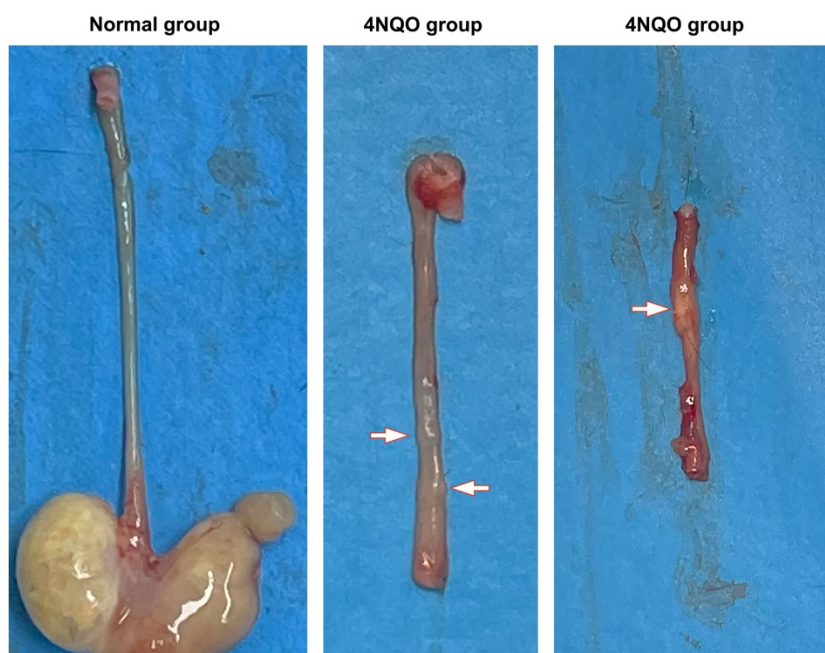


Supplementary Figure 1 Esophageal morphology in 4NQO and normal groups.



Supplementary Table 1 The primers sequences of mRNAs.

Gene name	Forward sequence(5'-3')	Reverse sequence(5'- 3')
S100a8	GGAGTTCCTTGCGATGGTGAT	TCCTTGTGGCTGTCTTTGTGAG
Krt6b	CCATCAAGAGTCAAAGTAGCCAC	GCTCAAACATAGGCTCCAGGTT
GAPDH	AGGTCGGTGTGAACGGATTTG	TGTAGACCATGTAGTTGAGGTCA

Supplementary Table 2 The baseline characteristics of human samples.

Characteristics	n=31
Age, years (Mean±SD)	62.54 ± 10.55
Gender	
Male	20
Female	11
Pathologic type	
NOR	5
LGIN	10

HGIN

10

CA

6

Supplementary Table 3 DEGs in LGIN compared to NOR.

ID	logFC	adj.P.Val
Krt6b	11.50680002	0.008335443
S100a8	10.92127553	0.001775145
Defb3	10.90678423	1.41E-05
Sprr2h	10.89258238	0.001175968
Gm14536	10.79416425	1.65E-06
Gm15027	10.79416425	1.65E-06
Gm10705	10.44788941	0.000382176
Krt16	10.34362164	0.010730132
Sprr2i	10.19532541	0.014249928
2310046K23Rik	9.745093322	0.006048488
Sprr2f	9.738641996	0.018464513
Sprr2d	9.73711572	0.007932314
Gm10263	8.787060116	6.67E-07
Wfdc18	8.677414507	0.022512913
Sprr2e	8.579936825	0.003416563
Sprr2b	8.531590662	0.004782464
Csta2	8.326687327	0.000236776
Gm20442	8.162701964	5.44E-05
Gm49428	8.059820688	0.003979545
Akr1d1	7.853946261	0.009405488
Gm36546	7.740854454	5.44E-05
Gm12941	7.645838749	0.000393095
Retnlg	7.614910349	0.000142526
Hp	7.577718853	0.014859817
Idi2	7.424660362	0.022036544
Gm36037	7.383131619	0.00077815
Stfa2l1	7.248419142	0.0001908
Ankk1	7.16386884	0.013551932
S100a9	6.866260886	0.042854258
Gm45717	6.830535507	0.000406888
Serpina3m	6.808749321	0.012776524
Cyp2e1	6.799229143	0.043208371
Sh2d5	6.749177457	0.002539398
Gm5914	6.709642873	0.044699746

Gm21182	6.649907097	4.47E-05
Gm13166	6.538823429	0.007775496
Gm5481	6.521283892	2.08E-06
Cidec	6.490486221	0.047258575
Gm14167	6.45430803	0.000800707
Gm13305	6.401794271	5.26E-05
Krt12	6.384355689	0.015653868
Gm50254	6.340509219	4.35E-05
Sult1b1	6.336424568	4.48E-05
Gm48677	6.321278717	0.006794649
Iffo2	6.31490402	0.008076317
Lipn	6.239259257	0.011740075
Gm32857	6.229956112	0.00124422
Zglp1	6.215135043	1.00E-04
Gm49890	6.186793595	0.00784369
Gm10689	6.164125806	0.00013333
Gm29093	6.159047208	5.86E-05
Mup11	6.127245756	0.000405164
Sprr1b	6.119435041	0.002006042
Gm10268	6.065348316	2.11E-06
BC028471	6.045997249	0.026220716
Gm32885	6.040504427	0.012747857
Lcn2	6.033303587	0.000928905
Gm49786	6.009301999	2.94E-06
Anxa13	5.989279929	0.002301001
Rpl6l	5.936723313	0.000311487
Npb	5.894715304	6.38E-06
Rnase2b	5.874521149	0.004241602
2010003K11Rik	5.82518643	0.000398842
Vnn3	5.773741161	0.002156056
Gm8900	5.735366205	0.000385624
Rpl31-ps18	5.710779688	0.000359188
Cyp4a10	5.687252932	0.006355722
Tmprss11b	5.657277907	0.030398032
Chil4	5.603006024	0.042725434
Sle5a10	5.540078049	0.001499829
4930438A08Rik	5.525629733	0.049161614
Oas1e	5.477060145	0.005833929
1700041M19Rik	5.467093179	0.049359
Gstal	5.444922532	0.000832706
Gm15747	5.418152201	0.006309867

Gm49497	5.418040377	0.042704359
Gm15327	5.399251408	0.000279879
Gm9001	5.345276691	0.041943026
Gm10501	5.342376158	1.42E-05
Gm37660	5.340236451	0.029449887
Il20ra	5.333456962	0.01071912
Gm10418	5.317777515	0.000714852
Il36g	5.266231672	0.001179244
Gm13864	5.234418245	0.013874919
Sult2a8	5.21091322	7.99E-05
Gm44200	5.076272897	3.28E-05
4930505N22Rik	5.067935601	0.000156318
Gm3776	5.053117872	0.001804184
H2-M9	5.03682777	0.002439429
Dnmt3bos	5.007455938	0.002670809
Cstdc4	4.99318639	0.006164876
Gm14319	4.986531496	0.010876088
4930543E12Rik	4.952401157	0.003976349
Ush1c	4.942290397	0.005191409
Mirt2	4.894550866	0.001598712
Rpl19-ps7	4.877362138	0.001371137
Gm9902	4.847636982	2.60E-05
Cysltr2	4.823362289	0.041542144
Cd300lf	4.823298716	0.036350103
Fam24b	4.817606788	3.94E-05
1700016H13Rik	4.807617732	0.001559242
Slc16a14	4.806653393	0.047419089
Gm5915	4.79240351	0.003721981
Gm47112	4.739924517	0.000549413
Tshr	4.721426146	0.021264302
Gm9970	4.718588979	0.000633308
Ffar2	4.692197647	0.01488992
Adamts4	4.682910779	0.002883597
Mmp3	4.619338776	0.018593781
Serpina3n	4.613900917	0.016274263
Gm6397	4.57992687	0.047573109
Naalad11	4.564495652	5.52E-05
Gm13257	4.561144431	0.013853109
A730082K24Rik	4.54260628	0.026377523
Gm45431	4.512082405	0.000151721
Gm2694	4.467315375	0.012596131

Gm5366	4.463483584	0.011585935
Tmem45b	4.415868303	0.021756194
Hal	4.392395307	0.025419757
Lpo	4.387935631	0.042212221
Gm42980	4.382401642	0.000377578
4933433G19Rik	4.372764078	0.000830907
B9d1os	4.355587311	0.008302496
Gm47587	4.354914255	0.00042068
Gm20531	4.345391204	0.001920188
Pi15	4.264536759	0.007397992
2610318N02Rik	4.252115942	0.001106964
Gm15433	4.206510743	0.004529584
Trem1	4.200125851	0.018734617
Gm44974	4.173866813	0.0126659
Fam47e	4.156377673	0.004585801
Slc25a48	4.11582304	0.007049259
Ush1g	4.115005692	0.04150896
Mill1	4.107910113	0.037898896
Hao1	4.105427177	0.014170102
Klrc1	4.064097605	0.00630416
Krt24	4.062424913	0.007437635
Gm49889	4.018879238	0.031058299
Gm15199	3.985957631	0.048252645
Ms4a4a	3.904993118	0.003321335
Apoc3	3.899402213	0.046861245
Kcnk1	3.850485791	0.016630025
Scd3	3.848106839	0.003088162
Spata48	3.830617699	0.026704757
Gpi-ps	3.736646893	0.04454017
1700086P04Rik	3.714643264	0.033732919
Fer114	3.631605921	0.010143541
Klk6	3.60494103	0.017808005
Rassf6	3.584135264	0.012691037
Xlr4b	3.572030232	0.014133338
Ddit4	3.52285027	0.004108933
Npbwr1	3.512082405	0.001997502
4933421A08Rik	3.478903847	0.032658563
Nrg1	3.449169268	0.045835992
Acod1	3.397430938	0.022305636
Gm11973	3.392079073	0.04260554
Lox	3.38825482	0.018426181

Krt10	3.357840153	0.001479898
Kif17	3.35264469	0.044706442
Gm19531	3.348898536	0.01536957
Gm4610	3.303162287	0.036496691
Car2	3.298217463	0.001428365
Nfil3	3.268663836	0.011804378
Scart2	3.238653997	0.020516319
Gsta3	3.172688932	0.00607847
Skint1	3.158368767	0.006956088
Malrd1	3.152401749	0.035486593
H3c3	3.144435883	0.030335718
B4galnt3	3.139791675	0.007330046
Elov13	3.135119391	0.040400065
Gm15987	3.088044738	0.007787415
Creb3l3	3.072248619	0.019703118
Tgm5	3.059416622	0.049341139
Spp1	3.03842285	0.008430843
Aldh1l1	3.021977489	0.003560979
Hrob	3.016914847	0.0345487
Defb1	2.988698988	0.008302904
Pls1	2.98739101	0.043368776
Lrp8	2.982327947	0.007716106
Jaml	2.973280168	0.000949899
Glis1	2.952789867	0.037119396
Cyp2c66	2.910958811	0.014731067
Cwh43	2.867312916	0.029199536
Lancl3	2.854404334	0.009431729
Gm48691	2.843273649	0.034860699
Serpinb6c	2.820107528	0.025129976
Gm9910	2.814101853	0.004306187
Mt1	2.78806645	0.001585867
Slc7a8	2.78109968	0.009243728
Gm10463	2.777966912	0.002792651
Chit1	2.772745516	0.010022711
Rpp25	2.759548987	0.022152467
Gstp3	2.758780919	0.018300764
Slc7a11	2.756641328	0.002027634
Rsad2	2.725592328	0.039235643
Otop2	2.724012418	0.001192106
Slc35f2	2.694961727	0.002764491
Cdhr3	2.656929504	0.045448529

