Supplementary Information for

The Crebbp acetyltransferase is a haploinsufficient tumor suppressor in B cell lymphoma

Jiyuan Zhang[1], Sofija Vlasevska[1], Victoria A. Wells[1], Sarah Nataraj[1], Antony B. Holmes[1], Romain Duval[1], Stefanie N. Meyer[1], Tongwei Mo[1], Katia Basso[1,2], Paul K Brindle[3], Shafinaz Hussein[4], Riccardo Dalla-Favera[1,2,5,6,7] and Laura Pasqualucci[1,2,7*]

[1] Institute for Cancer Genetics, Columbia University, New York, NY 10032, USA

[2] Department of Pathology and Cell Biology, Columbia University, New York, NY, 10032, USA

[3] Department of Biochemistry, St. Jude Children's Research Hospital, Memphis, TN

[4] Department of Pathology and Laboratory Medicine, NorthWell Health, Staten Island University Hospital, Staten Island, New York, USA

[5] Department of Genetics & Development, Columbia University, New York, NY, 10032, USA

[6] Department of Microbiology & Immunology, Columbia University, New York, NY, 10032, USA

[7] Herbert Irving Comprehensive Cancer Center, Columbia University, New York, NY, 10032, USA

*Correspondence: lp171@columbia.edu

SI Guide

SUPPLEMENTARY FIGURE LEGENDS

Supplementary Figure S1. CREBBP binds to GC-specific super-enhancers. ChIP-seq plots of CREBBP and H3K27Ac binding at genes associated with GC-specific super-enhancers (SE), as predicted by the ROSE algorithm. Read density tracks of BCL6, H3K4me1, H3K4me3 and H3K27me3 ChIP-Seq enrichment are also shown.

Supplementary Figure S2. CREBBP and EP300 expression in the B cell lineage. A, CREBBP and EP300 mRNA expression levels in naive, GC and memory B cells purified from reactive human tonsils, measured by RNA-seq (n = 3 donors each, representing 3 biological replicates; mean ± SD). Data were normalized to the total number of mapped reads in each sample and to the transcript size, and are expressed as reads per kilobase per million mapped reads (RPKM). **B**, CREBBP and EP300 protein expression in human naive, GC and memory B cells. BCL6 controls for the identity of the populations and tubulin serves as loading control. **C,** CREBBP and EP300 mRNA expression in GC dark zone (DZ) and light zone (LZ) B cells sorted from reactive human tonsils (left bars) or from the spleen of immunized mice (right bars), and analyzed by gene expression profiling using Affymetrix HG U133_plus 2 (human) or MG 430_2.0 (mouse) arrays (Accession No: GSE38697 and GSE38696, respectively). Data (MAS5-normalized) are expressed as linear absolute levels, and the probe ID is provided for each transcript (n = 3 donors/subset, representing biological replicates; mean ± SD). * $P < 0.05$, ** $P < 0.01$, Student's t-test. Only statistically significant differences are indicated. **D,** CREBBP and EP300 mRNA expression levels during hematopoietic development in the mouse, as obtained from the Immgen.org database at https://www.immgen.org/. All data were generated on the Affymetrix Mouse Gene 1.0ST array.

Supplementary Figure S3. GSEA of *Crebbp*-conditional knockout GC B cells and human GC DZ vs LZ cells. A, Enrichment plots of selected gene sets in the rank of genes differentially expressed between *Crebbp*$^{fl/fl}$ *Cγ1-Cre* (KO) and *Crebbp*$^{+/+}$ *Cγ1-Cre* (WT) GC B cells. The preferential enrichment of previously identified FOXO1-bound genes in the *Crebbp*-proficient cells may reflect subtle changes imposed by *Crebbp* loss on transcription, which were not detected in the less sensitive, supervised gene expression analysis. **B**, Enrichment plots of the top 500 CREBBP-bound genes in the rank of genes differentially expressed between GC DZ and LZ cells (left panel). The analysis was performed separately with the top 500 genes bound by CREBBP at promoter regions (middle panel) or at TSS-distal, putative enhancer regions (right panel). Bound genes were identified as described in Methods and were ranked based on increasing P value.

Supplementary Figure S4. Analysis of GC B cell responses in *Crebbp*$^{fl/fl}$ *Cγ1-Cre* and *CD19-Cre* cohorts. A, Immunofluorescence staining of CREBBP and EP300 in representative spleen sections from SRBC immunized *Cγ1-Cre* mice. PNA (green) identifies the GC area (outlined). **B**, Representative flow cytometric analysis of splenic B220^{+} cells from 12-16 week-old *Crebbp*$^{+/+}$ (WT), *Crebbp*$^{fl/+}$ (HET), and *Crebbp*$^{fl/fl}$ (KO) *Cγ1-Cre* mice analyzed 10 days after SRBC immunization. GC B cells are identified as CD95^{+}PNA^{hi} cells, and numbers in each panel indicate the percentage in the gate. **C**, Percentage of GC B cells in mice from the indicated genotypes, analyzed at 3 months of age, 10 days after SRBC immunization. **D**, Representative contour plots of GC B cell DZ (CXCR4^{hi}CD86^{lo}) and LZ (CXCR4^{lo}CD86^{hi}) populations in *Cγ1-*

Cre mice of the indicated genotypes, analyzed 10 days after SRBC immunization according to an established gating strategy (1-3); cells are gated on the $B220^{+}CD95^{+}PNA^{hi}$ population, and numbers in each panel indicate the percentage in the DZ and LZ gates. **E**, Western blot analysis of Crebbp and Ep300 in sorted GC B cells from *Crebbp*$^{+/+}$ (WT), *Crebbp*$^{fl/+}$ (HET), and *Crebbp*$^{fl/fl}$ (KO) *CD19-Cre* mice. The relative intensity of the bands is quantified below the image after normalization for the loading control, with the wild type band arbitrarily set as 1. Bcl6 serves as control for the identity of the population. **F**, Representative flow cytometric analysis of splenic $B220^{+}$ cells from 12-16 week-old mice of the indicated genotypes in the *CD19-Cre* cohort, analyzed 10 days after SRBC immunization. **G**, Percentage of GC B cells in mice from the indicated genotypes, analyzed at 3 months of age, 10 days after SRBC immunization. **H**, Analysis of DZ and LZ GC B cells in the *CD19-Cre* cohort. In all panels, *ns* denotes not significant, as calculated by one-way ANOVA.

Supplementary Figure S5. Analysis of plasma cell differentiation in *Crebbp*$^{fl/fl}$ Cγ1-Cre and CD19 cohorts. A, Representative flow cytometric analysis of splenic plasma cells and surface $IgG1^{+}$ B cells in *Crebbp*$^{+/+}$ (WT), *Crebbp*$^{fl/+}$ (HET), and *Crebbp*$^{fl/fl}$ (KO) *Cγ1-Cre* mice. Numbers denote the percentage of cells within the gate, relative to total lymphocytes. **B**, Percentage (top) and absolute number (bottom) of bone marrow (BM) plasma cells in 12-16 week-old mice of the indicated genotypes, analyzed 10 days after SRBC immunization. Each symbol represents one mouse, and the horizontal bar denotes the mean. **C**, Quantification of frequencies (top) and absolute numbers (bottom) of splenic plasma cells, BM plasma cells, and $IgG1^{+}$ B cells in the *CD19-Cre* cohort, illustrated as in **B** (cumulative data from at least two independent experiments performed on 3-4 mice each, 10 days after SRBC immunization; data for BM plasma cells are also provided at day 7 post-secondary immunization in the far right panels). As reported, *Crebbp*$^{fl/fl}$ *CD19-Cre* mice show reduced percentages and numbers of $B220^{+}$ cells (not shown) (4), impacting on the number of all mature B cell subsets. * $P < 0.05$, *** $P < 0.005$, one-way ANOVA. **D**, Antibody titers in the serum of 12-16 week-old *Crebbp-floxed CD19-Cre* mice, measured before (top) and 14 days after (bottom) immunization with the T-cell specific NP-KLH hapten. IgG3 and IgA titers were only obtained from 5 of the 6, *Crebbp* KO animals, due to insufficient amounts of serum. * $P < 0.05$, ** $P < 0.01$, Student's *t*-test. Only statistically significant differences are highlighted in the figure.

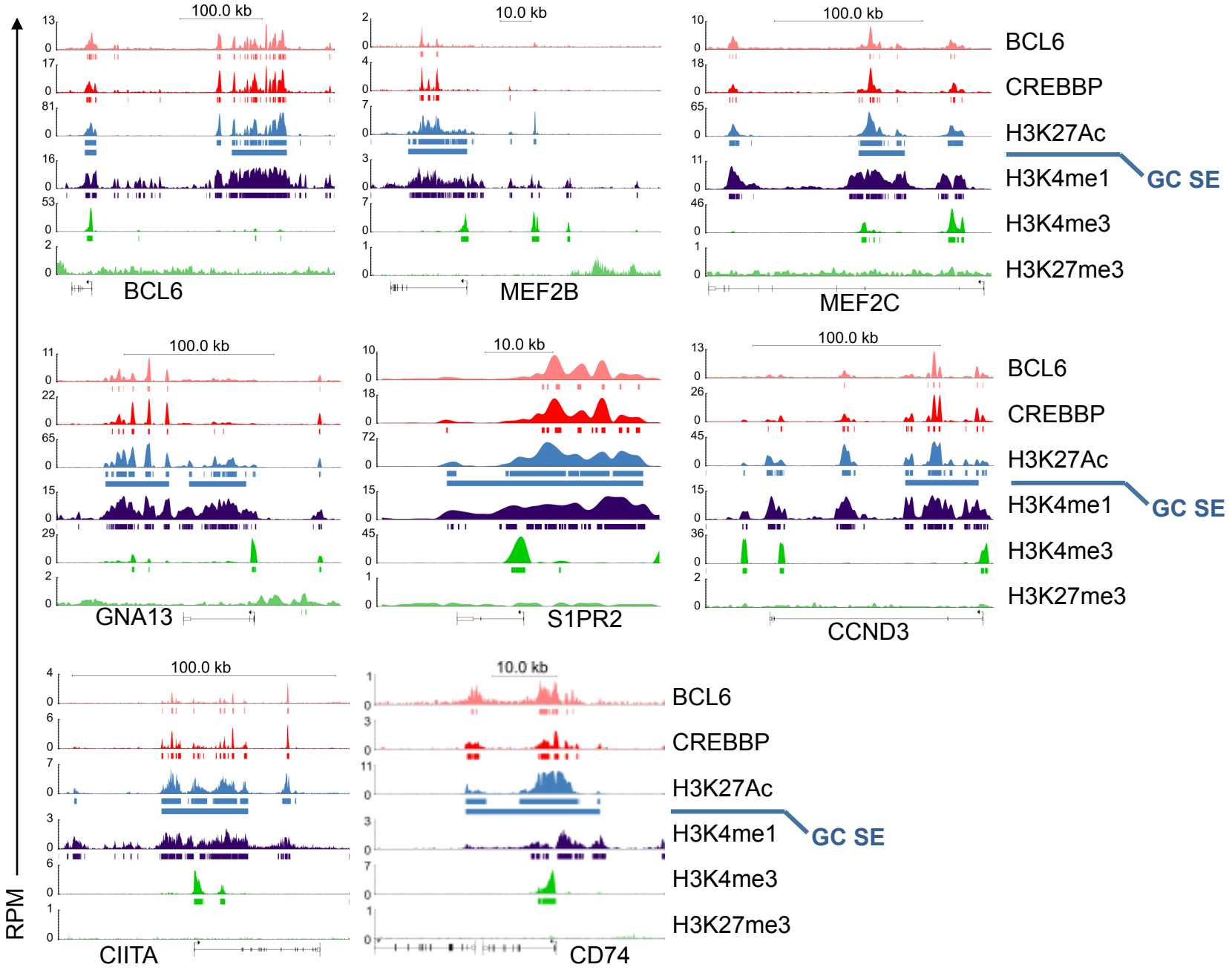
Supplementary Figure S6. Distribution pattern of *CREBBP* mutations in FL and *de novo* DLBCL. A, Percentage of *CREBBP* mutated samples showing monoallelic (red) vs biallelic (grey) mutations in DLBCL and FL/transformed FL (tFL). The total number of cases analyzed is given below the pie. **B**, Overall percentage of *CREBBP/EP300* mutated cases harboring concurrent chromosomal translocations of *BCL2* in FL, GCB-DLBCL and ABC-DLBCL. Data in the left panel refer to CREBBP mutated/deleted cases, while data in the right panel also include EP300 mutated cases. **C**, Distribution of *CREBBP* mutations, *EP300* mutations and *BCL2* chromosomal translocations in FL, GCB-DLBCL and ABC-DLBCL samples. In the heatmap, each column represents one case, and color codes denote the presence (red) or absence (white) of the genetic lesion. Tx, translocation; M, mutation; D, deletion. Only cases with available information for all indicated lesions were included in the analysis displayed in panels **B** and **C**. DLBCL data integrate published studies by our group, while data on FL cases derive from Morin et al., Nature 2011.

Supplementary Figure S7. Analysis of *Crebbp* conditional knock-out tumor cohorts. A, Event-free survival curve in *Crebbp*$^{fl/fl}$*Cγ1-Cre* and compound *Crebbp*$^{fl/+}$*Cγ1-Cre/VavP-BCL2* cohorts. Statistical significance was assessed using a long-rank (Mantel-Cox) test and showed no differences between genotypes within each cohort. **B**, Spleen/body weight ratio in compound *Crebbp*$^{fl/+}$*Cγ1-Cre/VavP-BCL2* and *Crebbp*$^{+/+}$*Cγ1-Cre/VavP-BCL2* animals. **C**, Histologic and immunohistochemical characterization of a representative lymphoma showing plasmacytic features in the *Crebbp*$^{+/+}$*Cγ1-Cre/VavP-BCL2* cohort (4X magnification; scale bar, 500μm; H&E staining is also shown at 40X magnification). Tumors show diffuse infiltration by proliferating (Ki67^{+}) cells with plasmacytic morphology, which lack the B cell markers B220 and Pax5, as well as the GC B cell marker Bcl6, and express Irf4; positivity for the human BCL2 protein confirms the expression of the BCL2 transgene in the tumor cells. A normal spleen (top right panel) serves as negative control for the Irf4 staining. **D**, Western blot analysis of H3K27 acetylation in purified B220^{+} splenocytes from *Crebbp*$^{+/+}$ (WT), *Crebbp*$^{fl/+}$ (HET), and *Crebbp*$^{fl/fl}$ (KO) *CD19-Cre* mice. Quantification of signal intensity, after normalization for total histones, is provided in panel **E** (color codes as in D).

