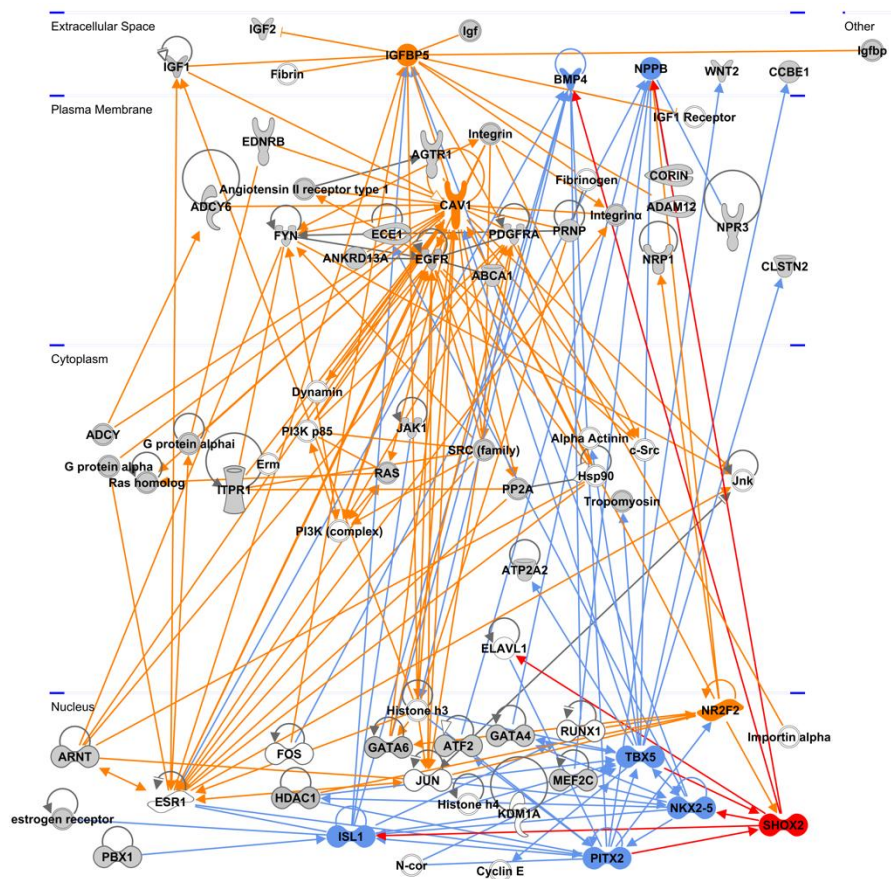


Supplemental Data

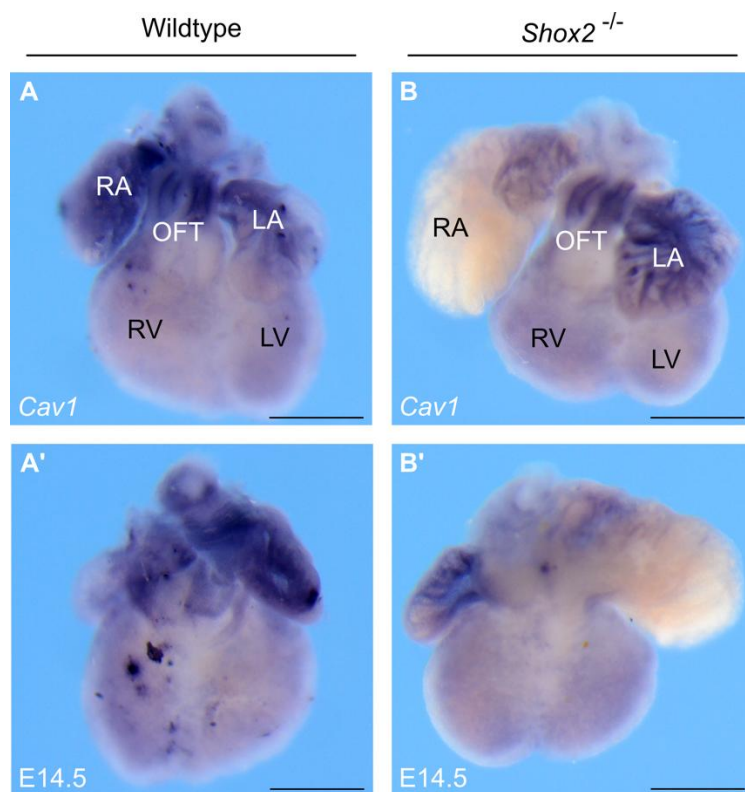
Materials and Methods

Whole-mount *in situ* hybridization

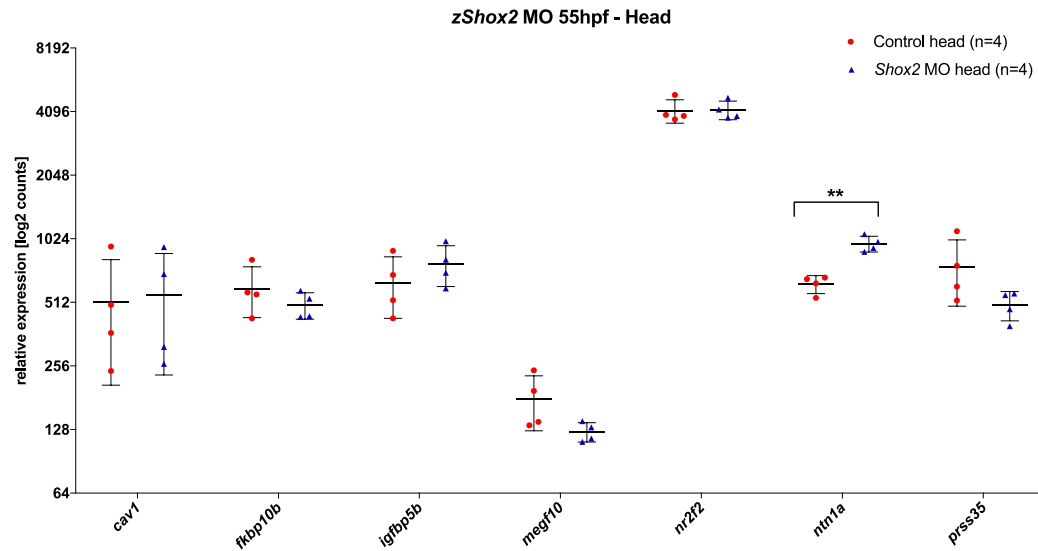
Whole-mount *in situ* hybridization on embryonic wildtype and *Shox2*^{-/-} mouse hearts at stage E14.5 was performed as reported (1). A *Cav1*-specific digoxigenin (DIG)-labeled antisense RNA probe was used and generated as follows: T7 RNA polymerase promoter was introduced at the 5'-end of gene-specific oligonucleotide primers enabling direct *in vitro* transcription of the purified PCR-fragment. Oligonucleotide sequences are given in Suppl. Table 7. A *Cav1*-specific DIG-labeled RNA probe was synthesized using the DIG RNA Labeling Mix (Roche) with the MEGAscript® T7 Transcription Kit (Ambion) according to the manufacturer's instructions. Images were taken with the microscope SZX16 using the cellSense Imaging Software (Olympus).



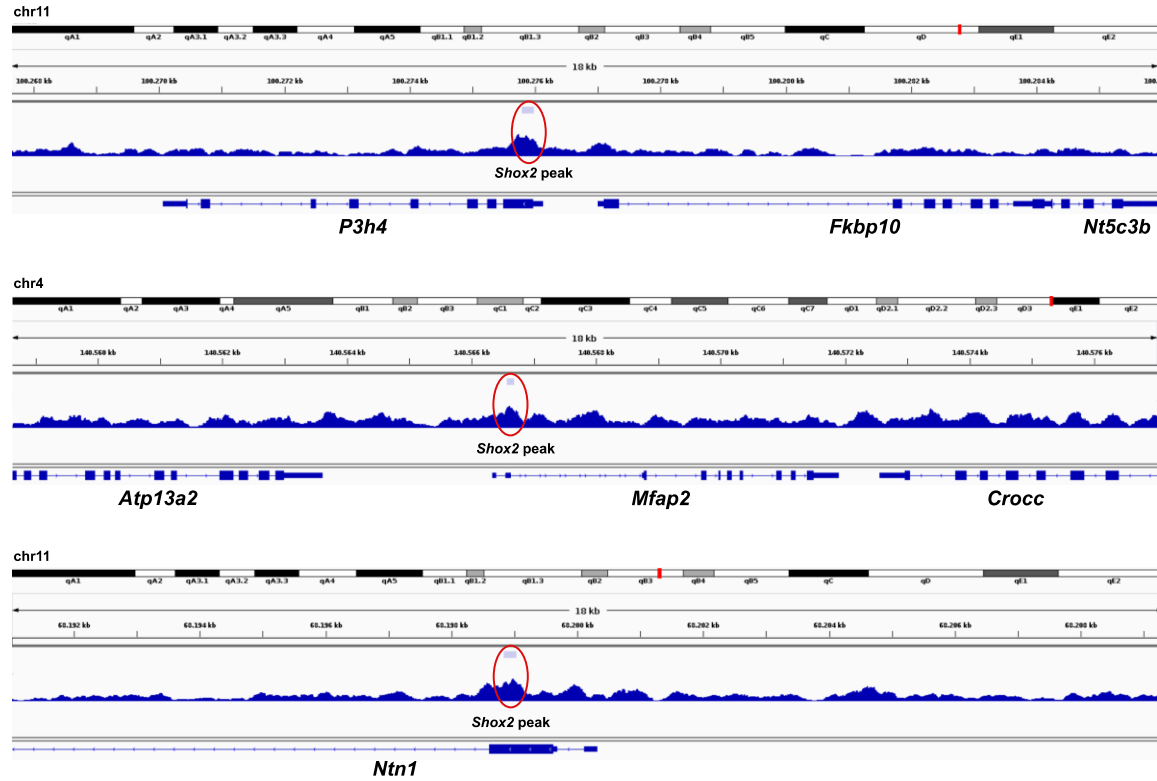
Suppl. Fig. 2. Network-based pathway analysis of novel Shox2-dependent genes using the IPA software. Genes of the cardiac muscle lineage-derived subcluster 34.7 are represented by filled symbols. Network-associated genes derived from the IPA analysis are marked by white symbols with grey borders. Shox2 is highlighted in red. Known Shox2-associated genes are depicted in blue, while the novel Shox2-dependent genes from this study are shown in orange.



Suppl. Fig. 3. Whole-mount *in situ* hybridization on E14.5 wildtype and *Shox2*^{-/-} mouse hearts. A) Representative images of wildtype and **B)** *Shox2*-deficient mouse hearts stained with a *Cav1*-specific RNA probe. Ventral (A, B) and dorsal (A', B') views are shown. RA = right atrium; LA = left atrium; RV = right ventricle; LV: left ventricle; OFT = outflow tract. Scale bar: 500 μ m.



Suppl. Fig. 4. Validation of putative Shox2 target genes in zebrafish head tissue after *shox2* knockdown. nCounter expression analysis of selected *shox2* target genes in isolated zebrafish head tissue 55 hpf after morpholino-mediated knockdown of *shox2* compared to controls (n=4; 30 heads per condition). Statistical significance was determined by multiple *t*-tests adjusted by two-stage step-up method of Benjamini, Krieger, and Yekutieli (adjusted *P*-value: ***P*<0.01).



Suppl. Fig. 5. Identification of Shox2 binding sites near candidate genes. Shox2 binding peaks were detected on the target genes *Fkbp10*, *Mfap2* and *Ntn1* based on ChIP-seq data from E12.5 embryonic *Shox2*^{HA/+} hearts, in which HA-tagged *Shox2* is expressed at physiological levels (3).

ensembl_id	gene_id	baseMean	log2FoldChange	lfcSE	stat	pvalue	padj
ENSMUSG00000000031	H19	48004,26	-2,209	0,235837269	-9,368291981	0,000000000000	0,000000000000
ENSMUSG00000060572	Mfap2	93,17	-1,910	0,25255081	-7,562810326	0,000000000000	0,0000000001579
ENSMUSG00000020524	Gria1	131,97	-1,793	0,280983148	-6,381325315	0,000000000176	0,0000001756497
ENSMUSG00000026676	Ccdc3	53,72	-1,745	0,267428363	-6,525783173	0,000000000068	0,0000000773497
ENSMUSG00000044303	Cdkn2a	101,60	-1,612	0,281802294	-5,722024044	0,000000010526	0,0000054766171
ENSMUSG00000090958	Lrrc32	81,81	-1,487	0,283356437	-5,248685165	0,000000153189	0,0000613060845
ENSMUSG00000053024	Cntn2	173,54	-1,468	0,263768713	-5,564508233	0,000000026289	0,0000127526868
ENSMUSG00000069793	Slfn9	21,64	-1,422	0,292388377	-4,862841254	0,000001157126	0,0003088247660
ENSMUSG00000020607	Fam84a	109,61	-1,419	0,239975462	-5,912108754	0,000000003378	0,0000023507776
ENSMUSG00000047904	Sstr2	22,26	-1,383	0,289716038	-4,773941199	0,000001806551	0,0004228760463
ENSMUSG00000038775	Vill	202,55	-1,370	0,187526867	-7,307086589	0,000000000000	0,0000000008740
ENSMUSG00000078952	Lncenc1	95,12	-1,367	0,231053045	-5,918223339	0,000000003254	0,0000023507776
ENSMUSG00000100005	B130024G19Rik	140,13	-1,356	0,244863561	-5,538319948	0,000000030539	0,0000139675282
ENSMUSG00000049420	Tmem200a	216,79	-1,349	0,265972296	-5,0723733	0,000000392885	0,0001367238802
ENSMUSG00000057836	Xlr3a	26,26	-1,330	0,290317445	-4,580854036	0,000004630810	0,0008166642239
ENSMUSG00000069920	B3gnt9	990,50	-1,326	0,246727098	-5,373429941	0,000000077253	0,0000334233323
ENSMUSG00000007655	Cav1	382,52	-1,290	0,278237607	-4,636144924	0,000003549671	0,0006929651150
ENSMUSG00000000861	Bcl11a	377,11	-1,280	0,185032621	-6,918307284	0,000000000005	0,0000000091460
ENSMUSG00000097767	Miat	70,59	-1,259	0,285548273	-4,40877051	0,000010395911	0,0015267683274
ENSMUSG00000050711	Scg2	25,68	-1,252	0,291979054	-4,288359598	0,000017999752	0,0023813225540
ENSMUSG00000021253	Tgfb3	700,04	-1,248	0,255991275	-4,874656984	0,000001089977	0,0003008335963
ENSMUSG00000031825	Crispld2	1870,32	-1,244	0,216661266	-5,740600928	0,000000009434	0,0000053936197
ENSMUSG00000051455	Meioc	180,92	-1,228	0,235735052	-5,208231805	0,000000190649	0,0000709745060
ENSMUSG00000004110	Cacna1e	82,34	-1,227	0,261772148	-4,687308598	0,000002768214	0,0005755008875
ENSMUSG00000063558	Aox1	74,11	-1,225	0,253056344	-4,839529332	0,000001301470	0,0003306972851
ENSMUSG00000003420	Fcgrt	450,96	-1,222	0,266466747	-4,585212793	0,000004535243	0,0008166642239
ENSMUSG000000091455	Otogl	286,26	-1,217	0,250875449	-4,850213024	0,000001233289	0,0003184273903
ENSMUSG00000002289	Angptl4	86,29	-1,214	0,25385214	-4,781297725	0,000001741672	0,0004161296183
ENSMUSG00000073555	Gm4951	91,45	-1,208	0,282650303	-4,273099231	0,000019277461	0,0025088910727

ENSMUSG00000037206	Islr	633,44	-1,204	0,284221425	-4,235214638	0,000022833350	0,0028116636050
ENSMUSG00000008658	Rbfox1	139,22	-1,194	0,278611027	-4,285228243	0,000018255167	0,0023953173645
ENSMUSG00000056673	Kdm5d	724,57	-1,183	0,272732796	-4,337917575	0,000014383907	0,0019849792290
ENSMUSG00000033544	Angptl1	280,52	-1,183	0,266994507	-4,430741473	0,000009390962	0,0013919492793
ENSMUSG00000026072	Il1r1	263,33	-1,178	0,288283967	-4,087981657	0,000043514255	0,0044389481458
ENSMUSG00000056300	Zfp981	36,35	-1,163	0,291233527	-3,994125596	0,000064933439	0,0061144381605
ENSMUSG00000039706	Ldb2	151,25	-1,153	0,24949775	-4,619811213	0,000003840894	0,0007407834399
ENSMUSG00000032849	Abcc4	194,09	-1,149	0,220149516	-5,220252812	0,000000178679	0,0000681022430
ENSMUSG00000032128	Robo3	40,15	-1,149	0,289593124	-3,967084656	0,000072757154	0,0066936582047
ENSMUSG00000026398	Nr5a2	114,54	-1,139	0,237818614	-4,788358361	0,000001681512	0,0004078430420
ENSMUSG00000009378	Slc16a12	28,08	-1,131	0,291133884	-3,884847103	0,000102394308	0,0086726353436
ENSMUSG00000067780	Pi15	145,83	-1,121	0,255032342	-4,395762983	0,000011038433	0,0016063930541
ENSMUSG00000039519	Cyp7b1	142,40	-1,115	0,292478403	-3,810992918	0,000138409733	0,0106012583968
ENSMUSG00000040212	Emp3	403,51	-1,114	0,256486266	-4,342775412	0,000014069394	0,0019584596721
ENSMUSG00000040296	Ddx58	711,42	-1,112	0,270326401	-4,1145873	0,000038787274	0,0041119648298
ENSMUSG00000018830	Myh11	66,22	-1,110	0,267793904	-4,143206414	0,000034248343	0,0038111067108
ENSMUSG00000023960	Enpp5	922,46	-1,109	0,237433262	-4,669791559	0,000003015055	0,0006187820646
ENSMUSG00000036019	Tmtc2	1268,57	-1,107	0,226351001	-4,891661204	0,000000999885	0,0002808096699
ENSMUSG00000001506	Col1a1	17531,19	-1,100	0,213452725	-5,154309462	0,000000254567	0,0000926161939
ENSMUSG00000071178	Serpina1b	21,42	-1,098	0,283447674	-3,872540121	0,000107706939	0,0089528589589
ENSMUSG00000034616	Ssh3	150,40	-1,096	0,208173176	-5,266588679	0,000000138982	0,0000570468173
ENSMUSG00000050010	Shisa3	1737,52	-1,095	0,243043028	-4,506317947	0,000006596223	0,0010559233376
ENSMUSG00000027220	Syt13	215,55	-1,085	0,23509507	-4,615860317	0,000003914702	0,0007460303409
ENSMUSG00000026399	Cd55	630,33	-1,083	0,263503281	-4,109140276	0,000039713480	0,0041824565281
ENSMUSG00000058297	Spock2	55,66	-1,080	0,285159861	-3,787865078	0,000151947320	0,0112609847438
ENSMUSG00000079362	Gm43302	114,38	-1,076	0,210412188	-5,115974373	0,000000312125	0,0001110334232
ENSMUSG00000025492	Ifitm3	445,15	-1,071	0,225876808	-4,74038913	0,000002133082	0,0004552849157
ENSMUSG00000047793	Sned1	697,56	-1,070	0,215359403	-4,967759815	0,000000677308	0,0002045725115
ENSMUSG00000027868	Tbx15	135,60	-1,065	0,26710474	-3,98545748	0,000067350238	0,0062320381771
ENSMUSG00000028226	Mmp16	1316,76	-1,064	0,231072432	-4,605924294	0,000004106378	0,0007733517069

ENSMUSG00000024900	Cpt1a	1166,13	-1,063	0,244074307	-4,357272105	0,000013169351	0,0018859753153
ENSMUSG00000026185	Igfbp5	6071,89	-1,055	0,213236569	-4,947306656	0,000000752474	0,0002230666878
ENSMUSG00000085743	8430419K02Rik	114,57	-1,054	0,268729783	-3,920306191	0,000088436534	0,0079982600888
ENSMUSG00000039809	Gabbr2	35,02	-1,053	0,289070803	-3,644306315	0,000268113952	0,0172712847399
ENSMUSG00000050334	C130071C03Rik	55,90	-1,050	0,292222035	-3,593240154	0,000326591323	0,0201856135082
ENSMUSG00000007682	Dio2	32,40	-1,050	0,279254431	-3,758376921	0,000171019127	0,0123876659665
ENSMUSG00000030491	Tdrd12	45,42	-1,049	0,268287277	-3,911282124	0,000091807454	0,0080409482723
ENSMUSG00000014776	Nol3	117,52	-1,046	0,219474344	-4,767727672	0,000001863154	0,0004228760463
ENSMUSG00000028517	Plpp3	447,60	-1,043	0,178532223	-5,839497226	0,000000005236	0,0000034923178
ENSMUSG00000070942	Il1rl2	19,03	-1,040	0,292036965	-3,56156446	0,000368651572	0,0215378626425
ENSMUSG00000029561	Oasl2	175,53	-1,032	0,212164325	-4,862774978	0,000001157514	0,0003088247660
ENSMUSG00000029403	Cdkl2	55,56	-1,030	0,281757782	-3,656804443	0,000255379058	0,0168234895807
ENSMUSG00000028270	Gbp2	190,26	-1,030	0,280436742	-3,671394534	0,000241230622	0,0161578147580
ENSMUSG00000040690	Col16a1	1098,57	-1,024	0,261786754	-3,909793602	0,000092375017	0,0080409482723
ENSMUSG00000030157	Clec2d	56,85	-1,022	0,291812748	-3,50264393	0,000460664825	0,0255166869016
ENSMUSG00000036062	Phf24	58,68	-1,017	0,277060543	-3,670320961	0,000242246098	0,0161578147580
ENSMUSG00000040181	Fmo1	95,38	-1,016	0,290614857	-3,496863483	0,000470762675	0,0258968003435
ENSMUSG00000059336	Slc14a1	249,73	-1,012	0,261961637	-3,862916677	0,000112041232	0,0091043453634
ENSMUSG00000086567	Gm2830	260,65	-1,010	0,269134888	-3,753515745	0,000174371574	0,0125736043316
ENSMUSG00000062980	Cped1	186,00	-1,010	0,249078417	-4,053309126	0,000050498204	0,0050841210605
ENSMUSG00000033491	Prss35	1622,20	-1,007	0,219712557	-4,584919064	0,000004541623	0,0008166642239
ENSMUSG00000025572	Tmc6	254,34	-1,007	0,224662163	-4,482227522	0,000007386793	0,0011480366784
ENSMUSG00000037921	Ddx60	56,94	-1,006	0,289441734	-3,476292047	0,000508398331	0,0271281349632
ENSMUSG00000046634	Pkd1l1	32,05	-1,004	0,292178958	-3,435123801	0,000592283182	0,0296289661748
ENSMUSG00000030249	Abcc9	102,98	-1,004	0,281168778	-3,569172543	0,000358110522	0,0214487492599
ENSMUSG00000048148	Nwd1	50,47	-0,995	0,291699322	-3,409595469	0,000650593028	0,0311529368972
ENSMUSG00000024534	Sncaip	245,30	-0,993	0,260426553	-3,813608491	0,000136952364	0,0105400646219
ENSMUSG00000019852	Arfgef3	62,50	-0,990	0,258807993	-3,827004852	0,000129711959	0,0101475957272
ENSMUSG00000029661	Col1a2	46638,62	-0,988	0,292486781	-3,37630072	0,000734675716	0,0335062360647
ENSMUSG00000032246	Calml4	69,75	-0,985	0,290920761	-3,386326074	0,000708351620	0,0327874533932

