	0.00032	4.29179	5.00E-05	0.00038
Nmd3	1.98832	5.00E-05	0.00032	1.5324	5.00E-05	0.00038
Osmr	1.9862	5.00E-05	0.00032	1.41789	0.00025	0.00159
Psmid2	1.98496	5.00E-05	0.00032	1.56976	3.00E-04	0.00184
Ulk1	1.98482	5.00E-05	0.00032	2.0743	5.00E-05	0.00038
Gcc2	1.98471	5.00E-05	0.00032	2.19368	5.00E-05	0.00038
Gm16854	1.9843	5.00E-05	0.00032	4.70914	5.00E-05	0.00038
Tle1	1.98154	5.00E-05	0.00032	1.32685	2.00E-04	0.00131
Fosl2	1.97748	5.00E-05	0.00032	2.43838	5.00E-05	0.00038

Plekhm2	1.97705	5.00E-05	0.00032	1.59003	0.00025	0.00159
Siah1a	1.97192	5.00E-05	0.00032	2.09969	5.00E-05	0.00038
Zfp655	1.97066	5.00E-05	0.00032	2.52525	5.00E-05	0.00038
AK129341	1.96689	5.00E-05	0.00032	1.93166	1.00E-04	0.00072
Plaa	1.96508	5.00E-05	0.00032	1.4195	5.00E-05	0.00038
Nap1l1	1.96294	5.00E-05	0.00032	1.80962	5.00E-05	0.00038
Il1r2	1.95449	0.0068	0.02218	6.27132	0.00125	0.00621
Sdad1	1.95268	5.00E-05	0.00032	1.889	5.00E-05	0.00038
Adamts15	1.94821	5.00E-05	0.00032	1.01723	0.0029	0.01242
Snhg5	1.94683	5.00E-05	0.00032	2.78759	5.00E-05	0.00038
Cwc22	1.93936	1.00E-04	0.0006	2.08443	5.00E-05	0.00038
Chchd8	1.93909	5.00E-05	0.00032	1.93095	1.00E-04	0.00072
Mapk6	1.93779	5.00E-05	0.00032	1.38641	5.00E-05	0.00038
Arrdc4	1.93725	5.00E-05	0.00032	2.04024	5.00E-05	0.00038
Ube4a	1.93513	5.00E-05	0.00032	1.49441	5.00E-05	0.00038
Hist1h2al	1.93465	5.00E-05	0.00032	1.90211	5.00E-05	0.00038
Smad7	1.93308	5.00E-05	0.00032	1.06755	0.014	0.04456
Acr	1.92901	0.0105	0.0317	2.36462	0.00405	0.01634
Abca4	1.9287	0.0022	0.00865	3.65005	5.00E-05	0.00038
Nufip1	1.92274	5.00E-05	0.00032	2.09426	5.00E-05	0.00038
BC026585	1.92214	0.00925	0.0286	1.54641	0.0161	0.0496
1110038B12Rik	1.91722	5.00E-05	0.00032	2.71314	5.00E-05	0.00038
Cd36	1.91563	5.00E-05	0.00032	1.10695	0.00825	0.02918
Hectd1	1.91537	5.00E-05	0.00032	3.14037	5.00E-05	0.00038
Hip1r	1.91263	0.00045	0.00224	2.26398	5.00E-05	0.00038
Pttg1ip	1.90767	5.00E-05	0.00032	2.896	5.00E-05	0.00038
Tmem38b	1.90273	5.00E-05	0.00032	1.22027	5.00E-05	0.00038
Utp14a	1.90172	5.00E-05	0.00032	1.97825	5.00E-05	0.00038
Psmc2	1.90155	5.00E-05	0.00032	1.43985	5.00E-05	0.00038
Phyhip1	1.89939	5.00E-05	0.00032	1.32375	0.00665	0.02443
Sh3bp2	1.89689	5.00E-05	0.00032	1.90995	5.00E-05	0.00038
Trmt1	1.89463	5.00E-05	0.00032	1.90777	5.00E-05	0.00038
Psemb2	1.89453	5.00E-05	0.00032	1.43973	5.00E-05	0.00038
Psmc4	1.89447	5.00E-05	0.00032	1.30204	0.00015	0.00102
Zfp839	1.89402	5.00E-05	0.00032	2.27149	5.00E-05	0.00038
Fam59a	1.88888	5.00E-05	0.00032	2.46179	5.00E-05	0.00038
Ing1	1.8861	5.00E-05	0.00032	2.57187	5.00E-05	0.00038
Jup	1.88562	5.00E-05	0.00032	1.26804	5.00E-05	0.00038
Dido1	1.88541	5.00E-05	0.00032	1.07296	0.00085	0.00449
Sorbs1	1.88539	5.00E-05	0.00032	1.67285	5.00E-05	0.00038
Bet1l	1.88436	5.00E-05	0.00032	1.76029	5.00E-05	0.00038

1810031K17Rik	1.88104	5.00E-05	0.00032	2.44699	5.00E-05	0.00038
Ssh2	1.88097	5.00E-05	0.00032	1.28661	0.0032	0.01343
Mtmr1	1.88077	5.00E-05	0.00032	2.00234	0.00015	0.00102
Ipo13	1.8793	5.00E-05	0.00032	1.84009	2.00E-04	0.00131
Dapk1	1.87727	5.00E-05	0.00032	1.53522	5.00E-05	0.00038
Prosc	1.87543	5.00E-05	0.00032	2.13206	5.00E-05	0.00038
C130022K22Rik	1.87508	5.00E-05	0.00032	2.21032	5.00E-05	0.00038
Rrs1	1.87501	5.00E-05	0.00032	1.58672	5.00E-05	0.00038
Slc9a4	1.87259	5.00E-05	0.00032	2.39681	0.00015	0.00102
Rit1	1.87166	5.00E-05	0.00032	1.28338	0.00245	0.01083
Pqlc1	1.86965	5.00E-05	0.00032	1.59215	5.00E-05	0.00038
Ezh1	1.8696	5.00E-05	0.00032	2.4305	5.00E-05	0.00038
Mapk1ip1	1.86847	5.00E-05	0.00032	2.0156	0.00025	0.00159
Daxx	1.86519	1.00E-04	0.0006	2.20967	5.00E-05	0.00038
Klhl2	1.86259	5.00E-05	0.00032	1.67043	5.00E-05	0.00038
BC031353	1.85882	5.00E-05	0.00032	2.24397	5.00E-05	0.00038
Srfbp1	1.8585	5.00E-05	0.00032	1.8661	5.00E-05	0.00038
Fkbp1	1.85776	0.0083	0.02615	2.78293	5.00E-05	0.00038
Hnrnpf	1.85619	5.00E-05	0.00032	1.59648	5.00E-05	0.00038
Cth	1.85464	5.00E-05	0.00032	2.42793	5.00E-05	0.00038
Sidt2	1.85347	5.00E-05	0.00032	2.39309	5.00E-05	0.00038
Impact	1.85248	5.00E-05	0.00032	1.37408	5.00E-05	0.00038
Fip111	1.84997	5.00E-05	0.00032	1.61621	0.00085	0.00449
D6Wsu116e	1.84898	5.00E-05	0.00032	2.07518	5.00E-05	0.00038
Adprhl2	1.84776	5.00E-05	0.00032	1.7154	5.00E-05	0.00038
Psemb4	1.84586	5.00E-05	0.00032	1.19491	0.00095	0.00492
Slc43a1	1.84174	5.00E-05	0.00032	1.69698	5.00E-05	0.00038
Gsr	1.84145	5.00E-05	0.00032	1.34195	0.00085	0.00449
Sepp1	1.84018	5.00E-05	0.00032	1.42787	0.00135	0.00662
Psemb3	1.84013	5.00E-05	0.00032	1.40101	5.00E-05	0.00038
Cyp4f17	1.83978	0.00015	0.00086	2.04116	5.00E-05	0.00038
Vgll2	1.83756	5.00E-05	0.00032	1.29544	5.00E-05	0.00038
Spata24	1.83732	5.00E-05	0.00032	3.08755	5.00E-05	0.00038
Clip1	1.83716	5.00E-05	0.00032	1.29811	0.00455	0.01797
Lrg1	1.83595	5.00E-05	0.00032	2.41353	5.00E-05	0.00038
Rasa3	1.83409	5.00E-05	0.00032	2.22671	5.00E-05	0.00038
Fam107a	1.83292	1.00E-04	0.0006	3.32117	5.00E-05	0.00038
Ccdc162	1.83228	0.00405	0.01436	2.8775	4.00E-04	0.00237
Snx10	1.83055	5.00E-05	0.00032	0.98961	0.01515	0.04737
Gabbr2	1.82876	0.008	0.02536	2.28179	4.00E-04	0.00237
Sdcbp2	1.82802	0.00865	0.02703	2.33201	0.0012	0.006

Olfm1	1.82691	5.00E-05	0.00032	1.24734	0.0012	0.006
Bri3	1.82392	5.00E-05	0.00032	1.69262	0.00125	0.00621
Ppargc1a	1.82272	5.00E-05	0.00032	3.53957	5.00E-05	0.00038
C130039O16Rik	1.82169	5.00E-05	0.00032	2.21133	5.00E-05	0.00038
Rbm34	1.81725	5.00E-05	0.00032	1.14518	6.00E-04	0.00335
Dnttip1	1.81569	5.00E-05	0.00032	1.7937	5.00E-05	0.00038
Cirbp	1.81384	5.00E-05	0.00032	2.71334	5.00E-05	0.00038
Piga	1.8105	5.00E-05	0.00032	2.55316	5.00E-05	0.00038
Scyl3	1.80777	5.00E-05	0.00032	1.58068	0.0017	0.00803
Txn1	1.80758	5.00E-05	0.00032	1.61373	5.00E-05	0.00038
Gadd45a	1.80631	5.00E-05	0.00032	1.51974	5.00E-05	0.00038
Fam13c	1.80181	5.00E-05	0.00032	1.28429	0.00255	0.01114
9530068E07Rik	1.80135	5.00E-05	0.00032	1.64603	5.00E-05	0.00038
Psma5	1.80126	5.00E-05	0.00032	1.11961	5.00E-05	0.00038
Gpr56	1.80012	5.00E-05	0.00032	1.57123	5.00E-05	0.00038
Pgf	1.79765	5.00E-05	0.00032	3.73028	5.00E-05	0.00038
Rbm3	1.79583	5.00E-05	0.00032	2.24371	5.00E-05	0.00038
Vars	1.79277	5.00E-05	0.00032	1.69795	5.00E-05	0.00038
Zkscan17	1.78826	5.00E-05	0.00032	2.13515	5.00E-05	0.00038
Zfp593	1.78804	0.0023	0.00899	1.59435	0.0149	0.04671
Grhl1	1.78206	3.00E-04	0.00158	2.60738	0.00045	0.00262
Upp1	1.78148	0.00675	0.02206	2.99793	0.0011	0.00557
Rorc	1.77743	5.00E-05	0.00032	2.5349	5.00E-05	0.00038
Als2	1.77625	5.00E-05	0.00032	0.92749	0.0021	0.00957
Dcaf10	1.77371	5.00E-05	0.00032	1.84549	5.00E-05	0.00038
Adarb1	1.77363	5.00E-05	0.00032	1.95155	5.00E-05	0.00038
Sod1	1.77342	5.00E-05	0.00032	1.95424	5.00E-05	0.00038
Coasy	1.77114	5.00E-05	0.00032	1.33392	0.00045	0.00262
Tollip	1.77073	5.00E-05	0.00032	2.08782	5.00E-05	0.00038
Tbx6	1.76765	0.00135	0.00572	2.69612	5.00E-05	0.00038
Ttll11	1.76722	2.00E-04	0.00111	1.9742	2.00E-04	0.00131
Dpm1	1.76661	5.00E-05	0.00032	1.41959	0.012	0.03937
Spred3	1.76458	5.00E-05	0.00032	2.95132	5.00E-05	0.00038
Dnajb6	1.76395	5.00E-05	0.00032	1.67903	5.00E-05	0.00038
Nt5c3	1.76302	5.00E-05	0.00032	1.30988	1.00E-04	0.00072
Dedd2	1.76173	5.00E-05	0.00032	2.17562	5.00E-05	0.00038
D19Wsu162e	1.76073	5.00E-05	0.00032	1.96098	5.00E-05	0.00038
Eda2r	1.75965	5.00E-05	0.00032	-1.1929	0.00095	0.00492
2210403K04Rik	1.755	5.00E-05	0.00032	1.38742	0.00105	0.00534
Tead4	1.75483	5.00E-05	0.00032	2.95736	5.00E-05	0.00038
E130012A19Rik	1.75389	5.00E-05	0.00032	3.906	5.00E-05	0.00038

Psma1	1.75355	5.00E-05	0.00032	1.06064	0.00135	0.00662
Slc3a2	1.75153	5.00E-05	0.00032	1.54756	5.00E-05	0.00038
Snhg7	1.75033	0.00025	0.00135	1.93899	5.00E-05	0.00038
2210021J22Rik	1.74911	5.00E-05	0.00032	1.78868	5.00E-05	0.00038
Abra	1.74743	5.00E-05	0.00032	2.57435	5.00E-05	0.00038
Nr4a3	1.74698	5.00E-05	0.00032	2.27648	5.00E-05	0.00038
Naglu	1.74441	5.00E-05	0.00032	1.82114	5.00E-05	0.00038
Gpatch1	1.73757	5.00E-05	0.00032	1.67736	5.00E-05	0.00038
Elac1	1.73707	5.00E-05	0.00032	1.31025	5.00E-05	0.00038
Phc3	1.73668	5.00E-05	0.00032	1.31957	5.00E-05	0.00038
Psma2	1.73356	5.00E-05	0.00032	1.03097	0.00255	0.01114
Nol3	1.73209	5.00E-05	0.00032	1.11768	0.0073	0.02642
Naca	1.72954	5.00E-05	0.00032	1.72059	0.00015	0.00102
Gramd3	1.72877	5.00E-05	0.00032	1.67112	5.00E-05	0.00038
Rora	1.72851	5.00E-05	0.00032	2.23751	5.00E-05	0.00038
Zbtb10	1.72587	5.00E-05	0.00032	2.29818	5.00E-05	0.00038
Klf2	1.72337	5.00E-05	0.00032	1.16096	3.00E-04	0.00184
Gm9967	1.72275	0.00015	0.00086	2.3906	5.00E-05	0.00038
Ppfibp1	1.72177	5.00E-05	0.00032	1.36804	0.001	0.00513
Dnttip2	1.72136	5.00E-05	0.00032	2.09318	5.00E-05	0.00038
2810474O19Rik	1.72042	5.00E-05	0.00032	2.81109	5.00E-05	0.00038
Nfkbia	1.71992	5.00E-05	0.00032	1.95812	5.00E-05	0.00038
Agfg2	1.71986	5.00E-05	0.00032	2.31654	5.00E-05	0.00038
Prr14	1.71964	5.00E-05	0.00032	1.5837	5.00E-05	0.00038
Bin3	1.71945	0.0033	0.01213	2.35696	0.00175	0.00822
Mllt11	1.71937	5.00E-05	0.00032	-1.0148	0.00845	0.02973
Sfpq	1.71619	5.00E-05	0.00032	2.08716	5.00E-05	0.00038
Bsdc1	1.7158	5.00E-05	0.00032	1.67236	5.00E-05	0.00038
Lpl	1.71528	5.00E-05	0.00032	1.92885	5.00E-05	0.00038
Ubfd1	1.71485	5.00E-05	0.00032	0.83735	0.0145	0.04576
Slc10a3	1.71444	5.00E-05	0.00032	1.61879	5.00E-05	0.00038
Erbp2ip	1.71421	5.00E-05	0.00032	2.29668	5.00E-05	0.00038
Cda	1.71398	0.00045	0.00224	1.39195	0.0126	0.04097
Zfand5	1.71228	5.00E-05	0.00032	1.4928	0.00015	0.00102
2410003K15Rik	1.70959	5.00E-05	0.00032	1.69131	5.00E-05	0.00038
Adrm1	1.70695	5.00E-05	0.00032	1.62438	5.00E-05	0.00038
Agap2	1.70638	5.00E-05	0.00032	1.2812	0.00015	0.00102
Tax1bp1	1.70585	5.00E-05	0.00032	1.99651	5.00E-05	0.00038
4930429F24Rik	1.70511	5.00E-05	0.00032	0.74833	0.013	0.04201
Atf4	1.70341	5.00E-05	0.00032	1.82557	5.00E-05	0.00038
Hnrnpa1	1.7017	5.00E-05	0.00032	1.72226	5.00E-05	0.00038

St8sia6	1.70015	0.00085	0.00387	1.27142	0.0073	0.02642
Sec23ip	1.69989	5.00E-05	0.00032	1.3177	5.00E-05	0.00038
Prpf6	1.69749	5.00E-05	0.00032	1.64147	0.0076	0.02728
Sh2d3c	1.69739	5.00E-05	0.00032	1.72619	5.00E-05	0.00038
Arnt	1.69726	5.00E-05	0.00032	1.61549	5.00E-05	0.00038
Spata5	1.69208	0.00135	0.00572	2.07635	4.00E-04	0.00237
Pex16	1.69111	5.00E-05	0.00032	1.72052	5.00E-05	0.00038
Vsig2	1.69013	5.00E-05	0.00032	1.80242	5.00E-05	0.00038
Mecp2	1.68826	5.00E-05	0.00032	2.91484	5.00E-05	0.00038
Shb	1.6879	3.00E-04	0.00158	1.20886	0.0145	0.04576
Cldn15	1.68689	0.00055	0.00266	1.92138	5.00E-05	0.00038
Ngfr	1.68661	5.00E-05	0.00032	-1.9362	2.00E-04	0.00131
Selenbp1	1.68546	5.00E-05	0.00032	2.66013	5.00E-05	0.00038
Rsl1d1	1.68387	5.00E-05	0.00032	1.4092	5.00E-05	0.00038
Mak16	1.68373	5.00E-05	0.00032	1.43867	2.00E-04	0.00131
Eil	1.68297	5.00E-05	0.00032	2.66907	5.00E-05	0.00038
Por	1.68116	5.00E-05	0.00032	2.17994	5.00E-05	0.00038
Prodh	1.67999	1.00E-04	0.0006	2.53003	5.00E-04	0.00287
Pitx3	1.67718	0.00315	0.01165	1.51217	5.00E-04	0.00287
Slc25a33	1.67649	5.00E-05	0.00032	3.81456	5.00E-05	0.00038
Dnajb2	1.6732	5.00E-05	0.00032	1.54424	5.00E-05	0.00038
Nub1	1.67203	5.00E-05	0.00032	2.07961	5.00E-05	0.00038
Pi4k2a	1.67084	5.00E-05	0.00032	2.77594	5.00E-05	0.00038
Hipk1	1.66979	5.00E-05	0.00032	1.67662	5.00E-05	0.00038
Mgst1	1.6642	5.00E-05	0.00032	2.07863	5.00E-05	0.00038
Smcr8	1.66351	5.00E-05	0.00032	1.20529	3.00E-04	0.00184
Agt	1.65985	5.00E-05	0.00032	3.7853	5.00E-05	0.00038
H3f3b	1.65907	5.00E-05	0.00032	1.28814	5.00E-05	0.00038
Zrsr1	1.65671	5.00E-05	0.00032	2.12553	0.0011	0.00557
Csnk2a2	1.65655	5.00E-05	0.00032	1.77739	5.00E-05	0.00038
Arhgef37	1.65471	5.00E-05	0.00032	3.04769	5.00E-05	0.00038
Gm13068	1.65469	0.01205	0.03542	4.0537	0.001	0.00513
Slc25a38	1.65368	5.00E-05	0.00032	1.79448	5.00E-05	0.00038
Mms19	1.65347	5.00E-05	0.00032	1.84056	5.00E-05	0.00038
Usp14	1.65274	5.00E-05	0.00032	0.96808	0.01555	0.0483
Zfp874b	1.65113	5.00E-05	0.00032	1.03188	0.00225	0.0101
Lpin1	1.64924	5.00E-05	0.00032	2.18702	5.00E-05	0.00038
C030046E11Rik	1.64906	5.00E-05	0.00032	1.59123	1.00E-04	0.00072
Abcb1b	1.63956	5.00E-05	0.00032	1.74483	5.00E-05	0.00038
Anxa4	1.63943	5.00E-05	0.00032	1.17081	1.00E-04	0.00072
Stt3b	1.63905	5.00E-05	0.00032	0.8274	0.01185	0.03901

Flcn	1.63711	5.00E-05	0.00032	1.66503	5.00E-05	0.00038
Clint1	1.6366	5.00E-05	0.00032	1.87314	5.00E-05	0.00038
Sema7a	1.63389	5.00E-05	0.00032	1.55684	5.00E-05	0.00038
Pde7a	1.63282	5.00E-05	0.00032	1.81402	1.00E-04	0.00072
Zdhhc23	1.63245	3.00E-04	0.00158	2.66982	5.00E-05	0.00038
Vps54	1.63171	5.00E-05	0.00032	1.74153	5.00E-05	0.00038
Bcl7b	1.62936	5.00E-05	0.00032	1.69352	5.00E-05	0.00038
Csda	1.62836	5.00E-05	0.00032	1.8923	4.00E-04	0.00237
Slc25a28	1.62828	5.00E-05	0.00032	2.89399	5.00E-05	0.00038
Ube2o	1.6279	5.00E-05	0.00032	0.92944	0.0106	0.03569
Ctsd	1.62678	5.00E-05	0.00032	1.90732	5.00E-05	0.00038
Kat5	1.62663	5.00E-05	0.00032	1.21843	0.00065	0.00359
Mfsd4	1.62547	5.00E-05	0.00032	1.96672	0.00715	0.02598
Ddx27	1.62341	0.0067	0.02193	2.08366	0.00045	0.00262
Myo18b	1.62135	5.00E-05	0.00032	1.09	0.0119	0.03914
Lrrc2	1.62132	5.00E-05	0.00032	1.07056	0.0021	0.00957
Amn1	1.62132	5.00E-05	0.00032	1.49789	8.00E-04	0.00427
Insig1	1.62076	5.00E-05	0.00032	1.94664	5.00E-05	0.00038
Dusp4	1.61961	0.0037	0.01329	3.11827	5.00E-05	0.00038
Pias4	1.61952	0.0018	0.00733	2.05721	0.001	0.00513
Zfp869	1.61906	5.00E-05	0.00032	1.55938	5.00E-05	0.00038
Fas	1.6166	5.00E-05	0.00032	2.81808	5.00E-05	0.00038
Clcc1	1.6125	8.00E-04	0.00368	1.92956	0.0012	0.006
Fam3a	1.61214	5.00E-05	0.00032	1.14306	0.00255	0.01114
Net1	1.6121	5.00E-05	0.00032	1.83726	5.00E-05	0.00038
Smg1	1.61145	5.00E-05	0.00032	2.31497	5.00E-05	0.00038
Fiz1	1.61027	5.00E-05	0.00032	1.49995	5.00E-05	0.00038
Nop14	1.60944	0.01175	0.03471	1.81502	0.0161	0.0496
Taf8	1.60761	5.00E-05	0.00032	1.57491	5.00E-05	0.00038
Hp1bp3	1.60669	5.00E-05	0.00032	1.38091	5.00E-05	0.00038
Stk11ip	1.60585	5.00E-05	0.00032	2.40342	5.00E-05	0.00038
Coro6	1.60579	5.00E-05	0.00032	1.5299	4.00E-04	0.00237
Kank1	1.6056	5.00E-05	0.00032	2.38866	5.00E-05	0.00038
Pfkfb3	1.60449	5.00E-05	0.00032	1.68554	2.00E-04	0.00131
Ank3	1.60023	5.00E-05	0.00032	1.47211	5.00E-05	0.00038
Psmc1	1.59975	5.00E-05	0.00032	1.43893	1.00E-04	0.00072
Crtc2	1.59906	5.00E-05	0.00032	1.78714	5.00E-05	0.00038
BC005537	1.59698	5.00E-05	0.00032	1.4524	5.00E-05	0.00038
Cul4b	1.59465	5.00E-05	0.00032	1.67646	5.00E-05	0.00038
Uhrf1bp1l	1.59326	5.00E-05	0.00032	2.23043	5.00E-05	0.00038
Med13l	1.59076	5.00E-05	0.00032	2.00274	5.00E-05	0.00038

Rabggtb	1.59002	5.00E-05	0.00032	1.9181	5.00E-05	0.00038
Idh2	1.58925	5.00E-05	0.00032	2.8122	5.00E-05	0.00038
Arfgef2	1.58818	5.00E-05	0.00032	2.19217	5.00E-05	0.00038
Optn	1.58804	5.00E-05	0.00032	1.86189	5.00E-05	0.00038
Zfp498	1.58575	5.00E-05	0.00032	1.8546	5.00E-05	0.00038
Tigd2	1.58373	5.00E-05	0.00032	2.1124	5.00E-05	0.00038
Ubqln1	1.58317	5.00E-05	0.00032	0.96542	0.0026	0.01132
Ranbp2	1.58279	5.00E-05	0.00032	1.30068	0.00015	0.00102
Nsfl1c	1.5827	5.00E-05	0.00032	1.4333	1.00E-04	0.00072
Ggnbp2	1.58064	5.00E-05	0.00032	2.00921	5.00E-05	0.00038
Mfhas1	1.57922	2.00E-04	0.00111	2.5481	5.00E-05	0.00038
Inadl	1.57832	0.01045	0.03157	1.96721	0.00015	0.00102
Mphosph10	1.57634	5.00E-05	0.00032	2.17337	5.00E-05	0.00038
9430038I01Rik	1.57585	1.00E-04	0.0006	1.76268	5.00E-05	0.00038
2310015A10Rik	1.57382	5.00E-05	0.00032	1.42868	5.00E-05	0.00038
Psm6	1.57369	5.00E-05	0.00032	0.95178	0.00385	0.01572
Cep120	1.57328	5.00E-05	0.00032	1.34617	0.00685	0.02504
Chfr	1.573	5.00E-05	0.00032	1.52497	5.00E-05	0.00038
Zfyve27	1.57278	0.00015	0.00086	1.43722	0.00155	0.00742
Wdr43	1.57248	5.00E-05	0.00032	1.69764	5.00E-05	0.00038
Lrrc47	1.57219	0.0022	0.00865	1.88544	0.0014	0.00681
Mier1	1.56371	5.00E-05	0.00032	2.31129	5.00E-05	0.00038
Fbrs	1.56272	5.00E-05	0.00032	1.48057	5.00E-05	0.00038
Fmo2	1.56185	5.00E-05	0.00032	2.76634	5.00E-05	0.00038
Trim39	1.56082	5.00E-05	0.00032	1.74957	5.00E-05	0.00038
Adcy2	1.5601	5.00E-05	0.00032	1.41213	0.00025	0.00159
Larp4	1.55941	5.00E-05	0.00032	1.33227	5.00E-05	0.00038
Psm1	1.55896	5.00E-05	0.00032	1.7034	5.00E-05	0.00038
Stat3	1.5549	5.00E-05	0.00032	1.07069	0.0022	0.00992
Psm1	1.55404	5.00E-05	0.00032	1.00565	0.00305	0.01292
Gnl2	1.55376	5.00E-05	0.00032	1.44701	5.00E-05	0.00038
Dazap2	1.55292	5.00E-05	0.00032	1.53889	5.00E-05	0.00038
Sema3g	1.55084	5.00E-05	0.00032	1.16232	2.00E-04	0.00131
Rnf181	1.5496	5.00E-05	0.00032	1.20884	0.0023	0.01029
Rad23b	1.54923	5.00E-05	0.00032	1.02497	0.00305	0.01292
Acvr1b	1.54699	5.00E-05	0.00032	2.18934	5.00E-05	0.00038
Nrgn	1.5446	0.007	0.02273	1.59195	0.0011	0.00557
Cables1	1.54181	2.00E-04	0.00111	1.85482	5.00E-05	0.00038
Notch4	1.54016	0.00085	0.00387	1.09683	0.00595	0.02226
Herpud2	1.53896	5.00E-05	0.00032	1.32441	5.00E-05	0.00038
Lrrc59	1.5382	5.00E-05	0.00032	1.13299	0.005	0.01934

Rlim	1.5378	5.00E-05	0.00032	1.34748	5.00E-05	0.00038
Ubap1	1.53729	1.00E-04	0.0006	1.46066	0.00815	0.0289
Zscan21	1.53699	5.00E-05	0.00032	1.04196	8.00E-04	0.00427
Foxk1	1.53507	5.00E-05	0.00032	1.42224	5.00E-05	0.00038
Phax	1.53466	5.00E-05	0.00032	1.69594	0.00285	0.01222
Fubp1	1.53368	5.00E-05	0.00032	1.33389	0.00015	0.00102
Echs1	1.5334	5.00E-05	0.00032	1.31989	2.00E-04	0.00131
Clpx	1.53076	5.00E-05	0.00032	1.47825	1.00E-04	0.00072
Cul1	1.53069	5.00E-05	0.00032	1.44751	0.0014	0.00681
Adamts8	1.52865	5.00E-05	0.00032	-3.7255	5.00E-05	0.00038
Psm12	1.52743	5.00E-05	0.00032	1.3461	0.00025	0.00159
Smad1	1.52714	5.00E-05	0.00032	1.36766	5.00E-05	0.00038
Klhl24	1.52488	5.00E-05	0.00032	1.20322	0.0013	0.00641
Poldip3	1.52479	5.00E-05	0.00032	0.99972	0.00205	0.00937
Hrct1	1.52424	0.00045	0.00224	1.67293	0.00045	0.00262
Cerk	1.52399	5.00E-05	0.00032	1.70521	5.00E-05	0.00038
Wdr5	1.51966	5.00E-05	0.00032	1.33215	5.00E-05	0.00038
Nrf1	1.51958	1.00E-04	0.0006	1.31978	0.00285	0.01222
Dpyd	1.51791	5.00E-05	0.00032	2.4178	5.00E-05	0.00038
Tor1aip1	1.51489	5.00E-05	0.00032	1.28152	0.00415	0.01665
Sult1a1	1.51374	5.00E-05	0.00032	1.40668	4.00E-04	0.00237
BC031781	1.51183	5.00E-05	0.00032	1.63619	5.00E-05	0.00038
Ddi2	1.51152	5.00E-05	0.00032	1.38722	0.002	0.00918
Gna13	1.51038	5.00E-05	0.00032	2.42802	5.00E-05	0.00038
Ap3b1	1.51016	5.00E-05	0.00032	1.7052	5.00E-05	0.00038
Rbm15	1.50953	5.00E-05	0.00032	1.22903	6.00E-04	0.00335
Med10	1.50869	0.0017	0.00699	1.61018	0.006	0.02242
Gm9781	1.50776	5.00E-05	0.00032	1.13667	3.00E-04	0.00184
Psma6	1.5072	5.00E-05	0.00032	0.92434	0.00505	0.01952
Safb2	1.50668	5.00E-05	0.00032	1.27813	0.0042	0.01681
Anapc7	1.50658	5.00E-05	0.00032	1.29725	1.00E-04	0.00072
Utp11l	1.50542	5.00E-05	0.00032	1.43268	5.00E-05	0.00038
Pawr	1.50472	0.00025	0.00135	1.2186	0.0057	0.0215
2510006D16Rik	1.50323	5.00E-05	0.00032	1.19606	0.0027	0.01168
Strn4	1.50285	5.00E-05	0.00032	1.05429	0.0101	0.03434
Sema3f	1.50257	5.00E-05	0.00032	1.79146	5.00E-05	0.00038
Sat1	1.5018	5.00E-05	0.00032	2.10294	5.00E-05	0.00038
Golga5	1.50128	5.00E-05	0.00032	1.38344	5.00E-05	0.00038
Gm1614	1.4979	5.00E-05	0.00032	1.07162	4.00E-04	0.00237
Slc7a6	1.49766	5.00E-05	0.00032	1.09795	2.00E-04	0.00131
Lrrc8d	1.49654	5.00E-05	0.00032	1.9703	5.00E-05	0.00038

Fnbp1l	1.49588	0.00025	0.00135	1.22615	0.0041	0.0165
Piwil2	1.49163	0.00015	0.00086	1.87782	5.00E-05	0.00038
Luc7l	1.49064	5.00E-05	0.00032	1.70378	5.00E-05	0.00038
Eif4a1	1.48986	5.00E-05	0.00032	1.53611	5.00E-05	0.00038
Irak1bp1	1.48968	5.00E-05	0.00032	1.4461	5.00E-05	0.00038
Tmcc3	1.48892	5.00E-05	0.00032	1.54093	5.00E-05	0.00038
Psmc3	1.48817	5.00E-05	0.00032	1.12175	0.0158	0.04895
Secisbp2	1.48497	5.00E-05	0.00032	1.23287	2.00E-04	0.00131
Ercc1	1.48033	0.00035	0.00181	1.81311	2.00E-04	0.00131
Tnks	1.47537	5.00E-05	0.00032	1.63827	5.00E-05	0.00038
Cyp27a1	1.47535	5.00E-05	0.00032	2.73099	5.00E-05	0.00038
Tsc1	1.47337	5.00E-05	0.00032	1.807	5.00E-05	0.00038
Mta2	1.47259	5.00E-05	0.00032	1.23024	5.00E-05	0.00038
Calcoco1	1.47105	5.00E-05	0.00032	2.14045	5.00E-05	0.00038
Cndp2	1.46904	5.00E-05	0.00032	1.14606	0.00015	0.00102
Fbxo44	1.46874	5.00E-05	0.00032	1.91026	5.00E-05	0.00038
Tnik	1.46862	5.00E-05	0.00032	1.45793	0.0062	0.02306
Lgals3	1.46815	5.00E-05	0.00032	3.65401	5.00E-05	0.00038
Tmc6	1.46638	0.0013	0.00554	2.04774	0.00055	0.00312
Zim1	1.46636	0.00125	0.00536	1.85755	2.00E-04	0.00131
Phf3	1.46588	5.00E-05	0.00032	1.73242	5.00E-05	0.00038
Sema5a	1.46483	5.00E-05	0.00032	0.80301	0.0137	0.04392
BC029214	1.46291	5.00E-05	0.00032	1.70224	0.00015	0.00102
Pde2a	1.46147	5.00E-05	0.00032	1.25392	0.00015	0.00102
Hba-a1	1.46039	5.00E-05	0.00032	2.5021	5.00E-05	0.00038
Atf6b	1.46005	5.00E-05	0.00032	1.10626	0.00475	0.0186
4933421E11Rik	1.45923	5.00E-05	0.00032	1.27603	0.00015	0.00102
Flywch1	1.45916	5.00E-05	0.00032	0.97819	0.0026	0.01132
Xab2	1.45855	5.00E-05	0.00032	1.39607	5.00E-05	0.00038
Nbr1	1.45657	2.00E-04	0.00111	1.9174	5.00E-05	0.00038
Abhd6	1.45519	5.00E-05	0.00032	1.61868	5.00E-05	0.00038
Kctd20	1.45502	5.00E-05	0.00032	1.16951	0.00025	0.00159
Actr8	1.45485	5.00E-05	0.00032	1.67259	5.00E-05	0.00038
E130102H24Rik	1.45478	1.00E-04	0.0006	1.95682	5.00E-05	0.00038
Zbtb2	1.45403	5.00E-05	0.00032	1.3845	5.00E-05	0.00038
Tubb4b	1.45172	5.00E-05	0.00032	1.64719	5.00E-05	0.00038
Gsto1	1.45115	5.00E-05	0.00032	1.72329	5.00E-05	0.00038
Mospd2	1.44987	5.00E-05	0.00032	1.07419	0.0012	0.006
Slc25a44	1.44966	5.00E-05	0.00032	1.40405	5.00E-05	0.00038
Zrsr2	1.44813	0.00075	0.00349	1.61159	3.00E-04	0.00184
Syf2	1.44799	5.00E-05	0.00032	1.92907	5.00E-05	0.00038

Socs2	1.44617	5.00E-05	0.00032	1.30247	3.00E-04	0.00184
Jmjd1c	1.44593	5.00E-05	0.00032	1.64207	0.00025	0.00159
Micall1	1.44579	5.00E-05	0.00032	1.6858	5.00E-05	0.00038
Mfap1b	1.44443	5.00E-05	0.00032	1.56138	1.00E-04	0.00072
Nol8	1.44383	5.00E-05	0.00032	1.41691	5.00E-05	0.00038
Pvr	1.44356	5.00E-04	0.00244	1.04777	0.009	0.03133
1700019E19Rik	1.44295	5.00E-05	0.00032	0.96267	0.0053	0.02027
Arid3a	1.44268	5.00E-05	0.00032	1.95821	5.00E-05	0.00038
Plekhm1	1.44205	5.00E-05	0.00032	1.23074	0.00015	0.00102
Lin54	1.44075	5.00E-05	0.00032	1.6983	5.00E-05	0.00038
Ythdc1	1.44021	5.00E-05	0.00032	1.55392	5.00E-05	0.00038
Glul	1.4402	1.00E-04	0.0006	3.91121	5.00E-05	0.00038
Gramd4	1.43917	5.00E-05	0.00032	2.64286	5.00E-05	0.00038
Furin	1.43674	5.00E-05	0.00032	1.43584	5.00E-05	0.00038
Hlx	1.43557	5.00E-05	0.00032	1.36825	5.00E-05	0.00038
Sf3b1	1.43417	5.00E-05	0.00032	2.17191	5.00E-05	0.00038
Phc2	1.43221	5.00E-05	0.00032	1.65323	5.00E-05	0.00038
Jmy	1.43087	5.00E-05	0.00032	2.14685	5.00E-05	0.00038
Klf11	1.43028	5.00E-05	0.00032	1.45028	5.00E-05	0.00038
Mtmr4	1.42923	5.00E-05	0.00032	1.3201	5.00E-05	0.00038
Ngly1	1.42591	5.00E-05	0.00032	0.90198	0.0087	0.03046
Zkscan1	1.42582	5.00E-05	0.00032	0.91544	0.0049	0.01905
Fbxo6	1.4209	5.00E-05	0.00032	1.43897	5.00E-05	0.00038
Eapp	1.41872	5.00E-05	0.00032	1.70593	5.00E-05	0.00038
Polr3e	1.41848	5.00E-05	0.00032	0.77941	0.01305	0.04216
Rin3	1.41406	5.00E-05	0.00032	1.98821	5.00E-05	0.00038
Qtrt1	1.414	5.00E-05	0.00032	1.61705	5.00E-05	0.00038
Dhx40	1.41394	5.00E-05	0.00032	2.23178	5.00E-05	0.00038
Bclaf1	1.41324	5.00E-05	0.00032	1.31027	5.00E-05	0.00038
Mospd1	1.41213	5.00E-05	0.00032	1.44687	5.00E-05	0.00038
Dnajb9	1.41146	5.00E-05	0.00032	1.76882	5.00E-05	0.00038
Ddx24	1.4094	5.00E-05	0.00032	1.59104	5.00E-05	0.00038
Ptpn2	1.40833	5.00E-05	0.00032	1.59597	5.00E-05	0.00038
Zscan12	1.40778	5.00E-05	0.00032	1.52112	5.00E-05	0.00038
Dym	1.40753	5.00E-05	0.00032	1.14188	0.00095	0.00492
Tmem189	1.40744	0.00065	0.00308	1.48244	0.01535	0.04782
Zc3h4	1.40422	5.00E-05	0.00032	1.40677	5.00E-05	0.00038
Rnf216	1.40342	5.00E-05	0.00032	1.65401	5.00E-05	0.00038
Hbb-b1	1.40289	5.00E-05	0.00032	2.38693	5.00E-05	0.00038
Eif3j	1.40282	5.00E-05	0.00032	0.97629	0.0125	0.04075
Tgm2	1.40252	1.00E-04	0.0006	1.93591	5.00E-05	0.00038

Papd7	1.40249	0.00885	0.02757	1.93858	0.00455	0.01797
Npm1	1.40163	5.00E-05	0.00032	1.61186	5.00E-05	0.00038
Pmm1	1.40079	5.00E-05	0.00032	3.39681	5.00E-05	0.00038
1110007C09Rik	1.40033	5.00E-05	0.00032	1.63471	5.00E-05	0.00038
Rnf4	1.39886	5.00E-05	0.00032	1.15272	3.00E-04	0.00184
Bod1l	1.39752	5.00E-05	0.00032	1.34877	5.00E-05	0.00038
Ucp2	1.39722	4.00E-04	0.00203	2.07245	5.00E-05	0.00038
Plagl1	1.39504	0.012	0.0353	2.69033	5.00E-05	0.00038
Zfp280d	1.39413	5.00E-05	0.00032	1.85145	5.00E-05	0.00038
Grpel1	1.39327	5.00E-05	0.00032	1.54318	5.00E-05	0.00038
Nop58	1.39261	5.00E-05	0.00032	0.91165	0.00405	0.01634
Gak	1.39204	5.00E-05	0.00032	1.4328	1.00E-04	0.00072
Cstf1	1.38935	5.00E-05	0.00032	1.30801	0.00655	0.02414
Hs6st1	1.38853	5.00E-05	0.00032	1.09669	9.00E-04	0.0047
Acadl	1.38732	5.00E-05	0.00032	1.18429	0.0022	0.00992
Cltb	1.38678	5.00E-05	0.00032	1.08703	0.00315	0.01327
Wapal	1.38549	0.00335	0.01227	1.36291	0.0068	0.0249
Tbc1d20	1.38455	5.00E-05	0.00032	1.5868	5.00E-05	0.00038
Atp6v0e	1.38299	5.00E-05	0.00032	1.9252	5.00E-05	0.00038
Prkch	1.38278	5.00E-05	0.00032	1.03431	0.00065	0.00359
Igf1r	1.38182	5.00E-05	0.00032	2.66818	5.00E-05	0.00038
Cir1	1.38175	0.00335	0.01227	1.91073	0.0107	0.03596
Mgea5	1.38084	5.00E-05	0.00032	1.56447	5.00E-05	0.00038
Mcp1	1.38006	0.00015	0.00086	1.13893	0.00335	0.01398
1110034G24Rik	1.37901	2.00E-04	0.00111	1.45214	0.00045	0.00262
Farp1	1.37887	0.00815	0.02577	1.21723	0.00815	0.0289
Tbc1d17	1.37823	0.0032	0.01181	1.99618	0.00235	0.01046
Cyp4b1	1.37691	5.00E-05	0.00032	2.29082	5.00E-05	0.00038
Kcmf1	1.37638	5.00E-05	0.00032	1.1591	0.00245	0.01083
Etv3	1.37607	5.00E-05	0.00032	1.34421	5.00E-05	0.00038
Scaf11	1.37591	5.00E-05	0.00032	1.95713	5.00E-05	0.00038
Ranbp10	1.37511	5.00E-05	0.00032	1.69422	5.00E-05	0.00038
Usp13	1.3745	5.00E-05	0.00032	1.43506	0.0062	0.02306
Eif3b	1.37368	5.00E-05	0.00032	1.20169	0.00055	0.00312
Ppp1r18	1.37345	5.00E-05	0.00032	1.38156	1.00E-04	0.00072
Aebp2	1.37239	5.00E-05	0.00032	1.3314	5.00E-05	0.00038
Trnt1	1.37218	6.00E-04	0.00286	1.8031	0.00045	0.00262
Wipi2	1.37177	5.00E-05	0.00032	1.13915	0.0013	0.00641
Lamp2	1.36993	5.00E-05	0.00032	1.23695	6.00E-04	0.00335
Serinc3	1.3699	5.00E-05	0.00032	1.57151	3.00E-04	0.00184
Rapgef1	1.36831	5.00E-05	0.00032	1.5356	0.00015	0.00102