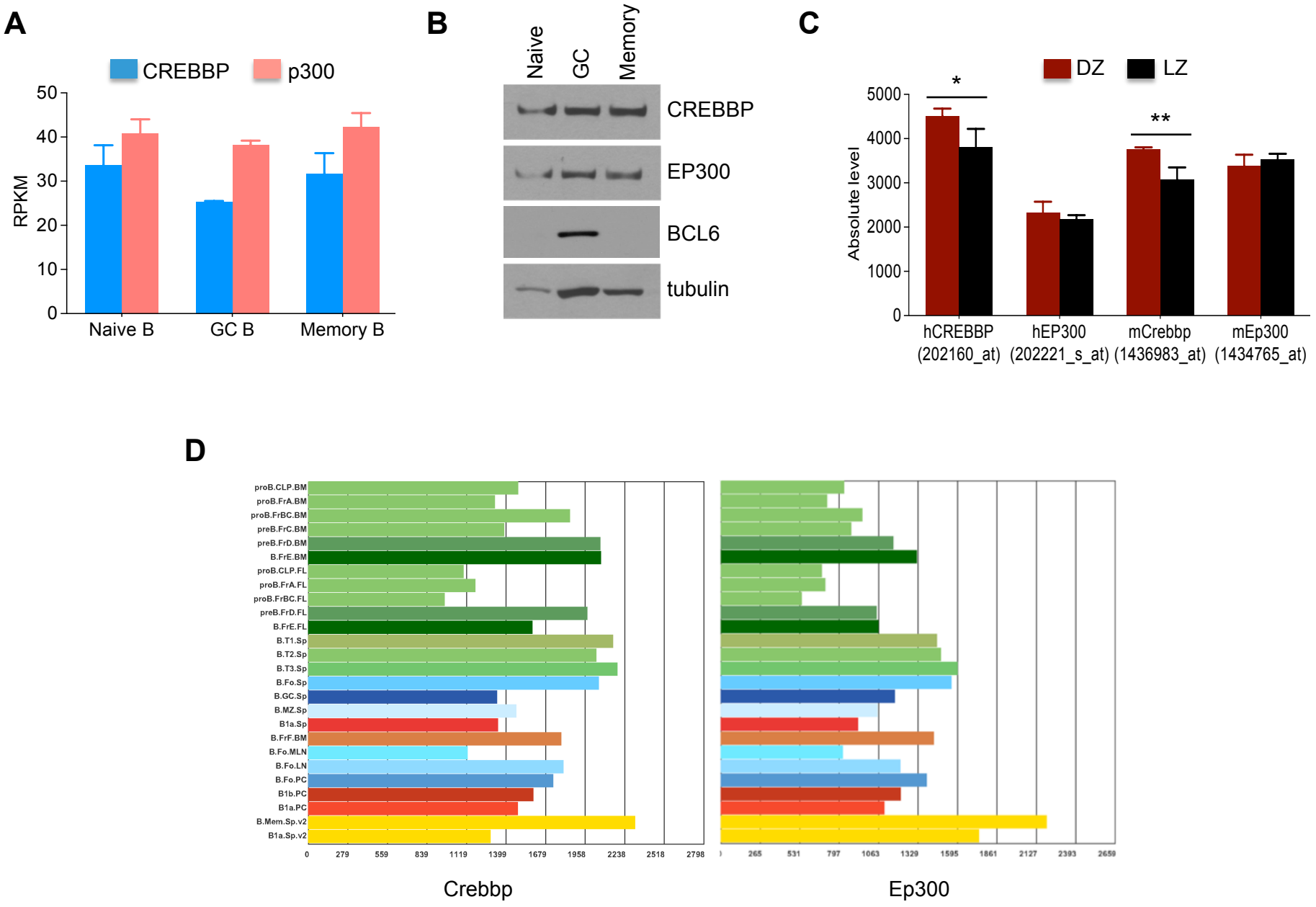
Supplementary References

1. Victora GD, Dominguez-Sola D, Holmes AB, Deroubaix S, Dalla-Favera R, Nussenzweig MC. Identification of human germinal center light and dark zone cells and their relationship to human B-cell lymphomas. Blood **2012**;120(11):2240-8 doi 10.1182/blood-2012-03-415380.
2. Victora GD, Schwickert TA, Fooksman DR, Kamphorst AO, Meyer-Hermann M, Dustin ML*, et al.* Germinal center dynamics revealed by multiphoton microscopy with a photoactiva fluorescent reporter. Cell **2010**;143(4):592-605 doi 10.1016/j.cell.2010.10.032.
3. Allen CD, Ansel KM, Low C, Lesley R, Tamamura H, Fujii N*, et al.* Germinal center dark and light zone organization is mediated by CXCR4 and CXCR5. Nat Immunol **2004**;5(9):943-52 doi 10.1038/ni1100.
4. Xu W, Fukuyama T, Ney PA, Wang D, Rehg J, Boyd K*, et al.* Global transcriptional coactivators CREB-binding protein and p300 are highly essential collectively but not individually in peripheral B cells. Blood **2006**;107(11):4407-16 doi 10.1182/blood-2005-08-3263.
5. Spina V, Khiabanian H, Messina M, Monti S, Cascione L, Bruscaggin A*, et al.* The genetics of nodal marginal zone lymphoma. Blood **2016**;128(10):1362-73 doi 10.1182/blood-2016-02-696757.