ENSMUSG00000020173	Cobl	152,22	-0,984	0,215462877	-4,568764194	0,000004906084	0,0008536585654
ENSMUSG00000024778	Fas	305,52	-0,984	0,197550024	-4,979167564	0,000000638583	0,0001965854369
ENSMUSG00000027015	Cybrd1	87,95	-0,982	0,292251025	-3,36151528	0,000775160675	0,0345648247544
ENSMUSG00000099032	Tcf24	77,36	-0,980	0,272763864	-3,593357253	0,000326444521	0,0201856135082
ENSMUSG00000019906	Lin7a	52,70	-0,975	0,269101682	-3,624750787	0,000289240228	0,0184468429367
ENSMUSG00000050558	Prokr2	18,56	-0,974	0,29120843	-3,346050812	0,000819713730	0,0358523972228
ENSMUSG00000030551	Nr2f2	1124,15	-0,966	0,141064848	-6,849970384	0,000000000007	0,0000000131382
ENSMUSG00000030247	Kcnj8	31,66	-0,966	0,289910668	-3,330495657	0,000866915160	0,0371058232134
ENSMUSG00000039883	Lrrc17	1717,75	-0,963	0,27581286	-3,491269831	0,000480730478	0,0261628132258
ENSMUSG00000022454	Nell2	36,05	-0,963	0,28753578	-3,347775491	0,000814629760	0,0357276525989
ENSMUSG00000038793	Lefty1	76,15	-0,961	0,289324922	-3,321500615	0,000895347851	0,0381189585101
ENSMUSG00000074364	Ehd2	608,87	-0,959	0,270554152	-3,542927867	0,000395710923	0,0226233587826
ENSMUSG00000053411	Cbx7	314,52	-0,958	0,191019061	-5,016052549	0,000000527439	0,0001688648967
ENSMUSG00000026463	Atp2b4	1592,94	-0,958	0,244882416	-3,912202998	0,000091457982	0,0080409482723
ENSMUSG00000025140	Pycr1	301,56	-0,958	0,208817717	-4,586402667	0,000004509485	0,0008166642239
ENSMUSG00000035775	Krt20	65,20	-0,955	0,267038036	-3,577286797	0,000347179188	0,0208934001755
ENSMUSG00000070732	Rbm44	29,12	-0,950	0,287906853	-3,298621235	0,000971609140	0,0399833396322
ENSMUSG00000040016	Ptger3	193,46	-0,948	0,259702396	-3,649870154	0,000262372903	0,0171391943328
ENSMUSG00000032327	Stra6	23,64	-0,947	0,290045945	-3,264130742	0,001098004850	0,0432927626619
ENSMUSG00000062327	T	103,50	-0,946	0,291976594	-3,24162669	0,001188495949	0,0454067855464
ENSMUSG00000072812	Ahnak2	510,73	-0,946	0,280455621	-3,373578192	0,000741979700	0,0336094604209
ENSMUSG00000023232	Serinc2	24,88	-0,946	0,292239097	-3,235692835	0,001213478895	0,0460316828389
ENSMUSG00000057337	Chst3	29,48	-0,942	0,292363384	-3,22256799	0,001270470101	0,0476292397688
ENSMUSG00000025185	Loxl4	104,11	-0,941	0,285463455	-3,295466034	0,000982585810	0,0402282190555
ENSMUSG00000023039	Krt7	160,96	-0,939	0,287711829	-3,264921647	0,001094943606	0,0432927626619
ENSMUSG00000008540	Mgst1	440,47	-0,937	0,26608564	-3,522046576	0,000428228900	0,0240858497475
ENSMUSG00000010342	Tex14	54,13	-0,936	0,256183113	-3,654847964	0,000257334429	0,0168828259800
ENSMUSG000000061654	Spry3	40,17	-0,936	0,286341685	-3,268146482	0,001082543222	0,0430008731999
ENSMUSG00000024087	Cyp1b1	1672,00	-0,931	0,207164862	-4,494860415	0,000006961560	0,0010925553852
ENSMUSG00000001131	Timp1	171,55	-0,931	0,264844009	-3,51417432	0,000441123226	0,0245190993324

ENSMUSG00000041809	Efhc1	87,58	-0,927	0,232095954	-3,996140773	0,000064383458	0,0060985230080
ENSMUSG00000032715	Trib3	121,47	-0,925	0,273992874	-3,377467812	0,000731565147	0,0334596996212
ENSMUSG00000037016	Frem2	791,84	-0,925	0,238876433	-3,870754168	0,000108499165	0,0089528589589
ENSMUSG00000051124	Gimap9	34,92	-0,922	0,271690478	-3,395240549	0,000685683276	0,0321043606075
ENSMUSG00000053199	Arhgap20	172,44	-0,921	0,237485579	-3,878861235	0,000104946596	0,0088420268825
ENSMUSG00000022483	Col2a1	328,69	-0,921	0,267726025	-3,440202587	0,000581278908	0,0292542212780
ENSMUSG00000031442	Mcf2l	142,44	-0,920	0,198343383	-4,636284545	0,000003547276	0,0006929651150
ENSMUSG00000032419	Tbx18	117,43	-0,909	0,237513863	-3,825047741	0,000130746747	0,0101601647258
ENSMUSG00000020411	Nipal4	365,18	-0,907	0,24467805	-3,708492997	0,000208496426	0,0143358592993
ENSMUSG00000078640	Gm11627	45,56	-0,905	0,280210167	-3,228542995	0,001244225540	0,0469753831160
ENSMUSG00000034156	Bzrap1	113,31	-0,901	0,255713188	-3,525007659	0,000423470548	0,0239537686456
ENSMUSG00000036249	Rbm43	167,54	-0,899	0,230061896	-3,908354199	0,000092927001	0,0080409482723
ENSMUSG00000047878	A4galt	63,54	-0,898	0,275534304	-3,259863013	0,001114660361	0,0436245540340
ENSMUSG00000069170	Adgrv1	148,88	-0,892	0,260350018	-3,427400612	0,000609389329	0,0300605272172
ENSMUSG00000020734	Grin2c	455,64	-0,891	0,273943152	-3,25091233	0,001150353246	0,0443731439915
ENSMUSG00000031673	Cdh11	11986,97	-0,884	0,223247889	-3,960928783	0,000074658799	0,0068293603153
ENSMUSG00000026471	Mr1	230,03	-0,880	0,254912644	-3,451405693	0,000557674612	0,0285215820918
ENSMUSG00000042826	Fgf11	229,03	-0,878	0,260411388	-3,372335027	0,000745337234	0,0336094604209
ENSMUSG00000025779	Ly96	103,95	-0,859	0,262661929	-3,271119853	0,001071225005	0,0428764020118
ENSMUSG00000020122	Egfr	2183,95	-0,857	0,240288496	-3,56536966	0,000363343701	0,0214487492599
ENSMUSG00000014329	Bicc1	1457,18	-0,855	0,247112605	-3,460591978	0,000538989070	0,0278327000862
ENSMUSG00000019970	Sgk1	1234,25	-0,855	0,200894782	-4,253608339	0,000021035309	0,0026307283745
ENSMUSG00000025938	Slco5a1	164,64	-0,853	0,222356908	-3,836183274	0,000124961170	0,0098540808357
ENSMUSG00000019817	Plagl1	14209,28	-0,851	0,223693859	-3,806392837	0,000141008349	0,0106979225108
ENSMUSG00000039942	Ptger4	90,22	-0,851	0,231691131	-3,671304743	0,000241315400	0,0161578147580
ENSMUSG00000037138	Aff3	538,29	-0,850	0,147319081	-5,767987828	0,000000008022	0,0000047563680
ENSMUSG00000097885	5031434O11Rik	59,82	-0,848	0,256476923	-3,305816263	0,000947001643	0,0394781309860
ENSMUSG00000036564	Ndr4	527,64	-0,847	0,205231557	-4,124712408	0,000037119829	0,0039880148927
ENSMUSG00000032006	Pdgfd	192,28	-0,840	0,223154836	-3,764126085	0,000167132544	0,0121611716821
ENSMUSG00000023191	P3h3	833,09	-0,837	0,200850593	-4,168496104	0,000030661600	0,0035827072554

ENSMUSG00000028072	Ntrk1	71,30	-0,831	0,242925601	-3,420242428	0,000625653527	0,0304078681589
ENSMUSG00000026638	Irf6	288,78	-0,826	0,229984097	-3,589785312	0,000330950419	0,0203763627307
ENSMUSG00000047910	Pcdhb16	225,88	-0,823	0,223731919	-3,677829379	0,000235227217	0,0158882586016
ENSMUSG00000030772	Dkk3	1377,96	-0,821	0,228232149	-3,597630554	0,000321129317	0,0200806176176
ENSMUSG00000053141	Ptpst	257,89	-0,820	0,248124222	-3,302863341	0,000957030154	0,0395869217100
ENSMUSG00000030630	Fah	138,34	-0,812	0,226313354	-3,587927679	0,000333316709	0,0204434248308
ENSMUSG00000021895	Arhgef3	673,70	-0,810	0,245622924	-3,299090385	0,000969986742	0,0399833396322
ENSMUSG00000026043	Col3a1	194687,36	-0,810	0,215914908	-3,749474479	0,000177205529	0,0127206551845
ENSMUSG00000031521	Aga	416,55	-0,807	0,223536878	-3,612029343	0,000303810178	0,0192214547328
ENSMUSG00000020422	Tns3	2609,60	-0,805	0,132196944	-6,091278636	0,000000001120	0,0000009961636
ENSMUSG00000000594	Gm2a	658,57	-0,802	0,17727503	-4,521833743	0,000006130620	0,0010222809661
ENSMUSG00000022754	Tmem45a	843,48	-0,800	0,244764698	-3,269767728	0,001076358265	0,0429684366554
ENSMUSG00000004864	Mapk13	80,63	-0,800	0,245505811	-3,257661521	0,001123343086	0,0436939321498
ENSMUSG00000046794	Ppp1r3b	453,73	-0,799	0,240975343	-3,317691406	0,000907647031	0,0384381314039
ENSMUSG00000041073	Nacad	69,60	-0,798	0,233025813	-3,426161109	0,000612177153	0,0300605272172
ENSMUSG00000000303	Cdh1	488,15	-0,797	0,233299907	-3,417537812	0,000631903158	0,0304800217323
ENSMUSG00000041625	Ggact	86,57	-0,793	0,220539392	-3,594041901	0,000325587442	0,0201856135082
ENSMUSG00000000365	Rnf17	403,83	-0,786	0,164877058	-4,768131142	0,000001859427	0,0004228760463
ENSMUSG00000046402	Rbp1	355,44	-0,783	0,234145244	-3,345095073	0,000822543696	0,0358781457453
ENSMUSG00000036334	Igsf10	634,90	-0,781	0,195139187	-3,999921806	0,000063363416	0,0060400557685
ENSMUSG00000026208	Des	1123,84	-0,780	0,218817795	-3,565286642	0,000363458737	0,0214487492599
ENSMUSG00000032440	Tgfb2	1047,69	-0,777	0,238607097	-3,254695007	0,001135141989	0,0438921569077
ENSMUSG00000074415	2610203C20Rik	782,45	-0,776	0,230513761	-3,366772974	0,000760532705	0,0341983357986
ENSMUSG00000031666	Rbl2	842,89	-0,775	0,225607347	-3,433569777	0,000595688859	0,0297065023548
ENSMUSG00000005686	Ampd3	94,77	-0,774	0,216954019	-3,566611075	0,000361627569	0,0214487492599
ENSMUSG00000025545	Clybl	315,40	-0,768	0,185847678	-4,134103474	0,000035634291	0,0039340257411
ENSMUSG00000025978	Rftn2	161,90	-0,764	0,232376151	-3,288867165	0,001005914863	0,0409737534851
ENSMUSG00000039787	Cercam	467,68	-0,762	0,184943281	-4,119064671	0,000038041338	0,0040597715929
ENSMUSG00000045636	Mtus1	336,51	-0,755	0,229060446	-3,296110812	0,000980333391	0,0402282190555
ENSMUSG00000028597	Gpx7	415,84	-0,754	0,207651721	-3,632901726	0,000280251776	0,0179450817074

ENSMUSG00000031654	Cbln1	186,40	-0,752	0,222117684	-3,383605407	0,000715407403	0,0329978912044
ENSMUSG00000018899	Irf1	513,00	-0,742	0,218462218	-3,39513765	0,000685941044	0,0321043606075
ENSMUSG00000031838	Ifi30	816,94	-0,741	0,189063493	-3,918558192	0,000089080225	0,0080112148052
ENSMUSG00000029032	Arhgef16	83,06	-0,733	0,226602455	-3,235949853	0,001212386814	0,0460316828389
ENSMUSG00000041895	Wipi1	1002,09	-0,728	0,161389775	-4,511799586	0,000006427991	0,0010559233376
ENSMUSG00000004267	Eno2	620,05	-0,724	0,16251257	-4,4529697	0,000008469071	0,0012789895085
ENSMUSG00000041272	Tox	99,04	-0,722	0,222478262	-3,24479458	0,001175353777	0,0450121130841
ENSMUSG00000031570	Plpp5	1062,83	-0,710	0,207534184	-3,419723194	0,000626848856	0,0304078681589
ENSMUSG00000061451	Tmem151a	106,21	-0,709	0,205954789	-3,44290162	0,000575508630	0,0290622780811
ENSMUSG00000033880	Lgals3bp	507,22	-0,709	0,220143202	-3,219903098	0,001282339349	0,0479618885565
ENSMUSG00000019027	Dnah1	128,24	-0,701	0,206379481	-3,394703735	0,000687029015	0,0321043606075
ENSMUSG00000046387	Pcdhb17	239,18	-0,694	0,197206672	-3,521684107	0,000428814791	0,0240858497475
ENSMUSG00000037605	Adgrl3	484,22	-0,690	0,211568997	-3,260505711	0,001112137276	0,0436245540340
ENSMUSG00000031596	Slc7a2	930,84	-0,689	0,181719101	-3,790025966	0,000150631538	0,0112481116836
ENSMUSG00000044068	Zrsr1	313,31	-0,688	0,178619668	-3,849514458	0,000118352198	0,0094729099441
ENSMUSG00000071176	Arhgef10	1398,60	-0,687	0,152522827	-4,507091261	0,000006572237	0,0010559233376
ENSMUSG00000062421	Arf2	1644,90	-0,686	0,16134028	-4,254980005	0,000020906770	0,0026307283745
ENSMUSG00000049811	Fam161a	131,08	-0,681	0,192244685	-3,541583992	0,000397732208	0,0226361498109
ENSMUSG00000031995	St14	181,26	-0,680	0,209336443	-3,246614687	0,001167863835	0,0448325282252
ENSMUSG00000031343	Gabra3	356,61	-0,676	0,201405664	-3,355693806	0,000791661655	0,0351572517788
ENSMUSG00000001555	Fkbp10	3370,95	-0,675	0,140275386	-4,810715443	0,000001503910	0,0003761654863
ENSMUSG00000045934	Mttr11	196,04	-0,670	0,181888081	-3,683279238	0,000230252695	0,0156181574031
ENSMUSG00000018593	Sparc	22147,61	-0,667	0,200009361	-3,333441764	0,000857786266	0,0369124799501
ENSMUSG00000027009	Itga4	2136,67	-0,667	0,186167405	-3,580520452	0,000342910500	0,0207143822189
ENSMUSG00000001349	Cnn1	205,85	-0,665	0,197211547	-3,373869756	0,000741194280	0,0336094604209
ENSMUSG00000095041	AC149090.1	1634,76	-0,664	0,125114152	-5,304456017	0,000000113009	0,0000476067329
ENSMUSG00000037148	Arhgap10	2707,97	-0,646	0,180440402	-3,582867377	0,000339843171	0,0206271381155
ENSMUSG00000056608	Chd9	3118,28	-0,646	0,142422115	-4,533929871	0,000005789626	0,0009755824292
ENSMUSG00000042104	Uggt2	1281,72	-0,641	0,165581937	-3,871041271	0,000108371440	0,0089528589589
ENSMUSG00000042302	Ehbp1	1551,94	-0,638	0,176468986	-3,617617459	0,000297327410	0,0188873697547

ENSMUSG00000026380	Tfcp2l1	744,25	-0,637	0,194580982	-3,273900908	0,001060738019	0,0426640557900
ENSMUSG00000027215	Cd82	229,54	-0,633	0,166340334	-3,80399267	0,000142382395	0,0107512140386
ENSMUSG00000094910	D430019H16Rik	381,71	-0,631	0,190682685	-3,307120108	0,000942604670	0,0393974296349
ENSMUSG00000018750	Zbtb4	692,00	-0,627	0,174760973	-3,585301078	0,000336689555	0,0205714747816
ENSMUSG00000034037	Fgd5	571,88	-0,624	0,1463917	-4,259490672	0,000020489325	0,0026118080411
ENSMUSG00000059439	Bcas3	569,17	-0,616	0,175393354	-3,514563117	0,000440477983	0,0245190993324
ENSMUSG00000036273	Lrrk2	990,56	-0,611	0,158098088	-3,867042654	0,000110163166	0,0089974079271
ENSMUSG00000027848	Olfml3	1663,89	-0,607	0,183190391	-3,314942842	0,000916618650	0,0386137667148
ENSMUSG00000029135	Fosl2	1154,78	-0,591	0,181195354	-3,264407486	0,001096932797	0,0432927626619
ENSMUSG00000018398	Sept8	2134,93	-0,590	0,165487587	-3,562413903	0,000367460437	0,0215378626425
ENSMUSG00000018395	Kif3a	1368,14	-0,589	0,121249234	-4,854462987	0,000001207134	0,0003167836573
ENSMUSG00000052516	Robo2	2516,68	-0,587	0,142136112	-4,130013276	0,000036274229	0,0039374835829
ENSMUSG00000026102	Inpp1	601,71	-0,583	0,170030064	-3,429399926	0,000604917464	0,0299799342311
ENSMUSG00000018574	Acadvl	891,97	-0,582	0,151384009	-3,843759353	0,000121163823	0,0096019330458
ENSMUSG00000002885	Adgre5	578,92	-0,576	0,138173293	-4,17005474	0,000030452648	0,0035827072554
ENSMUSG00000033705	Stard9	1224,16	-0,566	0,167793807	-3,372817803	0,000744031681	0,0336094604209
ENSMUSG00000033361	Prrg3	444,46	-0,566	0,146940877	-3,851299049	0,000117492918	0,0094513901364
ENSMUSG00000053560	Ier2	1917,00	-0,552	0,133260922	-4,145635436	0,000033887263	0,0038111067108
ENSMUSG00000038418	Egr1	1841,85	-0,547	0,155686705	-3,516591525	0,000437125923	0,0244668243846
ENSMUSG00000031616	Ednra	767,75	-0,543	0,130704588	-4,150911934	0,000033115318	0,0037596454390
ENSMUSG00000031903	Pla2g15	797,50	-0,528	0,151595456	-3,485766196	0,000490729705	0,0265391929774
ENSMUSG00000041654	Slc39a11	594,44	-0,505	0,144985796	-3,481225343	0,000499125382	0,0269023539198
ENSMUSG00000039765	Cc2d2a	920,64	-0,503	0,14694759	-3,42253811	0,000620394003	0,0303708476852
ENSMUSG00000039239	Tgfb2	3458,76	-0,502	0,149807483	-3,349888913	0,000808439755	0,0356515250691
ENSMUSG00000020973	Dnaaf2	598,45	0,504	0,153292853	3,287252158	0,001011701993	0,0411048870707
ENSMUSG00000072872	Rybp	761,72	0,505	0,15628772	3,22857346	0,001244093020	0,0469753831160
ENSMUSG00000074781	Ube2n	781,08	0,505	0,149455169	3,378563251	0,000728656681	0,0334221666154
ENSMUSG00000021608	Lpcat1	2727,47	0,508	0,149514568	3,394427532	0,000687722383	0,0321043606075
ENSMUSG00000020534	Shmt1	1584,10	0,511	0,15471571	3,30420682	0,000952455387	0,0395030354553
ENSMUSG00000040339	Fam102b	1988,74	0,519	0,152279308	3,409031863	0,000651938647	0,0311529368972

