Supplementary Tables

Tab	Title	Caption
Tab 1	Supplementary Table S1a	The list of most reprodusible DE genes in the hippocampus of BTBR mice
Tab 2	Supplementary Table S1b	The list of most reprodusible DE genes in the cortex and striatum of BTBR mice
Tab 3	Supplementary Table S3a	Gene set enrichment analysis of all expressed genes in the hippocampus
Tab 4	Supplementary Table S2b	Gene set enrichment analysis of all expressed genes in the striatum
Tab 5	Supplementary Table S3	The list of "high prediction score" mutations
Tab 6	Supplementary Table S4a	The list of SZH related genes
Tab 7	Supplementary Table S4b	The list of ASD related genes

Supplement Table S1a. The list of most reprodusible DE genes in the hippocampus of BTBR mice

GeneSymbol	Up/down	Number of datasets
Blvrb	up	3
Scg5	up	3
Serpina3n	up	3
Anxa5	up	3
Snapc3	up	2
Clec16a	up	2
Kras	up	2
Nudc	up	2
Cap1	up	2
Uba5	up	2
Adi1	up	2
Mrpl3	up	2
Slc7a14	up	2
Wfs1	up	2
Gins4	up	2
Lpl	up	2
Extl1	up	2
Plcxd2	up	2
Tbc1d9b	up	2
Mamdc2	up	2
Abhd1	up	2
Pla2g4e	up	2
Gbp2b	up	2
Kcnh5	up	2
Mpzl2	up	2
Gon4l	up	2
Wdfy1	up	2
Scly	up	2
Sytl1	up	2
Mroh7	up	2
Exd1	up	2
Cdhr1	up	2
Sfrp1	up	2
Acer2	up	2
Amica1	up	2
Cfap46	up	2
Gabra2	up	2
Folh1	up	2
Hddc3	up	2
Necab3	up	2
C330024D21Rik	up	2
Filip1	up	2
Slc15a2	up	2
2610005L07Rik	up	2
Amy1	up	2
Clcn6	up	2

Me3	up	2
Padi2	up	2
Fv1	up	2
Lrrc27	up	2
Shd	up	2
Ahdc1	up	2
Zfp612	up	2
Ndn	up	2
Faim2	up	2
Wbp11	up	2
C1qb	down	3
Spink8	down	3
Entpd4	down	3
Pop4	down	3
Alg1	down	3
Rpl29	down	3
Ccnd1	down	3
Mt3	down	3
Zfp131	down	3
6330403K07Rik	down	3
Nudt19	down	3
C1ql2	down	3
Evc2	down	3
Cetn4	down	3
1700025G04Rik	down	2
Sv2b	down	2
Ttc17	down	2
Caskin1	down	2
Hsp90b1	down	2
Rgl1	down	2
Armc8	down	2
Clcn7	down	2
Enpp5	down	2
Stk25	down	2
Kcnf1	down	2
Dusp7	down	2
Rapgefl1	down	2
Hsd11b1	down	2
Sema5a	down	2
Crym	down	2
Gnptab	down	2
Hdhd2	down	2
Cort	down	2
Igsf3	down	2
Slc25a3	down	2
Ddhd1	down	2
Zmynd11	down	2
Bdnf	down	2
Anxa3	down	2

Ppm1m	down	2
Lyrm7	down	2
A830018L16Rik	down	2
Dbndd2	down	2
Bpnt1	down	2
Grhl1	down	2
9330151L19Rik	down	2
Tnni1	down	2
Pgap2	down	2
Ankrd33b	down	2
Trpc6	down	2
Myo7a	down	2
Il1r1	down	2
Myo5b	down	2
Id4	down	2
Zfp846	down	2
Trim12a	down	2
Stpg1	down	2
Thbs4	down	2
Rpl14	down	2
4930503L19Rik	down	2
Tmem260	down	2
Vmn2r29	down	2
C5ar2	down	2
Irgm2	down	2
Tmem254a	down	2
Prr18	down	2
Arhgap15	down	2
Exosc9	down	2
Npy2r	down	2
Lct	down	2
Zfp433	down	2
Trim34a	down	2
Snapc1	down	2
Ptgs2	down	2
Hpgd	down	2
Cml5	down	2
Rec8	down	2
Naaa	down	2
Cisd2	down	2
2900052N01Rik	down	2
2610044O15Rik8	down	2
Ctss	down	2
Slc35a5	down	2
Crispld1	down	2
Rps4l	down	2

Krt12	down	2
Gstm6	down	2
Ccbe1	down	2
Eif3j1	down	2
Kctd4	down	2
Frzb	down	2
Thsd4	down	2
Gvin1	down	2
Emp2	down	2
Inmt	down	2
Alox8	down	2
Gm7120	down	2
Gabra5	down	2
Phyh	down	2
Pttg1	down	2
Itpka	down	2
4833420G17Rik	down	2
Ifi203	down	2
Zfp236	down	2
Rint1	down	2
Frrs1l	down	2
Slc37a2	down	2
Mettl10	down	2
Myoc	down	2
Trim30d	down	2
Alox12b	down	2
Gatm	down	2
Eps8l1	down	2
Hjurp	down	2
Acp1	down	2
Tmem159	down	2
Defb11	down	2
Zfp781	down	2
Nxpe4	down	2
Pde6h	down	2
Mobp	down	2
Trf	down	2
Psenen	down	2
Capns1	down	2
Cx3cr1	down	2
Scoc	down	2
Bex4	down	2
Pon2	down	2
Psmb5	down	2
Rnps1	down	2
Pfdn5	down	2
Sepw1	down	2
C1qc	down	2
B2m	down	2
Il33	down	2

Supplement Table S1b. The list of most reprodusible DE genes in the cortex and striatum of BTBR mic

GeneSymbol	Up/down	Number of datasets
Scg5	up	4
Serpina3n	up	4
Pla2g4e	up	3
H2-Bl	up	3
Hddc3	up	3
Rwdd3	up	3
Adi1	up	3
Rsph1	up	3
Olfml1	up	3
Ccl17	up	2
5430405H02Rik	up	2
Hemk1	up	2
Anxa4	up	2
Lpl	up	2
Idi2	up	2
Abhd1	up	2
Sytl1	up	2
Masp2	up	2
Cfap54	up	2
Myl1	up	2
AA465934	up	2
A930015D03Rik	up	2
Cap1	up	2
Wdr63	up	2
Gm10704	up	2
Gm5067	up	2
Cox7b2	up	2
Flywch2	up	2
Mns1	up	2
Scn11a	up	2
Lrat	up	2
Gm15459	up	2
Mamdc2	up	2
Gm15487	up	2
Slpi	up	2
Gm15975	up	2
Gm6969	up	2
Gm15631	up	2
Trappc6a	up	2
Gm11942	up	2
Zfp457	up	2
Gm6206	up	2
Capn11	up	2
Gpr15	up	2
Otx2	up	2
Prss41	up	2

Cdhr1	up	2
Sfrp1	up	2
Dydc2	up	2
Ptprv	up	2
2700038G22Rik	up	2
Amd2	up	2
Gm13456	up	2
Myh6	up	2
4930429F24Rik	up	2
Prss56	up	2
Gm10282	up	2
Tmem72	up	2
Plk1	up	2
Gm10060	up	2
Tekt1	up	2
Fam198b	up	2
Rbm46	up	2
4930481B07Rik	up	2
Gm1840	up	2
Scn10a	up	2
Sema3b	up	2
Marveld2	up	2
Folr1	up	2
Meox1	up	2
Sostdc1	up	2
Tnfrsf10b	up	2
Zmynd10	up	2
Fxyd2	up	2
Blvrb	up	2
4930539E08Rik	up	2
B9d1	up	2
Fbxo6	up	2
1190002H23Rik	up	2
C1qb	down	4
Pop4	down	4
Nudt19	down	4
Anxa3	down	4
Slc38a11	down	3
Slc25a34	down	3
Gm14169	down	3
C030034I22Rik	down	3
4930479D17Rik	down	3
Trim12a	down	3
Cela1	down	3
Hist1h2be	down	3

Gm10033	down	3
Gm5148	down	3
Col2a1	down	3
Crispld1	down	3
Hist1h4i	down	3
2610507I01Rik	down	3
Poc1a	down	3
Pttg1	down	3
Tdg	down	3
9030407P20Rik	down	3
Trim30d	down	3
Hjurp	down	3
Krt12	down	3
6330403K07Rik	down	3
Gm12394	down	2
Crocc	down	2
Gpr84	down	2
Ptprc	down	2
Aqr	down	2
Lyrm7	down	2
Mcmdc2	down	2
Thbs4	down	2
Myh7	down	2
Tmem260	down	2
Adgrf4	down	2
Zfp85os	down	2
Zfp984	down	2
Gm10635	down	2
Zfp125	down	2
Gm20208	down	2
2810002D19Rik	down	2
Zfp982	down	2
Adam18	down	2
Frrs1l	down	2
Myoc	down	2
Nanos2	down	2
Gm29514	down	2
Mall	down	2
Tmem159	down	2
Stac2	down	2
Scoc	down	2
Rbbp9	down	2
Alg1	down	2
Rpp25	down	2
Fgfr1op2	down	2
Mt3	down	2
Slc25a3	down	2
Zmynd11	down	2

Mmp28	down	2
9330104G04Rik	down	2
Fcrls	down	2
1700010I14Rik	down	2
9330151L19Rik	down	2
Tnni1	down	2
Sfn	down	2
Tubb6	down	2
Myo7a	down	2
4930503L19Rik	down	2
Pglyrp1	down	2
Sema3g	down	2
Gm9866	down	2
Pdlim2	down	2
Impg1	down	2
Ncf2	down	2
Hpgd	down	2
B230217O12Rik	down	2
A830036E02Rik	down	2
Rec8	down	2
Col6a4	down	2
Cmya5	down	2
Gm5083	down	2
Arhgef19	down	2
Lmod1	down	2
Slfn8	down	2
Gstm6	down	2
Nkx2-9	down	2
Gpr160	down	2
Sp110	down	2
Alox8	down	2
Myl6b	down	2
4833420G17Rik	down	2
Ifi203	down	2
Oscar	down	2
Slc37a2	down	2
Eps8l1	down	2
Gm6970	down	2
Hfm1	down	2
Darc	down	2
C1qc	down	2
B2m	down	2
Ddit4l	down	2
Crym	down	2
Il33	down	2

Mobp	down	2
Myl4	down	2
Rnps1	down	2
Rpl29	down	2
Hist1h2ao	down	2
Tnnc1	down	2
Cort	down	2
Cox6a2	down	2

Supplement Table S1a. Gene set enrichment analysis, all oxiposterol genes, in the Sigmaaldrich.

NES	GS	Description	nrdfine	nrfinesize	FDR	p-value	p-adjust	rank	ranking	edge_nrfinesize
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	1	2.4E+04	1.6E+03
2.8	GO:0006952	defense response	0.9	1.3E+03	0.0E+00	0.0E+00	0.0E+00	2	2.4E+04	1.3E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	3	2.4E+04	1.8E+03
2.8	GO:0051707	response to other organism	0.9	1.2E+03	0.0E+00	0.0E+00	0.0E+00	4	2.4E+04	1.2E+03
2.8	GO:0006954	inflammatory response	0.9	3.7E+02	0.0E+00	0.0E+00	0.0E+00	5	2.4E+04	3.7E+02
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	6	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	7	2.4E+04	1.1E+03
2.8	GO:0050896	response to stimulus	0.9	4.7E+03	0.0E+00	0.0E+00	0.0E+00	8	2.4E+04	4.7E+03
2.8	GO:0006950	response to stress	0.9	4.3E+03	0.0E+00	0.0E+00	0.0E+00	9	2.4E+04	4.3E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	10	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	11	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	12	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	13	2.4E+04	1.7E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	14	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	15	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	16	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	17	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	18	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	19	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	20	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	21	2.4E+04	1.1E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	22	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	23	2.4E+04	1.1E+02
2.8	GO:0006952	defense response	0.9	1.3E+03	0.0E+00	0.0E+00	0.0E+00	24	2.4E+04	1.3E+03
2.8	GO:0006959	humoral immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	25	2.4E+04	2.6E+02
2.8	GO:0002455	humoral immune response mediated by circulating immunoglobulin	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	26	2.4E+04	1.1E+02
2.8	GO:0002460	adaptive immune response based on somatic recombination of immune receptors built from immunoglobulin superfamily domains	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	27	2.4E+04	1.1E+02
2.8	GO:0002449	lymphocyte mediated immunity	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	28	2.4E+04	1.1E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	29	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	30	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	31	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	32	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	33	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	34	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	35	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	36	2.4E+04	1.1E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	37	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	38	2.4E+04	1.1E+02
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	39	2.4E+04	1.6E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	40	2.4E+04	1.8E+03
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	41	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	42	2.4E+04	1.1E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	43	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	44	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	45	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	46	2.4E+04	1.7E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	47	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	48	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	49	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	50	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	51	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	52	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	53	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	54	2.4E+04	1.1E+02
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	55	2.4E+04	1.6E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	56	2.4E+04	1.8E+03
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	57	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	58	2.4E+04	1.1E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	59	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	60	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	61	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	62	2.4E+04	1.7E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	63	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	64	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	65	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	66	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	67	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	68	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	69	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	70	2.4E+04	1.1E+02
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	71	2.4E+04	1.6E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	72	2.4E+04	1.8E+03
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	73	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	74	2.4E+04	1.1E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	75	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	76	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	77	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	78	2.4E+04	1.7E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	79	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	80	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	81	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	82	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	83	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	84	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	85	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	86	2.4E+04	1.1E+02
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	87	2.4E+04	1.6E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	88	2.4E+04	1.8E+03
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	89	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	90	2.4E+04	1.1E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	91	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	92	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	93	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	94	2.4E+04	1.7E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	95	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	96	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	97	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	98	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	99	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	100	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	101	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	102	2.4E+04	1.1E+02
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	103	2.4E+04	1.6E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	104	2.4E+04	1.8E+03
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	105	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	106	2.4E+04	1.1E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	107	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	108	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	109	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	110	2.4E+04	1.7E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	111	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	112	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	113	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	114	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	115	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	116	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	117	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	118	2.4E+04	1.1E+02
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	119	2.4E+04	1.6E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	120	2.4E+04	1.8E+03
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	121	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	122	2.4E+04	1.1E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	123	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	124	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	125	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	126	2.4E+04	1.7E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	127	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	128	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	129	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	130	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	131	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	132	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	133	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	134	2.4E+04	1.1E+02
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	135	2.4E+04	1.6E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	136	2.4E+04	1.8E+03
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	137	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	138	2.4E+04	1.1E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	139	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	140	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	141	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	142	2.4E+04	1.7E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	143	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	144	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	145	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	146	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	147	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	148	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	149	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	150	2.4E+04	1.1E+02
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	151	2.4E+04	1.6E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	152	2.4E+04	1.8E+03
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	153	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	154	2.4E+04	1.1E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	155	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	156	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	157	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	158	2.4E+04	1.7E+02
2.8	GO:0002250	adaptive immune response	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	159	2.4E+04	2.6E+02
2.8	GO:0002443	leukocyte mediated immunity	0.9	2.6E+02	0.0E+00	0.0E+00	0.0E+00	160	2.4E+04	2.6E+02
2.8	GO:0002819	regulation of adaptive immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	161	2.4E+04	1.1E+02
2.8	GO:0002831	positive regulation of response to biotic stimulus	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	162	2.4E+04	1.1E+02
2.8	GO:0002833	positive regulation of type 2 immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	163	2.4E+04	1.1E+02
2.8	GO:0002252	immune effector process	0.9	1.4E+02	0.0E+00	0.0E+00	0.0E+00	164	2.4E+04	1.4E+02
2.8	GO:0002366	leukocyte activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	165	2.4E+04	1.1E+02
2.8	GO:0002263	cell activation involved in immune response	0.9	1.1E+02	0.0E+00	0.0E+00	0.0E+00	166	2.4E+04	1.1E+02
2.8	GO:0006955	immune response	0.9	1.6E+03	0.0E+00	0.0E+00	0.0E+00	167	2.4E+04	1.6E+03
2.8	GO:0002376	immune system process	0.9	1.8E+03	0.0E+00	0.0E+00	0.0E+00	168	2.4E+04	1.8E+03
2.8	GO:0002682	regulation of immune system process	0.9	1.4E+03	0.0E+00	0.0E+00	0.0E+00	169	2.4E+04	1.4E+03
2.8	GO:0002684	positive regulation of immune system process	0.9	1.1E+03	0.0E+00	0.0E+00	0.0E+00	170	2.4E+04	1.1E+03
2.8	GO:0002253	activation of immune response	0.9	8.6E+02	0.0E+00	0.0E+00	0.0E+00	171	2.4E+04	8.6E+02
2.8	GO:0002221	pattern recognition receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	172	2.4E+04	1.7E+02
2.8	GO:0002758	innate immune response-activating signal transduction	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	173	2.4E+04	1.7E+02
2.8	GO:0002429	immune response-activating cell surface receptor signaling pathway	0.9	1.7E+02	0.0E+00	0.0E+00	0.0E+00	174	2.4E+04