Ftsj3	1.36815	5.00E-05	0.00032	1.03971	0.0024	0.01064
Qsox1	1.36774	5.00E-05	0.00032	1.61686	5.00E-05	0.00038
4833403I15Rik	1.36702	7.00E-04	0.00328	1.78905	5.00E-04	0.00287
Smndc1	1.3669	5.00E-05	0.00032	1.48706	5.00E-05	0.00038
Akap8l	1.36486	5.00E-05	0.00032	1.44346	5.00E-05	0.00038
Lemd2	1.36468	5.00E-05	0.00032	1.63514	5.00E-05	0.00038
Txn1	1.36449	5.00E-05	0.00032	0.80431	0.01015	0.03445
Nuak1	1.36425	0.0029	0.0109	1.61496	5.00E-05	0.00038
Ap1m1	1.36372	5.00E-05	0.00032	0.97744	0.0025	0.011
Rbm4b	1.36326	1.00E-04	0.0006	2.19091	5.00E-05	0.00038
Zfp52	1.36221	5.00E-05	0.00032	3.09029	5.00E-05	0.00038
Stk24	1.36157	5.00E-05	0.00032	1.56719	5.00E-05	0.00038
Ogdhl	1.36124	1.00E-04	0.0006	1.23989	0.0032	0.01343
Atf1	1.36053	5.00E-05	0.00032	1.07307	0.0014	0.00681
Ptplad1	1.35972	5.00E-05	0.00032	1.48515	5.00E-05	0.00038
Zfp784	1.3571	5.00E-05	0.00032	1.23074	3.00E-04	0.00184
4933421O10Rik	1.35655	1.00E-04	0.0006	1.14275	0.0018	0.00842
Kdm4a	1.35334	5.00E-05	0.00032	1.59285	5.00E-05	0.00038
Ppm1d	1.35324	5.00E-05	0.00032	1.55807	5.00E-05	0.00038
Rusc1	1.35144	5.00E-05	0.00032	0.82406	0.0098	0.03356
Aatf	1.35131	5.00E-05	0.00032	2.02498	5.00E-05	0.00038
Gps2	1.35125	5.00E-05	0.00032	1.63412	5.00E-05	0.00038
Eif1	1.35008	5.00E-05	0.00032	1.70157	0.00345	0.01434
Insr	1.34963	5.00E-05	0.00032	1.24513	0.00015	0.00102
Cct2	1.34635	5.00E-05	0.00032	1.27725	2.00E-04	0.00131
Phf13	1.34485	5.00E-05	0.00032	1.58197	5.00E-05	0.00038
Kdm3a	1.34353	5.00E-05	0.00032	1.38845	5.00E-05	0.00038
Osbpl11	1.34333	5.00E-05	0.00032	1.40031	5.00E-05	0.00038
Acox1	1.34269	5.00E-05	0.00032	1.09468	0.0028	0.01205
Dnajib12	1.34238	5.00E-05	0.00032	1.04591	0.00105	0.00534
Ptcd1	1.34144	5.00E-05	0.00032	1.36577	0.00075	0.00405
Ssu72	1.34039	5.00E-05	0.00032	1.52149	5.00E-05	0.00038
2310021P13Rik	1.33953	5.00E-05	0.00032	1.32676	5.00E-05	0.00038
Stab2	1.33847	5.00E-05	0.00032	1.56896	4.00E-04	0.00237
E130218I03Rik	1.33745	0.00295	0.01104	1.75668	4.00E-04	0.00237
Jak3	1.33635	5.00E-05	0.00032	0.88844	0.00675	0.02474
Ap3d1	1.33596	5.00E-05	0.00032	1.43953	5.00E-05	0.00038
4933407H18Rik	1.33554	5.00E-05	0.00032	0.96968	0.00295	0.01259
Fxr2	1.33448	1.00E-04	0.0006	1.41249	1.00E-04	0.00072
Pim1	1.33347	5.00E-05	0.00032	3.9879	5.00E-05	0.00038
Tmem52	1.33285	5.00E-05	0.00032	1.13075	0.0034	0.01416

Ndor1	1.33198	0.0096	0.02947	1.53648	0.00125	0.00621
Trmt61a	1.33176	5.00E-05	0.00032	1.32919	0.00075	0.00405
Psmc7	1.33154	5.00E-05	0.00032	1.49684	1.00E-04	0.00072
Hba-a2	1.33089	5.00E-05	0.00032	2.36269	5.00E-05	0.00038
Pdpc1	1.33023	5.00E-05	0.00032	1.1881	5.00E-05	0.00038
Wipi1	1.3302	5.00E-05	0.00032	1.76874	5.00E-05	0.00038
Mtor	1.33005	0.0065	0.02141	2.01303	0.00215	0.00974
Utp3	1.32955	5.00E-05	0.00032	1.68975	5.00E-05	0.00038
Rnf114	1.32845	5.00E-05	0.00032	1.51273	3.00E-04	0.00184
Zfand3	1.32782	5.00E-05	0.00032	1.37952	0.00085	0.00449
Cblb	1.32563	5.00E-05	0.00032	1.50886	5.00E-05	0.00038
Ninj1	1.32524	5.00E-05	0.00032	2.49926	5.00E-05	0.00038
Spata511	1.32413	5.00E-05	0.00032	1.62586	5.00E-05	0.00038
Rab9	1.32337	5.00E-05	0.00032	1.84176	5.00E-05	0.00038
Sp1	1.32306	4.00E-04	0.00203	0.90526	0.0046	0.01814
Dnal4	1.32288	5.00E-05	0.00032	1.11792	0.00275	0.01187
Dhx15	1.32251	5.00E-05	0.00032	1.55043	5.00E-05	0.00038
Ccb12	1.32248	5.00E-05	0.00032	1.94284	5.00E-05	0.00038
Cstb	1.32217	1.00E-04	0.0006	1.88256	5.00E-05	0.00038
Eif3g	1.32164	5.00E-05	0.00032	1.69861	5.00E-05	0.00038
Ncl	1.32122	5.00E-05	0.00032	1.42084	1.00E-04	0.00072
Ugcg	1.32049	5.00E-05	0.00032	1.47129	5.00E-05	0.00038
Eif4g3	1.32004	5.00E-05	0.00032	0.82361	0.01495	0.04683
Uggt1	1.31967	5.00E-05	0.00032	1.51502	5.00E-05	0.00038
Zfp275	1.31954	5.00E-05	0.00032	1.11776	0.0022	0.00992
Bcl2l11	1.31909	5.00E-05	0.00032	1.95911	5.00E-05	0.00038
Slc25a5	1.31814	5.00E-05	0.00032	0.82779	0.00675	0.02474
Trim62	1.31805	0.00235	0.00914	1.30745	0.0035	0.01447
Zfp384	1.31588	5.00E-05	0.00032	1.33401	1.00E-04	0.00072
S1pr1	1.31484	5.00E-05	0.00032	1.07567	0.00055	0.00312
Pes1	1.3132	0.00025	0.00135	1.28035	0.00145	0.00702
Tom1	1.31251	5.00E-05	0.00032	1.77291	5.00E-05	0.00038
Tbk1	1.30927	5.00E-05	0.00032	1.12671	0.00025	0.00159
Ccn12	1.30891	5.00E-05	0.00032	1.36515	5.00E-05	0.00038
Lzts2	1.30744	5.00E-05	0.00032	1.65877	5.00E-05	0.00038
Dnajc2	1.30655	5.00E-05	0.00032	1.11737	4.00E-04	0.00237
Rc3h1	1.30638	5.00E-05	0.00032	0.77716	0.0108	0.0362
Myc	1.30588	2.00E-04	0.00111	2.17064	5.00E-05	0.00038
Mtmt14	1.30529	5.00E-05	0.00032	2.45169	5.00E-05	0.00038
Tjap1	1.30488	5.00E-05	0.00032	1.80741	5.00E-05	0.00038
C80913	1.30481	5.00E-05	0.00032	0.95413	0.00255	0.01114

Irak2	1.30435	5.00E-05	0.00032	1.18015	4.00E-04	0.00237
Zranb2	1.30418	5.00E-05	0.00032	1.04187	0.00355	0.01466
Asx11	1.30386	0.004	0.01419	1.7088	5.00E-05	0.00038
Sox9	1.30363	0.00195	0.00782	1.14766	0.00875	0.03061
Dctn4	1.30264	5.00E-05	0.00032	1.00999	0.0019	0.0088
Phrf1	1.30244	0.0011	0.00481	1.27837	0.0112	0.0373
Plbd2	1.30235	5.00E-05	0.00032	1.77145	5.00E-05	0.00038
Hsf4	1.30108	5.00E-05	0.00032	1.84601	5.00E-05	0.00038
Zfp511	1.30032	5.00E-05	0.00032	1.04629	0.00245	0.01083
Pold4	1.29979	5.00E-05	0.00032	1.31001	5.00E-05	0.00038
Srp68	1.29864	5.00E-05	0.00032	1.33464	5.00E-05	0.00038
Rhob	1.29815	5.00E-05	0.00032	1.23572	0.00015	0.00102
Ccn11	1.29814	5.00E-05	0.00032	1.66652	5.00E-05	0.00038
Tekt1	1.29594	0.0015	0.00627	1.47333	0.00095	0.00492
Spock2	1.29537	5.00E-05	0.00032	2.92931	5.00E-05	0.00038
Bcdin3d	1.29451	0.00035	0.00181	0.92259	0.0106	0.03569
Rab27a	1.29432	0.0043	0.01513	2.33682	5.00E-05	0.00038
Cirh1a	1.29392	5.00E-05	0.00032	1.15673	0.00015	0.00102
Kin	1.2937	0.00335	0.01227	1.26449	0.0048	0.01873
Sugp1	1.29358	5.00E-05	0.00032	1.29897	5.00E-05	0.00038
Dusp26	1.29207	5.00E-05	0.00032	1.4243	0.00025	0.00159
Tcea2	1.29184	0.0083	0.02615	1.43528	0.0045	0.01782
Zbtb43	1.29165	9.00E-04	0.00406	1.28156	3.00E-04	0.00184
Cpne8	1.29111	5.00E-04	0.00244	1.40904	1.00E-04	0.00072
1500003O03Rik	1.28842	5.00E-05	0.00032	1.11464	0.00065	0.00359
Aldh9a1	1.28713	5.00E-05	0.00032	2.26451	5.00E-05	0.00038
Anks3	1.28696	5.00E-05	0.00032	1.01621	9.00E-04	0.0047
Rbm6	1.28546	5.00E-05	0.00032	1.35947	1.00E-04	0.00072
Rps27	1.28437	5.00E-05	0.00032	1.7595	5.00E-05	0.00038
Dda1	1.28372	1.00E-04	0.0006	1.46966	8.00E-04	0.00427
Ing5	1.28283	5.00E-05	0.00032	1.59331	5.00E-05	0.00038
Gm15298	1.281	0.003	0.01117	1.34517	0.003	0.01275
Ddx49	1.27948	0.00835	0.02627	1.44745	0.01145	0.03798
Lrrc8c	1.27857	5.00E-05	0.00032	1.34309	5.00E-05	0.00038
Scaf8	1.27736	5.00E-05	0.00032	1.60684	5.00E-05	0.00038
Alg1	1.27624	0.0024	0.00929	1.56718	0.00185	0.00861
Pa2g4	1.27479	5.00E-05	0.00032	1.08282	0.00115	0.00578
Eprs	1.27225	5.00E-05	0.00032	1.50616	4.00E-04	0.00237
Nfkbil1	1.27156	1.00E-04	0.0006	1.56933	5.00E-05	0.00038
Akirin1	1.27057	5.00E-05	0.00032	0.78149	0.01445	0.04566
Tet2	1.26874	5.00E-05	0.00032	0.93957	0.00255	0.01114

1810008A18Rik	1.26827	5.00E-05	0.00032	1.29824	0.00015	0.00102
Brms1	1.26603	5.00E-05	0.00032	1.48791	5.00E-05	0.00038
Ppil4	1.2653	5.00E-05	0.00032	1.32871	5.00E-05	0.00038
Dscr3	1.26193	0.00025	0.00135	1.4634	5.00E-05	0.00038
Agpat3	1.26183	5.00E-05	0.00032	1.20687	0.0048	0.01873
Gtf2ird2	1.26061	0.00065	0.00308	1.05408	0.01235	0.04033
Naga	1.25987	5.00E-05	0.00032	1.59113	5.00E-05	0.00038
Acsl6	1.25961	5.00E-04	0.00244	1.97995	0.00195	0.00898
Gigyf2	1.25839	5.00E-05	0.00032	0.97843	0.00415	0.01665
Sox17	1.25739	5.00E-05	0.00032	1.30372	5.00E-05	0.00038
Ssh3	1.25571	5.00E-05	0.00032	1.5491	5.00E-05	0.00038
Apod	1.25516	5.00E-05	0.00032	1.90092	5.00E-05	0.00038
Sf1	1.25262	0.00015	0.00086	2.18212	5.00E-05	0.00038
Btg1	1.25193	5.00E-05	0.00032	1.91447	5.00E-05	0.00038
Paip2b	1.25185	5.00E-05	0.00032	1.75808	5.00E-05	0.00038
Supt6h	1.25168	5.00E-05	0.00032	1.52626	0.00035	0.00212
Ddt	1.25136	5.00E-05	0.00032	2.09428	5.00E-05	0.00038
Cpsf1	1.24847	5.00E-05	0.00032	1.07812	0.00095	0.00492
Sp4	1.24778	5.00E-05	0.00032	2.15662	5.00E-05	0.00038
A430110L20Rik	1.24709	0.00855	0.02678	1.399	0.00295	0.01259
Gm17254	1.24628	0.00475	0.01645	1.30113	0.00465	0.01831
Otud5	1.24395	8.00E-04	0.00368	1.18854	0.0076	0.02728
Arpp21	1.24314	4.00E-04	0.00203	1.25053	0.0025	0.011
N4bp3	1.24289	0.00085	0.00387	1.28928	8.00E-04	0.00427
Papd4	1.24227	5.00E-05	0.00032	1.52669	5.00E-05	0.00038
Dmwd	1.24215	5.00E-05	0.00032	1.52438	5.00E-05	0.00038
Gpi1	1.24161	5.00E-05	0.00032	1.57007	0.0036	0.01484
Atg7	1.23845	5.00E-05	0.00032	1.23246	0.00015	0.00102
Gm10397	1.23844	0.01785	0.04872	2.48222	0.0014	0.00681
Leng1	1.23844	7.00E-04	0.00328	1.43537	0.0016	0.00763
Uck2	1.23797	5.00E-05	0.00032	1.5158	5.00E-05	0.00038
Dhx37	1.2377	5.00E-05	0.00032	1.82129	5.00E-05	0.00038
Gab2	1.23383	5.00E-05	0.00032	3.06508	5.00E-05	0.00038
Gfer	1.23365	5.00E-05	0.00032	1.2557	5.00E-05	0.00038
Actr5	1.23316	0.0079	0.02512	1.6483	6.00E-04	0.00335
Eif2ak4	1.23285	0.00635	0.02101	2.9261	5.00E-05	0.00038
Cxcr7	1.22924	5.00E-05	0.00032	0.77065	0.0136	0.04367
Ppard	1.22843	5.00E-05	0.00032	0.98197	0.00135	0.00662
Pik3ip1	1.22695	5.00E-05	0.00032	1.6078	5.00E-05	0.00038
Nr1h2	1.2264	0.00105	0.00462	1.16052	0.0027	0.01168
Tbc1d2	1.22608	0.0067	0.02193	1.42019	0.00295	0.01259

Supt4h1	1.22374	5.00E-05	0.00032	1.6606	5.00E-05	0.00038
Yy1	1.22349	5.00E-05	0.00032	1.23674	2.00E-04	0.00131
Fam71e1	1.22286	0.0062	0.02061	1.3391	0.0114	0.03786
Stk19	1.21935	5.00E-05	0.00032	1.17741	0.00345	0.01434
Tomm20	1.21906	5.00E-05	0.00032	1.05276	0.00085	0.00449
Ccdc59	1.21905	0.00085	0.00387	1.57086	5.00E-05	0.00038
Htatip2	1.21901	1.00E-04	0.0006	0.9798	0.00505	0.01952
ORF19	1.21816	5.00E-05	0.00032	1.60875	5.00E-05	0.00038
Ifitm2	1.2177	5.00E-05	0.00032	1.47415	5.00E-05	0.00038
Safb	1.21614	5.00E-05	0.00032	1.21147	5.00E-05	0.00038
Rbm42	1.21557	5.00E-05	0.00032	1.27857	1.00E-04	0.00072
Mkrn1	1.21539	5.00E-05	0.00032	1.62276	3.00E-04	0.00184
Inpp4a	1.21411	5.00E-05	0.00032	1.16394	0.00025	0.00159
Atg13	1.21298	5.00E-05	0.00032	1.47932	0.00195	0.00898
Os9	1.21203	5.00E-05	0.00032	1.76411	5.00E-05	0.00038
Rab11b	1.21165	5.00E-05	0.00032	1.19623	0.0011	0.00557
Ubqln2	1.21098	5.00E-05	0.00032	1.08452	0.00065	0.00359
Gadd45g	1.21078	5.00E-05	0.00032	3.76039	5.00E-05	0.00038
Ctns	1.21074	0.00015	0.00086	1.20357	5.00E-04	0.00287
Fbxl3	1.20996	5.00E-05	0.00032	2.38286	5.00E-05	0.00038
Btf3l4	1.20924	5.00E-05	0.00032	0.93974	0.0129	0.04174
Clpp	1.20777	5.00E-05	0.00032	1.14763	0.00025	0.00159
Rusc2	1.20578	0.0011	0.00481	1.87579	2.00E-04	0.00131
Hhipl1	1.20529	0.0081	0.02564	2.19698	0.00025	0.00159
Cast	1.20436	5.00E-05	0.00032	1.61224	1.00E-04	0.00072
Gm1840	1.20435	5.00E-05	0.00032	1.49854	5.00E-05	0.00038
Nup98	1.20248	5.00E-05	0.00032	1.10624	0.00055	0.00312
Ipo5	1.20244	5.00E-05	0.00032	1.07418	0.0033	0.01381
B230312A22Rik	1.20098	5.00E-04	0.00244	1.93231	0.00035	0.00212
Sar1a	1.20074	5.00E-05	0.00032	0.98632	0.0056	0.0212
2310044G17Rik	1.20022	5.00E-05	0.00032	1.20746	0.00045	0.00262
Orc2	1.20001	0.00015	0.00086	1.64578	5.00E-05	0.00038
Mvp	1.19965	5.00E-05	0.00032	1.98724	5.00E-05	0.00038
Clk4	1.19751	5.00E-05	0.00032	1.60722	5.00E-05	0.00038
Gabarap	1.19641	5.00E-05	0.00032	1.67833	5.00E-05	0.00038
Sec24a	1.19536	5.00E-05	0.00032	1.05913	0.0019	0.0088
Sik3	1.19346	0.0093	0.02871	1.33089	0.0083	0.02932
Ppp1r37	1.19193	5.00E-05	0.00032	1.40215	0.00015	0.00102
Ing3	1.19169	0.0011	0.00481	1.85091	5.00E-05	0.00038
Rpl3-ps1	1.1916	0.00435	0.01528	1.35747	9.00E-04	0.0047
Klhl22	1.19005	5.00E-04	0.00244	1.2643	0.00445	0.01765

Chd1	1.18918	2.00E-04	0.00111	2.36422	5.00E-05	0.00038
Pecam1	1.18776	5.00E-05	0.00032	0.93552	0.0041	0.0165
Rab12	1.1867	5.00E-05	0.00032	1.04926	0.0028	0.01205
Dnaja2	1.18544	5.00E-05	0.00032	1.1567	0.0023	0.01029
Rbl2	1.18451	9.00E-04	0.00406	1.88344	5.00E-05	0.00038
4833442J19Rik	1.18421	5.00E-05	0.00032	1.11029	0.0022	0.00992
Sirt1	1.18392	5.00E-05	0.00032	1.47245	5.00E-05	0.00038
Gsk3b	1.18282	5.00E-05	0.00032	1.09302	0.0012	0.006
Skiv2l	1.18113	5.00E-05	0.00032	1.40034	1.00E-04	0.00072
Trib3	1.18091	0.00505	0.01733	2.08422	5.00E-05	0.00038
1810029B16Rik	1.18084	5.00E-05	0.00032	1.21199	0.00035	0.00212
Fam120b	1.18051	5.00E-05	0.00032	0.9421	0.00235	0.01046
Rbm25	1.17947	5.00E-05	0.00032	1.13832	0.00055	0.00312
Ubr2	1.17932	5.00E-05	0.00032	1.84468	5.00E-05	0.00038
Ralbp1	1.17843	5.00E-05	0.00032	1.60068	5.00E-05	0.00038
Pde9a	1.17843	0.0077	0.02458	2.25007	5.00E-05	0.00038
Sgk3	1.17799	5.00E-05	0.00032	2.68768	5.00E-05	0.00038
Cox8a	1.1767	5.00E-05	0.00032	1.24079	1.00E-04	0.00072
Sart1	1.17639	5.00E-05	0.00032	1.721	5.00E-05	0.00038
H2afj	1.17425	4.00E-04	0.00203	1.2153	6.00E-04	0.00335
Mcl1	1.17283	5.00E-05	0.00032	1.1261	0.00225	0.0101
Rragc	1.17233	5.00E-05	0.00032	1.1777	0.00015	0.00102
Fam116b	1.16924	5.00E-05	0.00032	1.0091	0.00105	0.00534
Mau2	1.16911	5.00E-05	0.00032	1.08971	4.00E-04	0.00237
Cdk2ap2	1.1685	5.00E-05	0.00032	1.84068	5.00E-05	0.00038
Slc41a3	1.16701	5.00E-05	0.00032	1.49552	5.00E-05	0.00038
Rin1	1.16684	0.01265	0.0369	1.48798	0.00175	0.00822
Pcid2	1.16651	0.00095	0.00425	1.15742	0.00635	0.02351
Gns	1.16616	5.00E-05	0.00032	1.34928	5.00E-05	0.00038
Tanc1	1.1656	0.00505	0.01733	1.19437	0.0013	0.00641
Ptpn11	1.16557	5.00E-05	0.00032	0.95143	0.00845	0.02973
Klhl21	1.16534	5.00E-05	0.00032	2.64948	5.00E-05	0.00038
Pla2g4e	1.16505	5.00E-05	0.00032	1.02798	0.0081	0.02878
Tmem57	1.16445	5.00E-05	0.00032	1.92979	5.00E-05	0.00038
Clasrp	1.16386	5.00E-05	0.00032	1.96122	5.00E-05	0.00038
Pikfyve	1.16383	0.0017	0.00699	1.29382	0.00155	0.00742
Mll2	1.16354	5.00E-05	0.00032	0.84112	0.00905	0.03147
Pxn	1.16274	5.00E-05	0.00032	0.85072	0.01345	0.04324
Rnf146	1.16237	5.00E-05	0.00032	1.19624	0.00145	0.00702
Ick	1.1623	4.00E-04	0.00203	1.92451	5.00E-05	0.00038
Hmox1	1.16226	0.00015	0.00086	2.02995	5.00E-05	0.00038

Unkl	1.16139	5.00E-05	0.00032	1.19315	0.0029	0.01242
Setd1a	1.16091	5.00E-05	0.00032	1.10091	0.00225	0.0101
Hnrnpu	1.15998	0.00105	0.00462	1.3165	0.0038	0.01556
Smyd4	1.1597	0.0119	0.03509	1.34439	0.0065	0.02397
Ly6c1	1.15879	5.00E-05	0.00032	1.44639	5.00E-05	0.00038
Snw1	1.15794	5.00E-05	0.00032	1.50143	2.00E-04	0.00131
Snhg3	1.15704	0.0131	0.03794	1.73224	0.01525	0.04762
Cttn	1.15678	0.0011	0.00481	1.45997	6.00E-04	0.00335
Clk1	1.15599	5.00E-05	0.00032	1.74382	5.00E-05	0.00038
2410001C21Rik	1.15472	5.00E-05	0.00032	0.86348	0.0056	0.0212
Zmiz1	1.15393	5.00E-05	0.00032	1.76414	1.00E-04	0.00072
Ftl1	1.15315	5.00E-05	0.00032	1.34443	5.00E-05	0.00038
Rnf20	1.15307	1.00E-04	0.0006	1.31354	0.00025	0.00159
Ccdc86	1.15262	5.00E-05	0.00032	0.85569	0.0047	0.01846
Zmym5	1.15242	5.00E-05	0.00032	1.59773	5.00E-05	0.00038
Tut1	1.15208	5.00E-05	0.00032	1.24595	5.00E-05	0.00038
Atg2a	1.15197	5.00E-05	0.00032	1.79359	5.00E-05	0.00038
Gpihbp1	1.15101	5.00E-05	0.00032	1.0173	8.00E-04	0.00427
Use1	1.15095	5.00E-05	0.00032	1.01347	0.0011	0.00557
Tmem86b	1.14966	0.0144	0.04093	1.45185	0.00875	0.03061
Leng8	1.14917	5.00E-05	0.00032	0.90617	0.00865	0.0303
Eif4a2	1.14842	5.00E-05	0.00032	1.21068	0.0043	0.01712
Kri1	1.14704	0.00115	0.005	1.43374	0.00595	0.02226
Eif3c	1.14634	5.00E-05	0.00032	1.18027	0.0049	0.01905
Ehd3	1.14602	0.00015	0.00086	1.86431	5.00E-05	0.00038
Atoh8	1.14479	5.00E-05	0.00032	1.39119	5.00E-05	0.00038
Dtnbp1	1.14381	5.00E-05	0.00032	1.87157	5.00E-05	0.00038
Cpsf6	1.142	5.00E-05	0.00032	1.00789	0.00295	0.01259
Man1a2	1.14182	5.00E-05	0.00032	2.09068	3.00E-04	0.00184
Eif3d	1.14008	5.00E-05	0.00032	1.10279	0.00065	0.00359
Znhit2-ps	1.13952	3.00E-04	0.00158	1.42149	1.00E-04	0.00072
Anp32b	1.13949	5.00E-05	0.00032	1.33896	5.00E-05	0.00038
Gtf2b	1.13935	5.00E-05	0.00032	0.90592	0.00385	0.01572
Myog	1.13933	0.00075	0.00349	3.31932	5.00E-05	0.00038
Appl2	1.13874	6.00E-04	0.00286	1.61728	6.00E-04	0.00335
Cnnm3	1.13813	0.00065	0.00308	1.69067	5.00E-05	0.00038
Zc3h3	1.13708	0.00075	0.00349	1.80417	5.00E-05	0.00038
Arhgap27	1.13706	0.00225	0.00883	1.25447	0.00085	0.00449
Pde4c	1.13675	5.00E-05	0.00032	1.2045	0.00095	0.00492
Eif2b1	1.13618	5.00E-05	0.00032	0.97356	0.01375	0.04407
Bfar	1.13564	5.00E-05	0.00032	0.96439	0.00245	0.01083

Kctd9	1.13552	0.00345	0.01257	1.36716	0.00215	0.00974
Nfe2l2	1.13515	5.00E-05	0.00032	1.00765	0.0048	0.01873
Miip	1.13394	0.0013	0.00554	1.61973	9.00E-04	0.0047
Prrc1	1.13287	0.00075	0.00349	1.33864	0.0062	0.02306
Fam76b	1.1326	5.00E-05	0.00032	1.08274	0.00055	0.00312
Edn1	1.13104	0.003	0.01117	2.23288	5.00E-05	0.00038
Zfp598	1.13062	5.00E-05	0.00032	1.31607	5.00E-05	0.00038
Ldb1	1.13008	1.00E-04	0.0006	1.4523	0.00035	0.00212
Golga4	1.12877	5.00E-05	0.00032	1.45108	0.00215	0.00974
Cyth2	1.12855	5.00E-05	0.00032	1.46764	5.00E-05	0.00038
Anxa11	1.12838	5.00E-05	0.00032	1.28375	0.00015	0.00102
Ints12	1.12743	0.00205	0.00814	1.04133	0.0076	0.02728
Cct4	1.1272	5.00E-05	0.00032	1.14589	5.00E-04	0.00287
Wwp2	1.12687	5.00E-05	0.00032	1.77798	5.00E-05	0.00038
Ccdc9	1.12612	0.0048	0.01661	1.53141	0.0026	0.01132
Ccar1	1.12433	5.00E-05	0.00032	1.2306	5.00E-05	0.00038
Crbn	1.12352	5.00E-05	0.00032	1.28105	0.00305	0.01292
Adnp2	1.12337	5.00E-05	0.00032	2.16203	5.00E-05	0.00038
Zfp143	1.1214	5.00E-05	0.00032	1.63558	5.00E-05	0.00038
Sec31a	1.12115	5.00E-05	0.00032	1.1333	6.00E-04	0.00335
Tbrg1	1.11857	5.00E-05	0.00032	1.09297	0.00025	0.00159
Musk	1.117	0.00025	0.00135	3.46593	5.00E-05	0.00038
Rasa2	1.11645	0.00015	0.00086	1.79423	5.00E-05	0.00038
Max	1.11631	5.00E-05	0.00032	1.26755	5.00E-05	0.00038
Srp19	1.11594	5.00E-05	0.00032	0.98856	0.00195	0.00898
Slc22a4	1.11481	1.00E-04	0.0006	1.4406	0.00085	0.00449
Supt5h	1.11407	5.00E-05	0.00032	1.24191	4.00E-04	0.00237
Gm17282	1.11392	0.00265	0.01011	1.24313	0.0035	0.01447
Spry1	1.11346	5.00E-05	0.00032	0.97379	0.00215	0.00974
Smad5	1.11238	5.00E-05	0.00032	1.14779	6.00E-04	0.00335
Tapt1	1.11144	5.00E-05	0.00032	0.77824	0.01595	0.04932
Zfp775	1.11112	5.00E-05	0.00032	1.44143	5.00E-05	0.00038
Bag5	1.11109	5.00E-05	0.00032	1.38484	5.00E-05	0.00038
Atad3a	1.10952	1.00E-04	0.0006	1.03889	0.01135	0.03772
Brd4	1.10815	5.00E-05	0.00032	1.20177	0.00015	0.00102
Pdcd6ip	1.10791	5.00E-05	0.00032	1.06968	5.00E-04	0.00287
1300018J18Rik	1.10608	0.00175	0.00715	1.27933	0.01125	0.03746
Bckdha	1.10372	5.00E-05	0.00032	1.24531	7.00E-04	0.00383
Prickle3	1.10371	5.00E-05	0.00032	1.73145	0.00015	0.00102
Rhpn2	1.10297	0.00295	0.01104	2.36283	5.00E-05	0.00038
Riok1	1.10218	5.00E-05	0.00032	1.36532	0.00015	0.00102

Abi1	1.10187	0.00235	0.00914	1.96935	5.00E-05	0.00038
Srsf10	1.10184	5.00E-05	0.00032	1.27093	1.00E-04	0.00072
Klf9	1.1012	5.00E-05	0.00032	1.22843	0.00045	0.00262
Khynyn	1.10029	5.00E-05	0.00032	1.33257	1.00E-04	0.00072
5730469M10Rik	1.09959	5.00E-05	0.00032	1.84233	5.00E-05	0.00038
Zfp932	1.09927	0.01695	0.04676	2.22685	1.00E-04	0.00072
Txndc9	1.09901	5.00E-05	0.00032	1.16327	6.00E-04	0.00335
Slc7a1	1.09866	0.00045	0.00224	1.0708	0.0026	0.01132
Matr3	1.09858	5.00E-05	0.00032	1.17786	5.00E-04	0.00287
Acbd3	1.09841	5.00E-05	0.00032	1.08537	0.00045	0.00262
Rnf169	1.09813	5.00E-05	0.00032	1.60691	5.00E-05	0.00038
Ankrd54	1.09773	0.0017	0.00699	1.68185	5.00E-05	0.00038
Pnpla8	1.0963	5.00E-05	0.00032	1.14585	0.0052	0.01999
Crebbp	1.09615	5.00E-05	0.00032	0.98414	9.00E-04	0.0047
Dbt	1.09606	5.00E-05	0.00032	1.4225	1.00E-04	0.00072
Mrpl9	1.09559	5.00E-05	0.00032	1.2279	5.00E-05	0.00038
Neu1	1.0938	0.0044	0.01543	1.60506	5.00E-05	0.00038
Rbm7	1.09116	1.00E-04	0.0006	1.02237	0.0011	0.00557
Bmp2k	1.09062	0.00045	0.00224	1.17419	0.0015	0.00723
1810058I24Rik	1.08981	5.00E-05	0.00032	0.9878	0.003	0.01275
Sec24b	1.08849	5.00E-04	0.00244	1.12667	0.00525	0.02013
Pfdn2	1.08814	5.00E-05	0.00032	1.37687	0.00025	0.00159
Zfp318	1.088	1.00E-04	0.0006	1.69811	2.00E-04	0.00131
Eif4b	1.08765	5.00E-05	0.00032	1.49779	0.00025	0.00159
Smad4	1.08543	0.00065	0.00308	1.2828	1.00E-04	0.00072
A530013C23Rik	1.08512	0.00055	0.00266	1.2776	8.00E-04	0.00427
Peg3	1.08415	5.00E-05	0.00032	0.9126	0.01335	0.04295
Gar1	1.07968	0.0054	0.01832	1.12997	0.00965	0.03319
Cep57I1	1.07857	0.00095	0.00425	1.01545	0.00625	0.0232
Zfp622	1.07856	5.00E-05	0.00032	1.59642	5.00E-05	0.00038
Phf2	1.07796	5.00E-05	0.00032	1.29746	1.00E-04	0.00072
Nrbp1	1.07679	5.00E-05	0.00032	1.15609	2.00E-04	0.00131
Cdc40	1.07546	4.00E-04	0.00203	0.89731	0.01585	0.04908
Repin1	1.07423	5.00E-05	0.00032	1.93186	5.00E-05	0.00038
Tbl1xr1	1.07409	5.00E-05	0.00032	1.44914	5.00E-05	0.00038
Ahnak2	1.07399	0.00025	0.00135	2.99412	5.00E-05	0.00038
Ctdspl	1.07398	0.001	0.00445	1.4757	1.00E-04	0.00072
Ppp1r15b	1.07368	5.00E-05	0.00032	0.9791	0.00125	0.00621
Ly6c2	1.07339	0.0024	0.00929	1.25156	9.00E-04	0.0047
Rlf	1.07204	1.00E-04	0.0006	1.28816	5.00E-05	0.00038
Nasp	1.07159	3.00E-04	0.00158	1.12505	0.00155	0.00742

Cpsf7	1.07151	5.00E-05	0.00032	1.1843	0.00025	0.00159
Sephs2	1.06867	5.00E-05	0.00032	1.0985	0.00085	0.00449
Al317395	1.06576	0.00035	0.00181	0.89619	0.01455	0.04583
Pcgf5	1.06487	5.00E-05	0.00032	1.65867	5.00E-05	0.00038
Crnkl1	1.0648	5.00E-05	0.00032	0.81964	0.0083	0.02932
Xrcc1	1.06319	5.00E-05	0.00032	1.30382	5.00E-05	0.00038
Zfp330	1.06195	5.00E-05	0.00032	1.10624	9.00E-04	0.0047
Cln5	1.0618	5.00E-05	0.00032	0.98808	0.0012	0.006
Gm14149	1.06129	0.00045	0.00224	0.94084	0.0035	0.01447
Eps15l1	1.06054	5.00E-05	0.00032	1.21096	5.00E-05	0.00038
Gclc	1.05817	1.00E-04	0.0006	1.56282	5.00E-05	0.00038
Pitpnb	1.05785	5.00E-05	0.00032	1.11935	0.00035	0.00212
Bcl10	1.05784	5.00E-05	0.00032	0.93813	0.0024	0.01064
Ccng2	1.05743	5.00E-05	0.00032	1.49032	5.00E-05	0.00038
Snap29	1.05587	9.00E-04	0.00406	1.23548	0.0077	0.0276
Sec62	1.05136	5.00E-05	0.00032	1.02508	0.00115	0.00578
Ddx54	1.05127	5.00E-05	0.00032	1.18698	2.00E-04	0.00131
Cyrr1	1.05067	5.00E-05	0.00032	1.21916	5.00E-05	0.00038
Gm17238	1.04886	0.01755	0.04811	1.85485	0.002	0.00918
Ube2j1	1.04863	2.00E-04	0.00111	1.05596	0.0111	0.03702
Zfp703	1.04861	5.00E-05	0.00032	1.90196	5.00E-05	0.00038
Usp30	1.04833	5.00E-05	0.00032	1.06885	9.00E-04	0.0047
Rela	1.04809	5.00E-05	0.00032	1.53118	5.00E-05	0.00038
Lmo1	1.04794	0.01205	0.03542	1.73754	8.00E-04	0.00427
Glyr1	1.04775	5.00E-05	0.00032	0.95142	0.0031	0.01309
Morc2a	1.04685	0.0016	0.00663	1.37075	5.00E-05	0.00038
Ube2i	1.04678	5.00E-05	0.00032	1.24491	1.00E-04	0.00072
Atp6v0d1	1.04628	5.00E-05	0.00032	1.0363	4.00E-04	0.00237
Aldh2	1.04531	1.00E-04	0.0006	1.23302	8.00E-04	0.00427
Kdm4b	1.04412	0.00095	0.00425	1.02223	0.00175	0.00822
Wdr46	1.04392	3.00E-04	0.00158	1.00317	0.00195	0.00898
Hnrnpul1	1.04377	5.00E-05	0.00032	1.22437	1.00E-04	0.00072
Foxj3	1.04333	2.00E-04	0.00111	1.45709	5.00E-05	0.00038
Ddb1	1.04245	5.00E-05	0.00032	1.18645	0.00225	0.0101
U2af1	1.04235	5.00E-05	0.00032	1.12877	0.00035	0.00212
Klf4	1.04149	5.00E-05	0.00032	0.88022	0.00515	0.01983
Vps16	1.04146	0.01275	0.03713	1.43222	0.00785	0.02805
Tmem120a	1.04086	5.00E-04	0.00244	2.2533	5.00E-05	0.00038
Pdcd6	1.04082	5.00E-05	0.00032	1.06836	6.00E-04	0.00335
Ankzf1	1.04026	0.008	0.02536	1.34365	0.00555	0.02105
Samd14	1.03944	0.0026	0.00995	0.98686	0.0102	0.03456

Samd4b	1.03775	5.00E-05	0.00032	0.90821	0.0037	0.01519
Pdp2	1.03597	0.00125	0.00536	1.6306	3.00E-04	0.00184
Tmem50a	1.03557	5.00E-05	0.00032	2.40022	5.00E-05	0.00038
Gtf2a1	1.03424	4.00E-04	0.00203	0.81567	0.01455	0.04583
Ppm1g	1.03377	5.00E-05	0.00032	1.38736	5.00E-05	0.00038
2810008D09Rik	1.03324	0.002	0.00799	1.12815	0.00415	0.01665
Izumo4	1.03279	0.0091	0.02821	2.0099	1.00E-04	0.00072
Dcaf13	1.03202	5.00E-05	0.00032	1.12186	0.00055	0.00312
Rbm17	1.03043	0.00635	0.02101	1.15572	0.00855	0.02999
Rnf19b	1.02985	5.00E-05	0.00032	1.03851	0.00105	0.00534
Arih2	1.02919	5.00E-05	0.00032	1.07881	0.00145	0.00702
Eif3e	1.02915	5.00E-05	0.00032	1.1273	0.00095	0.00492
Bahd1	1.02834	0.00025	0.00135	1.34047	5.00E-05	0.00038
Gtdc1	1.02585	3.00E-04	0.00158	0.71615	0.0149	0.04671
Ewsr1	1.02522	0.003	0.01117	1.22473	0.00645	0.02382
Gtf2h1	1.02507	5.00E-05	0.00032	1.28232	0.00025	0.00159
Gatad2b	1.02419	1.00E-04	0.0006	1.39225	5.00E-05	0.00038
E4f1	1.02357	5.00E-05	0.00032	1.45935	5.00E-05	0.00038
Prkd1	1.02252	0.0025	0.00962	1.27228	0.00075	0.00405
Rbm39	1.02215	5.00E-05	0.00032	1.20621	3.00E-04	0.00184
Chd7	1.02044	0.00015	0.00086	2.04935	5.00E-05	0.00038
Lmna	1.01869	5.00E-05	0.00032	1.00736	0.0025	0.011
Rere	1.01864	0.00235	0.00914	1.40753	6.00E-04	0.00335
Zkscan3	1.01791	1.00E-04	0.0006	0.79229	0.01415	0.04492
Mrpl32	1.01781	5.00E-05	0.00032	0.87848	0.0035	0.01447
Srrt	1.01741	5.00E-05	0.00032	0.75239	0.014	0.04456
Fxyd5	1.01683	0.0015	0.00627	2.0652	5.00E-05	0.00038
Prkcq	1.0159	5.00E-05	0.00032	1.68494	5.00E-05	0.00038
Slc25a27	1.01421	0.00015	0.00086	1.61267	5.00E-05	0.00038
Golga3	1.01354	0.00045	0.00224	1.07191	0.00125	0.00621
Mast2	1.01328	4.00E-04	0.00203	1.4501	2.00E-04	0.00131
Tbx2	1.01221	0.0015	0.00627	1.56746	5.00E-05	0.00038
Slc7a6os	1.01143	2.00E-04	0.00111	1.3662	1.00E-04	0.00072
Zdhhc14	1.0107	0.003	0.01117	1.90056	5.00E-05	0.00038
Bzw1	1.01053	5.00E-05	0.00032	0.78209	0.0161	0.0496
Cbx7	1.00996	8.00E-04	0.00368	1.67508	5.00E-05	0.00038
Mfng	1.00874	0.0029	0.0109	0.96564	0.01035	0.03496
C330006K01Rik	1.00865	3.00E-04	0.00158	0.97157	0.00595	0.02226
Tspan15	1.00736	1.00E-04	0.0006	1.3188	1.00E-04	0.00072
Cdk11b	1.00731	0.00175	0.00715	1.09537	0.00535	0.0204
Gzf1	1.0073	5.00E-05	0.00032	1.95273	5.00E-05	0.00038