ENSMUSG00000031410	Nxf7	672,08	0,530	0,158315177	3,348846198	0,000811488289	0,0356876498025
ENSMUSG00000032020	Ubash3b	776,69	0,537	0,160108575	3,355171511	0,000793157927	0,0351572517788
ENSMUSG00000023066	Rttn	1728,27	0,545	0,167338057	3,256889127	0,001126404211	0,0436939321498
ENSMUSG00000029246	Ppat	2335,65	0,548	0,16703076	3,281116562	0,001033970044	0,0417974557279
ENSMUSG00000032076	Cadm1	1864,16	0,550	0,160596939	3,426339278	0,000611775698	0,0300605272172
ENSMUSG00000069274	Hist1h4f	2513,38	0,553	0,165573579	3,340625737	0,000835898209	0,0362630312414
ENSMUSG00000034893	Cog3	2452,01	0,555	0,161779251	3,431783046	0,000599627041	0,0298100300507
ENSMUSG00000063632	Sox11	9246,17	0,559	0,139865369	3,999826678	0,000063388891	0,0060400557685
ENSMUSG00000041220	Elovl6	4209,40	0,560	0,138340394	4,044561245	0,000052421204	0,0052121654107
ENSMUSG00000028949	Smarcd3	491,93	0,564	0,166666795	3,382862468	0,000717345461	0,0329978912044
ENSMUSG00000056153	Socs6	2716,64	0,567	0,148149143	3,826551267	0,000129951095	0,0101475957272
ENSMUSG00000034520	Gjc1	2651,11	0,575	0,173256173	3,316118814	0,000912770136	0,0385530984951
ENSMUSG00000027004	Frzb	806,59	0,575	0,161664343	3,559515424	0,000371539713	0,0215493033642
ENSMUSG00000049932	H2afx	1956,36	0,576	0,159920415	3,600901976	0,000317115128	0,0199073685287
ENSMUSG00000040260	Daam2	1144,44	0,578	0,171895985	3,362338702	0,000772852631	0,0345581701654
ENSMUSG00000034731	Dgkh	543,26	0,585	0,172400771	3,392573623	0,000692393223	0,0322204381316
ENSMUSG00000022024	Sugt1	3533,59	0,588	0,165721175	3,548552998	0,000387354039	0,0223049045063
ENSMUSG00000053414	Hunk	2944,22	0,602	0,157871618	3,813839075	0,000136824581	0,0105400646219
ENSMUSG00000069265	Hist1h3a	1162,61	0,609	0,17591201	3,461828179	0,000536519560	0,0278327000862
ENSMUSG00000020642	Rnf144a	667,97	0,613	0,162571522	3,768697037	0,000164101919	0,0119951759106
ENSMUSG00000056758	Hmga2	4574,07	0,617	0,169368819	3,645042503	0,000267347613	0,0172712847399
ENSMUSG00000033502	Cdc14a	526,33	0,619	0,14867935	4,160016323	0,000031822485	0,0036914082732
ENSMUSG00000048285	Frmd6	1001,38	0,621	0,177824567	3,490827488	0,000481527067	0,0261628132258
ENSMUSG00000037643	Prkci	4400,06	0,622	0,163374002	3,807739528	0,000140242876	0,0106905140658
ENSMUSG00000033737	Fndc3c1	2196,45	0,632	0,169761745	3,725469229	0,000194952235	0,0136876990006
ENSMUSG00000027397	Slc20a1	4267,03	0,635	0,191771291	3,310750277	0,000930462040	0,0390940586177
ENSMUSG00000001300	Efnb2	2145,42	0,636	0,184714781	3,444053131	0,000573063078	0,0290303599681
ENSMUSG00000020457	Drg1	5205,95	0,636	0,195219259	3,25918685	0,001117320537	0,0436245540340
ENSMUSG00000075012	Fjx1	1012,38	0,638	0,148810133	4,288748929	0,000017968234	0,0023813225540
ENSMUSG00000022020	Naa16	939,54	0,642	0,193338015	3,318132303	0,000906215491	0,0384381314039

ENSMUSG00000078789	Dph1	628,47	0,644	0,194588168	3,30715494	0,000942487467	0,0393974296349
ENSMUSG00000022022	Mtrf1	260,40	0,646	0,167574223	3,852855152	0,000116748461	0,0094389361495
ENSMUSG00000020451	Limk2	5490,38	0,650	0,176127889	3,69132073	0,000223092610	0,0151968786996
ENSMUSG00000020850	Prpf8	20512,33	0,658	0,188261542	3,493864291	0,000476082960	0,0260997808912
ENSMUSG00000031204	Asb12	337,73	0,661	0,201532276	3,277420325	0,001047602916	0,0422418828003
ENSMUSG00000021697	Depdc1b	370,81	0,661	0,180415842	3,665948854	0,000246423176	0,0163682249345
ENSMUSG00000037071	Scd1	2943,41	0,662	0,133923535	4,939574585	0,000000782932	0,0002278758966
ENSMUSG00000047139	Cd24a	9733,52	0,663	0,15560017	4,258745789	0,000020557709	0,0026118080411
ENSMUSG00000033004	Mycbp2	7377,56	0,663	0,179657909	3,692616039	0,000221959009	0,0151842727204
ENSMUSG00000027111	Itga6	2309,73	0,664	0,187311331	3,54450157	0,000393356163	0,0225693385409
ENSMUSG00000022023	Wbp4	2066,79	0,667	0,170360497	3,912600032	0,000091307696	0,0080409482723
ENSMUSG00000019952	Poc1b	368,91	0,667	0,193646532	3,444150357	0,000572857034	0,0290303599681
ENSMUSG00000020741	Cluh	2697,16	0,667	0,198339886	3,364229149	0,000767577837	0,0344184482413
ENSMUSG00000027784	Ppm1l	771,68	0,667	0,187087656	3,567527838	0,000360365105	0,0214487492599
ENSMUSG00000048583	Igf2	78722,28	0,668	0,178356262	3,744225662	0,000180950968	0,0129315316633
ENSMUSG00000028613	Lrp8	346,73	0,669	0,192302511	3,47755872	0,000506002205	0,0270905795934
ENSMUSG00000046808	Atp10d	300,30	0,669	0,187967577	3,55957972	0,000371448767	0,0215493033642
ENSMUSG00000038910	Plcl2	941,14	0,672	0,17721764	3,790062249	0,000150609537	0,0112481116836
ENSMUSG00000041957	Pkp2	2414,97	0,673	0,189926703	3,540901273	0,000398762759	0,0226361498109
ENSMUSG00000086266	Igf2os	2267,48	0,673	0,206181728	3,263253515	0,001101409464	0,0433203014610
ENSMUSG00000022124	Fbxl3	3291,48	0,674	0,154670132	4,354895452	0,000013313044	0,0018859753153
ENSMUSG00000000751	Rpa1	6043,00	0,674	0,18670106	3,611025985	0,000304988100	0,0192214547328
ENSMUSG00000022110	Sucla2	3475,13	0,675	0,165151891	4,087868867	0,000043535411	0,0044389481458
ENSMUSG00000049929	Lpar4	2532,87	0,676	0,163633545	4,132205516	0,000035929894	0,0039374835829
ENSMUSG00000027777	Schip1	1561,03	0,678	0,155631992	4,355783784	0,000013259161	0,0018859753153
ENSMUSG00000046580	Gm7862	104,52	0,679	0,204107716	3,328119513	0,000874343488	0,0373239748322
ENSMUSG00000078249	Hmga1-rs1	328,39	0,680	0,197213532	3,449440116	0,000561750311	0,0286385318018
ENSMUSG00000039116	Adgrg6	372,24	0,681	0,180482266	3,773687424	0,000160852275	0,0118660055874
ENSMUSG00000017499	Cdc6	1498,19	0,693	0,186427589	3,717167216	0,000201469104	0,0140222496731
ENSMUSG00000056313	1810011O10Rik	584,34	0,694	0,171210436	4,051261658	0,000050942201	0,0050967671650

ENSMUSG00000067276	Capn6	11591,29	0,696	0,163997646	4,24463071	0,000021895371	0,0027170627606
ENSMUSG00000022008	Gpalpp1	2463,23	0,704	0,151105003	4,656410649	0,000003217698	0,0006438614269
ENSMUSG00000043639	Rbm20	562,19	0,712	0,21336664	3,33888163	0,000841163995	0,0363928465614
ENSMUSG00000063804	Lin28b	1950,05	0,713	0,221077646	3,224459693	0,001262106222	0,0475383444924
ENSMUSG00000022119	Rbm26	5706,80	0,725	0,199102973	3,643792487	0,000268650044	0,0172712847399
ENSMUSG00000073295	Nudt11	532,52	0,726	0,19458629	3,72883076	0,000192370290	0,0135659189349
ENSMUSG00000011148	Adssl1	140,14	0,729	0,213472734	3,413976742	0,000640220409	0,0307767216235
ENSMUSG00000061650	Med9	1019,31	0,738	0,217471983	3,394758479	0,000686891665	0,0321043606075
ENSMUSG00000031530	Dusp4	1846,21	0,740	0,162767533	4,547224219	0,000005435808	0,0009257065097
ENSMUSG00000005583	Mef2c	2516,98	0,740	0,176009369	4,205957808	0,000025997874	0,0031291275253
ENSMUSG00000074505	Fat3	1843,26	0,749	0,193270806	3,876091618	0,000106147730	0,0088964023800
ENSMUSG00000022009	Nufip1	1583,13	0,751	0,180661326	4,15754599	0,000032168453	0,0037046949225
ENSMUSG00000037386	Rims2	365,13	0,754	0,167550315	4,499473498	0,000006812197	0,0010796995259
ENSMUSG00000070643	Sox13	529,25	0,758	0,219315604	3,455167875	0,000549950285	0,0282166800317
ENSMUSG00000063972	Nr6a1	1711,90	0,769	0,18635299	4,12919522	0,000036403521	0,0039374835829
ENSMUSG00000022125	Cln5	2302,93	0,774	0,18481964	4,186492591	0,000028329818	0,0033843561332
ENSMUSG00000069310	Hist1h3c	533,59	0,776	0,194710844	3,987935447	0,000066650793	0,0062198933432
ENSMUSG00000091509	Gm17066	873,37	0,779	0,206549392	3,771232399	0,000162443298	0,0119284051297
ENSMUSG00000051335	Gfod1	621,38	0,779	0,187557684	4,154875152	0,000032546521	0,0037214621633
ENSMUSG00000059456	Ptk2b	390,54	0,785	0,22835342	3,439418838	0,000582964554	0,0292542212780
ENSMUSG00000065265	Gm23455	440,27	0,786	0,224416223	3,500563226	0,000464276092	0,0256280402813
ENSMUSG00000027584	Oprl1	146,08	0,790	0,220432416	3,582610464	0,000340177690	0,0206271381155
ENSMUSG00000054423	Cadps	157,89	0,793	0,242319596	3,271080427	0,001071374363	0,0428764020118
ENSMUSG00000025658	Cnksr2	1353,13	0,794	0,243658488	3,256666996	0,001127285981	0,0436939321498
ENSMUSG00000042258	Isl1	722,49	0,794	0,22902	3,469084055	0,000522236037	0,0274998502815
ENSMUSG00000067995	Gtf2f2	1063,32	0,800	0,186341334	4,293159955	0,000017614801	0,0023695607692
ENSMUSG00000051855	Mest	21326,98	0,802	0,179001491	4,479383404	0,000007485897	0,0011522522536
ENSMUSG00000035337	Uchl4	218,19	0,804	0,241094938	3,335795917	0,000850555784	0,0366999918894
ENSMUSG00000022109	Med4	977,20	0,805	0,206675012	3,89384831	0,000098666361	0,0084013356919
ENSMUSG00000017652	Cd40	302,51	0,813	0,180371183	4,509692802	0,000006492157	0,0010559233376

ENSMUSG00000042498	D330045A20Rik	455,40	0,819	0,241424265	3,394359494	0,000687893284	0,0321043606075
ENSMUSG00000075502	Kbtbd6	111,98	0,822	0,236811707	3,471764188	0,000517050300	0,0274494352253
ENSMUSG00000027684	Mecom	2657,74	0,823	0,237711009	3,460767539	0,000538637715	0,0278327000862
ENSMUSG00000085860	2410003L11Rik	121,10	0,830	0,256335071	3,236291265	0,001210937540	0,0460316828389
ENSMUSG00000035799	Twist1	1914,04	0,832	0,258008482	3,222868787	0,001269136761	0,0476292397688
ENSMUSG00000032232	Cgnl1	5018,23	0,835	0,203617909	4,098837543	0,000041523035	0,0043444492836
ENSMUSG00000044350	Lacc1	277,24	0,835	0,245399952	3,400993194	0,000671414995	0,0318932084421
ENSMUSG00000080818	Gm9434	130,47	0,840	0,242367231	3,466170136	0,000527929097	0,0277084884520
ENSMUSG00000022064	Pibf1	1511,51	0,850	0,205255411	4,142975762	0,000034282819	0,0038111067108
ENSMUSG00000028278	Rragd	4389,23	0,858	0,199624578	4,298291396	0,000017211979	0,0023349945165
ENSMUSG00000014603	Alx3	597,36	0,864	0,220951709	3,908600396	0,000092832368	0,0080409482723
ENSMUSG00000027547	Sall4	975,34	0,869	0,232842267	3,733635796	0,000188735359	0,0134199239873
ENSMUSG00000045284	Dcaf12l1	1090,56	0,872	0,18294472	4,766388478	0,000001875575	0,0004228760463
ENSMUSG00000022070	Bora	1733,83	0,879	0,207739132	4,228868106	0,000023486998	0,0028700753148
ENSMUSG00000075486	Commdd6	1001,61	0,882	0,198694568	4,43800883	0,000009079490	0,0013583595201
ENSMUSG00000029334	Prkg2	368,04	0,882	0,198000201	4,457022724	0,000008310580	0,0012670072286
ENSMUSG00000037169	Mycn	1057,52	0,884	0,203257224	4,348567903	0,000013702939	0,0019241811575
ENSMUSG00000058626	Capn11	165,86	0,886	0,216516558	4,093645618	0,000042464318	0,0044015702855
ENSMUSG00000039004	Bmp6	57,58	0,894	0,256947618	3,479110923	0,000503080307	0,0270245287001
ENSMUSG00000026610	Esrrg	227,16	0,912	0,234154885	3,895657686	0,000097932623	0,0083834514911
ENSMUSG00000038763	Alpk3	329,05	0,917	0,251356639	3,648882604	0,000263383421	0,0171391943328
ENSMUSG00000021613	Hapln1	1738,49	0,931	0,203030841	4,587548473	0,000004484813	0,0008166642239
ENSMUSG00000074634	Tmem267	80,74	0,932	0,233805299	3,987296665	0,000066830438	0,0062198933432
ENSMUSG00000025597	Klhl4	139,33	0,961	0,238358023	4,032479086	0,000055191528	0,0054537406366
ENSMUSG00000001313	Rnd2	978,72	0,970	0,24859242	3,900420942	0,000096025580	0,0082643951185
ENSMUSG00000053253	Ndfip2	2523,73	0,977	0,18044035	5,411911078	0,000000062356	0,0000277274807
ENSMUSG00000033186	Mzt1	3662,13	0,977	0,194435998	5,023534353	0,000000507291	0,0001669952791
ENSMUSG00000022120	Rnf219	1186,45	0,988	0,236462855	4,178327851	0,000029366014	0,0034821567234
ENSMUSG00000098178	Gm42418	14896,54	0,993	0,266003562	3,732668735	0,000189461695	0,0134199239873
ENSMUSG00000045174	Amer3	135,07	0,995	0,209262626	4,752498984	0,000002009178	0,0004346340295

ENSMUSG00000022111	Uchl3	466,34	1,000	0,254825106	3,924661033	0,000086851945	0,0078995792033
ENSMUSG00000031636	Pdlim3	1274,32	1,003	0,219083635	4,580328731	0,000004642457	0,0008166642239
ENSMUSG00000022367	Has2	10586,60	1,007	0,200156865	5,033516178	0,000000481564	0,0001640187017
ENSMUSG00000004347	Pde1c	142,93	1,017	0,238873592	4,259324068	0,000020504601	0,0026118080411
ENSMUSG00000071424	Grid2	55,01	1,019	0,273558419	3,723977906	0,000196108096	0,0137087266361
ENSMUSG00000033083	Tbc1d4	1615,20	1,028	0,271194529	3,789302332	0,000151070965	0,0112481116836
ENSMUSG00000033166	Dis3	3372,36	1,029	0,209601013	4,908787753	0,000000916411	0,0002619626069
ENSMUSG00000045318	Adra2c	52,27	1,034	0,29021434	3,564574798	0,000364446514	0,0214487492599
ENSMUSG00000024593	Megf10	1113,07	1,036	0,174252177	5,945224035	0,000000002761	0,0000021045108
ENSMUSG00000041789	2700046A07Rik	16,29	1,038	0,291790672	3,556225252	0,000376221540	0,0217420737046
ENSMUSG00000079259	Trim71	4088,68	1,041	0,218931044	4,753292379	0,000002001306	0,0004346340295
ENSMUSG00000047604	Frat2	195,49	1,042	0,218785036	4,760455391	0,000001931566	0,0004294515645
ENSMUSG00000033446	Lpar6	1858,42	1,042	0,132620502	7,857861879	0,000000000000	0,0000000000209
ENSMUSG00000026678	Rgs5	6918,23	1,047	0,183049551	5,720747475	0,000000010606	0,0000054766171
ENSMUSG00000082766	1700064H15Rik	197,63	1,058	0,211250489	5,008920477	0,000000547362	0,0001718072159
ENSMUSG00000031074	Fgf3	53,19	1,060	0,263077113	4,0289005	0,000056038328	0,0055034451678
ENSMUSG00000045179	Sox3	49,64	1,084	0,291939996	3,713747305	0,000204212711	0,0141516756908
ENSMUSG00000026833	Olfm1	610,37	1,098	0,283915268	3,867141614	0,000110118487	0,0089974079271
ENSMUSG00000019880	Rspo3	2090,78	1,102	0,196424505	5,608490868	0,000000020410	0,0000102100258
ENSMUSG00000089726	Mir17hg	1405,12	1,108	0,237528913	4,665360779	0,000003080760	0,0006242634186
ENSMUSG00000033837	Foxh1	218,81	1,119	0,213628172	5,237814549	0,000000162489	0,0000634421300
ENSMUSG00000025215	Tlx1	146,02	1,149	0,286702525	4,005896058	0,000061782815	0,0059579476389
ENSMUSG00000042284	Itga1	1871,57	1,151	0,16181198	7,11045196	0,000000000001	0,0000000030859
ENSMUSG00000040653	Ppp1r14c	368,11	1,154	0,240033362	4,806096485	0,000001539056	0,0003790340883
ENSMUSG00000048528	Nkx1-2	83,99	1,162	0,285294216	4,073612871	0,000046289402	0,0046898781254
ENSMUSG00000050966	Lin28a	2699,58	1,170	0,201389869	5,809251852	0,000000006275	0,0000040181764
ENSMUSG00000052581	Lrrtm4	52,50	1,186	0,280907908	4,221783969	0,000024237635	0,0029393641424
ENSMUSG00000037171	Nodal	194,28	1,188	0,204898765	5,799251499	0,000000006661	0,0000041012230
ENSMUSG00000022114	Spry2	1983,84	1,192	0,253493926	4,703417618	0,000002558424	0,0005388847930
ENSMUSG00000033214	Slitrk5	448,44	1,215	0,280685999	4,330167225	0,000014899615	0,0020385729762

ENSMUSG00000072944	Nup62cl	1996,07	1,230	0,182010813	6,756032779	0,000000000014	0,0000000227028
ENSMUSG00000062151	Unc13c	211,61	1,264	0,277571962	4,553917917	0,000005265591	0,0009063610614
ENSMUSG00000036030	Prtg	6273,23	1,291	0,195467968	6,605432641	0,000000000040	0,0000000528742
ENSMUSG00000094114	Gm21967	454,18	1,334	0,147693751	9,033522888	0,000000000000	0,0000000000000
ENSMUSG00000041261	Car8	156,59	1,364	0,238084438	5,730377453	0,000000010021	0,0000054766171
ENSMUSG00000045287	Rtn4rl1	162,13	1,420	0,237890778	5,969109507	0,000000002386	0,0000019093700
ENSMUSG00000024565	Sall3	88,84	1,423	0,234590978	6,067205961	0,000000001302	0,0000010965868
ENSMUSG00000020902	Ntn1	500,73	1,426	0,283919547	5,022073003	0,000000511167	0,0001669952791
ENSMUSG00000060913	Trim55	408,53	1,533	0,232605508	6,588736096	0,000000000044	0,0000000546226
ENSMUSG00000025348	Itga7	231,29	1,539	0,236435031	6,510360996	0,000000000075	0,0000000800084
ENSMUSG00000026124	Cfc1	108,83	1,655	0,271257636	6,09970619	0,000000001063	0,0000009961636
ENSMUSG00000048070	Pirt	168,08	1,700	0,24417174	6,961057573	0,000000000003	0,0000000077234
ENSMUSG00000036510	Cdh8	123,44	1,725	0,260657962	6,618447019	0,000000000036	0,0000000528252

Suppl. Table 1. Differential expressed transcripts in the *Shox2*^{-/-} ESC-derived SAN-like cells according to a Log(2) Fold Change +/- 0.5 and a false discovery rate (FDR) of 0.05. Downregulated genes are depicted in red, upregulated genes in blue.

ensembl_id	gene_id	baseMean	log2FoldChange	lfcSE	stat	pvalue	padj
ENSMUSG00000000031	H19	48004,26	-2,209	0,235837269	-9,368291981	0,0000000000000	0,0000000000000
ENSMUSG00000060572	Mfap2	93,17	-1,910	0,25255081	-7,562810326	0,0000000000000	0,0000000001579
ENSMUSG00000020524	Gria1	131,97	-1,793	0,280983148	-6,381325315	0,0000000001756	0,0000001756497
ENSMUSG00000026676	Ccdc3	53,72	-1,745	0,267428363	-6,525783173	0,0000000000676	0,0000000773497
ENSMUSG00000044303	Cdkn2a	101,60	-1,612	0,281802294	-5,722024044	0,0000000105262	0,0000054766171
ENSMUSG00000090958	Lrrc32	81,81	-1,487	0,283356437	-5,248685165	0,0000001531886	0,0000613060845
ENSMUSG00000053024	Cntn2	173,54	-1,468	0,263768713	-5,564508233	0,0000000262893	0,0000127526868
ENSMUSG00000069793	Slfn9	21,64	-1,422	0,292388377	-4,862841254	0,0000011571265	0,0003088247660
ENSMUSG00000020607	Fam84a	109,61	-1,419	0,239975462	-5,912108754	0,0000000033776	0,0000023507776
ENSMUSG00000047904	Sstr2	22,26	-1,383	0,289716038	-4,773941199	0,0000018065515	0,0004228760463
ENSMUSG00000038775	Vill	202,55	-1,370	0,187526867	-7,307086589	0,0000000000003	0,0000000008740
ENSMUSG00000078952	Lncenc1	95,12	-1,367	0,231053045	-5,918223339	0,0000000032544	0,0000023507776
ENSMUSG00000100005	B130024G19Rik	140,13	-1,356	0,244863561	-5,538319948	0,0000000305387	0,0000139675282
ENSMUSG00000049420	Tmem200a	216,79	-1,349	0,265972296	-5,0723733	0,0000003928847	0,0001367238802
ENSMUSG00000057836	Xlr3a	26,26	-1,330	0,290317445	-4,580854036	0,0000046308097	0,0008166642239
ENSMUSG00000069920	B3gnt9	990,50	-1,326	0,246727098	-5,373429941	0,0000000772528	0,0000334233323
ENSMUSG00000007655	Cav1	382,52	-1,290	0,278237607	-4,636144924	0,0000035496714	0,0006929651150
ENSMUSG00000000861	Bcl11a	377,11	-1,280	0,185032621	-6,918307284	0,0000000000046	0,0000000091460
ENSMUSG00000021253	Tgfb3	700,04	-1,248	0,255991275	-4,874656984	0,0000010899768	0,0003008335963
ENSMUSG00000031825	Crispld2	1870,32	-1,244	0,216661266	-5,740600928	0,0000000094341	0,0000053936197
ENSMUSG00000051455	Meioc	180,92	-1,228	0,235735052	-5,208231805	0,0000001906487	0,0000709745060
ENSMUSG00000004110	Cacna1e	82,34	-1,227	0,261772148	-4,687308598	0,0000027682139	0,0005755008875
ENSMUSG00000063558	Aox1	74,11	-1,225	0,253056344	-4,839529332	0,0000013014698	0,0003306972851
ENSMUSG00000003420	Fcgrt	450,96	-1,222	0,266466747	-4,585212793	0,0000045352430	0,0008166642239
ENSMUSG000000091455	Otogl	286,26	-1,217	0,250875449	-4,850213024	0,0000012332895	0,0003184273903
ENSMUSG00000002289	Angptl4	86,29	-1,214	0,25385214	-4,781297725	0,0000017416719	0,0004161296183
ENSMUSG00000039706	Ldb2	151,25	-1,153	0,24949775	-4,619811213	0,0000038408936	0,0007407834399
ENSMUSG00000032849	Abcc4	194,09	-1,149	0,220149516	-5,220252812	0,0000001786790	0,0000681022430
ENSMUSG00000026398	Nr5a2	114,54	-1,139	0,237818614	-4,788358361	0,0000016815118	0,0004078430420