Ermap	2.627292903	0.018623268
Slc6a4	2.570104623	0.039404731
Zfp992	2.569884715	0.00198356
Clca3a1	2.531923959	0.038492147
Blm	2.529835607	0.008029657
Tcf24	2.503653973	0.021553037
Epop	2.496766361	0.010520705
Il4ra	2.496710892	0.002502761
Gm42031	2.473774107	0.014749032
Il18rap	2.467853157	0.004210074
Olfr543	2.458208506	0.00106073
Gclc	2.451966782	0.002652034
Adarb1	2.435383327	0.025710779
Otulinl	2.413784311	0.001150032
Arntl	2.409752197	0.005634267
Cxcl10	2.384419888	0.049239928
Tnfaip8l3	2.380915092	0.011929169
Gm38563	2.38028575	0.008321311
Acer2	2.380123917	0.003391966
Slc6a20a	2.36086589	0.010861066
Zfp977	2.354500981	0.00224537
Aknad1	2.336242716	0.025433803
Cenpk	2.335029527	0.017214202
Cxcr2	2.332871821	0.032714688
Gk	2.315755626	0.040318935
Mt2	2.298180521	0.009332898
Wnt16	2.289261602	0.000980254
Ugt2b34	2.287763458	0.006507972
Rrm2	2.274257313	0.03789962
Gm8080	2.25865844	0.037435222
Steap1	2.254638384	0.034270361
Fosl2	2.2505619	0.006238616
Aunip	2.24199192	0.031287967
Nlrc5	2.237020525	0.002838064
Hpgds	2.225554112	0.017821958
Tmem125	2.224401281	0.042550575
Gm38312	2.219097268	0.014457958
Mapk6	2.209769687	0.015350869
Slco2a1	2.208272415	0.019705952
Vwa2	2.196238212	0.017552476
Trgc1	2.17514643	0.008508204

Gpnmb	2.166473889	0.044809698
Xdh	2.140595776	0.002092328
Adamts1	2.129917639	0.044914305
Foxq1	2.110294219	0.011736362
Gm17494	2.100169955	0.006060344
Npas2	2.097735314	0.011787218
A3galt2	2.092041468	0.049253347
B4galnt4	2.079659234	0.009232033
Aldh1l2	2.077478797	0.034803918
Cidea	2.076867073	0.047822793
Clec2l	2.075812809	0.011008229
Mid1-ps1	2.062370388	0.010379593
Aldh3a1	2.056068736	0.026021387
Gm16793	2.037956879	0.032251244
D6Ertd527e	2.0358416	0.003396552
Robo1	2.030441667	0.043101063
Kcnj15	2.024583399	0.034844756
Sgk1	2.012445735	0.002662666
F10	1.992426641	0.037045622
Sowahc	1.98655231	0.023569665
Adcy8	1.980628672	0.039952937
Sh3gl2	1.976673985	0.031285708
Iqschfp	1.971677904	0.01051682
Mm2pr	1.969678333	0.010973563
Ctla4	1.963915254	0.02091223
Ropn1l	1.962829863	0.038955396
Eif2s3x-ps1	1.950814271	0.011111192
Gm44249	1.949383329	0.041503587
Slc4a8	1.946320482	0.0401668
Lbhd1	1.937922892	0.023046941
Ntrk2	1.929060724	0.036416693
Robo2	1.924760699	0.023725398
Gm42047	1.898518213	0.046091032
Rad18	1.881505037	0.025243514
Ly75	1.8603312	0.038342817
Slc22a14	1.858557168	0.037600472
Gm50012	1.821803936	0.040452535
Scart1	1.815663787	0.017522247
Gpr65	1.815181953	0.003880035
Baz1a	1.8046932	0.04322102
Clec2f	1.788938692	0.043084903

Nfkbia	1.783586786	0.003951034
Trpm2	1.77771845	0.006003483
Acot4	1.773066101	0.035101073
Adgrb2	1.770851855	0.04788478
Rab26os	1.756267602	0.029767661
B230307C23Rik	1.755092204	0.004107979
B830042I05Rik	1.753563488	0.027149615
Vmp1	1.752341878	0.004811153
5430430K15Rik	1.748253411	0.022394099
Zfand4	1.740109376	0.038652845
Ttc39b	1.729177327	0.012362912
Enah	1.72581965	0.047278604
Btg3	1.72070265	0.044521061
Gm10232	1.701071322	0.021488044
Gm12744	1.677793981	0.047435807
Rnf157	1.644046794	0.038637041
Adh7	1.643882692	0.020156804
Gm26569	1.64370884	0.026473464
Gm9419	1.64291737	0.022270412
Sat1	1.63672615	0.038013727
Gm7334	1.636556327	0.033209522
Rapgef5	1.632431541	0.048006737
Dapk2	1.625872199	0.024917067
Tbc1d2	1.619913453	0.045513912
Them5	1.615367116	0.047262472
Gm30015	1.613508552	0.038107748
Rbbp8	1.605869521	0.00540314
Zfp991	1.602922667	0.036230726
Edem1	1.597694438	0.008192147
Rnasel	1.590591109	0.01354657
Gm9978	1.589762294	0.033336548
Tnc	1.589151508	0.022339514
9430060I03Rik	1.587675964	0.024438508
Junb	1.586723879	0.049652798
Asns	1.583253052	0.02810333
Glt1d1	1.582963887	0.036343166
Gm15494	1.58131534	0.010359174
Myo5a	1.580395436	0.005601354
H2-K1	1.57341346	0.026789049
Slc3a2	1.56591558	0.006181054
Cnksr1	1.558239246	0.013482083

H2-T10	1.552536537	0.027061094
Cracdl	1.535979239	0.011787453
Dnajc6	1.513938664	0.048575397
Tent5a	1.513716131	0.012737386
Blvrb	1.507854007	0.041526724
Anxa3	1.506574244	0.020822691
Gm10388	1.503653973	0.025321368
Gls2	1.500957067	0.015762349
Flt3	1.500794588	0.029250586
Man2a1	1.500644926	0.019589874
Gm50322	1.499351478	0.035666853
Dancr	1.491319248	0.046368601
Sphk1	1.490518054	0.042587718
Pfkfb3	1.47903035	0.037150786
Sh2b2	1.472719692	0.028611784
Sfrp1	1.464603087	0.013366551
Slc7a5	1.457548729	0.011697271
Sfxn1	1.453863883	0.009822387
Acaca	1.417406756	0.021862025
Mt3	1.416705453	0.011857532
Dgkh	1.416205792	0.028476925
Ranbp17	1.410928342	0.040024855
Maf	1.409927925	0.013904309
Fgd6	1.400710663	0.03810253
Fmn1	1.395087016	0.025492681
Osmr	1.393134764	0.039523475
Cenpt	1.379333955	0.013833345
Shroom2	1.368431361	0.026185751
A430103D13Rik	1.363733474	0.017123141
Klf13	1.357375795	0.011800304
Gins1	1.347871924	0.038320013
Llph-ps2	1.346890591	0.009679833
Sec63	1.319055967	0.010115553
Bpifc	1.311167813	0.04260643
Irx2	1.289773767	0.037326547
Slc36a4	1.289615	0.049000416
Steap2	1.285683101	0.041918589
Furin	1.284795035	0.021486717
Mmp14	1.28404107	0.049690602
Lrrc8a	1.275777656	0.021759067
Camk2n2	1.261012336	0.024521104

Rbm3	1.260204843	0.037140746
Slc22a15	1.256559127	0.044241751
1500011B03Rik	1.251258687	0.022179276
Kcnc4	1.25114027	0.048374108
Cnot6	1.249263376	0.032015865
Lrrc29	1.239283368	0.026739808
Gm48583	1.227915719	0.029985725
Chl1	1.213635311	0.036513662
Micall1	1.212321344	0.04947844
Atxn11	1.211955492	0.042014788
Sgo2a	1.210220403	0.04698411
Bmp2k	1.200951825	0.034961265
Fam117b	1.199357885	0.040218299
Resf1	1.194872124	0.044345955
Slc16a9	1.166873858	0.037102138
Bora	1.166477975	0.034511609
Dna2	1.163691287	0.021266429
Sash1	1.151573726	0.028433662
Slc45a3	1.151084575	0.034573849
Gm20257	1.148192057	0.036033477
Irf2	1.135530997	0.04555286
Chd1	1.110509871	0.032255308
Sdc4	1.104324403	0.043364983
Tatdn2	1.099758346	0.042882097
Ctps	1.098496343	0.0341713
Tiparp	1.092522858	0.047814339
Dlx4	1.08025587	0.03143136
Npat	1.069719213	0.045233298
Slc30a4	1.069280889	0.036092062
Taf4b	1.054969904	0.020902816
Eny2	1.036915891	0.040920657
Prpf40a	1.03638143	0.049478969
Dnajc3	1.033151216	0.038786428
Fam20a	1.029483101	0.039516027
Smad1	1.003000782	0.032506877
Iqcc	-1.004157134	0.045598543
Gm45844	-1.01755182	0.045996649
Mgme1	-1.021624486	0.044911477
Supt3	-1.056145263	0.036117211
Gm12671	-1.05619368	0.042938147
Smarca1	-1.062332838	0.027105582

Rtn4ip1	-1.063411582	0.046547625
Aamdc	-1.080268116	0.021454706
Npepl1	-1.083933325	0.048276697
Bcs11	-1.086691352	0.043035243
Plxnd1	-1.0910807	0.049129689
Arl6ip5	-1.098618463	0.048639338
Dnase111	-1.11507375	0.038912874
Ndufaf5	-1.124014694	0.020862162
Tsen2	-1.124204164	0.034458627
Lynx1	-1.133910342	0.040022424
Hoxd9	-1.135115805	0.042548029
Acyp2	-1.140453656	0.025532714
Trpc3	-1.187814137	0.044955132
Khdrbs3	-1.187947844	0.023608107
Vamp5	-1.192428125	0.02136949
Cib2	-1.193427904	0.023905221
Prxl2b	-1.216090353	0.018470071
Fgf7	-1.220265604	0.012140359
Gm7336	-1.22724755	0.027240751
Gm28042	-1.236047953	0.036579155
Plekha6	-1.24500044	0.047619412
Ccdc159	-1.259639999	0.040942111
Nqo2	-1.260987192	0.046652646
Maged2	-1.266228518	0.039108881
Bcam	-1.269785444	0.039999436
Vwa7	-1.271253505	0.044868208
Gm38560	-1.276181265	0.034636192
Fggy	-1.278564107	0.037084063
C8g	-1.28057664	0.043316242
Mtfp1	-1.281426909	0.049357598
Kptn	-1.297492628	0.019181825
Gm6658	-1.298012516	0.017737943
Tcea3	-1.301172472	0.035622917
Eno3	-1.310729357	0.049109276
Gng11	-1.314016576	0.030812282
Glipr2	-1.319614882	0.034025613
Krt32	-1.323585404	0.023813694
Prss36	-1.32387304	0.021806112
Tspan8	-1.332574331	0.009311341
Fitm1	-1.333863699	0.048218801
Abcg3	-1.339817454	0.014614661

Gm37074	-1.341484348	0.021525366
Dagla	-1.357632008	0.047792259
Tmcc2	-1.383713265	0.028700702
Pgm1	-1.3847206	0.020638994
Smpx	-1.400442234	0.043540634
Colq	-1.409671718	0.030310747
Cabp7	-1.420665236	0.013159021
A230107N01Rik	-1.421247653	0.031326443
Exd2	-1.422537025	0.041963025
Kctd14	-1.427696728	0.030243082
Plaat1	-1.432306895	0.033808193
Pfkm	-1.435521321	0.029103262
2310002L09Rik	-1.450895769	0.020058001
Ctf1	-1.45114099	0.042487192
Map3k7cl	-1.452346958	0.036590494
Efcc1	-1.463798501	0.044324697
Cobl	-1.476381557	0.045348008
Plpp7	-1.491381142	0.041800942
Opcml	-1.495812399	0.030847178
Acsbg1	-1.496572952	0.032235498
Ttyh2	-1.501234985	0.022864169
Angptl2	-1.507637834	0.013992865
Apobec2	-1.522857249	0.020996176
Scn1b	-1.530030658	0.034977432
Kbtbd13	-1.533969665	0.009603996
Mllt3	-1.544045862	0.029814407
Pfn4	-1.55603531	0.037468342
Gxylt2	-1.556724691	0.010194799
Bhlhe41	-1.56042663	0.013893108
Gm12224	-1.562078215	0.005520827
Osbpl6	-1.562328148	0.02891891
4833412C05Rik	-1.562491712	0.031288875
Capn3	-1.562529584	0.021284112
Gm13562	-1.586720955	0.049753946
Gm37867	-1.59185228	0.031931131
Gm47898	-1.596943704	0.022444817
Cgn	-1.610496783	0.040661278
Lgals1	-1.621975471	0.025125338
Lrrc17	-1.62903714	0.045667737
Fbln7	-1.63696017	0.028059653
Grb14	-1.643572838	0.03862542