Supplementary Fig. S1

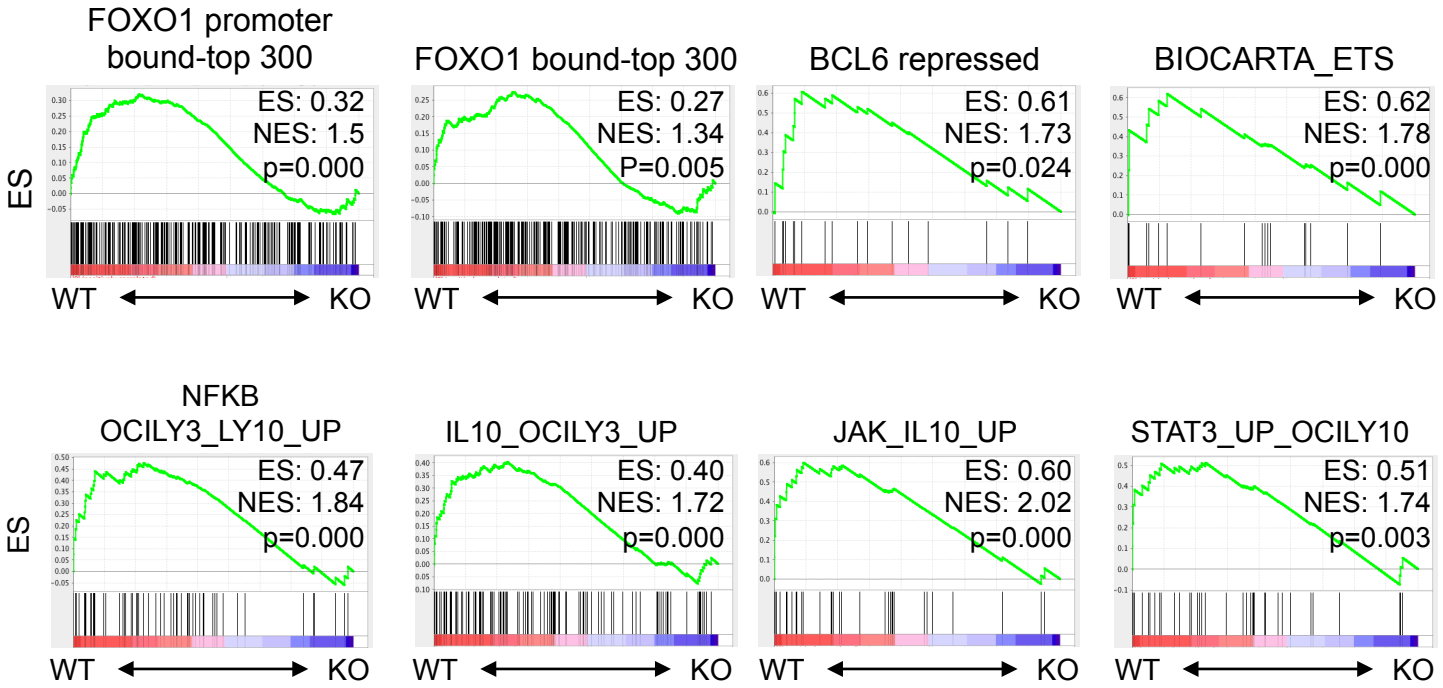


Supplementary Fig. S2

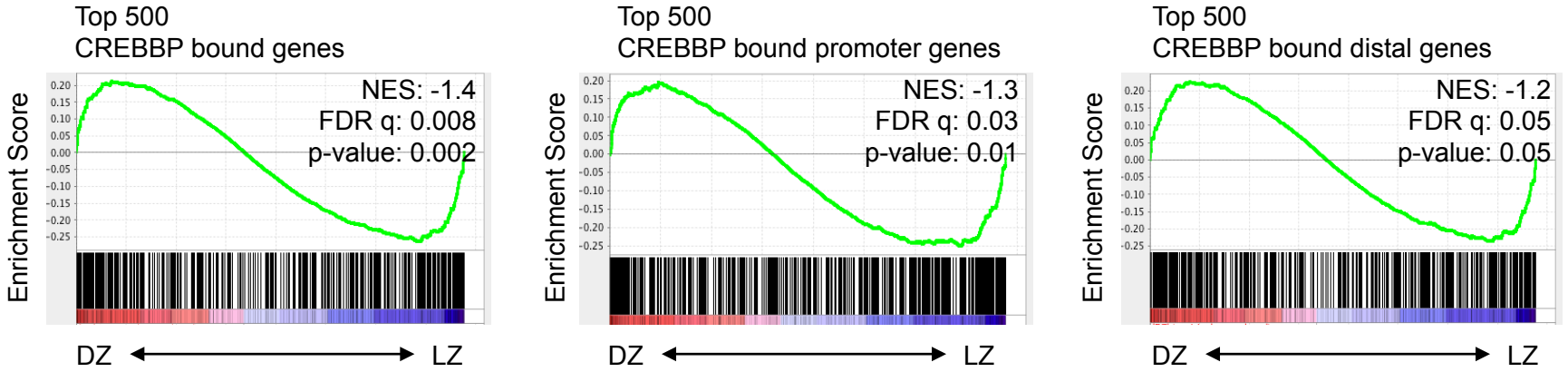


Supplementary Fig. S3

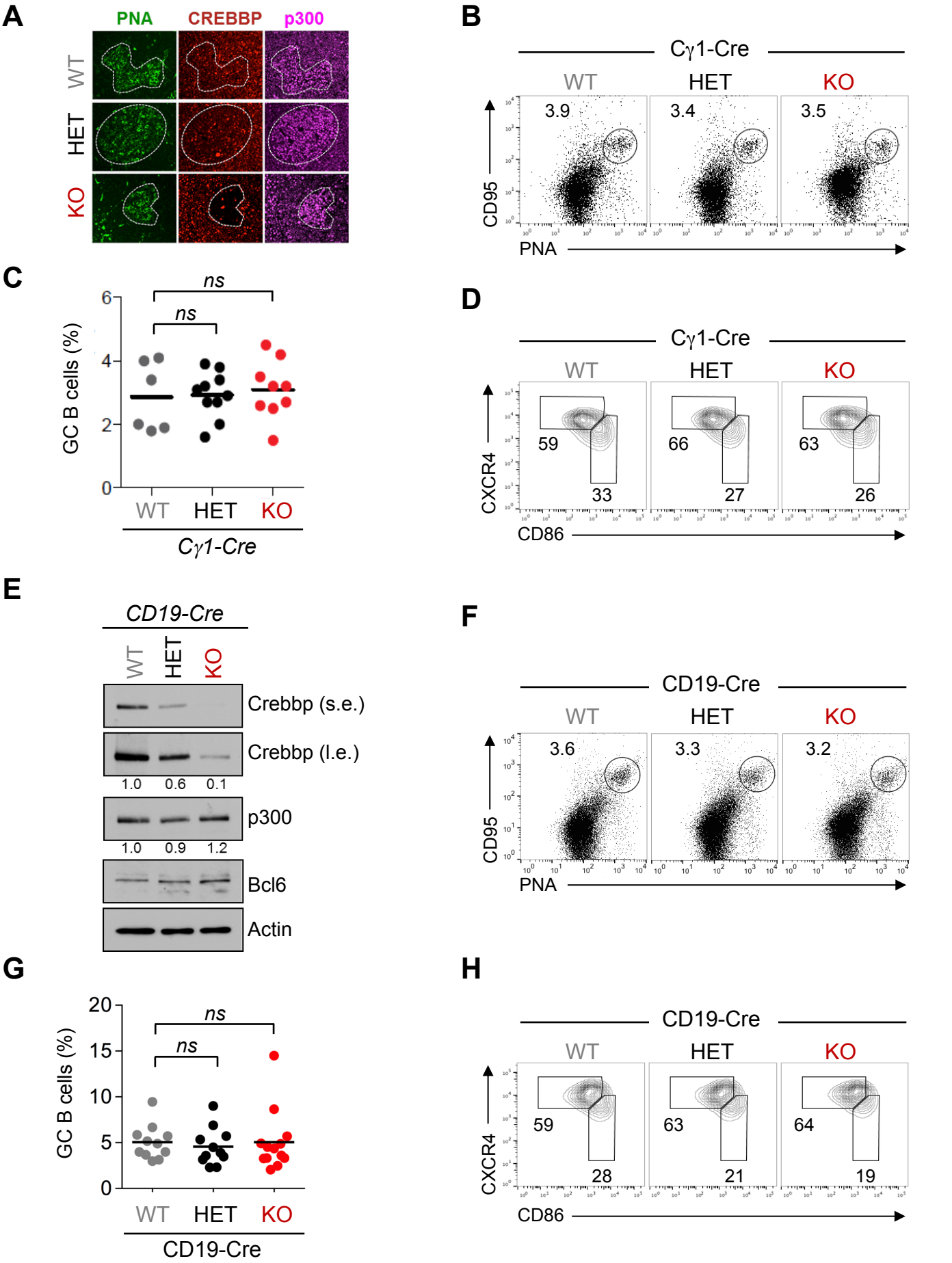
A



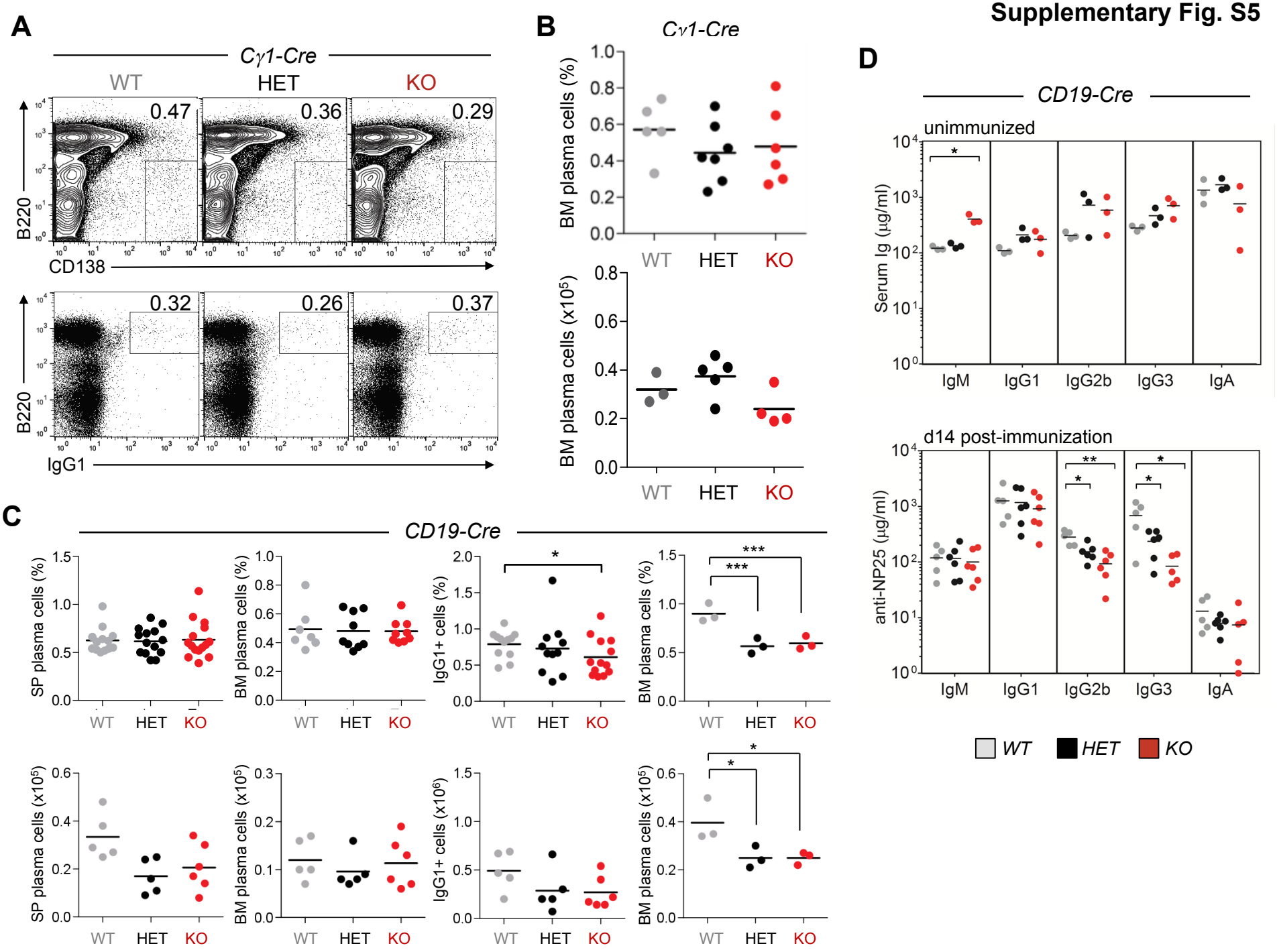
B



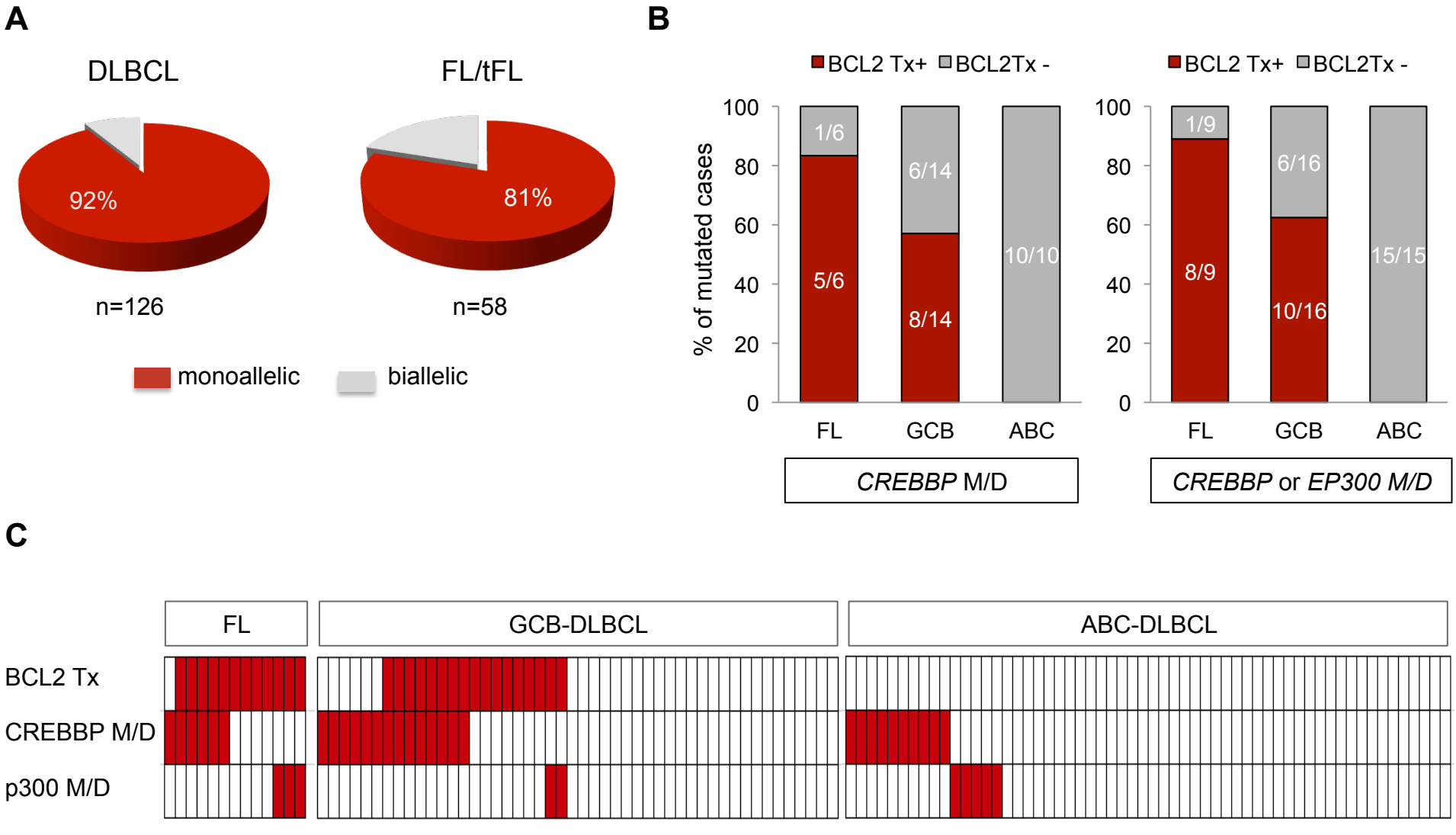
Supplementary Fig. S4



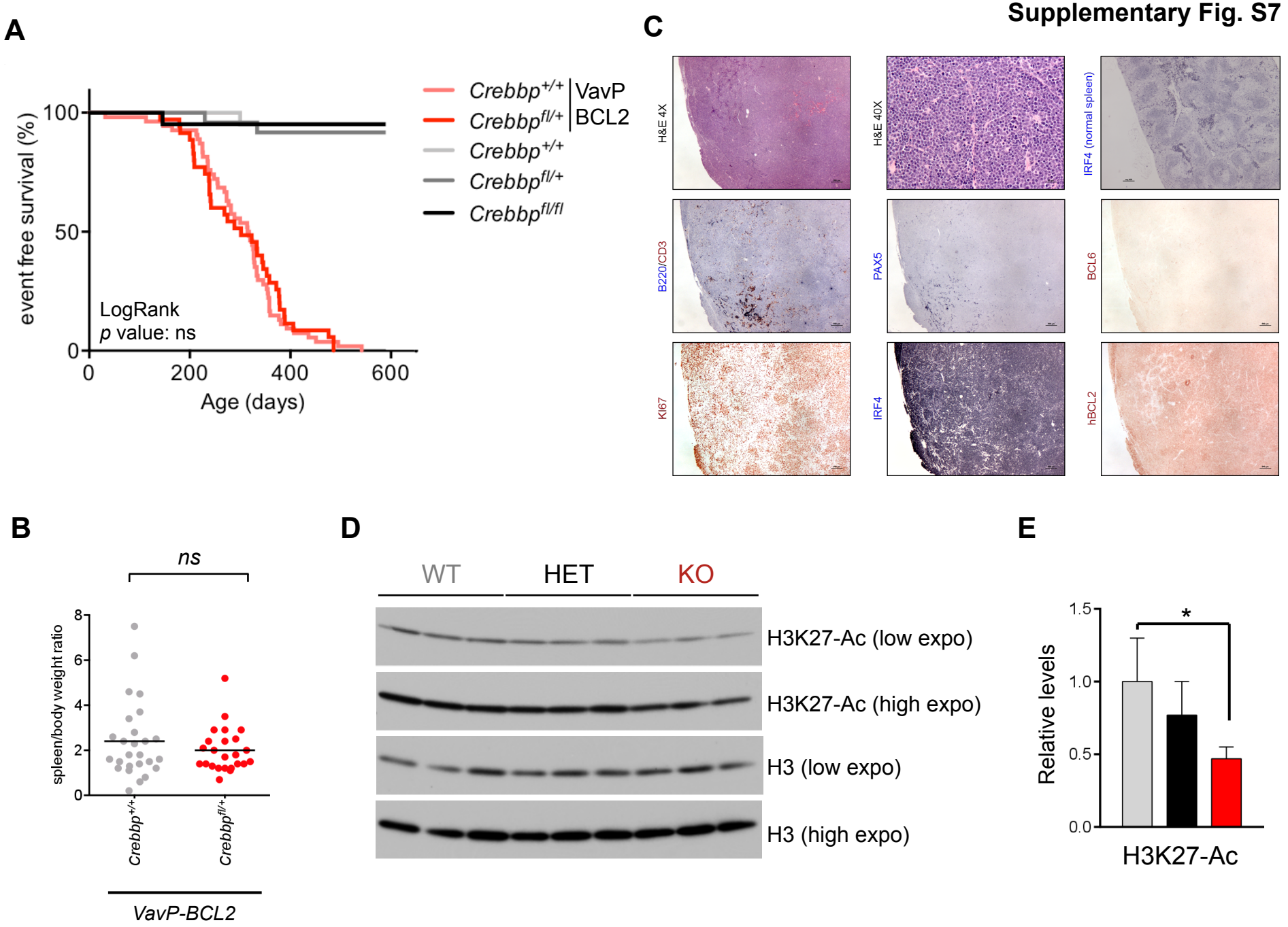
Supplementary Fig. S5



Supplementary Fig. S6



Supplementary Fig. S7



Supplementary Table 1. Overlap between CREBBP bound regions and predicted super-enhancers in GC B cells

GC Superenhancer Region	Region ID	Enhancer Size (bp)	Enhancer Rank	CREBBP-bound Region	1st Closest Gene Symbol	1st Closest RefSeq	Distance from 1st closest TSS (in bp)	2nd Closest Gene Symbol	2nd Closest RefSeq	Distance from 2nd closest TSS (in bp)
chr3:187634803-187701328	20_peak_19719_lociStitched	47351	1	chr3:187691675-187693050	LPP	NM_001167672	-203596	BCL6	NM_001706	-204552
chr1:226814673-226929449	30_peak_13630_lociStitched	56346	2	chr1:226862618-226864562	ITPKB	NM_002221	54815	PSEN2	NM_000447	-186212
chr16:81807830-81876383	20_peak_7781_lociStitched	43083	3	chr16:81831859-81832992	PLCG2	NM_002661	29243	LOC100129617	NR_045112	143147
chr9:37363349-37419965	16_peak_27441_lociStitched	39821	4	chr9:37370403-37372343	GRHPR	NM_012203	-31050	ZBTB5	NM_014872	73750
chr12:122417604-122470895	13_peak_4039_lociStitched	29205	5	chr12:122441961-122444912	BCL7A	NM_020993	-15612	MLXIP	NM_014938	-72385
chr3:16452397-16564948	41_peak_18202_lociStitched	44143	6	chr3:16552918-16554677	RFTN1	NM_015150	46550	DAZL	NM_001190811	137625
chr11:65170627-65211670	4_peak_1865_lociStitched	22144	7	chr11:65189405-65190492	NEAT1	NR_028272	879	FRMD8	NM_001300832	37107
chr3:183229333-183311172	25_peak_19634_lociStitched	37561	8	chr3:183296109-183296953	KLHL6	NM_130446	3247	KLHL24	NM_017644	-83159
chr1:198588311-198665343	22_peak_13245_lociStitched	34995	9	chr1:198589906-198591017	PTPRC	NM_001267798	18729	ATP6V1G3	NM_133262	-116752
chr3:186703597-186762622	12_peak_19701_lociStitched	38237	10	chr3:186733643-186734782	ST6GAL1	NM_003032	-6556	RPL39L	NM_052969	124154
chr3:111827880-111856110	3_peak_19006_lociStitched	24965	11	chr3:111832752-111833770	GCSAM	NM_001190260	10157	C3ORF52	NM_001171747	36813
chr2:47915712-47993756	17_peak_16106_lociStitched	34764	12	chr2:47951262-47952115	MSH6	NM_001281492	-55487	FBXO11	NM_025133	161124
chr9:132747088-132808043	24_peak_28174_lociStitched	37931	13	chr9:132801722-132802217	FNBP1	NM_015033	27908	GPR107	NM_001287346	-38420
chr1:31202836-31236056	4_peak_11613_lociStitched	21495	14	chr1:31226216-31228630	LAPTM5	NM_006762	11237	MATN1	NM_002379	-23014
chr1:40845266-40870377	3_peak_11814_lociStitched	22234	15	chr1:40851238-40852025	SMAP2	NM_001198979	-1196	ZFP69B	NM_023070	-58516
chr1:203242441-203297285	13_peak_13307_lociStitched	24469	16	chr1:203258381-203259915	LINC01136	NR_034150	4590	BTG2	NM_006763	-4801
chr4:40175036-40209614	7_peak_20272_lociStitched	22612	17	chr4:40197933-40198760	RHOH	NM_001278368	-306	LOC344967	NR_027277	-133506
chr17:5101124-5146940	14_peak_8088_lociStitched	23778	18	chr17:5114047-5115091	SCIMP	NM_207103	14123	LOC100130950	NR_034082	28653
chr2:87767681-87825327	15_peak_16573_lociStitched	27143	19	chr2:87820268-87820984	LINC00152	NR_024206	41530	PLGLB2	NM_002665	-251102
chr6:24883450-24950062	11_peak_22914_lociStitched	30778	20	chr6:24935970-24936432	FAM65B	NM_014722	-5358	GMNN	NM_001251991	141115
chr2:89127647-89169776	16_peak_16602_lociStitched	32625	21	chr2:89145265-89145824	ANKRD36BP2	NR_015424	83292	RPIA	NM_144563	157535
chr14:22944123-23004250	20_peak_4917_lociStitched	37623	22	chr14:22950216-22951021	DAD1	NM_001344	83957	ABHD4	NM_022060	-92961
chr12:129267780-129315776	13_peak_4156_lociStitched	22518	23	chr12:129280335-129281482	SLC15A4	NM_145648	16763	GLT1D1	NM_144669	-46303
chr12:113487078-113536593	20_peak_3890_lociStitched	34067	24	chr12:113524123-113525306	DTX1	NM_004416	16173	RASAL1	NM_001301202	61569
chr9:36992298-37037830	10_peak_27404_lociStitched	34028	25	chr9:37036906-37037599	PAX5	NM_001280550	19412	EBLN3	NR_036592	-64829
chr2:233924512-233966130	8_peak_17899_lociStitched	26101	26	chr2:233946688-233947690	INPP5D	NM_005541	20644	NEU2	NM_005383	47939
chr4:25858961-25882710	3_peak_20178_lociStitched	21244	27	chr4:25879959-25881084	SEL1L3	NM_001297592	-5618	SMIM20	NM_001145432	-44979
chr5:124037564-124085364	14_peak_21931_lociStitched	23091	28	chr5:124079729-124080492	ZNF608	NM_020747	19341	CSNK1G3	NM_004384	1180353
chr12:25145988-25179348	8_peak_2933_lociStitched	21211	29	chr12:25158279-25158777	C12ORF77	NM_001101339	-12295	BCAT1	NM_001178092	-60275
chr22:42315186-42337470	5_peak_15441_lociStitched	20228	30	chr22:42315174-42318076	TNFRSF13C	NM_052945	-3507	SHISA8	NM_001207020	-15657
chr16:85921669-85951493	4_peak_7844_lociStitched	15667	31	chr16:85941387-85942896	IRF8	NM_002163	3807	COX4I1	NM_001861	103408
chr6:90982711-91039522	14_peak_23684_lociStitched	23869	32	chr6:90995509-90996238	BACH2	NM_001170794	-4489	MAP3K7	NM_145333	285904
chr19:10330587-10359549	5_peak_10104_lociStitched	20414	33	chr19:10346603-10347459	S1PR2	NM_004230	-3120	MRPL4	NM_015956	-17572
chr3:72126090-72152127	3_peak_18876_lociStitched	19131	34	chr3:72126675-72128315	LINC00870	NR_038221	-61300	RYBP	NM_012234	356666
chr1:51955913-51984440	8_peak_11973_lociStitched	20994	35	chr1:51982921-51984357	EPS15	NM_001981	14819	OSBPL9	NM_148908	-112370
chr2:65581965-65649226	25_peak_16352_lociStitched	29310	36	chr2:65592188-65592972	SPRED2	NM_001128210	-21664	ACTR2	NM_005722	160766
chr17:62953421-62995667	9_peak_8929_lociStitched	19677	37	chr17:62971032-62972320	AMZ2P1	NR_026903	-2841	LRRC37A3	NM_199340	-59641
chr19:2060970-2096575	5_peak_9902_lociStitched	18067	38	chr19:2086075-2088030	MOB3A	NM_130807	17497	IZUMO4	NM_001031735	-18096
chr17:75435044-75470414	11_peak_9155_lociStitched	22274	39	chr17:75436594-75438304	SEPT9	NM_001293698	2654	LOC100507351	NR_040050	-90294
chr5:158467004-158533819	15_peak_22417_lociStitched	28054	40	chr5:158479598-158480676	EBF1	NM_182708	26377	RNF145	NM_001199382	134245
chr20:49414797-49439114	6_peak_14384_lociStitched	18039	41	chr20:49431651-49432683	BCAS4	NM_001010974	15524	PARD6B	NM_032521	78874
chr5:150575564-150637765	14_peak_22289_lociStitched	23886	42	chr5:150590561-150592025	CCDC69	NM_015621	-3010	GM2A	NM_000405	-25949
chr13:74517881-74573984	15_peak_4663_lociStitched	22589	43	chr13:74561669-74562284	KLF12	NM_007249	162134	LINC00381	NR_047005	-447378
chr2:135007573-135053010	10_peak_17052_lociStitched	20352	44	chr2:135010908-135011797	MGAT5	NM_002410	18461	TMEM163	NM_030923	446280
chr11:64615389-64645020	12_peak_1828_lociStitched	24676	45	chr11:64618493-64619818	EHD1	NM_006795	16036	CDC42BPG	NM_017525	-18163
chr6:159223905-159248388	5_peak_24256_lociStitched	16669	46	chr6:159229853-159230354	EZR-AS1	NR_102425	-2865	EZR	NM_003379	3194
chr4:40290008-40319279	4_peak_20280_lociStitched	14128	47	chr4:40307193-40308318	CHRNA9	NM_017581	-32703	RHOH	NM_004310	106116
chr16:10958561-10991465	5_peak_6957_lociStitched	25335	48	chr16:10990004-10990932	CIITA	NM_001286403	3958	TVP23A	NM_001079512	-62392