ENSMUSG00000023960	Enpp5	922,46	-1,109	0,237433262	-4,669791559	0,0000030150550	0,0006187820646
ENSMUSG00000036019	Tmtc2	1268,57	-1,107	0,226351001	-4,891661204	0,0000009998845	0,0002808096699
ENSMUSG00000001506	Col1a1	17531,19	-1,100	0,213452725	-5,154309462	0,0000002545672	0,0000926161939
ENSMUSG00000034616	Ssh3	150,40	-1,096	0,208173176	-5,266588679	0,0000001389821	0,0000570468173
ENSMUSG00000027220	Syt13	215,55	-1,085	0,23509507	-4,615860317	0,0000039147019	0,0007460303409
ENSMUSG00000079362	Gm43302	114,38	-1,076	0,210412188	-5,115974373	0,0000003121254	0,0001110334232
ENSMUSG00000025492	Ifitm3	445,15	-1,071	0,225876808	-4,74038913	0,0000021330815	0,0004552849157
ENSMUSG00000047793	Sned1	697,56	-1,070	0,215359403	-4,967759815	0,0000006773078	0,0002045725115
ENSMUSG00000028226	Mmp16	1316,76	-1,064	0,231072432	-4,605924294	0,0000041063778	0,0007733517069
ENSMUSG00000026185	Igfbp5	6071,89	-1,055	0,213236569	-4,947306656	0,0000007524738	0,0002230666878
ENSMUSG00000014776	Nol3	117,52	-1,046	0,219474344	-4,767727672	0,0000018631539	0,0004228760463
ENSMUSG00000028517	Plpp3	447,60	-1,043	0,178532223	-5,839497226	0,0000000052359	0,0000034923178
ENSMUSG00000029561	Oasl2	175,53	-1,032	0,212164325	-4,862774978	0,0000011575141	0,0003088247660
ENSMUSG00000033491	Prss35	1622,20	-1,007	0,219712557	-4,584919064	0,0000045416233	0,0008166642239
ENSMUSG00000020173	Cobl	152,22	-0,984	0,215462877	-4,568764194	0,0000049060837	0,0008536585654
ENSMUSG00000024778	Fas	305,52	-0,984	0,197550024	-4,979167564	0,0000006385834	0,0001965854369
ENSMUSG00000030551	Nr2f2	1124,15	-0,966	0,141064848	-6,849970384	0,0000000000074	0,0000000131382
ENSMUSG00000053411	Cbx7	314,52	-0,958	0,191019061	-5,016052549	0,0000005274391	0,0001688648967
ENSMUSG00000025140	Pycr1	301,56	-0,958	0,208817717	-4,586402667	0,0000045094849	0,0008166642239
ENSMUSG00000031442	Mcf2l	142,44	-0,920	0,198343383	-4,636284545	0,0000035472757	0,0006929651150
ENSMUSG00000037138	Aff3	538,29	-0,850	0,147319081	-5,767987828	0,0000000080224	0,0000047563680
ENSMUSG00000020422	Tns3	2609,60	-0,805	0,132196944	-6,091278636	0,0000000011201	0,0000009961636
ENSMUSG00000000365	Rnf17	403,83	-0,786	0,164877058	-4,768131142	0,0000018594274	0,0004228760463
ENSMUSG00000001555	Fkbp10	3370,95	-0,675	0,140275386	-4,810715443	0,0000015039100	0,0003761654863
ENSMUSG00000095041	AC149090.1	1634,76	-0,664	0,125114152	-5,304456017	0,0000001130095	0,0000476067329
ENSMUSG00000056608	Chd9	3118,28	-0,646	0,142422115	-4,533929871	0,0000057896259	0,0009755824292
ENSMUSG00000018395	Kif3a	1368,14	-0,589	0,121249234	-4,854462987	0,0000012071341	0,0003167836573
ENSMUSG00000037071	Scd1	2943,41	0,662	0,133923535	4,939574585	0,0000007829319	0,0002278758966
ENSMUSG00000022008	Gpalpp1	2463,23	0,704	0,151105003	4,656410649	0,0000032176983	0,0006438614269
ENSMUSG00000031530	Dusp4	1846,21	0,740	0,162767533	4,547224219	0,0000054358078	0,0009257065097

ENSMUSG00000045284	Dcaf12l1	1090,56	0,872	0,18294472	4,766388478	0,0000018755747	0,0004228760463
ENSMUSG00000021613	Hapln1	1738,49	0,931	0,203030841	4,587548473	0,0000044848132	0,0008166642239
ENSMUSG00000053253	Ndfip2	2523,73	0,977	0,18044035	5,411911078	0,0000000623557	0,0000277274807
ENSMUSG00000033186	Mzt1	3662,13	0,977	0,194435998	5,023534353	0,0000005072915	0,0001669952791
ENSMUSG00000045174	Amer3	135,07	0,995	0,209262626	4,752498984	0,0000020091778	0,0004346340295
ENSMUSG00000031636	Pdlim3	1274,32	1,003	0,219083635	4,580328731	0,0000046424565	0,0008166642239
ENSMUSG00000022367	Has2	10586,60	1,007	0,200156865	5,033516178	0,0000004815642	0,0001640187017
ENSMUSG00000033166	Dis3	3372,36	1,029	0,209601013	4,908787753	0,0000009164109	0,0002619626069
ENSMUSG00000024593	Megf10	1113,07	1,036	0,174252177	5,945224035	0,0000000027608	0,0000021045108
ENSMUSG00000079259	Trim71	4088,68	1,041	0,218931044	4,753292379	0,0000020013061	0,0004346340295
ENSMUSG00000047604	Frat2	195,49	1,042	0,218785036	4,760455391	0,0000019315663	0,0004294515645
ENSMUSG00000033446	Lpar6	1858,42	1,042	0,132620502	7,857861879	0,0000000000000	0,0000000000209
ENSMUSG00000026678	Rgs5	6918,23	1,047	0,183049551	5,720747475	0,0000000106056	0,0000054766171
ENSMUSG00000082766	1700064H15Rik	197,63	1,058	0,211250489	5,008920477	0,0000005473618	0,0001718072159
ENSMUSG00000019880	Rspo3	2090,78	1,102	0,196424505	5,608490868	0,0000000204098	0,0000102100258
ENSMUSG00000089726	Mir17hg	1405,12	1,108	0,237528913	4,665360779	0,0000030807602	0,0006242634186
ENSMUSG00000033837	Foxh1	218,81	1,119	0,213628172	5,237814549	0,0000001624892	0,0000634421300
ENSMUSG00000042284	Itga1	1871,57	1,151	0,16181198	7,11045196	0,0000000000012	0,0000000030859
ENSMUSG00000040653	Ppp1r14c	368,11	1,154	0,240033362	4,806096485	0,0000015390565	0,0003790340883
ENSMUSG00000050966	Lin28a	2699,58	1,170	0,201389869	5,809251852	0,0000000062753	0,0000040181764
ENSMUSG00000037171	Nodal	194,28	1,188	0,204898765	5,799251499	0,0000000066612	0,0000041012230
ENSMUSG00000022114	Spry2	1983,84	1,192	0,253493926	4,703417618	0,0000025584236	0,0005388847930
ENSMUSG00000072944	Nup62cl	1996,07	1,230	0,182010813	6,756032779	0,0000000000142	0,0000000227028
ENSMUSG00000062151	Unc13c	211,61	1,264	0,277571962	4,553917917	0,0000052655909	0,0009063610614
ENSMUSG00000036030	Prtg	6273,23	1,291	0,195467968	6,605432641	0,0000000000396	0,0000000528742
ENSMUSG00000094114	Gm21967	454,18	1,334	0,147693751	9,033522888	0,0000000000000	0,0000000000000
ENSMUSG00000041261	Car8	156,59	1,364	0,238084438	5,730377453	0,0000000100207	0,0000054766171
ENSMUSG00000045287	Rtn4rl1	162,13	1,420	0,237890778	5,969109507	0,0000000023855	0,0000019093700
ENSMUSG00000024565	Sall3	88,84	1,423	0,234590978	6,067205961	0,0000000013015	0,0000010965868
ENSMUSG00000020902	Ntn1	500,73	1,426	0,283919547	5,022073003	0,0000005111675	0,0001669952791

ENSMUSG00000060913	Trim55	408,53	1,533	0,232605508	6,588736096	0,0000000000444	0,0000000546226
ENSMUSG00000025348	Itga7	231,29	1,539	0,236435031	6,510360996	0,0000000000750	0,0000000800084
ENSMUSG00000026124	Cfc1	108,83	1,655	0,271257636	6,09970619	0,0000000010626	0,0000009961636
ENSMUSG00000048070	Pirt	168,08	1,700	0,244171174	6,961057573	0,0000000000034	0,0000000077234
ENSMUSG00000036510	Cdh8	123,44	1,725	0,260657962	6,618447019	0,0000000000363	0,0000000528252

Suppl. Table 2. Differential expressed transcripts in the *Shox2*^{-/-} ESC-derived SAN-like cells according to a Log(2) Fold Change +/- 0.5 and a false discovery rate (FDR) of 0.001. Downregulated genes are depicted in red, upregulated genes in blue.

gene_id	gene_name	gene_type	pval	qval	max.cluster	sec.cluster	max.expr	sec.expr	fold.change
ENSMUSG00000026072.12	Il1r1	protein_coding	3,84E-20	1,84E-19	7	4	79,50546781	17,05279002	4,660167988
ENSMUSG00000041144.10	Dnah7b	protein_coding	9,38E-11	2,76E-10	7	12	114,6247607	106,734053	1,073921755
ENSMUSG00000041426.12	Hibch	protein_coding	0,02776324 3	0,034204014	7	9	50,22437346	49,28887828	1,018975993
ENSMUSG00000038349.10	Plcl1	protein_coding	2,82E-59	3,42E-58	7	3	282,6936346	276,0102586	1,024213353
ENSMUSG00000026024.14	Als2	protein_coding	0,13512327 6	0,150491611	7	12	62,35525247	56,84817573	1,096856374
ENSMUSG00000041075.8	Fzd7	protein_coding	2,29E-20	1,10E-19	7	5	108,4507955	79,15453523	1,370067988
ENSMUSG00000025997.13	Ikzf2	protein_coding	7,26E-14	2,61E-13	7	3	179,7248225	157,1650128	1,143533055
ENSMUSG00000026185.8	Igfbp5	protein_coding	0 0,04305643	0	7	5	1742,460249	1494,369076	1,166016225
ENSMUSG000000103818.1	Gm38009	TEC	4	0,051550173	7	10	30,27383501	24,85761701	1,217802051
ENSMUSG00000026575.15	Nme7	protein_coding	3,66E-04	5,96E-04	7	10	105,7357611	102,593063	1,030629671
ENSMUSG000000103780.1	Gm37524	TEC	4,79E-04	7,70E-04	7	3	54,50255055	52,74196815	1,033374724
ENSMUSG00000038473.14	Nos1ap	protein_coding	6,23E-253	3,14E-251	7	10	954,9969727	696,5875638	1,370959392
ENSMUSG00000026637.13	Traf5	protein_coding	1,01E-25	5,98E-25	7	10	84,84976904	53,60983739	1,582618918
ENSMUSG00000016493.13	Cd46	protein_coding	0,03264839 0,00391551	0,039777881	7	11	33,9641189	32,98949832	1,029534406
ENSMUSG00000043241.14	Upf2	protein_coding	7	0,005547833	7	10	188,8530412	181,0786314	1,042931518
ENSMUSG00000026748.13	Plxdc2	protein_coding	1,11E-109 0,13064957	2,36E-108	7	9	775,5996616	532,8199067	1,455642132
ENSMUSG00000026775.9	Yme1l1	protein_coding	4	0,145887553	7	10	170,9148564	169,2855801	1,009623856
ENSMUSG00000038860.15	Garnl3	protein_coding	1,59E-08 0,04767752	3,99E-08	7	3	110,0529516	104,5519036	1,052610442
ENSMUSG00000026887.9	Mrrf	protein_coding	5	0,056791117	7	3	43,81143945	42,60335825	1,028349824
ENSMUSG00000027104.18	Atf2	protein_coding	2,09E-08	5,19E-08	7	4	341,3781687	340,0219201	1,003988592
ENSMUSG00000027009.18	Itga4	protein_coding	9,95E-13	3,36E-12	7	2	61,4023041	34,53169982	1,777917833
ENSMUSG00000075020.6	Mir670hg	lincRNA	7,17E-12 0,64969591	2,28E-11	7	6	54,8324673	48,38380647	1,133253846
ENSMUSG00000027189.16	Trim44	protein_coding	4	0,658822672	7	3	151,5990373	150,7961073	1,005324254
ENSMUSG00000034723.11	Tmx4	protein_coding	3,14E-10	8,93E-10	7	9	166,5672135	131,9817245	1,262027708
ENSMUSG00000051177.16	Plcb1	protein_coding	0	0	7	10	3043,778126	658,4735591	4,622420838

ENSMUSG00000051379.12	Flrt3	protein_coding	6,88E-27	4,18E-26	7	5	179,016525	147,7467277	1,211630277
ENSMUSG00000038844.9	Kif16b	protein_coding	6,60E-06	1,31E-05	7	11	146,9293082	135,9800991	1,080514752
ENSMUSG00000063873.10	Slc24a3	protein_coding	1,48E-278	9,09E-277	7	10	1180,436427	316,9870415	3,723840517
ENSMUSG00000087158.1	Gm14093	sense_intronic processed_transcript	1,93E-42	1,76E-41	7	12	204,9626087	78,77453854	2,601685718
ENSMUSG00000087594.1	BC039771	pt	2,05E-05	3,86E-05	7	9	54,95797354	52,08207968	1,055207891
ENSMUSG00000074749.10	Kiz	protein_coding	2,75E-05	5,11E-05	7	4	84,79325985	79,98673266	1,060084044
ENSMUSG00000040209.12	Zfp704	protein_coding	2,30E-10	6,60E-10	7	13	376,8411071	367,7653321	1,024677498
ENSMUSG00000102758.3	Naaladl2	protein_coding	8,36E-41	7,35E-40	7	12	361,853521	254,7237315	1,420555962
ENSMUSG00000027669.14	Gnb4	protein_coding	9,81E-04 0,70373670	0,001516874	7	12	95,59166903	78,55116831	1,216907425
ENSMUSG00000051444.9	Bbs12	protein_coding	8	0,711235327	7	2	19,72135978	15,92984653	1,237863849
ENSMUSG00000097040.6	2610316D01Rik	processed_transcript	2,14E-99	4,13E-98	7	4	323,3745296	112,5094962	2,874031082
ENSMUSG00000048332.13	Lhfp	protein_coding	5,35E-89	9,28E-88	7	11	635,7838285	431,7146789	1,47268354
ENSMUSG00000037016.11	Frem2	protein_coding	2,38E-29	1,58E-28	7	12	225,8374553	222,4987274	1,01500493
ENSMUSG00000074579.13	Lekr1	protein_coding	1,93E-05	3,64E-05	7	11	42,71433695	39,67721109	1,076526563
ENSMUSG00000027829.15	Ccnl1	protein_coding	0,00789554	0,0106859	7	10	139,0477565	135,674508	1,02486097
ENSMUSG00000027833.16	Shox2	protein_coding	3,67E-155	1,08E-153	7	5	446,4562684	122,1935691	3,653463411
ENSMUSG00000034544.17	Rsrc1	protein_coding	2,48E-23	1,33E-22	7	6	596,3075718	469,3814697	1,270405643
ENSMUSG00000028005.13	Gucy1b3	protein_coding	3,56E-24	1,99E-23	7	8	117,9797532	55,39003532	2,129777581
ENSMUSG00000033910.13	Gucy1a3	protein_coding	8,40E-41 0,00414848	7,38E-40	7	5	208,9233135	121,9320955	1,713381361
ENSMUSG00000028085.12	Gatb	protein_coding	1 0,19963174	0,00586061	7	10	48,91575672	38,47528655	1,27128472
ENSMUSG00000015747.5	Vps45	protein_coding	8 0,00445645	0,216859258	7	3	55,92187816	55,2980018	1,011280038
ENSMUSG00000049288.4	Lix1l	protein_coding	8	0,006271755	7	11	77,69723514	75,62663451	1,027375631
ENSMUSG00000038256.15	Bcl9	protein_coding	3,32E-08	8,09E-08	7	4	303,949977	286,7872749	1,059842626
ENSMUSG00000040896.16	Kcnd3	protein_coding	1,64E-18	7,32E-18	7	9	97,67274683	61,82509986	1,57972975
ENSMUSG00000068747.14	Sort1	protein_coding	6,35E-21	3,13E-20	7	13	264,4509178	248,3034279	1,065028662
ENSMUSG00000028121.8	Bcar3	protein_coding	1,86E-19	8,62E-19	7	6	141,661812	115,9494671	1,221735625
ENSMUSG00000053965.10	Pde5a	protein_coding	4,16E-11	1,26E-10	7	6	117,117914	112,64254	1,039727235

ENSMUSG00000027971.16	Ndst4	protein_coding	4,05E-34	3,08E-33	7	3	116,3108815	85,20184413	1,365078795
ENSMUSG00000028161.17	Ppp3ca	protein_coding	1,85E-08	4,61E-08	7	12	554,8653537	535,3611932	1,036431098
ENSMUSG00000059921.15	Unc5c	protein_coding	0	0	7	10	2180,756805	1948,076099	1,119440668
ENSMUSG00000028360.9	Slc44a5	protein_coding	1,28E-77 0,17503347	1,95E-76	7	6	225,2809561	135,2602998	1,665487225
ENSMUSG00000003282.9	Plag1	protein_coding	6	0,191798504	7	1	89,24191934	88,89902941	1,003856638
ENSMUSG00000028248.15	Pnlsr	protein_coding	1,12E-11	3,52E-11	7	11	398,1086568	340,6339277	1,168723774
ENSMUSG00000028476.13	Reck	protein_coding	1,24E-06 0,00595405	2,62E-06	7	4	165,3436826	161,803655	1,021877187
ENSMUSG00000048232.12	Fbxo10	protein_coding	4	0,008202536	7	6	33,4243239	33,30697377	1,003522232
ENSMUSG00000028412.17	Slc44a1	protein_coding	1,60E-09	4,32E-09	7	8	125,6066767	109,9544162	1,142339323
ENSMUSG00000045071.13	E130308A19Rik	protein_coding	2,50E-39	2,14E-38	7	12	575,3829153	530,1970429	1,085223071
ENSMUSG00000037996.17	Slc24a2	protein_coding	0	0	7	9	1394,707469	890,7270025	1,565801651
ENSMUSG00000028565.18	Nfia	protein_coding	0 0,08579108	0	7	4	1563,214127	1361,229474	1,148382895
ENSMUSG00000053510.12	Nrd1	protein_coding	8	0,098231037	7	12	174,3536185	156,696776	1,112674403
ENSMUSG00000070867.4	Trabd2b	protein_coding	6,89E-207	2,80E-205	7	12	740,3784175	675,8757676	1,095434248
ENSMUSG00000040928.15	S100pbb	protein_coding	3,88E-05 0,11184617	7,12E-05	7	10	110,2804778	109,0333313	1,011437164
ENSMUSG00000028879.4	Stx12	protein_coding	4 0,26167821	0,125855876	7	9	96,05001854	86,39172356	1,111783592
ENSMUSG00000028854.9	Slc9a1	protein_coding	3	0,278402137	7	4	67,40842314	60,00026681	1,123448149
ENSMUSG00000028926.15	Cdk14	protein_coding	5,03E-132	1,25E-130	7	12	1228,127676	1002,047133	1,22561642
ENSMUSG00000092094.5	Zfp804b	protein_coding	8,26E-93	1,49E-91	7	3	394,0656074	121,4712365	3,243921603
ENSMUSG00000040254.11	Sema3d	protein_coding	3,82E-43	3,54E-42	7	2	143,358412	113,8234348	1,25945784
ENSMUSG00000029103.16	Lrpap1	protein_coding	1,21E-04	2,08E-04	7	6	46,29952065	43,86150385	1,055571763
ENSMUSG00000029089.8	5730480H06Rik	protein_coding	0,00513897	0,007154562	7	12	37,63936586	34,76557135	1,082638312
ENSMUSG00000029186.12	Pi4k2b	protein_coding	0,32382536 0,07069715	0,340085421	7	1	49,08788992	48,08005897	1,020957158
ENSMUSG00000106682.1	Gm42648	TEC	4	0,081856165	7	4	40,68509877	34,72789772	1,17148997
ENSMUSG00000005220.10	Corin	protein_coding	1,66E-103 0,02651719	3,32E-102	7	11	347,1526666	168,44416	2,060873216
ENSMUSG00000029407.10	Uso1	protein_coding	7	0,032802666	7	1	117,861178	106,0143639	1,111736715