Zhx2	1.00718	5.00E-05	0.00032	-2.4832	5.00E-05	0.00038
Kdm1a	1.00694	0.0034	0.01243	1.10799	0.0073	0.02642
Phf15	1.0057	5.00E-05	0.00032	1.72887	5.00E-05	0.00038
Llph	1.00544	0.00025	0.00135	1.68831	5.00E-05	0.00038
Tns1	1.00526	5.00E-05	0.00032	1.03738	0.0102	0.03456
Ankhd1	1.00516	0.00105	0.00462	0.90642	0.00895	0.03119
Dctn2	1.0045	5.00E-05	0.00032	1.06198	0.00175	0.00822
Ngdn	1.0039	5.00E-05	0.00032	1.26099	1.00E-04	0.00072
Gmeb2	1.00316	0.00055	0.00266	1.47715	5.00E-05	0.00038
Relb	1.00195	8.00E-04	0.00368	1.06343	0.00365	0.01502
Klhl7	1.00167	5.00E-05	0.00032	1.26118	8.00E-04	0.00427
Ddx46	0.9996	5.00E-05	0.00032	1.33529	5.00E-05	0.00038
Atf6	0.99891	5.00E-05	0.00032	0.73354	0.0156	0.04844
Zfp110	0.99736	1.00E-04	0.0006	1.54173	5.00E-05	0.00038
Snx2	0.99625	5.00E-05	0.00032	1.02043	9.00E-04	0.0047
D19Erttd386e	0.99617	0.00275	0.01043	1.34481	0.00085	0.00449
Ddx10	0.9961	5.00E-05	0.00032	0.7903	0.0114	0.03786
1110012L19Rik	0.99601	1.00E-04	0.0006	1.22588	0.00015	0.00102
2810403A07Rik	0.99541	5.00E-05	0.00032	1.19825	3.00E-04	0.00184
Mta1	0.99527	1.00E-04	0.0006	1.57127	5.00E-05	0.00038
Exosc5	0.99435	5.00E-05	0.00032	1.45371	5.00E-05	0.00038
Plvap	0.99364	0.0022	0.00865	2.0768	5.00E-05	0.00038
Bud13	0.99343	5.00E-05	0.00032	0.98264	0.0016	0.00763
Zfp704	0.99313	5.00E-05	0.00032	1.01544	0.0013	0.00641
Snip1	0.99259	6.00E-04	0.00286	0.85668	0.01025	0.0347
Hmga1-rs1	0.99245	0.00045	0.00224	1.2307	3.00E-04	0.00184
Impdh2	0.99173	5.00E-05	0.00032	1.07277	6.00E-04	0.00335
Aamp	0.99137	5.00E-05	0.00032	0.84756	0.0101	0.03434
Wdr60	0.98959	5.00E-05	0.00032	1.47025	5.00E-05	0.00038
Ptbp2	0.98934	5.00E-05	0.00032	0.98094	0.0013	0.00641
Elmo1	0.98922	0.0024	0.00929	0.94254	0.0092	0.03192
Nipbl	0.98899	5.00E-05	0.00032	1.11445	4.00E-04	0.00237
Tnfrsf21	0.98884	5.00E-05	0.00032	1.2884	0.00015	0.00102
Mcf2l	0.98806	0.0114	0.03389	1.5878	0.01625	0.05
Mxd4	0.9876	5.00E-05	0.00032	1.01436	8.00E-04	0.00427
Usp39	0.98667	5.00E-05	0.00032	0.92167	0.00205	0.00937
Paxip1	0.98506	5.00E-05	0.00032	1.20578	2.00E-04	0.00131
Tmem214	0.98425	0.00045	0.00224	0.87931	0.00835	0.02947
Rpl11	0.9842	5.00E-05	0.00032	1.13673	7.00E-04	0.00383
Slc20a2	0.98416	5.00E-05	0.00032	1.28171	0.0012	0.006
Peli1	0.98262	5.00E-05	0.00032	1.66255	5.00E-05	0.00038

Arl8b	0.98247	5.00E-05	0.00032	1.12184	0.00145	0.00702
Dis3l2	0.98135	5.00E-05	0.00032	0.85702	0.00495	0.01919
Sin3b	0.98057	5.00E-05	0.00032	0.85472	0.01405	0.04467
Igfbp1	0.98036	5.00E-05	0.00032	1.09871	4.00E-04	0.00237
Fam117b	0.97955	3.00E-04	0.00158	1.83923	5.00E-05	0.00038
Gfod1	0.97877	0.00055	0.00266	0.80948	0.0134	0.04309
Smc5	0.97792	2.00E-04	0.00111	1.69326	5.00E-05	0.00038
Patl1	0.97727	5.00E-05	0.00032	1.13	5.00E-04	0.00287
Cant1	0.97714	5.00E-05	0.00032	0.77276	0.0128	0.04148
Exosc10	0.97597	2.00E-04	0.00111	0.9766	0.00395	0.01606
Al607873	0.97591	0.0028	0.01059	1.11691	0.0062	0.02306
Sap18	0.97519	5.00E-04	0.00244	1.10612	0.0028	0.01205
Ii17ra	0.9747	0.0085	0.02666	2.18318	5.00E-05	0.00038
Elf4	0.96989	0.0012	0.00518	0.88973	0.00745	0.02687
Nolc1	0.9693	5.00E-05	0.00032	0.7964	0.0088	0.03076
Cdk9	0.96814	0.00035	0.00181	1.27339	3.00E-04	0.00184
Tinagl1	0.96787	5.00E-04	0.00244	1.96383	5.00E-05	0.00038
Pnn	0.96767	5.00E-05	0.00032	0.93512	0.00205	0.00937
Afg3l2	0.96691	5.00E-05	0.00032	1.26369	0.00015	0.00102
Zfp282	0.9665	1.00E-04	0.0006	0.91455	0.0053	0.02027
Ypel3	0.96507	0.0044	0.01543	1.45476	5.00E-05	0.00038
Ccdc90a	0.96327	5.00E-05	0.00032	0.90455	0.00335	0.01398
Xdh	0.96291	5.00E-05	0.00032	1.47434	5.00E-05	0.00038
Ddx59	0.96272	0.00015	0.00086	1.05548	0.00115	0.00578
Rev3l	0.96234	0.01105	0.03297	1.26713	0.00935	0.03236
Btf3	0.96227	5.00E-05	0.00032	1.05163	0.00495	0.01919
Klf6	0.96214	5.00E-05	0.00032	1.37495	5.00E-05	0.00038
Ap2b1	0.95821	5.00E-05	0.00032	0.88239	0.01455	0.04583
Las1l	0.95812	0.00215	0.00849	1.36021	0.0067	0.02457
Wdr74	0.95757	0.00025	0.00135	1.07836	0.00095	0.00492
Hbp1	0.95704	5.00E-05	0.00032	0.80167	0.0138	0.04415
Phip	0.95553	5.00E-05	0.00032	0.90442	0.0032	0.01343
Slc7a2	0.95363	5.00E-05	0.00032	1.44489	7.00E-04	0.00383
Srrm1	0.95343	0.00135	0.00572	1.14485	0.00205	0.00937
Abcf1	0.95339	0.00045	0.00224	1.03614	0.00285	0.01222
Ercc4	0.95239	0.0013	0.00554	0.89221	0.00835	0.02947
Gga1	0.95224	5.00E-05	0.00032	0.99867	0.0027	0.01168
Rft1	0.9516	0.00045	0.00224	1.14716	0.00075	0.00405
Gm505	0.95064	9.00E-04	0.00406	0.85107	0.01325	0.04272
Ttc1	0.9504	5.00E-05	0.00032	0.97227	0.00195	0.00898
Tacc1	0.94839	5.00E-05	0.00032	0.89409	0.0037	0.01519

2400003C14Rik	0.94799	5.00E-05	0.00032	0.78144	0.01385	0.04424
Cggbp1	0.94658	0.0029	0.0109	1.1502	0.0058	0.02182
Hspbap1	0.94605	0.007	0.02273	1.42994	0.00015	0.00102
Thpp2	0.94365	5.00E-05	0.00032	1.04884	0.00125	0.00621
Cep110	0.94357	0.016	0.04467	1.77906	5.00E-05	0.00038
Fzd4	0.94353	5.00E-05	0.00032	1.1453	0.00085	0.00449
Zdhhc24	0.94139	0.01075	0.03222	1.39482	0.0015	0.00723
Cd2bp2	0.94111	5.00E-05	0.00032	1.19465	3.00E-04	0.00184
Clk2	0.94075	0.00705	0.02283	1.2476	0.00245	0.01083
Hook2	0.94001	0.00385	0.01375	2.26241	5.00E-05	0.00038
Nrtn	0.93991	0.01655	0.04591	1.48933	3.00E-04	0.00184
Camta1	0.93978	0.00435	0.01528	1.15442	0.0117	0.03861
BC013529	0.93968	5.00E-05	0.00032	0.80871	0.0127	0.04123
Rb1cc1	0.93959	0.00105	0.00462	1.28269	0.00485	0.01888
Brd1	0.93956	7.00E-04	0.00328	1.19341	0.00095	0.00492
Pik3cb	0.93924	1.00E-04	0.0006	3.14138	5.00E-05	0.00038
Ubxn6	0.93666	0.001	0.00445	1.33241	0.0027	0.01168
Hdlbp	0.93586	5.00E-05	0.00032	1.23164	0.0042	0.01681
Tmem183a	0.93553	5.00E-05	0.00032	1.13748	5.00E-04	0.00287
Tomm40	0.93347	5.00E-05	0.00032	0.93326	0.00405	0.01634
Rps9	0.9334	5.00E-05	0.00032	1.3896	5.00E-05	0.00038
Wdr53	0.9328	0.004	0.01419	1.04353	0.0045	0.01782
Prkcd	0.93278	0.0044	0.01543	2.04417	5.00E-05	0.00038
Ddx52	0.92983	0.0012	0.00518	0.94351	0.0042	0.01681
Usp53	0.92874	0.00145	0.0061	1.23757	0.00015	0.00102
Mbd6	0.92838	4.00E-04	0.00203	0.97288	0.00335	0.01398
Gmeb1	0.92661	5.00E-05	0.00032	0.96463	0.00215	0.00974
Tgfbr3	0.92654	1.00E-04	0.0006	0.94973	0.0019	0.0088
Efh2	0.92611	0.0012	0.00518	1.88691	5.00E-05	0.00038
Pstpip2	0.92577	5.00E-05	0.00032	0.82067	0.0082	0.02904
Zc3h10	0.9252	0.0157	0.04398	1.11637	0.00545	0.02072
Zfp524	0.92156	0.002	0.00799	1.86508	5.00E-05	0.00038
4831426I19Rik	0.92038	0.0052	0.01776	1.62657	5.00E-05	0.00038
Fmo1	0.91838	0.0021	0.00833	1.49743	0.00015	0.00102
Ankrd17	0.91813	5.00E-05	0.00032	0.7464	0.0159	0.04919
Lin52	0.91572	1.00E-04	0.0006	0.96358	0.0028	0.01205
Rnh1	0.91536	5.00E-05	0.00032	1.73845	5.00E-05	0.00038
Srsf5	0.91513	2.00E-04	0.00111	1.14496	0.00305	0.01292
Emd	0.9149	1.00E-04	0.0006	1.71329	5.00E-05	0.00038
Clptm1	0.91469	5.00E-05	0.00032	1.01164	0.0025	0.011
Fam50a	0.91394	0.00015	0.00086	1.7427	5.00E-05	0.00038

Slc27a1	0.91393	5.00E-05	0.00032	0.76668	0.01525	0.04762
Bag6	0.91298	6.00E-04	0.00286	0.87152	0.01075	0.03609
Nemf	0.91249	1.00E-04	0.0006	0.82034	0.0073	0.02642
Mtap7	0.91194	0.00285	0.01076	2.29214	5.00E-05	0.00038
Pcyt2	0.91081	0.00115	0.005	1.65332	5.00E-05	0.00038
0610007L01Rik	0.90971	3.00E-04	0.00158	0.93897	0.0111	0.03702
Med25	0.90901	5.00E-05	0.00032	1.02389	0.0013	0.00641
Sptlc1	0.90817	5.00E-05	0.00032	0.91432	0.00295	0.01259
Aldh6a1	0.90745	5.00E-05	0.00032	0.89687	0.0128	0.04148
Nfkb2	0.90544	0.00055	0.00266	1.701	5.00E-05	0.00038
Slc38a2	0.90388	5.00E-05	0.00032	1.04325	0.002	0.00918
Ccpg1	0.90262	8.00E-04	0.00368	1.40661	0.00055	0.00312
Maml1	0.90229	3.00E-04	0.00158	0.81542	0.0121	0.03962
S100pbb	0.90178	0.0019	0.00766	1.56118	5.00E-05	0.00038
Abcc4	0.89822	5.00E-05	0.00032	1.08253	4.00E-04	0.00237
Eif5b	0.89737	5.00E-05	0.00032	1.44625	0.00025	0.00159
Tpd52l2	0.89682	6.00E-04	0.00286	1.15096	0.0018	0.00842
Rab4b	0.89357	0.01395	0.03991	1.00673	0.00835	0.02947
Abcf2	0.89299	5.00E-05	0.00032	0.84525	0.0144	0.04556
Rxrb	0.89121	5.00E-05	0.00032	1.00839	0.0012	0.006
Zfp639	0.8908	1.00E-04	0.0006	0.99273	0.00135	0.00662
Phkg2	0.88933	0.0098	0.02992	1.18763	0.0056	0.0212
Pik3ca	0.88924	5.00E-05	0.00032	1.00455	0.0066	0.02427
1810063B07Rik	0.88775	0.0018	0.00733	0.86967	0.0102	0.03456
Zfp212	0.88648	7.00E-04	0.00328	0.94597	0.00275	0.01187
Napepld	0.88634	0.00025	0.00135	-1.1687	2.00E-04	0.00131
Dazap1	0.8863	0.0022	0.00865	1.01473	0.00895	0.03119
Senp6	0.88586	0.0177	0.04841	1.44726	0.0032	0.01343
Mdm4-ps	0.8848	0.0016	0.00663	0.92039	0.0079	0.0282
Dcxr	0.88471	0.00325	0.01196	1.92825	5.00E-05	0.00038
Ptpn1	0.88345	0.00015	0.00086	0.80431	0.01515	0.04737
Slc43a3	0.88177	2.00E-04	0.00111	1.52766	5.00E-05	0.00038
Gltscr2	0.88018	5.00E-05	0.00032	1.24088	1.00E-04	0.00072
Snrnp200	0.87871	0.0035	0.01272	1.08816	0.00335	0.01398
Sltm	0.87813	1.00E-04	0.0006	1.25273	5.00E-05	0.00038
Ino80	0.87756	0.00395	0.01405	1.28439	2.00E-04	0.00131
Eif3m	0.87618	0.00025	0.00135	0.84762	0.0103	0.03481
Rplp2	0.87605	5.00E-05	0.00032	1.47362	0.00035	0.00212
Zfp422	0.87535	6.00E-04	0.00286	0.83537	0.00925	0.03206
Cyp2d22	0.87466	1.00E-04	0.0006	0.83962	0.00785	0.02805
Gm15487	0.87457	2.00E-04	0.00111	1.01866	0.00145	0.00702

Gadd45b	0.8741	5.00E-05	0.00032	1.60719	5.00E-05	0.00038
Xbp1	0.87409	5.00E-05	0.00032	1.44677	0.00015	0.00102
Ddx42	0.87283	0.00015	0.00086	0.85026	0.00505	0.01952
Atp6v0c	0.87175	5.00E-05	0.00032	0.90382	0.0068	0.0249
Fam102b	0.87163	0.00015	0.00086	0.79091	0.0118	0.03888
Wdr26	0.87117	0.00215	0.00849	1.13229	0.0095	0.03279
Brd8	0.86845	2.00E-04	0.00111	1.04343	0.00065	0.00359
Etf1	0.86791	5.00E-05	0.00032	0.8617	0.013	0.04201
Myst1	0.86762	3.00E-04	0.00158	1.34609	5.00E-05	0.00038
Rras	0.86545	5.00E-04	0.00244	0.78314	0.0117	0.03861
Xpo5	0.86457	3.00E-04	0.00158	0.876	0.00475	0.0186
Plcb4	0.86421	3.00E-04	0.00158	0.82138	0.0116	0.03839
Rps14	0.86366	5.00E-05	0.00032	1.21279	0.001	0.00513
Eif3l	0.85935	5.00E-05	0.00032	0.88875	0.00545	0.02072
Lsg1	0.85928	0.0066	0.02167	1.00304	0.0149	0.04671
Stx5a	0.8579	0.0015	0.00627	0.84868	0.01335	0.04295
Sympk	0.85662	0.002	0.00799	0.99693	0.01405	0.04467
Rps20	0.8562	0.00015	0.00086	1.46986	3.00E-04	0.00184
Fbxw8	0.85315	0.00015	0.00086	1.04537	0.0013	0.00641
Nsmce2	0.85267	0.0012	0.00518	0.94683	0.0048	0.01873
Ldlr	0.85028	0.00025	0.00135	-1.1912	8.00E-04	0.00427
Cds2	0.84876	1.00E-04	0.0006	1.1024	7.00E-04	0.00383
Wac	0.84866	0.0164	0.04557	0.88994	0.0155	0.04817
Map4k4	0.84771	0.00015	0.00086	0.99577	0.00135	0.00662
Wbp11	0.84588	0.00465	0.01614	1.01559	0.00165	0.00782
Erlec1	0.84514	0.00065	0.00308	0.89885	0.0111	0.03702
D19Bwg1357e	0.84344	8.00E-04	0.00368	0.78271	0.01215	0.03973
Rpl18a	0.84318	5.00E-05	0.00032	1.29904	6.00E-04	0.00335
Ypel2	0.84057	0.00165	0.00681	0.86633	0.00615	0.02292
Map1lc3a	0.83959	0.00075	0.00349	1.36001	0.0012	0.006
Slco3a1	0.83839	5.00E-05	0.00032	0.86108	0.01385	0.04424
Rnf13	0.83827	1.00E-04	0.0006	1.31694	5.00E-05	0.00038
Snrpb2	0.83806	0.00845	0.02651	1.06716	0.00905	0.03147
Ptpn23	0.83799	6.00E-04	0.00286	1.29331	5.00E-05	0.00038
Tmem222	0.83707	7.00E-04	0.00328	0.9723	0.0018	0.00842
Rps28	0.83657	0.00545	0.01845	1.66179	0.00055	0.00312
Cyb561	0.83586	0.00705	0.02283	1.22619	5.00E-04	0.00287
Abca5	0.83511	4.00E-04	0.00203	1.09447	0.00045	0.00262
Wdr11	0.83288	0.0025	0.00962	0.9802	0.0042	0.01681
Arpc3	0.83194	3.00E-04	0.00158	1.09174	2.00E-04	0.00131
Zfp746	0.83052	0.00065	0.00308	0.97593	0.0022	0.00992

Fam160b1	0.83045	3.00E-04	0.00158	0.90773	0.00515	0.01983
2610301B20Rik	0.82933	0.00945	0.0291	2.46652	5.00E-05	0.00038
Psen1	0.82933	1.00E-04	0.0006	1.07476	0.00035	0.00212
Dock8	0.82925	0.0163	0.04537	1.77713	5.00E-05	0.00038
Ubn2	0.82909	4.00E-04	0.00203	0.90015	0.01175	0.03874
Rell1	0.82904	3.00E-04	0.00158	0.84668	0.00785	0.02805
Eef2	0.82876	0.00035	0.00181	1.57501	0.0014	0.00681
Xpc	0.82875	4.00E-04	0.00203	1.36781	5.00E-05	0.00038
Pex14	0.82867	0.00025	0.00135	1.16238	0.00015	0.00102
Trpc4ap	0.82804	2.00E-04	0.00111	0.93884	0.00705	0.02568
Whsc111	0.82584	0.00345	0.01257	1.2376	0.00075	0.00405
Mll1	0.82463	6.00E-04	0.00286	0.76287	0.0153	0.04768
Dhx38	0.82407	5.00E-05	0.00032	0.86748	0.0046	0.01814
Rrp15	0.82388	0.00275	0.01043	0.92294	0.00585	0.02197
Mttp	0.82352	0.0033	0.01213	-1.3065	3.00E-04	0.00184
Bax	0.82323	0.00255	0.00979	0.87057	0.00685	0.02504
Rpl27a	0.82162	0.00205	0.00814	1.25547	0.001	0.00513
Snrpa1	0.82159	0.00105	0.00462	0.97851	0.0019	0.0088
Fam103a1	0.82124	0.00105	0.00462	0.82188	0.01	0.0341
Rnf40	0.82108	1.00E-04	0.0006	1.12745	4.00E-04	0.00237
Tjp2	0.82043	0.006	0.02002	1.23261	5.00E-04	0.00287
Ngrn	0.82024	1.00E-04	0.0006	0.96107	0.00195	0.00898
Dgat1	0.82021	0.01415	0.04037	1.16748	0.0035	0.01447
Ogfr	0.81844	0.00315	0.01165	0.82223	0.00985	0.03368
Tmem106b	0.81832	5.00E-05	0.00032	1.14717	0.00365	0.01502
Ppp1r12a	0.81712	9.00E-04	0.00406	1.20665	2.00E-04	0.00131
Atxn2l	0.81693	1.00E-04	0.0006	0.80915	0.0097	0.03333
Ccni	0.81679	0.00025	0.00135	1.40023	5.00E-05	0.00038
Fcho2	0.81589	2.00E-04	0.00111	1.03261	0.00135	0.00662
Ilkap	0.81515	0.00045	0.00224	1.16665	1.00E-04	0.00072
D15Ert621e	0.81477	0.00155	0.00645	0.86258	0.0061	0.02276
Nrbp2	0.81359	9.00E-04	0.00406	1.32188	5.00E-05	0.00038
Mier3	0.81357	0.0013	0.00554	0.78698	0.01065	0.03584
Rpl36	0.81315	0.00015	0.00086	1.31731	3.00E-04	0.00184
Rpl19	0.81226	0.0063	0.02089	1.23141	0.016	0.04944
Evi5	0.81195	0.00175	0.00715	1.19445	3.00E-04	0.00184
Ppp1r13b	0.81089	0.00535	0.01818	1.08241	0.00065	0.00359
Avl9	0.80891	0.00595	0.01987	0.9523	0.003	0.01275
Prr24	0.80694	0.0017	0.00699	1.48088	5.00E-05	0.00038
Fam133b	0.80682	0.00235	0.00914	1.55714	5.00E-05	0.00038
Nup50	0.80539	0.0018	0.00733	0.95632	0.003	0.01275

1600002K03Rik	0.80497	0.0094	0.02898	1.25285	6.00E-04	0.00335
Esrrb	0.80441	0.0024	0.00929	1.47775	5.00E-05	0.00038
Usp28	0.80256	5.00E-05	0.00032	1.73171	0.00025	0.00159
P2rx5	0.80247	0.00985	0.03005	-0.827	0.015	0.04696
Itpk1	0.8023	0.0028	0.01059	1.63358	5.00E-05	0.00038
Rnf38	0.80216	8.00E-04	0.00368	0.89752	0.00225	0.0101
2510003E04Rik	0.80176	5.00E-04	0.00244	0.7992	0.0123	0.04018
Sf3b2	0.80099	5.00E-05	0.00032	1.13467	0.00175	0.00822
Gata2	0.80065	0.00195	0.00782	1.47403	5.00E-05	0.00038
Ddx50	0.79944	1.00E-04	0.0006	1.03323	0.001	0.00513
Entpd1	0.79844	0.01785	0.04872	0.8595	0.00855	0.02999
Siva1	0.79787	0.0033	0.01213	1.00427	0.00165	0.00782
Rnf185	0.79746	0.00035	0.00181	0.87528	0.0036	0.01484
Csnk1e	0.79716	0.00515	0.01761	1.55007	5.00E-05	0.00038
Atp6v1c1	0.79703	4.00E-04	0.00203	0.92154	0.0026	0.01132
Usp36	0.7968	0.0028	0.01059	1.25985	2.00E-04	0.00131
Pus1	0.79596	0.0021	0.00833	0.81498	0.0132	0.04258
Gatsl3	0.79562	0.01515	0.04273	1.12941	0.0035	0.01447
Cdk13	0.79513	0.00055	0.00266	0.99132	0.00155	0.00742
Sbf2	0.79389	0.00365	0.01315	1.03976	0.0038	0.01556
4632411B12Rik	0.79243	0.00015	0.00086	1.23014	0.00035	0.00212
Nfkbiz	0.79203	0.0178	0.04862	1.63078	1.00E-04	0.00072
Nampt	0.79064	0.00015	0.00086	1.31918	6.00E-04	0.00335
Parp4	0.79033	0.01705	0.04696	2.25427	5.00E-05	0.00038
Phf23	0.78919	0.0095	0.02923	0.81355	0.0126	0.04097
Kdm3b	0.78823	0.00065	0.00308	0.91132	0.004	0.01623
Phf1	0.78743	0.00085	0.00387	0.85206	0.00475	0.0186
Rasip1	0.78723	0.003	0.01117	1.07736	0.00105	0.00534
Myl3	0.78652	0.01055	0.0318	-1.7717	5.00E-05	0.00038
Txnip	0.78628	0.00315	0.01165	2.20961	1.00E-04	0.00072
Zdhhc20	0.78597	0.00225	0.00883	0.80768	0.0139	0.04433
Cyp20a1	0.78535	0.00505	0.01733	1.39347	5.00E-05	0.00038
Arglu1	0.78454	6.00E-04	0.00286	1.00273	0.00215	0.00974
Yipf3	0.78451	0.00355	0.01288	1.1773	0.0022	0.00992
Brpf1	0.78437	0.0077	0.02458	0.90736	0.0079	0.0282
Aup1	0.78398	0.00095	0.00425	0.88076	0.01485	0.04659
Zfp715	0.78392	9.00E-04	0.00406	0.7998	0.00755	0.02715
Fam100a	0.78259	0.00035	0.00181	1.49685	5.00E-05	0.00038
Zfp358	0.78002	6.00E-04	0.00286	0.88698	0.00475	0.0186
Fbxl20	0.77971	0.0036	0.01302	1.158	0.00035	0.00212
Mon2	0.7786	0.00025	0.00135	1.17614	0.00025	0.00159

Sncaip	0.77854	0.01305	0.03783	0.99792	0.00395	0.01606
Uimc1	0.77709	0.00935	0.02885	0.88385	0.0134	0.04309
Tgoln1	0.77544	0.00035	0.00181	0.81679	0.0101	0.03434
Cd63	0.77539	1.00E-04	0.0006	1.02021	0.00295	0.01259
Utp15	0.77536	0.00355	0.01288	0.8724	0.008	0.02849
Lemd3	0.77437	0.00125	0.00536	0.85735	0.007	0.02553
Zfp410	0.77394	8.00E-04	0.00368	1.1207	7.00E-04	0.00383
Rpl10a	0.77373	4.00E-04	0.00203	1.38369	5.00E-05	0.00038
Rif1	0.77286	0.00215	0.00849	1.09327	0.00105	0.00534
Foxn2	0.77268	3.00E-04	0.00158	0.88094	0.00345	0.01434
Tns3	0.77264	0.01635	0.04547	1.11127	0.00075	0.00405
Nhlrc2	0.76955	0.01165	0.03449	0.98793	0.00545	0.02072
Ppp4c	0.76936	0.0022	0.00865	0.97018	0.0017	0.00803
Prrc2c	0.76601	0.00055	0.00266	0.7678	0.0147	0.04624
Rpl4	0.76523	1.00E-04	0.0006	1.10957	0.0084	0.0296
Ing2	0.7648	0.0117	0.03462	1.45898	3.00E-04	0.00184
Ppp1r9b	0.76477	0.00105	0.00462	0.77278	0.0132	0.04258
Anp32a	0.76399	0.0086	0.02689	1.6976	0.00055	0.00312
Mylip	0.76298	6.00E-04	0.00286	2.17636	5.00E-05	0.00038
Puf60	0.76234	3.00E-04	0.00158	0.75494	0.0143	0.04528
Nfat5	0.75997	2.00E-04	0.00111	1.35222	5.00E-05	0.00038
Ubtf	0.7594	0.00045	0.00224	1.361	5.00E-05	0.00038
Gm11361	0.75755	0.00135	0.00572	1.32244	5.00E-05	0.00038
C1qbp	0.75721	0.00055	0.00266	0.84107	0.0153	0.04768
Zfml	0.75672	0.00035	0.00181	0.99872	0.00155	0.00742
Rps19	0.75661	0.00035	0.00181	1.27597	0.00015	0.00102
Eif1a	0.75658	0.00215	0.00849	0.8188	0.01045	0.03523
Txnrd3	0.75278	0.0071	0.02297	1.22233	0.00045	0.00262
Ppfia1	0.7524	0.00485	0.01675	1.17005	0.0017	0.00803
Ctnna1	0.75085	2.00E-04	0.00111	1.85785	5.00E-05	0.00038
Rnf19a	0.75084	0.00065	0.00308	0.82128	0.0073	0.02642
Lrch1	0.75055	0.01275	0.03713	1.13206	0.00235	0.01046
Spcs3	0.74864	0.00045	0.00224	1.29589	5.00E-05	0.00038
Gm10260	0.74804	5.00E-04	0.00244	1.05831	0.00065	0.00359
Tysnd1	0.74757	0.0021	0.00833	0.96932	0.00265	0.01149
Eif4a3	0.74741	0.01395	0.03991	1.04936	0.01405	0.04467
Nob1	0.74708	0.00095	0.00425	0.87232	0.0089	0.03106
Tfip11	0.74622	0.00195	0.00782	0.89424	0.0059	0.02212
Al314976	0.74604	0.0023	0.00899	0.76868	0.0137	0.04392
Rps25	0.74568	0.00015	0.00086	1.06574	0.00255	0.01114
Slc35e1	0.74549	0.00045	0.00224	0.97013	0.0032	0.01343

Hnrnpul2	0.74549	2.00E-04	0.00111	0.91786	0.0054	0.02055
Pgd	0.74288	0.0032	0.01181	0.90575	0.00425	0.01698
Snx13	0.74186	0.00055	0.00266	0.94271	0.00295	0.01259
Rpl30	0.74118	0.00085	0.00387	1.07328	0.0024	0.01064
Arl4a	0.74006	0.003	0.01117	1.20162	0.00065	0.00359
Inmt	0.74006	0.00365	0.01315	4.22415	5.00E-05	0.00038
Hist1h4h	0.7397	0.0131	0.03794	2.12956	5.00E-05	0.00038
Ier5	0.73968	0.0053	0.01805	0.80291	0.01145	0.03798
Eif4h	0.73914	2.00E-04	0.00111	1.07168	0.002	0.00918
Bckdhb	0.73765	0.0028	0.01059	1.33543	0.00025	0.00159
Abt1	0.73705	0.00445	0.01557	0.97108	0.0027	0.01168
Nudt22	0.73563	0.01305	0.03783	1.15847	9.00E-04	0.0047
Khsrp	0.73335	0.00335	0.01227	0.84327	0.0089	0.03106
Cd164	0.73284	3.00E-04	0.00158	1.24714	0.00045	0.00262
Sh3pxd2a	0.73197	4.00E-04	0.00203	0.7906	0.0133	0.04283
4933407C03Rik	0.73166	0.00505	0.01733	1.22079	0.00025	0.00159
Nt5c2	0.73136	0.0133	0.0384	1.28048	0.00025	0.00159
Trp53bp2	0.73123	0.0029	0.0109	1.0525	0.00065	0.00359
Pde4d	0.72983	0.00045	0.00224	2.58436	5.00E-05	0.00038
Rps6	0.72957	0.00035	0.00181	1.14277	3.00E-04	0.00184
Glrx	0.72752	7.00E-04	0.00328	0.91242	0.0052	0.01999
Snta1	0.72716	4.00E-04	0.00203	0.90903	0.0128	0.04148
Rrp1	0.72505	7.00E-04	0.00328	0.96267	0.00285	0.01222
Tmem86a	0.72463	0.00845	0.02651	1.32185	0.00035	0.00212
Sfswap	0.72295	0.00145	0.0061	1.12449	0.00035	0.00212
Rpl22l1	0.72246	0.00075	0.00349	1.45549	5.00E-05	0.00038
Rilpl1	0.72231	0.00015	0.00086	1.12815	0.00115	0.00578
2310036O22Rik	0.72199	0.0016	0.00663	1.11904	0.00035	0.00212
Zcchc2	0.72168	0.003	0.01117	1.14915	0.00025	0.00159
Rpl22	0.72124	0.0058	0.01944	1.01757	0.01265	0.0411
Rprd2	0.72059	0.00205	0.00814	1.16077	0.00105	0.00534
Fam195b	0.7196	0.0012	0.00518	1.21455	1.00E-04	0.00072
Rpl32	0.71818	4.00E-04	0.00203	0.9765	0.0043	0.01712
Kctd6	0.71678	0.00855	0.02678	1.07162	0.00165	0.00782
Hsd17b10	0.71673	6.00E-04	0.00286	0.97592	0.00165	0.00782
Sertad1	0.71654	0.01055	0.0318	1.32372	1.00E-04	0.00072
Dtx2	0.71424	0.01695	0.04676	0.93906	0.00945	0.03266
Sap130	0.71358	0.00325	0.01196	0.99209	0.0013	0.00641
Dgcr14	0.71115	0.00695	0.02258	0.95324	0.00405	0.01634
Klhl34	0.71042	0.00485	0.01675	-0.8755	0.00815	0.0289
Cnksr3	0.71027	0.01775	0.0485	1.90733	5.00E-05	0.00038

Spg21	0.70985	0.008	0.02536	1.20352	0.00035	0.00212
Rabac1	0.70879	5.00E-04	0.00244	1.50204	5.00E-05	0.00038
Pan2	0.70698	0.0041	0.01451	0.99189	0.00155	0.00742
Cdc42ep4	0.70676	0.00575	0.0193	1.47633	5.00E-05	0.00038
Arid5b	0.70484	0.0088	0.02744	1.02002	0.003	0.01275
Rpl27	0.70439	0.00075	0.00349	0.98216	0.0025	0.011
Rai14	0.70408	0.0055	0.01859	0.86064	0.00665	0.02443
Nos3	0.70333	0.00635	0.02101	1.27119	1.00E-04	0.00072
Tmf1	0.70219	0.00205	0.00814	1.07643	0.00045	0.00262
Cln6	0.70158	0.0086	0.02689	1.06921	0.00095	0.00492
Rps13	0.70004	8.00E-04	0.00368	0.92543	0.00405	0.01634
Dbnl	0.69875	0.0067	0.02193	0.8013	0.0132	0.04258
Cebpz	0.69605	0.0038	0.01361	0.85985	0.01385	0.04424
Gtf2ird1	0.69261	0.01045	0.03157	0.97988	0.0031	0.01309
Sestd1	0.69235	0.00475	0.01645	2.30691	5.00E-05	0.00038
Gba	0.69235	0.00375	0.01345	0.95677	0.00275	0.01187
Tubb6	0.69231	0.00675	0.02206	1.53225	5.00E-05	0.00038
Vps11	0.69106	0.0017	0.00699	1.0238	0.0013	0.00641
Ccdc93	0.69037	0.00445	0.01557	0.93903	0.00985	0.03368
Dnajc21	0.69024	0.00095	0.00425	0.79896	0.0124	0.04046
Acap2	0.69021	0.00285	0.01076	0.87586	0.0041	0.0165
Fau	0.68903	0.0011	0.00481	1.55337	5.00E-05	0.00038
Rpl34	0.68887	8.00E-04	0.00368	0.9287	0.00435	0.01729
Grina	0.68442	8.00E-04	0.00368	1.29621	3.00E-04	0.00184
Hdac4	0.68264	0.00355	0.01288	0.75253	0.0151	0.04724
Srek1	0.68253	0.0017	0.00699	0.98806	0.00075	0.00405
Taf4a	0.67849	0.0183	0.04973	1.05469	0.0014	0.00681
Snx8	0.67774	0.0049	0.01691	1.04763	9.00E-04	0.0047
Mob2	0.67751	0.00135	0.00572	0.84985	0.00655	0.02414
Rpl7a	0.67596	7.00E-04	0.00328	0.99602	0.00515	0.01983
Numa1	0.67583	0.00715	0.02309	0.90323	0.0155	0.04817
Cpsf4	0.67553	0.01675	0.04633	0.94795	0.0054	0.02055
Supt16h	0.6754	0.0026	0.00995	0.8399	0.00565	0.02137
Adcy4	0.67505	0.01025	0.03107	0.81113	0.00965	0.03319
Zfp574	0.67496	0.0072	0.02322	0.9047	0.0042	0.01681
Atp6v1d	0.67347	0.001	0.00445	0.95963	0.003	0.01275
Dock6	0.67274	0.00185	0.00749	1.31781	5.00E-05	0.00038
Hibadh	0.67241	8.00E-04	0.00368	0.92025	0.00705	0.02568
Arhgdia	0.67209	0.00085	0.00387	0.90618	0.00425	0.01698
Ilf3	0.6718	0.0018	0.00733	1.21756	5.00E-05	0.00038
AI848100	0.66887	0.0058	0.01944	1.55555	5.00E-05	0.00038

Rpl23	0.66849	0.00095	0.00425	1.01196	0.00585	0.02197
Rpl3	0.66708	0.00205	0.00814	1.86134	5.00E-05	0.00038
Dapk3	0.66686	0.00655	0.02155	0.98879	0.0017	0.00803
Usp8	0.66686	0.0017	0.00699	1.0336	7.00E-04	0.00383
Med9	0.66645	0.0031	0.0115	0.76816	0.0108	0.0362
Irf2bp2	0.66542	0.00255	0.00979	1.83161	5.00E-05	0.00038
Tbca	0.66277	0.00725	0.02336	0.76472	0.0138	0.04415
H47	0.66014	0.0042	0.01482	1.20657	2.00E-04	0.00131
Polr3d	0.65911	0.00485	0.01675	0.97751	0.00165	0.00782
H13	0.65902	0.00945	0.0291	1.10102	0.00185	0.00861
Esyt2	0.65779	0.0015	0.00627	1.63681	5.00E-05	0.00038
Pcnt	0.65573	0.00125	0.00536	1.28552	3.00E-04	0.00184
1810027O10Rik	0.65558	0.00385	0.01375	1.08117	0.00075	0.00405
Adh1	0.65365	0.0032	0.01181	1.13049	0.00025	0.00159
Mitf	0.6531	0.00665	0.0218	0.92732	0.00395	0.01606
Rpl10	0.65208	0.0012	0.00518	1.1474	0.00235	0.01046
Lonp2	0.65198	0.00565	0.01901	1.00628	0.00395	0.01606
Tsc22d3	0.6509	0.0022	0.00865	1.92095	0.00015	0.00102
Rpl12	0.65005	0.0046	0.016	1.38051	2.00E-04	0.00131
Foxj2	0.649	0.0024	0.00929	1.05449	0.00165	0.00782
Eif3k	0.64734	0.00215	0.00849	0.86863	0.0057	0.0215
Dek	0.64526	0.005	0.01719	0.9713	0.0026	0.01132
Rab3gap1	0.64514	0.0143	0.04069	1.09695	0.00165	0.00782
Dnajc13	0.64509	0.00235	0.00914	0.7613	0.0144	0.04556
Rpl37	0.64465	0.00215	0.00849	1.04554	0.00145	0.00702
Cdc42bpb	0.64327	0.0019	0.00766	0.91752	0.002	0.00918
Hnrnpa0	0.63919	0.0029	0.0109	0.83501	0.00815	0.0289
Sart3	0.6386	0.0082	0.02591	1.26089	5.00E-05	0.00038
Ddx20	0.6351	0.0111	0.03307	0.98595	0.00125	0.00621
Aebp1	0.63195	0.0077	0.02458	0.86162	0.00975	0.03344
Rpl21	0.63003	0.00275	0.01043	0.92659	0.00795	0.02834
Picalm	0.62784	0.0018	0.00733	0.8711	0.0103	0.03481
Pcna	0.62271	0.0072	0.02322	0.90802	0.0034	0.01416
Eea1	0.62234	0.003	0.01117	0.99596	0.0011	0.00557
Vps37c	0.62173	0.0066	0.02167	0.76154	0.013	0.04201
Dus3l	0.61715	0.00755	0.02417	0.78411	0.0093	0.03221
Dnajc8	0.61338	0.00525	0.0179	0.94665	0.0025	0.011
Pitrm1	0.61249	0.00525	0.0179	0.94116	0.00725	0.02628
Rps23	0.60994	0.0028	0.01059	1.06237	0.00105	0.00534
Nnt	0.60788	0.0037	0.01329	0.95411	0.0055	0.02087
AW555464	0.60721	0.01825	0.04962	1.23267	0.00015	0.00102

Zfyve21	0.60481	0.0164	0.04557	1.54285	5.00E-05	0.00038
Tnpo1	0.60448	0.00305	0.01133	0.75279	0.0138	0.04415
Chmp4b	0.60386	0.00355	0.01288	1.3365	4.00E-04	0.00237
Robo4	0.60329	0.0088	0.02744	0.97198	0.00145	0.00702
Man2b1	0.60233	0.01295	0.03761	0.93869	0.0031	0.01309
Popdc3	0.5999	0.00705	0.02283	0.88614	0.01085	0.03634
Rps27a	0.59943	0.0032	0.01181	1.00276	0.0042	0.01681
Rps7	0.59916	0.0032	0.01181	0.9704	0.00455	0.01797
Clta	0.5982	0.0063	0.02089	0.99774	0.0015	0.00723
Mpp5	0.59683	0.00565	0.01901	1.08122	0.001	0.00513
Atp5g2	0.59566	0.00345	0.01257	0.9302	0.009	0.03133
Vps72	0.59523	0.008	0.02536	1.28313	5.00E-05	0.00038
Mdm4	0.59051	0.0154	0.04329	0.89936	0.0056	0.0212
Usp31	0.58971	0.0135	0.03888	0.86559	0.0047	0.01846
Rpl17	0.58956	0.0035	0.01272	0.98643	0.00285	0.01222
Fbrsl1	0.58933	0.0145	0.04116	0.89512	0.00535	0.0204
Ube2q1	0.58359	0.0089	0.02769	0.77857	0.0113	0.03759
Anxa7	0.58118	0.00525	0.0179	1.07846	0.00105	0.00534
Pxk	0.58033	0.0123	0.03607	1.5787	5.00E-05	0.00038
Rtf1	0.58008	0.0053	0.01805	1.019	0.00045	0.00262
Ssfa2	0.57833	0.0069	0.02243	0.87853	0.00335	0.01398
Ubp1	0.57621	0.0142	0.0405	0.91376	0.0064	0.02368
Frg1	0.57595	0.01665	0.04611	0.77703	0.01405	0.04467
Hmgn5	0.57551	0.01745	0.04787	1.08546	6.00E-04	0.00335
Smarcc2	0.57086	0.0066	0.02167	0.94605	0.0032	0.01343
C78339	0.56896	0.00565	0.01901	0.81562	0.01	0.0341
Rpl8	0.56224	0.00615	0.02048	1.04612	0.00465	0.01831
Specc1l	0.55243	0.0078	0.02484	0.82849	0.0075	0.02702
Rnf144b	0.55206	0.01135	0.03375	0.96605	0.00135	0.00662
Cnn3	0.54582	0.01775	0.0485	0.83887	0.00585	0.02197
Trip10	0.54545	0.00625	0.02076	0.88001	0.0104	0.03511
Cpeb2	0.54276	0.01615	0.04502	1.98172	5.00E-05	0.00038
Tmem11	0.52965	0.01475	0.04178	0.77174	0.01115	0.03717
Rpl38	0.52587	0.01145	0.03402	1.11616	0.00045	0.00262
Rps17	0.52419	0.01035	0.03132	1.00414	0.0051	0.01969
Rps16	0.51402	0.0107	0.03213	1.10687	9.00E-04	0.0047
Rps24	0.51364	0.0098	0.02992	0.98415	0.0056	0.0212
Gars	0.50501	0.0133	0.0384	1.02851	0.00155	0.00742
Cdv3	0.50347	0.0133	0.0384	1.28325	0.0019	0.0088
Rps29	0.49875	0.01305	0.03783	0.97008	0.00425	0.01698
Rps11	0.49417	0.0149	0.04212	0.90587	0.00805	0.02863