2810414N06Rik	-1.655232824	0.017233058
Zfp385c	-1.657527935	0.019751002
Lmo2	-1.660675446	0.002634247
Atf5	-1.662677815	0.008218084
Akl	-1.663454958	0.02137534
Paqr7	-1.671519581	0.024665727
Fam229b	-1.674094315	0.018209329
Lincmd1	-1.678319185	0.032386701
Ache	-1.679518648	0.038464734
Fap	-1.686410741	0.031599696
Riad1	-1.695741738	0.008395258
Pltp	-1.695938326	0.010815503
Pamr1	-1.696979718	0.027894185
Pcbd1	-1.706952901	0.040200093
Slc9a2	-1.723698163	0.008824467
Tcf15	-1.729499177	0.047544011
D430041D05Rik	-1.736358102	0.010805952
Tspan13	-1.740779892	0.00824325
Gm11771	-1.752194989	0.044218642
Smtnl2	-1.754107517	0.006242633
4930506C21Rik	-1.770726357	0.032700102
BB218582	-1.774167219	0.035371176
Dhrs7c	-1.774331551	0.027518527
Gm572	-1.780474429	0.041322861
Edn3	-1.784636015	0.019335247
Shisa2	-1.787623823	0.046209121
Lum	-1.806539869	0.035658652
Crym	-1.807901504	0.014613236
Car8	-1.808488566	0.013328523
Scn4b	-1.810657625	0.041519845
Unc119	-1.815892713	0.03943119
Ccdc69	-1.816856175	0.00297332
G0s2	-1.82731152	0.024537213
Srpk3	-1.829976762	0.022184351
Cox7a1	-1.832990102	0.018272414
Galnt5	-1.836052368	0.031976641
Cspg4b	-1.836904285	0.039900754
Tbx21	-1.839919698	0.003439194
A530064D06Rik	-1.850248928	0.029179617
Itga11	-1.866138998	0.0291366
Ephx1	-1.882904466	0.007342528

Pgam2	-1.939683554	0.036826937
Gmpr	-1.939722163	0.006556695
Itm2a	-1.942248913	0.004956512
Wfdc2	-1.956751641	0.003390385
Camk2a	-1.957341807	0.031556668
Gm10644	-1.961883149	0.045332974
Ttll10	-2.004007456	0.00188397
Fam78a	-2.024222512	0.037427711
Rasgrp3	-2.034914444	0.021875795
Cyp21a1	-2.048947129	0.012465565
3300002P13Rik	-2.049204381	0.006326487
Cers1	-2.056117472	0.036019547
Gm32391	-2.061207105	0.011307148
Katnal2	-2.075434493	0.005224126
D630003M21Rik	-2.076296355	0.039255228
Ankrd24	-2.077172078	0.006964335
Ptpqr	-2.078046816	0.004272935
Gm37691	-2.095416683	0.034345946
Frzb	-2.118355708	0.046503218
Dok2	-2.120486918	0.005972524
Pgpep11	-2.124748532	0.033981931
D630023O14Rik	-2.126781594	0.027938403
Smc1	-2.141031213	0.015884438
Uckl1os	-2.141714703	0.007415337
Gm38416	-2.156444492	0.010300779
Cd59b	-2.185341148	0.003178453
Spns3	-2.22727468	0.009314404
Asb18	-2.231121696	0.039534992
Slc12a5	-2.233479906	0.029541655
Gm18589	-2.234551207	0.02035946
Glt8d2	-2.238514188	0.003755705
Il27ra	-2.239177477	0.017864877
Hsd17b13	-2.258415976	0.000435048
Prdm16os	-2.268599819	0.044226527
Gm12002	-2.271659063	0.025552564
Gm15179	-2.276712275	0.024114969
Vstm2b	-2.278602499	0.019170935
Dusp10	-2.294954919	0.001653831
Car3	-2.301319631	0.019067684
Myf5	-2.301810442	0.004593841
Lsmem1	-2.326281364	0.031815783

Ddit4l	-2.339307321	0.007733221
Pcsk2	-2.339442662	0.006815293
Ramp1	-2.366732619	0.010095519
Iqcg	-2.403855685	0.004344094
Calml4	-2.405353138	0.00629912
A830052D11Rik	-2.406879856	0.003353633
Wdr93	-2.420131902	0.007001116
2310008N11Rik	-2.432112539	0.019297846
Clec12a	-2.462947491	0.013706566
Mgl2	-2.472787211	0.014201136
Asb10	-2.478408553	0.001679285
Gm47948	-2.495678693	0.000580556
Trdc	-2.500913804	0.009023618
Nrep	-2.525259217	0.005626238
BC021767	-2.537105868	0.012256903
Tph2	-2.54145624	0.007187503
Egflam	-2.557362715	0.001809023
Col6a6	-2.630594568	0.033923662
Plet1os	-2.634649732	0.00450759
Lrrc74b	-2.718085421	0.036884183
Gm10863	-2.719085231	0.036390688
Sfrp4	-2.721573358	0.019429084
2310047D07Rik	-2.740983051	0.015754383
Vash2	-2.748054337	0.033857065
Igsf1	-2.748790494	0.016438897
Mettl11b	-2.750404744	0.017408358
Chrna9	-2.755701168	0.01735594
Tmem25	-2.763010608	0.001136682
Gm830	-2.769878725	0.017360647
Ostn	-2.792357152	0.032178798
Gm49794	-2.85863912	0.010537762
Prr32	-2.884600734	0.019096201
Mlf1	-2.90055167	0.005912157
Gm30794	-2.927712329	0.003587427
Mir3966	-2.942618792	0.005794976
Casr	-3.000179255	0.003372265
Gm50194	-3.001849788	0.000591188
Atp8a2	-3.015721311	0.002539243
Foxo6os	-3.045287722	0.005747322
Gm5105	-3.05045734	0.017730937
Dbp	-3.067312174	0.005154456

Gkn3	-3.103298087	0.006652762
Diras2	-3.118040732	0.042992744
Gamt	-3.131696195	0.000359188
Ccl24	-3.167426441	0.001928555
Myo16	-3.180526225	0.002554616
Il12a	-3.215944108	0.000977203
Gm30082	-3.229209991	0.023230184
Tfr2	-3.235621996	0.033910059
Necab3	-3.28742657	0.036806817
Gm11752	-3.332163994	0.043568582
Aqp4	-3.414881095	0.010020078
1700036A12Rik	-3.556265982	0.012239622
Actc1	-3.615405891	0.001746278
Otoa	-3.630614816	0.001967635
Fer116	-3.639877171	0.048398544
Neu2	-3.659766294	0.002553725
4930511M18Rik	-3.731533413	0.030150383
A230056P14Rik	-3.733482315	0.010532142
Dach2	-3.740960378	0.017555654
3110099E03Rik	-3.76180074	0.046973214
C2cd4d	-3.924379736	0.025108517
Mpp4	-3.986288753	0.034640594
Gm49314	-4.034087601	0.043459768
Asgr2	-4.085009523	0.012634337
Gm49212	-4.100709108	0.001901746
Gm43735	-4.177247589	0.049752319
Smim17	-4.178749072	0.008337368
Lrrc55	-4.227811098	0.019870816
2310016D23Rik	-4.246095581	0.014995463
Gm12864	-4.26723612	0.008850219
4930589O11Rik	-4.26723612	0.028300998
Klrb1a	-4.296628057	0.00103292
Gm43120	-4.305293126	0.00223875
Spata17	-4.38493937	9.43E-05
Gm20743	-4.406596429	7.87E-05
2410137M14Rik	-4.416914176	0.005529786
Nodal	-4.419129281	0.000182755
Igf2bp3	-4.420894047	0.005314647
4930580E04Rik	-4.43706022	0.000217237
Tmem233	-4.455965451	0.004532193
Skint6	-4.472277076	0.013396303

A330048O09Rik	-4.476817517	0.00077977
1700020G03Rik	-4.492248735	0.001567103
Gm53023	-4.503258335	6.67E-05
Gm49313	-4.52921656	0.036314948
Tcp11x2	-4.554784014	0.042625763
Gm18329	-4.617444811	0.000183329
4930445N18Rik	-4.67470026	0.000342521
Gdf1	-4.760986029	0.04785628
Gm37284	-4.817928352	0.000164939
Lrrc72	-4.84053348	1.71E-05
BC035044	-4.84828124	0.000170111
Sohlh1	-4.880081645	0.000176433
Gm10817	-4.890587395	1.53E-05
Gm5129	-5.007224681	0.001666814
Hmgn2-ps1	-5.183462022	0.004067439
Lypd2	-5.23340636	0.048965388
Gpha2	-5.287028969	0.00174991
Otor	-5.329502393	0.003195556
Gm10640	-5.385255646	0.000272983
Gm17129	-5.662569374	0.000102871
Gm33373	-5.721543999	0.000259764
Gm11166	-5.823062893	0.001761519
Gm49124	-5.903868905	0.048216439
Gm26685	-5.928258336	0.001227318
Gm50064	-5.966090239	0.001645849
Gm15208	-5.999563575	0.037396988
2210409D07Rik	-6.139805798	0.033319928
2410080I02Rik	-6.334027184	2.24E-06
Gm26760	-6.682036724	0.027537296
Ins2	-7.058970702	0.002792266
Gm29009	-8.112800011	4.01E-05
Gm10233	-8.55902179	5.61E-06

Supplementary Table 4 DEGs in HGIN compared to NOR.

ID	logFC	adj.P.Val
Krt6b	11.83992309	0.006097456
Sprr2f	11.22003362	0.0002464
S100a8	11.12352566	0.000780216
Defb3	11.11697073	0.001395604

Sprr2d	11.09621724	0.003716072
Sprr2h	10.85055136	0.0002356
Krt16	10.80588196	0.002055164
Sprr2i	10.60543491	0.006932524
Sprr2b	10.2094735	0.003476956
2310046K23Rik	9.948267247	0.002722268
Csta2	9.162201018	0.0001464
Sprr2e	8.580385979	0.00938578
Stfa2l1	8.427824391	0.00101914
Gm20442	8.314396002	0.0001996
Chil4	7.946401184	0.003230156
Sprr2g	7.924495009	0.012600448
BC037156	7.56135414	0.0002856
Ankk1	7.355615255	0.005078744
Gm33696	7.244939034	0.000688452
Gm28403	7.0640575	0.004157012
S100a9	7.038595753	0.037707288
Gm14251	6.854550206	0.0010381
Chil3	6.823563647	0.030295896
Gm49428	6.814618041	0.01380996
Vnn3	6.738788983	0.000460672
Cryba2	6.670660216	0.001838128
Gm6311	6.499186503	0.000843456
Gm11597	6.454081168	4.44E-06
Krt6a	6.326911304	0.019800448
Wincr1	6.274888302	0.03899822
Akr1d1	6.252567506	0.000577144
Gm49497	6.096194346	0.018717888
Idi2	6.090359993	7.12E-05
Rnase2b	6.046365285	0.03441544
Uox	6.04471703	0.00200092
Gm14681	6.031455465	3.56E-05
Nppb	6.021868488	0.013674376
Lipn	5.96146173	0.011003928
Sprr1b	5.919092655	0.007306432
Gm13864	5.879686007	0.0003744
2010003K11Rik	5.818565484	0.00835332
Gm24362	5.766402673	2.20E-05
Sprr2a3	5.60020957	0.00516922
Ofcc1	5.528860602	0.03690494
Gm15845	5.450635147	0.001200972

Rpl6l	5.376427672	0.002874664
Il17c	5.360189244	0.0001732
Gm36546	5.355923486	3.41E-05
Hp	5.344639213	0.04225198
Gm49890	5.308362368	0.012251412
Slc5a8	5.259085105	0.031310164
Il20ra	5.211718969	0.0077977
Sp6	5.143919583	0.029069256
4930543E12Rik	5.124832049	0.001602516
Gm13655	5.081355488	0.013211172
Slc16a14	5.079269158	0.0041248
Gm13305	5.023429563	0.001375576
Krt17	5.016994657	0.046305644
Ffar2	4.919962728	0.026542052
Tmprss11b	4.837625117	0.027339416
Cd300lf	4.719589152	0.027980156
Klk6	4.718847399	0.013327744
Tmem45b	4.670402751	0.011318752
Lpo	4.623775912	0.029549828
Spr2a2	4.596506603	0.017550432
Sftpd	4.574269177	1.77E-05
Gm49915	4.472617505	0.00015
Hal	4.460731128	0.008598984
Ush1g	4.412010712	0.035452936
Gm37214	4.397430938	0.02329436
Gm37752	4.393565108	0.021584908
Gm15185	4.391225712	0.0003688
Il36g	4.372298407	0.028049368
4933421A08Rik	4.312043934	0.003127092
Gm8899	4.31032496	0.039874116
Slc5a10	4.220592699	0.025512
Gm21859	4.21821201	0.007345228
Il17f	4.215294518	0.014103224
Gm2694	4.190742171	0.008550096
Tspan1	4.142830345	0.04720036
Gsta1	4.141971672	0.044860868
Nat8l	4.134514648	0.009672192
Klrc1	4.107191944	0.005756532
Gm48607	4.085009523	0.004881324
Lcn2	4.056628189	0.00847348
2010110K18Rik	4.033061137	0.047466616