ENSMUSG00000034687.8	Fras1	protein_coding	1,63E-256	8,36E-255	7	12	1372,091562	936,4310601	1,465230029
ENSMUSG00000029484.12	Anxa3	protein_coding	3,85E-10 0,18127295	1,09E-09	7	5	63,94026185	58,43933011	1,094114539
ENSMUSG000000041870.16	Ankrd13a C230071H17Ri	protein_coding	9 0,19353896	0,198183022	7	5	59,38178394	58,86907287	1,008707866
ENSMUSG000000106570.1	k TEC	TEC	9 0,210464921		7	13	36,24353886	32,6793054	1,109033625
ENSMUSG000000034021.15	Pds5b	protein_coding	4,52E-10	1,27E-09	7	4	478,218092	448,5137294	1,066226959
ENSMUSG000000032827.15	Ppp1r9a	protein_coding	4,56E-57	5,34E-56	7	12	907,1713821	833,4413331	1,088463532
ENSMUSG000000029534.17	St7	protein_coding	1,90E-34	1,45E-33	7	3	575,2449427	428,6201328	1,3420777
ENSMUSG000000010797.6	Wnt2	protein_coding	1,06E-72	1,53E-71	7	13	255,1409089	68,42882089	3,728160502
ENSMUSG000000039159.16	Ube2h	protein_coding	1,76E-39 0,00260047	1,51E-38	7	9	409,1690796	405,0621204	1,010138834
ENSMUSG000000029810.15	Tmem176b	protein_coding	6 0,003779772		7	3	39,84840685	20,8816494	1,907863093
ENSMUSG000000038301.15	Snx10	protein_coding	1,09E-09	2,99E-09	7	9	112,8151668	110,4641171	1,021281453
ENSMUSG000000004347.16	Pde1c	protein_coding	7,93E-13 0,01461005	2,70E-12	7	3	137,9691179	105,512958	1,307574394
ENSMUSG000000031668.14	Eif2ak3	protein_coding	2 0,018895544		7	3	69,98070423	69,29471049	1,009898227
ENSMUSG000000033769.16	Exoc6b	protein_coding	2,56E-37	2,10E-36	7	3	477,5669764	449,9988285	1,061261349
ENSMUSG000000030067.17	Foxp1	protein_coding	2,04E-48	2,08E-47	7	12	1407,101839	952,7552419	1,476871507
ENSMUSG000000030068.4	Gm20696	protein_coding	1,34E-20 0,02763460	6,50E-20	7	3	190,7365695	186,0886267	1,024975697
ENSMUSG000000030105.8	Arl8b	protein_coding	9 0,38595037	0,034050681	7	2	81,84823916	78,38335894	1,044198645
ENSMUSG000000037997.12	Parp11	protein_coding	6 0,401555767		7	10	31,37187705	29,92042041	1,048494362
ENSMUSG000000015766.14	Eps8	protein_coding	2,09E-07 0,31420102	4,75E-07	7	4	69,32077596	59,44062023	1,166190961
ENSMUSG000000030232.17	Aebp2	protein_coding	4 0,330476873		7	4	107,1635535	93,21843088	1,149580149
ENSMUSG000000041540.16	Sox5	protein_coding	1,24E-216	5,32E-215	7	4	902,7981347	817,2974809	1,104612592
ENSMUSG000000016487.15	Ppfbp1	protein_coding	4,82E-23	2,55E-22	7	9	289,8520518	178,8471316	1,620634577
ENSMUSG000000108621.1	Gm37494	lincRNA	3,43E-04 0,07021100	5,61E-04	7	6	74,21279401	66,78172731	1,111257292
ENSMUSG000000069727.5	Zfp975	protein_coding	4 0,081327912		7	4	33,20211112	30,24404379	1,097774279
ENSMUSG000000030638.13	Sh3gl3	protein_coding	1,71E-07	3,92E-07	7	3	54,962951	33,23507947	1,653566539
ENSMUSG000000039428.11	Tmem135	protein_coding	9,14E-32	6,54E-31	7	12	328,2270841	323,0585724	1,015998188
ENSMUSG000000048078.16	Tenm4	protein_coding	2,41E-238	1,15E-236	7	6	1218,439542	1021,538918	1,192747132

ENSMUSG00000005611.15	Mrv1	protein_coding	4,93E-31	3,45E-30	7	10	120,4748944	91,90058124	1,310892531
ENSMUSG00000038156.16	Spon1	protein_coding	9,75E-266 0,02884633	5,30E-264	7	9	1171,692771	904,5303391	1,295357123
ENSMUSG00000030805.14	Stx4a	protein_coding	3	0,035415343	7	1	39,96716931	38,54891581	1,036781467
ENSMUSG00000054612.4	Mgmt	protein_coding	2,72E-06 0,04817763	5,58E-06	7	8	87,09170644	59,52470521	1,463040862
ENSMUSG00000038497.7	Tmco3	protein_coding	3	0,057361692	7	1	59,019703	51,09841553	1,154989886
ENSMUSG00000060924.15	Csmd1	protein_coding	5,56E-214	2,35E-212	7	13	643,8560505	206,7513269	3,114054548
ENSMUSG00000031538.6	Plat	protein_coding	9,56E-08	2,24E-07	7	10	47,53622282	45,6420698	1,041491066
ENSMUSG00000065954.11	Tacc1	protein_coding	9,33E-13	3,16E-12	7	9	253,3468865	249,6940404	1,014628702
ENSMUSG00000039470.15	Zdhc2	protein_coding	4,11E-22 0,10635783	2,11E-21	7	12	212,8008062	96,343241	2,208652288
ENSMUSG00000038102.15	Trappc11	protein_coding	4	0,120127506	7	10	39,75207939	39,26301288	1,012452992
ENSMUSG00000031561.16	Tenm3	protein_coding	0	0	7	6	5008,060334	2483,131041	2,016828787
ENSMUSG00000096914.3	Galnt16	protein_coding	1,58E-72	2,28E-71	7	3	327,4349172	266,1716373	1,230155921
ENSMUSG00000004383.18	Large1	protein_coding	1,49E-42 0,02781612	1,36E-41	7	9	676,0746855	621,717233	1,087429744
ENSMUSG00000054400.16	Cklf	protein_coding	6 0,46587638	0,034248474	7	4	44,28997682	39,87517996	1,11068765
ENSMUSG00000057367.12	Birc2	protein_coding	5 0,17430847	0,479333208	7	3	43,37371878	39,49185546	1,098270405
ENSMUSG00000059475.13	Zfp426	protein_coding	7	0,191132444	7	8	74,90794084	64,89205686	1,154323059
ENSMUSG00000062257.13	Opcml	protein_coding	2,07E-108 0,00729573	4,37E-107	7	3	458,8042096	158,0035853	2,903637739
ENSMUSG00000047412.16	Zbtb44	protein_coding	3	0,009926821	7	13	70,92514643	70,48556768	1,006235552
ENSMUSG00000031996.17	Aplp2	protein_coding	2,98E-13	1,04E-12	7	6	217,201836	216,529386	1,00310544
ENSMUSG00000032336.17	Nptn	protein_coding	7,87E-13	2,68E-12	7	9	355,3087028	302,6059673	1,174157154
ENSMUSG00000074269.10	Rec114	protein_coding	2,92E-30	2,01E-29	7	13	110,8389611	61,53558463	1,801087142
ENSMUSG00000032338.9	Hcn4	protein_coding	3,49E-124	8,17E-123	7	5	425,4720129	154,3420861	2,756567945
ENSMUSG00000039585.15	Myo9a	protein_coding	2,31E-16	9,40E-16	7	9	472,2027148	434,7244392	1,086209585
ENSMUSG00000032419.8	Tbx18	protein_coding	3,56E-102	7,10E-101	7	4	325,41602	92,9225286	3,501745028
ENSMUSG00000045414.7	1190002N15Rik	protein_coding	3,21E-15 0,02427594	1,24E-14	7	13	154,6198384	91,92602023	1,68192878
ENSMUSG00000041440.18	Gk5	protein_coding	1	0,030310554	7	2	41,68884184	34,03524365	1,22480668

ENSMUSG00000032537.15	Ephb1	protein_coding	5,14E-112 0,15268180	1,12E-110	7	6	342,6761231	281,7387882	1,216282509
ENSMUSG00000010067.13	Rassf1	protein_coding	7 0,00198326	0,168733979	7	12	56,56742013	51,4346454	1,099772769
ENSMUSG00000032507.15	Fbxl2	protein_coding	1	0,002933357	7	9	33,33747667	32,80603854	1,016194463
ENSMUSG00000039115.13	Itga9	protein_coding	8,35E-84	1,35E-82	7	2	438,7457414	209,5458882	2,093740936
ENSMUSG00000047409.13	Ctdspl	protein_coding	2,37E-05 0,04204630	4,44E-05	7	4	221,0493456	191,5651509	1,153904066
ENSMUSG00000025240.9	Sacm1l	protein_coding	7	0,050407367	7	10	87,52680896	80,50795	1,087171357
ENSMUSG00000019899.15	Lama2	protein_coding	1,75E-197 0,00111124	6,81E-196	7	9	688,0886817	571,6531601	1,203678547
ENSMUSG000000110830.1	RP23-331E5.8	antisense	6 0,00448346	0,001704162	7	3	50,41804634	43,71957239	1,153179498
ENSMUSG00000039480.14	Nt5dc1	protein_coding	4	0,006306539	7	10	97,77946372	96,24428106	1,01594924
ENSMUSG00000038039.13	Gcc2	protein_coding	5,76E-07	1,26E-06	7	4	120,7479724	116,5116	1,036356971
ENSMUSG00000037990.18	Sh3rf3	protein_coding	3,05E-14	1,12E-13	7	3	110,7713793	59,26549033	1,868923879
ENSMUSG00000009647.13	Mcu	protein_coding	1,76E-30	1,22E-29	7	12	300,8259336	235,115195	1,279471277
ENSMUSG00000020064.8	Herc4	protein_coding	8,87E-06	1,73E-05	7	4	249,3202024	248,1918236	1,004546215
ENSMUSG00000014329.14	Bicc1	protein_coding	1,67E-24	9,46E-24	7	4	260,9685234	222,1829693	1,174557972
ENSMUSG00000020262.15	Adarb1	protein_coding	1,38E-04	2,36E-04	7	3	72,88924318	69,654812	1,046428478
ENSMUSG00000034560.5	A230046K03Ri k	protein_coding	1,19E-05 0,25127039	2,30E-05	7	9	141,1290544	119,7728179	1,178291318
ENSMUSG00000060935.6	Tmem263	protein_coding	9	0,268203696	7	12	33,66089298	31,91586509	1,05465875
ENSMUSG00000019943.9	Atp2b1	protein_coding	2,22E-19	1,03E-18	7	10	528,9039232	523,2519944	1,010801336
ENSMUSG00000019966.17	Kitl	protein_coding	4,13E-47	4,11E-46	7	9	317,7745623	120,6735046	2,633206282
ENSMUSG00000019907.9	Ppp1r12a	protein_coding	2,46E-35	1,92E-34	7	10	798,8463037	768,2972441	1,039761515
ENSMUSG00000020166.14	Cnot2	protein_coding	4,12E-08	9,97E-08	7	9	376,7863573	373,8584411	1,007831408
ENSMUSG00000020173.17	Cobl	protein_coding	9,60E-68	1,31E-66	7	9	248,819217	153,9833173	1,615844255
ENSMUSG00000020122.16	Egfr	protein_coding	5,11E-51	5,40E-50	7	4	176,8856432	55,22170945	3,202791386
ENSMUSG00000053519.15	Kcnip1	protein_coding	1,08E-59	1,32E-58	7	12	219,5684427	124,9512782	1,757171868
ENSMUSG00000056427.10	Slit3	protein_coding	0	0	7	12	4519,872339	4085,670643	1,106274017
ENSMUSG00000086311.1	Gm12122	sense_intronic	6,34E-21	3,12E-20	7	12	85,16047512	66,63374064	1,277996618
ENSMUSG00000020354.15	Sgcd	protein_coding	4,66E-282	2,92E-280	7	10	1188,229156	1181,403911	1,005777183

ENSMUSG00000018340.13	Anxa6	protein_coding	8,92E-49	9,18E-48	7	5	248,5439728	245,9742928	1,010446521
ENSMUSG00000020524.16	Gria1	protein_coding	4,96E-30	3,38E-29	7	11	125,3489553	105,8087087	1,184657768
ENSMUSG00000032615.14	Nt5m	protein_coding	0,16083153	0,177212319	7	10	45,54778573	43,98745587	1,035464093
ENSMUSG00000053930.13	Shisa6	protein_coding	9,41E-210	3,88E-208	7	3	583,9254245	91,71082176	6,366443445
ENSMUSG00000017376.15	Nlk	protein_coding	3,06E-12	9,99E-12	7	10	472,5410951	412,6566745	1,145115718
ENSMUSG00000035441.14	Myo1d	protein_coding	1,01E-13	3,60E-13	7	10	116,7831135	95,37958114	1,224380191
ENSMUSG00000018427.7	Ypel2	protein_coding	1,51E-71	2,14E-70	7	9	262,4120296	253,4733596	1,03526334
ENSMUSG000000109967.1	RP23-220F20.4	processed_transcript	1,61E-13	5,68E-13	7	8	66,41259231	47,12853092	1,40909339
ENSMUSG00000069631.14	Strada	protein_coding	0,05237378	0,061932874	7	4	91,10469844	78,05315841	1,167192057
ENSMUSG00000020728.17	Cep112	protein_coding	3,38E-11	1,03E-10	7	12	239,5681168	232,1506909	1,031949534
ENSMUSG00000020661.15	Dnmt3a	protein_coding	3,20E-33	2,37E-32	7	11	393,8035142	387,6037777	1,015994624
ENSMUSG00000054459.6	Vsnl1	protein_coding	0	0	7	12	903,8003248	414,5284297	2,180281151
ENSMUSG00000004151.16	Etv1	protein_coding	1,57E-10	4,56E-10	7	3	115,5033812	81,79834221	1,412000024
ENSMUSG00000035181.5	Heatr5a	protein_coding	4,69E-04	7,55E-04	7	1	156,8027437	138,3573539	1,133307383
ENSMUSG00000047414.6	Flrt2	protein_coding	2,93E-138	7,73E-137	7	4	703,9833712	529,8524171	1,32863428
ENSMUSG00000021003.9	Galc	protein_coding	1,03E-06	2,20E-06	7	13	90,45180157	89,66509123	1,008772897
ENSMUSG00000021338.17	Carmil1	protein_coding	2,01E-41	1,79E-40	7	9	265,8477146	254,6420466	1,04400384
ENSMUSG00000038068.14	Rnf144b	protein_coding	3,23E-13	1,12E-12	7	12	62,43271073	53,31083028	1,171075364
ENSMUSG00000033102.14	Cdc14b	protein_coding	2,09E-09	5,57E-09	7	12	262,5257894	259,6277898	1,011161702
ENSMUSG00000064138.13	Fam172a	protein_coding	2,76E-29	1,82E-28	7	9	464,8343825	456,8525972	1,017470866
ENSMUSG00000021702.7	Thbs4	protein_coding	4,78E-28	3,03E-27	7	9	82,86258409	80,12067232	1,034218005
ENSMUSG00000021730.8	Hcn1	protein_coding	0	0	7	12	1426,261801	407,6162517	3,498969448
ENSMUSG00000060579.12	Fhit	protein_coding	5,39E-48	5,45E-47	7	9	432,9256731	428,782163	1,009663213
ENSMUSG00000015968.16	Cacna1d	protein_coding	0	0	7	10	3516,153266	2588,482574	1,358382597
ENSMUSG00000021983.15	Atp8a2	protein_coding	1,03E-31	7,36E-31	7	12	167,5907313	164,3293618	1,019845334
ENSMUSG00000021944.15	Gata4	protein_coding	0	0	7	9	1518,46484	1358,01579	1,11814875
ENSMUSG00000033487.14	Fndc3a	protein_coding	2,38E-04	3,96E-04	7	10	269,0296148	265,8978762	1,011777532

ENSMUSG00000035566.6	Pcdh17	protein_coding	3,20E-58	3,80E-57	7	3	257,8509738	114,2374455	2,257039295
ENSMUSG00000022021.13	Diaph3	protein_coding	5,23E-42	4,69E-41	7	8	601,7113475	570,5052969	1,054698009
ENSMUSG00000025558.16	Dock9	protein_coding	7,00E-19	3,16E-18	7	9	176,5541961	108,9767428	1,62005205
ENSMUSG00000022358.6	Fbxo32	protein_coding	5,88E-121	1,35E-119	7	12	497,6522052	365,4120711	1,36188327
ENSMUSG00000022335.16	Zfat	protein_coding	7,91E-04	0,001238062	7	8	69,06329796	67,06709754	1,029759791
ENSMUSG00000022332.7	Khdrbs3	protein_coding	6,16E-34	4,64E-33	7	10	420,8568357	355,2550235	1,184655983
ENSMUSG00000022475.18	Hdac7	protein_coding	0,064309076	0,075045656	7	4	55,5023884	48,66735643	1,14041502
ENSMUSG00000071669.14	Snx29	protein_coding	2,57E-13	9,00E-13	7	3	151,4552881	147,7121426	1,025339095
ENSMUSG00000090386.9	Mir99ahg	processed_transcript	1.7641143e-317	1.273440704e-315	7	6	1950,105867	1752,92077	1,11248881
ENSMUSG00000103851.1	Gm37606	TEC	1,12E-12	3,76E-12	7	12	97,90412925	57,75742682	1,694971278
ENSMUSG00000022893.14	Adamts1	protein_coding	9,47E-07	2,03E-06	7	10	81,80632281	64,68890389	1,264570462
ENSMUSG00000046962.15	Zbtb21	protein_coding	0,176439071	0,193234896	7	10	34,29640472	32,19569225	1,065227987
ENSMUSG00000023800.14	Tiam2	protein_coding	7,46E-54	8,40E-53	7	4	222,3970173	111,8628203	1,988034418
ENSMUSG00000023886.9	Smoc2	protein_coding	1,97E-167	6,19E-166	7	4	425,0431769	49,64792461	8,559624275
ENSMUSG00000042099.15	Kank3	protein_coding	3,12E-08	7,62E-08	7	12	48,76321056	48,15222399	1,012686012
ENSMUSG000000057440.7	Mpp7	protein_coding	3,74E-17	1,58E-16	7	12	277,0548899	262,0551761	1,057236578
ENSMUSG000000005836.8	Gata6	protein_coding	8,65E-87	1,45E-85	7	10	401,9901662	339,413698	1,184360929
ENSMUSG00000069378.13	Prdm6	protein_coding	7,20E-152	2,08E-150	7	8	517,9765554	375,0676098	1,381011668
ENSMUSG000000052713.8	Zfp608	protein_coding	3,80E-45	3,69E-44	7	9	879,6068308	842,7484191	1,043735442
ENSMUSG00000024601.8	Isoc1	protein_coding	0,005007536	0,006982303	7	1	59,74436587	56,44347769	1,058470945
ENSMUSG000000097324.8	Carmn	lincRNA	6,73E-43	6,20E-42	7	12	151,8485514	125,859031	1,206480658
ENSMUSG00000046318.15	Ccbe1	protein_coding	2,19E-27	1,36E-26	7	2	138,7480482	122,2478829	1,134961975
ENSMUSG000000052920.14	Prkg1	protein_coding	0	0	7	11	4114,395548	2466,268127	1,668265028
ENSMUSG00000025025.13	Mxi1	protein_coding	3,80E-11	1,15E-10	7	9	158,1412396	156,179347	1,012560988
ENSMUSG00000000134.17	Tfe3	protein_coding	0,278360978	0,295073489	7	12	38,91871871	32,46823336	1,19860949
ENSMUSG000000051361.7	6030498E09Rik	protein_coding	3,44E-48	3,49E-47	7	12	137,534088	88,26185505	1,558187351
ENSMUSG000000062184.11	Hs6st2	protein_coding	3,38E-44	3,21E-43	7	8	661,5876618	532,470626	1,242482129

ENSMUSG00000046449.15	C77370	protein_coding	2,58E-20	1,24E-19	7	3	97,40413445	94,57387762	1,029923248
ENSMUSG00000052854.15	Nrk	protein_coding	2,62E-52	2,83E-51	7	10	219,8661408	197,3380671	1,114154013
ENSMUSG00000031273.16	Col4a6	protein_coding	5,49E-124	1,28E-122	7	12	598,5484614	287,3480207	2,082971131
ENSMUSG00000031274.16	Col4a5	protein_coding	7,62E-169	2,44E-167	7	12	826,9164187	584,9771869	1,413580395
ENSMUSG00000031278.12	AcsL4	protein_coding	3,26E-07	7,29E-07	7	1	157,7631957	154,8732261	1,018659023
ENSMUSG00000041229.15	Phf8	protein_coding	0,06310202	0,073732012	7	12	78,80990189	65,41137284	1,204803545
ENSMUSG00000067851.11	Arfgef1	protein_coding	1,23E-08	3,12E-08	8	7	284,1706042	281,1370227	1,010790018
ENSMUSG00000092083.4	Kcnb2	protein_coding	2,13E-40	1,85E-39	3	7	579,5556584	155,9833935	3,715321818
ENSMUSG00000038305.14	Spats2l	protein_coding	1,34E-18	5,98E-18	4	7	176,7451849	144,9926683	1,218978843
ENSMUSG00000025968.16	Ndufs1	protein_coding	8,05E-05	1,43E-04	5	7	166,9498359	161,3468286	1,034724327
ENSMUSG00000025959.13	Klf7	protein_coding	8,46E-36	6,68E-35	3	7	280,4979321	249,6239164	1,123677167
ENSMUSG00000026163.17	Sphkap	protein_coding	0	0	12	7	1409,080994	1107,675298	1,272104086
ENSMUSG00000062590.13	Armcb9	protein_coding	7,32E-09	1,88E-08	6	7	97,78652617	71,71006643	1,363586665
ENSMUSG00000047793.13	Sned1	protein_coding	3,20E-32	2,31E-31	4	7	142,5537606	33,72086157	4,226508128
ENSMUSG00000042581.14	Thsd7b	protein_coding	1,38E-53 0,02039618	1,54E-52	3	7	455,6008899	125,7114254	3,623971717
ENSMUSG00000042046.15	Dstyk	protein_coding	1 0,025798054	0,025798054	13	7	81,36329965	76,21254631	1,067575194
ENSMUSG00000026469.14	Xpr1	protein_coding	7,76E-07	1,67E-06	3	7	278,0093562	211,8211379	1,312457455
ENSMUSG00000033671.18	Cep350	protein_coding	0,00490056	0,00684484	8	7	214,2325436	199,7167026	1,072678519
ENSMUSG00000026721.15	Rabgap1l	protein_coding	2,68E-301	1,78E-299	11	7	1387,612182	1079,722279	1,28515393
ENSMUSG00000103432.1	6720464F23Rik	TEC	6,17E-11	1,84E-10	11	7	55,93918672	45,40273163	1,232015444
ENSMUSG00000040423.10	Rc3h1	protein_coding	8,51E-08	2,01E-07	1	7	248,2638596	229,8352144	1,080178503
ENSMUSG00000052534.15	Pbx1	protein_coding	1,86E-90 0,01407512	3,28E-89	4	7	2456,672692	2101,947862	1,168759249
ENSMUSG00000102594.1	Gm38381	TEC	9 0,01827325	0,01827325	3	7	39,90126603	34,33866512	1,161945184
ENSMUSG00000055214.15	Pld5	protein_coding	1,11E-12	3,73E-12	3	7	116,1940722	56,06057686	2,072460793
ENSMUSG00000026627.7	Tmem206	protein_coding	8,71E-05	1,54E-04	6	7	41,4303066	30,74467741	1,347447286
ENSMUSG00000026664.7	Phyh	protein_coding	1,04E-04	1,80E-04	9	7	48,28980707	40,53107354	1,191379578
ENSMUSG00000026727.10	Rsu1	protein_coding	7,47E-24	4,13E-23	12	7	235,5568751	221,8479921	1,061791252
ENSMUSG00000006476.19	Nsmf	protein_coding	0,06653687	0,077412818	11	7	43,22640256	33,1681522	1,303158847