chr3:133184525-133211509	7_peak_19242_lociStitched	18564	49	chr3:133185219-133187062	BFSP2	NM_003571	79178	CDV3	NM_001134422	-94417
chr14:69252057-69302988	13_peak_5372_lociStitched	21360	50	chr14:69262149-69263303	ZFP36L1	NM_001244701	-14562	ACTN1	NM_001130005	168561
chr17:37909853-37957242	15_peak_8521_lociStitched	19527	51	chr17:37911300-37913067	IKZF3	NM_001284516	931	GRB7	NM_001242443	37327
chr17:56405562-56422747	3_peak_8811_lociStitched	15160	52	chr17:56415822-56417181	BZRAP1-AS1	NR_038416	-409	BZRAP1	NM_024418	-8002
chr12:48197446-48231469	5_peak_3135_lociStitched	17831	53	chr12:48206556-48207871	HDAC7	NM_001098416	-694	SLC48A1	NM_017842	47490
chr2:60563622-60599489	9_peak_16198_lociStitched	14774	54	chr2:60577801-60581599	BCL11A	NM_018014	199078	PAPOLG	NM_022894	-401810
chr8:81050387-81083713	13_peak_26554_lociStitched	20221	55	chr8:81082571-81083533	TPD52	NR_105037	16385	MRPS28	NM_014018	-124544
chr6:159500969-159549089	6_peak_24271_lociStitched	13935	56	chr6:159527666-159528913	TAGAP	NM_138810	-58845	RSPH3	NM_031924	-103831
chr3:187802002-187827923	6_peak_19746_lociStitched	12400	57	chr3:187802725-187803499	LPP	NM_001167672	-56699	LPP-AS2	NR_036497	56914
chr2:112182620-112239276	20_peak_16876_lociStitched	23856	58	chr2:112210590-112211341	BCL2L11	NM_001204113	332457	ACOXL	NM_001142807	720798
chr10:11704426-11741760	10_peak_172_lociStitched	18712	59	chr10:11726139-11727540	ECHDC3	NM_024693	-61263	PROSER2	NM_153256	-142304
chr1:204449879-204493566	12_peak_13332_lociStitched	16918	60	chr1:204463996-204464927	PIK3C2B	NM_002646	-12248	MDM4	NM_001204172	-13785
chr5:149778449-149799343	4_peak_22256_lociStitched	12636	61	chr5:149790313-149791448	CD74	NM_001025158	3603	RPS14	NM_005617	40423
chr8:27216935-27247989	6_peak_26080_lociStitched	21969	62	chr8:27223433-27224594	PTK2B	NM_173175	49381	TRIM35	NM_171982	-63628
chr12:25203833-25224426	6_peak_2936_lociStitched	11382	63	chr12:25205283-25205710	LRMP	NM_001204127	8948	C12ORF77	NM_001101339	-63756
chr14:107151109-107184536	9_peak_5859_lociStitched	13778	64	chr14:107169818-107170595	LINC00221	NR_027457	229377	LINC00226	NR_033375	423553
chr14:106025357-106053049	9_peak_5831_lociStitched	19199	65	chr14:106026281-106027311	TMEM121	NM_025268	46250	C14ORF80	NM_001134876	81617
chr3:58309520-58343311	9_peak_18743_lociStitched	20813	66	chr3:58335213-58336072	PXK	NM_001289101	7798	RPP14	NR_049758	34443
chr8:96142580-96193834	9_peak_26663_lociStitched	22067	67	chr8:96177280-96178272	PLEKHF2	NM_024613	22258	LINC01298	NR_046232	60395
chr19:35807438-35840817	9_peak_10537_lociStitched	16829	68	chr19:35814131-35815393	CD22	NM_001185101	4055	FFAR1	NM_005303	-18318
chr3:31957712-32014356	22_peak_18386_lociStitched	21986	69	chr3:31993456-31994217	ZNF860	NM_001137674	-37232	OSBPL10	NM_001174060	37308
chr12:92528054-92567303	7_peak_3557_lociStitched	13898	70	chr12:92566051-92566919	BTG1	NM_001731	-8005	C12ORF79	NM_001256374	-11231
chr9:140599495-140657557	7_peak_28343_lociStitched	15232	71	chr9:140632699-140633237	EHMT1-IT1	NR_024341	-28948	CACNA1B	NM_001243812	-143715
chr14:94425211-94445807	7_peak_5647_lociStitched	16164	72	chr14:94442324-94443223	ASB2	NM_001202429	7567	LINC00521	NR_024182	-28107
chr15:75066772-75091186	6_peak_6477_lociStitched	18702	73	chr15:75078758-75082823	CSK	NM_004383	4554	LMAN1L	NM_021819	-26215
chr11:73683412-73723240	8_peak_2075_lociStitched	13970	74	chr11:73691022-73691792	UCP2	NM_003355	-9437	UCP3	NM_003356	16956
chr20:36691582-36724631	9_peak_14163_lociStitched	17096	75	chr20:36692194-36692636	RPRD1B	NM_021215	46158	TTI1	NM_014657	-46273
chr2:12171322-12198292	3_peak_15697_lociStitched	14557	76	chr2:12172091-12173031	LPIN1	NM_145693	298085	NTSR2	NM_012344	-374478
chr5:66462229-66518485	11_peak_21503_lociStitched	18917	77	chr5:66495755-66496871	CD180	NM_005582	2260	MAST4	NM_001297651	189909
chr9:93556149-93594120	12_peak_27683_lociStitched	23787	78	chr9:93593070-93593770	SYK	NM_001174168	10925	DIRAS2	NM_017594	-170026
chr7:102042681-102087360	12_peak_25376_lociStitched	16703	79	chr7:102065186-102067350	ORAI2	NM_032831	-8957	ALKBH4	NM_017621	40301
chr7:105689417-105731764	12_peak_25440_lociStitched	21023	80	chr7:105698344-105699247	SYPL1	NM_182715	42201	CDHR3	NM_001301161	106933
chr5:118667396-118704022	11_peak_21874_lociStitched	20778	81	chr5:118691650-118692359	TNFAIP8	NM_001286813	-4759	HSD17B4	NM_001199292	-102429
chr20:37468712-37522542	12_peak_14181_lociStitched	20292	82	chr20:37503766-37504614	FAM83D	NM_030919	-59328	DHX35	NM_001190809	-95354
chr8:142089845-142135595	15_peak_27052_lociStitched	19150	83	chr8:142128795-142130308	DENND3	NM_014957	-26000	SLC45A4	NM_001080431	125953
chr15:89175886-89200676	7_peak_6670_lociStitched	15104	84	chr15:89184693-89185540	ISG20	NM_002201	6242	AEN	NM_022767	23754
chr14:106145679-106173203	7_peak_5841_lociStitched	20759	85	chr14:106146712-106147661	ELK2AP	NR_046211	-20297	TMEM121	NM_025268	166488
chr22:23191814-23249826	16_peak_15039_lociStitched	24017	86	chr22:23243646-23244564	IGLL5	NM_001256296	-9140	GNAZ	NM_002073	-191849
chr16:21367551-21392656	3_peak_7143_lociStitched	15145	87	chr16:21370888-21372011	SNX29P1	NR_045011	19419	CRYM	NM_001888	-65646
chr14:68732869-68773164	7_peak_5343_lociStitched	16465	88	chr14:68751555-68752675	RAD51B	NM_002877	466520	ZFYVE26	NM_015346	-469710
chr2:24538195-24583954	16_peak_15790_lociStitched	19788	89	chr2:24577804-24578492	ITSN2	NM_019595	22323	FAM228A	NM_001040710	163102
chr13:46944351-46976440	7_peak_4533_lociStitched	17897	90	chr13:46951664-46952013	KIAA0226L	NM_001286762	1240	LINC00563	NR_047493	-88416
chr12:125367945-125425284	11_peak_4118_lociStitched	15638	91	chr12:125401726-125402626	UBC	NM_021009	2973	SCARB1	NM_001082959	-48095
chr4:74454282-74482405	8_peak_20437_lociStitched	14735	92	chr4:74472046-74473430	RASSF6	NM_001270391	17944	LOC728040	NR_046377	93823
chr5:139015094-139051524	11_peak_22154_lociStitched	23293	93	chr5:139049373-139050437	CXXC5	NM_016463	5008	UBE2D2	NM_003339	92558
chr4:154387521-154420100	20_peak_20965_lociStitched	22364	94	chr4:154387955-154388739	KIAA0922	NM_001131007	16312	MND1	NM_001253861	138009
chr15:81576567-81610140	5_peak_6586_lociStitched	17451	95	chr15:81586079-81586840	IL16	NM_004513	4099	STARD5	NM_181900	23171
chr2:33700527-33727174	9_peak_15915_lociStitched	19848	96	chr2:33719330-33719792	RASGRP3	NM_001139488	12529	FAM98A	NM_015475	110512
chr20:43207842-43247296	7_peak_14232_lociStitched	14307	97	chr20:43213466-43215534	PKIG	NM_001281445	16379	SERINC3	NM_006811	-76843
chr7:55583219-55640001	12_peak_24976_lociStitched	17304	98	chr7:55601935-55603344	VOPP1	NM_001284283	-5250	FKBP9P1	NR_027340	144115
chr1:111735372-111765539	3_peak_12387_lociStitched	12373	99	chr1:111746220-111747435	DENND2D	NM_001271833	-3295	CHI3L2	NM_001025197	-19826
chr2:136863639-136875782	1_peak_17095_lociStitched	12144	100	chr2:136864109-136864765	CXCR4	NM_001008540	4103	DARS	NM_001293312	-126456
chr6:149787102-149817038	8_peak_24103_lociStitched	18492	101	chr6:149802947-149805022	ZC3H12D	NM_207360	4078	PPIL4	NM_139126	65168

chr3:114146137-114180044	6_peak_19056_lociStitched	16899	102	chr3:114172851-114173286	ZBTB20	NM_001164342	-60601	ZBTB20-AS1	NR_038993	92432
chr22:23270573-23296970	10_peak_15054_lociStitched	16736	103	chr22:23281696-23282389	IGLL5	NM_001256296	53811	GNAZ	NM_002073	-128898
chr2:68988839-69020565	7_peak_16420_lociStitched	18292	104	chr2:69014667-69015094	ARHGAP25	NM_001166276	2769	BMP10	NM_014482	93947
chr2:109191443-109249076	13_peak_16822_lociStitched	15562	105	chr2:109225439-109226317	LIMS1	NM_001193482	-3358	RANBP2	NM_006267	-115678
chr9:114791040-114801063	2_peak_27869_lociStitched	9834	106	chr9:114793720-114794704	UGCG	NM_003358	136845	C9ORF84	NR_109816	-238763
chr10:126285921-126337415	17_peak_1186_lociStitched	20198	107	chr10:126307656-126308787	FAM53B	NM_014661	121262	METTL10	NM_212554	168771
chr3:5218295-5241211	7_peak_18039_lociStitched	19483	108	chr3:5223462-5223834	EDEM1	NM_014674	394	ARL8B	NM_018184	65823
chr11:128337837-128354581	5_peak_2576_lociStitched	14095	109	chr11:128340721-128341618	ETS1	NM_001162422	45996	FLI1	NM_001271012	-210221
chr2:197015040-197048521	9_peak_17481_lociStitched	20203	110	chr2:197040786-197041287	STK17B	NM_004226	4556	DNAH7	NM_018897	-98244
chr2:65240202-65260752	4_peak_16327_lociStitched	9982	111	chr2:65258209-65259116	CEP68	NM_015147	-33018	SLC1A4	NM_003038	33982
chr11:65845185-65906352	12_peak_1907_lociStitched	18777	112	chr11:65894184-65894998	PACS1	NM_018026	37944	SF3B2	NM_006842	55952
chr14:96161924-96192712	10_peak_5689_lociStitched	15456	113	chr14:96162165-96163279	TCL1A	NM_001098725	3215	TCL1B	NM_004918	24564
chr3:36932246-36973258	11_peak_18455_lociStitched	16428	114	chr3:36934487-36935086	TRANK1	NM_014831	33796	EPM2AIP1	NM_014805	82043
chr6:150941816-150968493	10_peak_24120_lociStitched	15564	115	chr6:150952395-150953254	PLEKHG1	NM_001029884	34155	IYD	NM_203395	265126
chr9:100772585-100808325	12_peak_27771_lociStitched	17220	116	chr9:100797600-100798227	NANS	NM_018946	-28504	TRIM14	NM_014788	91180
chr14:70078807-70140642	11_peak_5385_lociStitched	14056	117	chr14:70080712-70081759	KIAA0247	NM_014734	31414	CCDC177	NM_001271507	-68124
chr2:102314787-102340105	11_peak_16777_lociStitched	18518	118	chr2:102332588-102333266	MAP4K4	NM_001242559	12908	RFX8	NM_001145664	-236281
chr2:197993306-198023393	9_peak_17501_lociStitched	10366	119	chr2:198017093-198018164	ANKRD44	NM_001195144	167172	SF3B1	NM_001005526	291422
chr16:56945399-56985430	10_peak_7536_lociStitched	16613	120	chr16:56945700-56946273	HERPUD1	NM_001272103	-588	CETP	NM_001286085	-30421
chrX:1586063-1627330	13_peak_28352_lociStitched	20283	121	chrX:1599556-1599983	ASMTL	NM_001173473	-34041	ASMTL-AS1	NR_026710	87272
chr13:47152044-47200083	12_peak_4547_lociStitched	19364	122	chr13:47169142-47169901	LRCH1	NM_001164213	48767	KIAA0226L	NM_001286761	-211886
chr8:37731469-37756145	11_peak_26173_lociStitched	17514	123	chr8:37739239-37739906	RAB11FIP1	NM_025151	13208	GOT1L1	NM_152413	53840
chr11:14330381-14365238	17_peak_1445_lociStitched	16352	124	chr11:14333366-14334172	RRAS2	NM_001177315	32222	COPB1	NM_016451	173595
chr5:88115238-88146442	9_peak_21704_lociStitched	18352	125	chr5:88122764-88123533	MEF2C	NM_001193348	-11096	LINC00461	NR_015436	-150220
chr9:37322068-37341939	6_peak_27435_lociStitched	17874	126	chr9:37337479-37337921	GRHPR	NM_012203	-90704	ZBTB5	NM_014872	133404
chr8:38792109-38823667	7_peak_26210_lociStitched	20038	127	chr8:38814373-38815564	HTRA4	NM_153692	-23780	TM2D2	NM_031940	46153
chr15:59686988-59706438	4_peak_6245_lociStitched	11785	128	chr15:59704947-59706196	MYO1E	NM_004998	-31642	FAM81A	NM_152450	-33659
chr21:45562691-45581229	5_peak_14867_lociStitched	11349	129	chr21:45564817-45565897	C21ORF33	NM_198155	18466	PWP2	NM_005049	44752
chr4:164471844-164535211	21_peak_21023_lociStitched	22066	130	chr4:164528058-164528626	MARCH1	NM_017923	31249	TMA16	NM_018352	87854
chr2:64312847-64341802	10_peak_16273_lociStitched	14353	131	chr2:64313534-64314216	PELI1	NM_020651	44281	LINC00309	NR_033837	105295
chr5:71581257-71604294	7_peak_21577_lociStitched	16185	132	chr5:71586313-71586853	MRPS27	NM_001286751	23309	PTCD2	NM_001284403	-23419
chr2:175458060-175481033	7_peak_17359_lociStitched	14437	133	chr2:175458317-175458662	WIPF1	NM_003387	29761	CHRNA1	NM_000079	159654
chr16:27307382-27330398	3_peak_7255_lociStitched	11602	134	chr16:27309443-27309889	IL4R	NM_001257997	-6340	NSMCE1	NM_145080	-38777
chr2:131128019-131148899	7_peak_17027_lociStitched	16207	135	chr2:131134204-131134974	PTPN18	NM_001142370	24879	IMP4	NM_033416	37970
chr8:81997753-82024311	13_peak_26575_lociStitched	21372	136	chr8:82009098-82009793	PAG1	NM_018440	13271	FABP5	NM_001444	-181686
chr3:187953042-187962771	1_peak_19754_lociStitched	9730	137	chr3:187956796-187957646	LPP	NM_001167671	14713	FLJ42393	NR_024413	61575
chr5:1480005-1542714	16_peak_21183_lociStitched	20601	138	chr5:1503564-1504484	LPCAT1	NM_024830	12717	SDHAP3	NR_003263	83287
chr19:7401181-7415329	3_peak_10051_lociStitched	9466	139	chr19:7409466-7410982	ARHGEF18	NM_015318	-51744	LOC100128573	NR_024491	129992
chr1:14026957-14059928	6_peak_11249_lociStitched	10366	140	chr1:14057203-14057892	PRDM2	NM_012231	12092	PDPN	NM_001006625	131475
chr11:2400808-2421577	6_peak_1288_lociStitched	16172	141	chr11:2414650-2415346	TSSC4	NM_005706	-10526	TRPM5	NM_014555	33083
chr13:41535487-41583277	12_peak_4457_lociStitched	15211	142	chr13:41579089-41579505	ELF1	NM_001145353	-2964	SUGT1P3	NR_003365	-63472
chr11:9615818-9638753	5_peak_1368_lociStitched	16113	143	chr11:9622492-9623437	WEE1	NM_001143976	31051	SWAP70	NM_001297714	-58339
chr3:141087957-141131806	11_peak_19290_lociStitched	14798	144	chr3:141098375-141098728	ZBTB38	NM_001080412	66826	PXYLP1	NM_001037172	159214
chr14:64326818-64338265	3_peak_5291_lociStitched	10875	145	chr14:64334808-64335569	SYNE2	NM_015180	12858	SGPP1	NM_030791	-137785
chr13:46735071-46758668	4_peak_4527_lociStitched	19692	146	chr13:46750940-46751269	LCP1	NM_002298	9590	CPB2	NM_001278541	-67658
chr17:29635445-29648947	3_peak_8404_lociStitched	11944	147	chr17:29645225-29645797	EVI2B	NM_006495	-1066	EVI2A	NM_014210	6571
chr8:8597953-8612466	3_peak_25917_lociStitched	10888	148	chr8:8610452-8611122	CLDN23	NM_194284	45543	MFHAS1	NM_004225	145922
chr9:134530040-134562267	5_peak_28219_lociStitched	15333	149	chr9:134531637-134532321	RAPGEF1	NM_198679	39076	UCK1	NM_001135954	-139491
chr22:42253184-42285520	5_peak_15440_lociStitched	13091	150	chr22:42258131-42259078	SREBF2	NM_004599	40269	CCDC134	NM_024821	72674
chr15:86226033-86262437	10_peak_6651_lociStitched	15784	151	chr15:86250210-86250884	AKAP13	NM_001270546	81054	KLHL25	NM_022480	93954
chr17:76691101-76737073	23_peak_9205_lociStitched	20041	152	chr17:76735408-76736133	CYTH1	NM_001292019	-973	USP36	NM_025090	122882
chr6:90059457-90070764	2_peak_23659_lociStitched	10780	153	chr6:90066988-90067507	UBE2J1	NM_016021	-2491	GABRR2	NM_002043	-40092
chr6:88614516-88636017	3_peak_23636_lociStitched	10466	154	chr6:88632453-88633007	SPACA1	NM_030960	-132241	CNR1	NM_033181	229790