Fpr2	3.989349866	0.035043076
Krt42	3.982302091	0.007505636
Gm4841	3.901719057	0.002755916
Siah3	3.855668457	0.005095964
Slc34a2	3.838238018	0.00697516
Sh2d5	3.728291781	0.027389512
Gm8080	3.71120233	0.018299128
Cxcl10	3.593435124	0.046085812
Gm47026	3.535776771	0.015535148
Zmat4	3.500336469	0.04559252
Slfn4	3.446641012	0.025625456
1700025F24Rik	3.423353891	0.03108618
Otx1	3.420541612	0.021605908
Bcl2l10	3.413597111	0.030404956
Slc25a48	3.412583408	0.027978896
Cwh43	3.389392451	0.013292952
Acod1	3.224141781	0.022556996
Catsper4	3.217292998	0.01808638
Otop2	3.161824441	0.015239472
H3c3	3.098382466	0.012370124
Ccl8	3.040589392	0.034076644
Pglyrp1	3.034376143	0.047644732
Gm15987	2.990561415	0.002880044
Dnah2	2.889716389	0.046149608
Kcnk1	2.889206691	0.045778316
Pi15	2.782450082	0.01884068
Mmp3	2.671872898	0.022984024
Trgc2	2.620798762	0.024681816
C6	2.518196284	0.014252964
Ropn11	2.51011222	0.007924556
Slc51a	2.451783699	0.014499036
Car2	2.427784358	0.03418462
4833427F10Rik	2.415617893	0.011970136
Zbp1	2.372016031	0.031859132
Nlrc5	2.2945475	0.006131716
Cyp7b1	2.288178733	0.021152028
Gm5149	2.27124618	0.001736428
Aknad1	2.25742772	0.038156144
9330175E14Rik	2.233886242	0.039399016
Apol8	2.207553989	0.036273136
Otulinl	2.106214675	0.0216089

Slc7a11	2.095685342	0.029727704
B4galnt4	2.060078021	0.012856808
Gm9910	2.013426004	0.022003904
1700030C10Rik	1.937700397	0.030207168
Ccl22	1.933698644	0.020208812
Cenpk	1.913444465	0.037266092
D930030I03Rik	1.817070371	0.04433662
Rgn	1.7887093	0.019886628
Prxl2a	1.743179585	0.020326844
Psemb9	1.712296879	0.03078402
4933406P04Rik	1.695034523	0.038015868
Mcm10	1.691321004	0.031715956
Gm35572	1.584809956	0.01576782
Gm10463	1.528320834	0.01432232
Lrg1	1.482939544	0.008848372
H2-Q7	1.469946058	0.047873828
Tent5a	1.452511483	0.024807332
Il34	1.438101071	0.029634944
Adgrb2	1.411061486	0.038628948
2700099C18Rik	1.374329891	0.018701752
Arhgap27os1	1.368343477	0.01606176
Rad54l	1.324159646	0.027029536
Arhgap11a	1.31556821	0.03200468
Robo2	1.309222376	0.0100302
Pla2g4c	1.210594452	0.036136836
Igtp	1.210360336	0.039852044
Acs14	-1.016697965	0.049492704
Ttc33	-1.030351925	0.045079684
Rbpj	-1.047923907	0.042593196
Cd9912	-1.04948084	0.041013672
Snap23	-1.054238858	0.049855188
Dnajb4	-1.060357186	0.048567896
Myo9a	-1.069375234	0.048365036
Dusp18	-1.085240149	0.043352744
Ighg2c	-1.091179154	0.04551558
Lmo2	-1.092677511	0.039132012
Tom111	-1.099299364	0.041582704
4631405J19Rik	-1.100299371	0.048477764
Gm49368	-1.113972948	0.040192448
Flcn	-1.11851055	0.049380668
Tmem182	-1.125391072	0.033579064

Npepl1	-1.125954973	0.032996248
Vapb	-1.129160721	0.01947782
Kctd12	-1.132706537	0.038730892
Rab11fip5	-1.136949487	0.026515908
Serpib6a	-1.139420005	0.043872692
Fam221b	-1.141052456	0.041911424
Ptch1	-1.145414836	0.028535868
Sec23a	-1.147171917	0.044303824
B230311B06Rik	-1.158925479	0.043323092
Epm2a	-1.165270299	0.036661972
Add3	-1.166815869	0.040183052
Ccdc91	-1.167949328	0.033986476
Olfir715	-1.169918719	0.035233628
Ctxn3	-1.170933935	0.02924648
AW551984	-1.172292571	0.048125652
Arhgap18	-1.184179646	0.045464952
Fkbp3	-1.196034319	0.024104432
Trappc21	-1.197822321	0.018936544
Gem	-1.20345752	0.049760208
Nr3c1	-1.207751237	0.036696472
Gm10814	-1.209668312	0.033258992
Trim35	-1.229340281	0.038307476
Pvt1	-1.233524071	0.029584172
Gid4	-1.234586091	0.032409508
Tmem64	-1.260121326	0.034455184
Sms	-1.260250449	0.03437888
Rgs16	-1.261060305	0.031872716
Pde8b	-1.262442342	0.030715472
Tspan13	-1.265825523	0.026584388
Capn3	-1.266071611	0.041480256
Man1a	-1.269514848	0.029148696
Mipep	-1.270534607	0.033409152
Mfsd4b1	-1.271696681	0.04591704
Coq4	-1.27330177	0.026359784
Rab28	-1.274430577	0.017233268
Ets1	-1.277477466	0.028589336
Mapk8ip2	-1.280543563	0.015071052
Ube2b	-1.28287954	0.026608496
Bloc1s5	-1.28377725	0.047865316
Etnk1	-1.28595149	0.039265476
Bnip3	-1.289473155	0.037368408

Lyve1	-1.292818009	0.026984868
Armex6	-1.293664033	0.049237552
Nedd1	-1.296197403	0.027256244
Efemp1	-1.298286105	0.027894148
Tomm40l	-1.300255737	0.01854134
Zfp383	-1.301139743	0.039997472
Angpt2	-1.30340903	0.038397316
Ccr2	-1.312806713	0.039894988
Cdpl1	-1.315672098	0.01880834
B3galt1	-1.319071873	0.041934796
Azin1	-1.320784235	0.03446546
Gad1l	-1.325217889	0.045167384
Acvr2b	-1.340277834	0.024333056
Fbxo40	-1.344048991	0.024485132
Pja2	-1.347119921	0.0336592
Cemip2	-1.352419526	0.039442448
Zfp346	-1.352941589	0.028603224
Septin11	-1.358975284	0.020345356
Abcg3	-1.364369801	0.046889992
Gas7	-1.364377961	0.009029964
Gm49086	-1.36510425	0.01880018
Stau2	-1.365992135	0.02536474
Lrrc14b	-1.367532102	0.011735084
Nfam1	-1.372182343	0.035602472
Large1	-1.373493195	0.018123736
Capza2	-1.374762251	0.019938352
Lynx1	-1.378123405	0.017126848
Pgm211	-1.378835944	0.04791694
Dnaja4	-1.379951853	0.039535948
Ankrd6	-1.386744067	0.039539992
Mtr	-1.387758614	0.0318747
Vldlr	-1.391715383	0.041973824
Asb10	-1.395765034	0.01524862
Gm7008	-1.396122946	0.042584408
Vwa7	-1.396430275	0.039143852
Myo16	-1.400909332	0.034243344
F13a1	-1.404515859	0.020995304
Amigo1	-1.410563183	0.016491344
Gal3st4	-1.415520826	0.037954304
St3gal6	-1.417859919	0.03734152
Cgn	-1.421197044	0.036946996

Ankrd33b	-1.427124391	0.016736248
A030012G06Rik	-1.431399916	0.031959964
Bend3	-1.436996224	0.035363668
Tek	-1.443125022	0.038704464
Col12a1	-1.446218976	0.012588588
Enpp1	-1.447494467	0.028992168
Myo1g	-1.448684835	0.030504588
Has2	-1.449844185	0.033977992
Svip	-1.454024806	0.011563056
Klhdc1	-1.454994798	0.00943386
B230369F24Rik	-1.460565813	0.038833348
0610040B10Rik	-1.461562855	0.038821064
Gm43460	-1.461605773	0.046276512
Sor11	-1.463883537	0.037924888
Gm572	-1.469460406	0.027393492
A530013C23Rik	-1.47957949	0.021809708
Rcor3	-1.479981057	0.026391052
Asb14	-1.482137981	0.016221444
4933404O12Rik	-1.484271247	0.04711948
Dnajc27	-1.494680193	0.0411505
Mesd	-1.496284709	0.018108708
Exd2	-1.501830784	0.032313544
Coq8a	-1.507184744	0.03652336
Hdac9	-1.507273763	0.030349036
Tmcc2	-1.517773864	0.0404946
Six4	-1.523401344	0.033669952
Kcnn1	-1.525709889	0.035678912
Gm15179	-1.525938241	0.034938528
Eda	-1.52730475	0.0128711
Lyz2	-1.529751088	0.034633224
Cd55	-1.531607633	0.04908154
Heg1	-1.535989186	0.041733764
Wdfy4	-1.537124626	0.025829712
Trp53bp1	-1.541367982	0.032583624
Gm14421	-1.54357535	0.049605056
2310015D24Rik	-1.550545946	0.035356112
Dtx4	-1.561836838	0.006633028
Morn1	-1.562690294	0.029460144
Plxnd1	-1.563654791	0.04021522
Ptch2	-1.566491461	0.018169056
Mgl2	-1.573793309	0.037619968

A230107N01Rik	-1.576468844	0.018873536
Egflam	-1.579633012	0.025800352
F2rl3	-1.582362116	0.013896756
2310008N11Rik	-1.582927854	0.029838992
Rspo2	-1.586867051	0.038496632
Gm50464	-1.588691638	0.032019184
Gm44439	-1.596314018	0.020993076
Spock3	-1.598788046	0.019266936
Neu2	-1.60103905	0.017458
Stac2	-1.605874419	0.016774948
Arhgap28	-1.608594058	0.01198104
Hdac11	-1.615981541	0.008027684
Eda2r	-1.624882427	0.027555468
Pkia	-1.627033466	0.023518392
Gdap1	-1.627965492	0.033392548
Ildr2	-1.629757495	0.040501132
Asb1	-1.641270234	0.018267628
Wdr66	-1.653396698	0.013378664
Hectd2os	-1.654376728	0.035415016
Ptpn3	-1.655943567	0.018108868
Ptpn18	-1.658437803	0.021801904
Ret	-1.661242884	0.012036024
Adgrl3	-1.661307815	0.034535596
H19	-1.661647313	0.04381226
Evi2a	-1.665472626	0.011840464
Ackr3	-1.671073394	0.007678576
Acsbg1	-1.678452427	0.022095472
Ptafr	-1.679277918	0.005171292
Clec12a	-1.682830403	0.049041312
Tcp11x2	-1.684442415	0.00871386
Fcrls	-1.696866959	0.004369924
Gm14387	-1.697585714	0.008132984
Slc26a7	-1.709149953	0.010403156
Mettl11b	-1.717025572	0.023833488
Tarsl2	-1.720346452	0.0164142
Edn3	-1.721369225	0.010610276
Dok2	-1.723968982	0.007750288
Col9a2	-1.730421563	0.038332384
Tbx18	-1.740024216	0.047150924
Plcb2	-1.742719422	0.048380936
Pcbd1	-1.745228953	0.031390012