ENSMUSG00000039205.16	Ciz1	protein_coding	0,08276092 3	0,09494808	4	7	49,68131374	41,00457822	1,211552474
ENSMUSG00000026824.11	Kcnj3	protein_coding	4,17E-196	1,59E-194	9	7	550,2016322	452,4547911	1,216031928
ENSMUSG00000027035.10	Cers6	protein_coding	8,06E-36 0,53761003	6,38E-35	12	7	782,842178	510,6574755	1,532997921
ENSMUSG00000002731.6	Prkra	protein_coding	1	0,548984104	1	7	36,82959721	35,5543384	1,035857797
ENSMUSG00000059588.13	Calcr1	protein_coding	2,88E-07	6,48E-07	2	7	56,66920639	44,60994866	1,27026606
ENSMUSG00000063235.16	Ptpmt1	processed_transcript	0,01519053 3	0,01959968	5	7	42,59732652	38,96569174	1,093176917
ENSMUSG00000057234.9	Mettl15	protein_coding	0,00210134 3	0,003096775	11	7	90,5173904	85,41406761	1,059741042
ENSMUSG00000033705.16	Stard9	protein_coding	0,00117928 8	0,00180376	11	7	51,76166916	51,21114061	1,010748073
ENSMUSG00000074884.12	Serf2	protein_coding	0,03549018 5	0,042983435	5	7	46,92329704	46,11821433	1,017453151
ENSMUSG00000079037.9	Prnp	protein_coding	6,46E-05	1,16E-04	9	7	50,16987995	41,91623099	1,196861219
ENSMUSG00000027358.6	Bmp2	protein_coding	1,12E-32	8,13E-32	9	7	191,5832412	70,42150384	2,720277586
ENSMUSG00000039943.16	Plcb4	protein_coding	1,44E-63 0,08948805	1,85E-62	9	7	595,0693259	593,5016196	1,002641408
ENSMUSG00000038324.13	Trpc4ap	protein_coding	9	0,102248788	5	7	148,1641839	116,7302206	1,26926421
ENSMUSG00000035877.17	Zhx3	protein_coding	3,22E-05	5,96E-05	12	7	80,56057817	74,45319456	1,082018823
ENSMUSG00000050373.13	Snx21	protein_coding	4,59E-07	1,01E-06	11	7	54,26456272	38,34677535	1,414992846
ENSMUSG00000056476.13	Med12l	protein_coding	7,76E-91	1,38E-89	12	7	515,4941084	445,6052793	1,156836698
ENSMUSG00000034640.9	Tiparp	protein_coding	6,76E-13	2,31E-12	10	7	190,5582199	143,4770952	1,328120969
ENSMUSG00000034009.14	Rxfp1	protein_coding	8,33E-67 0,02482831	1,12E-65	9	7	240,6187243	139,5366543	1,724360397
ENSMUSG00000003382.18	Etv3	protein_coding	1	0,030924497	12	7	43,88265406	31,00321244	1,415288859
ENSMUSG00000041977.18	Arhgef11	protein_coding	0,00251666 0,07538591	0,003666439	9	7	227,0934709	208,231471	1,090577538
ENSMUSG00000054199.17	Gon4l	protein_coding	4	0,086951767	6	7	162,0434657	128,8923997	1,257179587
ENSMUSG00000060671.12	Atp8b2	protein_coding	0,17294717 6	0,18971626	10	7	40,91712271	30,73425892	1,33121188
ENSMUSG00000015522.18	Arnt	protein_coding	4,23E-04 0,18476135	6,84E-04	10	7	146,5315158	141,6183242	1,034690741
ENSMUSG00000027879.9	Sec22b	protein_coding	6	0,201726459	5	7	87,47088596	59,54163357	1,468992213
ENSMUSG00000105304.1	Gm43696	sense_intronic	0,00749654 5	0,010181372	3	7	40,86644353	38,45571111	1,062672244

ENSMUSG00000002227.15	Mov10	protein_coding	3,88E-05	7,12E-05	12	7	68,59914218	62,44899354	1,098466983
ENSMUSG000000068798.10	Rap1a	protein_coding	1,14E-06 0,00209453	2,43E-06	13	7	177,6967052	173,7831361	1,022518548
ENSMUSG000000027882.18	Stxbp3	protein_coding	2 0,62259454	0,003087662	5	7	57,6079518	54,48264968	1,057352728
ENSMUSG000000040339.10	Fam102b	protein_coding	7	0,632126428	10	7	40,16370641	36,937283	1,087325052
ENSMUSG000000028127.10	Abcd3	protein_coding	7,20E-04	0,001132032	11	7	104,5740736	91,9835777	1,136862771
ENSMUSG000000105816.4	D030025E07Rik	processed_transcript	5,01E-199	1,97E-197	10	7	467,7713648	431,8359969	1,083213387
ENSMUSG000000041220.10	Elovl6	protein_coding	3,87E-16	1,55E-15	6	7	396,1498457	367,7493327	1,077225812
ENSMUSG000000028030.12	Tbck	protein_coding	1,69E-06	3,54E-06	4	7	166,7265175	128,1954832	1,300541235
ENSMUSG000000040943.12	Tet2	protein_coding	6,34E-05 0,00687076	1,14E-04	3	7	216,3641624	166,576684	1,298868296
ENSMUSG000000005034.15	Prkacb	protein_coding	4	0,00938617	12	7	211,2588729	190,9930904	1,106101856
ENSMUSG000000028176.11	Lrrc7	protein_coding	1,35E-45	1,32E-44	3	7	352,8416748	93,46512376	3,774819018
ENSMUSG000000006586.15	Runx1t1	protein_coding	2,27E-122 0,03366362	5,29E-121	10	7	1051,982488	905,0469253	1,162349525
ENSMUSG000000028293.14	Slc35a1	protein_coding	4	0,040929226	4	7	63,1351881	52,69919449	1,197991901
ENSMUSG000000028464.16	Tpm2	protein_coding	2,86E-22	1,48E-21	12	7	151,5155991	103,2914915	1,466828764
ENSMUSG000000063446.4	Plppr1	protein_coding	2,30E-15	8,92E-15	3	7	161,1546085	143,1459149	1,125797762
ENSMUSG000000015243.4	Abca1	protein_coding	1,70E-05	3,24E-05	10	7	54,36730646	45,82123548	1,186468265
ENSMUSG000000028369.15	Svep1	protein_coding	5,35E-30	3,63E-29	12	7	171,5585183	85,23227803	2,012716252
ENSMUSG000000038578.15	Susd1	protein_coding	2,75E-29 0,00369761	1,81E-28	12	7	115,5780115	101,6352865	1,137170404
ENSMUSG000000028383.17	Hsd12	protein_coding	7	0,005255526	5	7	55,11569362	31,96042895	1,724271317
ENSMUSG000000028530.14	Jak1	protein_coding	9,79E-05 0,00955891	1,71E-04	5	7	113,9159584	111,9532061	1,017530332
ENSMUSG000000028557.10	Rnf11	protein_coding	3	0,012765562	1	7	76,04576017	70,47444421	1,079043199
ENSMUSG000000033423.16	Eri3	protein_coding	7,98E-11 0,00971641	2,36E-10	8	7	300,3400314	254,1983679	1,18151119
ENSMUSG000000028657.14	Ppt1	protein_coding	5 0,39933098	0,012941998	5	7	90,07926166	87,75204627	1,026517333
ENSMUSG000000023075.9	Akirin1	protein_coding	9 0,02590002	0,414472945	6	7	24,40962595	23,72705213	1,028755627
ENSMUSG000000042408.13	Zmym6	protein_coding	5	0,032117133	3	7	57,9332752	57,53120511	1,006987516
ENSMUSG000000028800.15	Hdac1	protein_coding	1,58E-05	3,02E-05	4	7	118,3355459	94,17306425	1,256548052

ENSMUSG00000037692.14	Ahdc1	protein_coding	2,34E-08	5,79E-08	5	7	130,7636861	128,8243714	1,015052774
ENSMUSG00000037266.18	Rsrp1	protein_coding	5,46E-07	1,20E-06	13	7	210,147519	189,2655879	1,110325538
ENSMUSG00000057530.14	Ece1	protein_coding	1,12E-11	3,52E-11	10	7	127,4129604	96,99054765	1,313631351
ENSMUSG00000036622.15	Atp13a2	protein_coding	0,37483131 2	0,390485187	1	7	21,02310127	20,55650183	1,022687351
ENSMUSG00000003623.4	Crot	protein_coding	0,00719825 5	0,009807277	9	7	67,02984426	50,9475764	1,315601114
ENSMUSG00000028780.13	Sema3c	protein_coding	2,66E-139 0,06389337	7,05E-138	10	7	889,25096	214,3922963	4,147627966
ENSMUSG00000057614.6	Gnai1	protein_coding	3 0,26998448	0,074603242	9	7	70,17572597	55,03566657	1,275045437
ENSMUSG00000038072.14	Galnt11	protein_coding	8	0,286641087	4	7	48,66280476	48,01617911	1,013464025
ENSMUSG00000037235.13	Mxd4	protein_coding	3,09E-06	6,32E-06	4	7	82,8416253	71,02734297	1,16631087
ENSMUSG00000029101.14	Rgs12	protein_coding	1,29E-12 0,26917004	4,32E-12	9	7	219,5551463	173,2022329	1,26760762
ENSMUSG00000029192.17	Tbc1d14	protein_coding	9	0,285850813	8	7	58,96573791	55,1156083	1,06984285
ENSMUSG00000029174.18	Tbc1d1	protein_coding	1,58E-09	4,27E-09	8	7	189,2917212	161,7452796	1,170297017
ENSMUSG00000037822.12	Smim14	protein_coding	1,64E-28 0,00100401	1,05E-27	9	7	188,0603041	140,7419903	1,3361822
ENSMUSG00000092060.4	Bend4	protein_coding	7	0,001549918	5	7	72,6462706	72,32872862	1,004389654
ENSMUSG00000037685.15	Atp8a1	protein_coding	1,17E-84	1,92E-83	13	7	1136,819654	361,3593207	3,145894211
ENSMUSG00000029211.11	Gabra4	protein_coding	1,18E-28	7,63E-28	10	7	151,3832462	71,84030522	2,10706476
ENSMUSG00000029212.11	Gabrb1	protein_coding	2,14E-177	7,24E-176	10	7	406,787086	368,6025032	1,103590037
ENSMUSG00000046808.17	Atp10d	polymorphic_pseudogene	3,49E-11 0,02644544	1,06E-10	13	7	202,5172693	120,60747	1,67908736
ENSMUSG00000029229.8	Chic2	protein_coding	1	0,032728498	3	7	90,16599492	80,18694668	1,124431773
ENSMUSG00000029231.15	Pdgfra	protein_coding	7,92E-99	1,52E-97	4	7	368,2556866	177,7189353	2,072063764
ENSMUSG00000049537.10	Tecrl	protein_coding	3,43E-221	1,51E-219	12	7	720,4808305	450,2198714	1,600273274
ENSMUSG00000060961.14	Slc4a4	protein_coding	1,61E-21	8,14E-21	10	7	222,3448195	213,3943352	1,041941436
ENSMUSG00000055204.14	Ankrd17	protein_coding	1,38E-09	3,75E-09	12	7	798,6940898	679,1759444	1,175972642
ENSMUSG00000089809.9	A930011G23Rik	protein_coding	1,86E-151 0,27078855	5,31E-150	9	7	917,607933	270,5413569	3,391658957
ENSMUSG00000029319.8	Coq2	protein_coding	8	0,287419944	13	7	37,40770352	27,96677628	1,337455865
ENSMUSG00000057315.14	Arhgap24	protein_coding	2,15E-72	3,09E-71	4	7	404,9558794	246,868007	1,64034814

ENSMUSG00000034573.14	Ptpn13	protein_coding	2,87E-27 0,46595356	1,77E-26	10	7	410,9278238	369,3916576	1,112441743
ENSMUSG00000062234.14	Gak	protein_coding	8	0,479352157	11	7	101,5193378	96,34643419	1,053685087
ENSMUSG00000033209.17	Ttc28	protein_coding	2,61E-68	3,55E-67	4	7	866,1585388	552,7721657	1,566925622
ENSMUSG00000029467.15	Atp2a2	protein_coding	1,91E-302	1,27E-300	12	7	2348,37298	1705,694984	1,376781449
ENSMUSG000000105434.1	Gm43359	TEC	2,68E-73	3,90E-72	12	7	436,3931922	302,9924264	1,440263028
ENSMUSG000000105970.1	Gm43360	TEC	9,84E-23 0,00546103	5,16E-22	12	7	127,8165196	93,04516927	1,373663823
ENSMUSG00000038023.12	Atp6v0a2	protein_coding	9	0,007575798	1	7	95,65524868	79,46180617	1,203763363
ENSMUSG000000106386.1	Gm42991	TEC	3,50E-05	6,44E-05	4	7	47,68041643	35,2184496	1,353747424
ENSMUSG00000029655.17	N4bp2l2	protein_coding	5,41E-05	9,78E-05	9	7	273,2940724	248,3255265	1,100543592
ENSMUSG00000004631.15	Sgce	protein_coding	1,70E-11 0,00294130	5,28E-11	10	7	278,8537097	253,0378436	1,102019704
ENSMUSG000000097385.1	Gm26814	TEC	1	0,004238154	3	7	61,11557143	40,51018546	1,508521512
ENSMUSG000000062995.12	Ica1	protein_coding	9,66E-35	7,45E-34	12	7	227,9170783	155,5261963	1,465427879
ENSMUSG000000029563.16	Foxp2	protein_coding	0	0	4	7	1466,883661	1308,037045	1,121438
ENSMUSG000000041390.18	Mdfic	protein_coding	1,84E-16	7,53E-16	4	7	116,2170988	113,8328302	1,020943511
ENSMUSG00000007655.16	Cav1	protein_coding	6,20E-17	2,60E-16	12	7	114,1568101	51,31002937	2,224605314
ENSMUSG000000059022.14	Kcp	protein_coding	7,18E-28	4,52E-27	4	7	117,3928001	52,81822294	2,222349978
ENSMUSG000000029761.16	Cald1	protein_coding	2,27E-162	6,95E-161	10	7	1242,588021	969,5326833	1,281633127
ENSMUSG000000029780.14	Nt5c3	protein_coding	2,85E-15 0,17932726	1,10E-14	13	7	376,6248008	64,69372049	5,820914129
ENSMUSG000000053470.13	Kdm3a	protein_coding	2	0,196187295	11	7	165,0299132	164,9084802	1,000736322
ENSMUSG000000034744.13	Nagk	protein_coding	2,51E-04	4,16E-04	5	7	41,39744966	35,11486579	1,178864281
ENSMUSG000000045095.16	Magi1	protein_coding	0	0	12	7	3036,700991	2849,69373	1,065623405
ENSMUSG000000045100.11	Slc25a26	protein_coding	4,04E-04	6,55E-04	3	7	108,0331851	91,08550365	1,186043007
ENSMUSG000000059187.12	Fam19a1	protein_coding	7,55E-14	2,72E-13	3	7	73,10928534	69,25022659	1,055718252
ENSMUSG000000030102.11	Itpr1	protein_coding	1,34E-101 0,42774853	2,64E-100	12	7	1063,629166	800,827545	1,328158467
ENSMUSG000000000441.17	Raf1	protein_coding	6	0,442279733	4	7	226,6631251	226,5100771	1,000675649
ENSMUSG000000030126.17	Tmcc1	protein_coding	1,14E-23	6,26E-23	3	7	683,6058673	596,2372975	1,14653076
ENSMUSG000000072623.6	Zfp9	protein_coding	0,11619977	0,130502757	4	7	40,31068337	31,63892286	1,273998599

ENSMUSG00000038346.18	Zfp384	protein_coding	0,20455953 6	0,22185775	12	7	35,32407567	34,37761268	1,02752337
ENSMUSG00000030199.16	Etv6	protein_coding	1,45E-42	1,33E-41	12	7	865,4624312	747,0056795	1,158573314
ENSMUSG00000030275.6	Etnk1	protein_coding	0,07837167	0,090217007	4	7	191,8242741	156,9980544	1,221811676
ENSMUSG00000002602.16	Axl	protein_coding	1,22E-05 0,02208360	2,35E-05	13	7	111,583408	40,29844152	2,76848729
ENSMUSG00000092416.2	Zfp141	protein_coding	1	0,027755921	1	7	47,00371089	44,60481589	1,053769022
ENSMUSG00000038260.10	Trpm4	protein_coding	3,28E-08	7,99E-08	12	7	105,5115248	81,20133109	1,29934485
ENSMUSG00000038239.11	Hrc	protein_coding	2,77E-11 0,01814974	8,46E-11	5	7	46,81288418	36,65063831	1,277197734
ENSMUSG00000030839.12	Sergef	protein_coding	4 0,26051662	0,023157745	4	7	100,1179346	96,22814159	1,040418413
ENSMUSG00000030471.17	Zdhhc13	protein_coding	8	0,277238635	5	7	50,22039776	46,22029792	1,086525504
ENSMUSG00000109554.1	RP24- 274B19.1	lincRNA	3,15E-07	7,06E-07	3	7	65,66883017	44,86691887	1,46353252
ENSMUSG00000030551.14	Nr2f2	protein_coding	2,15E-91	3,84E-90	12	7	486,4865746	364,3982742	1,335031636
ENSMUSG00000100005.7	B130024G19Ri k	processed_transcript	1,12E-63	1,45E-62	12	7	269,9941932	232,2299042	1,162608959
ENSMUSG00000030527.15	Crtc3	protein_coding	3,32E-10	9,43E-10	11	7	164,3846413	135,75645	1,210863518
ENSMUSG00000030691.15	Fchsd2	protein_coding	3,63E-42	3,27E-41	9	7	720,655196	536,6490468	1,342873469
ENSMUSG00000030894.5	Tpp1	protein_coding	8,69E-04 0,00349905	0,001352929	6	7	71,33343341	45,5584301	1,565632901
ENSMUSG00000031016.9	Wee1	protein_coding	3 0,08567693	0,004994186	11	7	121,6487973	102,1936211	1,190357015
ENSMUSG00000030788.16	Rnf141	protein_coding	8	0,098114107	11	7	38,9102455	32,69157444	1,190164271
ENSMUSG00000055723.6	Rras2	protein_coding	2,57E-16	1,04E-15	9	7	310,3412601	209,1396249	1,483871942
ENSMUSG00000030657.11	Xylt1	protein_coding	9,44E-13	3,20E-12	10	7	230,8475809	157,6746943	1,464045588
ENSMUSG00000054555.11	Adam12	protein_coding	1,56E-21	7,87E-21	10	7	137,163224	111,1283158	1,234256818
ENSMUSG00000048583.16	Igf2	protein_coding	0 0,00355177	0	5	7	2678,985995	2397,778665	1,11727778
ENSMUSG00000004568.12	Arhgef18	protein_coding	9	0,005061471	8	7	109,5929606	90,56784808	1,21004156
ENSMUSG00000071796.13	6820431F20Rik	transcribed_unprocessed_pseudogene	0,23269172 9 0,27015590	0,249712727	13	7	43,46414595	28,68217064	1,515191949
ENSMUSG00000031537.15	Ikbkb	protein_coding	2	0,286785749	6	7	73,01964886	72,03968821	1,013601178
ENSMUSG00000031548.7	Sfrp1	protein_coding	4,02E-51	4,25E-50	6	7	357,4266421	276,3565599	1,293342589
ENSMUSG00000063626.6	Unc5d	protein_coding	1,69E-44	1,61E-43	3	7	254,5093994	125,0499631	2,03517891