chr2:201980670-201995957	4_peak_17547_lociStitched	13468	155	chr2:201982899-201983889	CFLAR	NM_001127183	5044	CFLAR-AS1	NR_040030	34202
chr16:11387711-11406419	3_peak_6988_lociStitched	9556	156	chr16:11391113-11391996	PRM1	NM_002761	-21873	PRM2	NM_002762	-26728
chr10:63797650-63819566	7_peak_546_lociStitched	13846	157	chr10:63804981-63805415	ARID5B	NM_001244638	-362	RTKN2	NM_001282941	220014
chr6:159275536-159291981	3_peak_24260_lociStitched	6422	158	chr6:159288362-159288850	OSTCP1	NR_028496	-5094	C6ORF99	NM_001195032	-25861
chr6:25006421-25056932	10_peak_22931_lociStitched	19394	159	chr6:25006798-25007274	FAM65B	NM_001286446	10720	CMAHP	NR_002174	106375
chr11:82764059-82778911	5_peak_2163_lociStitched	10327	160	chr11:82774139-82775352	RAB30	NM_001286061	11019	RAB30-AS1	NR_038903	-11623
chr8:27930739-27941935	2_peak_26093_lociStitched	9783	161	chr8:27936374-27937316	NUGGC	NM_001010906	5051	ELP3	NM_001284222	-11411
chr9:139114445-139137403	4_peak_28280_lociStitched	12702	162	chr9:139117165-139117862	QSOX2	NM_181701	11763	LHX3	NM_178138	-28969
chr16:21497466-21531619	7_peak_7153_lociStitched	13482	163	chr16:21528442-21529473	SMG1P3	NR_027155	-940	SLC7A5P2	NR_002594	17223
chr14:74208606-74239905	7_peak_5442_lociStitched	16292	164	chr14:74220662-74221489	ELMSAN1	NM_194278	2746	PNMA1	NM_006029	-43127
chr7:24860042-24887549	7_peak_24634_lociStitched	13455	165	chr7:24860774-24861335	OSBPL3	NM_145322	58445	DFNA5	NM_001127454	-76156
chr7:50344228-50370594	3_peak_24950_lociStitched	16245	166	chr7:50347961-50348784	IKZF1	NM_001291840	-1233	FIGNL1	NM_001287495	160677
chr16:29346939-29372208	7_peak_7319_lociStitched	12775	167	chr16:29357709-29358950	SNX29P2	NR_002939	45965	LOC606724	NR_002454	-101093
chr20:52508974-52559263	17_peak_14477_lociStitched	16957	168	chr20:52510227-52510804	SUMO1P1	NR_002189	-41870	BCAS1	NM_003657	153186
chr15:94796166-94831668	6_peak_6759_lociStitched	11575	169	chr15:94801034-94802100	MCTP2	NM_001159643	-27513	LOC440311	NR_077061	-584675
chr5:14657324-14680889	6_peak_21263_lociStitched	17841	170	chr5:14663986-14664802	OTULIN	NM_138348	4323	LOC100130744	NR_046285	-43697
chr16:9030155-9057158	9_peak_6927_lociStitched	15326	171	chr16:9055864-9056732	USP7	NM_001286457	-13070	CARHSP1	NM_014316	-80787
chr2:158292491-158301819	1_peak_17215_lociStitched	9329	172	chr2:158298174-158298580	CYTIP	NM_004288	3449	ERMN	NM_001009959	-113009
chr11:103746189-103779193	8_peak_2304_lociStitched	13665	173	chr11:103767954-103769093	DDI1	NM_001001711	-144617	PDGFD	NM_025208	272336
chr20:55963952-55976870	3_peak_14507_lociStitched	10424	174	chr20:55964756-55966035	RBM38	NM_183425	3957	MTRNR2L3	NM_001190472	-35533
chr11:33912576-33944264	4_peak_1512_lociStitched	10853	175	chr11:33942703-33943513	LMO2	NM_005574	-14584	FBXO3	NM_012175	-132349
chr9:134594494-134611292	2_peak_28225_lociStitched	13072	176	chr9:134604775-134605581	RAPGEF1	NM_005312	10032	UCK1	NM_001135954	-196231
chr3:151095550-151130520	16_peak_19388_lociStitched	16781	177	chr3:151100393-151100911	P2RY12	NM_022788	-10435	P2RY13	NM_176894	-65698
chr20:56043130-56068750	5_peak_14513_lociStitched	14232	178	chr20:56043564-56044875	CTCFL	NM_001269041	43983	PCK1	NM_002591	-80197
chrX:12965276-12998127	9_peak_28453_lociStitched	15990	179	chrX:12991425-12992181	TMSB4X	NM_021109	-11525	TLR8-AS1	NR_030727	-20282
chr2:234258108-234295011	7_peak_17918_lociStitched	15459	180	chr2:234288635-234289080	DGKD	NM_152879	13406	SAG	NM_000541	60250
chr9:37186780-37210173	7_peak_27421_lociStitched	11804	181	chr9:37196969-37197736	ZCCHC7	NM_001289120	77881	EBLN3	NR_036592	118583
chr12:96581567-96609103	7_peak_3667_lociStitched	19563	182	chr12:96602333-96603277	ELK3	NM_005230	7128	LTA4H	NM_001256644	-158037
chr6:89309582-89351967	9_peak_23645_lociStitched	12495	183	chr6:89326014-89326316	RNGTT	NM_001286428	342574	PNRC1	NM_006813	-459655
chr9:117126729-117160764	8_peak_27908_lociStitched	17291	184	chr9:117134816-117135772	AKNA	NM_030767	12939	ORM2	NM_000608	51677
chr11:60213886-60252037	9_peak_1698_lociStitched	14071	185	chr11:60222656-60223364	MS4A1	NM_021950	9679	MS4A5	NM_023945	35899
chr9:112872094-112911299	6_peak_27851_lociStitched	12911	186	chr9:112890941-112891576	AKAP2	NM_001136562	3915	C9ORF152	NM_001012993	78717
chr11:111268087-111292584	5_peak_2358_lociStitched	10272	187	chr11:111288325-111288958	LOC100132078	NR_046085	8576	POU2AF1	NM_006235	-30178
chr6:14092005-14124816	4_peak_22799_lociStitched	14702	188	chr6:14108863-14110045	CD83	NM_001251901	-9077	RNF182	NM_001165033	182986
chr6:32985456-32999764	2_peak_23178_lociStitched	7400	189	chr6:32995590-32996515	HLA-DOA	NM_002119	-15221	BRD2	NM_001199456	51749
chr1:173373287-173400138	6_peak_13040_lociStitched	10790	190	chr1:173378728-173379637	LOC100506023	NR_037845	59582	PRDX6	NM_004905	-59774
chr2:225382819-225393321	3_peak_17735_lociStitched	8631	191	chr2:225385960-225386429	CUL3	NM_001257198	46472	FAM124B	NM_001122779	-121359
chr14:61930607-61946790	5_peak_5254_lociStitched	8555	192	chr14:61945528-61946151	FLJ22447	NR_039985	-98560	HIF1A	NM_181054	-223421
chr11:102415054-102434787	4_peak_2284_lociStitched	8655	193	chr11:102417044-102418272	MMP7	NM_002423	-23442	TMEM123	NM_052932	-101145
chr14:106322226-106331452	2_peak_5844_lociStitched	8926	194	chr14:106328777-106329329	KIAA0125	NR_026800	-56999	ADAM6	NR_002224	111519
chr6:32907629-32916496	peak_23167	8868	195	chr6:32908653-32909719	HLA-DMB	NM_002118	-3215	HLA-DMA	NM_006120	8837
chr8:11348658-11359633	2_peak_25975_lociStitched	10137	196	chr8:11349313-11351113	BLK	NM_001715	2624	FAM167A	NM_053279	-29869
chr7:43685307-43693926	2_peak_24839_lociStitched	7305	197	chr7:43690840-43691575	STK17A	NM_004760	66924	LOC100506895	NR_038276	-127475
chr21:45660992-45667873	2_peak_14877_lociStitched	6764	198	chr21:45663190-45664801	ICOSLG	NM_001283050	-3545	DNMT3L	NM_013369	17667
chr6:132805591-132829992	8_peak_23912_lociStitched	14094	199	chr6:132816807-132817128	STX7	NM_003569	16546	TAAR8	NM_053278	-56041
chr2:88894821-88918149	5_peak_16586_lociStitched	8578	200	chr2:88906208-88906563	EIF2AK3	NM_004836	20609	RPIA	NM_144563	-84691
chr11:9738554-9778888	12_peak_1404_lociStitched	17204	201	chr11:9766718-9767414	SBF2-AS1	NR_036485	-21119	LOC440028	NR_033972	22359
chr2:61648454-61692795	9_peak_16249_lociStitched	13796	202	chr2:61652006-61652656	SNORA70B	NR_003707	-26112	USP34	NM_014709	27225
chr8:11388274-11416717	6_peak_25981_lociStitched	10986	203	chr8:11402940-11403845	LINC00208	NR_040035	-31549	BLK	NM_001715	50974
chr9:37281087-37303324	10_peak_27430_lociStitched	16930	204	chr9:37293697-37294531	GRHPR	NM_012203	-130502	ZBTB5	NM_014872	173202
chr6:42738337-42752013	5_peak_23423_lociStitched	11936	205	chr6:42742577-42743195	TBCC	NM_003192	-31291	ATP6V0CP3	NR_037141	49861
chr14:91810150-91841705	13_peak_5599_lociStitched	15773	206	chr14:91822425-91823152	CCDC88C	NM_001080414	58261	SMEK1	NM_001284281	150897
chr7:121009482-121027304	9_peak_25544_lociStitched	13228	207	chr7:121012774-121013070	FAM3C	NM_014888	18029	WNT16	NM_057168	49303