Tmem253	-1.749585385	0.012756832
Ticam2	-1.750231063	0.034966948
Angptl1	-1.752643555	0.026916324
2900005J15Rik	-1.754491186	0.035656816
Slamf7	-1.766809009	0.026111352
Gm49794	-1.770960985	0.04453944
Sema4f	-1.773530549	0.024061768
Peg12	-1.776830036	0.017068344
Gm37474	-1.796547763	0.01193296
Wdr86	-1.797439141	0.040668084
Ntn1	-1.797552334	0.020334264
Padi1	-1.811180029	0.046198344
Myf5	-1.814053265	0.01179662
Gm12224	-1.820635505	0.020317
Heyl	-1.822094477	0.025558424
Tlr5	-1.826718653	0.038469368
Lrrc25	-1.845900957	0.009780044
D530033B14Rik	-1.855859919	0.017171312
Gm42568	-1.861698365	0.043168768
Ptpro	-1.865746823	0.011981152
Gm49388	-1.866977872	0.04384888
Ahrr	-1.871187422	0.01458512
Gm11771	-1.890506249	0.010496884
Tbx4	-1.895610522	0.04520858
Hsd17b14	-1.898886193	0.037647936
Cldn10	-1.906847049	0.044128748
Smim6	-1.909993718	0.048214704
Vash1	-1.915195702	0.03840424
Gm42528	-1.917470541	0.0160439
Retnla	-1.927029269	0.0290881
9430064I24Rik	-1.935889551	0.020529776
Sorbs2os	-1.950999196	0.020034692
Plet1os	-1.97561157	0.011711516
Tfpi2	-1.986221415	0.003528432
Opcml	-1.986259112	0.04704938
Slamf9	-1.989123029	0.012652004
Krt222	-1.989334037	0.014128352
Casr	-1.989964518	0.009884412
Hepacam2	-1.990935838	0.00494702
Lyz1	-1.993186978	0.010473264
Nr4a3	-1.995940373	0.021070044

E030044B06Rik	-1.9977394	0.017498908
Gm12319	-2.000366752	0.032552992
Pax7	-2.001192715	0.006870028
Espn	-2.003091044	0.026391988
Gm17705	-2.011011419	0.03725472
Srcin1	-2.017372988	0.00845176
Rasal1	-2.025856959	0.042823348
Trdc	-2.029863495	0.017099488
Dusp4	-2.04261159	0.020614632
Fap	-2.058506382	0.030851496
Gm49123	-2.067073199	0.019146052
Sox8	-2.078313434	0.010182612
Cldn19	-2.097111725	0.026508264
C130026L21Rik	-2.103285088	0.011898784
Edaradd	-2.107309365	0.013121888
Tspan11	-2.116675234	0.044727308
Folr2	-2.120598061	0.025322508
Gm13562	-2.126640364	0.041739832
Nlrp3	-2.130772474	0.005110708
Fam228b	-2.138992755	0.005080524
Col8a1	-2.142566942	0.028309324
Cd83	-2.146021239	0.02913088
Tmem202	-2.148952349	0.011529952
Mest	-2.167503672	0.004076608
Hsd17b13	-2.189318692	0.001953748
Gm16892	-2.189318692	0.024125176
Katnal2	-2.19871314	0.00253996
Lilra6	-2.198764499	0.023556388
Sms-ps	-2.20747545	0.010325712
Tbxas1	-2.2082056	0.047192144
Islr2	-2.219329654	0.007632736
Fndc1	-2.223323668	0.037303148
Bglap3	-2.247475476	0.045987228
Id4	-2.255704824	0.04168598
Fmn2	-2.269118307	0.008589292
4933402D24Rik	-2.27467284	0.046421972
Ces1e	-2.307082906	0.01797596
Itih5	-2.316318136	0.008088332
Arhgap36	-2.328390544	0.039790048
Sptbn5	-2.334040415	0.005071904
Vwa5b2	-2.349132683	0.040199488

Gm8098	-2.361742612	0.003451572
Serpinb1b	-2.376427672	0.020464872
Glt8d2	-2.395234211	0.031012964
Gm15884	-2.402676385	0.036470172
Slc11a1	-2.450008508	0.0093643
Dpp4	-2.452709287	0.04361844
Col26a1	-2.460972908	0.044237324
Klhl34	-2.47120931	0.037133168
Btk	-2.486451648	0.014731884
Jakmip2	-2.497311626	0.020958912
Fer116	-2.516600171	0.031763108
Gm15533	-2.530857174	0.015313664
Fbln7	-2.562208297	0.000959796
Triqk	-2.585574871	0.017934736
2700054A10Rik	-2.585704056	0.036378152
H2-Ob	-2.598619761	0.013302232
Siglech	-2.640997423	0.002159524
Pla2g3	-2.647567294	0.048500636
Bcl6b	-2.648364926	0.024867848
Necab3	-2.659252309	0.024935732
Ano9	-2.695276966	0.000922824
Gm1110	-2.739684074	0.018739436
Tmem132c	-2.746257388	0.002474892
2310016D23Rik	-2.749672541	0.041894108
Gm15663	-2.779711401	0.016325628
Kcnu1	-2.806900118	0.008524948
Irs1	-2.83724447	0.038771508
B930036N10Rik	-2.839791386	0.034165612
Cyp2f2	-2.841822767	0.01160704
Gm34294	-2.901406019	0.019743428
Bank1	-2.902151635	0.005627084
Lrrc55	-2.935229681	0.034916988
4930429H19Rik	-2.971105622	0.044719708
Gm6781	-3.006941883	0.04968058
Camkv	-3.030387765	0.000805724
Gli1	-3.045677537	0.04714624
Esm1	-3.084076017	0.036393368
Cyp2a5	-3.085342647	0.000915328
L3mbtl1	-3.086842517	0.000469236
Gm10549	-3.155504572	0.009546068
Chst8	-3.158011062	0.03041532

2310015K22Rik	-3.241053265	0.049389484
1700003F12Rik	-3.276015735	0.0003188
Gm28265	-3.283811244	0.005984672
3110099E03Rik	-3.307610713	0.02812706
Gm48942	-3.328969542	0.033179208
Gm49953	-3.382401642	0.040470144
2610206C17Rik	-3.406011135	0.021345676
Otoa	-3.477470943	0.003271364
Lyzl4	-3.522652025	0.031028232
Akt2-ps	-3.540378704	0.012292216
Galnt9	-3.605927707	0.005468564
Vax1	-3.623454907	0.038084548
4933433G15Rik	-3.633905713	0.034139352
Slc9a4	-3.638709423	0.0267823
Nepn	-3.676429076	0.022855276
Gm35048	-3.723308334	0.010253176
Rnf32	-3.805702613	0.000358
2900018N21Rik	-3.824297959	0.012926532
4930480K02Rik	-3.856302052	0.025193688
Pira12	-3.860058143	0.009858908
Igf2bp3	-3.892573214	0.00956478
Rprml	-3.969964361	0.01891618
Prr15	-4.152642335	0.049109968
4931403E22Rik	-4.175825669	0.001467056
Gm19283	-4.179719604	0.008286612
Skint6	-4.214207409	0.024199608
Gm50376	-4.219180587	0.020756488
Gm44729	-4.228213019	0.003105988
Gm29009	-4.357204498	0.00341094
Abcc6	-4.361492079	0.007025728
Gm4795	-4.391225712	0.0007455
Gm49454	-4.407346719	0.00123508
Krt31	-4.427850474	0.01205844
Gm45309	-4.428467406	0.003734412
4930580E04Rik	-4.43706022	0.0001588
Gm13991	-4.443876499	0.049213572
Gbgt1	-4.450847394	0.02942098
A330048O09Rik	-4.476817517	0.000520544
1700020G03Rik	-4.492248735	0.001017224
Gm53023	-4.503258335	5.52E-05
Sfrp4	-4.508558593	0.0401504

Gm15749	-4.520747475	0.000152
Gm3363	-4.553689386	0.026368384
Gm18329	-4.617444811	0.0001324
Prss23os	-4.622940852	0.004684908
Gm11166	-4.628075393	0.042853144
Gm5655	-4.636631028	0.0001172
Csf2	-4.638252946	0.001267032
Gm5871	-4.643825411	2.17E-05
BC060293	-4.659629725	9.36E-05
Gm20743	-4.6741621	0.002405688
Gm37867	-4.680781127	5.88E-05
Cldn20	-4.682147316	0.0003372
2310040G07Rik	-4.718272703	0.042110896
Gm6044	-4.730764271	5.84E-05
Gm15883	-4.768307223	0.001762268
Gm37284	-4.817928352	0.0001176
Lrrc72	-4.84053348	1.63E-05
Gm21112	-4.887259366	0.003247096
Gm52952	-4.892573214	0.005279204
Gm9169	-4.897175147	0.0001052
Gm49027	-4.901397284	0.002331616
Gm5129	-5.007224681	0.00105086
Dach2	-5.010078685	1.48E-05
Msgn1	-5.027826442	0.00075926
Gm37261	-5.06608013	0.04708866
Gm16617	-5.11696822	0.000508292
Gm12166	-5.243817209	1.03E-05
Gm5865	-5.249047999	3.95E-05
Gm15104	-5.25194215	0.006426324
Gm29050	-5.28205712	0.01827824
Gpha2	-5.287028969	0.0010897
Gm31544	-5.288029798	0.000158
Ghrl	-5.495244996	3.10E-05
Gm37206	-5.637093381	0.001251232
Gm33373	-5.721543999	0.0001664
Gm17970	-5.746793806	0.001060376
Gm49397	-5.767047079	0.04982888
Nt5c1a	-5.883627819	0.0002964
Gm7420	-6.091184772	2.57E-06
Gm48349	-6.411773366	0.0002612
Gm11723	-6.472963422	0.000827228

Gm10233	-6.809712619	0.018974932
Gm49124	-7.523195904	4.88E-05
Bglap2	-8.249758575	0.000298
4930579D07Rik	-9.191977511	1.22E-05

Supplementary Table 5 DEGs in CA compared to NOR.

ID	logFC	adj.P.Val
Krt6b	12.25276803	0.01119188
S100a8	11.64042738	0.000434866
Defb3	11.42016354	0.000180868
Krt16	11.3276121	0.001472714
Spr2f	11.25810235	0.000180868
Spr2h	11.11658566	5.52E-05
Spr2d	10.9480155	0.008697629
Spr2i	10.57010481	0.020209029
Spr2b	10.49704414	0.008148355
2310046K23Rik	9.996191422	0.010558726
Igkv4-59	9.936398317	0.024636212
Igkv14-111	9.741340013	0.000623632
Csta3	9.686725801	0.000434866
Gm10241	9.248255983	0.003601842
Hp	9.111016844	0.039421726
Igkv4-91	9.042892481	0.022495994
Igkv4-72	9.01034123	0.000701611
Spr2e	8.917409268	6.40E-05
Ighv1-82	8.851086439	0.000718864
Igkv4-68	8.830371815	0.017745048
Igkv6-32	8.820362235	0.023561207
2010003K11Rik	8.802732777	0.000592453
Igkv4-70	8.790925933	0.002228666
Gm49428	8.740034773	0.00135768
Csta2	8.625761518	0.003636022
Gm37746	8.457402628	0.009025682
Ighv14-3	8.43035452	0.015446398
Igkv4-61	8.388506781	0.000291532
Igkv3-7	8.344244125	0.034611201
Cyp2e1	8.341796374	0.019476817
Sst	8.302585251	0.034188671
Wfdc18	8.185908171	0.001697935