ENSMUSG00000009630.10	Ppp2cb	protein_coding	0,10540308 7	0,119098626	5	7	56,85111285	52,03564777	1,092523876
ENSMUSG00000031520.6	Vegfc	protein_coding	4,62E-71 0,60090403	6,50E-70	10	7	524,2433776	151,3725618	3,463102826
ENSMUSG00000002342.17	Tmem161a	protein_coding	9	0,611092663	11	7	30,00357579	28,80955662	1,041430865
ENSMUSG00000031799.9	Tpm4	protein_coding	3,65E-18	1,60E-17	5	7	355,6719748	159,1001941	2,23544429
ENSMUSG00000037148.8	Arhgap10	protein_coding	6,54E-13 0,00529462	2,24E-12	2	7	312,9868226	291,3068084	1,074420746
ENSMUSG00000037134.17	Prmt9	protein_coding	6 0,01351390	0,00735495	13	7	96,73054067	57,82538571	1,672687741
ENSMUSG00000037022.3	Mmaa	protein_coding	2	0,017595035	9	7	33,02639625	25,96510454	1,271848443
ENSMUSG00000037940.17	Inpp4b	protein_coding	3,72E-38	3,11E-37	4	7	209,0798203	98,4905866	2,122726651
ENSMUSG00000036510.17	Cdh8	protein_coding	2,98E-69 0,01241952	4,10E-68	6	7	248,4641183	109,6261662	2,266351762
ENSMUSG00000033624.10	Pdpr	protein_coding	1 0,04015602	0,016284526	11	7	56,67669014	53,44351589	1,060485717
ENSMUSG00000031959.15	Wdr59	protein_coding	2	0,048219148	1	7	60,70859565	56,31205147	1,078060796
ENSMUSG00000039960.5	Rhou	protein_coding	1,27E-05	2,45E-05	5	7	65,09116712	45,87143552	1,418899962
ENSMUSG00000025810.9	Nrp1	protein_coding	9,15E-198 0,00223873	3,57E-196	8	7	999,4372943	840,8888387	1,188546408
ENSMUSG00000043067.15	Dpy19l1	protein_coding	5 0,23389720	0,003282056	13	7	146,3509957	126,3003547	1,158741071
ENSMUSG00000031993.7	Snx19	protein_coding	4	0,250874358	6	7	61,45524514	53,19332546	1,155289535
ENSMUSG00000037287.15	Tbcel	protein_coding	4,56E-04 0,21655762	7,35E-04	5	7	71,37380996	70,60538441	1,010881843
ENSMUSG00000032059.13	Alg9	protein_coding	9	0,233689719	4	7	59,42375661	54,53294488	1,089669008
ENSMUSG00000032290.7	Ptpn9	protein_coding	1,76E-05	3,35E-05	4	7	245,4188723	187,2733382	1,31046827
ENSMUSG00000036986.16	Pml	protein_coding	0,03716207 0,00261930	0,044901645	4	7	35,75572326	31,90875627	1,120523712
ENSMUSG00000036943.9	Rab8b	protein_coding	7 0,04376040	0,003804432	4	7	94,72294094	91,37030711	1,0366888
ENSMUSG00000007908.14	Hmgcll1	protein_coding	8	0,05234692	3	7	56,67897066	52,21787573	1,085415975
ENSMUSG00000033419.15	Snap91	protein_coding	1,82E-187	6,58E-186	11	7	774,8646783	286,9930706	2,699882885
ENSMUSG00000032452.12	Clstn2	protein_coding	1,01E-132 0,13511060	2,52E-131	10	7	697,8103871	382,2805431	1,825366595
ENSMUSG00000032558.19	Nphp3	protein_coding	9	0,150491611	12	7	29,06478531	27,25679731	1,066307311
ENSMUSG00000032570.17	Atp2c1	protein_coding	1,85E-10 2,30200898	5,34E-10 1,632824982	10	7	278,753551	243,8664851	1,143052193
ENSMUSG00000010066.15	Cacna2d2	protein_coding	56e-313	224e-311	9	7	1129,79691	693,6373178	1,62879158

ENSMUSG00000032582.14	Rbm6	protein_coding	2,58E-12	8,47E-12	4	7	625,4260784	532,8772817	1,173674246
ENSMUSG00000040875.12	Osbpl10	protein_coding	2,03E-17	8,63E-17	9	7	153,8916946	132,7504807	1,159243276
ENSMUSG00000019768.16	Esr1	protein_coding	9,53E-38	7,91E-37	9	7	155,8912054	80,72639819	1,930990345
ENSMUSG00000019775.17	Rgs17	protein_coding	7,20E-16	2,87E-15	3	7	85,55902303	78,97045554	1,083420226
ENSMUSG00000019978.15	Epb41l2	protein_coding	4,98E-25 0,00217939	2,87E-24	9	7	289,0545285	250,7888222	1,152575303
ENSMUSG00000039531.7	Zufsp	protein_coding	2	0,003203117	4	7	55,84415563	44,01616046	1,268658339
ENSMUSG00000019843.14	Fyn	protein_coding	1,54E-14	5,75E-14	3	7	357,3506456	216,7745936	1,648459605
ENSMUSG00000019842.6	Traf3ip2	protein_coding	4,02E-05	7,37E-05	12	7	49,66228369	35,51433841	1,398260627
ENSMUSG00000019864.14	Rtn4ip1	protein_coding	0,09424549	0,10744381	13	7	55,88002937	30,11540334	1,855245845
ENSMUSG00000038122.8	Tbc1d32	protein_coding	0,00584636 0,00665916	0,008063706	3	7	65,97453366	65,14282824	1,012765454
ENSMUSG00000020092.8	Pald1	protein_coding	3	0,009109306	4	7	41,6193376	39,78182425	1,046178163
ENSMUSG00000058806.14	Col13a1	protein_coding	4,60E-22 0,02061854	2,36E-21	13	7	118,8759915	95,98610711	1,238445965
ENSMUSG00000033444.13	Specc1l	protein_coding	9	0,02606719	3	7	167,3224095	167,1691323	1,000916844
ENSMUSG00000020044.13	Timp3	protein_coding	4,58E-10	1,29E-09	12	7	216,1808134	182,144743	1,186852507
ENSMUSG00000020053.18	Igf1	protein_coding	7,09E-55	8,11E-54	4	7	225,9841849	73,01743076	3,094647896
ENSMUSG00000020023.17	Tmcc3	protein_coding	3,73E-10	1,05E-09	9	7	129,2560957	82,6965591	1,562948539
ENSMUSG00000035948.12	Acss3	protein_coding	9,38E-09	2,40E-08	9	7	87,71917155	58,68057497	1,494774444
ENSMUSG00000019906.14	Lin7a	protein_coding	2,80E-36	2,24E-35	3	7	241,6054987	112,6194598	2,145224696
ENSMUSG00000035873.7	Pawr	protein_coding	3,00E-83	4,84E-82	10	7	509,769897	373,809787	1,363704958
ENSMUSG00000020181.15	Nav3	protein_coding	1,04E-79	1,62E-78	3	7	839,7672913	215,5053421	3,896600971
ENSMUSG00000054934.10	Kcnmb4	protein_coding	8,28E-10	2,29E-09	4	7	75,98646416	38,73550545	1,961426578
ENSMUSG00000020170.3	Frs2	protein_coding	1,24E-05	2,39E-05	10	7	247,7323494	215,5311094	1,149397208
ENSMUSG00000020121.15	Srgap1	protein_coding	3,42E-56	3,98E-55	3	7	548,0231265	390,5585273	1,40316766
ENSMUSG00000034602.13	Mon2	protein_coding	4,68E-06	9,40E-06	9	7	158,0480594	155,5767368	1,01588389
ENSMUSG00000104244.1	2900018N21Rik	TEC	0,07465124 3	0,086165301	12	7	48,61999267	38,09584692	1,276181914
ENSMUSG00000069911.10	Fam196b	protein_coding	4,97E-07	1,09E-06	9	7	79,14469898	31,22278086	2,534346824
ENSMUSG00000044707.7	Ccnjl	protein_coding	1,51E-14	5,67E-14	10	7	305,2198527	237,4173338	1,285571664

ENSMUSG00000011256.16	Adam19	protein_coding	5,49E-50 0,00286334	5,73E-49	10	7	326,3212489	228,2029836	1,429941644
ENSMUSG00000009894.15	Snap47	protein_coding	4 0,69462871	0,004133439	5	7	96,36549862	45,65447922	2,110513473
ENSMUSG000000042569.13	Dhrs7b	protein_coding	8	0,702378387	5	7	32,10593823	28,05875717	1,14418811
ENSMUSG000000020903.13	Stx8	protein_coding	2,15E-06	4,46E-06	11	7	190,4845594	165,9558981	1,147793381
ENSMUSG000000005204.12	Senp3	protein_coding	8,42E-06	1,65E-05	5	7	72,64938355	49,67015359	1,462543456
ENSMUSG000000038807.18	Rap1gap2	protein_coding	9,89E-87	1,65E-85	10	7	370,2604317	206,30654	1,794671584
ENSMUSG000000058756.13	Thra	protein_coding	2,67E-13	9,32E-13	13	7	190,6172903	102,7028925	1,855923689
ENSMUSG000000006931.15	P3h4	protein_coding	9,11E-09 0,00211736	2,33E-08	10	7	65,14052227	38,56012015	1,689144914
ENSMUSG000000017314.12	Mpp2	protein_coding	3 0,05293961	0,003118132	3	7	67,58092645	44,12872646	1,531329331
ENSMUSG000000034708.11	Grn	protein_coding	6	0,062538515	5	7	34,54571366	29,10141501	1,18701594
ENSMUSG000000041895.15	Wipi1	protein_coding	1,71E-07	3,91E-07	11	7	76,05656183	74,44845441	1,021597379
ENSMUSG000000041592.16	Sdk2	protein_coding	2,13E-20 0,01490356	1,03E-19	13	7	427,9886095	417,9651021	1,023981111
ENSMUSG000000039908.14	Slc26a11	protein_coding	9	0,019253787	6	7	34,91531907	31,6343363	1,103683096
ENSMUSG000000020640.9	Itsn2	protein_coding	5,15E-15	1,97E-14	9	7	243,9587191	187,1872104	1,303271126
ENSMUSG000000020589.16	Fam49a	protein_coding	6,47E-96	1,21E-94	12	7	452,5345336	349,3815366	1,295236106
ENSMUSG000000021023.14	1110008L16Rik 4930447C04Ri	protein_coding	2,40E-04	4,00E-04	4	7	78,7675805	71,85713649	1,096155828
ENSMUSG000000021098.14	k	protein_coding	1,55E-05	2,96E-05	8	7	37,20513807	36,03976566	1,032326768
ENSMUSG000000021219.16	Rgs6	protein_coding	0	0	9	7	3908,700808	2903,416266	1,346240769
ENSMUSG000000042507.14	Elmsan1	protein_coding	0,26820464	0,284973981	9	7	82,72778063	82,21411054	1,006247195
ENSMUSG000000021009.14	Ptpn21	protein_coding	1,01E-05	1,97E-05	3	7	82,59481157	76,58350406	1,078483255
ENSMUSG000000021182.14	Ccdc88c	protein_coding	1,64E-21	8,26E-21	6	7	122,0608349	86,19673602	1,416024321
ENSMUSG000000025321.14	Itgb8	protein_coding	4,88E-104	9,80E-103	6	7	496,3305278	196,9178733	2,520417855
ENSMUSG000000019726.10	Lyst	protein_coding	2,09E-09	5,58E-09	10	7	148,1200371	101,1273041	1,464642927
ENSMUSG000000039233.12	Tbce	protein_coding	1,56E-04	2,65E-04	3	7	136,639627	100,4916429	1,359675554
ENSMUSG000000021314.11	Amph	protein_coding	7,11E-308 0,00122431	4,91E-306	10	7	1267,105128	240,8581788	5,260616551
ENSMUSG000000021327.18	Zkscan3	protein_coding	2	0,001865629	10	7	244,4944883	203,2404811	1,202971265
ENSMUSG000000049115.14	Agtr1a	protein_coding	2,16E-04	3,62E-04	9	7	55,44857166	26,03571316	2,129278294

ENSMUSG00000060147.15	Serpib6a	protein_coding	0,00500737	0,006982303	10	7	79,71038557	79,33469437	1,004734925
ENSMUSG00000039004.5	Bmp6	protein_coding	1,30E-74 0,05731437	1,92E-73	10	7	356,9201914	72,05859398	4,952645413
ENSMUSG000000021432.14	Slc35b3	protein_coding	6	0,067365038	4	7	34,02818719	27,96269183	1,216836313
ENSMUSG000000021366.7	Hivep1	protein_coding	6,54E-05	1,17E-04	13	7	158,8818038	129,8953906	1,223134799
ENSMUSG000000056222.14	Spock1	protein_coding	3,40E-25 0,01783910	1,97E-24	3	7	219,6181934	53,27932641	4,121429341
ENSMUSG000000021557.14	Agtbp1	protein_coding	8 0,39847748	0,022811351	4	7	116,7918798	108,2168183	1,079232316
ENSMUSG000000074863.4	Platr25	lincRNA	4	0,413692356	4	7	27,42317012	21,30865796	1,28681506
ENSMUSG000000021458.16	2010111I01Rik	protein_coding	1,85E-14	6,90E-14	4	7	302,64855	253,3130875	1,194753123
ENSMUSG000000005583.16	Mef2c	protein_coding	0	0	10	7	1905,674095	1121,791612	1,698771044
ENSMUSG000000003992.14	Ssbp2	protein_coding	2,14E-58 0,00993538	2,55E-57	4	7	907,87284	691,0026201	1,31384408
ENSMUSG000000021703.8	Serinc5	protein_coding	8	0,01321209	13	7	69,99884705	42,87758291	1,632380337
ENSMUSG000000021686.4	Ap3b1	protein_coding	8,94E-12	2,82E-11	9	7	341,0226768	295,0359242	1,155863033
ENSMUSG000000052727.5	Map1b	protein_coding	2,12E-130 0,01641216	5,20E-129	3	7	1530,919611	1285,662949	1,190761315
ENSMUSG000000021712.14	Trim23	protein_coding	9	0,021082529	4	7	46,46234726	45,61218079	1,018634937
ENSMUSG000000046169.9	Adamts6	protein_coding	3,08E-188 0,22857874	1,12E-186	12	7	895,241318	821,1744786	1,090195128
ENSMUSG000000021716.14	Srek1ip1	protein_coding	1	0,245557327	13	7	82,83548285	71,6214359	1,156552034
ENSMUSG000000062822.7	4833420G17Rik	protein_coding	0,19845594 9	0,215610705	4	7	60,59891998	51,28612108	1,181549768
ENSMUSG000000043004.13	Gng2	protein_coding	7,21E-18 0,12754229	3,14E-17	3	7	286,0024203	169,8093074	1,684216151
ENSMUSG000000021770.10	Samd8	protein_coding	1	0,142554463	13	7	104,1015669	61,50345297	1,692500777
ENSMUSG000000007817.14	Zmiz1	protein_coding	1,47E-27	9,14E-27	10	7	744,7757662	613,5503859	1,213875249
ENSMUSG000000021948.15	Prkcd	protein_coding	2,72E-05	5,08E-05	13	7	76,72769223	52,47292059	1,462145997
ENSMUSG000000037712.15	Fermt2	protein_coding	4,68E-23	2,49E-22	9	7	398,7809605	369,1429642	1,080286491
ENSMUSG000000021835.14	Bmp4	protein_coding	1,07E-117 0,01114475	2,40E-116	10	7	483,7267681	275,5745974	1,755311337
ENSMUSG000000022194.15	Pabpn1	protein_coding	1 0,00110607	0,014743389	11	7	155,5002779	142,0630953	1,094579361
ENSMUSG000000075592.9	Nynrin	protein_coding	1 0,00131343	0,001696863	5	7	78,35686306	56,41449796	1,388880112
ENSMUSG000000063895.6	Nupl1	protein_coding	4	0,001993984	13	7	73,74989233	65,07000412	1,133372582

ENSMUSG00000021972.14	Hmbox1	protein_coding	1,61E-12 0,01520832	5,35E-12	10	7	383,8244877	315,1413922	1,21793683
ENSMUSG00000022110.13	Suc1a2	protein_coding	1	0,019616425	5	7	111,0177502	98,27512628	1,129649565
ENSMUSG00000022010.19	Tsc22d1	protein_coding	4,56E-09	1,19E-08	6	7	440,0683445	401,6167114	1,095739731
ENSMUSG00000022122.14	Ednrb	protein_coding	4,96E-29 0,01441991	3,24E-28	6	7	181,1344425	79,64010771	2,274252323
ENSMUSG00000053253.16	Ndfip2	protein_coding	7 0,09602615	0,018679254	3	7	101,3918874	89,13919131	1,13744035
ENSMUSG00000022130.9	Tgds	protein_coding	8	0,109305801	9	7	36,33536351	29,55902956	1,229169981
ENSMUSG00000050310.8	Rictor	protein_coding	1,58E-06	3,31E-06	8	7	266,2980171	249,6175984	1,066821212
ENSMUSG0000005360.14	Slc1a3	protein_coding	4,53E-30	3,09E-29	12	7	245,5403944	243,0599403	1,010204693
ENSMUSG00000022206.6	Npr3	protein_coding	2,16E-11	6,67E-11	12	7	78,58456311	44,58130254	1,762553651
ENSMUSG00000022309.8	Angpt1	protein_coding	0	0	12	7	3157,753315	1955,976402	1,614409646
ENSMUSG00000051920.6	Rspo2	protein_coding	4,93E-59 0,00192805	5,91E-58	4	7	174,3698455	138,0091063	1,263447143
ENSMUSG00000037119.3	Fam91a1	protein_coding	4	0,002855326	5	7	100,3862282	56,41242398	1,779367513
ENSMUSG00000056258.8	Kcnq3	protein_coding	0	0	12	7	1332,80049	1153,772876	1,155165775
ENSMUSG0000005124.9	Wisp1	protein_coding	4,42E-12	1,43E-11	12	7	78,98766481	65,06273033	1,213990321
ENSMUSG00000033039.9	Micall1	protein_coding	2,48E-06	5,11E-06	11	7	68,32057939	31,3945146	2,175820268
ENSMUSG00000042292.16	Mkl1	protein_coding	5,00E-14	1,82E-13	12	7	305,0155196	292,3805832	1,043212528
ENSMUSG00000022438.6	Parvb	protein_coding	7,36E-06 0,31238967	1,45E-05	5	7	113,2990884	90,59087431	1,250640121
ENSMUSG00000022386.12	Trmu	protein_coding	7	0,328795174	6	7	26,69649733	22,22171704	1,201279113
ENSMUSG00000022464.13	Slc38a4	protein_coding	9,21E-15	3,48E-14	10	7	163,8177849	152,6201631	1,073364409
ENSMUSG00000022994.8	Adcy6	protein_coding	4,61E-11	1,39E-10	9	7	101,4287477	89,36628578	1,134962667
ENSMUSG00000099083.7	Atf7	protein_coding	9,45E-09 0,14722525	2,42E-08	4	7	257,8694376	238,1791955	1,082666395
ENSMUSG0000005981.11	Trap1	protein_coding	9 0,02811226	0,16299083	13	7	99,29376564	56,01891103	1,772366513
ENSMUSG00000057880.12	Abat	protein_coding	8	0,034576564	11	7	71,31251667	58,42186947	1,220609871
ENSMUSG00000009569.14	Mkl2	protein_coding	3,86E-12	1,25E-11	9	7	278,3103957	266,1630967	1,04563684
ENSMUSG00000022887.8	Masp1	protein_coding	8,87E-13	3,01E-12	10	7	77,33325763	54,61282489	1,415951258
ENSMUSG00000022523.9	Fgf12	protein_coding	4,65E-48	4,70E-47	12	7	188,9788103	139,152911	1,358040076
ENSMUSG00000022708.16	Zbtb20	protein_coding	3,95E-200	1,56E-198	9	7	2105,283686	1544,190937	1,363354752

ENSMUSG00000036292.14	Gramd1c	protein_coding	3,25E-06 0,25412303	6,63E-06	9	7	42,3152509	34,02923635	1,243425395
ENSMUSG00000022668.10	Gtpbp8	protein_coding	7 0,14120527	0,271000342	10	7	30,18846676	24,67247071	1,223478278
ENSMUSG00000071533.11	Pcnp	protein_coding	4	0,15675169	6	7	99,69011845	78,99061337	1,262017017
ENSMUSG00000103932.1	Gm36963	TEC	2,60E-08	6,40E-08	3	7	61,06692046	60,35522712	1,01178979
ENSMUSG00000022935.15	Grik1	protein_coding	2,70E-31	1,90E-30	3	7	268,0366234	56,14932407	4,772967408
ENSMUSG00000022967.12	Ifnar1	protein_coding	1,55E-04	2,64E-04	4	7	70,77103649	63,47686753	1,114892564
ENSMUSG00000050272.9	Dscam	protein_coding	4,45E-40	3,84E-39	3	7	261,9892116	98,21002018	2,667472589
ENSMUSG00000023830.13	Igf2r	protein_coding	1,30E-158	3,94E-157	10	7	916,9230613	867,1701588	1,057373202
ENSMUSG00000067928.6	Zfp760	protein_coding	4,47E-04	7,22E-04	6	7	72,21794325	65,49233323	1,102677411
ENSMUSG00000024191.14	Bnip1	protein_coding	0,1545959 0,15693221	0,170756771	6	7	35,71336155	35,1575428	1,015804879
ENSMUSG00000056692.12	D17Wsu92e	protein_coding	9	0,173149752	4	7	159,7613462	132,895071	1,202146352
ENSMUSG00000002249.18	Tead3	protein_coding	2,86E-10	8,16E-10	11	7	82,8797366	72,59199455	1,141700543
ENSMUSG00000044477.10	Zfand3	protein_coding	1,85E-12 0,01212501	6,12E-12	6	7	573,3879616	542,8642767	1,056226066
ENSMUSG00000024426.17	Atat1	protein_coding	2	0,015926525	4	7	83,73500662	64,66141224	1,294930847
ENSMUSG00000064043.13	Trerf1	processed_transcript	1,46E-28 0,00526670	9,38E-28	4	7	473,4046218	373,5734228	1,267225987
ENSMUSG00000023999.14	Kif6	protein_coding	8 0,88189360	0,007317414	12	7	50,17091384	41,39816042	1,211860496
ENSMUSG00000024056.9	Ndc80	protein_coding	2	0,884931248	12	7	57,28340083	49,54503776	1,15615694
ENSMUSG00000036368.7	Rmdn2	protein_coding	5,90E-11 0,03566296	1,76E-10	9	7	52,86531294	40,87171958	1,293373015
ENSMUSG00000024286.7	Ccny	protein_coding	7 0,55139740	0,043173468	4	7	261,0925658	240,9321697	1,083673174
ENSMUSG00000024293.15	Esco1	protein_coding	4	0,562499828	13	7	71,54854489	62,46532729	1,145388876
ENSMUSG00000024294.13	Mib1	protein_coding	1,86E-13	6,53E-13	6	7	382,4580028	326,0451743	1,173016204
ENSMUSG00000049411.14	Tmem241	protein_coding	2,74E-08	6,74E-08	11	7	106,981608	100,2801475	1,066820726
ENSMUSG00000036225.14	Kctd1	protein_coding	3,99E-35	3,11E-34	4	7	458,1033551	332,1460741	1,379211132
ENSMUSG00000024331.11	Dsc2	protein_coding	1,17E-19	5,47E-19	12	7	96,53458808	82,22270342	1,174041276
ENSMUSG00000056124.5	B4galt6	protein_coding	8,86E-33	6,47E-32	10	7	412,3075231	142,7748326	2,887684326
ENSMUSG00000024268.15	Celf4	protein_coding	3,65E-58	4,32E-57	3	7	540,1395315	59,10527184	9,137224862