chr11:64897090-64928182	5_peak_1853_lociStitched	12484	208	chr11:64899701-64901112	SYVN1	NM_032431	-10633	MRPL49	NR_037568	22920
chr16:3657328-3677162	3_peak_6894_lociStitched	9491	209	chr16:3673645-3674104	SLX4	NM_032444	-5660	NLRC3	NR_075083	-39840
chr12:110439794-110453000	4_peak_3800_lociStitched	10459	210	chr12:110443122-110443581	ANKRD13A	NM_033121	9162	GIT2	NM_014776	-12203
chr9:6680614-6716384	7_peak_27221_lociStitched	10602	211	chr9:6682741-6683417	KDM4C	NM_001146696	-22364	GLDC	NM_000170	-52807
chr5:17253793-17283620	12_peak_21280_lociStitched	16254	212	chr5:17282408-17283253	BASP1	NM_006317	51036	LOC285696	NR_027253	-51175
chr11:118712445-118767515	14_peak_2465_lociStitched	17247	213	chr11:118741000-118741890	CXCR5	NM_001716	-14495	BCL9L	NM_182557	41633
chr8:61820947-61840704	5_peak_26432_lociStitched	10621	214	chr8:61824099-61825106	LOC100130298	NR_034003	49482	CHD7	NM_017780	239501
chr2:45949490-45974373	7_peak_16047_lociStitched	9190	215	chr2:45956874-45957487	PRKCE	NM_005400	82888	SRBD1	NM_018079	-123498
chr4:48193966-48215551	5_peak_20320_lociStitched	12832	216	chr4:48214239-48214536	TEC	NM_003215	67056	SLAIN2	NM_020846	-138855
chr14:96125569-96134146	4_peak_5685_lociStitched	6744	217	chr14:96130576-96131177	TCL6	NR_028288	12342	TCL1B	NM_004918	-22897
chrX:19857801-19903350	14_peak_28551_lociStitched	19684	218	chrX:19881690-19882228	SH3KBP1	NM_031892	25169	CXORF23	NM_198279	107807
chr2:197124633-197141855	4_peak_17499_lociStitched	9512	219	chr2:197139137-197139811	STK17B	NM_004226	-96908	DNAH7	NM_018897	-199708
chr14:102280018-102316318	7_peak_5739_lociStitched	12519	220	chr14:102305508-102305998	PPP2R5C	NM_178586	22028	LINC00239	NR_026774	101394
chr19:16547014-16561698	7_peak_10292_lociStitched	9112	221	chr19:16554445-16555415	EPS15L1	NM_001258375	28467	CALR3	NM_145046	52647
chr1:150533566-150549923	6_peak_12617_lociStitched	15246	222	chr1:150533560-150536638	MCL1	NM_182763	10470	ADAMTSL4	NM_019032	19899
chr3:154811945-154832587	3_peak_19432_lociStitched	6400	223	chr3:154828775-154829739	MME	NM_007289	24187	LOC100507537	NR_037902	189223
chr9:130732431-130754481	7_peak_28112_lociStitched	14591	224	chr9:130733184-130733685	FAM102A	NM_001035254	-644	DPM2	NM_003863	-42693
chr8:103540325-103548856	2_peak_26751_lociStitched	8426	225	chr8:103546705-103547508	ODF1	NM_024410	-19258	KLF10	NR_103759	121602
chr7:23402454-23414290	4_peak_24613_lociStitched	7417	226	chr7:23412677-23413435	MALSU1	NM_138446	69432	GPNMB	NM_002510	122056
chr9:92015468-92064277	13_peak_27646_lociStitched	15199	227	chr9:92062877-92063635	SEMA4D	NM_001142287	54739	GADD45G	NM_006705	-180055
chr16:23515930-23533233	4_peak_7198_lociStitched	10580	228	chr16:23529511-23530204	GGA2	NM_015044	-2766	EARS2	NM_001083614	44115
chr5:140885376-140910337	3_peak_22182_lociStitched	12539	229	chr5:140886681-140889009	PCDHGC5	NM_018929	29048	PCDHGC4	NM_018928	33115
chr22:42928566-42948409	3_peak_15457_lociStitched	7064	230	chr22:42932941-42933489	SERHL2	NM_001284334	-11381	RRP7B	NR_002184	39530
chr3:16407161-16428726	7_peak_18195_lociStitched	13610	231	chr3:16413893-16414730	OXNAD1	NM_138381	111276	DPH3	NM_001047434	-111447
chr5:123980884-123997892	9_peak_21918_lociStitched	13200	232	chr5:123985153-123986290	ZNF608	NM_020747	91417	CSNK1G3	NM_004384	1108277
chr8:60922770-60971094	11_peak_26410_lociStitched	13590	233	chr8:60938878-60939309	CA8	NM_004056	247022	RAB2A	NM_001242644	-482537
chr2:46761853-46802452	9_peak_16065_lociStitched	13809	234	chr2:46796074-46797282	RHOQ	NM_012249	12285	ATP6V1E2	NM_080653	-35056
chr2:9678250-9692740	5_peak_15647_lociStitched	10762	235	chr2:9691188-9691726	ADAM17	NM_003183	10422	YWHAQ	NM_006826	85689
chr21:43281945-43298913	7_peak_14791_lociStitched	10680	236	chr21:43284243-43284855	PRDM15	NR_104260	-7018	C2CD2	NM_199050	56370
chr8:59956084-59998204	12_peak_26377_lociStitched	15271	237	chr8:59988483-59989060	TOX	NM_014729	54623	NSMAF	NM_003580	-404740
chr13:27795682-27805506	3_peak_4258_lociStitched	8975	238	chr13:27803874-27804566	RPL21	NM_000982	-25098	SNORD102	NR_002574	-28607
chr11:9687692-9723875	24_peak_1385_lociStitched	16285	239	chr11:9714287-9714727	SWAP70	NM_001297714	20159	WEE1	NM_001143976	109549
chr19:55762913-55788992	5_peak_11004_lociStitched	10485	240	chr19:55765158-55765961	PPP6R1	NM_014931	-5914	HSPBP1	NM_001297600	15273
chr10:121459529-121469541	3_peak_1140_lociStitched	8887	241	chr10:121464147-121464403	INPP5F	NM_001243195	-21024	BAG3	NM_004281	53653
chr1:9472821-9489431	8_peak_11191_lociStitched	12130	242	chr1:9485751-9487161	SLC25A33	NM_032315	-118402	TMEM201	NM_001010866	-167806
chr7:50180575-50191877	3_peak_24941_lociStitched	10380	243	chr7:50185407-50185970	C7ORF72	NM_001161834	50544	ZPBP	NM_007009	-53366
chr1:87495833-87530773	9_peak_12180_lociStitched	11501	244	chr1:87523141-87523817	LINC01140	NR_026988	-82145	LMO4	NM_006769	-280848
chr7:150061289-150080894	4_peak_25786_lociStitched	10940	245	chr7:150074235-150074663	REPIN1	NM_014374	2833	RNU6-34P	NR_046492	7055
chr19:50834914-50861792	6_peak_10940_lociStitched	11987	246	chr19:50847891-50848578	NAPSB	NR_002798	-348	KCNC3	NR_110912	-11581
chr6:41975062-42014173	11_peak_23389_lociStitched	14174	247	chr6:41992846-41993725	CCND3	NM_001136126	22015	TAF8	NM_138572	-23634
chr3:197496694-197520977	4_peak_19908_lociStitched	10348	248	chr3:197500682-197501058	LRCH3	NM_032773	-9310	FYTTD1	NR_027840	31574
chr15:101459875-101483281	9_peak_6787_lociStitched	13460	249	chr15:101467007-101467967	LRRK1	NM_024652	12118	ALDH1A3	NM_001293815	51681
chr6:167501882-167543528	8_peak_24321_lociStitched	14453	250	chr6:167526416-167527204	CCR6	NM_004367	-2590	GPR31	NM_005299	48614
chr6:91078759-91103088	8_peak_23700_lociStitched	7610	251	chr6:91085165-91086093	BACH2	NM_001170794	-84296	MAP3K7	NM_145333	206097
chr3:150456975-150484962	7_peak_19366_lociStitched	13368	252	chr3:150483991-150484597	SIAH2	NM_005067	10295	ERICH6	NM_152394	-49226
chr1:36837357-36867132	7_peak_11747_lociStitched	10695	253	chr1:36855632-36856604	STK40	NM_001282547	-716	LSM10	NM_032881	11249
chr9:124703978-124709314	1_peak_27991_lociStitched	5337	254	chr9:124705508-124706200	TTLL11	NM_001139442	149239	NDUFA8	NM_014222	215452
chr17:18938780-18947829	1_peak_8275_lociStitched	9050	255	chr17:18941085-18942692	GRAP	NM_006613	7032	FAM83G	NM_001039999	-35244
chr15:52969777-52976768	1_peak_6169_lociStitched	6992	256	chr15:52970248-52970632	FAM214A	NM_019600	-2441	ONECUT1	NR_073510	99809
chr17:30816611-30851947	10_peak_8423_lociStitched	12669	257	chr17:30818890-30819507	CDK5R1	NM_003885	20174	PSMD11	NM_001270482	62798
chr20:17938755-17951415	peak_13958	12661	258	chr20:17949293-17949885	SNORD17	NR_003045	-1496	SNX5	NM_014426	4352
chr9:71252012-71260430	2_peak_27548_lociStitched	7545	259	chr9:71254794-71256035	PIP5K1B	NM_001278253	-64109	FAM122A	NM_138333	-138743
chr1:26610682-26618242	2_peak_11474_lociStitched	6780	260	chr1:26614867-26616553	SH3BGRL3	NM_031286	8249	CEP85	NM_001281518	18688

chr1:24233153-24243459	5_peak_11409_lociStitched	9192	261	chr1:24235141-24236199	CNR2	NM_001841	1511	FUCA1	NM_000147	-43447
chr17:57904812-57926175	6_peak_8849_lociStitched	15996	262	chr17:57923215-57923540	TUBD1	NM_001193613	54813	RPS6KB1	NM_001272042	-54914
chr2:96808249-96830770	7_peak_16649_lociStitched	11883	263	chr2:96811241-96812592	DUSP2	NM_004418	-8330	ASTL	NM_001002036	-15334
chr12:15101471-15115958	3_peak_2884_lociStitched	13543	264	chr12:15114044-15114688	ARHGDIB	NM_001175	5848	PDE6H	NM_006205	-17242
chr9:35616892-35647630	9_peak_27353_lociStitched	9240	265	chr9:35618210-35620235	CD72	NM_001782	-13837	TESK1	NM_006285	26980
chr7:86841988-86849862	2_peak_25208_lociStitched	7625	266	chr7:86848097-86849888	TMEM243	NM_024315	3106	DMTF1	NM_021145	64055
chr11:117850343-117883179	7_peak_2416_lociStitched	9677	267	chr11:117881193-117882264	IL10RA	NM_001558	9655	TMPRSS13	NM_001206789	-66593
chr1:32773776-32800838	6_peak_11680_lociStitched	11309	268	chr1:32782141-32782976	MARCKSL1	NM_023009	14533	FAM229A	NM_001167676	40537
chr1:160590828-160655847	20_peak_12903_lociStitched	16331	269	chr1:160616442-160617137	SLAMF1	NR_104400	-6236	CD48	NM_001256030	58304
chr8:67521808-67528173	2_peak_26482_lociStitched	6252	270	chr8:67525460-67526957	MYBL1	NM_001144755	494	VCPIP1	NM_025054	54462
chr2:232526602-232545638	7_peak_17871_lociStitched	9553	271	chr2:232536033-232537954	PTMA	NM_001099285	-37115	PDE6D	NM_001291018	109917
chr1:192594436-192609269	3_peak_13203_lociStitched	14222	272	chr1:192595653-192596032	RGS13	NM_144766	-3416	RGS1	NM_002922	56995
chr12:117238514-117257508	5_peak_3931_lociStitched	9695	273	chr12:117240850-117242214	HRK	NM_003806	71221	FBXW8	NM_153348	-100750
chr11:65260414-65275352	7_peak_1873_lociStitched	9202	274	chr11:65264811-65265053	MALAT1	NR_002819	2650	SCYL1	NM_020680	-24665
chr17:19033343-19042300	1_peak_8287_lociStitched	8958	275	chr17:19038493-19040006	GRAPL	NM_001129778	7039	GRAP	NM_006613	-87485
chr12:9860239-9894814	17_peak_2796_lociStitched	16001	276	chr12:9874342-9874660	CLECL1	NM_001267701	8369	CD69	NM_001781	35971
chr19:49829041-49851623	5_peak_10887_lociStitched	10430	277	chr19:49836937-49837903	CD37	NM_001774	1655	SLC6A16	NM_014037	-11858
chr22:50624976-50631837	1_peak_15550_lociStitched	6862	278	chr22:50628772-50630268	TRABD	NM_025204	4046	SELO	NM_031454	-11002
chr19:1251063-1266978	3_peak_9866_lociStitched	10576	279	chr19:1261390-1262068	CIRBP	NM_001300815	-10245	CIRBP-AS1	NR_027271	11239
chr2:61192340-61223143	7_peak_16239_lociStitched	12211	280	chr2:61198550-61199067	PEX13	NM_002618	-37071	PUS10	NM_144709	37624
chr19:19262013-19281030	9_peak_10423_lociStitched	16142	281	chr19:19271073-19272019	MEF2B	NM_001145785	9577	RFXANK	NM_134440	-31487
chr6:10528351-10540793	2_peak_22731_lociStitched	9336	282	chr6:10533705-10534661	GCNT2	NM_145649	13004	LINC00518	NR_027793	-99517
chr1:9122746-9142770	4_peak_11183_lociStitched	9639	283	chr1:9129581-9130124	SLC2A5	NM_001135585	-2871	SLC2A7	NM_207420	-46354
chr1:226531932-226559871	6_peak_13602_lociStitched	12849	284	chr1:226543248-226544244	LIN9	NM_001270410	-48452	MIXL1	NM_031944	134582
chr17:61992710-62009697	6_peak_8902_lociStitched	10354	285	chr17:62004741-62005963	GH1	NM_022560	-4991	CSHL1	NM_022580	-12585
chr12:95730690-95760459	9_peak_3636_lociStitched	11534	286	chr12:95737243-95737897	METAP2	NM_006838	-122248	USP44	NR_125360	182528
chr10:98030683-98053110	3_peak_907_lociStitched	9351	287	chr10:98047123-98047831	BLNK	NM_001114094	-10563	DNTT	NM_004088	-22189
chr11:128479688-128500927	4_peak_2589_lociStitched	8155	288	chr11:128494158-128494914	ETS1	NM_001143820	-32854	FLI1	NM_001271012	-66123
chr12:32415417-32427134	2_peak_3038_lociStitched	7910	289	chr12:32418784-32419248	BICD1	NM_001003398	161090	RNU6-78P	NR_046944	-274473
chr6:106959976-106973613	4_peak_23737_lociStitched	10377	290	chr6:106967745-106968215	AIM1	NM_001624	7064	RTN4IP1	NM_032730	110579
chr3:187455274-187468756	2_peak_19716_lociStitched	13253	291	chr3:187461327-187462007	BCL6	NM_001706	1498	RTP2	NM_001004312	-41670
chr17:73315678-73348527	7_peak_9085_lociStitched	11631	292	chr17:73315986-73316655	SLC25A19	NM_001126122	-46572	LOC100287042	NR_036520	64722
chr1:32714891-32731164	3_peak_11674_lociStitched	9792	293	chr1:32715445-32716148	LCK	NM_005356	6187	FAM167B	NM_032648	10209
chr10:104401725-104412971	3_peak_1024_lociStitched	9394	294	chr10:104405069-104406546	TRIM8	NM_030912	3096	ARL3	NM_004311	66842
chr8:119289974-119296105	1_peak_26826_lociStitched	6132	295	chr8:119294142-119294546	EXT1	NM_000127	-168981	SAMD12-AS1	NR_038210	-340201
chr16:86018272-86045649	7_peak_7852_lociStitched	10123	296	chr16:86028381-86029870	IRF8	NM_002163	99186	COX4I1	NM_001861	198787
chr7:18537281-18573446	18_peak_24530_lociStitched	16579	297	chr7:18570137-18570404	HDAC9	NM_001204147	6463	PRPS1L1	NM_175886	-487877
chr22:47163367-47173608	2_peak_15521_lociStitched	8912	298	chr22:47169144-47170973	TBC1D22A	NM_001284305	-1337	CERK	NM_022766	-34335
chr6:134520220-134569874	7_peak_23938_lociStitched	11593	299	chr6:134568170-134568899	SGK1	NM_001143677	-46037	HMGA1P7	NR_037938	-106229
chr3:188467765-188474760	1_peak_19790_lociStitched	6996	300	chr3:188470519-188471395	TPRG1	NM_198485	-418501	TPRG1-AS2	NR_046722	487121
chr14:105122519-105129168	1_peak_5807_lociStitched	6650	301	chr14:105124063-105125562	INF2	NM_001031714	-30100	ADSSL1	NM_152328	-64691
chr5:156912640-156937472	6_peak_22344_lociStitched	11656	302	chr5:156928940-156930026	NIPAL4	NM_001172292	38029	FNDC9	NM_001001343	-152327
chr4:153581619-153597347	2_peak_20946_lociStitched	8460	303	chr4:153584241-153584781	TMEM154	NM_152680	11834	TIGD4	NM_145720	111433
chr13:41143809-41172636	11_peak_4417_lociStitched	9818	304	chr13:41163672-41164186	FOXO1	NM_002015	82512	MRPS31	NM_005830	187125
chr2:135493502-135499091	1_peak_17065_lociStitched	5590	305	chr2:135494658-135495621	TMEM163	NM_030923	-19725	ACMSD	NM_138326	-99890
chr16:30450492-30485143	5_peak_7412_lociStitched	9508	306	chr16:30483733-30484203	SEPHS2	NM_012248	-10521	DCTPP1	NM_024096	-26444
chr10:5687252-5708390	3_peak_61_lociStitched	13132	307	chr10:5699045-5699721	ASB13	NR_024581	10737	FAM208B	NM_017782	-28980
chr7:40845549-40852696	1_peak_24811_lociStitched	7148	308	chr7:40849788-40850320	SUGCT	NM_001193312	674547	MPLKIP	NM_138701	-674871
chr2:146444309-146454677	4_peak_17158_lociStitched	8803	309	chr2:146445143-146445980	PABPC1P2	NR_026904	-895132	ACVR2A	NM_001278580	-2152593
chr20:46039925-46046299	1_peak_14289_lociStitched	6375	310	chr20:46045353-46045756	ZMYND8	NM_001281769	-57479	LOC100131496	NR_024594	95866
chr4:185304482-185339285	5_peak_21122_lociStitched	9759	311	chr4:185304984-185305919	LOC728175	NR_040108	-46753	IRF2	NM_002199	73843
chr3:30640416-30700286	20_peak_18357_lociStitched	16059	312	chr3:30684300-30684781	TGFBR2	NM_003242	22357	GADL1	NM_207359	265802
chr19:16694620-16705814	4_peak_10302_lociStitched	6252	313	chr19:16698123-16698892	SLC35E1	NM_024881	-17024	CHERP	NM_006387	-46954