Igkv8-21	8.104567821	0.02529637
Orm3	8.085288977	0.034611201
Mup11	8.08051987	0.003601842
Angptl8	8.06247447	0.041144215
Sprr2g	8.020062389	0.01959399
Vnn3	8.018603005	0.003601842
Orm1	8.012056948	0.045199998
Gm5940	7.95479365	0.028780786
Igkv6-17	7.903620288	0.01119188
S100a9	7.859070247	0.013726569
Stfa2l1	7.818089053	0.000180868
Plin1	7.814464492	0.041814602
Cfd	7.748028768	0.045812978
Exosc6	7.715682791	0.002191359
Uox	7.652575763	0.027492481
Cidec	7.633902245	0.038647428
Igcl1	7.589827114	0.012754638
Adipoq	7.57474795	0.043220073
Igkv12-44	7.543586494	0.01473854
Ighv1-42	7.428397032	0.024973727
Ighv1-11	7.385974609	0.044674447
Gm36546	7.304032817	0.00115028
Ighv2-9-1	7.237533628	0.00295538
Ighv1-72	7.136380763	0.000761295
Chil4	7.106231266	0.019902301
A530016L24Rik	7.096432141	0.03513049
Ankk1	7.060456449	0.019731098
Igkv5-43	6.95570125	0.00115028
Ighv6-6	6.889342082	0.011622274
Gm20492	6.888581201	0.000770964
H2-Q10	6.861161205	0.034611201
Sult1b1	6.839636518	0.018815898
Idi2	6.823114572	0.023251646
Akr1d1	6.797654339	0.039953174
Nppb	6.751635032	0.025790703
Ighv8-9	6.738169224	0.012622812
Gm11597	6.718346849	0.010937137
A530053G22Rik	6.658119523	0.022130248
Igkv8-19	6.638381374	0.008697629
Krt6a	6.626552705	0.00481456
Gm44805	6.598820367	0.004210485

Gm13166	6.557948935	0.030952845
Rbp4	6.545174014	0.033915679
Ighv8-8	6.494198427	0.001024087
Rnase2b	6.489184911	0.014329902
Gm454	6.312745235	0.039953174
Ugt3a1	6.291372285	0.002875846
BC049987	6.278691673	0.012244166
Cryba2	6.259085105	0.017745048
Retnlg	6.217577653	0.010689185
Ffar2	6.164043209	0.007739075
Tshr	6.118854398	0.024636212
Cstdc4	6.092671265	0.016455931
Rpl31-ps6	6.069557519	0.000701611
Gys2	6.030699493	0.034611201
Sprr1b	6.027289628	0.000592453
Mcpt1	6.001201917	0.010321175
Ighv1-50	5.991591023	0.028037913
Rpl31-ps18	5.982655966	0.000361799
Abhd12b	5.974372844	0.000718864
Lcn2	5.959306185	0.038090549
Lama1	5.958319114	0.001806311
Igkv17-127	5.915093469	0.00321867
Rergl	5.893228754	0.02092467
Gm32885	5.884804089	0.033156113
Klb	5.872338468	0.013681234
Mcpt2	5.835632131	0.001785261
Cxcl13	5.831576522	0.047470899
Gm35986	5.803576711	0.048499946
Lipn	5.798952662	0.038428765
H2-M9	5.796510171	0.002832033
Scd1	5.773632029	0.015446398
Gm49786	5.643348093	0.001675356
1700041M19Rik	5.613908013	0.000197204
Epgn	5.572737441	0.005984993
Fpr2	5.570555658	0.029189925
Gm13237	5.559900002	0.027624476
Sprr2a3	5.542685379	0.001490896
Krt17	5.52828744	0.02122046
Gm15327	5.507629329	0.005687066
Il23a	5.428956653	0.047180028
Lep	5.416473221	0.022142546

Gm29093	5.397199681	0.003601842
Scrg1	5.258853848	0.01167627
1700048M11Rik	5.240223929	0.003601842
Rpl10a-ps2	5.221843411	0.03625825
Odam	5.214731427	0.001675356
Tm4sf5	5.214383859	0.010250586
Slc6a14	5.204567716	0.018815898
Igkv5-48	5.174295995	0.003324389
Gm15590	5.162508681	0.005092438
Krt12	5.162068844	0.01045145
Slc5a8	5.145570514	0.013836993
Serpib3d	5.135135807	0.011622274
Il20ra	5.129412316	0.031370954
Trf	5.12419944	0.04613531
Oas1e	5.115425424	0.025790703
4930543E12Rik	5.114534046	0.00066826
Vmo1	5.111610643	0.018815898
Gm49890	5.083528381	0.028064082
Npb	5.012915852	0.004117213
Sftpd	5.011771537	0.047521329
Il17a	5.009301999	0.040137405
Gm37070	5	0.008947331
Gm48878	4.998058875	0.042288741
Slc16a14	4.981021403	0.037049487
Tmprss11b	4.978139023	0.003601316
Sftpa1	4.941520343	0.029343732
Serpina3b	4.935667553	0.001323079
Lilra5	4.933093874	0.026961043
Krt1	4.915811426	0.037728605
Elovl3	4.895160374	0.038647428
Cdo1	4.850579938	0.020082339
Igkv2-137	4.845213298	0.003601842
Gsta1	4.842818605	0.002832033
Gm37752	4.805642232	0.031370954
Gm33432	4.784749794	0.003377585
Gm43579	4.764729981	0.01643607
Fasn	4.750957166	0.01625101
Acsm3	4.740297898	0.01078217
Fpr1	4.732610333	0.024932817
Il36g	4.72670628	0.00135768
Tmem45b	4.726485819	0.03851373

Gm10851	4.697585714	0.000375291
Cma2	4.693522577	0.031690138
Slc36a2	4.673113106	0.02529637
Paqr9	4.593671022	0.03772507
Oosp1	4.58273095	0.004752808
Adrb3	4.56816992	0.042620506
Nat81	4.559018149	0.016584198
Gm7897	4.555408001	0.000562865
Sprr2a2	4.550398223	0.001820187
Gm33370	4.548890402	0.00066826
Gm3776	4.548819725	0.003601842
Gm47342	4.525258527	0.012622812
Klk6	4.513419871	0.026452957
Gm13339	4.466247897	0.00066826
Acaa1b	4.465200604	0.018909648
Gm7393	4.464105808	0.024705079
Ccl20	4.450497136	0.04384199
Cxcl3	4.42440427	0.035635755
Anxa13	4.399890782	0.00135768
Plch1	4.366928505	0.021861699
Klhdc7a	4.361235949	0.01400641
Mmp3	4.361062811	0.026952068
Tnmd	4.317903817	0.030273658
Siah3	4.285475176	0.033606537
Folh1	4.253850411	0.021775683
Il17f	4.24799762	0.04384199
Dynap	4.230837293	0.00481456
Scart2	4.223871592	0.016103145
Cpa3	4.211261969	0.035514407
Gsta3	4.18830115	0.026587558
Ropn11	4.185302846	0.011588644
Sprr1a	4.13580978	0.009402145
Serpina3j	4.111796785	0.024863923
Thrsp	4.089342402	0.02529637
Il36a	4.049028999	0.011622274
Pnpla3	4.001563907	0.01396781
Gm8225	3.964812952	0.028827853
Ubash3a	3.933093874	0.009582331
Krt10	3.918966533	0.010689185
Clstn3	3.883933054	0.024636212
Bhlha15	3.846127653	0.029175593

4933421A08Rik	3.843468779	0.02526675
Mc2r	3.829012027	0.040518456
Gjb2	3.824135717	0.020535747
Lpo	3.804542643	0.040137405
Arxes2	3.795424543	0.023251646
Avpr1a	3.778408857	0.025790703
Eci3	3.761501324	0.034983043
Pi15	3.732114086	0.006264252
Myrf	3.711219333	0.035514407
Gm12406	3.675422872	0.034983043
Cdhr1	3.662817159	0.035635755
Aldh11l	3.657718915	0.049189572
Skint7	3.647469925	0.04639283
Sfn4	3.622253363	0.026155116
Slc25a48	3.615598749	0.011622274
Nexmif	3.567583293	0.013726569
Tmem179	3.550978793	0.025034125
Gm5366	3.544418649	0.023251646
Car2	3.540388556	0.040137405
Ccl8	3.481286049	0.040312912
Gm20547	3.461536345	0.027320059
Ppp1r3b	3.445523513	0.023561207
Npbwr1	3.435258923	0.01078217
Hrh2	3.40477304	0.046219824
Sprr2a1	3.402075604	0.01625101
Serpina3n	3.362591219	0.030696189
Pglyrp1	3.341733068	0.046341918
Klk12	3.320781696	0.049267616
Tmprss11e	3.317094905	0.018815898
Slc25a1	3.30865097	0.028827853
Tmprss9	3.297577511	0.037728605
Pygl	3.276627728	0.038647428
Agpat2	3.275469925	0.016103145
Otop2	3.272011218	0.016210636
Tmprss11g	3.261570189	0.01473854
Pparg	3.234756211	0.0423955
Krt14	3.223673688	0.014036133
Gm33228	3.184403814	0.04384199
Prss16	3.18401931	0.026961043
Sfn	3.177504768	0.01625101
Rassf6	3.176409986	0.025398699

Urah	3.167532325	0.033968813
Ugt2b34	3.163327691	0.046219824
Nrg1	3.142263008	0.026961043
Cxcr2	3.116527407	0.022118914
Tgm5	3.114625101	0.025821561
Adamts4	3.113232732	0.0423955
Olfr1033	3.113054311	0.045829569
Gm19531	3.112620483	0.0364511
Htr1b	3.081692425	0.028064082
Cd1d1	3.064942872	0.024705079
Acod1	3.049463947	0.049340452
Kcnk1	3.048035038	0.033915679
Cwh43	3.042213795	0.003744866
Sult1a1	3.035121474	0.017837852
Tmprss4	3.000957051	0.00321951
C3	2.984447323	0.031741703
Serpina3c	2.981715367	0.023251646
Skint1	2.96503265	0.014649469
Gstp3	2.938856475	0.016176325
Gm15987	2.918333788	0.008148355
Tmigd1	2.916729747	0.00780583
Kif17	2.888918864	0.047480757
Mab2113	2.860465447	0.038247586
B4galnt3	2.846964204	0.01078217
Cidea	2.834531007	0.049340672
Atp1a3	2.832683384	0.035051894
Tmem132e	2.830617699	0.030460409
Smoc1	2.827002522	0.023251646
Fgfbp1	2.81315281	0.033083805
Irs3	2.797583447	0.045237174
Abhd15	2.79318335	0.024863923
Syt16	2.791932413	0.047382207
Acly	2.788783394	0.029886599
Mdga2	2.777569311	0.028656928
Acss3	2.769138611	0.037969073
Acaca	2.752748333	0.017528423
Bhlhe22	2.749349537	0.003764427
Prr16	2.734495996	0.02529637
Pcx	2.72135393	0.020535747
Dlx5	2.718834829	0.047346722
Chil1	2.71483811	0.024636212

Bcl3	2.714684718	0.018815898
Gdf10	2.709840522	0.038647428
4833427F10Rik	2.692430867	0.033962963
Klk13	2.686409674	0.01119188
Fabp5	2.684102504	0.045668638
Hrob	2.658233793	0.038647428
Prkar2b	2.626597014	0.036022078
Ms4a4a	2.619708393	0.038497926
Btnl9	2.617719537	0.028827853
Acat2	2.606845112	0.013681234
Spire2	2.598532317	0.046115854
Mcm10	2.59793579	0.026189039
Gsdmc	2.584500767	0.021455675
Elovl6	2.581650996	0.039656629
Slc16a7	2.580959107	0.046896619
Hs3st3b1	2.574711615	0.032864577
Chit1	2.563836342	0.038647428
Klk10	2.562534425	0.041144215
Ppp1r1b	2.555614657	0.038647428
Cntfr	2.527017253	0.026961043
Endou	2.52678151	0.017837852
Il1rn	2.522830203	0.025790703
Gm45412	2.515631487	0.003601842
Cd3e	2.511300375	0.040137405
Hpgds	2.478308045	0.024060886
Pdzk1ip1	2.465015529	0.034611201
Nfil3	2.457912052	0.040606792
Apol8	2.455596849	0.013408532
Gk	2.451368972	0.020117009
Chst1	2.449272812	0.023561207
Slc35f2	2.444250911	0.0156027
Trgc1	2.436051791	0.032164444
Tnfaip8l3	2.43085909	0.024060886
Fmod	2.430659013	0.044674447
Scart1	2.424242427	0.010689185
Ccl22	2.411259005	0.019608151
Insig1	2.409138242	0.0156027
Itpka	2.397484315	0.039421726
Ccdc171	2.396897699	0.013959847
Trarg1	2.395530922	0.046896619
Acot4	2.390439412	0.029343732