ENSMUSG00000036501.6	Fam13b	protein_coding	7,08E-14	2,55E-13	4	7	261,1110689	253,2867375	1,030889981
ENSMUSG00000024357.9	Sil1	protein_coding	1,38E-16	5,68E-16	11	7	187,710185	165,6891836	1,132897465
ENSMUSG00000037058.14	Paip2	protein_coding	0,03432328 6	0,041675356	5	7	181,2238858	164,7858633	1,099747786
ENSMUSG00000103472.1	Pcdhga7	protein_coding	0,00413584 8	0,005844788	11	7	45,76198344	34,43924701	1,328678778
ENSMUSG00000102428.1	Pcdhga12	protein_coding	3,03E-21	1,51E-20	11	7	156,3203224	144,3042113	1,083263533
ENSMUSG00000051401.6	Kctd16	protein_coding	2,53E-59	3,07E-58	11	7	231,9926561	103,9835308	2,230933543
ENSMUSG00000024500.18	Ppp2r2b	protein_coding	7,55E-35	5,86E-34	3	7	144,4538968	140,690937	1,026744383
ENSMUSG00000039954.8	Stk32a	protein_coding	6,46E-27	3,93E-26	9	7	87,3711466	76,85637575	1,136792853
ENSMUSG00000042705.8	Commd10	protein_coding	3,66E-10 0,03657044	1,03E-09	8	7	213,1448462	178,1541424	1,196395881
ENSMUSG00000034484.7	Snx2	protein_coding	8	0,044219559	9	7	87,70635098	85,1707654	1,029767114
ENSMUSG00000053441.4	Adamts19	protein_coding	2,31E-64	3,00E-63	11	7	393,1030865	287,4369163	1,367602379
ENSMUSG00000040560.9	Wdr7	protein_coding	8,64E-06	1,69E-05	13	7	231,738668	165,0941715	1,403651197
ENSMUSG00000037253.8	Mex3c	protein_coding	5,31E-10	1,48E-09	4	7	138,9503026	133,3522472	1,041976313
ENSMUSG00000044646.14	Zbtb7c	protein_coding	2,86E-11 0,00162626	8,75E-11	9	7	87,85816121	38,77733039	2,26538306
ENSMUSG00000058881.12	Zfp516	protein_coding	4	0,002438498	4	7	207,8525628	198,3594098	1,047855932
ENSMUSG00000024835.14	Coro1b	protein_coding	7,45E-11 0,02435003	2,21E-10	5	7	132,9509083	30,9833738	4,289978535
ENSMUSG00000054611.16	Kdm2a	protein_coding	4	0,030370524	11	7	393,6443495	387,9785541	1,014602996
ENSMUSG00000041731.13	Pgm5	protein_coding	3,13E-149	8,87E-148	12	7	519,2651595	465,8989713	1,114542092
ENSMUSG00000025195.9	Dnmbp	protein_coding	2,33E-08 0,00374067	5,75E-08	9	7	127,575212	115,6602069	1,103008418
ENSMUSG00000025198.16	Erlin1	protein_coding	4 0,00525982	0,005313021	4	7	53,24786604	52,33389422	1,017460906
ENSMUSG00000036959.15	Bcor1	protein_coding	6	0,007309097	6	7	78,68376142	71,06688011	1,107163979
ENSMUSG00000035967.15	Ints6l	protein_coding	3,34E-12 0,00662285	1,09E-11	13	7	267,4901864	139,5759532	1,916383276
ENSMUSG00000002015.5	Bcap31	protein_coding	4 0,02262994	0,009061157	10	7	81,16445697	60,99631591	1,330591034
ENSMUSG00000098078.1	Gm26992	protein_coding	7	0,028394474	13	7	62,01927523	60,55070502	1,024249556
ENSMUSG00000056537.11	Rlim	protein_coding	2,52E-06	5,19E-06	5	7	116,5576249	98,30944391	1,185600938
ENSMUSG00000034755.18	Pcdh11x	protein_coding	6,09E-52	6,52E-51	10	7	265,5922959	188,6146238	1,408099804

ENSMUSG00000052676.16	Zmat1	protein_coding	5,83E-04	9,28E-04	11	7	61,38097459	35,2900596	1,739118157
ENSMUSG00000041649.13	Klf8	protein_coding	4,82E-04	7,75E-04	4	7	66,75090666	51,19732686	1,30373739
ENSMUSG000000031357.3	Syap1	protein_coding	0,50091606	0,513506636	2	7	53,69280112	51,11043317	1,050515377

Suppl. Table 3. Genes of the cardiac muscle lineage-derived subcluster 34.7 derived from the Mouse Organogenesis Cell Atlas (2).

Gene	Mouse RA E12.5	Mouse RA E14.5	Mouse RA 14W	Mouse RA 27W	Mouse Oranogenesis Cell Atlas Cardiac muscle lineage	3D Cardiomics adult mouse heart right atrium/ posterior vessels	Zebrafish 55hpf	Zebrafish heart 55hpf
CAV1	**	**	ns	ns	Max Cluster 12 Second Cluster 7	+	*	*
CCDC3	-	ns	-	-	Max Cluster 6 Second Cluster 7	++	ns	-
FAM84A	ns	-	-	-	Max Cluster 6 Second Cluster 5	++	ns	-
FKBP10	-	*	ns	*	Max Cluster 5 Second Cluster 10	+++	ns	**
HAS2	-	ns	-	-	Max Cluster 9 Second Cluster 4	++	ns	-
IFITM3	ns	-	-	-	Max Cluster 5 Second Cluster 4	+++	ns	-
IGFBP5	*	***	ns	ns	Max Cluster 7 Second Cluster 5	++	ns	ns
MCF2L	***	-	ns	ns	Max Cluster 6 Second Cluster 3	+	*	nd
MEGF10	ns	-	-	-	Max Cluster 6 Second Cluster 3	+++	*	ns
MFAP2	-	ns	-	-	Max Cluster 4 Second Cluster 2	+++	ns	-
NR2F2	-	**	**	ns	Max Cluster 12 Second Cluster 7	++	*	ns
NTN1	-	ns	-	-	Max Cluster 6 Second Cluster 11	+	***	ns

Gene	Mouse RA E12.5	Mouse RA E14.5	Mouse RA 14W	Mouse RA 27W	Mouse Organogenesis Cell Atlas Cardiac muscle lineage	3D Cardiomics adult mouse heart right atrium/ posterior vessels	Zebrafish 55hpf	Zebrafish heart 55hpf
<i>OASL2</i>	ns	ns	ns	ns	Max Cluster 8 Second Cluster 10	++	no	no
<i>PRSS35</i>	-	ns	nd	nd	Max Cluster 3 Second Cluster 4	+	**	ns
<i>SHOX2</i>	**	****	*	*	Max Cluster 7 Second Cluster 5	+++	**	*
<i>UNC13C</i>	-	ns	-	-	Max Cluster 11 Second Cluster 10	-	ns	-

Suppl. Table 4. Analyses of Shox2-dependent genes based on gene expression. Gene expression analyses were performed on right atrial tissue (RA) from embryonic (E12.5 and E14.5) and adult (14 and 27 weeks old) *Shox2*-deficient mice by qPCR. The Mouse Organogenesis Cell Atlas (2) was applied to identify cardiac muscle lineage-derived cell types, in which the *Shox2*-dependent genes are co-expressed during embryonic development. Common clusters are highlighted in red. The 3D Cardiomics tool (4) was applied to confirm expression of *Shox2* target genes in the adult mouse heart. Gene expression analyses were performed after *Shox2* knockdown in tissue of whole zebrafish embryos and isolated hearts 55 hours post fertilisation (hpf) by qPCR and nCounter analysis, respectively. Statistical significance was determined by multiple t-tests **P*<0.05; ***P*<0.01; ****P*<0.001; ns = not significant; - = not analyzed; nd = not detectable; no = no orthologous gene.

Gene	Strong evidence for association	Suggestive evidence for association
	$P \leq 5e-8$	$P > 5e-8$
CAV1	PR interval, Atrial fibrillation, P-wave duration	-
CCDC3	-	PR interval, Atrial fibrillation, P-wave duration
FAM84A	-	-
FKBP10	-	PR interval, Atrial fibrillation, P-wave duration
HAS2	-	Atrial fibrillation, P-wave duration
IFITM3	-	PR interval, Atrial fibrillation, P-wave duration
IGFBP5	-	PR interval, Atrial fibrillation, P-wave duration
MCF2L	-	P-wave duration, PR interval, Atrial fibrillation
MEGF10	-	Atrial fibrillation, P-wave duration
MFAP2	-	Atrial fibrillation, P-wave duration
NR2F2	-	Atrial fibrillation, PR interval
NTN1	-	Atrial fibrillation, PR interval, P-wave duration
OASL	-	P-wave duration, PR interval, Atrial fibrillation
PRSS35	-	PR interval, Atrial fibrillation, P-wave duration
SHOX2	-	Atrial fibrillation, PR interval
UNC13C	-	P-wave duration, Atrial fibrillation, PR interval

Suppl. Table 5. Shox2-dependent genes from our defined regulatory network and their relationship to cardiovascular traits. Relation to cardiac conduction traits was investigated using the Cardiovascular Disease Knowledge Portal: <https://cvd.hugeamp.org>.

Gene (Zebrafish)	Accession number	Target sequence (5' - 3')	Application
<i>actb1</i>	NM_131031.1	GTGCTTCTAAACAGAAGCTGTTGCCACCTTAAATGGCCTAGCAATGAGATTCAAACGAACGACCAACCTAAACTCTCGAACAGAACAAAGATGACATCAGCA	nCounter Control probe
<i>eef1a1l1</i>	NM_131263.1	GAAGGCTGCCAAGACCAAGTGAATTTCCCTCAATCACACCGTTCCAAAGGTTGCGGCGTGTCTTTCCCAACCTCTTGGAATTTCTCTAAACCTGGGCACT	nCounter Control probe
<i>rpl13a</i>	NM_212784.1	AAGAGAAAGGAAAAGGCCAAGCTGCGCTATTCCAAGAAGAAAGTTGAGATGAAGCTGACTAAGCAGGCTGAAAAGAACGTTGAGAGCAAGATCGCAGTAT	nCounter Control probe
<i>rps18</i>	NM_173234.1	GTACAAAATCCCAGACTGGTTCCTGAACAGACAGAAGGACATAAAAGATGGGAAATACAGCCAGGTCTTGCTATGGTCTGGACAATAAACTGAGAGAA	nCounter Control probe
<i>b2m</i>	NM_001159.768.1	TACTTTTCGATATCAACTGCTGTTGTCCTGAATGCTGAAGGATTGTCTGCTTGGCTCTCTCGAATAAAACGGCCACAATGAGAGCACTCATCACTTTTGCA	nCounter Control probe
<i>hsp90ab1</i>	NM_131310.3	CTCACAGTCCGGCGACGAGATGACCTCCCTCACAGAATACGTCAGCCGTATGAAGGAGAACCAAAAGTCCATCTATTACATCACTGGTGAGAGCAAAGAC	nCounter Control probe
<i>cav1</i>	NM_212651.1	CAAATATTGGTGCTACAGGCTGCTGACAGCGCTGGTGGGCATCCCACTCGCCCTAGTATGGGGCATCTTCTTCGCCATCCTCTCCTTCATCCACATCTGG	nCounter Shox2 target gene probe
<i>fkbp10b</i>	NM_001128.666.1	GAGAACAGACTTTGTGCGTTTTCACTTCAATGGGACATTGCTGGATGGAAGTGTGTTTACTCCAGCTACAAGCGTTCCCAGACGCAGGATTCAAGTCGTT	nCounter Shox2 target gene probe
<i>igfbp5b</i>	NM_001126.463.1	GTCAAGGTATCAAAGGAGATAGCAGGAAGTCTTACTATTGGGGAAAAAAAAAAAACTCAAATAAAAAAGGAAAACCCATGATAGAGATCTGCTGATACGGTC	nCounter Shox2 target gene probe
<i>mcf2l2b</i>	XM_009304.775.3	GTCAGGTGGTTTCAAGTACATCAAGCCTGTTTCAGAGTCGTAGGAGAGGTTGGATGAAAGGATCTCTCTCGCTGGATGCTCTGTGGAGCATGATGGATATT	nCounter Shox2 target gene probe
<i>megf10</i>	XM_001922.489.6	GAAAGGCACACGATGTGATCAGGCTGGAGGGAATATTGCAGAAAGTCCCAATAGTTTGACAAGCGCAGCTCTGCTATGGATTATATCAAATTGGCGCA	nCounter Shox2 target gene probe
<i>nr2f2</i>	NM_131183.1	AGGCCATCGTTTTATTCACTTCAGATGCGTGTGGCCTGTGAGATGTGGCCCATGTGGAAAGTTTGCAAGAAAAGTCCCAGTGCCTTTGGAGGAGTACGT	nCounter Shox2 target gene probe
<i>ntn1a</i>	NM_131029.2	CAGATGCAAACCTTTTCACTATGACCGACCCCTGGCAGCGCGCAACCGCCAGAGAAGCCAACGAATGTGTGCGCCTGCAATTGTAACCTTCATGCGAGGCGC	nCounter Shox2 target gene probe
<i>prss35</i>	NM_001002.212.1	AACATCTCCAATCAATCGAATGATAGCAGGGGTGTCTCTGAAATGGGCCCCGGTACCCTTAACGCTCCTGCTTTCATCTCAGCACTGGCTGTGTTGGGGT	nCounter Shox2 target gene probe
<i>shox2</i>	NM_201196.1	TCAGAACCGAAGGGCTAAATGCAGAAAAGCAGGAAAATCAGTTGCATAAAGGGGTTCTCATCGGAGCGGCGAGCCAGTTTGAAGCATGTGCGGTGGCTCCA	nCounter Shox2 probe
Name	Species	Sequence (5' - 3')	Application
<i>Adam9 for</i>	mouse	GAG GCT ATG TGG AGG GAG TG	qRT-PCR
<i>Adam9 rev</i>	mouse	CCA AAA CTG GCA TTC TCC A	qRT-PCR
<i>Hprt1 for</i>	mouse	TCC TCC TCA GAC CGC TTT T	qRT-PCR
<i>Hprt1 rev</i>	mouse	CCT GGT TCA TCA TCG CTA ATC	qRT-PCR
<i>Cav1 for</i>	mouse	AACGACGACGTGGTCAAGA	qRT-PCR
<i>Cav1 rev</i>	mouse	CACAGTGAAGGTGGTGAAGC	qRT-PCR
<i>Ccdc3 for</i>	mouse	CGGCTCAACCTTACTGGTCT	qRT-PCR

Suppl. Table 6. Sequences of nCounter probes and PCR primers.

Name	Species	Sequence (5' - 3')	Application
<i>Ccdc3</i> rev	mouse	GCAAGAGATTGTAATTCTCATCCA	qRT-PCR
<i>Fam84a</i> for	mouse	AAAAGGAGTTTGGGGTTTCG	qRT-PCR
<i>Fam84a</i> rev	mouse	CAGTTGGTTGCCCATCAAT	qRT-PCR
<i>Fkbp10</i> for	mouse	TACGGGGAGAATGGGACA	qRT-PCR
<i>Fkbp10</i> rev	mouse	AAGGGTTGTGGAAGTCGATG	qRT-PCR
<i>Has2</i> for	mouse	GAGGAAGACCCTATGGTTGGA	qRT-PCR
<i>Has2</i> rev	mouse	GGAAGGAGATCCAGGAATCA	qRT-PCR
<i>Ifitm3</i> for	mouse	GTCGGTGCCTGACCATGT	qRT-PCR
<i>Ifitm3</i> rev	mouse	ACCATCTTCCGATCCCTAGAC	qRT-PCR
<i>Igfbp5</i> for	mouse	GGCGAGCAAACCAAGATAGA	qRT-PCR
<i>Igfbp5</i> rev	mouse	GAAGACCTTGGGGGAGTAGG	qRT-PCR
<i>Mcf2l</i> for	mouse	GGTGGGGAGGTGCTTTCT	qRT-PCR
<i>Mcf2l</i> rev	mouse	GAGCGTGGCTTGTTCTGAC	qRT-PCR
<i>Megf10</i> for	mouse	GTGTGATGCTGCCACAGG	qRT-PCR
<i>Megf10</i> rev	mouse	AGGACATTCGTCCTGACACC	qRT-PCR
<i>Mfap2</i> for	mouse	CCTCTTCCTGCTGTTTCATGC	qRT-PCR
<i>Mfap2</i> rev	mouse	GAGAGGATCCAGGTCATATTGG	qRT-PCR
<i>Nr2f2</i> for	mouse	CCTTGAACAAGGCAAATATGG	qRT-PCR
<i>Nr2f2</i> rev	mouse	GTGGGTAGGCTGGGTAGGAG	qRT-PCR
<i>Ntn1</i> for	mouse	CCCCTTGCAATCAAGATTCC	qRT-PCR
<i>Ntn1</i> rev	mouse	GGCCTTGCAATAGGAGTCAC	qRT-PCR
<i>Oasl2</i> for	mouse	CTCCGGTTGGTGAAGTTCTG	qRT-PCR
<i>Oasl2</i> rev	mouse	CTCCCAGGCGTAGATGGTC	qRT-PCR
<i>Prss35</i> for	mouse	CTCCTGGCACCTTCCGTAG	qRT-PCR
<i>Prss35</i> rev	mouse	TTGTTCTTCTATTTTGCCCTCTG	qRT-PCR
<i>Shox2</i> for	mouse	ACC AAT TTT ACC CTG GAA CAA C	qRT-PCR
<i>Shox2</i> rev	mouse	TCG ATT TTG AAA CCA AAC CTG	qRT-PCR
<i>Unc13c</i> for	mouse	TGGTCACCGAAGTACAATGAA	qRT-PCR
<i>Unc13c</i> rev	mouse	GCAGTAGTCCTTAACCGAGAGG	qRT-PCR
<i>actb1</i> for	zebrafish	GCAATGAGCGTTTCCGTTGC	qRT-PCR
<i>actb1</i> rev	zebrafish	TGGATACCGCAAGATTCCATACCC	qRT-PCR
<i>eef1a1</i> for	zebrafish	TCTCTACCTACCTCCTCTTGGTC	qRT-PCR

Suppl. Table 6. Sequences of nCounter probes and PCR primers continued.

Name	Species	Sequence (5' - 3')	Application
<i>eef1a1 rev</i>	zebrafish	TTGGTCTTGGCAGCCTTCTGTG	qRT-PCR
<i>cav1 for</i>	zebrafish	ATGACGATGTGGTGAAGGTG	qRT-PCR
<i>cav1 rev</i>	zebrafish	TGGTTACTGTGAAGGTGGTGA	qRT-PCR
<i>ccdc3 for</i>	zebrafish	CTTTAATAGCGATTGGGAGAGC	qRT-PCR
<i>ccdc3 rev</i>	zebrafish	TTCTGCATGGAGGAACACAG	qRT-PCR
<i>fam84a for</i>	zebrafish	GCCATAGTCCTGGGGAAATAC	qRT-PCR
<i>fam84a rev</i>	zebrafish	CCAGTTGGTTTCCCATCAAT	qRT-PCR
<i>fkbp10b for</i>	zebrafish	CATTGCTGGATGGAAGTGT	qRT-PCR
<i>fkbp10b rev</i>	zebrafish	AACGACTGAATCCTGCGTCT	qRT-PCR
<i>has2 for</i>	zebrafish	AGCATCCCTGTTCAACTAACG	qRT-PCR
<i>has2 rev</i>	zebrafish	GCTGACCGCTTTATCACATCT	qRT-PCR
<i>ifitm3 for</i>	zebrafish	CACTCTGCAACACTCTTACGTC	qRT-PCR
<i>ifitm3 rev</i>	zebrafish	CACCCAGGGTCTTCTGATCT	qRT-PCR
<i>igfbp5b for</i>	zebrafish	CAGGCTGCCTTGTTTAAGGA	qRT-PCR
<i>igfbp5b rev</i>	zebrafish	CGTCCAGCTTCCTTCTGC	qRT-PCR
<i>mcf2lb for</i>	zebrafish	CTGTTTCAGAGTCGTAGGAGAGG	qRT-PCR
<i>mcf2lb rev</i>	zebrafish	AATATCCATCATGCTCCACAGA	qRT-PCR
<i>megf10 for</i>	zebrafish	GGAAAGGCACACGATGTGAT	qRT-PCR
<i>megf10 rev</i>	zebrafish	TGCGCTTGTCAACTATTGG	qRT-PCR
<i>mfap2 for</i>	zebrafish	AGACAGAGCCGACTGAACCT	qRT-PCR
<i>mfap2 rev</i>	zebrafish	ACAGAATAGAGCCGAGTGCAG	qRT-PCR
<i>nr2f2 for</i>	zebrafish	AGGCCATCGTTTTATTCATTC	qRT-PCR
<i>nr2f2 rev</i>	zebrafish	CTCCGAACGTAATCCTCAA	qRT-PCR
<i>ntn1a for</i>	zebrafish	TGCAAACCTTTTCACTATGACC	qRT-PCR
<i>ntn1a rev</i>	zebrafish	GCCTCGCATGAAGGTTACA	qRT-PCR
<i>prss35 for</i>	zebrafish	GAAACATCTCCAATCAATCGAA	qRT-PCR
<i>prss35 rev</i>	zebrafish	CTGTGGGATCGTCCACTGT	qRT-PCR
<i>shox2 for</i>	zebrafish	ATGAGAGAGGAGCTGAGCCA	qRT-PCR
<i>shox2 rev</i>	zebrafish	CAGAGCTCCCACGTTGACAT	qRT-PCR
<i>unc13c for</i>	zebrafish	ATCGACCTCTCCAAGTACCG	qRT-PCR
<i>unc13c rev</i>	zebrafish	CGGTTGATTTTAAGTCATGAAGTCT	qRT-PCR
<i>Cav1 ISH_for</i>	mouse	ACCTCTCTGGACTGGCAGAA	RT-PCR
<i>Cav1 ISH rev</i>	mouse	CGATGTTAATACGACTCACTATAGGGAGTGTCGGCAAGACTGAAGG	RT-PCR

Suppl. Table 6. Sequences of nCounter probes and PCR primers continued.

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