{"{"Title":{"0":2,"1":2,"2":2,"3":2,"4":2,"5":2,"6":2,"7":2,"8":2,"9":2,"10":2,"11":3,"12":3,"13":3,"14":3,"15":3,"16":3,"17":3,"18":3,"19":3,"20":3,"21":3,"22":3,"23":3,"24":3,"25":3,"26":3,"27":3,"28":3,"29":3,"30":3,"31":3,"32":3,"33":3,"34":3,"35":3,"36":3,"37":3,"38":3,"39":3,"40":3,"41":3,"42":3,"43":3,"44":3,"45":3,"46":3,"47":3,"48":3,"49":3,"50":3,"51":3,"52":3,"53":3,"54":3,"55":3,"56":3,"57":3,"58":3,"59":3,"60":3,"61":3,"62":3,"63":3,"64":3,"65":3,"66":3,"67":3,"68":3,"69":3,"70":3,"71":3,"72":3,"73":3,"74":3,"75":3,"76":3,"77":3,"78":3,"79":3,"80":3,"81":3,"82":3,"83":3,"84":3,"85":3,"86":3,"87":3,"88":3,"89":3,"90":3,"91":3,"92":3,"93":3,"94":3,"95":3,"96":3,"97":3,"98":3,"99":3,"100":3,"101":3,"102":3,"103":3,"104":3,"105":3,"106":3,"107":3,"108":3,"109":3,"110":3,"111":3,"112":3,"113":3,"114":3,"115":3,"116":3,"117":3,"118":3,"119":3,"120":3,"121":3,"122":3,"123":3,"124":3,"125":3,"126":3,"127":3,"128":3,"129":3,"130":3,"131":3,"132":3,"133":3,"134":3,"135":3,"136":3,"137":3,"138":3,"139":3,"140":3,"141":3,"142":3,"143":3,"144":3,"145":3,"146":3,"147":3,"148":3,"149":3,"150":3,"151":3,"152":3,"153":3,"154":3,"155":3,"156":3,"157":3,"158":3,"159":3,"160":3,"161":3,"162":3,"163":3,"164":3,"165":3,"166":3,"167":3,"168":3,"169":3,"170":3,"171":3,"172":3,"173":3,"174":3,"175":3,"176":3,"177":3,"178":3,"179":3,"180":3,"181":3,"182":3,"183":3,"184":3,"185":3,"186":3,"187":3,"188":3,"189":3,"190":3,"191":3,"192":3,"193":3,"194":3,"195":3,"196":3,"197":3,"198":3,"199":3,"200":3,"201":3,"202":3,"203":3,"204":3,"205":3,"206":3,"207":3,"208":3,"209":3,"210":3,"211":3,"212":3,"213":3,"214":3,"215":3,"216":3,"217":3,"218":3,"219":3,"220":3,"221":3,"222":3,"223":3,"224":3,"225":3,"226":3,"227":3,"228":3,"229":3,"230":3,"231":3,"232":3,"233":3,"234":3,"235":3,"236":3,"237":3,"238":3,"239":3,"240":3,"241":3,"242":3,"243":3,"244":3,"245":3,"246":3,"247":3,"248":3,"249":3,"250":3,"251":3,"252":3,"253":3,"254":3,"255":3,"256":3,"257":3,"258":3,"259":3,"260":3,"261":3,"262":3,"263":3,"264":3,"265":3,"266":3,"267":3,"268":3,"269":3,"270":3,"271":3,"272":3,"273":3,"274":3,"275":3,"276":3,"277":3,"278":3,"279":3,"280":3,"281":3,"282":3,"283":3,"284":3,"285":3,"286":3,"287":3,"288":3,"289":3,"290":3,"291":3,"292":3,"293":3,"294":3,"295":3,"296":3,"297":3,"298":3,"299":3,"300":3,"301":3,"302":3,"303":3,"304":3,"305":3,"306":3,"307":3,"308":3,"309":3,"310":3,"311":3,"312":3,"313":3,"314":3,"315":3,"316":3,"317":3,"318":3,"319":3,"320":3,"321":3,"322":3,"323":3,"324":3,"325":3,"326":3,"327":3,"328":3,"329":3,"330":3,"331":3,"332":3,"333":3,"334":3,"335":3,"336":3,"337":3,"338":3,"339":3,"340":3,"341":3,"342":3,"343":3,"344":3,"345":3,"346":3,"347":3,"348":3,"349":3,"350":3,"351":3,"352":3,"353":3,"354":3,"355":3,"356":3,"357":3,"358":3,"359":3,"360":3,"361":3,"362":3,"363":3,"364":3,"365":3,"366":3,"367":3,"368":3,"369":3,"370":3,"371":3,"372":3,"373":3,"374":3,"375":3,"376":3,"377":3,"378":3,"379":3,"380":3,"381":3,"382":3,"383":3,"384":3,"385":3,"386":3,"387":3,"388":3,"389":3,"390":3,"391":3,"392":3,"393":3,"394":3,"395":3,"396":3,"397":3,"398":3,"399":3,"400":3,"401":3,"402":3,"403":3,"404":3,"405":3,"406":3,"407":3,"408":3,"409":3,"410":3,"411":3,"412":3,"413":3,"414":3,"415":3,"416":3,"417":3,"418":3,"419":3,"420":3,"421":3,"422":3,"423":3,"424":3,"425":3,"426":3,"427":3,"428":3,"429":3,"430":3,"431":3,"432":3,"433":3,"434":3,"435":3,"436":3,"437":3,"438":3,"439":3,"440":3,"441":3,"442":3,"443":3,"444":3,"445":3,"446":3,"447":3,"448":3,"449":3,"450":3,"451":3,"452":3,"453":3,"454":3,"455":3,"456":3,"457":3,"458":3,"459":3,"460":3,"461":3,"462":3,"463":3,"464":3,"465":3,"466":3,"467":3,"468":3,"469":3,"470":3,"471":3,"472":3,"473":3,"474":3,"475":3,"476":3,"477":3,"478":3,"479":3,"480":3,"481":3,"482":3,"483":3,"484":3,"485":3,"486":3,"487":3,"488":3,"489":3,"490":3,"491":3,"492":3,"493":3,"494":3,"495":3,"496":3,"497":3,"498":3,"499":3,"500":3,"501":3,"502":3,"503":3,"504":3,"505":3,"506":3,"507":3,"508":3,"509":3,"510":3,"511":3,"512":3,"513":3,"514":3,"515":3,"516":3,"517":3,"518":3,"519":3,"520":3,"521":3,"522":3,"523":3,"524":3,"525":3,"526":3,"527":3,"528":3,"529":3,"530":3,"531":3,"532":3,"533":3,"534":3,"535":3,"536":3,"537":3,"538":3,"539":3,"540":3,"541":3,"542":3,"543":3,"544":3,"545":3,"546":3,"547":3,"548":3,"549":3,"550":3,"551":3,"552":3,"553":3,"554":3,"555":3,"556":3,"557":3,"558":3,"559":3,"560":3,"561":3,"562":3,"563":3,"564":3,"565":3,"566":3,"567":3,"568":3,"569":3,"570":3,"571":3,"572":3,"573":3,"574":3,"575":3,"576":3,"577":3,"578":3,"579":3,"580":3,"581":3,"582":3,"583":3,"584":3,"585":3,"586":3,"587":3,"588":3,"589":3,"590":3,"591":3,"592":3,"593":3,"594":3,"595":3,"596":3,"597":3,"598":3,"599":3,"600":3,"601":3,"602":3,"603":3,"604":3,"605":3,"606":3,"607":3,"608":3,"609":3,"610":3,"611":3,"612":3,"613":3,"614":3,"615":3,"616":3,"617":3,"618":3,"619":3,"620":3,"621":3,"622":3,"623":3,"624":3,"625":3,"626":3,"627":3,"628":3,"629":3,"630":3,"631":3,"632":3,"633":3,"634":3,"635":3,"636":3,"637":3,"638":3,"639":3,"640":3,"641":3,"642":3,"643":3,"644":3,"645":3,"646":3,"647":3,"648":3,"649":3,"650":3,"651":3,"652":3,"653":3,"654":3,"655":3,"656":3,"657":3,"658":3,"659":3,"660":3,"661":3,"662":3,"663":3,"664":3,"665":3,"666":3,"667":3,"668":3,"669":3,"670":3,"671":3,"672":3,"673":3,"674":3,"675":3,"676":3,"677":3,"678":3,"679":3,"680":3,"681":3,"682":3,"683":3,"684":3,"685":3,"686":3,"687":3,"688":3,"689":3,"690":3,"691":3,"692":3,"693":3,"694":3,"695":3,"696":3,"697":3,"698":3,"699":3,"700":3,"701":3,"702":3,"703":3,"704":3,"705":3,"706":3,"707":3,"708":3,"709":3,"710":3,"711":3,"712":3,"713":3,"714":3,"715":3,"716":3,"717":3,"718":3,"719":3,"720":3,"721":3,"722":3,"723":3,"724":3,"725":3,"726":3,"727":3,"728":3,"729":3,"730":3,"731":3,"732":3,"733":3,"734":3,"735":3,"736":3,"737":3,"738":3,"739":3,"740":3,"741":3,"742":3,"743":3,"744":3,"745":3,"746":3,"747":3,"748":3,"749":3,"750":3,"751":3,"752":3,"753":3,"754":3,"755":3,"756":3,"757":3,"758":3,"759":3,"760":3,"761":3,"762":3,"763":3,"764":3,"765":3,"766":3,"767":3,"768":3,"769":3,"770":3,"771":3,"772":3,"773":3,"774":3,"775":3,"776":3,"777":3,"778":3,"779":3,"780":3,"781":3,"782":3,"783":3,"784":3,"785":3,"786":3,"787":3,"788":3,"789":3,"790":3,"791":3,"792":3,"793":3,"794":3,"795":3,"796":3,"797":3,"798":3,"799":3,"800":3,"801":3,"802":3,"803":3,"804":3,"805":3,"806":3,"807":3,"808":3,"809":3,"810":3,"811":3,"812":3,"813":3,"814":3,"815":3,"816":3,"817":3,"818":3,"819":3,"820":3,"821":3,"822":3,"823":3,"824":3,"825":3,"826":3,"827":3,"828":3,"829":3,"830":3,"831":3,"832":3,"833":3,"834":3,"835":3,"836":3,"837":3,"838":3,"839":3,"840":3,"841":3,"842":3,"843":3,"844":3,"845":3,"846":3,"847":3,"848":3,"849":3,"850":3,"851":3,"852":3,"853":3,"854":3,"855":3,"856":3,"857":3,"858":3,"859":3,"860":3,"861":3,"862":3,"863":3,"864":3,"865":3,"866":3,"867":3,"868":3,"869":3,"870":3,"871":3,"872":3,"873":3,"874":3,"875":3,"876":3,"877":3,"878":3,"879":3,"880":3,"881":3,"882":3,"883":3,"884":3,"885":3,"886":3,"887":3,"888":3,"889":3,"890":3,"891":3,"892":3,"893":3,"894":3,"895":3,"896":3,"897":3,"898":3,"899":3,"900":3,"901":3,"902":3,"903":3,"904":3,"905":3,"906":3,"907":3,"908":3,"909":3,"910":3,"911":3,"912":3,"913":3,"914":3,"915":3,"916":3,"917":3,"918":3,"919":3,"920":3,"921":3,"922":3,"923":3,"924":3,"925":3,"926":3,"927":3,"928":3,"929":3,"930":3,"931":3,"932":3,"933":3,"934":3,"935":3,"936":3,"937":3,"938":3,"939":3,"940":3,"941":3,"942":3,"943":3,"944":3,"945":3,"946":3,"947":3,"948":3,"949":3,"950":3,"951":3,"952":3,"953":3,"954":3,"955":3,"956":3,"957":3,"958":3,"959":3,"960":3,"961":3,"962":3,"963":3,"964":3,"965":3,"966":3,"967":3,"968":3,"969":3,"970":3,"971":3,"972":3,"973":3,"974":3,"975":3,"976":3,"977":3,"978":3,"979":3,"980":3,"981":3,"982":3,"983":3,"984":3,"985":3,"986":3,"987":3,"988":3,"989":3,"990":3,"991":3,"992":3,"993":3,"994":3,"995":3,"996":3,"997":3,"998":3,"999":3,"1000":3,"1001":3,"1002":3,"1003":3,"1004":3,"1005":3,"1006":3,"1007":3,"1008":3,"1009":3,"1010":3,"1011":3,"1012":3,"1013":3,"1014":3,"1015":3,"1016":3,"1017":3,"1018":3,"1019":3,"1020":3,"1021":3,"1022":3,"1023":3,"1024":3,"1025":3,"1026":3,"1027":3,"1028":3,"1029":3,"1030":3,"1031":3,"1032":3,"1033":3,"1034":3,"1035":3,"1036":3,"1037":3,"1038":3,"1039":3,"1040":3,"1041":3,"1042":3,"1043":3,"1044":3,"1045":3,"1046":3,"1047":3,"1048":3,"1049":3,"1050":3,"1051":3,"1052":3,"1053":3,"1054":3,"1055":3,"1056":3,"1057":3,"1058":3,"1059":3,"1060":3,"1061":3,"1062":3,"1063":3,"1064":3,"1065":3,"1066":3,"1067":3,"1068":3,"1069":3,"1070":3,"1071":3,"1072":3,"1073":3,"1074":3,"1075":3,"1076":3,"1077":3,"1078":3,"1079":3,"1080":3,"1081":3,"1082":3,"1083":3,"1084":3,"1085":3,"1086":3,"1087":3,"1088":3,"1089":3,"1090":3,"1091":3,"1092":3,"1093":3,"1094":3,"1095":3,"1096":3,"1097":3,"1098":3,"1099":3,"1100":3,"1101":3,"1102":3,"1103":3,"1104":3,"1105":3,"1106":3,"1107":3,"1108":3,"1109":3,"1110":3,"1111":3,"1112":3,"1113":3,"1114":3,"1115":3,"1116":3,"1117":3,"1118":3,"1119":3,"1120":3,"1121":3,"1122":3,"1123":3,"1124":3,"1125":3,"1126":3,"1127":3,"1128":3,"1129":3,"1130":3,"1131":3,"1132":3,"1133":3,"1134":3,"1135":3,"1136":3,"1137":3,"1138":3,"1139":3,"1140":3,"1141":3,"1142":3,"1143":3,"1144":3,"1145":3,"1146":3,"1147":3,"1148":3,"1149":3,"1150":3,"1151":3,"1152":3,"1153":3,"1154":3,"1155":3,"1156":3,"1157":3,"1158":3,"1159":3,"1160":3,"1161":3,"1162":3,"1163":3,"1164":3,"1165":3,"1166":3,"1167":3,"1168":3,"1169":3,"1170":3,"1171":3,"1172":3,"1173":3,"1174":3,"1175":3,"1176":3,"1177":3,"1178":3,"1179":3,"1180":3,"1181":3,"1182":3,"1183":3,"1184":3,"1185":3,"1186":3,"1187":3,"1188":3,"1189":3,"1190":3,"1191":3,"1192":3,"1193":3,"1194":3,"1195":3,"1196":3,"1197":3,"1198":3,"1199":3,"1200":3,"1201":3,"1202":3,"1203":3,"1204":3,"1205":3,"1206":3,"1207":3,"1208":3,"1209":3,"1210":3,"1211":3,"1212":3,"1213":3,"1214":3,"1215":3,"1216":3,"1217":3,"1218":3,"1219":3,"1220":3,"1221":3,"1222":3,"1223":3,"1224":3,"1225":3,"1226":3,"1227":3,"1228":3,"1229":3,"1230":3,"1231":3,"1232":3,"1233":3,"1234":3,"1235":3,"1236":3,"1237":3,"1238":3,"1239":3,"1240":3,"1241":3,"1242":3,"1243":3,"1244":3,"1245":3,"1246":3,"1247":3,"1248":3,"1249":3,"1250":3,"1251":3,"1252":3,"1253":3,"1254":3,"1255":3,"1256":3,"1257":3,"1258":3,"1259":3,"1260":3,"1261":3,"1262":3,"1263":3,"1264":3,"1265":3,"1266":3,"1267":3,"1268":3,"1269":3,"1270":3,"1271":3,"1272":3,"1273":3,"1274":3,"1275":3,"1276":3,"1277":3,"1278":3,"1279":3,"1280":3,"1281":3,"1282":3,"1283":3,"1284":3,"1285":3,"1286":3,"1287":3,"1288":3,"1289":3,"1290":3,"1291":3,"1292":3,"1293":3,"1294":3,"1295":3,"1296":3,"1297":3,"1298":3,"1299":3,"1300":3,"1301":3,"1302":3,"1303":3,"1304":3,"1305":3,"1306":3,"1307":3,"1308":3,"1309":3,"1310":3,"1311":3,"1312":3,"1313":3,"1314":3,"1315":3,"1316":3,"1317":3,"1318":3,"1319":3,"1320":3,"1321":3,"1322":3,"1323":3,"1324":3,"1325":3,"1326":3,"1327":3,"1328":3,"1329":3,"1330":3,"1331":3,"1332":3,"1333":3,"1334":3,"1335":3,"1336":3,"1337":3,"1338":3,"1339":3,"1340":3,"1341":3,"1342":3,"1343":3,"1344":3,"1345":3,"1346":3,"1347":3,"1348":3,"1349":3,"1350":3,"1351":3,"1352":3,"1353":3,"1354":3,"1355":3,"1356":3,"1357":3,"1358":3,"1359":3,"1360":3,"1361":3,"1362":3,"1363":3,"1364":3,"1365":3,"1366":3,"1367":3,"1368":3,"1369":3,"1370":3,"1371":3,"1372":3,"1373":3,"1374":3,"1375":3,"1376":3,"1377":3,"1378":3,"1379":3,"1380":3,"1381":3,"1382":3,"1383":3,"1384":3,"1385":3,"1386":3,"1387":3,"1388":3,"1389":3,"1390":3,"1391":3,"1392":3,"1393":3,"1394":3,"1395":3,"1396":3,"1397":3,"1398":3,"1399":3,"1400":3,"1401":3,"1402":3,"1403":3,"1404":3,"1405":3,"1406":3,"1407":3,"1408":3,"1409":3,"1410":3,"1411":3,"1412":3,"1413":3,"1414":3,"1415":3,"1416":3,"1417":3,"1418":3,"1419":3,"1420":3,"1421":3,"1422":3,"1423":3,"1424":3,"1425":3,"1426":3,"1427":3,"1428":3,"1429":3,"1430":3,"1431":3,"1432":3,"1433":3,"1434":3,"1435":3,"1436":3,"1437":3,"1438":3,"1439":3,"1440":3,"1441":3,"1442":3,"1443":3,"1444":3,"1445":3,"1446":3,"1447":3,"1448":3,"1449":3,"1450":3,"1451":3,"1452":3,"1453":3,"1454":3,"1455":3,"1456":3,"1457":3,"1458":3,"1459":3,"1460":3,"1461":3,"1462":3,"1463":3,"1464":3,"1465":3,"1466":3,"1467":3,"1468":3,"1469":3,"1470":3,"1471":3,"1472":3,"1473":3,"1474":3,"1475":3,"1476":3,"1477":3,"1478":3,"1479":3,"1480":3,"1481":3,"1482":3,"1483":3,"1484":3,"1485":3,"1486":3,"1487":3,"1488":3,"1489":3,"1490":3,"1491":3,"1492":3,"1493":3,"1494":3,"1495":3,"1496":3,"1497":3,"1498":3,"1499":3,"1500":3,"1501":3,"1502":3,"1503":3,"1504":3,"1505":3,"1506":3,"1507":3,"1508":3,"1509":3,"1510":3,"1511":3,"1512":3,"1513":3,"1514":3,"1515":3,"1516":3,"1517":3,"1518":3,"1519":3,"1520":3,"1521":3,"1522":3,"1523":3,"1524":3,"1525":3,"1526":3,"1527":3,"1528"