chr10:81003439-81027040	5_peak_735_lociStitched	11008	314	chr10:81008055-81008591	PPIF	NM_005729	-91981	ZCCHC24	NM_153367	190144
chr2:11886967-11896314	3_peak_15680_lociStitched	8547	315	chr2:11889870-11891261	LPIN1	NM_145693	4918	NTSR2	NM_012344	-81311
chrX:13092168-13111401	4_peak_28467_lociStitched	16524	316	chrX:13092668-13093353	FAM9C	NM_174901	-38867	TMSB4X	NM_021109	108558
chr10:98454981-98469104	6_peak_925_lociStitched	11463	317	chr10:98460357-98460888	PIK3AP1	NM_152309	18237	LCOR	NM_001170765	-129975
chr12:65004369-65038375	7_peak_3379_lociStitched	11877	318	chr12:65004510-65004975	RASSF3	NR_040718	17079	GNS	NM_002076	131854
chr7:104572836-104592209	5_peak_25409_lociStitched	8524	319	chr7:104584010-104586072	LHFPL3-AS2	NR_027374	-15430	LINC01004	NR_039981	49090
chr4:39354734-39368579	5_peak_20245_lociStitched	11949	320	chr4:39358569-39359014	RFC1	NM_001204747	6345	KLB	NM_175737	-46817
chr15:100042165-100056117	5_peak_6772_lociStitched	10206	321	chr15:100051936-100052991	MEF2A	NM_001130927	-56992	LYSMD4	NM_001284418	224449
chr7:22386285-22428262	11_peak_24580_lociStitched	12739	322	chr7:22403545-22404064	RAPGEF5	NM_012294	-10740	STEAP1B	NM_001164460	132628
chr9:123631441-123668926	7_peak_27964_lociStitched	11212	323	chr9:123654640-123655366	PHF19	NM_001286840	6991	TRAF1	NM_001190947	26667
chr17:75137455-75143918	1_peak_9146_lociStitched	6464	324	chr17:75140159-75140782	SEC14L1	NM_001143999	3681	SCARNA16	NR_003013	55297
chr11:44617600-44634879	4_peak_1564_lociStitched	11673	325	chr11:44630212-44631576	CD82	NM_001024844	39098	TSPAN18	NM_130783	-159737
chr14:89762801-89777160	4_peak_5548_lociStitched	6927	326	chr14:89773858-89774416	FOXN3	NM_005197	113474	FOXN3-AS1	NR_036500	-113718
chr1:167582160-167606880	6_peak_12969_lociStitched	9212	327	chr1:167586459-167587393	RCSD1	NM_052862	-4954	CREG1	NM_003851	-71464
chr11:67034434-67056431	5_peak_1942_lociStitched	12102	328	chr11:67044798-67045325	ANKRD13D	NM_207354	-11330	SSH3	NM_017857	-25487
chr4:164583600-164588956	1_peak_21040_lociStitched	5357	329	chr4:164584997-164585500	MARCH1	NM_017923	-51502	TMA16	NM_018352	170605
chr10:5881924-5915897	6_peak_86_lociStitched	7667	330	chr10:5886176-5886982	FBXO18	NM_001258452	-32625	ANKRD16	NM_001009943	32950
chr22:46165244-46181600	4_peak_15498_lociStitched	8210	331	chr22:46173654-46174007	ATXN10	NM_001167621	105744	FBLN1	NM_001996	274703
chr11:121237611-121301894	13_peak_2499_lociStitched	13435	332	chr11:121243721-121244145	SORL1	NM_003105	-53160	SC5D	NM_001024956	106175
chr6:143234346-143269532	6_peak_24040_lociStitched	10972	333	chr6:143267431-143268500	HIVEP2	NM_006734	14399	LINC01277	NR_038987	106780
chr16:84619592-84643891	9_peak_7810_lociStitched	11925	334	chr16:84633162-84633721	COTL1	NM_021149	19961	KLHL36	NM_024731	-50390
chr9:123683752-123707240	9_peak_27968_lociStitched	13646	335	chr9:123698157-123699055	TRAF1	NM_001190945	-4045	PHF19	NM_001286840	-38322
chr12:47600436-47617729	5_peak_3109_lociStitched	8837	336	chr12:47609346-47610476	PCED1B-AS1	NR_026544	1144	AMIGO2	NM_001143668	-135348
chr19:42612892-42635107	8_peak_10711_lociStitched	10983	337	chr19:42618192-42618953	POU2F2	NM_001207026	12626	LOC100505622	NR_038332	-12782
chr10:14686783-14716105	5_peak_222_lociStitched	9166	338	chr10:14701507-14702127	FAM107B	NM_001282697	-55027	CDNF	NM_001029954	178539
chr12:739310-795529	17_peak_2649_lociStitched	10947	339	chr12:783056-783562	NINJ2	NM_016533	5488	WNK1	NM_014823	-94670
chr2:64863374-64894890	7_peak_16299_lociStitched	13022	340	chr2:64871616-64872031	SERTAD2	NM_014755	1914	LOC339807	NR_034023	44686
chr10:126222758-126239523	7_peak_1178_lociStitched	12158	341	chr10:126228097-126228918	LHPP	NM_001167880	80799	NKX1-2	NM_001146340	-92590
chr15:59529210-59557831	6_peak_6223_lociStitched	10975	343	chr15:59556877-59557237	LDHAL6B	NM_033195	44505	CCNB2	NM_004701	146236
chr2:136888904-136895060	1_peak_17097_lociStitched	6157	344	chr2:136893420-136894125	CXCR4	NM_003467	-16257	DARS	NM_001293312	-148728
chr17:65564730-65583962	4_peak_8986_lociStitched	10475	345	chr17:65570774-65571278	NOL11	NM_015462	-139715	SNORA38B	NR_003706	-162440
chr5:180229962-180260365	5_peak_22604_lociStitched	11012	346	chr5:180230069-180231148	MGAT1	NM_001114617	-8026	LINC00847	NR_027183	-12794
chr16:70437958-70469037	7_peak_7668_lociStitched	7168	347	chr16:70463833-70466136	ST3GAL2	NM_006927	19494	FUK	NM_145059	-35001
chr4:42629289-42648932	5_peak_20296_lociStitched	13541	348	chr4:42640936-42641327	ATP8A1	NM_001105529	20012	GRXCR1	NM_001080476	-256173
chr8:126613708-126623687	3_peak_26892_lociStitched	8494	349	chr8:126618429-126618869	TRIB1	NM_001282985	174246	NSMCE2	NM_173685	514614
chr7:101922098-101951493	3_peak_25366_lociStitched	10871	350	chr7:101932026-101932978	SH2B2	NM_020979	8442	SPDYE6	NM_001146210	60094
chr6:37511953-37531120	6_peak_23323_lociStitched	12385	351	chr6:37512151-37512825	CCDC167	NM_138493	-53836	CMTR1	NM_015050	120629
chr12:7045417-7071047	6_peak_2738_lociStitched	12121	352	chr12:7061989-7063468	PTPN6	NM_002831	-2202	C12ORF57	NM_001301837	5252
chr9:140542138-140586493	9_peak_28328_lociStitched	12533	353	chr9:140544381-140545308	EHMT1	NM_001145527	50871	ARRDC1-AS1	NR_122035	-50968
chr16:27408574-27420435	2_peak_7261_lociStitched	11554	354	chr16:27410225-27410934	IL21R	NM_181078	1021	IL21R-AS1	NR_037158	50210
chr7:101497100-101528986	14_peak_25350_lociStitched	14108	355	chr7:101499650-101500496	CUX1	NM_181552	52161	MYL10	NM_138403	-240467
chr10:65016327-65034022	5_peak_582_lociStitched	9491	356	chr10:65020631-65020993	JMJD1C	NM_001282948	3809	NRBF2	NM_001282405	132167
chr1:32388641-32410437	6_peak_11649_lociStitched	14996	357	chr1:32394310-32394660	PTP4A2	NM_080391	4449	KHDRBS1	NM_001271878	-79756
chr22:40794427-40813254	3_peak_15384_lociStitched	9236	358	chr22:40810702-40811831	SGSM3	NM_001301849	37274	ADSL	NM_001123378	61336
chr4:114484286-114496354	4_peak_20764_lociStitched	8535	359	chr4:114485523-114486741	CAMK2D	NM_172115	192763	ARSJ	NM_024590	410558
chr14:50426285-50444820	3_peak_5109_lociStitched	8687	360	chr14:50429232-50429734	C14ORF182	NM_001012706	38686	LOC100506499	NR_102736	71050
chr15:52513057-52528547	4_peak_6163_lociStitched	6573	361	chr15:52526802-52527754	GNB5	NM_016194	-37237	LOC100129973	NR_102751	48579
chr10:126406585-126432497	13_peak_1216_lociStitched	13603	362	chr10:126430087-126430801	FAM53B	NM_014661	13389	METTL10	NM_212554	60898
chr19:2610500-2633350	7_peak_9933_lociStitched	9541	363	chr19:2610711-2611449	GNG7	NM_052847	80821	DIRAS1	NM_145173	99465
chr11:108093583-108108587	3_peak_2334_lociStitched	7203	364	chr11:108096040-108096370	ATM	NM_000051	7526	NPAT	NM_002519	-7720
chr3:53196101-53227285	10_peak_18698_lociStitched	16163	365	chr3:53206144-53206699	PRKCD	NM_212539	16470	RFT1	NM_052859	-47223
chr6:41672258-41701996	13_peak_23359_lociStitched	12105	366	chr6:41673468-41675149	TFEB	NM_001271945	15012	PGC	NM_001166424	28012
chr1:156450958-156475859	8_peak_12782_lociStitched	10564	367	chr1:156462193-156462876	MEF2D	NM_001271629	-3017	C1ORF61	NM_006365	-64224

chr8:101504946-101514682	5_peak_26715_lociStitched	7155	368	chr8:101512234-101513344	ANKRD46	NM_001270378	62125	SNX31	NM_152628	152079
chr17:63009158-63047178	15_peak_8946_lociStitched	15011	369	chr17:63031965-63032099	GNA13	NM_001282425	23724	AMZ2P1	NR_026903	-56465
chr12:9799341-9804879	1_peak_2786_lociStitched	5539	370	chr12:9800295-9802670	LOC374443	NR_046447	1467	CLEC2D	NM_001197319	-20194
chr2:65132116-65146162	2_peak_16318_lociStitched	5821	371	chr2:65142335-65145249	LOC400958	NR_036586	20442	SLC1A4	NM_001193493	-76440
chr1:174125987-174138677	4_peak_13060_lociStitched	10503	372	chr1:174128288-174129305	RABGAP1L	NM_014857	3780	RC3H1	NM_001300850	-170122
chr11:95421953-95450770	7_peak_2241_lociStitched	8039	373	chr11:95448797-95449372	FAM76B	NM_144664	86593	CEP57	NM_001243777	-87264
chr14:23018532-23039293	9_peak_4937_lociStitched	12959	374	chr14:23030638-23031332	DAD1	NM_001344	29231	ABHD4	NM_022060	-38235
chr20:5625633-5640195	8_peak_13911_lociStitched	7064	375	chr20:5626120-5626598	GPCPD1	NM_019593	-41242	LINC00654	NR_015406	-147672
chr1:94148553-94182707	11_peak_12274_lociStitched	14254	376	chr1:94173514-94173844	BCAR3	NM_003567	-18236	LOC100129046	NR_034091	108105
chr14:59820395-59830526	5_peak_5230_lociStitched	7632	377	chr14:59823458-59823880	DAAM1	NM_014992	95301	GPR135	NM_022571	106599
chr13:31182289-31202130	4_peak_4335_lociStitched	9247	378	chr13:31191074-31191311	USPL1	NM_005800	379	ALOX5AP	NM_001204406	-95406
chr1:111400797-111423329	6_peak_12376_lociStitched	8731	379	chr1:111414800-111415333	CD53	NM_001040033	-1758	LRIF1	NM_001006945	94503
chr8:110582896-110612216	7_peak_26797_lociStitched	13052	380	chr8:110586791-110587336	EBAG9	NM_001278938	44701	SYBU	NM_001099756	57863
chr3:128994593-129002452	1_peak_19200_lociStitched	7860	381	chr3:129001314-129001950	HMCES	NM_001006109	705	COPG1	NM_016128	30069
chr16:89032102-89059792	8_peak_7909_lociStitched	13619	383	chr16:89049303-89050759	CBFA2T3	NM_005187	-2443	PABPN1L	NM_001294328	-112879
chr8:23278500-23284427	1_peak_26047_lociStitched	5928	384	chr8:23282736-23283649	LOXL2	NM_002318	-19741	ENTPD4	NM_001128930	33781
chr6:139644512-139651035	2_peak_24017_lociStitched	4625	385	chr6:139646319-139647187	TXLNB	NM_153235	-34565	CITED2	NM_001168389	47577
chr7:47708657-47713078	1_peak_24926_lociStitched	4422	386	chr7:47709144-47710216	C7ORF65	NM_001123065	16025	TNS3	NM_022748	-89125
chr11:118269125-118291072	5_peak_2434_lociStitched	11061	387	chr11:118277343-118277790	ATP5L	NM_006476	7994	LOC100131626	NR_046370	9432
chr3:113931510-113942817	3_peak_19046_lociStitched	5864	388	chr3:113932486-113933430	DRD3	NM_001282563	-18909	ZNF80	NM_007136	19262
chr16:67581106-67601095	5_peak_7591_lociStitched	9678	389	chr16:67580923-67582531	CTCF	NM_001191022	-5210	FAM65A	NM_001193524	19735
chr8:22298581-22314348	4_peak_26021_lociStitched	9508	390	chr8:22301179-22301597	PPP3CC	NM_001243975	7981	SLC39A14	NM_001135153	81414
chr11:128418522-128434811	5_peak_2584_lociStitched	6542	391	chr11:128421456-128422271	ETS1	NM_001143820	30787	FLI1	NM_001271012	-129764
chr5:133264236-133275282	3_peak_22061_lociStitched	9848	392	chr5:133269445-133270349	C5ORF15	NM_020199	34647	VDAC1	NR_036625	70898
chr13:31873136-31897243	6_peak_4357_lociStitched	6364	393	chr13:31894821-31895442	B3GALTL	NM_194318	111077	HSPH1	NM_001286505	-148664
chr12:69014600-69035369	5_peak_3432_lociStitched	14821	394	chr12:69024339-69024788	SNORA70G	NR_033335	-3829	RAP1B	NM_001251918	20365
chr9:100860505-100884150	5_peak_27778_lociStitched	10901	395	chr9:100870790-100871212	TRIM14	NM_014788	9308	CORO2A	NM_003389	62847
chr1:157674486-157705234	8_peak_12815_lociStitched	10260	396	chr1:157694792-157695309	FCRL3	NM_052939	-19213	FCRL2	NR_125358	57062
chr6:155003109-155011785	2_peak_24163_lociStitched	6351	397	chr6:155005269-155005620	SCAF8	NM_014892	-47065	CNKSR3	NM_173515	-175694
chr17:65807338-65817706	5_peak_8992_lociStitched	7344	398	chr17:65809290-65809854	BPTF	NM_182641	-9258	SNORA38B	NR_003706	75736
chr15:98689156-98708879	3_peak_6770_lociStitched	8966	399	chr15:98690630-98691157	ARRDC4	NM_183376	195084	LINC00923	NR_024173	-281358
chr3:188404210-188419495	3_peak_19787_lociStitched	11682	400	chr3:188414923-188415331	LPP	NM_001167671	468659	FLJ42393	NR_024413	515521
chr19:10704032-10715963	2_peak_10117_lociStitched	4246	401	chr19:10714565-10715697	SLC44A2	NM_001145056	-3124	AP1M2	NM_005498	-12006
chr8:135610278-135615163	2_peak_27016_lociStitched	4563	402	chr8:135613745-135614502	ZFAT-AS1	NR_002438	2406	ZFAT	NM_001174158	96081
chr10:5729298-5759217	14_peak_74_lociStitched	10858	403	chr10:5736600-5736937	FAM208B	NM_017782	17456	ASB13	NR_024581	-35699
chr1:38616808-38621155	1_peak_11775_lociStitched	4348	404	chr1:38617760-38618958	LINC01343	NR_038928	61458	POU3F1	NM_002699	-106531
chr18:21058318-21092666	9_peak_9447_lociStitched	9960	405	chr18:21059725-21060241	C18ORF8	NR_075075	-7942	RIOK3	NM_003831	42705
chr13:30902496-30929443	8_peak_4308_lociStitched	8094	406	chr13:30906882-30907638	LINC00426	NR_024464	32082	KATNAL1	NM_032116	-34345
chr2:146499278-146510651	4_peak_17162_lociStitched	6920	407	chr2:146508898-146509600	PABPC1P2	NR_026904	-839661	ACVR2A	NM_001278580	-2097122
chr21:34733500-34756843	5_peak_14713_lociStitched	7084	408	chr21:34755342-34756337	IFNGR2	NM_005534	-30031	TMEM50B	NM_006134	107145
chr6:34623580-34649371	5_peak_23244_lociStitched	7396	409	chr6:34642820-34643004	C6ORF106	NM_022758	28152	SNRPC	NR_029472	-88396
chr20:30937267-30957380	12_peak_14038_lociStitched	13405	410	chr20:30946763-30947354	ASXL1	NM_001164603	1176	KIF3B	NM_004798	81869
chr10:94471501-94518670	6_peak_871_lociStitched	7770	411	chr10:94516087-94517594	HHEX	NM_002729	45404	KIF11	NM_004523	142260
chrX:10065326-10090435	8_peak_28431_lociStitched	12437	412	chrX:10079038-10080074	CLCN4	NM_001256944	-47105	WWC3	NM_015691	94085
chr11:121316031-121339204	6_peak_2511_lociStitched	14061	413	chr11:121337163-121337875	SORL1	NM_003105	4705	SC5D	NM_001024956	164040
chr12:111084939-111118712	9_peak_3834_lociStitched	10344	414	chr12:111106409-111108404	HVCN1	NM_032369	25137	PPP1CC	NM_002710	78958
chr19:16251786-16260895	5_peak_10277_lociStitched	8492	415	chr19:16252005-16252386	HSH2D	NR_111903	11502	RAB8A	NM_005370	33850
chr21:40685608-40702660	2_peak_14778_lociStitched	6929	416	chr21:40689908-40690823	BRWD1-AS1	NR_046655	6501	BRWD1	NM_001007246	-8422
chr15:74666388-74697443	6_peak_6460_lociStitched	10659	417	chr15:74695164-74697055	CYP11A1	NM_000781	-21834	LOC729739	NR_045207	28022
chr8:56752375-56758342	2_peak_26321_lociStitched	4676	418	chr8:56757074-56757391	LYN	NM_002350	-37028	TMEM68	NM_001286660	-69392
chr4:154346663-154361921	3_peak_20957_lociStitched	7104	419	chr4:154354212-154355233	KIAA0922	NM_001131007	-33206	MND1	NM_001253861	88491
chr17:76142887-76170686	7_peak_9183_lociStitched	8287	420	chr17:76143435-76144105	SYNGR2	NM_004710	-7885	TK1	NM_003258	26499
chr20:4792024-4797274	1_peak_13878_lociStitched	5251	421	chr20:4793104-4795827	RASSF2	NM_170774	1120	PRNT	NR_024268	-73335