Cdk15	2.382889549	0.028683268
Tcf24	2.379986857	0.031370954
Slc2a1	2.370701513	0.029195353
Gm38312	2.37013686	0.020535747
Nlrc5	2.367314555	0.015955252
Gm12866	2.360498253	0.038647428
Mpz12	2.351987897	0.032164444
Cd4	2.348573013	0.026961043
Gm47316	2.345717666	0.040380965
Nrg4	2.340171818	0.017294729
Aknad1	2.330311751	0.022142546
Prxl2a	2.317060343	0.003711401
Septin3	2.311310759	0.024636212
Lrrc4	2.295053399	0.041814602
Lgals12	2.282932108	0.044674447
Ntrk2	2.280876799	0.04803321
Dsg3	2.277983806	0.028064082
Cyp7b1	2.269741922	0.024932817
Cdh3	2.263681801	0.040986416
Acot1	2.261947759	0.045668638
Lipe	2.256605151	0.026961043
Mal2	2.249863804	0.036022078
Smim3	2.214536594	0.045199998
Defb1	2.212209288	0.040606792
Plet1	2.195243242	0.022696618
BC051077	2.192527657	0.045829569
Dsc2	2.183008923	0.013959847
Clspn	2.181671429	0.039739151
Aldh1a7	2.181631929	0.026155116
Galnt6	2.173309805	0.023692843
Mgst1	2.171924887	0.039445311
Slfn9	2.161269704	0.019626938
Slc18a1	2.157889619	0.030696189
Lgi2	2.156430301	0.02529637
Edn2	2.149792651	0.038647428
E130008D07Rik	2.146875531	0.012622812
Ace2	2.146837871	0.033653022
Slco2a1	2.141499836	0.039953174
Sqle	2.141253559	0.021775683
Ifi202b	2.138969431	0.034983043
Cebpa	2.138465049	0.033606537

Sfxn1	2.13501679	0.020535747
Acp5	2.126579899	0.027320059
Efna5	2.12610213	0.035085693
Eaf2	2.116790361	0.046301972
Cyp51	2.114160339	0.016210636
Gm21969	2.094583973	0.010321175
Npas2	2.092630826	0.029343732
Tmprss11d	2.091913554	0.0249031
Epop	2.089899379	0.046896619
Galnt3	2.080176333	0.015699836
B4galnt4	2.076861465	0.028064082
Zbp1	2.070618737	0.039953174
H2-K1	2.068123849	0.030700985
Sdf211	2.056914989	0.047305597
Gpr65	2.051740529	0.020535747
Oas1g	2.048268562	0.040635951
Trpm2	2.04734774	0.039739151
Abca12	2.042661941	0.04197588
Slitrk5	2.040338467	0.026155116
Ly75	2.024233163	0.026961043
B2m	2.024016209	0.034611201
Steap1	2.010364603	0.046219824
Adora1	2.00940299	0.041814602
Hacd2	2.007389382	0.03513049
Aunip	2.003959714	0.034217039
Gm38563	1.994686176	0.048599256
Tmem125	1.990206712	0.048237074
Eya2	1.987776666	0.023251646
Dsg1b	1.983018363	0.047470899
Gm37145	1.978486583	0.031572594
Inhbb	1.972169533	0.031370954
Tuba1c	1.96527989	0.039948205
Has3	1.962031453	0.031370954
Casp4	1.95971413	0.020206954
Slc39a8	1.953992725	0.024636212
Kbtbd11	1.946173663	0.042335212
Ptges	1.943102056	0.049340672
Slc25a10	1.941942637	0.026452957
9430060I03Rik	1.931471955	0.031370954
Gsdmc2	1.925660424	0.033653022
Tmem229a	1.924196501	0.048337858

Il36b	1.918685361	0.039421726
Dbi	1.91577478	0.025034125
Apol7c	1.913413575	0.040116359
Cxadr	1.906920365	0.01625101
Tent5b	1.904910682	0.045668638
Aacs	1.902439064	0.020206954
Atp2c2	1.889642466	0.019902301
Otulinl	1.885956461	0.011622274
Foxc2	1.885705317	0.02529637
BB123696	1.880892666	0.034611201
Rrm2	1.880700992	0.02529637
Tmem102	1.880175479	0.035514407
Pclaf	1.879421858	0.028836653
Il1a	1.865605169	0.022427127
Dgat2	1.862410295	0.018815898
2610528A11Rik	1.862331589	0.035451936
Ccdc18	1.860609904	0.017837852
Elovl5	1.858769583	0.02529637
Dhfr	1.852629211	0.011622274
Bnc1	1.849998857	0.036990344
Aldh1l2	1.848541662	0.019778189
Adgrb2	1.844543836	0.026961043
Lct	1.844082561	0.01840097
Kcnj15	1.840346703	0.028827853
Zmynd15	1.837224042	0.036710372
Lin7a	1.83208045	0.04384199
Sc5d	1.830510623	0.016176325
Mdfi	1.829125072	0.024060886
Cyp2c65	1.826210393	0.046341918
Foxq1	1.824706432	0.049084507
G6pdx	1.812391933	0.026444475
Fmo1	1.801226095	0.028827853
Rhov	1.784095466	0.025790703
Cenpk	1.782041833	0.020535747
Phyhd1	1.780229384	0.01119188
Cadps2	1.765921202	0.028827853
Arntl	1.76569225	0.043220073
Msr1	1.763080675	0.028827853
Acer2	1.760504654	0.026155116
Il4ra	1.758957909	0.026452957
Creb3l1	1.756277111	0.04089654

Ephx2	1.750568835	0.029189925
Adarb1	1.735663006	0.016313482
Tent5a	1.73441442	0.024705079
Asns	1.730613143	0.02529637
Stap1	1.72273837	0.031692735
Slc23a4	1.717745165	0.030696189
4833407H14Rik	1.717334364	0.046975236
Cd274	1.714967633	0.04384199
H2-Q7	1.713685749	0.049693093
Ces1h	1.703921665	0.026961043
Fbxo2	1.70207876	0.042111348
Slc45a3	1.693707558	0.035306573
Tnfaip2	1.690349976	0.038497926
Idi1	1.682153894	0.022427127
Sox7	1.681826981	0.042663157
Mmp12	1.680984048	0.041487839
Heph	1.679678803	0.024705079
Zfhx4	1.676293707	0.047521329
Fosl2	1.674718043	0.01473854
Msmo1	1.67150112	0.036022078
Elov17	1.670438705	0.034611201
Sntg1	1.662657069	0.028064082
Sowahe	1.658428667	0.031370954
Tmem79	1.658374829	0.033653022
Gimap3	1.656708933	0.039953174
Gm9899	1.654839402	0.016176325
Robo1	1.647686271	0.04541436
Wnt16	1.646942912	0.033822806
H60c	1.646866416	0.042759233
Abat	1.644786081	0.027320059
Trip13	1.64260545	0.034217039
Ccnf	1.641528774	0.045739936
Gja1	1.640924434	0.033606537
Scd2	1.638633086	0.02092467
Gsta4	1.624704727	0.022666981
Zfp473	1.62208287	0.040518456
Slc7a11	1.621321158	0.049340452
Sh2b2	1.615294768	0.033822806
Adgrf4	1.610684203	0.035085693
Pxdc1	1.609641508	0.032864577
Psmb9	1.608922941	0.047990492

C5ar2	1.606289637	0.026961043
Timp4	1.603914184	0.03042344
Creld2	1.60367531	0.038090549
Me1	1.597908796	0.046975236
Nr2f1	1.592926168	0.046219824
Procr	1.592884613	0.016210636
Nod2	1.582867292	0.02529637
Lrrc3	1.573036823	0.031690138
Mafb	1.568921652	0.041144215
Pla2g4c	1.566813239	0.026961043
Pdia4	1.560889481	0.036022078
Plau	1.556802907	0.032166413
Hsd17b12	1.551289647	0.038090549
Mcc	1.540503372	0.025509375
Robo2	1.536334505	0.02529637
Steap4	1.535549323	0.01643607
Tgm1	1.532571387	0.048171882
Nefh	1.529353401	0.025854539
Entpd7	1.528296313	0.024636212
Gm20274	1.526659698	0.038647428
Pik3cb	1.525556024	0.049717384
Pgam1	1.524147566	0.047180028
Mir205hg	1.518880248	0.030730224
Epha4	1.514478189	0.04763324
Il2rb	1.512700243	0.046782622
Rbm47	1.511549793	0.034152156
Shcbp1	1.508608019	0.024636212
Txn1	1.50810782	0.024932817
Grip1	1.505955554	0.018459024
Edem1	1.490855493	0.02092467
Diaph2	1.482853916	0.043273465
Trerf1	1.482139934	0.047140788
Eif4a-ps4	1.481337226	0.02529637
Ncapg	1.477406144	0.045059623
Shb	1.47074075	0.015446398
Gm35572	1.465251966	0.029886599
Igfbp3	1.465157409	0.025847369
H2-T10	1.455606169	0.047521329
Sgpp2	1.455380701	0.040137405
Nab1	1.450896718	0.019902301
Gm47071	1.447785378	0.029515446

Efnb3	1.445291738	0.019902301
Anxa1	1.43911224	0.036710372
Enc1	1.438781763	0.02525989
Spock2	1.437732795	0.047470899
Plcg2	1.436365301	0.029687934
Gclm	1.432556638	0.037044535
Fyb	1.432250246	0.037049487
Gstz1	1.4314107	0.029175593
4931406C07Rik	1.430619307	0.046219824
Pbk	1.42830457	0.033606537
Rufy4	1.424164912	0.024752755
Rdh11	1.424008925	0.038647428
Psat1	1.417567065	0.028827853
Pnpla2	1.413727011	0.049340672
Blvrb	1.413353456	0.02529637
S100a7a	1.409064315	0.03623779
Rad54l	1.406275834	0.0208296
Gm7730	1.405339599	0.026961043
Gm18407	1.400701802	0.04763324
Mt1	1.398337561	0.026961043
Casp1	1.393678007	0.024636212
Gmnn	1.391270917	0.03590392
Hspa5	1.388117544	0.028827853
Mbnl3	1.387754152	0.02092467
Ncaph	1.377996265	0.047470899
P2ry10	1.374036328	0.028037913
Cracd1	1.372966999	0.034611201
Gale	1.369887754	0.041811109
C130074G19Rik	1.362643034	0.041814602
Gsto1	1.362624647	0.028919143
Mapk6	1.358962788	0.043188415
Xdh	1.355965931	0.031370954
Enah	1.354244461	0.036710372
Gss	1.351802226	0.035451936
Cdh2	1.350606681	0.032164444
Ammecr1	1.347897854	0.047091165
Slc7a8	1.347535986	0.037636521
Iah1	1.346165225	0.04186212
Ifitm3	1.344819746	0.03414925
P3h2	1.337161317	0.040380965
Ralgapa2	1.333907411	0.025854539

4833415N18Rik	1.329542785	0.028827853
Erg28	1.310504363	0.032164444
Car4	1.306072639	0.025847369
Mpeg1	1.303795649	0.047480757
Pgd	1.301112623	0.029943727
Plbd1	1.300037012	0.027320059
Ifi209	1.297318308	0.048068489
Ctsc	1.295229724	0.023251646
Whrn	1.290600569	0.039421726
Nfkbid	1.290343981	0.049472956
Gins3	1.288814344	0.048068489
Smpd13b	1.281393935	0.048499946
Pfklp	1.274477542	0.043188415
Ldlr	1.272678077	0.028836653
Slc7a5	1.270280908	0.04829023
Ppp2r1b	1.269954218	0.031370954
Manf	1.268704662	0.035085693
Nudt5	1.265689697	0.038090549
1700020L24Rik	1.257047999	0.040137405
Nfkbia	1.255726705	0.04840248
Igsf3	1.254948967	0.038090549
Maf	1.251732569	0.018815898
Nucb2	1.25070764	0.042335212
Snai2	1.249630432	0.033653022
Smc2	1.24695459	0.0364511
Pdia3	1.244165598	0.035791799
Chsy3	1.243002957	0.043203058
Tyms	1.230804534	0.039953174
Pctp	1.210490999	0.047470899
Akr1b8	1.209865006	0.035085693
Ak2	1.20950387	0.024973727
Tcf19	1.207566486	0.027320059
Cdk6	1.206431742	0.037969073
Pmvk	1.204443538	0.026961043
Siglec1	1.199492436	0.040137405
Dusp7	1.189873675	0.02529637
Gm9419	1.189293681	0.047470899
Hspa1b	1.188392661	0.033606537
Hsp90b1	1.18585161	0.031690138
Sec63	1.184747378	0.024636212
Fads1	1.183509805	0.040071026