Rpl28	0.49177	0.0171	0.04706	0.88349	0.0074	0.02672
Rps21	0.48718	0.0181	0.04931	1.16837	0.00045	0.00262
Rps5	0.48612	0.01585	0.04434	1.02852	0.0051	0.01969
Tnks2	-0.4905	0.01625	0.04524	-1.1578	0.00035	0.00212
Ndufs1	-0.5033	0.01635	0.04547	-1.4855	6.00E-04	0.00335
C2cd2	-0.5264	0.0108	0.03234	-1.4323	5.00E-05	0.00038
Qser1	-0.5271	0.0106	0.03191	-0.8177	0.00925	0.03206
Rab10	-0.5301	0.00985	0.03005	-0.9541	0.00815	0.0289
Cyc1	-0.5336	0.00995	0.03031	-1.2075	0.0015	0.00723
Rap1gds1	-0.5539	0.0075	0.02403	-1.039	3.00E-04	0.00184
Sec23a	-0.5544	0.0071	0.02297	-1.021	0.0021	0.00957
Stom	-0.555	0.0149	0.04212	-0.9819	0.00205	0.00937
Clec16a	-0.5568	0.0125	0.03659	-1.323	5.00E-05	0.00038
Pde7b	-0.5678	0.0102	0.03095	-1.7878	5.00E-05	0.00038
Zfp706	-0.5713	0.00745	0.0239	-0.9553	0.0028	0.01205
Nid1	-0.5716	0.00625	0.02076	-1.1255	0.00025	0.00159
Fkbp3	-0.5729	0.0153	0.04309	-1.13	0.00365	0.01502
Parp8	-0.582	0.01335	0.03852	-1.0769	0.0017	0.00803
Alas1	-0.5852	0.01325	0.03829	-1.9128	5.00E-05	0.00038
Abhd11	-0.5869	0.0134	0.03863	-0.9585	0.00345	0.01434
4732418C07Rik	-0.5877	0.01095	0.03273	-1.0414	9.00E-04	0.0047
Mrpl13	-0.5903	0.0124	0.03633	-0.977	0.0043	0.01712
Mgll	-0.5933	0.0076	0.02432	-1.212	5.00E-05	0.00038
Mrps36	-0.595	0.01815	0.04939	-0.8966	0.00565	0.02137
Aars2	-0.5956	0.012	0.0353	-1.345	5.00E-05	0.00038
Nrp1	-0.5965	0.00545	0.01845	-1.2459	5.00E-05	0.00038
BC031181	-0.5995	0.0143	0.04069	-0.8788	0.00525	0.02013
Chchd1	-0.6011	0.0051	0.01748	-1.2536	1.00E-04	0.00072
Ralgapa1	-0.605	0.00575	0.0193	-1.0898	4.00E-04	0.00237
Mrpl42	-0.606	0.0029	0.0109	-1.0182	0.0022	0.00992
Lcmt1	-0.6065	0.00805	0.0255	-1.5327	5.00E-05	0.00038
Ids	-0.6065	0.0057	0.01917	-0.8482	0.0048	0.01873
Tmem117	-0.6071	0.0114	0.03389	-1.2132	1.00E-04	0.00072
Amotl1	-0.6073	0.00335	0.01227	-1.5781	5.00E-05	0.00038
Neo1	-0.6078	0.00495	0.01705	-1.1536	3.00E-04	0.00184
Dynlt3	-0.6089	0.0038	0.01361	-1.3378	5.00E-05	0.00038
Anxa5	-0.6143	0.0107	0.03213	-0.8035	0.0089	0.03106
Cdc42	-0.6148	0.0027	0.01026	-0.8268	0.011	0.03678
Epm2a	-0.6149	0.00255	0.00979	-1.1123	0.00025	0.00159
Sae1	-0.6156	0.00695	0.02258	-0.8232	0.0083	0.02932
Daglb	-0.6163	0.01255	0.03669	-1.0558	0.00085	0.00449

Abcb4	-0.6198	0.01105	0.03297	-1.6443	5.00E-05	0.00038
Scoc	-0.621	0.00845	0.02651	-1.1279	0.00015	0.00102
Habp4	-0.6227	0.00665	0.0218	-1.0908	5.00E-04	0.00287
Sod2	-0.625	0.0027	0.01026	-1.5034	1.00E-04	0.00072
Laptm4a	-0.6286	0.0018	0.00733	-0.9718	0.0048	0.01873
Pgk1	-0.6296	0.00275	0.01043	-1.2134	0.00225	0.0101
Pola2	-0.6302	0.01805	0.04919	-1.2468	0.00045	0.00262
Tagap1	-0.6303	0.01815	0.04939	-0.8472	0.01005	0.03423
Mtfr1	-0.6329	0.00675	0.02206	-1.2207	0.0017	0.00803
Snap23	-0.6341	0.0049	0.01691	-0.8771	0.00385	0.01572
Nsun4	-0.6344	0.01355	0.03899	-1.7864	5.00E-05	0.00038
Itfg1	-0.6345	0.003	0.01117	-1.2269	1.00E-04	0.00072
Mdp1	-0.6352	0.0094	0.02898	-1.188	3.00E-04	0.00184
Zdhhc8	-0.6353	0.00515	0.01761	-0.9397	0.00285	0.01222
Tmem70	-0.6356	0.01165	0.03449	-1.4229	0.00015	0.00102
Dcun1d1	-0.636	0.0045	0.01571	-1.139	0.00015	0.00102
Gfpt1	-0.6367	0.0043	0.01513	-0.951	0.0013	0.00641
Ddo	-0.6368	0.0037	0.01329	-1.7281	5.00E-05	0.00038
Daam1	-0.6369	0.0096	0.02947	-0.875	0.006	0.02242
Cbx5	-0.6373	0.00385	0.01375	-1.0476	5.00E-04	0.00287
Wdr7	-0.642	0.0035	0.01272	-1.6731	5.00E-05	0.00038
Gpc1	-0.6428	0.0015	0.00627	-1.0953	0.00365	0.01502
2810407C02Rik	-0.6453	0.00115	0.005	-1.5873	5.00E-05	0.00038
2310042D19Rik	-0.6461	0.0017	0.00699	-1.5658	5.00E-05	0.00038
Psmg2	-0.6479	0.0098	0.02992	-0.944	0.00385	0.01572
Bves	-0.6508	0.00235	0.00914	-1.1484	0.00015	0.00102
Hdac2	-0.6509	0.004	0.01419	-1.0126	0.00215	0.00974
Snrpd3	-0.6517	0.00335	0.01227	-1.3683	5.00E-05	0.00038
Pofut1	-0.6527	0.0066	0.02167	-1.421	5.00E-05	0.00038
Ado	-0.653	0.0037	0.01329	-1.4238	5.00E-05	0.00038
Rhobtb2	-0.6544	0.0062	0.02061	-0.9972	0.00215	0.00974
Klhl31	-0.6567	0.0016	0.00663	-2.0944	5.00E-05	0.00038
Slc44a2	-0.6573	0.00195	0.00782	-1.0934	0.0022	0.00992
14-Sep	-0.6575	0.00265	0.01011	-0.8982	0.004	0.01623
Lrtm1	-0.6586	0.00115	0.005	-2.5881	5.00E-05	0.00038
Lamtor2	-0.6592	0.00625	0.02076	-0.8842	0.00515	0.01983
Gnpnat1	-0.66	0.0117	0.03462	-0.9294	0.0047	0.01846
Zfp770	-0.6618	0.00425	0.01498	-1.8575	5.00E-05	0.00038
Ubxn2a	-0.663	0.00285	0.01076	-0.8349	0.01035	0.03496
Vtn	-0.6636	0.0177	0.04841	-0.849	0.01485	0.04659
Dusp22	-0.6655	0.0073	0.0235	-1.5129	5.00E-05	0.00038

Ovol1	-0.6655	0.01035	0.03132	-1.3121	0.00015	0.00102
Ipo8	-0.6662	0.00405	0.01436	-0.8335	0.0049	0.01905
Abcd1	-0.6664	0.0029	0.0109	-1.285	1.00E-04	0.00072
Gtpbp10	-0.6682	0.00945	0.0291	-0.9465	0.00255	0.01114
Mrs2	-0.6683	0.0069	0.02243	-0.9836	0.002	0.00918
Hif1an	-0.6713	0.00095	0.00425	-1.2594	2.00E-04	0.00131
Rbm38	-0.6714	0.0136	0.03911	-1.2175	0.00385	0.01572
Tmem123	-0.6731	0.0029	0.0109	-1.0467	6.00E-04	0.00335
Rhoq	-0.6744	0.00095	0.00425	-1.3149	2.00E-04	0.00131
Ccnyl1	-0.6762	0.003	0.01117	-0.9764	0.00135	0.00662
Pea15a	-0.677	0.01055	0.0318	-0.951	0.00405	0.01634
1700021F05Rik	-0.6785	0.00225	0.00883	-0.7306	0.01455	0.04583
Mtif2	-0.6797	0.01225	0.03594	-1.4767	5.00E-05	0.00038
Frmd6	-0.681	0.00545	0.01845	-1.1778	2.00E-04	0.00131
Mrpl28	-0.6818	0.00755	0.02417	-1.3928	5.00E-04	0.00287
Otub2	-0.6826	0.01425	0.04059	-2.14	5.00E-05	0.00038
2410091C18Rik	-0.6829	0.00645	0.02127	-1.0801	0.00155	0.00742
Lmcd1	-0.6852	0.00085	0.00387	-1.1589	9.00E-04	0.0047
Eya4	-0.6868	0.00315	0.01165	-1.1155	6.00E-04	0.00335
Wwp1	-0.6875	0.00185	0.00749	-1.2184	0.00185	0.00861
Mapre2	-0.688	0.0029	0.0109	-1.1762	0.00035	0.00212
Tmem2	-0.689	0.0045	0.01571	-0.7673	0.0153	0.04768
Gtf3c6	-0.6912	0.011	0.03285	-1.1365	9.00E-04	0.0047
Zmiz2	-0.6921	0.00175	0.00715	-1.0117	0.0017	0.00803
Ehbp111	-0.6926	0.00245	0.00945	-1.5066	6.00E-04	0.00335
1600014C10Rik	-0.6949	0.0034	0.01243	-1.8297	5.00E-05	0.00038
Nudt2	-0.6991	0.00735	0.02364	-0.7913	0.0121	0.03962
Clcn3	-0.7015	0.00195	0.00782	-1.1614	3.00E-04	0.00184
Acn9	-0.7033	0.0098	0.02992	-1.1822	8.00E-04	0.00427
Dennd1b	-0.7047	0.00415	0.01468	-1.307	5.00E-05	0.00038
Map3k10	-0.7054	0.009	0.02795	-1.583	5.00E-05	0.00038
Trim55	-0.707	0.00105	0.00462	-1.7115	5.00E-05	0.00038
Ostc	-0.7114	0.0072	0.02322	-1.4029	5.00E-05	0.00038
Gm8113	-0.7121	0.0168	0.04645	-1.7042	5.00E-05	0.00038
Gtf2i	-0.7134	0.0063	0.02089	-1.0895	0.00315	0.01327
Tln2	-0.7157	0.00185	0.00749	-1.4181	5.00E-05	0.00038
Tbc1d19	-0.7161	0.00315	0.01165	-1.6208	5.00E-05	0.00038
Atp13a5	-0.7196	0.01645	0.04567	-2.9151	0.00025	0.00159
Ppm1f	-0.7206	0.00155	0.00645	-0.8878	0.0035	0.01447
Mlxipl	-0.7236	0.0128	0.03724	-1.3848	0.00135	0.00662
Gm608	-0.7239	0.002	0.00799	-0.8062	0.01175	0.03874

Akr1b3	-0.7253	0.00135	0.00572	-1.1463	0.001	0.00513
6330578E17Rik	-0.7263	4.00E-04	0.00203	-1.4778	5.00E-05	0.00038
Aip	-0.7284	0.0015	0.00627	-0.8248	0.0096	0.03306
Ptcd3	-0.732	0.00045	0.00224	-1.952	5.00E-05	0.00038
Prr12	-0.7321	0.00615	0.02048	-1.118	7.00E-04	0.00383
Idh3a	-0.7332	3.00E-04	0.00158	-1.197	0.00425	0.01698
Mmgt1	-0.7339	0.00035	0.00181	-1.0095	0.00125	0.00621
Fndc5	-0.7349	0.00035	0.00181	-1.1539	0.00015	0.00102
Rabif	-0.7353	0.00925	0.0286	-0.9073	0.0041	0.0165
4930455C21Rik	-0.7364	0.0015	0.00627	-1.296	1.00E-04	0.00072
Gpc4	-0.7369	0.008	0.02536	-2.3654	5.00E-05	0.00038
Ano5	-0.7378	0.00025	0.00135	-2.4584	5.00E-05	0.00038
Ndufc2	-0.7389	6.00E-04	0.00286	-1.4098	5.00E-05	0.00038
Sdr39u1	-0.7395	5.00E-04	0.00244	-1.0099	0.0011	0.00557
Pycr2	-0.7401	0.01275	0.03713	-1.2952	0.00015	0.00102
Tbc1d7	-0.7447	0.00605	0.02018	-1.8201	5.00E-05	0.00038
Slc25a11	-0.7449	0.001	0.00445	-1.059	0.00725	0.02628
Gm14420	-0.7489	0.005	0.01719	-1.6281	5.00E-05	0.00038
Dnajb14	-0.7509	0.0022	0.00865	-1.2347	2.00E-04	0.00131
Cnm4	-0.7542	0.0044	0.01543	-0.9817	0.0027	0.01168
Nlr1	-0.755	0.00125	0.00536	-0.9839	0.00255	0.01114
Dennd4b	-0.7553	0.00685	0.02231	-1.2149	0.00165	0.00782
Rbms2	-0.7568	0.00335	0.01227	-1.3185	3.00E-04	0.00184
Snopc1	-0.7603	0.0157	0.04398	-1.1019	0.0021	0.00957
Golph3l	-0.7619	0.0096	0.02947	-1.3304	5.00E-05	0.00038
Fut8	-0.7621	0.0028	0.01059	-1.2178	0.00025	0.00159
Spop	-0.7623	0.01165	0.03449	-1.2564	0.00125	0.00621
Gnb5	-0.7627	0.0023	0.00899	-1.2157	0.00025	0.00159
Lynx1	-0.7645	0.00015	0.00086	-2.0058	5.00E-05	0.00038
Cecr5	-0.7647	7.00E-04	0.00328	-1.4196	5.00E-05	0.00038
Ap4e1	-0.7656	0.00495	0.01705	-0.9165	0.00395	0.01606
Mllt3	-0.7664	0.0059	0.01972	-1.0029	0.0146	0.04595
Qdpr	-0.7667	0.00125	0.00536	-1.0627	0.00205	0.00937
Trdn	-0.7678	0.00265	0.01011	-1.3822	0.00395	0.01606
Aldh5a1	-0.7696	0.00215	0.00849	-1.3855	5.00E-05	0.00038
Flot2	-0.7696	1.00E-04	0.0006	-0.8566	0.00585	0.02197
Mrpl45	-0.7698	0.00035	0.00181	-1.5247	5.00E-05	0.00038
Hras1	-0.7723	0.00165	0.00681	-1.0008	0.00225	0.0101
Hus1	-0.7748	0.00455	0.01585	-1.345	4.00E-04	0.00237
Ric8b	-0.7765	0.00045	0.00224	-1.0174	9.00E-04	0.0047
Gmpr	-0.7792	0.00075	0.00349	-1.2888	5.00E-05	0.00038

Rragd	-0.7816	2.00E-04	0.00111	-1.3664	0.00045	0.00262
Rnf11	-0.7843	0.00035	0.00181	-1.2966	5.00E-05	0.00038
Rfng	-0.7855	0.0016	0.00663	-1.4256	5.00E-05	0.00038
Wdr59	-0.7883	0.00235	0.00914	-1.0812	0.0011	0.00557
Mpi	-0.7884	1.00E-04	0.0006	-1.3255	5.00E-05	0.00038
Ube2d1	-0.7891	0.00025	0.00135	-1.5894	5.00E-05	0.00038
Arl5a	-0.7903	3.00E-04	0.00158	-1.1285	2.00E-04	0.00131
Trps1	-0.7907	0.00685	0.02231	-1.5216	5.00E-05	0.00038
S1pr3	-0.7909	0.00855	0.02678	-0.9753	0.0067	0.02457
Slc38a10	-0.7918	0.0109	0.03262	-1.3691	3.00E-04	0.00184
Lrrc39	-0.792	3.00E-04	0.00158	-2.2408	5.00E-05	0.00038
Ppp3ca	-0.792	5.00E-05	0.00032	-1.0775	0.00195	0.00898
Mtus1	-0.7926	0.00085	0.00387	-1.544	5.00E-05	0.00038
Senp8	-0.7951	0.011	0.03285	-2.5567	5.00E-05	0.00038
Hoxa10	-0.799	0.00185	0.00749	-1.3663	5.00E-05	0.00038
Snrnp25	-0.7992	0.018	0.0491	-1.3356	0.00075	0.00405
Nsdhl	-0.8023	0.01295	0.03761	-1.6637	5.00E-05	0.00038
Gusb	-0.8027	0.01255	0.03669	-1.0414	0.00235	0.01046
Fzd7	-0.803	0.00025	0.00135	-1.0454	0.00115	0.00578
Minpp1	-0.8056	0.00165	0.00681	-0.9387	0.00355	0.01466
9630033F20Rik	-0.8072	1.00E-04	0.0006	-1.8614	5.00E-05	0.00038
Hmg20a	-0.8083	0.00095	0.00425	-1.2094	5.00E-05	0.00038
St3gal6	-0.8095	2.00E-04	0.00111	-1.1505	8.00E-04	0.00427
Wdr44	-0.8102	0.00125	0.00536	-1.056	0.0014	0.00681
Rassf3	-0.8115	0.00025	0.00135	-1.3382	5.00E-05	0.00038
Them4	-0.8117	0.0064	0.02114	-1.0992	0.0014	0.00681
Ppp3cb	-0.8119	2.00E-04	0.00111	-1.1999	0.0012	0.006
Sparc	-0.8145	5.00E-05	0.00032	-2.2317	5.00E-05	0.00038
BC003965	-0.8175	0.00055	0.00266	-1.469	5.00E-05	0.00038
Ppp1r3a	-0.8177	0.00015	0.00086	-1.0663	0.00705	0.02568
Slc39a1	-0.8221	3.00E-04	0.00158	-0.8515	0.00595	0.02226
Nicn1	-0.8232	0.00215	0.00849	-1.0927	0.00255	0.01114
Aga	-0.8235	0.00235	0.00914	-1.4286	5.00E-05	0.00038
Ctdnep1	-0.8238	0.00325	0.01196	-1.1342	0.0098	0.03356
Pon2	-0.8241	0.0084	0.0264	-1.2242	0.0013	0.00641
Elmo2	-0.8252	0.00705	0.02283	-0.9663	0.0117	0.03861
4833439L19Rik	-0.8256	4.00E-04	0.00203	-1.0701	0.00185	0.00861
Commd5	-0.8271	0.00645	0.02127	-0.9104	0.00995	0.03395
Ola1	-0.8272	6.00E-04	0.00286	-1.2834	1.00E-04	0.00072
Plxnd1	-0.8284	0.00365	0.01315	-1.24	0.00045	0.00262
Pla2g15	-0.8335	0.0084	0.0264	-1.1362	0.00245	0.01083

2310030G06Rik	-0.8353	0.00785	0.02498	-1.9136	5.00E-05	0.00038
Dcp2	-0.8361	0.0053	0.01805	-1.2472	0.00065	0.00359
Pdlim7	-0.8361	5.00E-05	0.00032	-1.6357	5.00E-05	0.00038
Stard8	-0.8362	0.00435	0.01528	-0.8622	0.013	0.04201
Hbegf	-0.837	0.0012	0.00518	-1.712	5.00E-05	0.00038
Apbb1	-0.8379	0.00335	0.01227	-1.0248	0.00325	0.01363
Capza2	-0.8384	1.00E-04	0.0006	-1.1501	0.00115	0.00578
Smpd1	-0.8399	0.00025	0.00135	-1.0809	8.00E-04	0.00427
Nipa2	-0.8406	0.00035	0.00181	-1.4229	5.00E-05	0.00038
Lman1	-0.8415	0.00015	0.00086	-1.2465	1.00E-04	0.00072
Mr1	-0.8436	5.00E-04	0.00244	-2.1445	5.00E-05	0.00038
Dlat	-0.8452	0.00465	0.01614	-1.7513	0.00025	0.00159
Gng11	-0.847	0.00315	0.01165	-1.2238	2.00E-04	0.00131
Pdpf	-0.847	0.0028	0.01059	-1.307	3.00E-04	0.00184
Mtx3	-0.8472	0.00095	0.00425	-1.0361	0.001	0.00513
Asb4	-0.8488	0.0068	0.02218	-2.8687	5.00E-05	0.00038
Slc44a1	-0.8493	0.0042	0.01482	-0.783	0.0102	0.03456
Rnf150	-0.85	5.00E-05	0.00032	-2.7587	5.00E-05	0.00038
Zfp238	-0.8531	5.00E-05	0.00032	-1.1179	0.00045	0.00262
Pptc7	-0.8534	4.00E-04	0.00203	-1.3513	0.0011	0.00557
Ift27	-0.8547	0.01105	0.03297	-1.562	8.00E-04	0.00427
Cav3	-0.856	0.00045	0.00224	-2.4272	5.00E-05	0.00038
Mat2a	-0.858	1.00E-04	0.0006	-1.2018	0.00025	0.00159
Gatc	-0.8586	2.00E-04	0.00111	-1.849	5.00E-05	0.00038
Cdnf	-0.8602	0.0027	0.01026	-1.4461	5.00E-05	0.00038
Neurl1a	-0.861	5.00E-05	0.00032	-1.1234	0.00025	0.00159
Prkar2a	-0.861	5.00E-05	0.00032	-1.5091	5.00E-05	0.00038
Cryab	-0.8614	5.00E-05	0.00032	-1.9327	5.00E-05	0.00038
Ube2n	-0.8618	1.00E-04	0.0006	-1.5207	5.00E-05	0.00038
Efha2	-0.8633	8.00E-04	0.00368	-0.9189	0.00685	0.02504
Haus1	-0.8639	0.0041	0.01451	-0.864	0.012	0.03937
Pcbp4	-0.867	0.00015	0.00086	-0.8282	0.00985	0.03368
Cd81	-0.8699	1.00E-04	0.0006	-1.2668	5.00E-05	0.00038
Tpst1	-0.8735	0.0174	0.04775	-1.4689	3.00E-04	0.00184
Klhdc10	-0.8737	5.00E-05	0.00032	-1.3761	5.00E-05	0.00038
Tbc1d16	-0.8744	1.00E-04	0.0006	-0.8613	0.0082	0.02904
Prkaca	-0.8749	5.00E-05	0.00032	-1.7639	5.00E-05	0.00038
Tmtc3	-0.8758	0.00465	0.01614	-1.3483	2.00E-04	0.00131
Svep1	-0.876	0.0015	0.00627	-1.0657	0.00115	0.00578
Asah2	-0.8779	0.0014	0.00591	-1.9847	5.00E-05	0.00038
Gls	-0.8795	0.01375	0.03947	-1.5357	5.00E-05	0.00038

Pole4	-0.8799	0.00075	0.00349	-1.1976	0.00055	0.00312
Katnal1	-0.8806	0.0014	0.00591	-1.4122	0.00025	0.00159
Gatad1	-0.8807	0.00135	0.00572	-1.0562	0.0078	0.0279
Clasp2	-0.8814	2.00E-04	0.00111	-1.1873	1.00E-04	0.00072
Capn1	-0.8815	1.00E-04	0.0006	-1.3102	5.00E-05	0.00038
Bphl	-0.8821	0.00085	0.00387	-1.8822	5.00E-05	0.00038
Svip	-0.8834	5.00E-05	0.00032	-1.3621	5.00E-05	0.00038
D4ErtD22e	-0.884	0.0154	0.04329	-1.5188	1.00E-04	0.00072
Fam82a1	-0.8842	0.0029	0.0109	-1.2167	0.00075	0.00405
Spr	-0.8845	3.00E-04	0.00158	-1.1478	6.00E-04	0.00335
4933433P14Rik	-0.8859	0.0024	0.00929	-1.3367	0.00015	0.00102
2610203C20Rik	-0.8864	0.00215	0.00849	-1.0126	0.0033	0.01381
Paqr4	-0.8865	0.0128	0.03724	-1.2126	0.00255	0.01114
Abcb7	-0.888	5.00E-05	0.00032	-1.3893	5.00E-05	0.00038
Me1	-0.8881	5.00E-05	0.00032	-0.9161	0.00875	0.03061
Hoxc4	-0.8902	0.0108	0.03234	-1.3856	0.00115	0.00578
Evi5l	-0.8909	0.0032	0.01181	-1.3473	0.00075	0.00405
Eef1e1	-0.891	0.00225	0.00883	-1.2449	3.00E-04	0.00184
Copg2	-0.8912	0.0045	0.01571	-1.0654	0.0048	0.01873
6030419C18Rik	-0.8928	0.00575	0.0193	-1.4205	4.00E-04	0.00237
Mtap	-0.8944	0.00035	0.00181	-1.5691	5.00E-05	0.00038
Smpx	-0.8944	5.00E-05	0.00032	-1.2685	3.00E-04	0.00184
Glo1	-0.8944	5.00E-05	0.00032	-1.4685	5.00E-05	0.00038
Npr3	-0.8947	4.00E-04	0.00203	-2.9521	5.00E-05	0.00038
Vwa1	-0.8961	0.00535	0.01818	-1.3795	0.00095	0.00492
Mrps22	-0.8963	8.00E-04	0.00368	-1.7261	5.00E-05	0.00038
Extl3	-0.8979	5.00E-05	0.00032	-1.131	0.00045	0.00262
Oaz2	-0.8995	5.00E-05	0.00032	-1.1853	1.00E-04	0.00072
0910001L09Rik	-0.9008	5.00E-05	0.00032	-0.9106	0.0031	0.01309
Cyb5r1	-0.9023	0.0011	0.00481	-1.9845	5.00E-05	0.00038
Ifi2711	-0.9044	0.00295	0.01104	-1.6044	5.00E-05	0.00038
Hccs	-0.9069	2.00E-04	0.00111	-1.3141	0.00025	0.00159
Ggh	-0.9081	0.00545	0.01845	-1.0552	0.0043	0.01712
Mri1	-0.9081	0.0118	0.03484	-1.2577	0.0034	0.01416
Slc47a1	-0.9086	0.0017	0.00699	-2.8623	5.00E-05	0.00038
I7Rn6	-0.9148	0.00045	0.00224	-1.2465	3.00E-04	0.00184
Ulk2	-0.9168	5.00E-05	0.00032	-1.8671	5.00E-05	0.00038
Zfp30	-0.9177	0.0053	0.01805	-1.2322	8.00E-04	0.00427
Zfp449	-0.9179	0.01275	0.03713	-1.7782	5.00E-05	0.00038
Grip2	-0.9211	0.01175	0.03471	-1.8921	5.00E-05	0.00038
Stim1	-0.9221	5.00E-05	0.00032	-1.1238	0.0011	0.00557

Hrasls	-0.9222	0.00105	0.00462	-2.6726	5.00E-05	0.00038
Cacna2d1	-0.9256	5.00E-05	0.00032	-1.2692	0.00075	0.00405
Nedd1	-0.9262	0.00045	0.00224	-1.1603	5.00E-04	0.00287
Slc26a2	-0.9275	7.00E-04	0.00328	-0.9472	0.00405	0.01634
Jkamp	-0.9278	0.0025	0.00962	-1.3611	5.00E-05	0.00038
Arhgef6	-0.9282	0.00175	0.00715	-2.3604	5.00E-05	0.00038
Rgmb	-0.9299	5.00E-05	0.00032	-1.3558	5.00E-05	0.00038
Ccdc109a	-0.9304	1.00E-04	0.0006	-1.244	5.00E-05	0.00038
Hipk4	-0.9304	0.00885	0.02757	-1.0622	0.01625	0.05
Asb10	-0.9308	5.00E-05	0.00032	-1.7531	5.00E-05	0.00038
4632428C04Rik	-0.9319	0.01465	0.04155	-2.4351	0.00055	0.00312
Rps6ka5	-0.9319	2.00E-04	0.00111	-0.9501	0.0039	0.01589
Cyp2u1	-0.9322	0.01775	0.0485	-2.1914	5.00E-04	0.00287
Lrp11	-0.9328	0.01645	0.04567	-1.8645	2.00E-04	0.00131
Eif4e	-0.9332	5.00E-05	0.00032	-1.6813	5.00E-05	0.00038
Rpia	-0.9347	8.00E-04	0.00368	-1.4272	1.00E-04	0.00072
Rbbp5	-0.9352	1.00E-04	0.0006	-1.3726	5.00E-05	0.00038
Gm13010	-0.9359	0.0174	0.04775	-1.5325	0.00045	0.00262
N6amt2	-0.9369	0.00115	0.005	-1.32	5.00E-05	0.00038
Cetn2	-0.937	0.00015	0.00086	-1.7867	5.00E-05	0.00038
Ankrd28	-0.937	5.00E-05	0.00032	-0.7963	0.01015	0.03445
Tmod2	-0.9373	0.0078	0.02484	-1.192	0.0043	0.01712
Plekhb2	-0.9381	5.00E-05	0.00032	-1.6412	5.00E-05	0.00038
6330408A02Rik	-0.9422	4.00E-04	0.00203	-1.1341	0.0125	0.04075
Jak2	-0.9426	5.00E-05	0.00032	-1.0848	8.00E-04	0.00427
Myh13	-0.9429	0.0012	0.00518	3.52997	5.00E-05	0.00038
Entpd4	-0.9432	0.0037	0.01329	-1.8745	0.0014	0.00681
Ppp2r4	-0.9445	0.0014	0.00591	-1.6358	5.00E-05	0.00038
Tmod4	-0.9477	0.0116	0.0344	-2.1525	5.00E-05	0.00038
Oxr1	-0.9489	5.00E-05	0.00032	-1.1271	0.001	0.00513
Actr6	-0.9492	0.00545	0.01845	-1.7107	1.00E-04	0.00072
Coq7	-0.9496	5.00E-05	0.00032	-2.7068	5.00E-05	0.00038
Arhgef25	-0.9508	0.00025	0.00135	-1.0311	0.00235	0.01046
Ksr1	-0.9516	5.00E-05	0.00032	-2.3684	5.00E-05	0.00038
Klhl29	-0.9524	0.00655	0.02155	-1.2286	0.00315	0.01327
Rprd1a	-0.9532	1.00E-04	0.0006	-0.932	0.0024	0.01064
Wdyhv1	-0.9541	0.0074	0.02377	-1.4026	1.00E-04	0.00072
Lrrc40	-0.9544	0.00585	0.01959	-1.0035	0.0138	0.04415
Lage3	-0.9554	3.00E-04	0.00158	-1.5525	5.00E-05	0.00038
Mthfd1	-0.9556	5.00E-05	0.00032	-1.1035	0.00025	0.00159
Col5a2	-0.956	0.01235	0.0362	-2.6955	5.00E-05	0.00038

Kctd11	-0.9579	0.014	0.04004	-1.4553	8.00E-04	0.00427
Fam125b	-0.9596	0.0011	0.00481	-0.9153	0.0088	0.03076
Kank2	-0.9628	5.00E-05	0.00032	-0.7767	0.0112	0.0373
Phkb	-0.9633	5.00E-05	0.00032	-1.9366	5.00E-05	0.00038
Hes1	-0.9647	0.00115	0.005	-0.9615	0.00535	0.0204
Ifngr2	-0.9652	0.00485	0.01675	-1.9277	0.00015	0.00102
Cuedc1	-0.9654	0.00505	0.01733	-1.0106	0.0079	0.0282
Eif2c1	-0.9685	0.00175	0.00715	-0.801	0.0116	0.03839
Fundc1	-0.969	1.00E-04	0.0006	-1.3807	5.00E-05	0.00038
Myf6	-0.9703	5.00E-05	0.00032	-2.2161	5.00E-05	0.00038
Cryz	-0.9721	0.00015	0.00086	-1.0255	0.00235	0.01046
Dhodh	-0.9725	0.01605	0.04479	-1.4539	0.0015	0.00723
Rfc2	-0.9727	6.00E-04	0.00286	-0.9544	0.0057	0.0215
Pfkm	-0.9752	5.00E-05	0.00032	-1.8696	0.00255	0.01114
Slc9a6	-0.9766	5.00E-05	0.00032	-1.382	5.00E-05	0.00038
Pdss2	-0.9767	0.00075	0.00349	-2.1552	5.00E-05	0.00038
Zfp161	-0.9778	3.00E-04	0.00158	-0.9785	0.0025	0.011
BC023829	-0.9778	0.00145	0.0061	-1.6709	0.00025	0.00159
Cenpj	-0.9816	0.01575	0.04411	-1.6072	0.0013	0.00641
Gm4631	-0.9861	5.00E-05	0.00032	-2.2558	5.00E-05	0.00038
Gga2	-0.9863	0.00025	0.00135	-1.4139	5.00E-05	0.00038
Rp2h	-0.9872	0.0013	0.00554	-1.1671	0.0014	0.00681
Gpm6b	-0.9886	0.0027	0.01026	-1.7494	5.00E-05	0.00038
Tmem177	-0.989	1.00E-04	0.0006	-1.4886	5.00E-05	0.00038
Dynll1	-0.9911	0.00535	0.01818	-1.6568	5.00E-05	0.00038
B3galnt2	-0.9912	3.00E-04	0.00158	-1.8466	0.0021	0.00957
Rnf5	-0.9923	0.00295	0.01104	-1.2508	7.00E-04	0.00383
Plcl2	-0.9926	5.00E-05	0.00032	-1.4957	5.00E-05	0.00038
Odz3	-0.994	0.00025	0.00135	-1.1706	0.0018	0.00842
F3	-0.9961	0.0075	0.02403	-1.5273	1.00E-04	0.00072
Rcl1	-0.9965	0.00045	0.00224	-0.856	0.0113	0.03759
Gm5595	-0.997	0.0112	0.03333	-0.9345	0.0138	0.04415
Tmem100	-0.9973	0.00015	0.00086	-2.2903	5.00E-05	0.00038
Aarsd1	-0.9993	0.00125	0.00536	-1.9862	5.00E-05	0.00038
Srl	-1.0015	8.00E-04	0.00368	-1.829	5.00E-05	0.00038
Arhgap20	-1.0023	5.00E-05	0.00032	-1.7782	5.00E-05	0.00038
Tmem126b	-1.0035	5.00E-05	0.00032	-1.9971	5.00E-05	0.00038
Rcsd1	-1.0052	5.00E-05	0.00032	-0.9399	0.00435	0.01729
Phldb2	-1.0088	0.00915	0.02835	-1.3143	0.00385	0.01572
Tmem126a	-1.0098	5.00E-05	0.00032	-1.5405	5.00E-05	0.00038
Cnih	-1.0115	5.00E-05	0.00032	-1.0381	7.00E-04	0.00383

5730419I09Rik	-1.0146	5.00E-04	0.00244	-1.41	5.00E-05	0.00038
Tmem55a	-1.0147	5.00E-05	0.00032	-1.5079	5.00E-05	0.00038
Efr3b	-1.0207	0.00125	0.00536	-1.3006	1.00E-04	0.00072
Fam189a2	-1.022	5.00E-05	0.00032	-1.1228	0.00045	0.00262
Dock4	-1.0243	1.00E-04	0.0006	-1.1546	0.00045	0.00262
6030419C18Rik	-1.0248	0.00935	0.02885	-2.076	5.00E-05	0.00038
Pam	-1.0258	3.00E-04	0.00158	-0.9479	0.01165	0.03849
Galnt10	-1.0261	0.0017	0.00699	-1.5588	1.00E-04	0.00072
Slc38a3	-1.0297	5.00E-05	0.00032	-1.7837	5.00E-05	0.00038
Slc35d1	-1.0305	0.00015	0.00086	-1.6297	5.00E-05	0.00038
Mlst8	-1.0318	0.00015	0.00086	-1.7731	5.00E-05	0.00038
Mgat1	-1.0323	6.00E-04	0.00286	-1.1071	0.00145	0.00702
1190007I07Rik	-1.0328	0.0088	0.02744	-1.6156	0.0013	0.00641
Tstd2	-1.0335	0.0023	0.00899	-1.4358	0.01135	0.03772
1810055G02Rik	-1.0335	0.0029	0.0109	-1.0812	0.0033	0.01381
Ptgr2	-1.0339	0.00035	0.00181	-1.7433	5.00E-05	0.00038
Serinc2	-1.0343	5.00E-05	0.00032	-2.1334	5.00E-05	0.00038
Smarcd3	-1.0355	0.00165	0.00681	-1.6308	5.00E-05	0.00038
Egf	-1.0363	5.00E-05	0.00032	-2.6479	5.00E-05	0.00038
Rmnd1	-1.0377	0.0063	0.02089	-1.1424	0.01325	0.04272
Rnf170	-1.0392	5.00E-05	0.00032	-1.4886	5.00E-05	0.00038
Thap2	-1.0415	0.00295	0.01104	-2.2022	5.00E-05	0.00038
Camk1	-1.043	0.00095	0.00425	-1.7331	1.00E-04	0.00072
Snx32	-1.0497	0.00105	0.00462	-1.493	4.00E-04	0.00237
Cacng6	-1.0501	5.00E-05	0.00032	-1.8837	5.00E-05	0.00038
Tspan2	-1.0504	5.00E-04	0.00244	-1.7874	5.00E-05	0.00038
Itpr1	-1.0509	0.00045	0.00224	-0.9183	0.0156	0.04844
Ppl	-1.0517	0.00105	0.00462	0.99441	0.01015	0.03445
Zbtb4	-1.0519	0.00085	0.00387	-1.3394	0.00015	0.00102
Trp53inp2	-1.0525	5.00E-05	0.00032	-2.148	5.00E-05	0.00038
Tmem18	-1.0529	0.00045	0.00224	-1.5049	5.00E-05	0.00038
Ifit2	-1.0559	0.0065	0.02141	-1.3828	0.002	0.00918
Zfp191	-1.0581	2.00E-04	0.00111	-1.4208	2.00E-04	0.00131
Nav2	-1.062	1.00E-04	0.0006	-2.8073	5.00E-05	0.00038
Zranb3	-1.063	0.0039	0.0139	-2.0406	5.00E-05	0.00038
Cars2	-1.0669	0.00025	0.00135	-1.6672	5.00E-05	0.00038
2610507B11Rik	-1.0684	5.00E-05	0.00032	-1.1542	0.0043	0.01712
Mrps11	-1.0684	0.01175	0.03471	-1.7384	0.0016	0.00763
Ufm1	-1.0687	0.01565	0.04387	-1.2026	0.01495	0.04683
Ppic	-1.0714	5.00E-05	0.00032	-1.6454	5.00E-05	0.00038
Lmnb2	-1.0725	0.013	0.03773	-1.2529	0.00255	0.01114

Pmp22	-1.0729	0.00015	0.00086	-0.7732	0.01015	0.03445
A930018M24Rik	-1.0733	5.00E-05	0.00032	-1.8658	5.00E-05	0.00038
Mast4	-1.0741	0.002	0.00799	-1.2617	0.00405	0.01634
Pon3	-1.0753	3.00E-04	0.00158	-2.0183	5.00E-05	0.00038
Pitpnc1	-1.076	0.00675	0.02206	-3.0502	5.00E-05	0.00038
Sec61b	-1.0769	7.00E-04	0.00328	-1.1611	0.0018	0.00842
Tob1	-1.0781	5.00E-05	0.00032	-0.9453	0.0052	0.01999
Cul2	-1.0799	0.001	0.00445	-1.1424	0.0015	0.00723
Slc9a5	-1.0799	0.0055	0.01859	-0.9904	0.0157	0.0487
Npnt	-1.0823	0.00365	0.01315	-2.5719	5.00E-05	0.00038
Ggcx	-1.0829	0.00635	0.02101	-1.4868	0.00055	0.00312
Dnmt1	-1.0871	0.00015	0.00086	-1.0801	0.00165	0.00782
1190002N15Rik	-1.0872	0.00185	0.00749	-1.4325	5.00E-05	0.00038
Trim68	-1.0892	0.00055	0.00266	-0.8339	0.0139	0.04433
Pdgfra	-1.0908	5.00E-05	0.00032	-1.1205	0.00045	0.00262
Wnt4	-1.0908	5.00E-05	0.00032	-0.8986	0.0139	0.04433
Cobl	-1.0924	5.00E-05	0.00032	-1.6831	5.00E-05	0.00038
Sdpr	-1.0924	5.00E-05	0.00032	-1.5626	5.00E-05	0.00038
Fbxo17	-1.0927	0.01155	0.03429	-2.6491	5.00E-05	0.00038
Zfhx2	-1.0945	0.0083	0.02615	-1.1681	0.00095	0.00492
Tha1	-1.0968	0.00175	0.00715	-1.8622	0.0022	0.00992
Ckb	-1.0975	0.00305	0.01133	-1.6384	2.00E-04	0.00131
Klhl33	-1.0979	5.00E-05	0.00032	-2.3208	5.00E-05	0.00038
Rnf122	-1.0981	0.00085	0.00387	-1.268	9.00E-04	0.0047
Rbfox2	-1.0982	5.00E-05	0.00032	-1.4552	5.00E-05	0.00038
Pdzrn3	-1.0983	5.00E-05	0.00032	-1.2933	5.00E-05	0.00038
Hoxa9	-1.0984	0.00795	0.02525	-1.5046	0.0022	0.00992
Xrcc2	-1.1002	0.00135	0.00572	-1.493	2.00E-04	0.00131
Lman2l	-1.1002	5.00E-05	0.00032	-1.5759	5.00E-05	0.00038
Blvra	-1.1004	0.00045	0.00224	-0.9986	0.0055	0.02087
Pgap1	-1.1012	0.01595	0.04457	-1.3026	0.0127	0.04123
A130010J15Rik	-1.1017	0.01265	0.0369	-1.8781	0.00325	0.01363
Snrpf	-1.1066	6.00E-04	0.00286	-1.6664	5.00E-05	0.00038
Xpo1	-1.1077	5.00E-05	0.00032	-0.9538	0.0019	0.0088
Atp1b1	-1.1077	5.00E-05	0.00032	-1.4009	5.00E-05	0.00038
Crot	-1.1084	2.00E-04	0.00111	-1.8532	5.00E-05	0.00038
Rnd3	-1.1103	0.00255	0.00979	-1.7431	5.00E-05	0.00038
Adamts15	-1.1109	0.00085	0.00387	-1.2965	0.00115	0.00578
Sparcl1	-1.111	5.00E-05	0.00032	-1.0155	0.00235	0.01046
Trappc2	-1.1115	0.00925	0.0286	-1.9738	0.0018	0.00842
Adal	-1.1122	0.00105	0.00462	-2.1657	5.00E-05	0.00038