Supplement Table S1b. Gene set enrichment analysis. all-expressed genes. in the mitotum

NES	FDR q-val	NOM p-val	FWER p-val	Gene set name	Description	size	leading edge genes
2.2	0.000000	0.000000	0.000000	GO:0000278	mitotic cell cycle	1,000	3,9,10,11,12,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,115,116,117,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,134,135,136,137,138,139,140,141,142,143,144,145,146,147,148,149,150,151,152,153,154,155,156,157,158,159,160,161,162,163,164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,188,189,190,191,192,193,194,195,196,197,198,199,200,201,202,203,204,205,206,207,208,209,210,211,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,228,229,230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246,247,248,249,250,251,252,253,254,255,256,257,258,259,260,261,262,263,264,265,266,267,268,269,270,271,272,273,274,275,276,277,278,279,280,281,282,283,284,285,286,287,288,289,290,291,292,293,294,295,296,297,298,299,300,301,302,303,304,305,306,307,308,309,310,311,312,313,314,315,316,317,318,319,320,321,322,323,324,325,326,327,328,329,330,331,332,333,334,335,336,337,338,339,340,341,342,343,344,345,346,347,348,349,350,351,352,353,354,355,356,357,358,359,360,361,362,363,364,365,366,367,368,369,370,371,372,373,374,375,376,377,378,379,380,381,382,383,384,385,386,387,388,389,390,391,392,393,394,395,396,397,398,399,400,401,402,403,404,405,406,407,408,409,410,411,412,413,414,415,416,417,418,419,420,421,422,423,424,425,426,427,428,429,430,431,432,433,434,435,436,437,438,439,440,441,442,443,444,445,446,447,448,449,450,451,452,453,454,455,456,457,458,459,460,461,462,463,464,465,466,467,468,469,470,471,472,473,474,475,476,477,478,479,480,481,482,483,484,485,486,487,488,489,490,491,492,493,494,495,496,497,498,499,500,501,502,503,504,505,506,507,508,509,510,511,512,513,514,515,516,517,518,519,520,521,522,523,524,525,526,527,528,529,530,531,532,533,534,535,536,537,538,539,540,541,542,543,544,545,546,547,548,549,550,551,552,553,554,555,556,557,558,559,560,561,562,563,564,565,566,567,568,569,570,571,572,573,574,575,576,577,578,579,580,581,582,583,584,585,586,587,588,589,590,591,592,593,594,595,596,597,598,599,600,601,602,603,604,605,606,607,608,609,610,611,612,613,614,615,616,617,618,619,620,621,622,623,624,625,626,627,628,629,630,631,632,633,634,635,636,637,638,639,640,641,642,643,644,645,646,647,648,649,650,651,652,653,654,655,656,657,658,659,660,661,662,663,664,665,666,667,668,669,670,671,672,673,674,675,676,677,678,679,680,681,682,683,684,685,686,687,688,689,690,691,692,693,694,695,696,697,698,699,700,701,702,703,704,705,706,707,708,709,710,711,712,713,714,715,716,717,718,719,720,721,722,723,724,725,726,727,728,729,730,731,732,733,734,735,736,737,738,739,740,741,742,743,744,745,746,747,748,749,750,751,752,753,754,755,756,757,758,759,760,761,762,763,764,765,766,767,768,769,770,771,772,773,774,775,776,777,778,779,780,781,782,783,784,785,786,787,788,789,790,791,792,793,794,795,796,797,798,799,800,801,802,803,804,805,806,807,808,809,810,811,812,813,814,815,816,817,818,819,820,821,822,823,824,825,826,827,828,829,830,831,832,833,834,835,836,837,838,839,840,841,842,843,844,845,846,847,848,849,850,851,852,853,854,855,856,857,858,859,860,861,862,863,864,865,866,867,868,869,870,871,872,873,874,875,876,877,878,879,880,881,882,883,884,885,886,887,888,889,890,891,892,893,894,895,896,897,898,899,900,901,902,903,904,905,906,907,908,909,910,911,912,913,914,915,916,917,918,919,920,921,922,923,924,925,926,927,928,929,930,931,932,933,934,935,936,937,938,939,940,941,942,943,944,945,946,947,948,949,950,951,952,953,954,955,956,957,958,959,960,961,962,963,964,965,966,967,968,969,970,971,972,973,974,975,976,977,978,979,980,981,982,983,984,985,986,987,988,989,990,991,992,993,994,995,996,997,998,999,1000,1001,1002,1003,1004,1005,1006,1007,1008,1009,1010,1011,1012,1013,1014,1015,1016,1017,1018,1019,1020,1021,1022,1023,1024,1025,1026,1027,1028,1029,1030,1031,1032,1033,1034,1035,1036,1037,1038,1039,1040,1041,1042,1043,1044,1045,1046,1047,1048,1049,1050,1051,1052,1053,1054,1055,1056,1057,1058,1059,1060,1061,1062,1063,1064,1065,1066,1067,1068,1069,1070,1071,1072,1073,1074,1075,1076,1077,1078,1079,1080,1081,1082,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1109,1110,1111,1112,1113,1114,1115,1116,1117,1118,1119,1120,1121,1122,1123,1124,1125,1126,1127,1128,1129,1130,1131,1132,1133,1134,1135,1136,1137,1138,1139,1140,1141,1142,1143,1144,1145,1146,1147,1148,1149,1150,1151,1152,1153,1154,1155,1156,1157,1158,1159,1160,1161,1162,1163,1164,1165,1166,1167,1168,1169,1170,1171,1172,1173,1174,1175,1176,1177,1178,1179,1180,1181,1182,1183,1184,1185,1186,1187,1188,1189,1190,1191,1192,1193,1194,1195,1196,1197,1198,1199,1200,1201,1202,1203,1204,1205,1206,1207,1208,1209,1210,1211,1212,1213,1214,1215,1216,1217,1218,1219,1220,1221,1222,1223,1224,1225,1226,1227,1228,1229,1230,1231,1232,1233,1234,1235,1236,1237,1238,1239,1240,1241,1242,1243,1244,1245,1246,1247,1248,1249,1250,1251,1252,1253,1254,1255,1256,1257,1258,1259,1260,1261,1262,1263,1264,1265,1266,1267,1268,1269,1270,1271,1272,1273,1274,1275,1276,1277,1278,1279,1280,1281,1282,1283,1284,1285,1286,1287,1288,1289,1290,1291,1292,1293,1294,1295,1296,1297,1298,1299,1300,1301,1302,1303,1304,1305,1306,1307,1308,1309,1310,1311,1312,1313,1314,1315,1316,1317,1318,1319,1320,1321,1322,1323,1324,1325,1326,1327,1328,1329,1330,1331,1332,1333,1334,1335,1336,1337,1338,1339,1340,1341,1342,1343,1344,1345,1346,1347,1348,1349,1350,1351,1352,1353,1354,1355,1356,1357,1358,1359,1360,1361,1362,1363,1364,1365,1366,1367,1368,1369,1370,1371,1372,1373,1374,1375,1376,1377,1378,1379,1380,1381,1382,1383,1384,1385,1386,1387,1388,1389,1390,1391,1392,1393,1394,1395,1396,1397,1398,1399,1400,1401,1402,1403,1404,1405,1406,1407,1408,1409,1410,1411,1412,1413,1414,1415,1416,1417,1418,1419,1420,1421,1422,1423,1424,1425,1426,1427,1428,1429,1430,1431,1432,1433,1434,1435,1436,1437,1438,1439,1440,1441,1442,1443,1444,1445,1446,1447,1448,1449,1450,1451,1452,1453,1454,1455,1456,1457,1458,1459,1460,1461,1462,1463,1464,1465,1466,1467,1468,1469,1470,1471,1472,1473,1474,1475,1476,1477,1478,1479,1480,1481,1482,1483,1484,1485,1486,1487,1488,1489,1490,1491,1492,1493,1494,1495,1496,1497,1498,1499,1500,1501,1502,1503,1504,1505,1506,1507,1508,1509,1510,1511,1512,1513,1514,1515,1516,1517,1518,1519,1520,1521,1522,1523,1524,1525,1526,1527,1528,1529,1530,1531,1532,1533,1534,1535,1536,1537,1538,1539,1540,1541,1542,1543,1544,1545,1546,1547,1548,1549,1550,1551,1552,1553,1554,1555,1556,1557,1558,1559,1560,1561,1562,1563,1564,1565,1566,1567,1568,1569,1570,1571,1572,1573,1574,1575,1576,1577,1578,1579,1580,1581,1582,1583,1584,1585,1586,1587,1588,1589,1590,1591,1592,1593,1594,1595,1596,1597,1598,1599,1600,1601,1602,1603,1604,1605,1606,1607,1608,1609,1610,1611,1612,1613,1614,1615,1616,1617,1618,1619,1620,1621,1622,1623,1624,1625,1626,1627,1628,1629,1630,1631,1632,1633,1634,1635,1636,1637,1638,1639,1640,1641,1642,1643,1644,1645,1646,1647,1648,1649,1650,1651,1652,1653,1654,1655,1656,1657,1658,1659,1660,1661,1662,1663,1664,1665,1666,1667,1668,1669,1670,1671,1672,1673,1674,1675,1676,1677,1678,1679,1680,1681,1682,1683,1684,1685,1686,1687,1688,1689,1690,1691,1692,1693,1694,1695,1696,1697,1698,1699,1700,1701,1702,1703,1704,1705,1706,1707,1708,1709,1710,1711,1712,1713,1714,1715,1716,1717,1718,1719,1720,1721,1722,1723,1724,1725,1726,1727,1728,1729,1730,1731,1732,1733,1734,1735,1736,1737,1738,1739,1740,1741,1742,1743,1744,1745,1746,1747,1748,1749,1750,1751,1752,1753,1754,1755,1756,1757,1758,1759,1760,1761,1762,1763,1764,1765,1766,1767,1768,1769,1770,1771,1772,1773,1774,1775,1776,1777,1778,1779,1780,1781,1782,1783,1784,1785,1786,1787,1788,1789,1790,1791,1792,1793,1794,1795,1796,1797,1798,1799,1800,1801,1802,1803,1804,1805,1806,1807,1808,1809,1810,1811,1812,1813,1814,1815,1816,1817,1818,1819,1820,1821,1822,1823,1824,1825,1826,1827,1828,1829,1830,1831,1832,1833,1834,1835,1836,1837,1838,1839,1840,1841,1842,1843,1844,1845,1846,1847,1848,1849,1850,1851,1852,1853,1854,1855,1856,1857,1858,1859,1860,1861,1862,1863,1864,1865,1866,1867,1868,1869,1870,1871,1872,1873,1874,1875,1876,1877,1878,1879,1880,1881,1882,1883,1884,1885,1886,1887,1888,1889,1890,1891,1892,1893,1894,1895,1896,1897,1898,1899,1900,1901,1902,1903,1904,1905,1906,1907,1908,1909,1910,1911,1912,1913,1914,1915,1916,1917,1918,1919,1920,1921,1922,1923,1924,1925,1926,1927,1928,1929,1930,1931,1932,1933,1934,1935,1936,1937,1938,1939,1940,1941,1942,1943,1944,1945,1946,1947,1948,1949,1950,1951,1952,1953,1954,1955,1956,1957,1958,1959,1960,1961,1962,1963,1964,1965,1966,1967,1968,1969,1970,1971,1972,1973,1974,1975,1976,1977,1978,1979,1980,1981,1982,1983,1984,1985,1986,1987,1988,1989,1990,1991,1992,1993,1994,1995,1996,1997,1998,1999,2000,2001,2002,2003,2004,2005,2006,2007,2008,2009,2010,2011,2012,2013,2014,2015,2016,2017,2018,2019,2020,2021,2022,2023,2024,2025,2026,2027,2028,2029,2030,2031,2032,2033,2034,2035,2036,2037,2038,2039,2040,2041,2042,2043,2044,2045