Ttc39b	1.177392327	0.048068489
Csad	1.174743716	0.034188671
Adra2b	1.171687385	0.033737992
Nos1ap	1.161321903	0.02529637
Pou2f2	1.157977063	0.039421726
Traf4	1.157710271	0.032938037
Tapbp1	1.155952651	0.032166413
Fam162a	1.14844485	0.034407127
Slc3a2	1.147716964	0.025557181
Hcar2	1.136646415	0.048068489
Isg20	1.133485851	0.03623779
Man2a1	1.132601934	0.046782622
Ptbp3	1.132356787	0.04473474
Abcg1	1.121500786	0.025790703
Nsdhl	1.121175586	0.047305597
Rundc3a	1.11554464	0.04763324
Hsp90aa1	1.071065486	0.042816092
Idh1	1.062940303	0.039421726
Slc12a7	1.061920794	0.043188415
Slc27a1	1.056265167	0.034611201
Rbbp8	1.037026094	0.028064082
Eif1a	1.035125875	0.03590392
Vangl1	1.034414063	0.038090549
Stom	1.034369753	0.045237174
Phlda1	1.024352308	0.048052599
Ehd3	1.018894049	0.038090549
Rab11a	1.017755337	0.049305276
Leo1	1.007694045	0.044674447
Nol3	-1.0138916	0.041814602
Vamp5	-1.021102456	0.035514407
Cdh9	-1.023260668	0.044715272
Cbr2	-1.026477313	0.039421726
Gapdh	-1.031777966	0.038647428
Popdc3	-1.038542488	0.047708064
Prxl2b	-1.045423511	0.03851373
Dok2	-1.052570697	0.0294545
Macrodl	-1.059574451	0.045616133
Tomm40l	-1.063374466	0.037728605
Jsrp1	-1.071805711	0.031370954
Shisa4	-1.072518512	0.038647428
Cdpl1	-1.080321555	0.034611201

Mllt3	-1.081944775	0.029175593
Hsd17b14	-1.082590054	0.031415681
Car11	-1.082765956	0.035451936
Card19	-1.087497827	0.033653022
Hspb2	-1.092526231	0.0364511
Neurl2	-1.094250962	0.04763324
Eef1a2	-1.112853883	0.04763324
Sdhaf4	-1.11466911	0.045199998
Itm2a	-1.122126599	0.035085693
Plpp7	-1.125663461	0.038647428
Mettl15	-1.127553269	0.028836653
Ptges3l	-1.128502454	0.040606792
Tpd52l1	-1.135479574	0.047140788
Yipf7	-1.136112894	0.035643307
Mrln	-1.149454888	0.045059623
Plekha6	-1.151539445	0.044139503
Egflam	-1.153675214	0.037728605
0610040B10Rik	-1.157304546	0.038497926
Mief2	-1.174076825	0.040137405
Bcam	-1.181387426	0.03272542
Sema4f	-1.196922707	0.038647428
Gbe1	-1.208745632	0.041144215
Npepl1	-1.214610589	0.034798583
Aldoa	-1.21763042	0.028683268
Rapsn	-1.217908297	0.046219824
Eda2r	-1.223442472	0.048337858
Myl3	-1.236048314	0.034983043
1700120C14Rik	-1.244061336	0.026587558
Maged2	-1.261052528	0.032164444
Acyp2	-1.262330451	0.028064082
Fitm1	-1.267671809	0.026587558
Lmo2	-1.285851425	0.023692843
Smtnl2	-1.292005324	0.048499946
Ephx1	-1.297366415	0.033606537
Scn1b	-1.305626857	0.032164444
Ybx2	-1.312586092	0.031370954
Usp28	-1.313984967	0.046782622
4933431K14Rik	-1.318646724	0.042288741
1110046J04Rik	-1.326492577	0.038509453
Hspb3	-1.33441559	0.028919143
Myl1	-1.345735347	0.02441655

Shisa2	-1.357424625	0.045668638
Srpk3	-1.362127673	0.047470899
Gmpr	-1.36861243	0.028919143
Eno3	-1.374708125	0.024060886
Msh5	-1.394204548	0.045199998
Gm31812	-1.394678468	0.047346722
Cys1	-1.427365806	0.039953174
2310040G24Rik	-1.436742535	0.032898861
Snai3	-1.436950201	0.038647428
Riad1	-1.442885089	0.029343732
B230311B06Rik	-1.4496498	0.026961043
Rnf224	-1.452461211	0.033606537
Cryab	-1.456185909	0.024932817
Bhlhe41	-1.459340093	0.024636212
Cox7a1	-1.463047518	0.03272542
Tspan13	-1.467049316	0.02529637
Csrp3	-1.468369586	0.026519385
Apobec2	-1.474527904	0.035085693
2310043L19Rik	-1.498591493	0.033606537
Pamr1	-1.501997137	0.040622402
Gm44439	-1.50303933	0.033822806
Myog	-1.518549712	0.016210636
Dusp10	-1.519591971	0.02529637
Lilra6	-1.552545285	0.047222603
Pgam2	-1.554979705	0.012358859
Emilin3	-1.560367744	0.047222603
Capn3	-1.571094814	0.038647428
Pfn4	-1.577810684	0.039739151
Asb10	-1.580236234	0.032164444
Tcp11x2	-1.588115944	0.019925702
Gm15179	-1.590274545	0.023251646
Smpx	-1.600137313	0.032164444
Ppm1j	-1.630132979	0.019476817
Ramp1	-1.637400849	0.049227327
Pgpep11	-1.642655033	0.04613531
Pax7	-1.651972104	0.039792773
Slc16a3	-1.655525773	0.031691835
Il1rapl2	-1.668945395	0.046802658
Ankrd24	-1.675783124	0.016115622
2310002L09Rik	-1.676314125	0.04763324
Catip	-1.680307256	0.044715272

Gm27209	-1.683529229	0.028827853
6330410L21Rik	-1.721693706	0.013681234
Amhr2	-1.724550488	0.025509375
Nup210	-1.735503884	0.022666981
Mamstr	-1.758760631	0.045634851
Gm9796	-1.760781887	0.033606537
Gamt	-1.761414519	0.01625101
Gm45021	-1.761508587	0.046782622
2310047D07Rik	-1.777133757	0.031370954
Il12a	-1.814651447	0.038647428
Gm15561	-1.818800725	0.029195353
Gm17552	-1.821934584	0.034407127
Galnt9	-1.896166702	0.047346722
Prr32	-1.914534898	0.039953174
Gm15991	-1.916546475	0.042842174
4732414G09Rik	-1.919659096	0.04089654
Defb6	-1.926995819	0.046896619
Gm12224	-1.941765947	0.0156027
Gm32391	-1.96175928	0.01473854
Gm572	-1.962082827	0.025790703
Ptprq	-1.991302872	0.020206954
Mlfl	-1.992609398	0.033822806
Dupd1	-1.993524439	0.033653022
Aplnr	-2.014759303	0.02092467
Neu2	-2.021016924	0.02441655
Lrrc55	-2.022907816	0.030696189
Slc6a7	-2.038261149	0.041277196
Mybph	-2.068103193	0.039739151
Gli1	-2.090525635	0.016176325
Gm50194	-2.092350479	0.034983043
Trdc	-2.108097446	0.026812809
Katnal2	-2.124930717	0.030652417
Cryba4	-2.132124262	0.0423955
Atp8a2	-2.153007386	0.048972115
Gm30082	-2.165377186	0.011622274
Zfp652os	-2.182472218	0.039953174
2310008N11Rik	-2.208012397	0.016313482
Gm20658	-2.221752889	0.013617203
Pla2g3	-2.2380749	0.031370954
Casr	-2.286919036	0.047470899
4631405J19Rik	-2.301387969	0.02092467

Gm11771	-2.319037613	0.031370954
Mpp4	-2.325623492	0.028919143
Gm36495	-2.326403551	0.02529637
Bglap3	-2.334813714	0.042842174
Gm50376	-2.365099778	0.034178867
Myo16	-2.405991334	0.039953174
Camkv	-2.420244349	0.012484975
Gm45743	-2.489667386	0.033013995
Gm43909	-2.502027479	0.047470899
L3mbtl1	-2.58600907	0.048068489
1700003F12Rik	-2.616922427	0.031690138
Arhgap36	-2.61779392	0.035451936
Gm39214	-2.691241656	0.042663157
Gm35330	-2.691347442	0.015169026
Ciart	-2.707400048	0.03513049
Serpib7	-2.763415547	0.040606792
Col24a1	-2.785524746	0.01305027
Gm11523	-2.900288829	0.041380861
Dbp	-3.109158904	0.007881386
Nodal	-3.116832416	0.041811109
Rnf32	-3.161032371	0.00480559
Sfrp4	-3.236268889	0.010586986
Gm29609	-3.320128109	0.037044535
Otoa	-3.389792808	0.033915679
Gm49212	-3.410768346	0.023251646
Krt31	-3.458886943	0.034040198
2310001K20Rik	-3.485222008	0.030696189
Gm7451	-3.553926033	0.038090549
Gm35048	-3.635630199	0.041805783
Gm20743	-3.665414376	0.043188415
Gm15283	-3.910947711	0.029207677
2310016D23Rik	-3.933449237	0.03667317
Gm8170	-3.947842845	0.046896619
Gm15893	-4.036610218	0.032164444
Gm18505	-4.1342866	0.038647428
Gm12166	-4.187175541	0.043851981
Kcns1	-4.358938532	0.01119188
4930580E04Rik	-4.43706022	0.003358414
Gm20735	-4.449821847	0.029640135
Gm19056	-4.468469141	0.011622274
A330048O09Rik	-4.476817517	0.008697629

Gm15749	-4.520747475	0.003324389
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Gm49521	-4.679153719	0.01167627
Gm6044	-4.730764271	0.001632149
Lncbate3	-4.744889255	0.005274642
Skint6	-4.754006075	0.047091165
Gm37284	-4.817928352	0.00295538
4930555G07Rik	-4.821493978	0.009705864
Gm19283	-4.84638627	0.010108082
Gm29101	-4.854080808	0.000370114
Sohlh1	-4.880081645	0.003141288
Gm3830	-4.967081344	0.028827853
Gm48142	-4.967364142	0.033915679
Gm16150	-4.977650964	0.000884093
Msgn1	-5.027826442	0.01119188
Gm45148	-5.066404076	0.014036133
1700092M07Rik	-5.173866813	0.02092467
Hmgn2-ps1	-5.183462022	0.020206954
Gm31544	-5.288029798	0.003601842
Gm13351	-5.495402178	0.003324389
Gm20304	-5.580190448	0.001675356
Nr6a1os	-5.60120047	0.035085693
Gm29009	-5.648694204	0.040518456
Gm3363	-5.905450198	0.021775683
Ccdc27	-6.252743241	0.046219824
2410080I02Rik	-6.334027184	0.000180868
Gm15846	-6.896951037	0.010495558
Gm27232	-6.920631765	0.000180868
1810049J17Rik	-8.312182934	0.000361799

Supplementary Table 6 List of key genes.

Gene

Krt6b
S100a8
Defb3
Sprr2h
Krt16
Sprr2i
2310046K23Rik
Sprr2f
Sprr2d

Spr2e
Spr2b
Csta2
Gm49428
Akr1d1
Gm36546
Hp
Idi2
Stfa211
Ankk1
S100a9
Lipn
Gm49890
Spr1b
Lcn2
Rnase2b
2010003K11Rik
Vnn3
Tmprss11b
Chi4
Gsta1
Il20ra
Il36g
4930543E12Rik
Slc16a14
Ffar2
Mmp3
Tmem45b
Lpo
Pi15
Slc25a48
Kcnk1
Klk6
4933421A08Rik
Acod1
Car2
Gm15987
Cwh43
Slc7a11
Otop2
Otulin1

Aknad1
Cenpk
Nlrc5
B4galnt4
Ropn11
Robo2
Adgrb2
Tent5a
Npep11
Gm12224
Capn3
Lmo2
Tspan13
Gm11771
Gm572
Katnal2
Dok2
Gm15179
2310008N11Rik
Asb10
Trdc
Egflam
Sfrp4
Casr
Myo16
Otoa
Neu2
Lrrc55
2310016D23Rik
Gm20743
4930580E04Rik
Skint6
A330048O09Rik
Tcp11x2
Gm37284
Gm29009