Cxcl12	-1.1138	5.00E-05	0.00032	-1.3234	0.00105	0.00534
Satb1	-1.115	5.00E-05	0.00032	-1.7777	5.00E-05	0.00038
Hoxa11	-1.1152	0.01405	0.04013	-1.7958	0.0067	0.02457
Ppp1r14c	-1.1176	5.00E-05	0.00032	-1.5146	5.00E-05	0.00038
Zfp280b	-1.1184	5.00E-05	0.00032	-1.3223	5.00E-05	0.00038
Wrb	-1.1185	0.00085	0.00387	-1.4587	0.00015	0.00102
Adk	-1.1191	5.00E-05	0.00032	-1.6418	5.00E-05	0.00038
Tmcc2	-1.1199	5.00E-05	0.00032	-1.1269	0.00025	0.00159
Tceal1	-1.1203	9.00E-04	0.00406	-1.2815	0.00175	0.00822
MIh3	-1.122	0.00195	0.00782	-1.3123	8.00E-04	0.00427
Col12a1	-1.1221	0.01055	0.0318	-1.7001	0.00245	0.01083
Ankmy2	-1.1243	0.001	0.00445	-1.0428	0.004	0.01623
Pwwp2b	-1.1266	0.0024	0.00929	-1.1245	0.00635	0.02351
Haus6	-1.1281	9.00E-04	0.00406	-1.1314	0.00155	0.00742
Sema3c	-1.1305	0.00015	0.00086	-1.5564	5.00E-05	0.00038
Maob	-1.131	5.00E-05	0.00032	-1.3406	2.00E-04	0.00131
Dab2	-1.1313	5.00E-04	0.00244	-0.962	0.0155	0.04817
Hs2st1	-1.1321	5.00E-05	0.00032	-0.8959	0.00465	0.01831
5730455P16Rik	-1.1324	5.00E-05	0.00032	-1.8962	5.00E-05	0.00038
Hhat1	-1.1329	5.00E-05	0.00032	-2.0739	5.00E-05	0.00038
Fan1	-1.1332	2.00E-04	0.00111	-1.4298	2.00E-04	0.00131
Dusp19	-1.1345	0.01095	0.03273	-1.9405	0.00295	0.01259
Ddit4l	-1.1354	0.00035	0.00181	-2.2401	5.00E-05	0.00038
Klhl25	-1.1354	0.00395	0.01405	-1.3797	0.00115	0.00578
Gm4980	-1.1355	0.0023	0.00899	-1.1727	0.00735	0.02658
Commd10	-1.1356	0.0024	0.00929	-1.0048	0.00955	0.03291
Homer1	-1.1358	5.00E-05	0.00032	-2.237	5.00E-05	0.00038
2310015B20Rik	-1.1363	5.00E-05	0.00032	-2.5393	5.00E-05	0.00038
Bmpr1a	-1.1375	5.00E-05	0.00032	-1.5929	5.00E-05	0.00038
Col15a1	-1.1378	0.0036	0.01302	-2.4644	5.00E-05	0.00038
Spry2	-1.138	5.00E-05	0.00032	-1.0639	0.00195	0.00898
BC046404	-1.1397	0.00215	0.00849	-0.9709	0.01485	0.04659
Prkab2	-1.1402	5.00E-05	0.00032	-2.0404	5.00E-05	0.00038
Myo5c	-1.141	5.00E-05	0.00032	-0.8882	0.00335	0.01398
Timm22	-1.1426	0.00305	0.01133	-2.4135	5.00E-05	0.00038
Nck2	-1.1437	1.00E-04	0.0006	-1.2828	0.00045	0.00262
Armxc3	-1.1439	5.00E-05	0.00032	-1.9496	5.00E-05	0.00038
Abhd14a	-1.1452	0.00295	0.01104	-1.0584	0.0054	0.02055
Rnpep	-1.1465	0.00775	0.02471	-1.2688	0.00535	0.0204
Sh3rf2	-1.1491	5.00E-05	0.00032	-0.9772	0.0021	0.00957
Zfp946	-1.15	0.0015	0.00627	-1.0886	0.00415	0.01665

Neil1	-1.1504	0.001	0.00445	-1.6278	0.00015	0.00102
Setmar	-1.1521	0.0034	0.01243	-1.5757	0.0016	0.00763
Cspg4	-1.1533	0.00025	0.00135	-1.2469	2.00E-04	0.00131
Enpp4	-1.154	5.00E-05	0.00032	-1.5935	5.00E-05	0.00038
Tpsb2	-1.1542	0.00925	0.0286	-2.6545	0.0015	0.00723
Slc25a23	-1.1559	0.0039	0.0139	-1.7471	0.0021	0.00957
Sfrp5	-1.1574	1.00E-04	0.0006	1.0224	0.0057	0.0215
Pdia4	-1.1588	5.00E-05	0.00032	-1.3802	1.00E-04	0.00072
Gm17296	-1.1594	0.00055	0.00266	-1.9933	5.00E-05	0.00038
Xirp2	-1.1595	0.00305	0.01133	-2.0229	0.0041	0.0165
Parp1	-1.1621	5.00E-05	0.00032	-1.4493	5.00E-05	0.00038
Ankdd1b	-1.164	0.01525	0.04299	-1.7747	0.0045	0.01782
Tspan3	-1.1645	5.00E-05	0.00032	-1.8004	5.00E-05	0.00038
Gatsl2	-1.1699	5.00E-05	0.00032	-3.1982	5.00E-05	0.00038
Nr3c2	-1.1711	4.00E-04	0.00203	-1.0019	0.0035	0.01447
Dkc1	-1.1714	0.01475	0.04178	-1.9834	0.00225	0.0101
Zadh2	-1.172	5.00E-05	0.00032	-1.3277	5.00E-05	0.00038
Mxra8	-1.175	1.00E-04	0.0006	-1.5775	5.00E-05	0.00038
Ctso	-1.1754	0.00045	0.00224	-1.4628	5.00E-05	0.00038
Rngtt	-1.1755	2.00E-04	0.00111	-1.2731	5.00E-05	0.00038
Evc	-1.1762	5.00E-05	0.00032	-0.995	0.01145	0.03798
Serping1	-1.1773	5.00E-05	0.00032	-0.8484	0.0054	0.02055
Lmbr1	-1.1776	0.00015	0.00086	-1.5766	5.00E-05	0.00038
Msrb3	-1.1791	5.00E-05	0.00032	-1.551	5.00E-05	0.00038
Prrx1	-1.1797	5.00E-05	0.00032	-1.1423	5.00E-04	0.00287
Jarid2	-1.1823	0.00205	0.00814	-0.9731	0.00585	0.02197
Pkia	-1.1838	5.00E-05	0.00032	-2.5986	5.00E-05	0.00038
1700066M21Rik	-1.1856	0.0039	0.0139	-1.2079	0.00525	0.02013
Kptn	-1.1861	0.00305	0.01133	-1.6521	4.00E-04	0.00237
Akr1e1	-1.187	0.01555	0.04368	-2.1902	0.0019	0.0088
Tceal7	-1.1887	0.0161	0.04489	-2.916	0.01165	0.03849
Ccnj	-1.1891	4.00E-04	0.00203	-1.2553	0.00075	0.00405
Kcna7	-1.1933	5.00E-05	0.00032	-1.6473	5.00E-05	0.00038
Zfp367	-1.1937	0.00015	0.00086	-1.5621	0.00055	0.00312
Prmt2	-1.1952	0.0045	0.01571	-1.951	5.00E-05	0.00038
Cpox	-1.1969	5.00E-05	0.00032	-1.8962	5.00E-05	0.00038
Nexn	-1.1994	5.00E-05	0.00032	-2.3902	5.00E-05	0.00038
Gpd2	-1.2003	5.00E-05	0.00032	-2.468	5.00E-05	0.00038
Kctd21	-1.2009	0.0019	0.00766	-2.2554	1.00E-04	0.00072
Pecr	-1.201	1.00E-04	0.0006	-1.9589	5.00E-05	0.00038
Nmt2	-1.2015	5.00E-05	0.00032	-1.1091	6.00E-04	0.00335

Tecpr2	-1.2037	5.00E-05	0.00032	-1.3381	1.00E-04	0.00072
Pknx2	-1.2053	5.00E-05	0.00032	-1.4247	5.00E-05	0.00038
Plau	-1.206	5.00E-05	0.00032	-1.0046	0.00115	0.00578
Snrpn	-1.2097	5.00E-05	0.00032	-2.7321	5.00E-05	0.00038
Esr1	-1.2098	5.00E-05	0.00032	-2.3165	5.00E-05	0.00038
Mlec	-1.2146	0.0059	0.01972	-2.4143	5.00E-05	0.00038
Ccdc85b	-1.2153	5.00E-05	0.00032	-0.7847	0.01185	0.03901
Trak1	-1.2158	5.00E-05	0.00032	-1.5517	5.00E-05	0.00038
Man2a2	-1.217	5.00E-05	0.00032	-1.6831	5.00E-05	0.00038
Fbxo25	-1.221	5.00E-05	0.00032	-1.1473	0.00085	0.00449
Rpa3	-1.222	0.00415	0.01468	-1.9359	1.00E-04	0.00072
Fam122b	-1.2228	0.0022	0.00865	-1.0111	0.01025	0.0347
Ncapd2	-1.2235	0.00015	0.00086	-1.6215	5.00E-05	0.00038
Uba6	-1.2242	0.0026	0.00995	-1.3749	0.001	0.00513
3110056O03Rik	-1.226	5.00E-05	0.00032	-1.7801	5.00E-05	0.00038
Efs	-1.2272	0.0111	0.03307	-1.667	0.0053	0.02027
Hspg2	-1.2281	0.01825	0.04962	-1.9023	0.00955	0.03291
Mageh1	-1.2281	0.0026	0.00995	-1.2575	0.00415	0.01665
Pik3c2b	-1.2292	5.00E-05	0.00032	-2.1082	5.00E-05	0.00038
Zfp799	-1.2298	0.0046	0.016	-1.9565	7.00E-04	0.00383
Matn2	-1.2352	0.00015	0.00086	-2.1091	5.00E-05	0.00038
Prkcz	-1.2358	0.0125	0.03659	2.00671	5.00E-05	0.00038
D4Bwg0951e	-1.2368	0.0098	0.02992	-1.6621	0.001	0.00513
Hps5	-1.2376	0.00975	0.02984	-1.4014	0.00385	0.01572
Atp8a1	-1.2409	5.00E-05	0.00032	-1.4058	5.00E-05	0.00038
Gsn	-1.2412	5.00E-05	0.00032	-1.2963	8.00E-04	0.00427
Car3	-1.2459	5.00E-05	0.00032	-2.3665	5.00E-05	0.00038
Wdr5b	-1.246	0.00265	0.01011	-1.4279	0.00265	0.01149
Mylpf	-1.2464	0.00175	0.00715	-2.0897	0.00195	0.00898
Hs3st5	-1.2497	0.00025	0.00135	-3.2092	5.00E-05	0.00038
Ntrk2	-1.2535	3.00E-04	0.00158	-1.5254	0.00015	0.00102
Ccbl1	-1.2535	5.00E-05	0.00032	-0.9578	0.0039	0.01589
Kif3c	-1.254	5.00E-05	0.00032	-1.6233	5.00E-05	0.00038
Xaf1	-1.2552	0.002	0.00799	-1.4171	0.0139	0.04433
Epb4.1l4a	-1.2553	0.00075	0.00349	-1.0178	0.0084	0.0296
Clasp1	-1.2567	5.00E-05	0.00032	-1.4475	5.00E-05	0.00038
Mtap6	-1.2611	0.0024	0.00929	-1.1564	0.00985	0.03368
Magix	-1.2633	5.00E-05	0.00032	-1.3243	5.00E-05	0.00038
Ltbp4	-1.2644	0.004	0.01419	-1.791	0.0023	0.01029
Nova1	-1.2656	0.00025	0.00135	-1.3807	5.00E-04	0.00287
Stat1	-1.2672	5.00E-05	0.00032	-1.6814	5.00E-05	0.00038

Ston2	-1.2673	0.0023	0.00899	-2.5277	5.00E-05	0.00038
Fkbp9	-1.2695	5.00E-05	0.00032	-1.3791	5.00E-05	0.00038
Zik1	-1.2765	0.01375	0.03947	-1.8604	0.0018	0.00842
Smtn	-1.2802	5.00E-05	0.00032	-1.5488	0.00085	0.00449
Dffa	-1.2816	5.00E-05	0.00032	-2.0026	5.00E-05	0.00038
Gm16039	-1.2834	0.00065	0.00308	-1.7344	0.00075	0.00405
Hrsp12	-1.2855	0.00795	0.02525	-2.2884	1.00E-04	0.00072
Akr1b10	-1.2859	5.00E-05	0.00032	-1.7787	5.00E-05	0.00038
Slc9a2	-1.286	5.00E-05	0.00032	-1.1263	2.00E-04	0.00131
Akap6	-1.2862	5.00E-05	0.00032	-3.4311	5.00E-05	0.00038
Myadm	-1.2885	5.00E-05	0.00032	-1.6168	5.00E-05	0.00038
Lgals3bp	-1.2886	0.00195	0.00782	-1.5475	0.00135	0.00662
Smad6	-1.2896	5.00E-05	0.00032	-1.2685	0.00055	0.00312
Naa50	-1.2899	5.00E-05	0.00032	-1.3202	2.00E-04	0.00131
2310046A06Rik	-1.2903	5.00E-05	0.00032	-2.5406	5.00E-05	0.00038
Gltpd1	-1.293	0.00205	0.00814	-2.3366	5.00E-05	0.00038
Sdc2	-1.2933	5.00E-05	0.00032	-1.7805	5.00E-05	0.00038
Mpz	-1.2949	5.00E-05	0.00032	-1.0802	7.00E-04	0.00383
Wbscr17	-1.2957	5.00E-05	0.00032	-1.1939	0.00265	0.01149
2610021A01Rik	-1.2962	2.00E-04	0.00111	-1.8574	5.00E-05	0.00038
Rtp4	-1.2976	0.0047	0.01629	-1.4817	0.00275	0.01187
Plxna1	-1.2998	5.00E-05	0.00032	-1.2186	5.00E-05	0.00038
Zfp141	-1.3024	0.00065	0.00308	-1.1806	0.00405	0.01634
Tmem206	-1.3026	0.0088	0.02744	-1.2816	0.0124	0.04046
Slc25a37	-1.3066	5.00E-05	0.00032	-0.8386	0.00835	0.02947
Msh2	-1.3097	0.00025	0.00135	-1.2886	0.0128	0.04148
Myct1	-1.3107	1.00E-04	0.0006	-1.0137	0.00285	0.01222
Tspan33	-1.3112	0.00205	0.00814	-1.5775	2.00E-04	0.00131
Ntng2	-1.3132	0.0053	0.01805	-1.6215	0.00185	0.00861
Il12rb2	-1.3142	0.00015	0.00086	-3.0869	5.00E-05	0.00038
Serpinh1	-1.3142	5.00E-05	0.00032	-2.3201	5.00E-05	0.00038
1810063B05Rik	-1.315	5.00E-05	0.00032	-2.0428	5.00E-05	0.00038
Tmod1	-1.3158	0.0079	0.02512	-1.7708	0.0058	0.02182
0610037P05Rik	-1.3165	5.00E-05	0.00032	-2.1288	5.00E-05	0.00038
Anxa1	-1.319	0.01485	0.04201	1.76955	0.00075	0.00405
2810006K23Rik	-1.3211	5.00E-05	0.00032	-1.7593	5.00E-05	0.00038
2310003L22Rik	-1.3218	5.00E-05	0.00032	-1.9197	5.00E-05	0.00038
Taco1	-1.3231	5.00E-05	0.00032	-2.5537	5.00E-05	0.00038
Laptm4b	-1.3234	5.00E-05	0.00032	-1.4007	5.00E-05	0.00038
Gm7120	-1.3245	0.00025	0.00135	-1.5376	0.00025	0.00159
Fam57b	-1.3248	5.00E-05	0.00032	-2.4735	5.00E-05	0.00038

Dnmt3a	-1.3253	5.00E-05	0.00032	-1.8964	5.00E-05	0.00038
Stim2	-1.3255	0.00015	0.00086	-0.8859	0.01465	0.04609
Etaa1	-1.3294	0.00425	0.01498	-1.2275	0.007	0.02553
Ranbp6	-1.3306	5.00E-05	0.00032	-1.6805	5.00E-05	0.00038
Gm12247	-1.331	0.0134	0.03863	-1.9236	0.0038	0.01556
Cby1	-1.332	1.00E-04	0.0006	-2.2038	5.00E-05	0.00038
Zfp248	-1.3325	0.01255	0.03669	-1.7935	0.0063	0.02337
Cenpc1	-1.3345	0.00055	0.00266	-1.5343	8.00E-04	0.00427
Ghr	-1.3358	5.00E-05	0.00032	-1.031	0.00695	0.02537
C1qc	-1.3364	0.00025	0.00135	-0.9986	0.0103	0.03481
Enpp5	-1.3367	5.00E-05	0.00032	-1.147	0.00055	0.00312
Aldh1l2	-1.3394	1.00E-04	0.0006	-2.3511	5.00E-05	0.00038
Zfp11	-1.3397	0.00085	0.00387	-1.7892	0.00015	0.00102
Bmp1	-1.3407	0.00045	0.00224	-1.7735	2.00E-04	0.00131
Trmt12	-1.3407	1.00E-04	0.0006	-1.4194	5.00E-05	0.00038
Aqp7	-1.3427	0.0019	0.00766	-2.4383	5.00E-05	0.00038
Gm12655	-1.3437	0.0087	0.02717	-1.8334	0.00185	0.00861
Akap17b	-1.3452	9.00E-04	0.00406	-1.2755	0.00405	0.01634
Ccnd2	-1.3482	1.00E-04	0.0006	-2.8628	5.00E-05	0.00038
P4ha1	-1.3487	5.00E-05	0.00032	-1.8944	5.00E-05	0.00038
Fdps	-1.3489	5.00E-05	0.00032	-2.1055	5.00E-05	0.00038
Myl1	-1.3497	5.00E-05	0.00032	-2.3612	0.00015	0.00102
Inpp1	-1.3511	5.00E-05	0.00032	-1.5786	5.00E-05	0.00038
Clu	-1.3527	5.00E-05	0.00032	-0.9221	0.00325	0.01363
4930572J05Rik	-1.3539	5.00E-05	0.00032	-2.2685	5.00E-05	0.00038
Fktn	-1.3594	5.00E-05	0.00032	-1.8301	5.00E-05	0.00038
Zfp759	-1.3604	0.00055	0.00266	-3.0695	5.00E-05	0.00038
Abcc5	-1.3615	0.0011	0.00481	-1.9208	5.00E-05	0.00038
Ttll12	-1.3641	0.00155	0.00645	-1.9786	5.00E-05	0.00038
Epdr1	-1.3663	5.00E-05	0.00032	-1.9383	5.00E-05	0.00038
Pkm2	-1.367	5.00E-05	0.00032	-1.8114	0.00105	0.00534
Ptpn3	-1.3673	5.00E-05	0.00032	-1.6181	0.00015	0.00102
Prima1	-1.3707	0.00015	0.00086	-2.7094	5.00E-05	0.00038
Atg4c	-1.3727	5.00E-05	0.00032	-1.986	5.00E-05	0.00038
Igdcc4	-1.3736	5.00E-05	0.00032	-2.6142	5.00E-05	0.00038
1810020D17Rik	-1.3749	5.00E-05	0.00032	-2.2799	5.00E-05	0.00038
Trim13	-1.3774	5.00E-05	0.00032	-2.1212	5.00E-05	0.00038
Rab3il1	-1.3793	0.00035	0.00181	-1.556	0.00015	0.00102
Acvr1	-1.3797	5.00E-05	0.00032	-1.6146	5.00E-05	0.00038
Setd8	-1.3816	5.00E-05	0.00032	-1.3475	2.00E-04	0.00131
Stbd1	-1.384	5.00E-05	0.00032	-3.346	5.00E-05	0.00038

Hp	-1.3844	5.00E-05	0.00032	4.48591	5.00E-05	0.00038
Nupr1	-1.3874	0.0013	0.00554	-1.7299	0.00045	0.00262
Dhcr24	-1.3883	0.00035	0.00181	-2.8172	5.00E-05	0.00038
Tmem64	-1.3893	5.00E-05	0.00032	-1.6064	5.00E-05	0.00038
Add3	-1.3912	5.00E-05	0.00032	-0.7373	0.01445	0.04566
Sac3d1	-1.3929	5.00E-05	0.00032	-1.0072	0.005	0.01934
Mmab	-1.3933	5.00E-05	0.00032	-2.1037	5.00E-05	0.00038
Kbtbd8	-1.3981	0.00515	0.01761	-2.3498	5.00E-05	0.00038
Zfp651	-1.3983	5.00E-05	0.00032	-1.8951	5.00E-05	0.00038
Dtymk	-1.3993	1.00E-04	0.0006	-1.2538	0.0013	0.00641
Slc16a3	-1.4012	0.0024	0.00929	-4.0394	0.0024	0.01064
Ldoc1l	-1.4047	1.00E-04	0.0006	-2.7174	5.00E-05	0.00038
Ssbp2	-1.4077	5.00E-05	0.00032	-0.9748	0.0095	0.03279
Zswim3	-1.408	0.0057	0.01917	-1.1887	0.0102	0.03456
Mapk14	-1.4087	5.00E-05	0.00032	-2.0285	5.00E-05	0.00038
Capn3	-1.4098	1.00E-04	0.0006	-3.0838	5.00E-05	0.00038
Col22a1	-1.4101	5.00E-05	0.00032	-3.1918	5.00E-05	0.00038
3110052M02Rik	-1.4118	0.0139	0.03982	-1.7426	0.0012	0.006
Cib2	-1.4119	5.00E-05	0.00032	-2.1095	5.00E-05	0.00038
Csf1	-1.4137	5.00E-05	0.00032	-1.34	2.00E-04	0.00131
Shc2	-1.4169	0.0013	0.00554	-1.5978	0.0012	0.006
Neu3	-1.4187	5.00E-05	0.00032	-2.434	5.00E-05	0.00038
Heatr5a	-1.4192	5.00E-05	0.00032	-1.4267	5.00E-05	0.00038
Kcnc1	-1.4197	5.00E-05	0.00032	-1.4269	2.00E-04	0.00131
Padi2	-1.42	1.00E-04	0.0006	-2.031	0.00075	0.00405
Hfe2	-1.4246	5.00E-05	0.00032	-2.3989	5.00E-05	0.00038
Rcn1	-1.4248	5.00E-05	0.00032	-2.2509	5.00E-05	0.00038
Gm14403	-1.4265	0.0015	0.00627	-3.0463	5.00E-05	0.00038
4933439F18Rik	-1.427	5.00E-05	0.00032	-1.233	0.0013	0.00641
4930430F08Rik	-1.4279	0.00085	0.00387	-1.7806	4.00E-04	0.00237
Zfhx4	-1.4286	5.00E-05	0.00032	-1.9511	5.00E-05	0.00038
Hspa12a	-1.4301	5.00E-05	0.00032	-1.1975	0.0025	0.011
Cmb1	-1.4304	5.00E-05	0.00032	-1.2153	4.00E-04	0.00237
Wdr89	-1.4316	0.0176	0.04821	-1.4203	0.0093	0.03221
Mpp7	-1.4353	0.0024	0.00929	-1.3153	0.00495	0.01919
Ptp4a2	-1.4386	5.00E-05	0.00032	-2.2438	5.00E-05	0.00038
Npl	-1.44	0.00715	0.02309	-3.4974	0.00265	0.01149
Creb3l2	-1.4441	5.00E-05	0.00032	-1.4305	5.00E-05	0.00038
Maoa	-1.4451	5.00E-05	0.00032	-1.6411	5.00E-05	0.00038
Calm1	-1.4451	5.00E-05	0.00032	-1.7336	5.00E-04	0.00287
Abca8b	-1.4456	5.00E-05	0.00032	-1.7765	5.00E-05	0.00038

Cand2	-1.4463	5.00E-05	0.00032	-1.7713	5.00E-05	0.00038
Ctsc	-1.4467	5.00E-05	0.00032	-1.5486	5.00E-05	0.00038
1110058L19Rik	-1.4495	5.00E-05	0.00032	-2.3942	5.00E-05	0.00038
Zfp710	-1.4502	5.00E-05	0.00032	-0.8631	0.0037	0.01519
Lphn1	-1.4505	0.00075	0.00349	-2.1378	5.00E-05	0.00038
Ebpl	-1.4516	7.00E-04	0.00328	-2.4023	5.00E-05	0.00038
1700020I14Rik	-1.4521	5.00E-05	0.00032	-2.1581	5.00E-05	0.00038
Sntb1	-1.4521	0.00555	0.01875	-4.0208	5.00E-05	0.00038
D2hgdh	-1.4541	5.00E-05	0.00032	-2.288	5.00E-05	0.00038
Nfib	-1.4544	5.00E-05	0.00032	-1.7304	5.00E-05	0.00038
Trib2	-1.4547	5.00E-05	0.00032	-1.3317	5.00E-05	0.00038
Sema3b	-1.4561	5.00E-05	0.00032	-2.5982	5.00E-05	0.00038
Asap3	-1.4562	0.00045	0.00224	-1.4467	0.00085	0.00449
Sh3glb2	-1.4596	5.00E-05	0.00032	-1.5345	0.00195	0.00898
Atxn1	-1.4599	5.00E-05	0.00032	-1.7869	5.00E-05	0.00038
Vamp1	-1.4603	5.00E-05	0.00032	-2.0643	5.00E-05	0.00038
Uxs1	-1.4603	1.00E-04	0.0006	-1.6044	3.00E-04	0.00184
Pla2g4b	-1.4618	0.0013	0.00554	-1.8329	0.00055	0.00312
Fgf11	-1.4649	5.00E-05	0.00032	-2.7137	5.00E-05	0.00038
Srp54b	-1.4658	5.00E-05	0.00032	-2.5056	5.00E-05	0.00038
Alg3	-1.4669	5.00E-05	0.00032	-1.7635	5.00E-05	0.00038
Slc35b4	-1.4673	7.00E-04	0.00328	-1.7904	5.00E-05	0.00038
Rhobtb1	-1.4677	5.00E-05	0.00032	-1.5098	5.00E-05	0.00038
Pyroxd2	-1.4682	4.00E-04	0.00203	-1.4138	0.00435	0.01729
Vegfc	-1.4695	0.00535	0.01818	-1.3533	0.00975	0.03344
H2afz	-1.4757	5.00E-05	0.00032	-1.5558	5.00E-05	0.00038
Zfp324	-1.4762	4.00E-04	0.00203	-2.2904	5.00E-05	0.00038
Mtap2	-1.4765	0.00265	0.01011	-1.9689	0.00015	0.00102
1700025G04Rik	-1.4765	5.00E-05	0.00032	-2.1424	5.00E-05	0.00038
Tmem41a	-1.4794	0.00165	0.00681	-1.9084	5.00E-05	0.00038
Zfp111	-1.4806	0.0065	0.02141	-1.9067	0.00065	0.00359
Dhrs7b	-1.4849	5.00E-05	0.00032	-2.0238	5.00E-05	0.00038
Nudt12	-1.4879	1.00E-04	0.0006	-1.6931	5.00E-04	0.00287
Zfp879	-1.4971	9.00E-04	0.00406	-2.8579	3.00E-04	0.00184
Trim32	-1.4973	5.00E-05	0.00032	-1.6663	0.00045	0.00262
Lace1	-1.4997	5.00E-05	0.00032	-2.2984	5.00E-05	0.00038
BC017612	-1.5027	5.00E-05	0.00032	-1.0406	0.00515	0.01983
Ak1	-1.5036	5.00E-05	0.00032	-2.652	5.00E-05	0.00038
Pex26	-1.505	0.00025	0.00135	-2.1361	5.00E-05	0.00038
Lgals1	-1.5055	5.00E-05	0.00032	-1.4959	5.00E-05	0.00038
Muted	-1.5087	5.00E-05	0.00032	-1.369	3.00E-04	0.00184

2900076A07Rik	-1.5125	5.00E-05	0.00032	-2.5127	5.00E-05	0.00038
Zfp931	-1.5143	5.00E-05	0.00032	-2.7635	5.00E-05	0.00038
Lpar1	-1.5143	0.0011	0.00481	-1.1654	0.00715	0.02598
Crhr2	-1.5165	5.00E-05	0.00032	-2.2784	5.00E-05	0.00038
Fzd2	-1.519	0.0037	0.01329	-1.6071	0.003	0.01275
Cadm1	-1.5199	3.00E-04	0.00158	-1.5506	0.00255	0.01114
Wnt9a	-1.5217	5.00E-05	0.00032	-1.5773	5.00E-05	0.00038
Ddr2	-1.525	5.00E-05	0.00032	-1.8607	5.00E-05	0.00038
Glt25d2	-1.5284	5.00E-05	0.00032	-2.0272	5.00E-05	0.00038
Lhfp12	-1.5295	0.01545	0.04342	-1.5193	0.00335	0.01398
Lin9	-1.5369	5.00E-05	0.00032	-1.3969	6.00E-04	0.00335
Cry11	-1.5377	0.00015	0.00086	-1.4422	0.00095	0.00492
1110008J03Rik	-1.5427	7.00E-04	0.00328	-1.5683	0.00105	0.00534
Cdon	-1.5428	0.00015	0.00086	-2.2054	5.00E-05	0.00038
Sbk2	-1.5442	5.00E-05	0.00032	-3.2735	5.00E-05	0.00038
Sorcs2	-1.5474	0.00205	0.00814	-2.118	0.0018	0.00842
Pcdh12	-1.5534	5.00E-05	0.00032	-3.3743	5.00E-05	0.00038
Antxr1	-1.5544	5.00E-05	0.00032	-2.0359	5.00E-05	0.00038
Rom1	-1.5558	5.00E-05	0.00032	-2.2185	5.00E-05	0.00038
Susd2	-1.5564	5.00E-04	0.00244	-1.8315	0.00065	0.00359
Slc26a6	-1.5583	5.00E-05	0.00032	-1.8304	5.00E-05	0.00038
P1ce1	-1.5609	5.00E-05	0.00032	-1.5197	0.00015	0.00102
Sspn	-1.5623	5.00E-05	0.00032	-2.8016	5.00E-05	0.00038
Kdelc2	-1.5626	5.00E-05	0.00032	-2.1816	5.00E-05	0.00038
Pgpep1	-1.5638	5.00E-05	0.00032	-1.2452	0.00065	0.00359
Hnmt	-1.5642	0.00025	0.00135	-2.1747	5.00E-05	0.00038
Dut	-1.5694	5.00E-05	0.00032	-1.9657	5.00E-05	0.00038
2310003H01Rik	-1.5695	0.0019	0.00766	-1.8291	4.00E-04	0.00237
Eda	-1.5699	0.00845	0.02651	-1.7594	0.00495	0.01919
Bgn	-1.5715	5.00E-05	0.00032	-2.68	5.00E-05	0.00038
Hlcs	-1.5741	5.00E-05	0.00032	-1.2819	2.00E-04	0.00131
Smoc2	-1.5767	5.00E-05	0.00032	-2.3835	5.00E-05	0.00038
Mme	-1.5771	0.00045	0.00224	-1.8452	2.00E-04	0.00131
S1pr2	-1.5772	0.00205	0.00814	-1.9798	0.00085	0.00449
Smyd1	-1.5803	5.00E-05	0.00032	-3.3871	5.00E-05	0.00038
Ccng1	-1.5811	5.00E-05	0.00032	-2.1652	5.00E-05	0.00038
Podxl2	-1.5813	5.00E-05	0.00032	-1.1029	0.0071	0.02583
Serf1	-1.5815	0.0022	0.00865	-1.3558	0.0061	0.02276
Ttc23	-1.582	0.00325	0.01196	-2.0402	0.00025	0.00159
Pip4k2b	-1.5822	5.00E-05	0.00032	-2.2532	5.00E-05	0.00038
Tmem132a	-1.5831	0.00075	0.00349	-2.7304	5.00E-05	0.00038

Mfsd3	-1.5838	5.00E-05	0.00032	-2.2791	5.00E-05	0.00038
Plekhb1	-1.5842	5.00E-05	0.00032	-1.2866	5.00E-05	0.00038
Ttl	-1.5845	5.00E-05	0.00032	-2.1289	5.00E-05	0.00038
Itgb1bp2	-1.5862	5.00E-05	0.00032	-2.9416	5.00E-05	0.00038
Hpgd	-1.5867	0.0064	0.02114	-3.3771	2.00E-04	0.00131
Fstl1	-1.588	5.00E-05	0.00032	-2.3659	5.00E-05	0.00038
Cyp2e1	-1.5898	0.0026	0.00995	1.57587	0.0025	0.011
Rcbtb2	-1.5906	0.0106	0.03191	-2.1253	0.0021	0.00957
Scrn1	-1.5917	0.00345	0.01257	-2.0558	0.0055	0.02087
Axl	-1.5917	5.00E-05	0.00032	-1.2048	6.00E-04	0.00335
Kcnj12	-1.5918	5.00E-05	0.00032	-2.1344	5.00E-05	0.00038
Oxct1	-1.5932	5.00E-05	0.00032	-1.5007	5.00E-05	0.00038
Dcn	-1.5943	5.00E-05	0.00032	-1.4121	5.00E-05	0.00038
Fam173a	-1.5949	5.00E-05	0.00032	-1.94	5.00E-05	0.00038
Ppp1r26	-1.5971	0.0048	0.01661	-1.5028	0.00895	0.03119
Parp16	-1.599	5.00E-05	0.00032	-1.4885	0.0013	0.00641
Rtn4ip1	-1.6012	5.00E-05	0.00032	-2.8464	5.00E-05	0.00038
Mxra7	-1.6057	4.00E-04	0.00203	-2.0911	5.00E-05	0.00038
Trmt2b	-1.6106	5.00E-05	0.00032	-1.7742	5.00E-05	0.00038
Scamp5	-1.613	0.00035	0.00181	-1.3299	0.0032	0.01343
Khdrbs3	-1.6173	5.00E-05	0.00032	-0.9291	0.0095	0.03279
5730409E04Rik	-1.621	5.00E-05	0.00032	-2.5798	5.00E-05	0.00038
Arsk	-1.6232	2.00E-04	0.00111	-2.3402	0.00105	0.00534
Sytl2	-1.6236	9.00E-04	0.00406	-1.9917	1.00E-04	0.00072
BY080835	-1.6237	5.00E-05	0.00032	-2.4195	5.00E-05	0.00038
Colec12	-1.6254	5.00E-05	0.00032	-1.3064	0.00025	0.00159
D630037F22Rik	-1.6268	0.0019	0.00766	-1.6863	0.00075	0.00405
Gstt1	-1.6287	9.00E-04	0.00406	-1.5897	3.00E-04	0.00184
Col27a1	-1.6295	3.00E-04	0.00158	-1.4286	0.01365	0.04381
Zfp873	-1.6311	0.0139	0.03982	-2.1129	0.00775	0.02774
Fzd1	-1.6315	0.00025	0.00135	-1.6096	3.00E-04	0.00184
Xrcc6bp1	-1.6319	0.014	0.04004	-2.0458	0.0014	0.00681
Wdr35	-1.6342	5.00E-05	0.00032	-1.6594	0.00825	0.02918
Fbn1	-1.6364	5.00E-05	0.00032	-3.0813	5.00E-05	0.00038
Ramp1	-1.6365	5.00E-05	0.00032	-1.7315	5.00E-05	0.00038
Abhd8	-1.6366	5.00E-05	0.00032	-1.5878	5.00E-05	0.00038
Pdgfrl	-1.6384	0.00085	0.00387	-1.3886	0.0032	0.01343
BB218582	-1.6397	0.0107	0.03213	-2.0547	0.012	0.03937
Golm1	-1.643	5.00E-05	0.00032	-0.844	0.00915	0.03177
Bpnt1	-1.6434	5.00E-05	0.00032	-2.4333	5.00E-05	0.00038
Dck	-1.6511	7.00E-04	0.00328	-1.1426	0.00515	0.01983

Serpinb9	-1.6528	5.00E-05	0.00032	-1.6698	5.00E-05	0.00038
Ahdc1	-1.656	0.00025	0.00135	-1.6679	0.00045	0.00262
Lrrfip1	-1.6585	5.00E-05	0.00032	-1.4974	5.00E-05	0.00038
Myl2	-1.6602	5.00E-05	0.00032	-2.4424	5.00E-05	0.00038
Ecm2	-1.6608	0.0012	0.00518	-1.9719	0.0039	0.01589
Kcnq5	-1.6614	5.00E-05	0.00032	-2.6932	5.00E-05	0.00038
Fam110a	-1.6618	3.00E-04	0.00158	-1.7569	0.00025	0.00159
D130017N08Rik	-1.6628	5.00E-05	0.00032	-2.5655	5.00E-05	0.00038
Mblac2	-1.6635	0.00085	0.00387	-1.8181	0.00055	0.00312
Fgf6	-1.6637	0.00925	0.0286	-3.5836	0.0015	0.00723
Xpr1	-1.6659	5.00E-05	0.00032	-0.9836	0.00175	0.00822
Slc25a10	-1.669	5.00E-05	0.00032	-1.3369	0.0057	0.0215
Tmem218	-1.6721	5.00E-05	0.00032	-2.0003	5.00E-05	0.00038
Arhgap19	-1.6731	5.00E-05	0.00032	-1.7357	5.00E-05	0.00038
Mtfp1	-1.6741	5.00E-05	0.00032	-2.5867	5.00E-05	0.00038
Aff3	-1.6743	0.01265	0.0369	-1.958	0.00105	0.00534
Ergic1	-1.6757	5.00E-05	0.00032	-1.8464	5.00E-05	0.00038
Hspb2	-1.6764	5.00E-05	0.00032	-2.3271	5.00E-05	0.00038
Gm15440	-1.6799	5.00E-05	0.00032	-2.2057	5.00E-05	0.00038
Scn1b	-1.6802	5.00E-05	0.00032	-2.3234	5.00E-05	0.00038
Stac3	-1.681	5.00E-05	0.00032	-3.4402	5.00E-05	0.00038
Eno3	-1.6812	5.00E-05	0.00032	-2.8981	5.00E-05	0.00038
Tuba1a	-1.6843	1.00E-04	0.0006	-2.0608	5.00E-05	0.00038
Zfp467	-1.6873	2.00E-04	0.00111	-1.3472	0.0026	0.01132
Umps	-1.6888	5.00E-05	0.00032	-2.1001	5.00E-05	0.00038
B230312C02Rik	-1.6894	5.00E-05	0.00032	-3.0713	5.00E-05	0.00038
Apobec2	-1.6922	5.00E-05	0.00032	-2.5631	5.00E-05	0.00038
Kcnb1	-1.6925	5.00E-05	0.00032	-2.444	5.00E-05	0.00038
Cd55	-1.6935	5.00E-05	0.00032	-1.652	5.00E-05	0.00038
Dcun1d2	-1.6944	5.00E-05	0.00032	-2.9068	5.00E-05	0.00038
Pds5b	-1.6946	5.00E-05	0.00032	-1.4307	1.00E-04	0.00072
Tuba1b	-1.6948	3.00E-04	0.00158	-1.1632	0.0041	0.0165
Flrt2	-1.6958	5.00E-05	0.00032	-1.6022	5.00E-05	0.00038
Srpx	-1.6972	0.0115	0.03416	-2.3953	0.0077	0.0276
Gm14698	-1.6986	5.00E-05	0.00032	-1.8527	5.00E-05	0.00038
Synm	-1.6994	5.00E-05	0.00032	-2.5087	5.00E-05	0.00038
Emr1	-1.7032	0.01075	0.03222	-2.0656	0.0016	0.00763
Dusp23	-1.7032	5.00E-05	0.00032	-2.1098	5.00E-05	0.00038
Crtap	-1.7038	1.00E-04	0.0006	-1.3978	0.00215	0.00974
Praf2	-1.7048	0.00025	0.00135	-1.1139	0.00775	0.02774
Cacng7	-1.7057	5.00E-05	0.00032	-1.5538	5.00E-05	0.00038