,2046,2047,2048,2049,2050,2051,2052,2053,2054,2055,2056,2057,2058,2059,2060,2061,2062,2063,2064,2065,2066,2067,2068,2069,2070,2071,2072,2073,2074,2075,2076,2077,2078,2079,2080,2081,2082,2083,2084,2085,2086,2087,2088,2089,2090,2091,2092,2093,2094,2095,2096,2097,2098,2099,2100,2101,2102,2103,2104,2105,2106,2107,2108,2109,2110,2111,2112,2113,2114,2115,2116,2117,2118,2119,2120,2121,2122,2123,2124,2125,2126,2127,2128,2129,2130,2131,2132,2133,2134,2135,2136,2137,2138,2139,2140,2141,2142,2143,2144,2145,2146,2147,2148,2149,2150,2151,2152,2153,2154,2155,2156,2157,2158,2159,2160,2161,2162,2163,2164,2165,2166,2167,2168,2169,2170,2171,2172,2173,2174,2175,2176,2177,2178,2179,2180,2181,2182,2183,2184,2185,2186,2187,2188,2189,2190,2191,2192,2193,2194,2195,2196,2197,2198,2199,2200,2201,2202,2203,2204,2205,2206,2207,2208,2209,2210,2211,2212,2213,2214,2215,2216,2217,2218,2219,2220,2221,2222,2223,2224,2225,2226,2227,2228,2229,2230,2231,2232,2233,2234,2235,2236,2237,2238,2239,2240,2241,2242,2243,2244,2245,2246,2247,2248,2249,2250,2251,2252,2253,2254,2255,2256,2257,2258,2259,2260,2261,2262,2263,2264,2265,2266,2267,2268,2269,2270,2271,2272,2273,2274,2275,2276,2277,2278,2279,2280,2281,2282,2283,2284,2285,2286,2287,2288,2289,2290,2291,2292,2293,2294,2295,2296,2297,2298,2299,2300,2301,2302,2303,2304,2305,2306,2307,2308,2309,2310,2311,2312,2313,2314,2315,2316,2317,2318,2319,2320,2321,2322,2323,2324,2325,2326,2327,2328,2329,2330,2331,2332,2333,2334,2335,2336,2337,2338,2339,2340,2341,2342,2343,2344,2345,2346,2347,2348,2349,2350,2351,2352,2353,2354,2355,2356,2357,2358,2359,2360,2361,2362,2363,2364,2365,2366,2367,2368,2369,2370,2371,2372,2373,2374,2375,2376,2377,2378,2379,2380,2381,2382,2383,2384,2385,2386,2387,2388,2389,2390,2391,2392,2393,2394,2395,2396,2397,2398,2399,2400,2401,2402,2403,2404,2405,2406,2407,2408,2409,2410,2411,2412,2413,2414,2415,2416,2417,2418,2419,2420,2421,2422,2423,2424,2425,2426,2427,2428,2429,2430,2431,2432,2433,2434,2435,2436,2437,2438,2439,2440,2441,2442,2443,2444,2445,2446,2447,2448,2449,2450,2451,2452,2453,2454,2455,2456,2457,2458,2459,2460,2461,2462,2463,2464,2465,2466,2467,2468,2469,2470,2471,2472,2473,2474,2475,2476,2477,2478,2479,2480,2481,2482,2483,2484,2485,2486,2487,2488,2489,2490,2491,2492,2493,2494,2495,2496,2497,2498,2499,2500,2501,2502,2503,2504,2505,2506,2507,2508,2509,2510,2511,2512,2513,2514,2515,2516,2517,2518,2519,2520,2521,2522,2523,2524,2525,2526,2527,2528,2529,2530,2531,2532,2533,2534,2535,2536,2537,2538,2539,2540,2541,2542,2543,2544,2545,2546,2547,2548,2549,2550,2551,2552,2553,2554,2555,2556,2557,2558,2559,2560,2561,2562,2563,2564,2565,2566,2567,2568,2569,2570,2571,2572,2573,2574,2575,2576,2577,2578,2579,2580,2581,2582,2583,2584,2585,2586,2587,2588,2589,2590,2591,2592,2593,2594,2595,2596,2597,2598,2599,2600,2601,2602,2603,2604,2605,2606,2607,2608,2609,2610,2611,2612,2613,2614,2615,2616,2617,2618,2619,2620,2621,2622,2623,2624,2625,2626,2627,2628,2629,2630,2631,2632,2633,2634,2635,2636,2637,2638,2639,2640,2641,2642,2643,2644,2645,2646,2647,2648,2649,2650,2651,2652,2653,2654,2655,2656,2657,2658,2659,2660,2661,2662,2663,2664,2665,2666,2667,2668,2669,2670,2671,2672,2673,2674,2675,2676,2677,2678,2679,2680,2681,2682,2683,2684,2685,2686,2687,2688,2689,2690,2691,2692,2693,2694,2695,2696,2697,2698,2699,2700,2701,2702,2703,2704,2705,2706,2707,2708,2709,2710,2711,2712,2713,2714,2715,2716,2717,2718,2719,2720,2721,2722,2723,2724,2725,2726,2727,2728,2729,2730,2731,2732,2733,2734,2735,2736,2737,2738,2739,2740,2741,2742,2743,2744,2745,2746,2747,2748,2749,2750,2751,2752,2753,2754,2755,2756,2757,2758,2759,2760,2761,2762,2763,2764,2765,2766,2767,2768,2769,2770,2771,2772,2773,2774,2775,2776,2777,2778,2779,2780,2781,2782,2783,2784,2785,2786,2787,2788,2789,2790,2791,2792,2793,2794,2795,2796,2797,2798,2799,2800,2801,2802,2803,2804,2805,2806,2807,2808,2809,2810,2811,2812,2813,2814,2815,2816,2817,2818,2819,2820,2821,2822,2823,2824,2825,2826,2827,2828,2829,2830,2831,2832,2833,2834,2835,2836,2837,2838,2839,2840,2841,2842,2843,2844,2845,2846,2847,2848,2849,2850,2851,2852,2853,2854,2855,2856,2857,2858,2859,2860,2861,2862,2863,2864,2865,2866,2867,2868,2869,2870,2871,2872,2873,2874,2875,2876,2877,2878,2879,2880,2881,2882,2883,2884,2885,2886,2887,2888,2889,2890,2891,2892,2893,2894,2895,2896,2897,2898,2899,2900,2901,2902,2903,2904,2905,2906,2907,2908,2909,2910,2911,2912,2913,2914,2915,2916,2917,2918,2919,2920,2921,2922,2923,2924,2925,2926,2927,2928,2929,2930,2931,2932,2933,2934,2935,2936,2937,2938,2939,2940,2941,2942,2943,2944,2945,2946,2947,2948,2949,2950,2951,2952,2953,2954,2955,2956,2957,2958,2959,2960,2961,2962,2963,2964,2965,2966,2967,2968,2969,2970,2971,2972,2973,2974,2975,2976,2977,2978,2979,2980,2981,2982,2983,2984,2985,2986,2987,2988,2989,2990,2991,2992,2993,2994,2995,2996,2997,2998,2999,3000,3001,3002,3003,3004,3005,3006,3007,3008,3009,3010,3011,3012,3013,3014,3015,3016,3017,3018,3019,3020,3021,3022,3023,3024,3025,3026,3027,3028,3029,3030,3031,3032,3033,3034,3035,3036,3037,3038,3039,3040,3041,3042,3043,3044,3045,3046,3047,3048,3049,3050,3051,3052,3053,3054,3055,3056,3057,3058,3059,3060,3061,3062,3063,3064,3065,3066,3067,3068,3069,3070,3071,3072,3073,3074,3075,3076,3077,3078,3079,3080,3081,3082,3083,3084,3085,3086,3087,3088,3089,3090,3091,3092,3093,3094,3095,3096,3097,3098,3099,3100,3101,3102,3103,3104,3105,3106,3107,3108,3109,3110,3111,3112,3113,3114,3115,3116,3117,3118,3119,3120,3121,3122,3123,3124,3125,3126,3127,3128,3129,3130,3131,3132,3133,3134,3135,3136,3137,3138,3139,3140,3141,3142,3143,3144,3145,3146,3147,3148,3149,3150,3151,3152,3153,3154,3155,3156,3157,3158,3159,3160,3161,3162,3163,3164,3165,3166,3167,3168,3169,3170,3171,3172,3173,3174,3175,3176,3177,3178,3179,3180,3181,3182,3183,3184,3185,3186,3187,3188,3189,3190,3191,3192,3193,3194,3195,3196,3197,3198,3199,3200,3201,3202,3203,3204,3205,3206,3207,3208,3209,3210,3211,3212,3213,3214,3215,3216,3217,3218,3219,3220,3221,3222,3223,3224,3225,3226,3227,3228,3229,3230,3231,3232,3233,3234,3235,3236,3237,3238,3239,3240,3241,3242,3243,3244,3245,3246,3247,3248,3249,3250,3251,3252,3253,3254,3255,3256,3257,3258,3259,3260,3261,3262,3263,3264,3265,3266,3267,3268,3269,3270,3271,3272,3273,3274,3275,3276,3277,3278,3279,3280,3281,3282,3283,3284,3285,3286,3287,3288,3289,3290,3291,3292,3293,3294,3295,3296,3297,3298,3299,3300,3301,3302,3303,3304,3305,3306,3307,3308,3309,3310,3311,3312,3313,3314,3315,3316,3317,3318,3319,3320,3321,3322,3323,3324,3325,3326,3327,3328,3329,3330,3331,3332,3333,3334,3335,3336,3337,3338,3339,3340,3341,3342,3343,3344,3345,3346,3347,3348,3349,3350,3351,3352,3353,3354,3355,3356,3357,3358,3359,3360,3361,3362,3363,3364,3365,3366,3367,3368,3369,3370,3371,3372,3373,3374,3375,3376,3377,3378,3379,3380,3381,3382,3383,3384,3385,3386,3387,3388,3389,3390,3391,3392,3393,3394,3395,3396,3397,3398,3399,3400,3401,3402,3403,3404,3405,3406,3407,3408,3409,3410,3411,3412,3413,3414,3415,3416,3417,3418,3419,3420,3421,3422,3423,3424,3425,3426,3427,3428,3429,3430,3431,3432,3433,3434,3435,3436,3437,3438,3439,3440,3441,3442,3443,3444,3445,3446,3447,3448,3449,3450,3451,3452,3453,3454,3455,3456,3457,3458,3459,3460,3461,3462,3463,3464,3465,3466,3467,3468,3469,3470,3471,3472,3473,3474,3475,3476,3477,3478,3479,3480,3481,3482,3483,3484,3485,3486,3487,3488,3489,3490,3491,3492,3493,3494,3495,3496,3497,3498,3499,3500,3501,3502,3503,3504,3505,3506,3507,3508,3509,3510,3511,3512,3513,3514,3515,3516,3517,3518,3519,3520,3521,3522,3523,3524,3525,3526,3527,3528,3529,3530,3531,3532,3533,3534,3535,3536,3537,3538,3539,3540,3541,3542,3543,3544,3545,3546,3547,3548,3549,3550,3551,3552,3553,3554,3555,3556,3557,3558,3559,3560,3561,3562,3563,3564,3565,3566,3567,3568,3569,3570,3571,3572,3573,3574,3575,3576,3577,3578,3579,3580,3581,3582,3583,3584,3585,3586,3587,3588,3589,3590,3591,3592,3593,3594,3595,3596,3597,3598,3599,3600,3601,3602,3603,3604,3605,3606,3607,3608,3609,3610,3611,3612,3613,3614,3615,3616,3617,3618,3619,3620,3621,3622,3623,3624,3625,3626,3627,3628,3629,3630,3631,3632,3633,3634,3635,3636,3637,3638,3639,3640,3641,3642,3643,3644,3645,3646,3647,3648,3649,3650,3651,3652,3653,3654,3655,3656,3657,3658,3659,3660,3661,3662,3663,3664,3665,3666,3667,3668,3669,3670,3671,3672,3673,3674,3675,3676,3677,3678,3679,3680,3681,3682,3683,3684,3685,3686,3687,3688,3689,3690,3691,3692,3693,3694,3695,3696,3697,3698,3699,3700,3701,3702,3703,3704,3705,3706,3707,3708,3709,3710,3711,3712,3713,3714,3715,3716,3717,3718,3719,3720,3721,3722,3723,3724,3725,3726,3727,3728,3729,3730,3731,3732,3733,3734,3735,3736,3737,3738,3739,3740,3741,3742,3743,3744,3745,3746,3747,3748,3749,3750,3751,3752,3753,3754,3755,3756,3757,3758,3759,3760,3761,3762,3763,3764,3765,3766,3767,3768,3769,3770,3771,3772,3773,3774,3775,3776,3777,3778,3779,3780,3781,3782,3783,3784,3785,3786,3787,3788,3789,3790,3791,3792,3793,3794,3795,3796,3797,3798,3799,3800,3801,3802,3803,3804,3805,3806,3807,3808,3809,3810,3811,3812,3813,3814,3815,3816,3817,3818,3819,3820,3821,3822,3823,3824,3825,3826,3827,3828,3829,3830,3831