Bcs1l	-1.7057	5.00E-05	0.00032	-2.7648	5.00E-05	0.00038
Ttc30a1	-1.7075	0.00075	0.00349	-1.5385	0.00285	0.01222
Ppp2r3a	-1.7091	5.00E-05	0.00032	-2.6257	5.00E-05	0.00038
Dhrs7c	-1.7106	5.00E-05	0.00032	-3.0431	5.00E-05	0.00038
Lrfn3	-1.7109	0.00035	0.00181	-1.7296	0.00015	0.00102
Dynll2	-1.7146	5.00E-05	0.00032	-2.4822	5.00E-05	0.00038
Tppp3	-1.7147	5.00E-05	0.00032	-2.9919	5.00E-05	0.00038
Gpc3	-1.7163	5.00E-05	0.00032	-1.5713	0.00035	0.00212
1810010H24Rik	-1.7169	0.0144	0.04093	-2.7215	0.01315	0.04246
Igf1	-1.7178	0.01405	0.04013	-3.0121	5.00E-05	0.00038
Eml1	-1.7237	5.00E-05	0.00032	-2.3984	5.00E-05	0.00038
Scrn2	-1.7244	5.00E-05	0.00032	-1.9901	5.00E-05	0.00038
Col8a1	-1.7257	5.00E-05	0.00032	-2.3873	5.00E-05	0.00038
Rian	-1.7258	5.00E-05	0.00032	-5.3297	5.00E-05	0.00038
Slc45a4	-1.7298	5.00E-05	0.00032	-2.044	5.00E-05	0.00038
4931406C07Rik	-1.7329	5.00E-05	0.00032	-1.0589	0.0046	0.01814
Tpi1	-1.7357	5.00E-05	0.00032	-2.5613	5.00E-05	0.00038
Tspan12	-1.7364	5.00E-05	0.00032	-2.5036	5.00E-05	0.00038
Klhl23	-1.7395	0.00045	0.00224	-1.564	0.00015	0.00102
Gpr180	-1.74	5.00E-05	0.00032	-1.9541	5.00E-05	0.00038
Mkl1	-1.7416	0.01035	0.03132	-2.1634	1.00E-04	0.00072
Gm16340	-1.7467	0.00255	0.00979	-2.6265	2.00E-04	0.00131
Pld2	-1.7481	0.00025	0.00135	-1.9216	0.00015	0.00102
Sod3	-1.7502	5.00E-05	0.00032	-1.7871	1.00E-04	0.00072
Sema6d	-1.7563	5.00E-05	0.00032	-1.9956	5.00E-05	0.00038
Tada2a	-1.7591	5.00E-05	0.00032	-0.9524	0.01465	0.04609
Igfals	-1.7611	0.002	0.00799	-3.2874	0.00405	0.01634
Fzd9	-1.7627	5.00E-05	0.00032	-1.247	4.00E-04	0.00237
Kctd7	-1.7633	0.0024	0.00929	-2.8598	5.00E-05	0.00038
Adamts5	-1.7657	5.00E-05	0.00032	-1.8425	5.00E-05	0.00038
S100a4	-1.769	1.00E-04	0.0006	-1.3507	7.00E-04	0.00383
Hn1	-1.769	5.00E-05	0.00032	-1.8002	5.00E-05	0.00038
Narf	-1.7709	0.00045	0.00224	-2.2702	1.00E-04	0.00072
H2-Ea-ps	-1.7712	1.00E-04	0.0006	-1.6707	2.00E-04	0.00131
Klhl17	-1.7716	5.00E-05	0.00032	-1.5735	5.00E-05	0.00038
Zfp385a	-1.7725	5.00E-05	0.00032	-1.1971	0.00235	0.01046
Rap2b	-1.7728	0.00025	0.00135	-1.4726	0.00095	0.00492
Slc9a9	-1.7769	0.0042	0.01482	-1.4171	0.01045	0.03523
Gm889	-1.7883	5.00E-05	0.00032	-1.1858	0.00245	0.01083
Ptgir	-1.789	0.00045	0.00224	-1.1983	0.00915	0.03177
Zfp518b	-1.7921	5.00E-05	0.00032	-2.0913	5.00E-05	0.00038

Siae	-1.7947	5.00E-05	0.00032	-2.6975	5.00E-05	0.00038
Slco5a1	-1.7977	5.00E-05	0.00032	-2.6088	5.00E-05	0.00038
Hr	-1.8	5.00E-05	0.00032	-3.3384	5.00E-05	0.00038
Timp2	-1.8018	5.00E-05	0.00032	-1.55	5.00E-05	0.00038
Rxrg	-1.8051	5.00E-05	0.00032	-2.6886	5.00E-05	0.00038
Scn4b	-1.8058	5.00E-05	0.00032	-2.9064	5.00E-05	0.00038
Ldb3	-1.8062	5.00E-05	0.00032	-3.5205	5.00E-05	0.00038
Pgm2l1	-1.8065	5.00E-05	0.00032	-1.2358	1.00E-04	0.00072
Polr3k	-1.8086	5.00E-05	0.00032	-2.0031	5.00E-05	0.00038
P2ry6	-1.8095	0.00105	0.00462	-1.5015	0.00475	0.0186
Alpl	-1.81	0.00055	0.00266	-2.2486	5.00E-05	0.00038
Ldha	-1.8117	5.00E-05	0.00032	-2.9338	5.00E-05	0.00038
Gprc5c	-1.8136	5.00E-05	0.00032	-2.4561	5.00E-05	0.00038
Fsd2	-1.8166	5.00E-05	0.00032	-2.7632	5.00E-05	0.00038
Ush1c	-1.8315	3.00E-04	0.00158	-3.27	5.00E-05	0.00038
Srpk3	-1.8331	5.00E-05	0.00032	-2.9201	5.00E-05	0.00038
Cxcl16	-1.8372	0.00375	0.01345	-1.3486	0.01415	0.04492
Gpx8	-1.8384	1.00E-04	0.0006	-1.7877	5.00E-05	0.00038
Rtn4	-1.8386	5.00E-05	0.00032	-2.2924	5.00E-05	0.00038
Dse	-1.8431	5.00E-05	0.00032	-1.7696	1.00E-04	0.00072
Ank1	-1.8437	5.00E-05	0.00032	-2.4163	5.00E-05	0.00038
Angpt1	-1.8454	5.00E-05	0.00032	-3.4949	5.00E-05	0.00038
Arhgdib	-1.8462	5.00E-05	0.00032	1.10223	0.00155	0.00742
Slc25a15	-1.8468	5.00E-05	0.00032	-2.2865	5.00E-05	0.00038
Zfp808	-1.8492	0.01195	0.0352	-2.157	0.0016	0.00763
Cilp	-1.8506	5.00E-05	0.00032	-2.6976	5.00E-05	0.00038
Gbp4	-1.8512	5.00E-05	0.00032	-1.1889	0.00015	0.00102
Polh	-1.8539	5.00E-05	0.00032	-2.0759	5.00E-05	0.00038
2810405K02Rik	-1.8544	5.00E-05	0.00032	-2.0613	5.00E-05	0.00038
Galnt1l1	-1.8651	5.00E-05	0.00032	-1.6262	3.00E-04	0.00184
Msh3	-1.8752	5.00E-05	0.00032	-1.7748	9.00E-04	0.0047
Rnf128	-1.8766	5.00E-05	0.00032	-1.5767	5.00E-05	0.00038
Ptpla	-1.8783	5.00E-05	0.00032	-3.3561	5.00E-05	0.00038
Ifi203	-1.8783	5.00E-05	0.00032	-2.2396	5.00E-05	0.00038
Vwa3b	-1.8831	0.00125	0.00536	-3.8997	2.00E-04	0.00131
Itih5	-1.8867	5.00E-05	0.00032	-2.5413	5.00E-05	0.00038
Fam198b	-1.8905	5.00E-05	0.00032	-2.2687	5.00E-05	0.00038
Rrm1	-1.8923	5.00E-05	0.00032	-1.3718	5.00E-05	0.00038
Scin	-1.8938	0.0019	0.00766	-2.6532	0.00035	0.00212
Asph	-1.8941	5.00E-05	0.00032	-3.5053	5.00E-05	0.00038
Nudt4	-1.8976	5.00E-05	0.00032	-2.2008	5.00E-05	0.00038

Mettl8	-1.9012	0.00085	0.00387	-2.4187	0.0011	0.00557
Ikkip	-1.9021	5.00E-05	0.00032	-2.6864	5.00E-05	0.00038
Slc25a19	-1.9032	5.00E-05	0.00032	-2.8545	5.00E-05	0.00038
Pgam2	-1.9039	5.00E-05	0.00032	-3.3263	5.00E-05	0.00038
St8sia5	-1.9085	5.00E-05	0.00032	-2.8174	5.00E-05	0.00038
Lrp4	-1.9094	5.00E-05	0.00032	-2.5135	5.00E-05	0.00038
Ppm1j	-1.9165	5.00E-05	0.00032	-2.9857	5.00E-05	0.00038
Cpe	-1.9176	5.00E-05	0.00032	-1.5671	5.00E-05	0.00038
Cdh13	-1.9179	5.00E-05	0.00032	-1.2487	0.0024	0.01064
Yjefn3	-1.9195	2.00E-04	0.00111	-1.0838	0.0106	0.03569
Pcsk6	-1.9273	5.00E-05	0.00032	-2.7357	5.00E-05	0.00038
Oaf	-1.9289	2.00E-04	0.00111	-2.9649	5.00E-05	0.00038
6530418L21Rik	-1.9311	5.00E-05	0.00032	-2.3232	5.00E-05	0.00038
Uts2r	-1.9333	0.0031	0.0115	-2.262	0.0025	0.011
Gm14261	-1.9432	5.00E-05	0.00032	-2.9036	5.00E-05	0.00038
Csdc2	-1.9452	0.0058	0.01944	1.34705	0.0037	0.01519
Arhgef9	-1.9459	5.00E-05	0.00032	-2.6617	5.00E-05	0.00038
Mterfd3	-1.9464	5.00E-05	0.00032	-2.6412	5.00E-05	0.00038
Cdc42ep2	-1.9472	5.00E-05	0.00032	-2.4658	5.00E-05	0.00038
Psph	-1.9492	5.00E-05	0.00032	-3.0834	5.00E-05	0.00038
Ddah1	-1.9509	5.00E-05	0.00032	-3.8699	5.00E-05	0.00038
Fn3k	-1.9517	5.00E-05	0.00032	-0.8516	0.0092	0.03192
Pdzd3	-1.9555	0.0076	0.02432	-1.8547	0.0054	0.02055
Pitpnm3	-1.9603	5.00E-05	0.00032	-1.9669	5.00E-05	0.00038
Fndc4	-1.9605	0.004	0.01419	1.21809	0.01075	0.03609
Ibtk	-1.9617	5.00E-05	0.00032	-1.8045	5.00E-05	0.00038
Lbx1	-1.9687	5.00E-05	0.00032	-2.116	5.00E-05	0.00038
Calm2	-1.9704	5.00E-05	0.00032	-2.2205	5.00E-05	0.00038
Fez2	-1.9722	5.00E-05	0.00032	-1.4939	0.0056	0.0212
3222401L13Rik	-1.9728	0.00105	0.00462	-2.2935	0.003	0.01275
Lmod3	-1.973	5.00E-05	0.00032	-4.4487	5.00E-05	0.00038
D630003M21Rik	-1.9742	1.00E-04	0.0006	-2.5296	6.00E-04	0.00335
Alg14	-1.9828	0.00025	0.00135	-2.5743	5.00E-05	0.00038
Cpa3	-1.9848	6.00E-04	0.00286	-2.6364	0.00065	0.00359
Pgcp	-1.9861	5.00E-05	0.00032	-3.1468	5.00E-05	0.00038
Pvalb	-1.9897	5.00E-05	0.00032	-2.9287	5.00E-05	0.00038
Wls	-1.9899	5.00E-05	0.00032	-1.4508	5.00E-05	0.00038
H2-Eb1	-1.99	5.00E-05	0.00032	-1.7619	5.00E-05	0.00038
Cd74	-1.9916	5.00E-05	0.00032	-1.7931	5.00E-05	0.00038
Cxxc5	-1.9944	5.00E-05	0.00032	-2.6952	5.00E-05	0.00038
Inpp5j	-2.0013	0.00045	0.00224	-4.1739	5.00E-05	0.00038

Actc1	-2.0017	5.00E-05	0.00032	-3.3274	5.00E-05	0.00038
Olfml2b	-2.0069	5.00E-05	0.00032	-1.2137	8.00E-04	0.00427
Phkg1	-2.0082	5.00E-05	0.00032	-3.2916	0.00045	0.00262
Al464131	-2.0085	5.00E-05	0.00032	-2.6085	5.00E-05	0.00038
Sec22c	-2.009	0.00015	0.00086	-1.6241	4.00E-04	0.00237
Nov	-2.018	5.00E-05	0.00032	-1.1676	0.0043	0.01712
Sort1	-2.0199	5.00E-05	0.00032	-1.3246	2.00E-04	0.00131
Pctp	-2.0201	5.00E-05	0.00032	-2.6606	5.00E-05	0.00038
C85492	-2.0212	5.00E-05	0.00032	-2.55	5.00E-05	0.00038
Sbk1	-2.0232	5.00E-05	0.00032	-1.9381	5.00E-05	0.00038
Isoc1	-2.0232	5.00E-05	0.00032	-1.9801	5.00E-05	0.00038
Styx	-2.0243	5.00E-05	0.00032	-1.972	5.00E-05	0.00038
Eepd1	-2.0285	5.00E-05	0.00032	-2.4321	5.00E-05	0.00038
Emp3	-2.0293	5.00E-05	0.00032	-1.2662	0.00225	0.0101
Dusp3	-2.0355	5.00E-05	0.00032	-1.7905	5.00E-05	0.00038
Hic1	-2.0372	5.00E-05	0.00032	-1.3392	0.01075	0.03609
Klhl13	-2.0392	1.00E-04	0.0006	-2.1827	5.00E-05	0.00038
Shisa2	-2.0393	5.00E-05	0.00032	-3.0212	5.00E-05	0.00038
Ufsp1	-2.0406	5.00E-05	0.00032	-2.5328	5.00E-05	0.00038
Srpx2	-2.0473	5.00E-05	0.00032	-2.9686	5.00E-05	0.00038
Cyp26b1	-2.048	5.00E-05	0.00032	1.94074	5.00E-05	0.00038
Ift122	-2.0494	0.00035	0.00181	-1.4645	0.0153	0.04768
Trim35	-2.0544	5.00E-05	0.00032	-2.529	5.00E-05	0.00038
Tmem106c	-2.0701	5.00E-05	0.00032	-1.5278	0.00075	0.00405
Nes	-2.0709	5.00E-05	0.00032	-2.6593	5.00E-05	0.00038
Tmsb10	-2.0712	5.00E-05	0.00032	-1.2764	0.00185	0.00861
Sema4d	-2.0714	5.00E-05	0.00032	-1.9695	3.00E-04	0.00184
Plekhh3	-2.0729	5.00E-05	0.00032	-2.6347	5.00E-05	0.00038
5033430115Rik	-2.0749	0.00335	0.01227	-3.3317	0.001	0.00513
Scara3	-2.0751	5.00E-05	0.00032	-1.9302	5.00E-05	0.00038
Igfbp6	-2.0774	5.00E-05	0.00032	-0.8574	0.006	0.02242
Phtf2	-2.085	5.00E-05	0.00032	-2.8997	5.00E-05	0.00038
Abca9	-2.087	5.00E-05	0.00032	-2.3002	5.00E-05	0.00038
Btbd6	-2.0911	0.0024	0.00929	-1.8101	0.01445	0.04566
Zfp72	-2.0949	0.00185	0.00749	-2.7711	0.0015	0.00723
Dhfr	-2.0965	0.00285	0.01076	-1.9567	0.01005	0.03423
Il12a	-2.097	5.00E-05	0.00032	-2.6749	0.00065	0.00359
Crym	-2.0976	1.00E-04	0.0006	-1.6476	0.0016	0.00763
Irgm2	-2.1017	5.00E-05	0.00032	-2.5318	5.00E-05	0.00038
Arsb	-2.1088	0.0011	0.00481	-2.137	0.00365	0.01502
Palld	-2.116	5.00E-05	0.00032	-3.5491	5.00E-05	0.00038

Klh8	-2.1165	5.00E-05	0.00032	-2.1699	5.00E-05	0.00038
Capn6	-2.1168	6.00E-04	0.00286	-3.7955	5.00E-05	0.00038
Prelp	-2.12	5.00E-05	0.00032	-2.7862	5.00E-05	0.00038
Plekha2	-2.1202	5.00E-05	0.00032	-1.63	5.00E-05	0.00038
Pdpr	-2.1223	0.00015	0.00086	-1.8885	2.00E-04	0.00131
Arhgef10l	-2.1239	5.00E-05	0.00032	-2.5011	5.00E-05	0.00038
Mypop	-2.124	5.00E-05	0.00032	-1.8191	5.00E-05	0.00038
Ret	-2.1243	5.00E-05	0.00032	-1.8217	5.00E-05	0.00038
Lrrn4cl	-2.1256	5.00E-05	0.00032	-1.5744	0.0019	0.0088
Paqr9	-2.1274	8.00E-04	0.00368	-3.0301	5.00E-04	0.00287
Pcolce	-2.1296	5.00E-05	0.00032	-2.6391	5.00E-05	0.00038
Dhcr7	-2.1408	0.00015	0.00086	-3.0938	5.00E-05	0.00038
Rgma	-2.1409	5.00E-05	0.00032	-1.7832	5.00E-05	0.00038
Tomm40l	-2.1424	5.00E-05	0.00032	-2.9176	5.00E-05	0.00038
9330159F19Rik	-2.1485	5.00E-05	0.00032	-2.2993	5.00E-05	0.00038
Gpam	-2.1566	5.00E-05	0.00032	-3.2898	5.00E-05	0.00038
Il15	-2.1567	5.00E-05	0.00032	-1.3446	0.00185	0.00861
Tpk1	-2.1588	0.0069	0.02243	-4.2054	5.00E-05	0.00038
Tmem109	-2.1632	5.00E-05	0.00032	-3.0493	5.00E-05	0.00038
Ccdc88c	-2.1641	5.00E-05	0.00032	-1.7875	5.00E-05	0.00038
Naalad2	-2.1696	5.00E-05	0.00032	-2.059	5.00E-05	0.00038
Kbtbd3	-2.1698	5.00E-05	0.00032	-2.1705	5.00E-05	0.00038
E130308A19Rik	-2.1707	5.00E-05	0.00032	-1.405	0.00105	0.00534
Alkbh4	-2.1707	5.00E-05	0.00032	-1.8095	6.00E-04	0.00335
Adcy7	-2.1713	5.00E-05	0.00032	-2.361	5.00E-05	0.00038
D430041D05Rik	-2.1729	0.00075	0.00349	-2.5002	0.0023	0.01029
Tmtc2	-2.1737	0.00105	0.00462	-1.869	0.0024	0.01064
Prss23	-2.185	5.00E-05	0.00032	-1.6965	5.00E-05	0.00038
H2-Aa	-2.1925	0.0014	0.00591	-1.4225	0.00865	0.0303
Frat2	-2.1929	5.00E-05	0.00032	-1.9733	5.00E-05	0.00038
Filip1l	-2.1931	5.00E-05	0.00032	-2.06	5.00E-05	0.00038
Tnxb	-2.1952	5.00E-05	0.00032	-1.6711	5.00E-05	0.00038
Plxna4	-2.1979	5.00E-05	0.00032	-2.4116	5.00E-05	0.00038
Pcp4l1	-2.1986	5.00E-05	0.00032	-1.7295	5.00E-05	0.00038
Osbpl6	-2.2027	1.00E-04	0.0006	-2.6495	0.00025	0.00159
Cyp39a1	-2.2033	5.00E-05	0.00032	-1.6578	5.00E-05	0.00038
Meox1	-2.2073	0.00205	0.00814	-1.8906	5.00E-05	0.00038
Gm10033	-2.2153	5.00E-04	0.00244	-1.9533	0.00205	0.00937
Ttll1	-2.2154	0.00015	0.00086	-2.1271	5.00E-05	0.00038
Lig4	-2.2154	5.00E-05	0.00032	-2.0399	5.00E-05	0.00038
Exd2	-2.2197	5.00E-05	0.00032	-2.771	5.00E-05	0.00038

Reep1	-2.2222	5.00E-05	0.00032	-3.8234	5.00E-05	0.00038
2510009E07Rik	-2.2261	5.00E-05	0.00032	-2.4679	5.00E-05	0.00038
Emid1	-2.2273	5.00E-05	0.00032	-1.8604	0.0022	0.00992
Sh3bgr	-2.2317	5.00E-05	0.00032	-3.0525	5.00E-05	0.00038
Gpc6	-2.2325	5.00E-05	0.00032	-1.3217	0.00135	0.00662
Asb18	-2.2333	5.00E-05	0.00032	-5.5329	5.00E-05	0.00038
Antxr2	-2.2381	5.00E-05	0.00032	-2.0976	5.00E-05	0.00038
Serpine2	-2.2386	5.00E-05	0.00032	-2.567	5.00E-05	0.00038
Ncs1	-2.2395	2.00E-04	0.00111	-2.2881	5.00E-05	0.00038
G0s2	-2.2427	5.00E-05	0.00032	-3.5101	5.00E-05	0.00038
Tmc7	-2.25	5.00E-05	0.00032	-3.7999	5.00E-05	0.00038
Cd59b	-2.2534	5.00E-05	0.00032	-2.2569	2.00E-04	0.00131
Oas12	-2.2635	0.0014	0.00591	-1.6214	0.0059	0.02212
Tmtc1	-2.2682	5.00E-05	0.00032	-1.9055	5.00E-05	0.00038
Synpo2l	-2.269	5.00E-05	0.00032	-2.415	5.00E-05	0.00038
Smtnl2	-2.2692	5.00E-05	0.00032	-3.064	5.00E-05	0.00038
Mcm2	-2.2704	5.00E-05	0.00032	-2.0235	5.00E-05	0.00038
Hdac9	-2.2712	5.00E-05	0.00032	-2.6678	5.00E-05	0.00038
Egflam	-2.2748	5.00E-05	0.00032	-2.9467	5.00E-05	0.00038
Chrne	-2.2749	5.00E-05	0.00032	-1.9687	5.00E-05	0.00038
Ndn	-2.2835	5.00E-05	0.00032	-2.6279	5.00E-05	0.00038
Mettl11b	-2.2842	5.00E-05	0.00032	-3.9527	5.00E-05	0.00038
Ccdc3	-2.2842	5.00E-05	0.00032	-1.4044	9.00E-04	0.0047
Cma1	-2.286	0.00015	0.00086	-2.7427	0.00305	0.01292
Celsr2	-2.2862	0.0045	0.01571	-2.5089	0.00275	0.01187
Kcp	-2.2881	0.0014	0.00591	-3.4856	5.00E-05	0.00038
Gng7	-2.2943	0.0016	0.00663	-2.5234	0.00085	0.00449
Tmem232	-2.2967	5.00E-05	0.00032	-2.6748	5.00E-05	0.00038
Atp1b2	-2.2969	5.00E-05	0.00032	-3.8384	5.00E-05	0.00038
Psd3	-2.2981	5.00E-05	0.00032	-2.8076	5.00E-05	0.00038
H2-DMa	-2.3057	0.00385	0.01375	-2.0845	0.00765	0.02745
Tmeff2	-2.3071	0.00805	0.0255	-2.6414	0.00495	0.01919
Hspb3	-2.3121	5.00E-05	0.00032	-3.9539	5.00E-05	0.00038
Cercam	-2.3123	0.0044	0.01543	-2.8103	5.00E-05	0.00038
Sel1l3	-2.3254	5.00E-05	0.00032	-3.0917	5.00E-05	0.00038
P2ry1	-2.3308	5.00E-05	0.00032	-3.3889	5.00E-05	0.00038
Pla2g5	-2.3382	0.00465	0.01614	#NAME?	5.00E-05	0.00038
Gsta4	-2.3551	5.00E-05	0.00032	-2.2048	5.00E-05	0.00038
Cd276	-2.3631	5.00E-05	0.00032	-1.8347	5.00E-05	0.00038
Rarb	-2.3643	5.00E-05	0.00032	-2.0958	5.00E-05	0.00038
Polk	-2.3667	5.00E-05	0.00032	-1.0233	0.00405	0.01634

Armcx4	-2.3693	5.00E-05	0.00032	-3.1505	5.00E-05	0.00038
Rsph1	-2.3745	0.0067	0.02193	-2.7783	0.00135	0.00662
Adora1	-2.3816	6.00E-04	0.00286	-4.9654	5.00E-05	0.00038
9030612E09Rik	-2.385	0.0029	0.0109	-3.0294	0.00065	0.00359
Ccnd1	-2.3911	0.0097	0.02972	-2.681	0.00365	0.01502
Mfap5	-2.3967	5.00E-05	0.00032	-2.3446	5.00E-05	0.00038
Mmp23	-2.4013	0.00495	0.01705	-3.3723	0.00065	0.00359
Xylt1	-2.4067	0.00035	0.00181	-2.0665	0.0062	0.02306
Lgi2	-2.4074	5.00E-05	0.00032	-3.5652	5.00E-05	0.00038
Serpina1b	-2.4097	5.00E-05	0.00032	1.04893	0.01455	0.04583
Chrdl1	-2.4141	5.00E-05	0.00032	-1.6033	0.00055	0.00312
Nfatc2	-2.4175	5.00E-05	0.00032	-2.2467	5.00E-05	0.00038
Bcl6	-2.4193	5.00E-05	0.00032	-1.8147	5.00E-05	0.00038
Fam189b	-2.4201	5.00E-05	0.00032	-2.9681	5.00E-05	0.00038
Zc4h2	-2.4258	0.00245	0.00945	-2.4225	4.00E-04	0.00237
Ociad2	-2.4354	5.00E-05	0.00032	-2.9457	5.00E-05	0.00038
Ttyh2	-2.4359	5.00E-05	0.00032	-2.741	5.00E-05	0.00038
Thbs4	-2.4385	5.00E-05	0.00032	-3.5897	5.00E-05	0.00038
Steap3	-2.4401	5.00E-05	0.00032	-2.8153	5.00E-05	0.00038
Grb14	-2.4458	5.00E-05	0.00032	-3.0744	5.00E-05	0.00038
Zfp108	-2.4474	0.0024	0.00929	-2.1038	0.00285	0.01222
Efhd1	-2.4523	5.00E-05	0.00032	-2.1455	0.00055	0.00312
Popdc2	-2.4529	3.00E-04	0.00158	-2.8855	0.004	0.01623
Calm3	-2.453	5.00E-05	0.00032	-3.2573	5.00E-05	0.00038
Fam114a1	-2.4561	5.00E-05	0.00032	-2.4531	5.00E-05	0.00038
Ust	-2.4585	0.0016	0.00663	-1.7747	0.00445	0.01765
Pgm2	-2.4594	5.00E-05	0.00032	-3.261	5.00E-05	0.00038
Tmx2	-2.4659	0.00015	0.00086	-3.3856	0.0039	0.01589
Pcyox1	-2.4711	5.00E-05	0.00032	-3.1898	5.00E-05	0.00038
Myod1	-2.4722	5.00E-05	0.00032	-3.0616	5.00E-05	0.00038
Sh3kbp1	-2.4724	5.00E-05	0.00032	-2.3837	5.00E-05	0.00038
H2-Ab1	-2.4726	0.00495	0.01705	-2.0578	0.0114	0.03786
Neu2	-2.4765	5.00E-05	0.00032	-3.4621	5.00E-05	0.00038
Naaa	-2.4797	5.00E-05	0.00032	-1.9971	0.00015	0.00102
Ppapdc3	-2.4842	5.00E-05	0.00032	-3.6967	5.00E-05	0.00038
Ccdc80	-2.4847	5.00E-05	0.00032	-2.4554	5.00E-05	0.00038
Zfp273	-2.4857	0.0125	0.03659	-2.6602	0.00225	0.0101
Tnk2	-2.498	5.00E-05	0.00032	-2.9458	5.00E-05	0.00038
Olfml2a	-2.502	5.00E-05	0.00032	-2.2815	5.00E-05	0.00038
Nipa1	-2.5032	5.00E-05	0.00032	-2.2917	5.00E-05	0.00038
Ampd1	-2.5299	5.00E-05	0.00032	-4.4292	5.00E-05	0.00038

Postn	-2.5311	5.00E-05	0.00032	-3.3252	5.00E-05	0.00038
Dagla	-2.5362	5.00E-05	0.00032	-2.8775	5.00E-05	0.00038
Gm17447	-2.5469	3.00E-04	0.00158	-1.4593	0.0084	0.0296
Krt222	-2.5476	5.00E-05	0.00032	-2.9845	5.00E-05	0.00038
Clcn1	-2.5633	5.00E-05	0.00032	-3.7123	5.00E-05	0.00038
Mtap9	-2.5665	2.00E-04	0.00111	-2.9333	0.00015	0.00102
Dpt	-2.5727	5.00E-05	0.00032	-3.303	5.00E-05	0.00038
0610040J01Rik	-2.5745	5.00E-05	0.00032	-1.4478	5.00E-04	0.00287
Trim7	-2.5816	5.00E-05	0.00032	-3.8086	5.00E-05	0.00038
Zfp41	-2.5826	0.00105	0.00462	-2.322	0.00245	0.01083
Gm17552	-2.5838	5.00E-05	0.00032	-2.7923	0.00085	0.00449
Six2	-2.5854	5.00E-05	0.00032	-2.5165	5.00E-05	0.00038
Gdf11	-2.5916	5.00E-05	0.00032	-2.8216	5.00E-05	0.00038
Tnfaip2	-2.593	5.00E-05	0.00032	-2.1436	5.00E-05	0.00038
Mrc1	-2.5963	5.00E-05	0.00032	-2.5589	5.00E-05	0.00038
Lrrc17	-2.604	0.00185	0.00749	-1.6752	0.0115	0.03812
Katnal2	-2.6056	5.00E-05	0.00032	1.97863	0.00125	0.00621
Alg2	-2.6097	5.00E-05	0.00032	-2.6412	5.00E-05	0.00038
Pak1	-2.6316	5.00E-05	0.00032	-3.2402	5.00E-05	0.00038
Gm5113	-2.6361	5.00E-05	0.00032	-3.3888	5.00E-05	0.00038
Vit	-2.6376	5.00E-05	0.00032	-1.8192	0.00095	0.00492
Bhlhe41	-2.6532	5.00E-05	0.00032	-2.3298	5.00E-05	0.00038
Rab40b	-2.6547	5.00E-05	0.00032	-3.0696	5.00E-05	0.00038
Plekha6	-2.6608	5.00E-05	0.00032	-4.3665	5.00E-05	0.00038
Zfp354c	-2.6718	2.00E-04	0.00111	-1.6936	2.00E-04	0.00131
Smarca1	-2.6823	5.00E-05	0.00032	-2.4159	5.00E-05	0.00038
Ptpns	-2.6859	5.00E-05	0.00032	-3.2862	5.00E-05	0.00038
Zfp54	-2.6893	0.008	0.02536	-2.3864	0.01485	0.04659
2310010M20Rik	-2.6943	5.00E-05	0.00032	-3.9307	5.00E-05	0.00038
Caprin2	-2.6947	3.00E-04	0.00158	-2.3116	0.0016	0.00763
Mef2c	-2.6974	5.00E-05	0.00032	-3.7478	5.00E-05	0.00038
Carns1	-2.7032	5.00E-05	0.00032	-2.7204	5.00E-05	0.00038
Sorl1	-2.7097	5.00E-05	0.00032	-2.0622	5.00E-05	0.00038
Tgfb2	-2.722	5.00E-05	0.00032	-2.5808	5.00E-05	0.00038
Xrcc5	-2.7222	5.00E-05	0.00032	-3.0668	5.00E-05	0.00038
Aplnr	-2.7351	5.00E-05	0.00032	-4.5684	5.00E-05	0.00038
Rasgrp3	-2.7442	5.00E-05	0.00032	-3.4193	5.00E-05	0.00038
Ccdc69	-2.7477	5.00E-05	0.00032	-3.7813	5.00E-05	0.00038
Aldh18a1	-2.7546	0.00465	0.01614	-1.8793	0.01435	0.04542
Ces1d	-2.7573	5.00E-05	0.00032	-2.6551	5.00E-05	0.00038
Pnck	-2.7659	5.00E-05	0.00032	-2.1693	5.00E-05	0.00038

Mcpt4	-2.7704	4.00E-04	0.00203	-3.9821	0.016	0.04944
Ifit3	-2.7752	5.00E-05	0.00032	-2.4777	0.0053	0.02027
Cc2d2a	-2.7775	5.00E-05	0.00032	-2.0973	5.00E-05	0.00038
Dnm1	-2.7784	0.0032	0.01181	-2.9988	0.0065	0.02397
Ormdl1	-2.7902	5.00E-05	0.00032	-2.6078	5.00E-05	0.00038
Podn	-2.7917	5.00E-05	0.00032	-2.1639	0.00015	0.00102
B930041F14Rik	-2.7959	7.00E-04	0.00328	-1.876	0.00125	0.00621
Ogn	-2.8005	5.00E-05	0.00032	-2.9262	9.00E-04	0.0047
Acpl2	-2.82	0.00095	0.00425	-1.9208	0.0041	0.0165
Fbln7	-2.8207	4.00E-04	0.00203	-2.1137	5.00E-05	0.00038
Cd248	-2.8226	5.00E-05	0.00032	-2.6699	5.00E-05	0.00038
Best3	-2.8365	5.00E-05	0.00032	-3.6454	5.00E-05	0.00038
Gpr155	-2.8446	5.00E-05	0.00032	-2.0351	5.00E-05	0.00038
Hpd1	-2.8452	0.0045	0.01571	-3.2993	0.00125	0.00621
Nmral1	-2.8471	5.00E-05	0.00032	-2.8438	4.00E-04	0.00237
Crip3	-2.8646	0.0015	0.00627	-3.9258	6.00E-04	0.00335
Fer116	-2.8673	5.00E-05	0.00032	-4.463	5.00E-05	0.00038
Kcnab1	-2.8682	5.00E-05	0.00032	-1.0129	0.0139	0.04433
Sobp	-2.8687	5.00E-05	0.00032	-3.2402	5.00E-05	0.00038
Bpgm	-2.8707	5.00E-05	0.00032	-3.435	5.00E-05	0.00038
Dusp10	-2.8724	5.00E-05	0.00032	-4.9174	5.00E-05	0.00038
Akr1c14	-2.8767	0.00055	0.00266	-0.9322	0.0102	0.03456
Zmynd17	-2.8777	5.00E-05	0.00032	-3.2273	5.00E-05	0.00038
Gm12319	-2.8785	5.00E-05	0.00032	-4.6762	5.00E-05	0.00038
Relt	-2.8832	5.00E-05	0.00032	-2.3614	5.00E-05	0.00038
F13a1	-2.8833	5.00E-05	0.00032	-1.0541	0.00575	0.02167
Adamts11	-2.8911	5.00E-05	0.00032	-1.905	0.00125	0.00621
Tceal5	-2.8928	5.00E-05	0.00032	-2.5584	5.00E-05	0.00038
4933404O12Rik	-2.9057	5.00E-05	0.00032	-3.6604	5.00E-05	0.00038
Myoc	-2.9279	5.00E-05	0.00032	-1.7683	5.00E-05	0.00038
1110002E22Rik	-2.9305	5.00E-05	0.00032	-4.0577	5.00E-05	0.00038
Zfp503	-2.9306	5.00E-05	0.00032	-1.7956	5.00E-05	0.00038
Aimp2	-2.9342	5.00E-05	0.00032	-2.6438	0.00015	0.00102
Gpd1	-2.953	5.00E-05	0.00032	-4.3092	5.00E-05	0.00038
Ppargc1b	-2.9531	5.00E-05	0.00032	-2.5919	2.00E-04	0.00131
Islr	-2.9606	5.00E-05	0.00032	-3.3401	5.00E-05	0.00038
3632451O06Rik	-2.9744	5.00E-05	0.00032	-1.8104	3.00E-04	0.00184
Camk2a	-2.9761	5.00E-05	0.00032	-4.3774	5.00E-05	0.00038
Rcn3	-3.0053	5.00E-05	0.00032	-3.3393	5.00E-05	0.00038
Cacna2d4	-3.0074	5.00E-05	0.00032	-5.5699	0.00015	0.00102
Phka1	-3.0074	5.00E-05	0.00032	-3.3554	5.00E-05	0.00038

Fam131a	-3.0099	5.00E-05	0.00032	-3.3317	1.00E-04	0.00072
Kctd15	-3.0157	5.00E-05	0.00032	-3.257	5.00E-05	0.00038
Ak4	-3.017	5.00E-05	0.00032	-1.7809	5.00E-05	0.00038
Angptl1	-3.0183	5.00E-05	0.00032	-3.7185	5.00E-05	0.00038
Folr2	-3.0286	1.00E-04	0.0006	-2.283	7.00E-04	0.00383
Gm16170	-3.0291	0.00035	0.00181	-3.0241	0.00705	0.02568
Ftsj2	-3.0355	0.00015	0.00086	-3.0899	5.00E-05	0.00038
D1Ert622e	-3.0382	5.00E-05	0.00032	-2.0827	5.00E-05	0.00038
Itgb1	-3.0408	5.00E-05	0.00032	-2.7778	5.00E-05	0.00038
Col6a1	-3.041	5.00E-05	0.00032	-4.1851	5.00E-05	0.00038
Col5a1	-3.0481	5.00E-05	0.00032	-3.4415	5.00E-05	0.00038
Hdhd3	-3.0516	0.00045	0.00224	-4.2838	0.0036	0.01484
Igtp	-3.0556	5.00E-05	0.00032	-1.829	5.00E-05	0.00038
Abcd2	-3.0822	5.00E-05	0.00032	-3.9023	5.00E-05	0.00038
Col3a1	-3.1013	5.00E-05	0.00032	-5.1481	5.00E-05	0.00038
Tmem14a	-3.1085	0.0018	0.00733	-3.1811	0.00175	0.00822
Zfp385b	-3.1165	5.00E-05	0.00032	-2.7483	5.00E-05	0.00038
Col14a1	-3.1201	5.00E-05	0.00032	-4.3637	5.00E-05	0.00038
Nudt1	-3.1202	0.00295	0.01104	-2.6815	0.0016	0.00763
ORF63	-3.1283	5.00E-05	0.00032	-4.9075	5.00E-05	0.00038
Myoz3	-3.1398	5.00E-05	0.00032	-3.4394	5.00E-05	0.00038
Synpo2	-3.151	5.00E-05	0.00032	-3.6909	5.00E-05	0.00038
1700123M08Rik	-3.1598	5.00E-05	0.00032	-3.098	5.00E-05	0.00038
Ppil1	-3.1745	5.00E-05	0.00032	-2.9329	5.00E-05	0.00038
Lrp2bp	-3.189	0.0019	0.00766	-4.3448	0.0026	0.01132
Tmem25	-3.1947	5.00E-05	0.00032	-4.0681	5.00E-05	0.00038
Itm2a	-3.2041	5.00E-05	0.00032	-5.1479	5.00E-05	0.00038
Kazald1	-3.2057	5.00E-05	0.00032	-3.4027	5.00E-05	0.00038
Mmp15	-3.2265	5.00E-05	0.00032	-4.1675	5.00E-05	0.00038
Fn1	-3.2275	5.00E-05	0.00032	-2.7864	5.00E-05	0.00038
Clec3b	-3.2344	5.00E-05	0.00032	-2.8386	5.00E-05	0.00038
Ache	-3.2347	5.00E-05	0.00032	-3.7216	5.00E-05	0.00038
Atp1b4	-3.2387	5.00E-05	0.00032	-5.2847	5.00E-05	0.00038
Vash2	-3.2468	2.00E-04	0.00111	-1.3452	0.01095	0.03665
Sema6c	-3.2565	5.00E-05	0.00032	-4.1058	5.00E-05	0.00038
Ptx3	-3.2597	5.00E-05	0.00032	-5.1563	0.00085	0.00449
Neto2	-3.2682	5.00E-05	0.00032	-2.12	5.00E-05	0.00038
Fsd1l	-3.2844	5.00E-05	0.00032	-3.0937	5.00E-05	0.00038
Slc37a4	-3.2974	5.00E-05	0.00032	-4.4856	5.00E-05	0.00038
Gfra2	-3.2977	0.00035	0.00181	-2.91	0.00195	0.00898
Pla2g7	-3.313	5.00E-05	0.00032	-0.9166	0.0048	0.01873

Smox	-3.3134	5.00E-05	0.00032	-1.673	5.00E-05	0.00038
Mamstr	-3.315	5.00E-05	0.00032	-3.4187	5.00E-05	0.00038
Sertad4	-3.3218	1.00E-04	0.0006	-3.3646	3.00E-04	0.00184
Col6a2	-3.3252	5.00E-05	0.00032	-4.8018	5.00E-05	0.00038
Arnt2	-3.3262	0.00025	0.00135	-4.2405	5.00E-05	0.00038
Serpinb6b	-3.3264	0.0039	0.0139	-3.8929	0.0013	0.00641
Pcolce2	-3.3332	5.00E-05	0.00032	-2.5748	0.0019	0.0088
Serpinf1	-3.3383	5.00E-05	0.00032	-4.1306	5.00E-05	0.00038
Mfap3l	-3.3639	5.00E-05	0.00032	-4.1715	5.00E-05	0.00038
Pdp1	-3.3658	5.00E-05	0.00032	-2.327	5.00E-05	0.00038
Ptn	-3.3696	0.01115	0.03321	-2.7221	0.00375	0.01539
Frzb	-3.374	5.00E-05	0.00032	-4.0272	5.00E-05	0.00038
Aurka	-3.3765	5.00E-05	0.00032	-3.4258	5.00E-05	0.00038
Gamt	-3.3888	5.00E-05	0.00032	-4.1514	5.00E-05	0.00038
Clec11a	-3.3918	9.00E-04	0.00406	-4.0236	0.00055	0.00312
Mum11l	-3.404	0.00095	0.00425	-4.7253	0.00025	0.00159
Wnt5a	-3.415	5.00E-05	0.00032	-3.3331	5.00E-05	0.00038
Abi3bp	-3.4173	5.00E-05	0.00032	-3.4242	5.00E-05	0.00038
Amd2	-3.4476	5.00E-05	0.00032	-2.9074	5.00E-05	0.00038
Prph	-3.4512	0.0062	0.02061	-2.8481	9.00E-04	0.0047
2310065F04Rik	-3.4517	5.00E-05	0.00032	-4.6362	5.00E-05	0.00038
Syt3	-3.4686	0.00335	0.01227	-3.8295	5.00E-05	0.00038
Itga11	-3.474	5.00E-05	0.00032	-3.448	5.00E-05	0.00038
Angptl2	-3.4787	5.00E-05	0.00032	-3.5419	5.00E-05	0.00038
A430110N23Rik	-3.4908	5.00E-05	0.00032	-4.4338	5.00E-05	0.00038
Ms4a7	-3.5001	0.00505	0.01733	-3.5323	0.0082	0.02904
Zfp493	-3.5115	0.0019	0.00766	-5.0015	0.0101	0.03434
Ighm	-3.5153	5.00E-05	0.00032	-6.4104	5.00E-05	0.00038
Nt5c1a	-3.52	5.00E-05	0.00032	-5.0291	1.00E-04	0.00072
Ptgr1	-3.5224	0.01255	0.03669	-2.9689	0.00185	0.00861
Plxnb3	-3.5365	5.00E-05	0.00032	-2.0728	0.001	0.00513
4930444A02Rik	-3.5366	5.00E-05	0.00032	-4.1832	5.00E-05	0.00038
Gm8424	-3.5389	5.00E-05	0.00032	-5.507	5.00E-05	0.00038
Maf	-3.5508	5.00E-05	0.00032	-3.364	5.00E-05	0.00038
Epha7	-3.5513	0.00065	0.00308	-2.4336	0.0018	0.00842
Mafa	-3.5723	5.00E-05	0.00032	-3.0293	5.00E-05	0.00038
Kcnn2	-3.5733	0.00015	0.00086	-3.6264	5.00E-05	0.00038
Efemp1	-3.5806	5.00E-05	0.00032	-2.0036	3.00E-04	0.00184
Col6a3	-3.5883	5.00E-05	0.00032	-5.6208	5.00E-05	0.00038
Jph2	-3.6256	5.00E-05	0.00032	-4.4058	5.00E-05	0.00038
Mybph	-3.6367	5.00E-05	0.00032	-5.751	5.00E-05	0.00038