,3832,3833,3834,3835,3836,3837,3838,3839,3840,3841,3842,3843,3844,3845,3846,3847,3848,3849,3850,3851,3852,3853,3854,3855,3856,3857,3858,3859,3860,3861,3862,3863,3864,3865,3866,3867,3868,3869,3870,3871,3872,3873,3874,3875,3876,3877,3878,3879,3880,3881,3882,3883,3884,3885,3886,3887,3888,3889,3890,3891,3892,3893,3894,3895,3896,3897,3898,3899,3900,3901,3902,3903,3904,3905,3906,3907,3908,3909,3910,3911,3912,3913,3914,3915,3916,3917,3918,3919,3920,3921,3922,3923,3924,3925,3926,3927,3928,3929,3930,3931,3932,3933,3934,3935,3936,3937,3938,3939,3940,3941,3942,3943,3944,3945,3946,3947,3948,3949,3950,3951,3952,3953,3954,3955,3956,3957,3958,3959,3960,3961,3962,3963,3964,3965,3966,3967,3968,3969,3970,3971,3972,3973,3974,3975,3976,3977,3978,3979,3980,3981,3982,3983,3984,3985,3986,3987,3988,3989,3990,3991,3992,3993,3994,3995,3996,3997,3998,3999,4000,4001,4002,4003,4004,4005,4006,4007,4008,4009,4010,4011,4012,4013,4014,4015,4016,4017,4018,4019,4020,4021,4022,4023,4024,4025,4026,4027,4028,4029,4030,4031,4032,4033,4034,4035,4036,4037,4038,4039,4040,4041,4042,4043,4044,4045,4046,4047,4048,4049,4050,4051,4052,4053,4054,4055,4056,4057,4058,4059,4060,4061,4062,4063,4064,4065,4066,4067,4068,4069,4070,4071,4072,4073,4074,4075,4076,4077,4078,4079,4080,4081,4082,4083,4084,4085,4086,4087,4088,4089,4090,4091,4092,4093,4094,4095,4096,4097,4098,4099,4100,4101,4102,4103,4104,4105,4106,4107,4108,4109,4110,4111,4112,4113,4114,4115,4116,4117,4118,4119,4120,4121,4122,4123,4124,4125,4126,4127,4128,4129,4130,4131,4132,4133,4134,4135,4136,4137,4138,4139,4140,4141,4142,4143,4144,4145,4146,4147,4148,4149,4150,4151,4152,4153,4154,4155,4156,4157,4158,4159,4160,4161,4162,4163,4164,4165,4166,4167,4168,4169,4170,4171,4172,4173,4174,4175,4176,4177,4178,4179,4180,4181,4182,4183,4184,4185,4186,4187,4188,4189,4190,4191,4192,4193,4194,4195,4196,4197,4198,4199,4200,4201,4202,4203,4204,4205,4206,4207,4208,4209,4210,4211,4212,4213,4214,4215,4216,4217,4218,4219,4220,4221,4222,4223,4224,4225,4226,4227,4228,4229,4230,4231,4232,4233,4234,4235,4236,4237,4238,4239,4240,4241,4242,4243,4244,4245,4246,4247,4248,4249,4250,4251,4252,4253,4254,4255,4256,4257,4258,4259,4260,4261,4262,4263,4264,4265,4266,4267,4268,4269,4270,4271,4272,4273,4274,4275,4276,4277,4278,4279,4280,4281,4282,4283,4284,4285,4286,4287,4288,4289,4290,4291,4292,4293,4294,4295,4296,4297,4298,4299,4300,4301,4302,4303,4304,4305,4306,4307,4308,4309,4310,4311,4312,4313,4314,4315,4316,4317,4318,4319,4320,4321,4322,4323,4324,4325,4326,4327,4328,4329,4330,4331,4332,4333,4334,4335,4336,4337,4338,4339,4340,4341,4342,4343,4344,4345,4346,4347,4348,4349,4350,4351,4352,4353,4354,4355,4356,4357,4358,4359,4360,4361,4362,4363,4364,4365,4366,4367,4368,4369,4370,4371,4372,4373,4374,4375,4376,4377,4378,4379,4380,4381,4382,4383,4384,4385,4386,4387,4388,4389,4390,4391,4392,4393,4394,4395,4396,4397,4398,4399,4400,4401,4402,4403,4404,4405,4406,4407,4408,4409,4410,4411,4412,4413,4414,4415,4416,4417,4418,4419,4420,4421,4422,4423,4424,4425,4426,4427,4428,4429,4430,4431,4432,4433,4434,4435,4436,4437,4438,4439,4440,4441,4442,4443,4444,4445,4446,4447,4448,4449,4450,4451,4452,4453,4454,4455,4456,4457,4458,4459,4460,4461,4462,4463,4464,4465,4466,4467,4468,4469,4470,4471,4472,4473,4474,4475,4476,4477,4478,4479,4480,4481,4482,4483,4484,4485,4486,4487,4488,4489,4490,4491,4492,4493,4494,4495,4496,4497,4498,4499,4500,4501,4502,4503,4504,4505,4506,4507,4508,4509,4510,4511,4512,4513,4514,4515,4516,4517,4518,4519,4520,4521,4522,4523,4524,4525,4526,4527,4528,4529,4530,4531,4532,4533,4534,4535,4536,4537,4538,4539,4540,4541,4542,4543,4544,4545,4546,4547,4548,4549,4550,4551,4552,4553,4554,4555,4556,4557,4558,4559,4560,4561,4562,4563,4564,4565,4566,4567,4568,4569,4570,4571,4572,4573,4574,4575,4576,4577,4578,4579,4580,4581,4582,4583,4584,4585,4586,4587,4588,4589,4590,4591,4592,4593,4594,4595,4596,4597,4598,4599,4600,4601,4602,4603,4604,4605,4606,4607,4608,4609,4610,4611,4612,4613,4614,4615,4616,4617,4618,4619,4620,4621,4622,4623,4624,4625,4626,4627,4628,4629,4630,4631,4632,4633,4634,4635,4636,4637,4638,4639,4640,4641,4642,4643,4644,4645,4646,4647,4648,4649,4650,4651,4652,4653,4654,4655,4656,4657,4658,4659,4660,4661,4662,4663,4664,4665,4666,4667,4668,4669,4670,4671,4672,4673,4674,4675,4676,4677,4678,4679,4680,4681,4682,4683,4684,4685,4686,4687,4688,4689,4690,4691,4692,4693,4694,4695,4696,4697,4698,4699,4700,4701,4702,4703,4704,4705,4706,4707,4708,4709,4710,4711,4712,4713,4714,4715,4716,4717,4718,4719,4720,4721,4722,4723,4724,4725,4726,4727,4728,4729,4730,4731,4732,4733,4734,4735,4736,4737,4738,4739,4740,4741,4742,4743,4744,4745,4746,4747,4748,4749,4750,4751,4752,4753,4754,4755,4756,4757,4758,4759,4760,4761,4762,4763,4764,4765,4766,4767,4768,4769,4770,4771,4772,4773,4774,4775,4776,4777,4778,4779,4780,4781,4782,4783,4784,4785,4786,4787,4788,4789,4790,4791,4792,4793,4794,4795,4796,4797,4798,4799,4800,4801,4802,4803,4804,4805,4806,4807,4808,4809,4810,4811,4812,4813,4814,4815,4816,4817,4818,4819,4820,4821,4822,4823,4824,4825,4826,4827,4828,4829,4830,4831,4832,4833,4834,4835,4836,4837,4838,4839,4840,4841,4842,4843,4844,4845,4846,4847,4848,4849,4850,4851,4852,4853,4854,4855,4856,4857,4858,4859,4860,4861,4862,4863,4864,4865,4866,4867,4868,4869,4870,4871,4872,4873,4874,4875,4876,4877,4878,4879,4880,4881,4882,4883,4884,4885,4886,4887,4888,4889,4890,4891,4892,4893,4894,4895,4896,4897,4898,4899,4900,4901,4902,4903,4904,4905,4906,4907,4908,4909,4910,4911,4912,4913,4914,4915,4916,4917,4918,4919,4920,4921,4922,4923,4924,4925,4926,4927,4928,4929,4930,4931,4932,4933,4934,4935,4936,4937,4938,4939,4940,4941,4942,4943,4944,4945,4946,4947,4948,4949,4950,4951,4952,4953,4954,4955,4956,4957,4958,4959,4960,4961,4962,4963,4964,4965,4966,4967,4968,4969,4970,4971,4972,4973,4974,4975,4976,4977,4978,4979,4980,4981,4982,4983,4984,4985,4986,4987,4988,4989,4990,4991,4992,4993,4994,4995,4996,4997,4998,4999,5000,5001,5002,5003,5004,5005,5006,5007,5008,5009,5010,5011,5012,5013,5014,5015,5016,5017,5018,5019,5020,5021,5022,5023,5024,5025,5026,5027,5028,5029,5030,5031,5032,5033,5034,5035,5036,5037,5038,5039,5040,5041,5042,5043,5044,5045,5046,5047,5048,5049,5050,5051,5052,5053,5054,5055,5056,5057,5058,5059,5060,5061,5062,5063,5064,5065,5066,5067,5068,5069,5070,5071,5072,5073,5074,5075,5076,5077,5078,5079,5080,5081,5082,5083,5084,5085,5086,5087,5088,5089,5090,5091,5092,5093,5094,5095,5096,5097,5098,5099,5100,5101,5102,5103,5104,5105,5106,5107,5108,5109,5110,5111,5112,5113,5114,5115,5116,5117,5118,5119,5120,5121,5122,5123,5124,5125,5126,5127,5128,5129,5130,5131,5132,5133,5134,5135,5136,5137,5138,5139,5140,5141,5142,5143,5144,5145,5146,5147,5148,5149,5150,5151,5152,5153,5154,5155,5156,5157,5158,5159,5160,5161,5162,5163,5164,5165,5166,5167,5168,5169,5170,5171,5172,5173,5174,5175,5176,5177,5178,5179,5180,5181,5182,5183,5184,5185,5186,5187,5188,5189,5190,5191,5192,5193,5194,5195,5196,5197,5198,5199,5200,5201,5202,5203,5204,5205,5206,5207,5208,5209,5210,5211,5212,5213,5214,5215,5216,5217,5218,5219,5220,5221,5222,5223,5224,5225,5226,5227,5228,5229,5230,5231,5232,5233,5234,5235,5236,5237,5238,5239,5240,5241,5242,5243,5244,5245,5246,5247,5248,5249,5250,5251,5252,5253,5254,5255,5256,5257,5258,5259,5260,5261,5262,5263,5264,5265,5266,5267,5268,5269,5270,5271,5272,5273,5274,5275,5276,5277,5278,5279,5280,5281,5282,5283,5284,5285,5286,5287,5288,5289,5290,5291,5292,5293,5294,5295,5296,5297,5298,5299,5300,5301,5302,5303,5304,5305,5306,5307,5308,5309,5310,5311,5312,5313,5314,5315,5316,5317,5318,5319,5320,5321,5322,5323,5324,5325,5326,5327,5328,5329,5330,5331,5332,5333,5334,5335,5336,5337,5338,5339,5340,5341,5342,5343,5344,5345,5346,5347,5348,5349,5350,5351,5352,5353,5354,5355,5356,5357,5358,5359,5360,5361,5362,5363,5364,5365,5366,5367,5368,5369,5370,5371,5372,5373,5374,5375,5376,5377,5378,5379,5380,5381,5382,5383,5384,5385,5386,5387,5388,5389,5390,5391,5392,5393,5394,5395,5396,5397,5398,5399,5400,5401,5402,5403,5404,5405,5406,5407,5408,5409,5410,5411,5412,5413,5414,5415,5416,5417,5418,5419,5420,5421,5422,5423,5424,5425,5426,5427,5428,5429,5430,5431,5432,5433,5434,5435,5436,5437,5438,5439,5440,5441,5442,5443,5444,5445,5446,5447,5448,5449,5450,5451,5452,5453,5454,5455,5456,5457,5458,5459,5460,5461,5462,5463,5464,5465,5466,5467,5468,5469,5470,5471,5472,5473,5474,5475,5476,5477,5478,5479,5480,5481,5482,5483,5484,5485,5486,5487,5488,5489,5490,5491,5492,5493,5494,5495,5496,5497,5498,5499,5500,5501,5502,5503,5504,5505,5506,5507,5508,5509,5510,5511,5512,5513,5514,5515,5516,5517,5518,5519,5520,5521,5522,5523,5524,5525,5526,5527,5528,5529,5530,5531,5532,5533,5534,5535,5536,5537,5538,5539,5540,5541,5542,5543,5544,5545,5546,5547,5548,5549,5550,5551,5552,5553,5554,5555,5556,5557,5558,5559,5560,5561,5562,5563,5564,5565,5566,5567,5568,5569,5570,5571,5572,5573,5574,5575,5576,5577,5578,5579,5580,5581,5582,5583,5584,5585,5586,5587,5588,5589,5590,5591,5592,5593,5594,5595,5596,5597,5598,5599,5600,5601,5602,5603,5604,5605,5606,5607,5608,5609,5610,5611,5612,5613,5614,5615,5616,5