Thy1	-3.6373	5.00E-05	0.00032	-3.44	5.00E-05	0.00038
Wfdc1	-3.6586	5.00E-05	0.00032	-3.847	5.00E-05	0.00038
4832428D23Rik	-3.6693	5.00E-05	0.00032	-4.7058	5.00E-05	0.00038
Amd1	-3.7186	5.00E-05	0.00032	-2.9828	5.00E-05	0.00038
Itgb6	-3.7439	1.00E-04	0.0006	-5.122	5.00E-05	0.00038
Lum	-3.7555	5.00E-05	0.00032	-4.2161	5.00E-05	0.00038
Smpdl3b	-3.7947	1.00E-04	0.0006	-2.7258	6.00E-04	0.00335
Duoxa1	-3.801	0.00235	0.00914	-3.2969	0.00645	0.02382
Matn4	-3.8217	4.00E-04	0.00203	-4.0655	5.00E-05	0.00038
Map2k6	-3.8351	5.00E-05	0.00032	-3.9523	5.00E-05	0.00038
Tfrc	-3.8396	5.00E-05	0.00032	-5.5471	5.00E-05	0.00038
Slc4a4	-3.8464	5.00E-05	0.00032	-3.5333	5.00E-05	0.00038
Col11a2	-3.8479	5.00E-05	0.00032	-2.7726	1.00E-04	0.00072
Zfp454	-3.8613	0.00015	0.00086	-4.9021	1.00E-04	0.00072
Pi16	-3.8733	5.00E-05	0.00032	-2.0857	5.00E-05	0.00038
Nkain1	-3.8734	5.00E-05	0.00032	-4.6305	5.00E-05	0.00038
Tnc	-3.9105	5.00E-05	0.00032	-4.3292	5.00E-05	0.00038
Stxbp4	-3.9174	5.00E-05	0.00032	-4.4803	5.00E-05	0.00038
Igfbp5	-3.9992	5.00E-05	0.00032	-3.9824	5.00E-05	0.00038
Sypl2	-4.0058	5.00E-05	0.00032	-5.5138	5.00E-05	0.00038
Prkag3	-4.0357	5.00E-05	0.00032	-4.3961	5.00E-05	0.00038
Papln	-4.0468	1.00E-04	0.0006	-3.277	5.00E-05	0.00038
Cbr2	-4.0497	5.00E-05	0.00032	-3.2547	1.00E-04	0.00072
Mpp3	-4.1133	5.00E-05	0.00032	-3.5321	5.00E-05	0.00038
Igsf1	-4.1679	0.00375	0.01345	-5.9406	0.0018	0.00842
Sfrp4	-4.1744	5.00E-05	0.00032	-1.369	0.01195	0.03927
Slc8a3	-4.1751	5.00E-05	0.00032	-3.6927	5.00E-05	0.00038
Col1a2	-4.1968	5.00E-05	0.00032	-5.2415	5.00E-05	0.00038
A530098C11Rik	-4.2244	5.00E-05	0.00032	-5.5385	5.00E-05	0.00038
Agbl1	-4.2342	5.00E-05	0.00032	-1.9288	0.00085	0.00449
Mdga1	-4.2416	5.00E-05	0.00032	-3.2763	5.00E-05	0.00038
Frmd7	-4.2614	0.01755	0.04811	-2.7995	0.0113	0.03759
Dkk3	-4.2992	5.00E-05	0.00032	-2.4998	5.00E-05	0.00038
Tas1r1	-4.3029	5.00E-04	0.00244	-5.3921	0.00255	0.01114
Casq1	-4.3506	5.00E-05	0.00032	-5.5728	5.00E-05	0.00038
I830012O16Rik	-4.3626	2.00E-04	0.00111	-3.1116	5.00E-05	0.00038
BC023105	-4.3696	5.00E-05	0.00032	-4.6015	5.00E-05	0.00038
Mylk4	-4.4351	5.00E-05	0.00032	-7.4137	5.00E-05	0.00038
Itgb1bp3	-4.4548	1.00E-04	0.0006	-4.8327	0.00105	0.00534
Cntfr	-4.4793	5.00E-05	0.00032	-1.8334	5.00E-05	0.00038
Gm15676	-4.4847	5.00E-05	0.00032	-6.7566	5.00E-05	0.00038

Foxo6	-4.4981	5.00E-05	0.00032	-2.9079	5.00E-05	0.00038
Wif1	-4.5423	1.00E-04	0.0006	-5.3305	0.001	0.00513
Kbtbd13	-4.5457	5.00E-05	0.00032	-5.4205	0.00015	0.00102
Ntf5	-4.5834	5.00E-05	0.00032	-5.0957	5.00E-05	0.00038
Kcnh2	-4.5896	1.00E-04	0.0006	-2.1753	0.0066	0.02427
Sec14l5	-4.5984	5.00E-05	0.00032	-5.9082	5.00E-05	0.00038
Casr	-4.6025	0.00015	0.00086	-4.7895	0.0031	0.01309
Aqp4	-4.6973	5.00E-05	0.00032	-6.3797	5.00E-05	0.00038
Lrtm2	-4.6987	5.00E-05	0.00032	-5.4277	0.0077	0.0276
Pde4a	-4.7092	5.00E-05	0.00032	-5.7622	5.00E-05	0.00038
Fndc1	-4.7212	5.00E-05	0.00032	-2.3554	7.00E-04	0.00383
Cyp4f39	-4.8918	5.00E-05	0.00032	-6.3076	5.00E-05	0.00038
Lingo3	-4.9562	5.00E-05	0.00032	-4.0784	5.00E-05	0.00038
Col1a1	-4.9752	5.00E-05	0.00032	-6.7076	5.00E-05	0.00038
Cerkl	-4.9859	5.00E-05	0.00032	-2.1065	0.01445	0.04566
Cdh4	-5.0255	5.00E-05	0.00032	-4.7218	5.00E-05	0.00038
Grem2	-5.0384	0.0102	0.03095	-4.138	0.0101	0.03434
6430571L13Rik	-5.1287	5.00E-05	0.00032	-6.0883	5.00E-05	0.00038
Itga4	-5.1389	5.00E-05	0.00032	-2.7782	5.00E-05	0.00038
Fmod	-5.488	5.00E-05	0.00032	-6.6144	5.00E-05	0.00038
Comp	-5.5035	5.00E-05	0.00032	-4.625	5.00E-05	0.00038
Tnmd	-5.5604	5.00E-05	0.00032	-5.2895	5.00E-05	0.00038
Retnla	-5.6099	0.0122	0.03581	-3.1116	1.00E-04	0.00072
D0H4S114	-5.7913	5.00E-05	0.00032	-6.2357	5.00E-05	0.00038
Cilp2	-5.8481	3.00E-04	0.00158	-6.1294	5.00E-05	0.00038
Kcng4	-5.9518	5.00E-05	0.00032	-8.2568	5.00E-05	0.00038
Tmem233	-6.1731	5.00E-05	0.00032	-6.7562	5.00E-05	0.00038
Plcd4	-6.3237	0.00105	0.00462	-6.4321	3.00E-04	0.00184
Gdap1	-6.3866	5.00E-05	0.00032	-4.9146	5.00E-05	0.00038
Pld5	-6.5885	0.00125	0.00536	-5.8152	0.00855	0.02999
Ky	-6.8266	5.00E-05	0.00032	-8.2712	5.00E-05	0.00038
Lrrc38	-7.201	5.00E-05	0.00032	-5.966	5.00E-05	0.00038

Supplemental table 2: Functional annotation clustering of the common genes from Supplemental table 1 using DAVID (Database for Annotation, Visualization and Integrated Discovery) from <https://david.ncifcrf.gov>.

a. Upregulated genes (log2 fold change greater than 1 with p and q-values <0.05) were used for DAVID analysis b. Downregulated genes (log2 fold less than -1 with p and q-values <0.05) were used for DAVID analysis. Clusters with an enrichment score ≥ 5.0 and significant p-value <0.05 were used in the study.

a. Functional clusters of upregulated genes.

Annotation Cluster 1		Enrichment Score: 14.04		
Category	Term	Count	p-Value	Benjamini
UP_KEYWORDS	Transcription regulation	210	1.0E-27	6.1E-26
UP_KEYWORDS	Transcription	214	1.9E-27	9.5E-26
GOTERM_BP_DIRECT	Transcription, DNA-templated	217	6.1E-22	2.3E-18
GOTERM_BP_DIRECT	Regulation of transcription, DNA-templated	227	4.3E-15	8.1E-12
GOTERM_MF_DIRECT	Transcription factor activity, sequence-specific DNA binding	95	1.1E-7	2.3E-5
UP_KEYWORDS	DNA-binding	133	5.3E-7	8.6E-6
GOTERM_MF_DIRECT	DNA binding	164	9.1E-7	1.2E-4
GOTERM_MF_DIRECT	Sequence-specific DNA binding	63	1.9E-4	1.0E-2
Annotation Cluster 2		Enrichment Score: 12.08		
Category	Term	Count	p-Value	Benjamini
UP_KEYWORDS	Zinc-finger	169	9.8E-19	3.9E-17
UP_KEYWORDS	Zinc	204	1.8E-17	5.8E-16
UP_KEYWORDS	Metal-binding	269	1.3E-11	3.0E-10
GOTERM_MF_DIRECT	Zinc ion binding	115	5.1E-9	1.4E-6
GOTERM_MF_DIRECT	Metal ion binding	272	3.3E-7	6.0E-5
Annotation Cluster 3		Enrichment Score: 7.63		
Category	Term	Count	p-Value	Benjamini
UP_KEYWORDS	Autophagy	26	7.4E-9	1.4E-7
GOTERM_BP_DIRECT	Autophagy	29	2.2E-8	1.1E-5
GOTERM_CC_DIRECT	Autophagosome	18	7.9E-8	6.4E-6
Annotation Cluster 4		Enrichment Score: 6.71		
Category	Term	Count	p-Value	Benjamini
UP_KEYWORDS	RNA-binding	73	1.5E-10	3.2E-9
GOTERM_MF_DIRECT	RNA binding	92	2.2E-9	7.8E-7
INTERPRO	RNA recognition motif domain	35	7.3E-7	1.3E-3
INTERPRO	Nucleotide-binding, alpha-beta plait	38	1.3E-6	7.8E-4
UP_SEQ_FEATURE	Domain: RRM	23	2.6E-6	2.3E-3
SMART	RRM	32	6.9E-5	2.4E-2
Annotation Cluster 5		Enrichment Score: 5.9		
Category	Term	Count	p-Value	Benjamini
UP_KEYWORDS	Proteasome	28	6.1E-20	2.7E-18
GOTERM_CC_DIRECT	Proteasome complex	30	4.3E-19	6.9E-17
KEGG_PATHWAY	Proteasome	23	4.0E-15	1.1E-12
GOTERM_CC_DIRECT	Proteasome accessory complex	12	2.0E-10	1.8E-8

GOTERM_CC_DIRECT	Proteasome core complex	10	6.4E-7	3.7E-5
INTERPRO	Proteasome, subunit alpha/beta	10	8.7E-7	7.6E-4
UP_KEYWORDS	Threonine protease	10	9.6E-7	1.4E-5
GOTERM_MF_DIRECT	Threonine-type endopeptidase activity	10	4.5E-6	4.1E-4
GOTERM_BP_DIRECT	Antigen processing and presentation of exogenous peptide antigen via MHC class I, TAP-dependent	10	4.6E-5	7.6E-3
INTERPRO	Proteasome A-type subunit	6	5.8E-5	1.5E-2
INTERPRO	Proteasome, alpha-subunit, N-terminal domain	6	5.8E-5	1.5E-2
GOTERM_CC_DIRECT	Proteasome core complex, alpha-subunit complex	6	6.5E-5	2.1E-3
SMART	SM00948	6	1.1E-4	1.3E-2
GOTERM_BP_DIRECT	Proteolysis involved in cellular protein catabolic process	13	1.2E-4	1.5E-2
GOTERM_MF_DIRECT	Endopeptidase activity	18	4.8E-4	2.2E-2
INTERPRO	Proteasome, beta-type subunit, conserved site	5	4.7E-3	3.7E-1
INTERPRO	Proteasome B-type subunit	4	2.7E-2	6.5E-1
UP_KEYWORDS	Protease	29	6.1E-1	9.0E-1
GOTERM_MF_DIRECT	Peptidase activity	31	6.5E-1	1.0E0
GOTERM_BP_DIRECT	Proteolysis	34	6.7E-1	1.0E0

b. Functional clusters of downregulated genes.

Annotation Cluster 1		Enrichment Score: 21.45		
Category	Term	Count	p-Value	Benjamini
GOTERM_CC_DIRECT	Proteinaceous extracellular matrix	69	8.0E-27	4.1E-24
UP_KEYWORDS	Extracellular matrix	54	1.3E-23	2.4E-21
GOTERM_CC_DIRECT	Extracellular matrix	52	4.1E-16	1.1E-13
Annotation Cluster 2		Enrichment Score: 16.07		
Category	Term	Count	p-Value	Benjamini
UP_KEYWORDS	Glycoprotein	307	6.5E-30	2.3E-27
UP_SEQ_FEATURE	Signal peptide	266	7.5E-21	1.8E-17
UP_SEQ_FEATURE	Glycosylation site: N-linked (GlcNAc...)	287	3.6E-19	4.2E-16
UP_KEYWORDS	Signal	304	1.9E-16	2.6E-14
UP_KEYWORDS	Secreted	148	1.9E-16	2.0E-14
UP_KEYWORDS	Disulfide bond	226	2.2E-15	1.5E-13
GOTERM_CC_DIRECT	Extracellular region	154	1.5E-14	2.6E-12
GOTERM_CC_DIRECT	Extracellular space	126	1.5E-10	1.5E-8
UP_SEQ_FEATURE	Disulfide bond	182	7.9E-8	6.2E-5
Annotation Cluster 3		Enrichment Score: 6.56		
Category	Term	Count	p-Value	Benjamini
UP_KEYWORDS	Collagen	20	3.1E-9	1.5E-7
GOTERM_CC_DIRECT	Collagen trimer	20	6.7E-9	4.9E-7
INTERPRO	Collagen triple helix repeat	18	3.9E-8	6.0E-5
KEGG_PATHWAY	Protein digestion and absorption	19	7.0E-8	1.8E-5

UP_KEYWORDS	Hydroxylation	16	5.3E-6	1.9E-4
UP_SEQ_FEATURE	Region of interest: Triple-helical region	6	1.5E-3	2.0E-1
Annotation Cluster 4		Enrichment Score: 5.7		
Category	Term	Count	p-Value	Benjamini
KEGG_PATHWAY	ECM-receptor interaction	19	7.0E-8	1.8E-5
KEGG_PATHWAY	Focal adhesion	28	7.8E-7	1.0E-4
KEGG_PATHWAY	PI3K-Akt signaling pathway	33	1.5E-4	9.5E-3

Supplementary table 3: De-identified patient samples for immunohistochemical analysis of ZIP14.
Presence of cancer and cachexia were based on autopsy report and additionally confirmed by histological analysis by two, independent pathologists at the University of Nebraska Medical Center and Columbia University Medical Center.

Patient ID	Cachexia		Cancer		Cancer type	ZIP14 staining	
	No=0	Yes=1	No=0	Yes=1		No=0	Yes=1
13R2882M	0		1		Pancreatic	0	
33R6647M	0		1		Pancreatic	1	
40R7635M	0		1		Pancreatic	0	
42R7994M	0		1		Pancreatic	0	
49R8858M	0		1		Pancreatic	0	
52R9363M	0		1		Pancreatic	0	
55R9939M	0		1		Pancreatic	1	
57R10316M	0		1		Pancreatic	1	
76RT1927M	0		1		Pancreatic	0	
80RT2023M	0		1		Pancreatic	0	
MP15-166	0		1		Hepatocellular carcinoma	0	
MP15-218	0		1		Lung adenocarcinoma	0	
MP15-222	0		1		Breast carcinoma	0	
MP15-108	0		1		Endometrioid uterine carcinoma	1	
MP15-63	0		1		Endometrial adenocarcinoma	0	
MP15-90	0		1		Lung squamous cell carcinoma	0	
MP16-114	0		1		Adenocarcinoma of colon	1	
MP16-148	0		1		Cholangiocarcinoma	0	
MP16-156	0		1		Breast cancer	0	
MP16-178	0		1		Renal cell carcinoma	0	
MP16-195	0		1		Squamous cell carcinoma lung	0	
MP16-203	0		1		Renal cell carcinoma and colon cancer	0	
MP16-223	0		1		Breast cancer	0	
MP15-251	0		1		Ovarian	0	
24R5148	0		1		Pancreatic	0	
25R5462	0		1		Pancreatic	0	
27R5690	0		1		Pancreatic	0	
29R6017	0		1		Pancreatic	0	
30R6158	0		1		Pancreatic	0	
31R6267	0		1		Pancreatic	0	
34R6828	0		1		Pancreatic	0	
36R7244	0		1		Pancreatic	0	

39R7509	0	1	Pancreatic	0
43R8120	0	1	Pancreatic	1
45R8426	0	1	Pancreatic	0
48R8750	0	1	Pancreatic	0
51R9236	0	1	Pancreatic	0
54R9761	0	1	Pancreatic	0
59R10731	0	1	Pancreatic	1
60R10892	0	1	Pancreatic	0
61R11036	0	1	Pancreatic	0
63R13712	0	1	Pancreatic	0
64R11470	0	1	Pancreatic	0
70R12243	0	1	Pancreatic	0
74R12854	0	1	Pancreatic	0
81R13880	0	1	Pancreatic	0
88R14781	0	1	Pancreatic	1
89R14907	0	1	Pancreatic	0
90R15069	0	1	Pancreatic	0
94R15429	0	1	Pancreatic	0
95R15609	0	1	Pancreatic	0
97R15789	0	1	Pancreatic	0
98R15987	0	1	Pancreatic	0
4R506	1	1	Pancreatic	1
6R1030	1	1	Pancreatic	0
7R1137	1	1	Pancreatic	0
10R1911M	1	1	Pancreatic	0
12R2486M	1	1	Pancreatic	0
14R302M	1	1	Pancreatic	0
17R3568M	1	1	Pancreatic	0
23R4991M	1	1	Pancreatic	0
26R5572M	1	1	Pancreatic	1
28R5820M	1	1	Pancreatic	1
32R6485M	1	1	Pancreatic	1
38R7419M	1	1	Pancreatic	1
41R7922M	1	1	Pancreatic	1
44R8210M	1	1	Pancreatic	0
53R9709M	1	1	Pancreatic	1
56R10118M	1	1	Pancreatic	0
62R11144M	1	1	Pancreatic	0
66R11738M	1	1	Pancreatic	0

71R12512M	1	1	Pancreatic	0
72R12566M	1	1	Pancreatic	0
73R12693M	1	1	Pancreatic	1
75R13034M	1	1	Pancreatic	1
77R13304M	1	1	Pancreatic	1
78R13430M	1	1	Pancreatic	1
79R13538M	1	1	Pancreatic	1
83R14207M	1	1	Pancreatic	0
85R14385M	1	1	Pancreatic	1
86R14476M	1	1	Pancreatic	1
91R15141M	1	1	Pancreatic	1
93R15375	1	1	Pancreatic	0
96R15717M	1	1	Pancreatic	0
99R16059M	1	1	Pancreatic	0
100R16185M	1	1	Pancreatic	0
101R16293	1	1	Pancreatic	1
14-212 A30	1	1	Desmoplastic small round cell tumors	1
MP15-174	1	1	Colon adenocarcinoma	1
MP15-220	1	1	Small cell lung cancer	0
MP15-230	1	1	Cholangiocarcinoma	0
MP15-253	1	1	Lymphoma and lung carcinoma	0
MP16-38	1	1	Pancreatic ductal Adenocarcinoma	1
MP16-105	1	1	Colon cancer	0
MP16-115	1	1	Multiple myeloma and Breast Cancer	0
MP16-136	1	1	Adenocarcinoma of stomach	0

Supplementary table 4: Analysis of upstream regulators by Ingenuity Pathway analysis (IPA) software using the cachexia signature derived from muscles from C26m2 and 4T1 models. Differentially expressed genes common to the 4T1 and C26m2 models (Supplementary Table 1 and Fig 2a) with p and q-value less than 0.05 were used for querying upstream regulators using IPA. TNF-pathway genes were significant ($p= 3.70E-15$) and are listed below (see Supplementary Fig. 3j).

Genes	Prediction (based on measurement direction)	Expr log ratio	Findings
Abcb1b	Activated	1.64	Upregulates (5)
ABCD2	Activated	-3.082	Downregulates (1)
ADAMTS5	Inhibited	-1.766	Upregulates (2)
ADAMTS8	Activated	1.529	Upregulates (2)
ADORA1	Inhibited	-2.382	Upregulates (3)
AGFG2	Inhibited	1.72	Downregulates (1)
AGT	Inhibited	1.66	Downregulates (4)
AMPD3	Activated	5.186	Upregulates (6)
ANGPT1	Affected	-1.845	Regulates (2)
ANK3	Inhibited	1.6	Downregulates (1)
ARHGDI8	Inhibited	-1.846	Upregulates (2)
ARRDC3	Activated	2.394	Upregulates (1)
ATF3	Activated	2.906	Upregulates (3)
ATF4	Activated	1.703	Upregulates (1)
BCL2L1	Activated	2.666	Upregulates (58)
BCL6	Inhibited	-2.419	Upregulates (1)
BDNF	Activated	2.866	Upregulates (1)
BGN	Affected	-1.571	Regulates (2)
BTG2	Activated	3.363	Upregulates (1)
C10orf10	Activated	5.148	Upregulates (1)
CCDC80	Activated	-2.485	Downregulates (1)
CCND1	Inhibited	-2.391	Upregulates (42)
CD36	Affected	1.916	Regulates (2)
CD55	Inhibited	-1.693	Upregulates (2)
CD59	Inhibited	-2.253	Upregulates (2)
CDH13	Inhibited	-1.918	Upregulates (5)
CDKN1A	Activated	5.008	Upregulates (14)
CEBPB	Activated	2.061	Upregulates (13)
CEBPD	Activated	4.157	Upregulates (15)
CHRNE	Inhibited	-2.275	Upregulates (1)
CLEC11A	Activated	-3.392	Downregulates (1)
COL1A1	Affected	-4.975	Regulates (4)
COL1A2	Activated	-4.197	Downregulates (4)
COL27A1	Inhibited	-1.629	Upregulates (1)
COL3A1	Inhibited	-3.101	Upregulates (3)
CPA3	Activated	-1.985	Downregulates (1)
CSF2RB	Activated	3.123	Upregulates (4)
CXCL13	Activated	2.988	Upregulates (3)
CXCL16	Inhibited	-1.837	Upregulates (6)
CYP1B1	Activated	3.29	Upregulates (4)

CYP26B1	Inhibited	-2.048	Upregulates (2)
CYP2E1	Activated	-1.59	Downregulates (3)
DAXX	Affected	1.865	Regulates (1)
DCN	Inhibited	-1.594	Upregulates (10)
DUSP10	Inhibited	-2.872	Upregulates (3)
DUSP4	Inhibited	1.62	Downregulates (1)
EDNRB	Inhibited	2.384	Downregulates (1)
EGLN3	Activated	3.296	Upregulates (2)
FAM198B	Activated	-1.891	Downregulates (1)
FAS	Activated	1.617	Upregulates (70)
FBXO32	Activated	3.974	Upregulates (2)
FN1	Inhibited	-3.228	Upregulates (5)
FOSL2	Activated	1.977	Upregulates (1)
FRZB	Affected	-3.374	Regulates (1)
G0S2	Activated	-2.243	Downregulates (9)
GADD45A	Activated	1.806	Upregulates (5)
GBP6	Inhibited	-1.851	Upregulates (2)
GCLM	Activated	2.474	Upregulates (7)
GFRA2	Inhibited	-3.298	Upregulates (2)
GPAM	Inhibited	-2.157	Upregulates (1)
GPD1	Activated	-2.953	Downregulates (2)
Gsta4	Inhibited	-2.355	Upregulates (2)
Gstt1	Inhibited	-1.629	Upregulates (4)
HDAC9	Inhibited	-2.271	Upregulates (1)
HPGD	Activated	-1.587	Downregulates (4)
IDH2	Activated	1.589	Upregulates (1)
IFI16	Inhibited	-1.878	Upregulates (5)
IFIT3	Inhibited	-4.363	Upregulates (1)
IGF1	Activated	-1.718	Downregulates (17)
IGFBP3	Activated	2.744	Upregulates (2)
IGFBP5	Activated	-3.999	Downregulates (1)
IGFBP6	Inhibited	-2.077	Upregulates (5)
IL12A	Affected	-2.097	Regulates (2)
IL15	Inhibited	-2.157	Upregulates (13)
IL1R2	Affected	1.954	Regulates (1)
IL4R	Activated	2.434	Upregulates (3)
INSIG1	Affected	1.621	Regulates (1)
IRS2	Inhibited	3.273	Downregulates (1)
ITGA4	Inhibited	-5.139	Upregulates (10)
ITGB6	Inhibited	-3.744	Upregulates (5)
JUNB	Activated	3.046	Upregulates (15)
JUP	Inhibited	1.886	Downregulates (1)
KCNH2	Inhibited	-4.59	Upregulates (4)
Kcnn2	Inhibited	-3.573	Upregulates (2)
KLF10	Activated	2.182	Upregulates (3)
KLF2	Inhibited	1.723	Downregulates (1)
LCN2	Activated	4.332	Upregulates (39)
LDHA	Inhibited	-1.812	Upregulates (1)
LITAF	Activated	2.247	Upregulates (2)
LPL	Inhibited	1.715	Downregulates (3)

LRG1	Activated	1.836	Upregulates (1)
MAFA	Activated	-3.572	Downregulates (3)
MAFF	Activated	4.588	Upregulates (3)
MAP2K6	Inhibited	-3.835	Upregulates (2)
MAP3K14	Activated	2.73	Upregulates (1)
MAP3K8	Activated	2.11	Upregulates (1)
MECP2	Activated	1.688	Upregulates (1)
MEF2C	Activated	-2.697	Downregulates (1)
MEOX1	Inhibited	-2.207	Upregulates (1)
MFHAS1	Activated	1.579	Upregulates (1)
MGST1	Inhibited	1.664	Downregulates (1)
MMP9	Activated	2.383	Upregulates (166)
MNT	Affected	2.254	Regulates (1)
Mt1	Affected	5.823	Regulates (4)
Mt2	Activated	6.609	Upregulates (5)
MYOD1	Activated	-2.472	Downregulates (6)
NAGLU	Activated	1.744	Upregulates (4)
NET1	Affected	1.612	Regulates (1)
NFATC2	Inhibited	-2.418	Upregulates (1)
NFKBIA	Activated	1.72	Upregulates (69)
NFKBIB	Activated	2.042	Upregulates (7)
NGFR	Activated	1.687	Upregulates (1)
NOCT	Activated	2.502	Upregulates (5)
NOTCH4	Activated	1.54	Upregulates (1)
NOV	Inhibited	-2.018	Upregulates (2)
NR1H4	Inhibited	2.879	Downregulates (7)
NR4A3	Affected	1.747	Regulates (2)
OGN	Affected	-2.8	Regulates (5)
OLFML2A	Activated	-2.502	Downregulates (1)
OLFML2B	Activated	-2.007	Downregulates (1)
OPTN	Activated	1.588	Upregulates (6)
OSMR	Activated	1.986	Upregulates (3)
P2RY6	Inhibited	-1.81	Upregulates (7)
PCSK6	Activated	-1.927	Downregulates (1)
PDPN	Inhibited	-2.122	Upregulates (1)
PIM3	Affected	2.534	Regulates (1)
PLA2G5	Inhibited	-2.338	Upregulates (7)
PLAA	Activated	1.965	Upregulates (1)
PLAUR	Activated	2.69	Upregulates (3)
PLIN4	Affected	2.991	Regulates (2)
POSTN	Inhibited	-2.531	Upregulates (1)
PPARGC1A	Inhibited	1.823	Downregulates (7)
PPARGC1B	Activated	-2.953	Downregulates (1)
PPP1R15A	Activated	3.541	Upregulates (4)
PRSS23	Activated	-2.185	Downregulates (1)
PSMA2	Inhibited	1.734	Downregulates (2)
PTX3	Inhibited	-3.26	Upregulates (36)
RANBP9	Activated	3.197	Upregulates (1)
RASD1	Inhibited	2.771	Downregulates (2)
RCN3	Inhibited	-3.005	Upregulates (2)

RGCC	Inhibited	2.734	Downregulates (1)
RRM1	Affected	-1.892	Regulates (1)
S100A8	Activated	3.638	Upregulates (7)
S100A9	Activated	2.709	Upregulates (2)
Saa3	Activated	∞	Upregulates (32)
SAT1	Activated	1.502	Upregulates (2)
SDC4	Activated	2.113	Upregulates (22)
SELENOP	Inhibited	1.84	Downregulates (2)
SERPINA3	Activated	4.697	Upregulates (6)
SERPINB9	Inhibited	-1.653	Upregulates (3)
SERPINE1	Activated	4.91	Upregulates (54)
SERPINE2	Inhibited	-2.239	Upregulates (10)
SERPINF1	Affected	-3.338	Regulates (1)
SLC20A1	Activated	2.427	Upregulates (2)
SLC43A2	Activated	2.346	Upregulates (1)
SLC7A8	Activated	3.045	Upregulates (3)
SMAD1	Activated	1.527	Upregulates (1)
SMAD7	Activated	1.933	Upregulates (1)
SOD1	Inhibited	1.773	Downregulates (3)
SOD3	Affected	-1.75	Regulates (4)
SORBS1	Inhibited	1.885	Downregulates (1)
SOX4	Activated	2.073	Upregulates (1)
SPHK1	Inhibited	4.279	Downregulates (5)
SPSB1	Affected	4.076	Regulates (1)
SQSTM1	Activated	2.124	Upregulates (4)
SYTL1	Activated	3.408	Upregulates (5)
TFRC	Activated	-3.84	Downregulates (4)
TGFB2	Inhibited	-2.722	Upregulates (1)
TGIF1	Activated	3.377	Upregulates (1)
THY1	Inhibited	-3.637	Upregulates (1)
TICAM1	Activated	2.237	Upregulates (9)
TIMP2	Affected	-1.802	Regulates (3)
TMC7	Activated	-2.25	Downregulates (1)
TNC	Inhibited	-3.911	Upregulates (2)
TNFAIP2	Inhibited	-2.593	Upregulates (23)
TP53INP1	Activated	2.753	Upregulates (3)
TRAFD1	Inhibited	2.252	Downregulates (1)
TRIM63	Activated	4.729	Upregulates (4)
UTP11	Affected	1.505	Regulates (1)
VEGFD	Affected	3.286	Regulates (1)
WLS	Activated	-1.99	Downregulates (1)
WNT5A	Inhibited	-3.415	Upregulates (6)
ZFP36	Activated	2.39	Upregulates (2)

Supplementary table 5: Analysis of upstream regulators by Ingenuity Pathway analysis (IPA) software using the cachexia signature derived from muscles from C26m2 and 4T1 models. Differentially expressed genes common to the 4T1 and C26m2 models (Supplementary Table 1 and Fig 2a) with p and q-value less than 0.05 were used for querying upstream regulators using IPA. TGF- β 1 pathway genes were significant ($p=6.27E-15$) and are listed below (see Supplementary Fig. 3j).

Genes	Prediction (based on measurement direction)	Expr log ratio	Findings
Saa3	Inhibited	∞	Downregulates (1)
Acot1	Inhibited	5.934	Downregulates (1)
IL6R	Activated	5.29	Upregulates (2)
SLC39A14	Affected	5.263	Regulates (2)
CDKN1A	Activated	5.008	Upregulates (122)
PNMT	Affected	4.968	Regulates (2)
SERPINE1	Activated	4.91	Upregulates (236)
DDIT4	Affected	4.844	Regulates (2)
SERPINA3	Activated	4.697	Upregulates (3)
INHBB	Activated	4.48	Upregulates (2)
ACSS1	Inhibited	4.343	Downregulates (1)
LCN2	Activated	4.332	Upregulates (2)
SPHK1	Activated	4.279	Upregulates (5)
ADAMTS2	Activated	4.174	Upregulates (1)
SPIDR	Affected	3.797	Regulates (2)
RUNX1	Activated	3.544	Upregulates (13)
TGIF1	Affected	3.377	Regulates (5)
IFI30	Activated	3.323	Upregulates (1)
JUNB	Activated	3.046	Upregulates (22)
FOXO1	Affected	3.033	Regulates (1)
ZWINT	Affected	2.903	Regulates (1)
KLF15	Inhibited	2.88	Downregulates (2)
BDNF	Activated	2.866	Upregulates (4)
GPRC5A	Affected	2.82	Regulates (2)
AKT1	Activated	2.768	Upregulates (1)
IGFBP3	Activated	2.744	Upregulates (9)
RGCC	Activated	2.734	Upregulates (3)
PLAUR	Activated	2.69	Upregulates (7)
BCL2L1	Inhibited	2.666	Downregulates (9)
IFRD1	Affected	2.435	Regulates (2)
IL4R	Activated	2.434	Upregulates (5)
SLC20A1	Activated	2.427	Upregulates (1)
ZFP36	Activated	2.39	Upregulates (6)
EDNRB	Inhibited	2.384	Downregulates (1)
MMP9	Activated	2.383	Upregulates (31)
PROM1	Activated	2.313	Upregulates (8)
LITAF	Affected	2.247	Regulates (2)
DDX21	Affected	2.241	Regulates (2)
HSPB1	Activated	2.204	Upregulates (1)
KLF10	Activated	2.182	Upregulates (6)
FOXO3	Activated	2.179	Upregulates (1)
SBNO2	Inhibited	2.173	Downregulates (3)

UVRAG	Activated	2.114	Upregulates (1)
SDC4	Affected	2.113	Regulates (2)
SOX4	Activated	2.073	Upregulates (6)
BNIP3L	Inhibited	2.063	Downregulates (1)
CEBPB	Activated	2.061	Upregulates (4)
AMOTL2	Affected	2.02	Regulates (2)
CD68	Affected	1.992	Regulates (1)
ULK1	Activated	1.985	Upregulates (4)
FOSL2	Activated	1.977	Upregulates (1)
MAPK6	Activated	1.938	Upregulates (1)
SMAD7	Activated	1.933	Upregulates (52)
CD36	Inhibited	1.916	Downregulates (6)
ING1	Affected	1.886	Regulates (2)
JUP	Inhibited	1.886	Downregulates (4)
DAPK1	Activated	1.877	Upregulates (7)
DAXX	Affected	1.865	Regulates (1)
SRFBP1	Affected	1.858	Regulates (1)
FAM107A	Affected	1.833	Regulates (1)
PPARGC1A	Inhibited	1.823	Downregulates (2)
GADD45A	Activated	1.806	Upregulates (6)
RBM3	Activated	1.796	Upregulates (1)
GRHL1	Inhibited	1.782	Downregulates (1)
RORC	Activated	1.777	Upregulates (23)
DNAJB6	Activated	1.764	Upregulates (1)
NR4A3	Affected	1.747	Regulates (2)
RORA	Activated	1.729	Upregulates (6)
KLF2	Inhibited	1.723	Downregulates (1)
NFKBIA	Activated	1.72	Upregulates (6)
LPL	Inhibited	1.715	Downregulates (2)
ATF4	Affected	1.703	Regulates (2)
SELENBP1	Inhibited	1.685	Downregulates (1)
LOC102724788/PRODH	Affected	1.68	Regulates (1)
SEMA7A	Activated	1.634	Upregulates (3)
PDE7A	Activated	1.633	Upregulates (1)
CTSD	Activated	1.627	Upregulates (2)
DUSP4	Activated	1.62	Upregulates (8)
FAS	Inhibited	1.617	Downregulates (11)
NET1	Activated	1.612	Upregulates (23)
PSMC1	Activated	1.6	Upregulates (1)
STAT3	Activated	1.555	Upregulates (2)
PSMD1	Activated	1.554	Upregulates (1)
FUBP1	Inhibited	1.534	Downregulates (1)
GNA13	Activated	1.51	Upregulates (2)
AK1	Inhibited	-1.504	Upregulates (1)
LPAR1	Activated	-1.514	Downregulates (15)
CRHR2	Affected	-1.516	Regulates (2)
FZD2	Inhibited	-1.519	Upregulates (3)
CADM1	Affected	-1.52	Regulates (1)
DDR2	Affected	-1.525	Regulates (1)
HNMT	Affected	-1.564	Regulates (2)

BGN	Inhibited	-1.571	Upregulates (19)
SMOC2	Affected	-1.577	Regulates (1)
HPGD	Inhibited	-1.587	Upregulates (4)
AXL	Inhibited	-1.592	Upregulates (3)
DCN	Activated	-1.594	Downregulates (2)
FZD1	Inhibited	-1.632	Upregulates (1)
FBN1	Inhibited	-1.636	Upregulates (2)
FGF6	Affected	-1.664	Regulates (1)
ARHGAP19	Affected	-1.673	Regulates (2)
HSPB2	Inhibited	-1.676	Upregulates (2)
TUBA1A	Inhibited	-1.684	Upregulates (3)
CD55	Activated	-1.693	Downregulates (5)
IGF1	Activated	-1.718	Downregulates (9)
COL8A1	Inhibited	-1.726	Upregulates (3)
SOD3	Inhibited	-1.75	Upregulates (1)
S100A4	Inhibited	-1.769	Upregulates (14)
TIMP2	Affected	-1.802	Regulates (1)
P2RY6	Inhibited	-1.81	Upregulates (1)
LDHA	Inhibited	-1.812	Upregulates (1)
USH1C	Activated	-1.832	Downregulates (1)
ANGPT1	Activated	-1.845	Downregulates (1)
IFI16	Activated	-1.878	Downregulates (1)
PSPH	Activated	-1.949	Downregulates (1)
CPQ	Affected	-1.986	Regulates (1)
HLA-DRB5	Activated	-1.99	Downregulates (1)
ACTC1	Inhibited	-2.002	Upregulates (3)
NOV	Activated	-2.018	Downregulates (15)
IGFBP6	Activated	-2.077	Downregulates (1)
IL12A	Inhibited	-2.097	Upregulates (2)
PDPN	Affected	-2.122	Regulates (4)
IL15	Activated	-2.157	Downregulates (7)
HLA-DQA1	Activated	-2.192	Downregulates (2)
FILIP1L	Inhibited	-2.193	Upregulates (1)
SERPINE2	Inhibited	-2.239	Upregulates (2)
CD59	Inhibited	-2.253	Upregulates (2)
MCM2	Activated	-2.27	Downregulates (2)
CELSR2	Activated	-2.286	Downregulates (2)
GNG7	Activated	-2.294	Downregulates (1)
HLA-DMA	Affected	-2.306	Regulates (1)
P2RY1	Activated	-2.331	Downregulates (1)
Gsta4	Affected	-2.355	Regulates (1)
ADORA1	Inhibited	-2.382	Upregulates (1)
CCND1	Inhibited	-2.391	Upregulates (9)
XYLT1	Inhibited	-2.407	Upregulates (6)
SERPINA1	Activated	-2.41	Downregulates (4)
NFATC2	Inhibited	-2.418	Upregulates (2)
BCL6	Inhibited	-2.419	Upregulates (3)
Calm1 (includes others)	Inhibited	-2.453	Upregulates (1)
UST	Affected	-2.459	Regulates (2)

MYOD1	Activated	-2.472	Downregulates (1)
HLA-DQB1	Activated	-2.473	Downregulates (1)
POSTN	Inhibited	-2.531	Upregulates (2)
MRC1	Inhibited	-2.596	Upregulates (1)
MEF2C	Inhibited	-2.697	Upregulates (1)
TGFB2	Activated	-2.722	Downregulates (5)
APLNR	Affected	-2.735	Regulates (1)
RASGRP3	Inhibited	-2.744	Upregulates (2)
ALDH18A1	Inhibited	-2.755	Upregulates (1)
F13A1	Inhibited	-2.883	Upregulates (2)
ITGBL1	Inhibited	-3.041	Upregulates (1)
COL6A1	Inhibited	-3.041	Upregulates (6)
COL5A1	Inhibited	-3.048	Upregulates (4)
COL3A1	Inhibited	-3.101	Upregulates (14)
FN1	Inhibited	-3.228	Upregulates (101)
PTX3	Affected	-3.26	Regulates (1)
COL6A2	Inhibited	-3.325	Upregulates (1)
ARNT2	Affected	-3.326	Regulates (2)
PCOLCE2	Inhibited	-3.333	Upregulates (2)
WNT5A	Inhibited	-3.415	Upregulates (5)
ITGA11	Inhibited	-3.474	Upregulates (1)
IGHM	Activated	-3.515	Downregulates (1)
MAF	Inhibited	-3.551	Upregulates (7)
COL6A3	Inhibited	-3.588	Upregulates (4)
THY1	Inhibited	-3.637	Upregulates (1)
AMD1	Affected	-3.719	Regulates (2)
ITGB6	Inhibited	-3.744	Upregulates (1)
TFRC	Affected	-3.84	Regulates (2)
TNC	Inhibited	-3.911	Upregulates (17)
IGFBP5	Activated	-3.999	Downregulates (2)
COL1A2	Inhibited	-4.197	Upregulates (74)
DKK3	Inhibited	-4.299	Upregulates (3)
IFIT3	Affected	-4.363	Regulates (2)
COL1A1	Inhibited	-4.975	Upregulates (74)
CDH4	Inhibited	-5.025	Upregulates (1)
ITGA4	Activated	-5.139	Downregulates (3)
COMP	Inhibited	-5.503	Upregulates (1)

Supplementary table 6: Primers used for genotyping analysis.