Supplement Table S3. The list of "high prediction score" mutations

ID	Location	Allele	Consequence	IMPACT	SYMBOL	Gene	Feature_typ	Feature	BIOTYPE
rs230570	1:994091	T	frameshift_varia	HIGH	Mcmdc2	ENSMUSG	Transcript	ENSMUS	protein_coding
rs262842	1:582106	T	frameshift_varia	HIGH	Aox4	ENSMUSG	Transcript	ENSMUS	protein_coding
rs251386	1:788181	-	frameshift_varia	HIGH	Kcne4	ENSMUSG	Transcript	ENSMUS	protein_coding
rs229447	1:860245	C	frameshift_varia	HIGH	Spata3	ENSMUSG	Transcript	ENSMUS	protein_coding
rs229447	1:860245	C	frameshift_varia	HIGH	Spata3	ENSMUSG	Transcript	ENSMUS	protein_coding
rs260403	1:153220	-	frameshift_varia	HIGH	Lamc1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs245925	1:173270	A	frameshift_varia	HIGH	Olfr418	ENSMUSG	Transcript	ENSMUS	protein_coding
rs245925	1:173270	A	frameshift_varia	HIGH	Olfr418	ENSMUSG	Transcript	ENSMUS	protein_coding
rs241718	10:22148	-	frameshift_varia	HIGH	E030030I06Rik	ENSMUSG	Transcript	ENSMUS	protein_coding
rs241718	10:22148	-	frameshift_varia	HIGH	E030030I06Rik	ENSMUSG	Transcript	ENSMUS	protein_coding
rs262576	10:22148	-	frameshift_varia	HIGH	E030030I06Rik	ENSMUSG	Transcript	ENSMUS	protein_coding
rs262576	10:22148	-	frameshift_varia	HIGH	E030030I06Rik	ENSMUSG	Transcript	ENSMUS	protein_coding
rs232510	10:40603	-	frameshift_varia	HIGH	Slc22a16	ENSMUSG	Transcript	ENSMUS	protein_coding
rs232510	10:40603	-	frameshift_varia	HIGH	Slc22a16	ENSMUSG	Transcript	ENSMUS	protein_coding
rs260532	10:82652	TG	frameshift_varia	HIGH	Glt8d2	ENSMUSG	Transcript	ENSMUS	protein_coding
rs234015	10:88485	-	frameshift_varia	HIGH	Chpt1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs247050	10:94293	G	frameshift_varia	HIGH	Gm4792	ENSMUSG	Transcript	ENSMUS	protein_coding
rs261855	11:66056	-	frameshift_varia	HIGH	Nacad	ENSMUSG	Transcript	ENSMUS	protein_coding
rs217059	11:18884	AAAAA	frameshift_varia	HIGH	Meis1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs231892	11:32031	A	frameshift_varia	HIGH	Nsg2	ENSMUSG	Transcript	ENSMUS	protein_coding
rs241784	11:51651	G	frameshift_varia	HIGH	D930048N14Rik	ENSMUSG	Transcript	ENSMUS	protein_coding
rs241784	11:51651	G	frameshift_varia	HIGH	D930048N14Rik	ENSMUSG	Transcript	ENSMUS	protein_coding
rs224358	11:59161	AG	frameshift_varia	HIGH	Iba57	ENSMUSG	Transcript	ENSMUS	protein_coding
rs224358	11:59161	AG	frameshift_varia	HIGH	Iba57	ENSMUSG	Transcript	ENSMUS	protein_coding
rs251449	11:70940	T	frameshift_varia	HIGH	Rabep1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs229784	11:72195	-	frameshift_varia	HIGH	4933427D14Rik	ENSMUSG	Transcript	ENSMUS	protein_coding
rs238372	11:72195	CCCCAG	frameshift_varia	HIGH	4933427D14Rik	ENSMUSG	Transcript	ENSMUS	protein_coding
rs225446	11:72309	GCTGGC	frameshift_varia	HIGH	Xaf1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs224369	11:10231	C	frameshift_varia	HIGH	Ubtf	ENSMUSG	Transcript	ENSMUS	protein_coding
rs217001	11:10310	GACTG	frameshift_varia	HIGH	Acbd4	ENSMUSG	Transcript	ENSMUS	protein_coding
rs217001	11:10310	GACTG	frameshift_varia	HIGH	Acbd4	ENSMUSG	Transcript	ENSMUS	protein_coding
rs217001	11:10310	GACTG	frameshift_varia	HIGH	Acbd4	ENSMUSG	Transcript	ENSMUS	protein_coding
rs217001	11:10310	GACTG	frameshift_varia	HIGH	Acbd4	ENSMUSG	Transcript	ENSMUS	protein_coding
rs264572	11:10941	G	frameshift_varia	HIGH	9930022D16Rik	ENSMUSG	Transcript	ENSMUS	protein_coding
rs221497	11:11665	-	frameshift_varia	HIGH	Prcd	ENSMUSG	Transcript	ENSMUS	protein_coding
rs215748	12:24708	-	frameshift_varia	HIGH	Rrm2	ENSMUSG	Transcript	ENSMUS	protein_coding
rs226317	12:75722	-	frameshift_varia	HIGH	Sgpp1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs250615	12:98747	G	frameshift_varia	HIGH	Zc3h14	ENSMUSG	Transcript	ENSMUS	protein_coding
rs242560	12:10426	-	frameshift_varia	HIGH	Serpina3i	ENSMUSG	Transcript	ENSMUS	protein_coding
rs249591	13:21484	A	frameshift_varia	HIGH	Zkscan4	ENSMUSG	Transcript	ENSMUS	protein_coding
rs249591	13:21484	A	frameshift_varia	HIGH	Zkscan4	ENSMUSG	Transcript	ENSMUS	protein_coding
rs264679	13:22524	-	frameshift_varia	HIGH	Vmn1r203	ENSMUSG	Transcript	ENSMUS	protein_coding
rs264679	13:22524	-	frameshift_varia	HIGH	Vmn1r203	ENSMUSG	Transcript	ENSMUS	protein_coding
rs264679	13:22524	-	frameshift_varia	HIGH	Vmn1r203	ENSMUSG	Transcript	ENSMUS	protein_coding
rs255414	13:22883	CA	frameshift_varia	HIGH	Vmn1r212	ENSMUSG	Transcript	ENSMUS	protein_coding
rs255863	13:38022	T	frameshift_varia	HIGH	Cage1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs254220	13:67408	TGAG	frameshift_varia	HIGH	Zfp459	ENSMUSG	Transcript	ENSMUS	protein_coding
rs241993	13:67792	T	frameshift_varia	HIGH	Zfp493	ENSMUSG	Transcript	ENSMUS	protein_coding
rs225890	13:11945	-	frameshift_varia	HIGH	Paip1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs215802	14:29021	-	frameshift_varia	HIGH	Lrtm1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs262913	14:54648	-	frameshift_varia	HIGH	Gm17606	ENSMUSG	Transcript	ENSMUS	protein_coding
rs264828	14:54976	-	frameshift_varia	HIGH	Gm17428	ENSMUSG	Transcript	ENSMUS	protein_coding
rs827433	14:56019	-	frameshift_varia	HIGH	Mcpt1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs249051	14:79213	C	frameshift_varia	HIGH	Zfp957	ENSMUSG	Transcript	ENSMUS	protein_coding
rs249051	14:79213	C	frameshift_varia	HIGH	Zfp957	ENSMUSG	Transcript	ENSMUS	protein_coding
rs262301	15:82390	TGGG	frameshift_varia	HIGH	Cyp2d11	ENSMUSG	Transcript	ENSMUS	protein_coding
rs246193	16:52445	-	frameshift_varia	HIGH	Alg1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs246193	16:52445	-	frameshift_varia	HIGH	Alg1	ENSMUSG	Transcript	ENSMUS	protein_coding
rs231313	16:58824	A	frameshift_varia	HIGH	Olfr175	ENSMUSG	Transcript	ENSMUS	protein_coding
rs231313	16:58824	A	frameshift_varia	HIGH	Olfr175	ENSMUSG	Transcript	ENSMUS	protein_coding
rs249006	17:23945	-	frameshift_varia	HIGH	Sbp	ENSMUSG	Transcript	ENSMUS	protein_coding

rs223197	17:29379	CTGA	frameshift_varia	HIGH	Fgd2	ENSMUSG	Transcript	ENSMUS protein_coding
rs223197	17:29379	CTGA	frameshift_varia	HIGH	Fgd2	ENSMUSG	Transcript	ENSMUS protein_coding
rs229596	17:29615	C	frameshift_varia	HIGH	Rnf8	ENSMUSG	Transcript	ENSMUS protein_coding
rs224819	17:35893	CCCAAC	frameshift_varia	HIGH	2310061I04Rik	ENSMUSG	Transcript	ENSMUS protein_coding
rs219270	17:36164	TT	frameshift_varia	HIGH	Gm8909	ENSMUSG	Transcript	ENSMUS protein_coding
rs247881	17:74635	-	frameshift_varia	HIGH	Birc6	ENSMUSG	Transcript	ENSMUS protein_coding
rs252459	18:70240	C	frameshift_varia	HIGH	Dynap	ENSMUSG	Transcript	ENSMUS protein_coding
rs265927	18:78350	A	frameshift_varia	HIGH	Gm6133	ENSMUSG	Transcript	ENSMUS protein_coding
rs265927	18:78350	GA	frameshift_varia	HIGH	Gm6133	ENSMUSG	Transcript	ENSMUS protein_coding
rs265927	18:78350	GAAA	frameshift_varia	HIGH	Gm6133	ENSMUSG	Transcript	ENSMUS protein_coding
rs255102	19:45797	CACGCA	frameshift_varia	HIGH	Kcnip2	ENSMUSG	Transcript	ENSMUS protein_coding
rs251085	2:313894	T	frameshift_varia	HIGH	Hmcn2	ENSMUSG	Transcript	ENSMUS protein_coding
rs241579	2:350432	-	frameshift_varia	HIGH	Hc	ENSMUSG	Transcript	ENSMUS protein_coding
rs228326	2:101797	-	frameshift_varia	HIGH	Prr5l	ENSMUSG	Transcript	ENSMUS protein_coding
rs239279	2:111329	-	frameshift_varia	HIGH	Olfr1281	ENSMUSG	Transcript	ENSMUS protein_coding
rs239279	2:111329	-	frameshift_varia	HIGH	Olfr1281	ENSMUSG	Transcript	ENSMUS protein_coding
rs247309	2:121014	-	frameshift_varia	HIGH	Ccndbp1	ENSMUSG	Transcript	ENSMUS protein_coding
rs247309	2:121014	-	frameshift_varia	HIGH	Ccndbp1	ENSMUSG	Transcript	ENSMUS protein_coding
rs223637	2:125154	C	frameshift_varia	HIGH	Slc12a1	ENSMUSG	Transcript	ENSMUS protein_coding
rs223637	2:125154	C	frameshift_varia	HIGH	Slc12a1	ENSMUSG	Transcript	ENSMUS protein_coding
rs223637	2:125154	C	frameshift_varia	HIGH	Slc12a1	ENSMUSG	Transcript	ENSMUS protein_coding
rs219714	2:152686	-	frameshift_varia	HIGH	H13	ENSMUSG	Transcript	ENSMUS protein_coding
rs242513	2:164502	-	frameshift_varia	HIGH	Pigt	ENSMUSG	Transcript	ENSMUS protein_coding
rs216130	2:164502	G	frameshift_varia	HIGH	Pigt	ENSMUSG	Transcript	ENSMUS protein_coding
rs214958	2:164597	CC	frameshift_varia	HIGH	Wfdc8	ENSMUSG	Transcript	ENSMUS protein_coding
rs226720	3:196104	TAAAAA	frameshift_varia	HIGH	1700064H15Rik	ENSMUSG	Transcript	ENSMUS protein_coding
rs226994	3:364818	C	frameshift_varia	HIGH	1810062G17Rik	ENSMUSG	Transcript	ENSMUS protein_coding
rs243754	3:936516	CT	frameshift_varia	HIGH	Tdpoz2	ENSMUSG	Transcript	ENSMUS protein_coding
rs245839	3:945620	-	frameshift_varia	HIGH	Snx27	ENSMUSG	Transcript	ENSMUS protein_coding
rs263506	3:122961	AG	frameshift_varia	HIGH	Usp53	ENSMUSG	Transcript	ENSMUS protein_coding
rs246594	3:138941	-	frameshift_varia	HIGH	Rap1gds1	ENSMUSG	Transcript	ENSMUS protein_coding
rs260910	4:340409	AA	frameshift_varia	HIGH	Spaca1	ENSMUSG	Transcript	ENSMUS protein_coding
rs220924	4:634317	AACGT	frameshift_varia	HIGH	Whrn	ENSMUSG	Transcript	ENSMUS protein_coding
rs247298	4:112773	-	frameshift_varia	HIGH	Skint10	ENSMUSG	Transcript	ENSMUS protein_coding
rs239581	4:114244	T	frameshift_varia	HIGH	Skint11	ENSMUSG	Transcript	ENSMUS protein_coding
rs239581	4:114244	T	frameshift_varia	HIGH	Skint11	ENSMUSG	Transcript	ENSMUS protein_coding
rs261554	4:134279	TGTTTT	frameshift_varia	HIGH	Pdik1l	ENSMUSG	Transcript	ENSMUS protein_coding
rs221612	4:141845	A	frameshift_varia	HIGH	Ctrc	ENSMUSG	Transcript	ENSMUS protein_coding
rs221612	4:141845	A	frameshift_varia	HIGH	Ctrc	ENSMUSG	Transcript	ENSMUS protein_coding
rs233824	4:143699	-	frameshift_varia	HIGH	Gm13089	ENSMUSG	Transcript	ENSMUS protein_coding
rs387335	4:143851	T	frameshift_varia	HIGH	Gm13103	ENSMUSG	Transcript	ENSMUS protein_coding
rs387335	4:143851	T	frameshift_varia	HIGH	Gm13103	ENSMUSG	Transcript	ENSMUS protein_coding
rs387335	4:143851	T	frameshift_varia	HIGH	Gm13103	ENSMUSG	Transcript	ENSMUS protein_coding
rs235441	5:252201	-	frameshift_varia	HIGH	Galntl5	ENSMUSG	Transcript	ENSMUS protein_coding
rs235441	5:252201	-	frameshift_varia	HIGH	Galntl5	ENSMUSG	Transcript	ENSMUS protein_coding
rs248422	14:48446	C	frameshift_varia	HIGH	Tmem260	ENSMUSG	Transcript	ENSMUS protein_coding
rs247033	5:310875	GTGAT	frameshift_varia	HIGH	Slc30a3	ENSMUSG	Transcript	ENSMUS protein_coding
rs228755	5:670976	C	frameshift_varia	HIGH	Phox2b	ENSMUSG	Transcript	ENSMUS protein_coding
rs217195	5:145002	TCTG	frameshift_varia	HIGH	Kpna7	ENSMUSG	Transcript	ENSMUS protein_coding
rs242224	5:145377	-	frameshift_varia	HIGH	Cyp3a57	ENSMUSG	Transcript	ENSMUS protein_coding
rs244345	6:234100	-	frameshift_varia	HIGH	Cadps2	ENSMUSG	Transcript	ENSMUS protein_coding
rs230117	6:898454	-	frameshift_varia	HIGH	Vmn1r42	ENSMUSG	Transcript	ENSMUS protein_coding
rs230117	6:898454	-	frameshift_varia	HIGH	Vmn1r42	ENSMUSG	Transcript	ENSMUS protein_coding
rs230117	6:898454	-	frameshift_varia	HIGH	Vmn1r42	ENSMUSG	Transcript	ENSMUS protein_coding
rs231995	6:903454	-	frameshift_varia	HIGH	Uroc1	ENSMUSG	Transcript	ENSMUS protein_coding
rs243087	6:143217	GACA	frameshift_varia	HIGH	Etnk1	ENSMUSG	Transcript	ENSMUS protein_coding
rs265722	7:369579	-	frameshift_varia	HIGH	Tsen34	ENSMUSG	Transcript	ENSMUS protein_coding
rs263212	7:132608	-	frameshift_varia	HIGH	Zswim9	ENSMUSG	Transcript	ENSMUS protein_coding
rs218672	7:298356	-	frameshift_varia	HIGH	Zfp940	ENSMUSG	Transcript	ENSMUS protein_coding
rs222341	7:302806	CTAAGA	frameshift_varia	HIGH	Thap8	ENSMUSG	Transcript	ENSMUS protein_coding
rs222341	7:302806	CTAAGA	frameshift_varia	HIGH	Thap8	ENSMUSG	Transcript	ENSMUS protein_coding
rs263081	7:356469	-	frameshift_varia	HIGH	Pdcd5	ENSMUSG	Transcript	ENSMUS protein_coding
rs253193	7:856197	-	frameshift_varia	HIGH	Vmn2r71	ENSMUSG	Transcript	ENSMUS protein_coding
rs219567	7:867952	-	frameshift_varia	HIGH	Vmn2r77	ENSMUSG	Transcript	ENSMUS protein_coding

rs219567	7:867952	-	frameshift_varia	HIGH	Vmn2r77	ENSMUSG	Transcript	ENSMUS protein_coding
rs255443	7:902364	G	frameshift_varia	HIGH	Ccdc83	ENSMUSG	Transcript	ENSMUS protein_coding
rs244257	7:930809	-	frameshift_varia	HIGH	Fam181b	ENSMUSG	Transcript	ENSMUS protein_coding
rs238147	7:100326	A	frameshift_varia	HIGH	Ppme1	ENSMUSG	Transcript	ENSMUS protein_coding
rs217008	7:102535	CAAAC	frameshift_varia	HIGH	Olfr547	ENSMUSG	Transcript	ENSMUS protein_coding
rs257373	7:102542	-	frameshift_varia	HIGH	Olfr548-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs257373	7:102542	-	frameshift_varia	HIGH	Olfr548-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs217263	7:102804	-	frameshift_varia	HIGH	Olfr564	ENSMUSG	Transcript	ENSMUS protein_coding
rs249885	7:102942	-	frameshift_varia	HIGH	Olfr573-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs249885	7:102942	-	frameshift_varia	HIGH	Olfr573-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs226690	7:102942	-	frameshift_varia	HIGH	Olfr573-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs226690	7:102942	-	frameshift_varia	HIGH	Olfr573-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs246729	7:103682	-	frameshift_varia	HIGH	Olfr625-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs246729	7:103682	-	frameshift_varia	HIGH	Olfr625-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs241921	7:104357	G	frameshift_varia	HIGH	Trim30b	ENSMUSG	Transcript	ENSMUS protein_coding
rs387093	7:106927	-	frameshift_varia	HIGH	Olfr709-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs387093	7:106927	-	frameshift_varia	HIGH	Olfr709-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs262610	7:107590	-	frameshift_varia	HIGH	Olfml1	ENSMUSG	Transcript	ENSMUS protein_coding
rs226725	7:118442	GG	frameshift_varia	HIGH	Syt17	ENSMUSG	Transcript	ENSMUS protein_coding
rs259251	7:118510	-	frameshift_varia	HIGH	Coq7	ENSMUSG	Transcript	ENSMUS protein_coding
rs259892	7:139216	-	frameshift_varia	HIGH	Lrrc27	ENSMUSG	Transcript	ENSMUS protein_coding
rs223375	8:191263	TTTTTTT	frameshift_varia	HIGH	Defb34	ENSMUSG	Transcript	ENSMUS protein_coding
rs213590	8:260324	T	frameshift_varia	HIGH	Hook3	ENSMUSG	Transcript	ENSMUS protein_coding
rs239380	8:408989	CT	frameshift_varia	HIGH	Slc7a2	ENSMUSG	Transcript	ENSMUS protein_coding
rs247462	8:707301	-	frameshift_varia	HIGH	Pde4c	ENSMUSG	Transcript	ENSMUS protein_coding
rs226815	8:104182	-	frameshift_varia	HIGH	Bean1	ENSMUSG	Transcript	ENSMUS protein_coding
rs226815	8:104182	-	frameshift_varia	HIGH	Bean1	ENSMUSG	Transcript	ENSMUS protein_coding
rs227791	9:382921	T	frameshift_varia	HIGH	Olfr896-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs227791	9:382921	T	frameshift_varia	HIGH	Olfr896-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs254949	9:382923	-	frameshift_varia	HIGH	Olfr896-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs254949	9:382923	-	frameshift_varia	HIGH	Olfr896-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs256178	9:411614	-	frameshift_varia	HIGH	Ubash3b	ENSMUSG	Transcript	ENSMUS protein_coding
rs250215	9:483967	AAAA	frameshift_varia	HIGH	Nxpe4	ENSMUSG	Transcript	ENSMUS protein_coding
rs250215	9:483967	AAAAA	frameshift_varia	HIGH	Nxpe4	ENSMUSG	Transcript	ENSMUS protein_coding
rs260243	9:572422	-	frameshift_varia	HIGH	Trcg1	ENSMUSG	Transcript	ENSMUS protein_coding
rs264043	9:654846	-	frameshift_varia	HIGH	Spg21	ENSMUSG	Transcript	ENSMUS protein_coding
rs220866	9:660446	AA	frameshift_varia	HIGH	Csnk1g1	ENSMUSG	Transcript	ENSMUS protein_coding
rs220866	9:660446	AA	frameshift_varia	HIGH	Csnk1g1	ENSMUSG	Transcript	ENSMUS protein_coding
rs265357	9:711624	-	frameshift_varia	HIGH	Aqp9	ENSMUSG	Transcript	ENSMUS protein_coding
rs265422	9:108797	-	frameshift_varia	HIGH	Ip6k2	ENSMUSG	Transcript	ENSMUS protein_coding
rs257011	X:136533	A	frameshift_varia	HIGH	Kir3dl1	ENSMUSG	Transcript	ENSMUS protein_coding
rs257011	X:136533	A	frameshift_varia	HIGH	Kir3dl1	ENSMUSG	Transcript	ENSMUS protein_coding
rs217001	11:10310	GACTG	frameshift_varia	HIGH	Acbd4	ENSMUSG	Transcript	ENSMUS protein_coding
rs254676	12:10370	AGTG	frameshift_varia	HIGH	Nt5c1b	ENSMUSG	Transcript	ENSMUS protein_coding
rs254676	12:10370	AGTG	frameshift_varia	HIGH	Nt5c1b	ENSMUSG	Transcript	ENSMUS protein_coding
rs254676	12:10370	AGTG	frameshift_varia	HIGH	Nt5c1b	ENSMUSG	Transcript	ENSMUS protein_coding
rs254676	12:10370	AGTG	frameshift_varia	HIGH	Nt5c1b	ENSMUSG	Transcript	ENSMUS protein_coding
rs254676	12:10370	AGTG	frameshift_varia	HIGH	Nt5c1b	ENSMUSG	Transcript	ENSMUS protein_coding
rs254676	12:10370	AGTG	frameshift_varia	HIGH	Nt5c1b	ENSMUSG	Transcript	ENSMUS protein_coding
rs254676	12:10370	AGTG	frameshift_varia	HIGH	Nt5c1b	ENSMUSG	Transcript	ENSMUS protein_coding
rs219063	12:24044	-	frameshift_varia	HIGH	9030624G23Rik	ENSMUSG	Transcript	ENSMUS protein_coding
rs387836	16:32754	A	frameshift_varia	HIGH	Muc4	ENSMUSG	Transcript	ENSMUS protein_coding
rs219270	17:36164	TT	frameshift_varia	HIGH	Gm8909	ENSMUSG	Transcript	ENSMUS protein_coding
rs219270	17:36164	TT	frameshift_varia	HIGH	Gm8909	ENSMUSG	Transcript	ENSMUS protein_coding
rs231270	2:909177	A	frameshift_varia	HIGH	Ptpmt1	ENSMUSG	Transcript	ENSMUS protein_coding
rs387791	2:121518	-	frameshift_varia	HIGH	Wdr76	ENSMUSG	Transcript	ENSMUS protein_coding
rs247118	3:135318	GT	frameshift_varia	HIGH	Slc9b2	ENSMUSG	Transcript	ENSMUS protein_coding
rs256092	6:137842	TGGGCA	frameshift_varia	HIGH	Dera	ENSMUSG	Transcript	ENSMUS protein_coding
rs257960	5:923631	G	frameshift_varia	HIGH	Cxcl11	ENSMUSG	Transcript	ENSMUS protein_coding
rs214090	11:55218	-	frameshift_varia	HIGH	Xbp1	ENSMUSG	Transcript	ENSMUS protein_coding
rs220961	7:103682	-	frameshift_varia	HIGH	Olfr625-ps1	ENSMUSG	Transcript	ENSMUS protein_coding
rs260631	1:150993	T	frameshift_varia	HIGH	Hmcn1	ENSMUSG	Transcript	ENSMUS protein_coding
rs260631	1:150993	T	frameshift_varia	HIGH	Hmcn1	ENSMUSG	Transcript	ENSMUS protein_coding
rs253978	10:12817	T	frameshift_varia	HIGH	Rbms2	ENSMUSG	Transcript	ENSMUS protein_coding