Primer name	Sequence
<i>Zip14</i> wild type forward	5'-TGCTGCTGCTATTTGGGTCT-3'
<i>Zip14</i> knockout forward	5'-CTCGTGCTTTACGGTATCGC-3'
<i>Zip14</i> reverse	5'-GAATGCTGCATTGAAAAGGTC-3'
<i>K-ras fl-1</i>	5'-CTAGCCACCATGGCTTGAGT-3'
<i>K-ras fl-2</i>	5'-ATGTCTTTCCCCAGCACAGT-3'
<i>K-ras</i> common	5'-TCCGAATTCAGTGA CTACAGATG-3'
<i>Lkb1 fl-1</i>	5'-TCTAACAATGCGCTCATCGTCATCCTCGGC-3'
<i>Lkb1 fl-2</i>	5'-GGGCTTCCACCTGGTGCCAGCCTGT-3'
<i>Lkb1</i> common	5'-GAGATGGGTACCAGGAGTTGGGGCT-3'
<i>p53 fl-1</i>	5'-CACAAAACAGGTTAAACCCAG-3'
<i>p53 fl-2</i>	5'-AGCACATAGGAGGCAGAGAC-3'
<i>Rb</i> forward	5'-CTCTAGATCTCTCATTCTTCCC-3'
<i>Rb</i> reverse	5'-CCTTGACCATAGCCCAGCAC-3'
<i>Pten</i> forward	5'-CAAGCACTCTGCGAACTGAG-3'
<i>Pten</i> reverse	5'-AAGTTTTTGAAGGCAAGATGC-3'

Supplementary table 7: Primers used for qRT-PCR analysis.

Name of genes	Forward primer (5'-3')	Reverse primer (5'-3')
Mouse- <i>Zip14</i>	GTGTCTCACTGATTAACCTGGC	AGAGCAGCGTTCCAATGGAC
Mouse- <i>Zip14</i> KO*	CTACTCTGATATCGGGACCTT	TGAGCAGGATGACGAAGTCTC
Human- <i>ZIP14</i>	TTCAACTTCCTTTCTGCCTG	GACAGACCTCATTTCATCTCAG
Mouse- <i>Trim63/MuRF1</i>	GTGTGAGGTGCCTACTTGCTC	GCTCAGTCTTCTGTCCTTGGA
Mouse- <i>MAFbx/Fbxo32</i>	CAGCTTCGTGAGCGACCTC	GGCAGTCGAGAAGTCCAGTC
Mouse- <i>Fbxo31</i>	CATGCGTTCAAGCCACTG	GTCTGGTTACACTTGGTGGAG
Mouse- <i>Musa1/Fbxo30</i>	TCGTGGAATGGTAATCTTGC	CCTCCCGTTTCTCTATCACG
Mouse- <i>Fbxo21</i>	CCTGTACCTGGCGATGTACC	AGCACCTTCAAGACAAGACAGA
Mouse- <i>Traf6</i>	AAAGCGAGAGATTCTTTCCCTG	ACTGGGGACAATTCAGTAGAGC
Mouse- <i>Trim62</i>	ACGATGCCTTCGAGGAGTT	CTGTCCTGAAGGGCCTGA
Mouse- <i>Nedd4-1</i>	TCGGAGGACGAGGTATGGG	GGTACGGATCAGCAGTGAACA
Mouse- <i>Fbxo40</i>	ACCTCCTGGAAAGTCCACAAT	CCCAGCTGTTGATTTTTGAGA
Mouse- <i>Psm1</i>	CATTGGAATCGTTGGTAAAGAC	GTTTCATCGGCTTTTTCTGC
Mouse- <i>Psmc4</i>	AGGACGAGCAGAAGAACCTG	AATAGTTAGAGCCTGTGGTGGAG
Mouse- <i>Psm11</i>	GAGTTCAGAGAGCCCAGTC	AACCCAGTTCAAGGATGCTC
Mouse- <i>Usp14</i>	CACGAGTTGCTTCGTATTCC	TTCAGGGTTCCTCCTTTCAC
Mouse- <i>Ubc</i>	CGTCGAGCCCAGTGTACCACC	ACCTCCCCCATCACACCCAAGA
Mouse- <i>Lc3</i>	GAGAAGACCTTCAAGCAGCG	CTTGTATCGCTCTATAATCAC
Mouse- <i>Gabarapl1</i>	CATCGTGGAGAAGGCTCCTA	ATACAGCTGGCCCATGGTAG
Mouse- <i>Bnip3</i>	GCATGAGAAACACAAGCGTTATG	GTGCTAGTGAAGTTGTCAGAC
Mouse- <i>MyoD</i>	GAGCAAAGTGAATGAGGCCTT	CACTGTAGTAGGCGGTGTCGT
Mouse- <i>Mef2c</i>	GTCTCACCTGGTAACCTGAACAAG	GCAGATGGCGGCATGTTATGTAGG
Mouse- <i>Myf5</i>	CCTGTCTGGTCCCGAAAGAAC	GACGTGATCCGATCCACAATG
Mouse- <i>Gapdh</i>	AGGTCGGTGTGAACGGATTTG	TGTAGACCATGTAGTTGAGGTCA
Human- <i>GAPDH</i>	AATCCCATCACCATCTTCCA	TGGAATCCACGACGTAATCA
Mouse- <i>CyclinD1</i>	GCGTACCCTGACACCAATCTC	CTCCTCTTCGCACTTCTGCTC
Mouse- <i>Pai1</i>	ACGCCTGGTGTGGTGAATGC	ACGGTGCTGCCATCAGACTTGTG
Human- <i>PAI1</i>	GGACTTTTCAGAGGTGGAGAGAGC	TGATTTGTGGAAGAGGCGGC
Mouse- <i>Cxcl1</i>	CTGGGATTCACCTCAAGAATC	CAGGGTCAAGGCAAGCCTC
Mouse- <i>18s rRNA</i>	TGCGCCGCTAGAGGTGAAATT	TGGCAAATGCTTTCGCTCT

*This pair of primers were used for checking mRNA expression level of *Zip14* in *Zip14* KO mice intramuscularly injected with AAV-*Zip14*.

SUPPLEMENTARY FIGURE LEGENDS.

Supplementary Figure 1. Metastatic C26m2 cell line derivation and cachexia development in metastatic mouse models.

(a) Schematic representation of the *in vivo* selection process for C26m2 cell line derivation. Luciferase-labeled murine colon cancer C26 parental (C26p) cells were injected into CD2F1 mice via intracardiac injection into the arterial circulation to generate liver metastases. Cancer cells were isolated from the liver and purified by antibiotic selection. Cells were passaged in syngeneic mice for another round of selection, and the resulting C26m2 metastatic cell line was subsequently used for cachexia studies (see Fig.1).

(b) Histological analysis of distant metastases from mice injected with either 4T1 or C26m2 cancer cells in arterial circulation and collected after 13 days (4T1) and 11 days (C26m2). Lung (4T1) and liver (C26m2) metastasis compared to normal lung and liver are shown. Scale bars, 100 μ m. Data is representative of three independent experiments.

(c-i) Characterization of cachexia parameters using modified tumor-resection-and-relapse approach for spontaneous metastasis assay. Schematic model (c). Luciferase-labeled C26m2 or 4T1 cancer cells were implanted subcutaneously and after 2-3 weeks of tumor growth, tumors were surgically resected. Mice were subsequently monitored for the development of cachexia and metastasis by bioluminescence imaging at 5 weeks post tumor-cell injection (d).

(e) Representative H&E staining images of cross-sections of tibialis anterior (TA) muscles from mice 5 weeks post 4T1 or C26m2 tumor-cell injection, compared to their respective non-tumor-bearing controls (see Fig 1c). Scale bars, 50 μ m. Data is representative of 3 independent experiments (d and e).

(f,g) qRT-PCR analysis of *Trim63*, *MAFbx*, *Fbxo31* and *Musa1* expression in the gastrocnemius, quadriceps, soleus, EDL and cardiac muscles from mice bearing tumors (Tb) derived from either 4T1 (f) or C26m2 (g) metastases. Muscles were collected for analysis 5 weeks after tumor-cell injection (see Fig. 1) and were compared with the age-matched, non-tumor-bearing controls

(Con). For 4T1 model, n=4 controls and n=5 tumor bearing mice for gastrocnemius muscles; n=5 controls and n=6 tumor bearing mice for quadriceps muscles; n=4 controls and n=5 tumor bearing mice for soleus muscles; n=3 mice per group for EDL muscles; n=3 controls and n=5 tumor bearing mice for cardiac muscles. For C26m2 model, n=4 mice per group for gastrocnemius and soleus muscles; n=3 mice per group for quadriceps, EDL and cardiac muscles.

(h,i) Average daily food intake (h) and water intake (i) of mice bearing 4T1 or C26m2 metastases compared to their respective controls. n=6 control mice and n=17 Tb mice for the C26m2 model; n=5 control mice and n=19 Tb mice for the 4T1 model.

Error bars represent SEM and all data were represented by mean \pm SEM. *P* values were determined by two-tailed, unpaired Student's *t* test for (f,g). n.s., not significant. Con, non-tumor-bearing control; Tb, tumor-bearing.

Supplementary Figure 2. *Zip14* and genes associated with the ubiquitin, UPS and autophagy pathways are upregulated in multiple cachectic muscles from metastatic mouse models.

(a,b) Principal component analysis (PCA) plots (a) and overlap in differentially expressed genes (b) from RNA-Seq based transcriptomic analysis shown in Fig. 2a of TA muscles from mice bearing 4T1 (a, left) or C26m2 (a, right) metastases (Tb) compared to their respective controls (Con). n=2 controls and n=2 mice bearing 4T1 metastases; n=2 controls and n=2 mice bearing C26m2 metastases.

(c) Gene set enrichment analysis (GSEA) of the KEGG biological pathway associated with the proteasome-pathway genes using signatures from cachectic muscles from Fig. 2a and Supplementary Table 1. Pre-ranked GSEA was performed on stand-alone GSEA (v2.2.2) using the C2_CP_KEGG gene set for the differentially expressed genes obtained from C26m2 (and common to 4T1), ranked by their log₂ fold change (FC) values with significant *p* and *q* values.

n=2 controls and n=2 mice bearing 4T1 metastases; n=2 controls and n=2 mice bearing C26m2 metastases. Data is representative of two independent experiments.

(d,e) qRT-PCR analysis of mRNA expression of genes associated with ubiquitination (*Fbxo21*, *Traf6*, *Trim62*, *Nedd4*, *Fbxo40*, *Ubc* and *Usp14*), ubiquitin proteasome system (*Psmc1*, *Psmc4* and *Psmc11*) and autophagy (*Lc3*, *Gabarapl1* and *Bnip3*) pathways in tibialis anterior (d) and diaphragm (e) muscles from mice bearing either 4T1 or C26m2 metastases (Tb) collected 5 weeks after tumor-cell injection (see Fig. 1), compared with age-matched, non-tumor-bearing controls (Con). For tibialis anterior muscles (d), n=6 controls and n=7 tumor bearing mice for analyzing *Fbxo21*, *Traf6*, *Trim62*, *Nedd4* and *Fbxo40*, and n=4 mice per group for analyzing the other indicated genes for 4T1 model; n=5 mice per group for analyzing *Fbxo21*, *Traf6*, *Trim62*, *Nedd4* and *Fbxo40*, and n=4 mice per group for analyzing the other indicated genes for C26m2 model. For diaphragm muscles (e), n=4 controls and n=6 tumor bearing mice for analyzing *Traf6*, *Trim62*, *Nedd4* and *Fbxo40*, and n=6 mice per group for analyzing the other indicated genes for 4T1 model; n=8 per group for analyzing *Traf6*, *Trim62*, *Nedd4* and *Fbxo40*, and n=6 mice per group for analyzing the other indicated genes for C26m2 model.

(f) Immunoblot analysis of ZIP14 expression in TA muscles from mice bearing C26m2 metastases (Tb) compared to their respective non-tumor-bearing controls (Con) collected at 5 weeks post tumor-cell injection (Fig. 1a). Tubulin was used as a loading control. Data is representative of three independent experiments.

(g) Relative mRNA expression levels of the *Slc30* family of zinc efflux transporters from RNA-Seq analysis (see Fig. 2) in heatmap representation for TA muscles from mice bearing 4T1 (top) or C26m2 (bottom) metastases at five weeks post tumor-cell injection compared to their respective controls.

(h) qRT-PCR analysis of *Slc39a14* (Zrt- and Irt-like protein 14, also known as *Zip14*) expression in gastrocnemius, quadriceps, soleus, EDL and cardiac muscles from mice bearing 4T1 (top) or C26m2 (bottom) metastases at five weeks post tumor-cell injection compared to their respective

controls. For 4T1 model, n=4 mice per group for gastrocnemius muscles; n=5 controls and n=6 tumor bearing mice for quadriceps muscles; n=4 controls and n=5 tumor bearing mice for soleus muscles; n=3 mice per group for EDL muscles; n=3 controls and n=5 tumor bearing mice for cardiac muscles. For C26m2 model, n=4 mice per group for gastrocnemius and soleus muscles; n=3 mice per group for quadriceps, EDL and cardiac muscles.

Error bars represent SEM and all data were represented by mean \pm SEM. *P* values for (d,e,h) were determined by two-tailed, unpaired Student's *t* test. n.s., not significant. Con, non-tumor-bearing control; Tb, tumor-bearing.

Supplementary Figure 3. ZIP14 is upregulated in cachectic muscles from metastatic mouse models and patients across cancer types, and is induced by TNF- α and TGF- β cytokines.

(a) Schematic representation of tumor induction and metastatic progression in four metastatic models of lung cancer. Autochthonous models *Kras/p53* conditional mutant (*Kras*^{LSL-G12D/+}-*p53*^{fl/fl}), *Kras/Lkb1* conditional mutant (*Kras*^{LSL-G12D/+}-*Lkb1*^{fl/fl}) and *Pten/Lkb1* conditional mutant (*Pten*^{fl/fl}-*Lkb1*^{fl/fl}), xenograft model PC9-BrM3, and *Rb/p53* mutant (SCLC) allograft model were generated and characterized for cachexia development.

(b) Representative images of H&E staining of lung sections (upper panel) and bodyweight analysis (lower panel) for *Pten/Lkb1* conditional mutant (*Pten*^{fl/fl}-*Lkb1*^{fl/fl}) model upon Adeno-Cre induction collected at endpoint. Scale bars, 200 μ m. n=3 controls and n=6 tumor bearing mice. Data is representative of 3 independent experiments.

(c) qRT-PCR analysis of *Trim63*, *MAFbx*, *Fbxo31*, *Musa1* and *Zip14* in TA muscles from *Pten/Lkb1* mutant model. Muscles were collected at 27 weeks post Adeno-virus induction endpoint. n=3 mice per group for *Zip14* expression; n=3 controls and n=4 tumor bearing mice for remaining genes.

(d,e) Representative images of H&E staining of liver sections (d) and body weight and limb

muscle weights (e) from *Rb/p53* mutant allograft model collected 6 weeks after tumor resection (Tb) and compared to age-matched, non-tumor-bearing control mice (Con). Scale bars, 100 μ m in (d). n=6 mice per group in (e). Con, non-tumor-bearing control; Tb, tumor-bearing; TA, tibialis anterior; Gast, gastrocnemius muscle. Data is representative of 3 independent experiments (d). (f) Amino-acid sequence of human (Hs) and mouse (Ms) ZIP14 fragment used for generating antibodies against ZIP14.

(g) Images of Coomassie blue staining of purified recombinant human and mouse ZIP14 protein fragment resolved on a 15% SDS-PAGE (left) and immunoblot analysis of uninduced (Un) and induced (In) crude bacterial lysates using immune sera against human and mouse ZIP14 fragments (right). Data is representative of 3 independent experiments.

(h) Representative images of immunohistochemical staining of human liver (left two images) and mouse liver (right two images) using an antibody developed against human and mouse ZIP14, respectively. Rabbit isotype antibody was used as a negative control for staining human liver sections, and *Zip14* KO mice were used as a negative control for staining mouse liver sections. Scale bars, 25 μ m. Data is representative of three independent experiments.

(i) Representative images of immunohistochemical staining using additional antibodies against ZIP14 (commercial antibodies HPA16508 (S) and Anti-NET34 (M) generated using ZIP14 peptide sequences). Scale bars, 50 μ m. Data is representative of 3 independent experiments.

(j) Upstream regulators of *Zip14* in cachectic muscles analyzed by Ingenuity Pathway Analysis (IPA). Differentially expressed genes common to the 4T1 and C26m2 models with p and q value <0.05 from Fig. 2 and Supplementary Table 1 were used for querying upstream regulators. Pathways with significant p value <0.05 are listed with their p value of overlap. n=2 controls and n=2 mice bearing 4T1 metastases; n=2 controls and n=2 mice bearing C26m2 metastases.

(k) qRT-PCR analysis of *Zip14* in C2C12 myoblasts treated with either vehicle, TNF- α (50 ng/ml), TGF- β (10 ng/ml), or both TNF- α (50 ng/ml) + TGF- β (10 ng/ml), either alone or in the

presence of the indicated inhibitors. Cells were pretreated with either vehicle or 10 μ M of the indicated inhibitors for 1 hour prior to adding the cytokines (TGF- β for 9 hours, and TNF- α for 3 hours before harvest). Experiments were designed so that cells from all groups were harvested at the same time. n=3 samples for C2C12 cells treated with (TNF- α + TGF- β + NF- κ Bi) or (TNF- α + TGF- β + Smadi), and n=4 samples for all other groups. Inhibitors: NF- κ Bi = NF- κ B inhibitor (BAY 11-7085); AP1i = AP1 inhibitor (CC401); Smadi = TGF β receptor I inhibitor (SB431542).

(l) qRT-PCR analysis of *Pai1* and *Cxcl1* genes in mouse C2C12 cells and human skeletal myoblasts treated with TGF- β (10 ng/ml) alone or together with Smadi (TGF- β receptor inhibitor, SB431542), or TNF- α (50 ng/ml) alone or together with NF- κ Bi (NF- κ B inhibitor, BAY 11-7085). These genes were used as positive controls for testing the bioactivity of the recombinant TGF- β and TNF- α proteins, and the efficacy of the inhibitors in pathway inhibition used in panel (k) and Fig. 3d. n=4 samples per group.

(m) Immunoblot analysis to detect abundance of phosphorylated c-Jun in 3 day-differentiated C2C12 cells treated with either media control, 50 ng/ml of TNF- α alone or 50 ng/ml of TNF- α in the presence of 10 μ M AP1 inhibitor (CC401) for 30 mins. Total c-Jun and tubulin were analyzed as loading controls.

(n,o) Representative immunostaining images of TNF- α (n) and TGF- β (o) in lungs from either non-tumor-bearing mice or mice bearing 4T1 or C26m2 metastases at five weeks post tumor-cell injection. Scale bars, 100 μ m.

(p,q) Immunoblot analysis of phosphorylated p65 and Smad2 in muscles after TNF- α or TGF- β neutralizing antibody treatment. Following the tumor-resection-and-relapse approach (see Fig. 1a and Supplementary Fig. 1c), mice bearing either 4T1 (p) or C26m2 (q) metastases were treated with either an isotype control antibody, or a neutralizing antibody against TNF- α , TGF- β , or both (200 μ g antibody per mouse treated three times a week) starting one week after surgery, for a period of one week (see Fig. 3e,f).

Data is representative of 3 independent experiments (m-q). Error bars represent SEM and all

data were represented by mean \pm SEM. *P* values for (c, e) were determined by two-tailed, unpaired Student's *t* test, and *P* values for (k,l) were determined by one-way ANOVA. *F* value (DFn, DFd) for k $F(9, 28) = 68.4$, l *Pai1*-mouse $F(2, 9) = 154.2$, l *Cxcl1*-mouse $F(2, 9) = 345.6$, l *PAI1*-human $F(2, 9) = 31.2$, l *CXCL1*-human $F(2, 9) = 47.4$. n.s., not significant. **P*<0.05, ****P*<0.001 and *****P*<0.0001.

Supplementary Figure 4. ZIP14 loss reduces metastatic-cancer-induced muscle atrophy.

(a) Genotyping analysis for validation of germline *Zip14* KO mice. *Zip14* heterozygous (Hets, lanes 1 and 2), *Zip14*-WT (lanes 3 and 4) and *Zip14*-KO mice (lanes 5 and 6). Representative images of non-tumor-bearing and tumor-bearing *Zip14*-WT or *Zip14*-KO mice are shown below.

(b) Tumor weight of *Zip14*-WT and -KO mice with 4T1 tumor burden (Tb). n=12 for *Zip14*-WT mice, and n=7 for *Zip14*-KO mice with 4T1 tumor burden.

(c) Normalized hind limb grip strength of *Zip14*-WT and -KO mice with 4T1 tumor burden (Tb) or age- matched non-tumor-bearing controls. n=8 WT mice, n=6 Tb-WT mice, n=7 KO mice and n=5 Tb-KO mice.

(d) (Top panels) qRT-PCR analysis of expression of atrophy-associated markers *Trim63*, *MAFbx*, *Fbxo31* and *Musa1* in tibialis anterior and diaphragm muscles from C26m2 tumor-bearing *Zip14*-WT or *Zip14*-KO mice and non-tumor-bearing control mice. For TA muscles, n=7 WT mice, n=6 Tb-WT mice, n=4 KO mice and n=6 Tb-KO mice for analyzing *Trim63* and *MAFbx*; n=7 WT mice, n=8 Tb-WT mice, n=4 KO mice and n=5 Tb-KO mice for analyzing *Fbxo31*; n=7 WT mice, n=8 Tb-WT mice, n=4 KO mice and n=5 Tb-KO mice for analyzing *Musa1*. For diaphragm muscles, n=4 mice per group. (Middle and lower panels) qRT-PCR analysis of genes associated with ubiquitination (*Ubc* and *Usp14*), UPS (*Psmc1*, *Psmc4* and *Psmc11*) and autophagy (*Lc3*, *Gabarapl1* and *Bnip3*) pathways in tibialis anterior and diaphragm muscles from *Zip14*-WT and -KO mice with 4T1 (Tb, middle panels) or C26m2 (Tb, lower panels) metastases, compared with the age-matched, non- tumor-bearing controls. For TA muscles from 4T1 model, n=4 WT mice, n=5 Tb-WT mice, n=4 KO mice and n=8 Tb-KO

mice. For diaphragm muscles from 4T1 model, n=3 mice per group. For TA muscles from C26m2 model, n=7 WT mice, n=8 Tb-WT mice, n=4 KO mice and n=5 Tb-KO mice. For diaphragm muscles from C26m2 model, n=4 mice per group. Data were normalized to non-tumor-bearing *Zip14*-WT control mice.

(e) Quantitation of the percentage of succinate dehydrogenase (SDH) positive fibers in gastrocnemius muscles from 4T1-tumor-bearing *Zip14*-WT or *Zip14*-KO mice and age-matched control mice. n=3 mice per group.

(f) Representative immunofluorescence images of MyHC IIa (green) and MyHC IIb (red) expression in gastrocnemius muscles from *Zip14*-WT and *Zip14*-KO mice with or without 4T1-tumor-cell injection. Scale bars, 50 μ m. Data is representative of 3 independent experiments.

(g) (Top panel) Representative immunofluorescence images of CD31 expression in gastrocnemius muscles from 4T1-tumor-bearing *Zip14*-WT or *Zip14*-KO mice and age-matched non-tumor-bearing control mice. (Bottom panel) Quantitation of CD31-positive capillaries per fiber. n=3 mice per group. Scale bars, 50 μ m.

(h) Representative immunofluorescence images of laminin (top panels) and quantitation of the percentage of SDH-positive fibers (bottom panels) in EDL and tibialis anterior muscles from 4T1-tumor-bearing *Zip14*-WT or *Zip14*-KO mice and age-matched, non-tumor-bearing control mice. Scale bars, 50 μ m. For SDH quantitation, n=3 mice per group.

(i) Representative immunofluorescence images of ZIP14 in gastrocnemius muscles isolated from C26m2-tumor-bearing mice injected intramuscularly with either shCon or sh*Zip14* (see also Fig. 4d) from mice per group. Green, ZIP14; blue, DAPI. Scale bars, 50 μ m. Data representative of three independent experiments with muscle sections taken from different depths of each muscle from n=3 mice per group.

(j,k) Normalized hind limb grip strength measurement (j) and tumor volume (k) in mice injected with either shCon or sh*Zip14* in their gastrocnemius muscles followed by C26m2-tumor-cell injection (see also Fig. 4d). n=5 mice per group for grip strength analysis, and n=4 shCon and

n=5 sh*Zip14* injected mice for tumor volume analysis. Tb, tumor-bearing.

(l) Representative images of SDH immunostaining in gastrocnemius muscles from C26m2-tumor-bearing mice injected intramuscularly with either shCon or sh*Zip14* (left, see also Fig. 4d), and the quantitation of the percentage of SDH-positive fibers shown on the right. Scale bars, 100 μ m. n=4 mice per group.

(m) Representative immunofluorescence images of MyHC IIa (green) and MyHC IIb (red) in gastrocnemius muscles from mice injected intramuscularly with either shCon or sh*Zip14* from C26m2-tumor-bearing or age-matched control mice (see also Fig. 4d). Scale bars, 100 μ m. Data is representative of 3 independent experiments.

(n) Quantitation of the number of capillaries per muscle fiber in gastrocnemius muscles from C26m2-tumor-bearing mice injected intramuscularly with either shCon or sh*Zip14* (see also Fig. 4d). n=3 mice per group.

(o) qRT-PCR analysis of *Zip14* in gastrocnemius muscles from non-tumor-bearing mice injected with either shCon or sh*Zip14* in their gastrocnemius muscles (see also Fig. 4d). n=3 mice per group. Data were normalized to shCon.

(p) Representative immunofluorescence images of laminin in gastrocnemius muscles from non-tumor-bearing mice injected intramuscularly with either shCon or sh*Zip14* (see also Fig. 4d). Scale bars, 50 μ m. Data is representative of 3 independent experiments.

(q,r) Quantitation of the percentage of SDH-positive fibers (q) and the number of capillaries per fiber (r) in gastrocnemius muscles from non-tumor-bearing mice injected intramuscularly with either shCon or sh*Zip14* (see also Fig. 4d). n=3 mice per group.

(s) qRT-PCR analysis of *Trim63*, *MAFbx*, *Fbxo31* and *Musa1* in gastrocnemius muscles from non-tumor-bearing mice injected intramuscularly with either shCon or sh*Zip14* (see also Fig. 4d). n=3 mice per group. Data were normalized to shCon.

(t) Zinc metal-ion levels determined by ICP/MS analysis in quadriceps, soleus, EDL, cardiac muscles (μ g/g of dry weight) and serum (μ g/ml of serum) from mice with 4T1 tumor metastases

(upper panel) or C26m2 tumor metastases (lower panel) and respective age-matched, non-tumor-bearing controls. For 4T1 model, n=4 controls and n=5 tumor bearing mice for quadriceps and soleus muscles; n=7 controls and n=5 tumor bearing mice for EDL muscles; n=4 controls and n=6 tumor bearing mice for cardiac muscles and n=4 mice per group for serum. For C26m2 model, n=5 controls and n=7 tumor bearing mice for quadriceps muscles; n=5 controls and n=6 tumor bearing mice for soleus muscles; n=4 mice per group for EDL muscles; n=10 mice per group for cardiac muscles; n=6 controls and n=7 tumor bearing mice for serum.

(u) Intracellular Zn and P levels within single muscle fibers isolated from non-tumor-bearing mice or mice bearing C26m2 metastases by LA-ICP Mass spectrometry are shown. Single EDL muscle fibers were isolated, mounted on slides and air-dried. Slides were placed in sealed ablation cell and ablated along a single fiber for about 2mm with a speed of 5 μ m/sec. Individual muscle fiber data was subtracted from a blank line on the same slide with same dimension, size and parameters as the sample line. Data representative of three independent experiments with n=3 mice per group, 3-5 fibers per mouse.

(v) Zinc metal-ion levels (μ g/g of dry weight) determined by ICP/MS analysis in gastrocnemius muscle of 4T1-tumor-bearing *Zip14*-WT or *Zip14*-KO mice compared to non-tumor bearing littermates. n=5 WT mice, n=4 Tb-WT mice, n=4 KO mice and n=8 Tb-KO mice.

(w) (Left) Representative immunofluorescence images of ZIP14 (red) in C2C12 muscle cells infected with adenovirus expressing either *GFP* (Adeno-Control) or *Zip14* (Adeno-*Zip14*). Blue, DAPI. Scale bars, 50 μ m. (Right) Adeno-Control (Con) and Adeno-*Zip14* (*Zip14*) infected C2C12 muscle cells were treated with 0.5 μ M ZnCl₂, and the reduction of zinc in the medium over time was measured by the FluoZin-3 fluorescence-based assay. Undifferentiated C2C12 or 3-day differentiated C2C12 cells were used for this assay. n=3 samples per group and data is representative of three independent experiments.

(x) Food and water intake and behavioral coordination tests by rotarod (upper panel), liver and kidney function tests (AST, BUN, and creatinine, lower panel) in C26m2-tumor-bearing mice

with and without zinc supplemented water. See also Fig. 4i. n=4 mice per group for food intake and latency to fall analyses; n=4 Tb mice and n=3 Tb+Zn mice for water intake analysis; n=3 mice per group for liver and kidney function tests.

(y) Tumor volume of *Zip14*-WT or -KO mice injected with C26m2 cancer cells and treated with either regular water (-Zn) or zinc-supplemented water (+Zn) (see also Fig. 4i). n=18 for Tb-WT -Zn; n=12 for Tb-WT +Zn; n=5 for Tb-KO -Zn; n=4 for Tb-KO +Zn.

Error bars represent SEM, and all data were represented by mean \pm SEM. *P* values were determined by two-tailed, unpaired Student's t-test in (b, j, k, l, n, o, q-t, w and x) and by one-way ANOVA with post-hoc Tukey's test in (c-e, g, h, v and y) with F value (DFn, DFd) for c F(3, 22) = 13.6, d *Trim63*-Tibialis anterior(TA)-Colon cancer F(3, 19) = 6.5, d *MAFbx*-TA-Colon cancer F(3, 19) = 5.3, d *Fbxo31*-TA-Colon cancer F(3, 23) = 11.6, d *Musa1*-TA-Colon cancer F(3, 20) = 11.8, d *Trim63*-Diaphragm-Colon cancer F(3, 12) = 23.3, d *MAFbx*- Diaphragm-Colon cancer F(3, 12) = 20.1, d *Fbxo31*- Diaphragm-Colon cancer F(3, 12) = 66.4, d *Musa1*-Diaphragm-Colon cancer F(3, 12) = 13.9, d *Psmc4*-TA-Breast cancer F(3, 17) = 65.8, d *Psmc4*-TA-Breast cancer F(3, 17) = 86.8, d *Ubc*-TA-Breast cancer F(3, 17) = 11.6, d *Lc3*-TA-Breast cancer F(3, 17) = 29.4, d *Usp14*-TA-Breast cancer F(3, 17) = 23.7, d *GabarapL1*-TA-Breast cancer F(3, 17) = 32.1, d *Bnip3*-TA-Breast cancer F(3, 17) = 25.0, d *Psmc4*-Diaphragm-Breast cancer F(3, 8) = 3.3, d *Psmc4*-Diaphragm-Breast cancer F(3, 8) = 4.8, d *Psmc4*-Diaphragm-Breast cancer F(3, 8) = 10.8, d *Ubc*-Diaphragm-Breast cancer F(3, 8) = 29.3, d *Lc3*-Diaphragm-Breast cancer F(3, 8) = 25.5, d *Usp14*-Diaphragm-Breast cancer F(3, 8) = 9.2, d *GabarapL1*-Diaphragm-Breast cancer F(3, 8) = 13.9, d *Bnip3*-Diaphragm-Breast cancer F(3, 8) = 9.4, d *Psmc4*-TA-Colon cancer F(3, 20) = 5.2, d *Psmc4*-TA-Colon cancer F(3, 20) = 15.6, d *Psmc4*-TA-Colon cancer F(3, 20) = 7.6, d *Ubc*-TA-Colon cancer F(3, 20) = 5.1, d *Lc3*-TA-Colon cancer F(3, 20) = 10.1, d *Usp14*-TA-Colon cancer F(3, 20) = 8.7, d *GabarapL1*-TA -Colon cancer F(3, 20) = 14.7, d *Bnip3*-TA-Colon cancer F(3, 20) = 8.4, d *Psmc4*-Diaphragm-Colon cancer F(3, 12) = 0.61, d *Psmc4*-Diaphragm-Colon

cancer $F(3, 12) = 19.1$, d *Psmc11*-Diaphragm-Colon cancer $F(3, 12) = 32.7$, d *Ubc*-Diaphragm-Colon cancer $F(3, 12) = 6.1$, d *Lc3*-Diaphragm-Colon cancer $F(3, 12) = 52.2$, d *Usp14*-Diaphragm-Colon cancer $F(3, 12) = 7.2$, d *GabarapL1*-Diaphragm-Colon cancer $F(3, 12) = 8.8$, d *Bnip3*-Diaphragm-Colon cancer $F(3, 12) = 52.7$, e $F(3, 8) = 0.14$, g $F(3, 8) = 1.24$, h EDL (3, 8) = 0.57, h TA $F(3, 8) = 0.29$, v $F(3, 17) = 5.5$, y $F(3, 35) = 0.13$. n.s., not significant. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$ and **** $P < 0.0001$. Con, non-tumor bearing control; Tb, tumor-bearing.

Supplementary Figure 5. ZIP14-mediated zinc uptake in muscle cells blocks myogenesis and induces myosin heavy chain loss.

(a) Schematic representation of isolation and representative flow cytometry analysis of the indicated muscle progenitor populations in gastrocnemius muscles from mice bearing either 4T1 or C26m2 metastases (Tb) collected 5 weeks after tumor resection and compared with age-matched, non-tumor-bearing control mice (Con). Data is representative of three independent experiments.

(b) Representative immunofluorescence images of psoas muscle sections using antibodies against PAX7 (shown in green) and ZIP14 (shown in red) from non-cachectic (left) or cachectic (right) metastatic cancer patients. Blue, DAPI. White arrows indicate satellite cell expressing both PAX7 and ZIP14 in muscles from cachectic patients. Scale bars, 20 μm . Data is representative of three independent experiments (n=5 muscles per group).

(c) Schematic model based on previous studies showing the process of muscle differentiation. In response to injury of normal muscles, quiescent satellite cells are activated, proliferate and become committed as myoblasts. Once committed, myoblasts exit the cell cycle and fuse to form multinucleated myofibers. These new myofibers contribute to mature muscle mass. This process is thought to be blocked in cancer, where muscles fail to regenerate despite satellite-cell activation and proliferation.

(d) Representative immunofluorescence images using antibody against desmin (red) to identify

primary myoblasts in culture. Blue, DAPI. Scale bars, 25 μm . Data is representative of 3 independent experiments.

(e) Differentiation of control and *Zip14*-expressing primary myoblasts with and without zinc treatment. (Left panel) Primary myoblasts were infected with adenovirus expressing either *GFP* control (Adeno- Con) or *Zip14* (Adeno-*Zip14*), and relative *Zip14* expression levels were measured by qRT-PCR analysis two days after infection (n=4 samples per group). (Middle and right panels) Primary myoblasts were differentiated for 2 days followed by treatment with either 0 or 50 μM ZnCl_2 for 24 h. Differentiation was then quantified by MyHC immunofluorescence staining (n=26 samples from Adeno-Con group and n=37 samples from Adeno-*Zip14* group). Scale bars, 12.5 μm .

(f) Representative bright-field images of C2C12 cells infected with adenovirus expressing either *GFP* (Adeno-Con) or *Zip14* (Adeno-*Zip14*) and differentiated for 6 days either in the presence of 0 or 50 μM ZnCl_2 replenished daily. Scale bars, 25 μm . n=3 independently repeated experiments with similar results.

(g,h) C2C12 cells expressing either *GFP* (Adeno-Con) or *Zip14* (Adeno-*Zip14*) were differentiated for 3 days and treated with either 0 or 50 μM ZnCl_2 for 24 h. Cell viability was then measured by MTS assay or by immunoblot analysis for cleaved caspase-3 with tubulin as a loading control (h). C2C12 cells treated with doxorubicin (Doxo) chemotherapy was used as a positive control in both assays. Doxo was used at a dose of 2.5 μM in (g) and 0 μM , 0.25 μM (duplicate), and 2.5 μM in (h). Undiff and Diff represent undifferentiated and differentiated C2C12 muscle cells, respectively. n=3 samples per group in (g).

(i) C2C12 cells expressing either *GFP* (Adeno-Con) or *Zip14* (Adeno-*Zip14*) were differentiated for two days and then treated with 0 or 50 μM ZnCl_2 for 24 h. Relative *CyclinD1* expression was then determined by qRT-PCR analysis. n=4 samples per group. Data was normalized to untreated controls.

(j) GSEA using HALLMARK-MYOGENESIS gene set querying RNA-Seq gene signatures from

cachectic muscles from Fig. 2a and Supplementary Table 1. Pre-ranked GSEA was performed on standalone GSEA (v2.2.2) using the hallmark genes set *h.all.v5.2.symbols.gmt* for the differentially expressed genes obtained in Supplementary Table 1 and Fig 2 from C26m2 (common to 4T1), ranked by their log₂ fold change (FC) values with significant *p* and *q* values. *n*=2 controls and *n*=2 mice bearing 4T1 metastases; *n*=2 controls and *n*=2 mice bearing C26m2 metastases.

(k,l) Representative immunofluorescence images (k) and quantitation (l) of MyHC and tropomyosin (Tm). C2C12 cells expressing either *GFP* (Adeno-Con) or *Zip14* (Adeno-*Zip14*) were differentiated for 3 days and then treated with 0 or 50 μM ZnCl₂ for 24 h before analysis. Scale bars, 25 μm. Values were normalized to the respective untreated controls. *n*=5 samples per group for MyHC fluorescence staining analysis and *n*=3 samples per group for tropomyosin fluorescence staining analysis.

(m) Immunoblot analysis of skeletal actin, desmin, troponin T and MyLC in C2C12 cells expressing either *GFP* (Adeno-Con) or *Zip14* (Adeno-*Zip14*). Cells were differentiated for 3 days and subsequently treated with either 0 or 50 μM ZnCl₂ for 24 h before analysis. Data is representative of three independent experiments.

(n) Immunoblot analysis of the indicated proteins derived from lysates that were fractionated to generate soluble and myofibrillar (MF) fractions from C2C12 cells expressing either *GFP* (Adeno-Con) or *Zip14* (Adeno-*Zip14*) that were differentiated for 3 days and subsequently treated with either 0 or 50 μM ZnCl₂ for 24 h before analysis. Data is representative of three independent experiments.

(o) qRT-PCR analysis of genes associated with ubiquitination (*Trim63*, *MAFbx*, *Fbxo31*, *Musa1*, *Ubc*, *Usp14*), UPS (*Psm1*, *Psmc4*, *Psm11*) and autophagy (*Lc3*, *Gabarapl1*, *Bnip3*) pathways from C2C12 cells expressing either *GFP* (Adeno-Con) or *Zip14* (Adeno-*Zip14*) that were differentiated for 3 days and subsequently treated with either 0 or 50 μM ZnCl₂ for 24 h before analysis. *n*=3 samples per group.

(p) Immunoblot analysis of MyHC in C2C12 cells expressing *Zip14* (Adeno-*Zip14*) that were differentiated for 3 days and subsequently treated with either 0 or 50 μM ZnCl_2 for 24 h before analysis. As indicated, cells were treated with either vehicle or MG132 (50 μM) 3 hours prior to harvest. Tubulin served as a loading control. Data is representative of three independent experiments.

(q) Immunoblot analysis for skeletal actin, troponin T and MyLC in gastrocnemius muscles from mice intramuscularly injected with AAV delivering either shCon or sh*Zip14* and subsequently injected with C26m2 cancer cells. Non-tumor-bearing mice were used as a control (see also Fig. 4d and 5h). Data is representative of three independent experiments.

(r-u) *Zip14* KO mice were intramuscularly injected in the gastrocnemius muscles with AAV delivering either *mCherry* control (AAV-Con) or *Zip14* (AAV-*Zip14*) and subsequently injected with 4T1 cancer cells four weeks after AAV injection. Muscles were then harvested five weeks after tumor-cell injection. (r) qRT-PCR analysis of *Zip14* expression and data was normalized to wild-type control mice. n=4 mice per group. (s) Representative immunofluorescence images of laminin expression shown in green and DAPI in blue (scale bars, 50 μm). (t) Morphometric analysis is depicted as the distribution frequency of fiber size categorized by fiber diameter. n=3 mice for Tb-*Zip14* KO injected with AAV-Con, and n=4 mice for Tb-*Zip14* KO injected with AAV-*Zip14*. (u) qRT-PCR analysis was performed for the indicated genes and normalized to AAV-Con. n=4 mice per group.

(v) Quantitation of the capillary contacts/fiber and percentage of SDH-positive fibers are shown in the gastrocnemius muscles from *Zip14* KO mice that were intramuscularly injected with AAV delivering either *mCherry* control (AAV-Con) or *Zip14* (AAV-*Zip14*). n=4 mice for tumor bearing mice injected with AAV-Con and n=3 mice for tumor bearing mice injected with AAV-*Zip14*.

(w) Immunoblot analysis of skeletal actin, troponin T and MyLC in gastrocnemius muscles from the indicated groups. Muscles were isolated from *Zip14*-WT and -KO mice with (Tb) or without (Con) 4T1 metastases. A separate group of *Zip14* KO mice were injected intramuscularly with

AAV-*mCherry* (con) or AAV-*Zip14* (*Zip14*) and subsequently injected with 4T1 tumor cells. All mice were harvested 5 weeks post tumor-cell injection. Data is representative of three independent experiments.

(x,y) qRT-PCR analysis of *Zip14* (x) and immunoblot analysis of MyHC and skeletal actin (y) from non-tumor-bearing mice that were intramuscularly injected in the gastrocnemius muscles with either AAV-*mCherry* (AAV-con) or AAV-*Zip14*. Muscles were harvested 5 weeks after AAV injection. n=4 mice per group for (x). Data is representative of three independent experiments (y).

Error bars represent SEM and all data were represented by mean \pm SEM. *P* values for (e,g,i,l,r,u,v and x) were determined by two-tailed, unpaired Student's *t* test. *P* values for (o) were determined by one-way ANOVA with post-hoc Tukey's test with *F* value (DFn, DFd) for o *Trim63* *F*(3, 8) = 40.7, *MAFbx* *F*(3, 8) = 0.64, *Fbxo31* *F*(3, 8) = 0.57, *Musa1* *F*(3, 8) = 1.4, *Psmc4* *F*(3, 8) = 5.8, *Psmc4* *F*(3, 8) = 16.9, *Psmc11* *F*(3, 8) = 22.4, *Ubc* *F*(3, 8) = 30.2, *Lc3* *F*(3, 8) = 6.5, *Usp14* *F*(3, 8) = 12.7, *Gabarapl1* *F*(3, 8) = 3.1, *Bnip3* *F*(3, 8) = 8.5. n.s., not significant. **P*<0.05, ***P*<0.01, ****P*<0.001 and *****P*<0.0001. *P* values for (t) were determined by two-sided Welch's *t* test. Skel actin, skeletal actin; Tm, tropomyosin; TnT, troponin T; MyLC, Myosin light chain; Con, control; Tb, tumor-bearing.

Supplementary Figure 6. Original uncropped images of the blots shown in Main Figures.

Full scans of blots shown from Fig. 5g, 5h and 5i.