rs239353	3:417420	-	frameshift_varia	HIGH	Sclt1	ENSMUSG	Transcript	ENSMUS protein_coding
rs218008	6:146576	T	frameshift_varia	HIGH	Ints13	ENSMUSG	Transcript	ENSMUS protein_coding
rs216588	7:858759	-	frameshift_varia	HIGH	Vmn2r73	ENSMUSG	Transcript	ENSMUS protein_coding
rs216588	7:858759	-	frameshift_varia	HIGH	Vmn2r73	ENSMUSG	Transcript	ENSMUS protein_coding
rs216588	7:858759	-	frameshift_varia	HIGH	Vmn2r73	ENSMUSG	Transcript	ENSMUS protein_coding
rs216588	7:858759	-	frameshift_varia	HIGH	Vmn2r73	ENSMUSG	Transcript	ENSMUS protein_coding
rs216588	7:858759	-	frameshift_varia	HIGH	Vmn2r73	ENSMUSG	Transcript	ENSMUS protein_coding
rs216588	7:858759	-	frameshift_varia	HIGH	Vmn2r73	ENSMUSG	Transcript	ENSMUS protein_coding
rs216588	7:858759	-	frameshift_varia	HIGH	Vmn2r73	ENSMUSG	Transcript	ENSMUS protein_coding
rs216588	7:858759	-	frameshift_varia	HIGH	Vmn2r73	ENSMUSG	Transcript	ENSMUS protein_coding
rs234740	1:175688	-	frameshift_varia	HIGH	Chml	ENSMUSG	Transcript	ENSMUS protein_coding
rs212845	2:121128	-	frameshift_varia	HIGH	Lcmt2	ENSMUSG	Transcript	ENSMUS protein_coding
rs250705	1:192343	A	frameshift_varia	HIGH	Tfap2b	ENSMUSG	Transcript	ENSMUS protein_coding
rs250705	1:192343	AA	frameshift_varia	HIGH	Tfap2b	ENSMUSG	Transcript	ENSMUS protein_coding
rs250705	1:192343	A	frameshift_varia	HIGH	Tfap2b	ENSMUSG	Transcript	ENSMUS protein_coding
rs250705	1:192343	AA	frameshift_varia	HIGH	Tfap2b	ENSMUSG	Transcript	ENSMUS protein_coding
rs254981	2:119964	TGAG	frameshift_varia	HIGH	Mga	ENSMUSG	Transcript	ENSMUS protein_coding
rs254981	2:119964	TGAG	frameshift_varia	HIGH	Mga	ENSMUSG	Transcript	ENSMUS protein_coding
rs254981	2:119964	TGAG	frameshift_varia	HIGH	Mga	ENSMUSG	Transcript	ENSMUS protein_coding
rs254981	2:119964	TGAG	frameshift_varia	HIGH	Mga	ENSMUSG	Transcript	ENSMUS protein_coding
rs236730	8:107061	TAGC	frameshift_varia	HIGH	Tmed6	ENSMUSG	Transcript	ENSMUS protein_coding
rs243387	10:10579	T	splice_acceptor_	HIGH	Mettl25	ENSMUSG	Transcript	ENSMUS protein_coding
rs227036	12:24668	-	splice_acceptor_	HIGH	Cys1	ENSMUSG	Transcript	ENSMUS protein_coding
rs236447	14:52296	TG	splice_acceptor_	HIGH	Mettl3	ENSMUSG	Transcript	ENSMUS protein_coding
rs228816	15:96587	TT	splice_acceptor_	HIGH	Slc38a1	ENSMUSG	Transcript	ENSMUS protein_coding
rs228816	15:96587	TT	splice_acceptor_	HIGH	Slc38a1	ENSMUSG	Transcript	ENSMUS protein_coding
rs228816	15:96587	TT	splice_acceptor_	HIGH	Slc38a1	ENSMUSG	Transcript	ENSMUS protein_coding
rs251670	2:122296	TGCA	splice_acceptor_	HIGH	Duox2	ENSMUSG	Transcript	ENSMUS protein_coding
rs251670	2:122296	TGCA	splice_acceptor_	HIGH	Duox2	ENSMUSG	Transcript	ENSMUS protein_coding
rs219251	2:157101	-	splice_acceptor_	HIGH	Samhd1	ENSMUSG	Transcript	ENSMUS protein_coding
rs219251	2:157101	-	splice_acceptor_	HIGH	Samhd1	ENSMUSG	Transcript	ENSMUS protein_coding
rs219251	2:157101	-	splice_acceptor_	HIGH	Samhd1	ENSMUSG	Transcript	ENSMUS protein_coding
rs216360	4:112072	-	splice_acceptor_	HIGH	Skint4	ENSMUSG	Transcript	ENSMUS protein_coding
rs243253	11:12105	-	splice_acceptor_	HIGH	Sectm1b	ENSMUSG	Transcript	ENSMUS protein_coding
rs245068	7:193685	-	splice_acceptor_	HIGH	Ppp1r13l	ENSMUSG	Transcript	ENSMUS protein_coding
rs223913	5:383002	-	splice_acceptor_	HIGH	Otop1	ENSMUSG	Transcript	ENSMUS protein_coding
rs246861	13:22855	-	splice_acceptor_	HIGH	Vmn1r211	ENSMUSG	Transcript	ENSMUS protein_coding
rs249041	10:14760	TAAA	splice_donor_va	HIGH	Nmbr	ENSMUSG	Transcript	ENSMUS protein_coding
rs249041	10:14760	TAAA	splice_donor_va	HIGH	Nmbr	ENSMUSG	Transcript	ENSMUS protein_coding
rs259454	10:12700	TA	splice_donor_va	HIGH	Avil	ENSMUSG	Transcript	ENSMUS protein_coding
rs225570	13:23807	T	splice_donor_va	HIGH	Slc17a2	ENSMUSG	Transcript	ENSMUS protein_coding
rs227181	2:177074	-	splice_donor_va	HIGH	Gm14401	ENSMUSG	Transcript	ENSMUS protein_coding
rs248430	6:136599	TAAA	splice_donor_va	HIGH	Atf7ip	ENSMUSG	Transcript	ENSMUS protein_coding
rs226789	7:122983	TA	splice_donor_va	HIGH	Rbbp6	ENSMUSG	Transcript	ENSMUS protein_coding
rs226789	7:122983	TA	splice_donor_va	HIGH	Rbbp6	ENSMUSG	Transcript	ENSMUS protein_coding
rs226789	7:122983	TA	splice_donor_va	HIGH	Rbbp6	ENSMUSG	Transcript	ENSMUS protein_coding
rs234841	10:77132	-	splice_donor_va	HIGH	Lats1	ENSMUSG	Transcript	ENSMUS protein_coding
rs252335	15:79741	-	splice_donor_va	HIGH	Sun2	ENSMUSG	Transcript	ENSMUS protein_coding
rs233926	7:195083	-	splice_donor_va	HIGH	Bloc1s3	ENSMUSG	Transcript	ENSMUS protein_coding
rs241156	7:300720	-	splice_donor_va	HIGH	Zfp82	ENSMUSG	Transcript	ENSMUS protein_coding
rs241156	7:300720	-	splice_donor_va	HIGH	Zfp82	ENSMUSG	Transcript	ENSMUS protein_coding
rs241156	7:300720	-	splice_donor_va	HIGH	Zfp82	ENSMUSG	Transcript	ENSMUS protein_coding
rs241156	7:300720	-	splice_donor_va	HIGH	Zfp82	ENSMUSG	Transcript	ENSMUS protein_coding
rs241156	7:300720	-	splice_donor_va	HIGH	Zfp82	ENSMUSG	Transcript	ENSMUS protein_coding
rs254207	1:580591	-	splice_donor_va	HIGH	Aox1	ENSMUSG	Transcript	ENSMUS protein_coding
rs226993	7:198576	-	splice_donor_va	HIGH	Gm19345	ENSMUSG	Transcript	ENSMUS protein_coding
rs218993	8:114140	-	splice_donor_va	HIGH	Col4a2	ENSMUSG	Transcript	ENSMUS protein_coding
rs232569	5:309541	-	splice_donor_va	HIGH	Abhd1	ENSMUSG	Transcript	ENSMUS protein_coding
rs226722	6:522606	CG	splice_donor_va	HIGH	Hoxa13	ENSMUSG	Transcript	ENSMUS protein_coding
rs256632	11:11844	-	splice_donor_va	HIGH	C1qtnf1	ENSMUSG	Transcript	ENSMUS protein_coding
rs260345	11:11944	-	splice_donor_va	HIGH	Rnf213	ENSMUSG	Transcript	ENSMUS protein_coding
rs260345	11:11944	-	splice_donor_va	HIGH	Rnf213	ENSMUSG	Transcript	ENSMUS protein_coding
rs256147	12:76031	-	splice_donor_va	HIGH	Syne2	ENSMUSG	Transcript	ENSMUS protein_coding
rs256147	12:76031	-	splice_donor_va	HIGH	Syne2	ENSMUSG	Transcript	ENSMUS protein_coding

rs245661	15:86299	-	splice_donor_va	HIGH	Tbc1d22a	ENSMUSG	Transcript	ENSMUS protein_coding
rs251770	2:618063	-	splice_donor_va	HIGH	Tbr1	ENSMUSG	Transcript	ENSMUS protein_coding
rs227938	6:135198	-	splice_donor_va	HIGH	Fam234b	ENSMUSG	Transcript	ENSMUS protein_coding
rs249261	17:25125	AGGC	stop_gained,fra	HIGH	Ptx4	ENSMUSG	Transcript	ENSMUS protein_coding
rs249261	17:25125	AGGC	stop_gained,fra	HIGH	Ptx4	ENSMUSG	Transcript	ENSMUS protein_coding
rs221437	8:930681	TTAG	stop_gained,fra	HIGH	Ces1b	ENSMUSG	Transcript	ENSMUS protein_coding
rs241001	1:132229	CTCCTA	stop_gained,infi	HIGH	Gm10188	ENSMUSG	Transcript	ENSMUS protein_coding
rs234463	13:76062	-	stop_lost,3_prin	HIGH	Arsk	ENSMUSG	Transcript	ENSMUS protein_coding
rs234463	13:76062	-	stop_lost,3_prin	HIGH	Arsk	ENSMUSG	Transcript	ENSMUS protein_coding
rs220140	4:834419	-	stop_lost,3_prin	HIGH	Snapc3	ENSMUSG	Transcript	ENSMUS protein_coding

Supplement Table S4a. The list of SZH related genes

GeneSymbol	Up/down
Abca1	up
Acox1	up
Aldh1l1	up
Anp32b	up
Aqp1	up
Atp1a2	up
Bag3	up
Bbx	up
Btg1	up
Cadm1	up
Clu	up
Crybg3	up
Ctbp2	up
Ddit4	up
Dhrs3	up
Dynlt1b	up
Echdc2	up
Edn1	up
Efemp1	up
Fam107a	up
Fermt2	up
Fyn	up
Gja1	up
Gmnn	up
Gmpr	up
Gng12	up
Gramd1c	up
Hmgb2	up
Hspb1	up
Id4	up
Ifitm1	up
Ifitm1	up
Iqgap1	up
Itgb4	up
Lgals3	up
Lpl	up
Mapre1	up
Med13l	up
Mt1	up
Nacc2	up
Necap2	up
Nipbl	up
Npas3	up

Nrxn3	up
Ntrk2	up
Oxtr	up
P4ha1	up
Palld	up
Pard3	up
Pdlim5	up
Plin2	up
Plin3	up
Plod2	up
Pon2	up
Ralgds	up
Rhobtb3	up
Ryr3	up
Scrg1	up
Selenbp1	up
Serpina3a	up
Smtn	up
Sox9	up
Tgif1	up
Tiparp	up
Tmem176a	up
Tnfrsf23	up
Tob2	up
Tra2a	up
Tulp3	up
Wfs1	up
Wnk1	up
Zhx2	up
Cd99	up
Notch2	up
Il17Rb	up
Txnip	up
Baz2B	up
Dcxr	up
Pbxip1	up
Acat3	down
Arl4c	down
Atp1b3	down
Atp6v1a	down
Atp6v1d	down
Atp8a2	down
Atrnl1	down
Bbs7	down
Bcl6	down
Blvra	down

Cacnb1	down
Clcn4	down
Crhbp	down
Cyp26b1	down
Diras2	down
Dlgap1	down
Dync1li1	down
Edn3	down
Egr1	down
Ensa	down
Ets2	down
Etv5	down
Fabp3	down
Fbxo9	down
Fbxw7	down
Fhl2	down
Glce	down
Hbq1b	down
Hint1	down
Idh3a	down
Itm2a	down
Kcnk1	down
Lbh	down
Lgals8	down
Lrrc17	down
Map2k4	down
Mpped2	down
Ndufb6	down
Nell1	down
Nmu	down
Nptx2	down
Npy	down
Nr4a2	down
Olfm1	down
Penk	down
Phtf1	down
Pias2	down
Pnoc	down
Prmt8	down
Prps1	down
Prss16	down
Slc25a12	down
Slc29a1	down
Smyd2	down
Snn	down
Sulf1	down

Syngr3	down
Tac1	down
Tbc1d9	down
Timm17a	down
Tnfsf10	down
Try10	down
Ube2d2a	down
Vsnl1	down
Tpbg	down
Snx10	down
Arpp19	down
Opn3	down
Cdc42	down
Prkacb	down
Reep1	down
Mcts1	down
Pvalb	down
Lrmp	down
Sts	down
Uchl5	down
Moap1	down

Supplement Table S4b. The list of ASD related genes

GeneSymbol	Up/down
Hspb1	up
Adam12	up
Slc2a5	up
Csf3r	up
Mapkapk2	up
Palld	up
Siglece	up
Col1a1	up
Sell	up
Foxj1	up
Apoe	up
Gypc	up
Ribc1	up
C3	up
Pgghg	up
Slc9a9	up
Pik3ap1	up
Bace2	up
Glis2	up
Agtrap	up
Arid5a	up
Hck	up
Ifi205	up
Phf21b	up
S100a3	up
Cebpd	up
Zfp36	up
Ngfr	up
Sla	up
Bves	up
Sgk1	up
Irf7	up
Plin3	up
Sectm1a	up
Tmem176a	up
Trim56	up
Il21r	up
Tlr5	up
Elf1	up
Cd93	up
Itgb2	up
Bcl6	up
Alpk1	up

Tnfaip3	up
Clic1	up
Pdk4	up
Lilra5	up
Abi3	up
Prrx2	up
Ptger4	up
Wee1	up
Rgs1	up
Gadd45b	up
Tead4	up
Ucp2	up
Ptprc	up
Hmox1	up
Dtx2	up
Batf2	up
Ifit1bl2	up
Spi1	up
Zfp36l1	up
Stab1	up
Cfap53	up
Gbp1	up
Oas2	up
Trpv4	up
Thbs1	up
Srgap1	up
Cdk2	up
Gpr84	up
Gipc3	up
Il4ra	up
Tgif1	up
Tm4sf1	up
Vasp	up
Cdkn1a	up
Lcp1	up
Rhpn2	up
Nuak2	up
Fosb	up
Alas2	up
Hamp	up
Tlr2	up
Parp9	up
Hap1	up
Havcr2	up
Gm49342	up
Eya2	up

Bcl2l12	up
Nfe2	up
C1ra	up
Sox4	up
Msn	up
Dnajb1	up
Plek	up
Fgf11	up
Tgm2	up
Epha2	up
Abhd4	up
Nfatc1	up
Tagln2	up
Ezh2	up
Osmr	up
Abca1	up
Tiparp	up
Dtx3l	up
Dbx2	up
Muc1	up
Gng5	up
C3ar1	up
Efhd1	up
Adamts9	up
Cfh	up
C4b	up
Kifc1	up
Nupr1	up
Dsc2	up
Cxcl11	up
Il1rl1	up
Fcgr1	up
Cyp4f18	up
Parp14	up
Ftl1-ps1	up
Eps8l1	up
Gja4	up
Mthfd2	up
Myof	up
Samd9l	up
Helz2	up
Sphk1	up
Prkx	up
Gbp2b	up
Was	up
Lat2	up

Sh3tc1	up
S100a8	up
Lix1	up
Mcl1	up
Il6	up
Batf	up
Mvp	up
Fgfrl1	up
Vdr	up
Cd37	up
Oscar	up
Lats2	up
Gadd45g	up
Bst2	up
Sp100	up
Pygl	up
Cfi	up
Cd5l	up
Ube2c	up
Gpr4	up
Ntn1	up
Tcirg1	up
Kif1c	up
Lyl1	up
Rhbdf2	up
Rab13	up
Ifi35	up
Fam124b	up
Msln	up
Wwtr1	up
Plekha4	up
Kif20a	up
Yap1	up
Spata13	up
Rfx4	up
Pi16	up
Plac8	up
Mfng	up
Gem	up
Pard3	up
Cxcl16	up
Npl	up
Anp32b	up
Itprip	up
Ifi44	up
Hlx	up

Spocd1	up
Gm5849	up
Mmp9	up
Ctsc	up
Rit2	down
Nap1l2	down
Kcnc1	down
Slc6a15	down
Slc6a7	down
Nomo1	down
Slc10a4-ps	down
Epha4	down
Apba2	down
Frmpd4	down
Kit	down
Slc17a6	down
Gabrd	down
Ckmt1	down
Sncg	down
Cplx2	down
Kcnv1	down
Rimkla	down
Atp2b3	down
Mllt11	down
Olfm3	down
Rtn4r	down
Fkbpl	down
Sez6l2	down
Cidea	down
Sult4a1	down
Smyd2	down
Syt1	down
Cdh22	down
Glrb	down
Gpat3	down