chr8:56835595-56852910	8_peak_26335_lociStitched	10184	422	chr8:56852182-56852585	LYN	NM_002350	51866	TMEM68	NM_001286660	-158286
chr4:146950646-146983696	6_peak_20904_lociStitched	10304	423	chr4:146980265-146981499	LINC01095	NR_038331	75894	LSM6	NM_007080	-129664
chr9:126959431-126981740	8_peak_28041_lociStitched	8698	424	chr9:126978879-126981406	NEK6	NM_001166167	-49300	LOC100129034	NR_027406	-145167
chr18:51736065-51750549	4_peak_9635_lociStitched	8191	425	chr18:51749747-51750065	SNORA37	NR_002970	5475	MBD2	NM_003927	7851
chr4:299824-324189	6_peak_19937_lociStitched	8808	426	chr4:303100-304041	ZNF141	NM_003441	-19590	ZNF732	NM_001137608	-22062
chr12:14425925-14444546	8_peak_2861_lociStitched	8351	428	chr12:14436278-14436754	ATF7IP	NM_001286515	-83331	PLBD1	NM_024829	285556
chr11:72857958-72869360	5_peak_2056_lociStitched	6441	429	chr11:72863170-72864606	FCHSD2	NM_014824	-10516	P2RY2	NM_176072	-65684
chr8:28195307-28206815	2_peak_26106_lociStitched	5496	430	chr8:28195824-28197092	PNOC	NM_001284244	4896	ZNF395	NM_018660	42916
chr14:95953508-95986884	10_peak_5669_lociStitched	12824	431	chr14:95961875-95962308	SYNE3	NM_152592	-28023	SNHG10	NR_003138	31013
chr10:98426747-98442433	8_peak_919_lociStitched	10791	432	chr10:98433053-98434026	PIK3AP1	NM_152309	45689	LCOR	NM_001170765	-157427
chr14:94927154-94951929	4_peak_5656_lociStitched	9862	433	chr14:94942366-94943022	SERPINA9	NM_175739	3129	SERPINA11	NM_001080451	-20419
chr16:87731431-87764065	10_peak_7869_lociStitched	8561	434	chr16:87734446-87736518	KLHDC4	NM_001184854	51850	SLC7A5	NM_003486	155352
chr2:98546607-98554054	3_peak_16708_lociStitched	6807	435	chr2:98552716-98553085	TMEM131	NM_015348	62024	VWA3B	NM_144992	-153265
chr5:100224643-100240645	2_peak_21785_lociStitched	9084	436	chr5:100237413-100238200	ST8SIA4	NM_005668	6345	FAM174A	NM_198507	361520
chr1:24513975-24530982	2_peak_11425_lociStitched	6036	437	chr1:24515794-24517906	LOC284632	NR_027087	-4252	IFNLR1	NM_173065	-8713
chr17:73290556-73294841	1_peak_9081_lociStitched	4286	438	chr17:73291226-73292243	SLC25A19	NM_001126122	-7168	LOC100287042	NR_036520	25318
chr2:33750598-33757231	2_peak_15923_lociStitched	6414	440	chr2:33755635-33756601	RASGRP3	NM_015376	14972	FAM98A	NM_015475	70448
chr2:137133950-137155637	5_peak_17106_lociStitched	10736	441	chr2:137152018-137152526	CXCR4	NM_003467	-269068	DARS	NM_001293312	-401539
chr16:11444627-11465633	7_peak_6992_lociStitched	6909	442	chr16:11455469-11456248	RMI2	NM_152308	15819	PRM1	NM_002761	-79938
chr9:88952002-88969237	6_peak_27632_lociStitched	9128	443	chr9:88965351-88965596	ZCCHC6	NM_001185074	8783	ISCA1	NM_030940	-63129
chr6:26155685-26173688	4_peak_22957_lociStitched	7715	444	chr6:26157362-26158149	HIST1H2BD	NM_021063	6337	HIST1H1E	NM_005321	8127
chr22:18476363-18489038	7_peak_14944_lociStitched	9180	445	chr22:18487917-18488523	MICAL3	NM_015241	24625	FLJ41941	NR_024417	-29451
chr1:25059675-25076314	8_peak_11437_lociStitched	8038	446	chr1:25074784-25075671	CLIC4	NM_013943	-3766	SRRM1	NM_005839	98400
chr22:26929764-26933338	1_peak_15136_lociStitched	3575	447	chr22:26931402-26931797	TFIP11	NM_012143	-23114	SRRD	NM_001013694	51701
chr15:80254250-80275180	6_peak_6559_lociStitched	10272	448	chr15:80269781-80270587	BCL2A1	NM_004049	-1072	ST20	NR_037653	-48619
chr11:130021108-130052264	7_peak_2616_lociStitched	7480	449	chr11:130035838-130036760	ST14	NM_021978	7004	APLP2	NM_001243299	96223
chr11:61121569-61130181	2_peak_1728_lociStitched	7191	450	chr11:61124098-61125271	CYB561A3	NM_001161452	-1514	TMEM138	NM_016464	-3598
chr11:64529661-64551037	4_peak_1817_lociStitched	7755	451	chr11:64546314-64546684	SF1	NM_001178031	4883	PYGM	NM_001164716	-12162
chr7:36225294-36233005	1_peak_24772_lociStitched	7712	452	chr7:36231586-36232114	EEPD1	NM_030636	36313	KIAA0895	NM_001199707	177633
chr9:126098293-126106534	4_peak_28020_lociStitched	5767	453	chr9:126101181-126103115	CRB2	NM_173689	-16033	STRBP	NM_001171137	-71558
chr22:22511404-22523366	3_peak_15003_lociStitched	6564	454	chr22:22521752-22522846	VPREB1	NM_007128	-81815	BMS1P20	NR_027293	-135078
chr17:76755016-76778088	4_peak_9224_lociStitched	7854	455	chr17:76756046-76756386	CYTH1	NM_017456	11872	USP36	NM_025090	70417
chr5:133875575-133891843	6_peak_22088_lociStitched	9994	456	chr5:133876272-133877338	JADE2	NM_015288	21911	SAR1B	NM_016103	84824
chr6:27857027-27863569	peak_23006	6543	457	chr6:27862217-27863478	HIST1H2AM	NM_003514	665	HIST1H2BO	NM_003527	-905
chr2:6913490-6921981	2_peak_15612_lociStitched	6091	458	chr2:6920819-6921471	LINC00487	NR_038369	-7293	CMPK2	NM_001256477	88215
chr1:16156599-16172374	4_peak_11269_lociStitched	7541	459	chr1:16162331-16162631	SPEN	NM_015001	-9873	FLJ37453	NR_024279	10156
chr5:112258150-112265944	1_peak_21818_lociStitched	7795	460	chr5:112258767-112259706	REEP5	NM_005669	-4016	DCP2	NR_038352	-50360
chr5:158301581-158326654	5_peak_22396_lociStitched	12518	461	chr5:158303631-158303822	EBF1	NM_182708	212671	RNF145	NM_001199382	320539
chr18:2956029-2980488	5_peak_9312_lociStitched	13437	462	chr18:2970810-2971545	LOC727896	NR_026659	-21637	LPIN2	NM_014646	43687
chr11:128586178-128606340	7_peak_2595_lociStitched	11256	463	chr11:128595529-128596189	SENCR	NR_038908	-30341	FLI1	NM_002017	32448
chr9:563316-569657	2_peak_27144_lociStitched	5154	464	chr9:565585-566155	KANK1	NM_015158	61791	DOCK8	NM_001190458	293438
chr15:44073260-44084317	3_peak_6072_lociStitched	7183	465	chr15:44081615-44082001	SERF2	NM_001018108	-5252	SERINC4	NM_001258032	13507
chr14:51245604-51262971	7_peak_5143_lociStitched	7369	466	chr14:51256454-51256951	NIN	NM_016350	43552	ABHD12B	NM_181814	-84591
chr3:67095627-67126865	5_peak_18821_lociStitched	6732	467	chr3:67098583-67099238	KBTBD8	NM_032505	62519	LRIG1	NM_015541	-560401
chr14:71120551-71136299	9_peak_5403_lociStitched	10267	468	chr14:71121876-71122561	TTC9	NM_015351	19921	MED6	NM_001284210	-61018
chr15:38962112-38975814	7_peak_5973_lociStitched	7235	469	chr15:38965081-38965559	C15ORF53	NM_207444	-19836	RASGRP1	NM_001128602	-111956
chr3:152214157-152238990	5_peak_19417_lociStitched	9972	470	chr3:152234002-152234412	TMEM14E	NM_001123228	-167794	MBNL1	NM_207294	209379
chr8:101912205-101921248	3_peak_26727_lociStitched	6326	471	chr8:101913824-101914692	YWHAZ	NM_001135702	46073	FLJ42969	NR_033962	-147556
chr22:18538572-18555213	3_peak_14950_lociStitched	5792	472	chr22:18548964-18549563	PEX26	NM_001199319	-13794	TUBA8	NM_001193414	-46561
chr8:12608236-12624944	4_peak_25990_lociStitched	7289	473	chr8:12614989-12615584	LONRF1	NM_152271	-3598	LINC00681	NR_102423	-35162
chr7:50305999-50322357	6_peak_24948_lociStitched	10147	474	chr7:50321104-50322021	IKZF1	NM_001291839	-29501	FIGNL1	NM_001287495	203910
chr1:178544463-178551584	1_peak_13095_lociStitched	7122	475	chr1:178550107-178551284	C1ORF220	NR_033186	36092	TEX35	NM_001170723	65811
chr12:6534623-6538494	peak_2697	3872	476	chr12:6535977-6536962	CD27	NM_001242	-17493	CD27-AS1	NR_015382	24125

chr6:143163602-143180282	7_peak_24032_lociStitched	8067	477	chr6:143169394-143169645	HIVEP2	NM_006734	94396	LINC01277	NR_038987	186777
chr6:18327872-18344137	5_peak_22858_lociStitched	7377	478	chr6:18330701-18331218	RNF144B	NM_182757	-51577	DEK	NM_001134709	-71205
chr9:134127851-134151857	5_peak_28197_lociStitched	10710	479	chr9:134129297-134129897	FAM78A	NM_033387	12052	PPAPDC3	NM_032728	-25227
chr2:197097530-197107839	2_peak_17495_lociStitched	6619	480	chr2:197106808-197107371	STK17B	NM_004226	-66348	DNAH7	NM_018897	-169148
chr3:186232850-186253341	8_peak_19673_lociStitched	7653	481	chr3:186243706-186244360	CRYGS	NM_017541	19072	TBCCD1	NM_018138	42048
chr2:37540789-37577664	5_peak_15939_lociStitched	8420	482	chr2:37560395-37560651	QPCT	NM_012413	-12527	PRKD3	NM_005813	-15004
chr12:46600859-46615857	5_peak_3095_lociStitched	9659	483	chr12:46611503-46612356	SLC38A1	NM_001278389	51920	SLC38A2	NM_018976	158287
chr14:64968015-64975366	1_peak_5303_lociStitched	7352	484	chr14:64971853-64972232	ZBTB1	NM_001123329	398	ZBTB25	NM_006977	-1136
chr15:42782423-42798016	7_peak_6052_lociStitched	6520	485	chr15:42795895-42796498	SNAP23	NM_130798	2715	ZNF106	NM_001284307	-6824
chr14:61967210-61972365	1_peak_5257_lociStitched	5156	486	chr14:61969381-61970580	FLJ22447	NR_039985	-67471	HIF1A	NM_181054	-192332
chr7:22461606-22488123	6_peak_24591_lociStitched	10322	487	chr7:22484868-22485511	STEAP1B	NM_001164460	65037	LOC100506178	NR_038393	-128092
chr20:48236536-48251667	4_peak_14347_lociStitched	9823	488	chr20:48236827-48237369	PTGIS	NM_000961	-59394	KCNB1	NM_004975	-144920
chr16:15726035-15736945	3_peak_7072_lociStitched	6823	489	chr16:15732941-15733437	KIAA0430	NM_001184999	5533	NDE1	NM_001143979	-5634
chr11:73076990-73099053	3_peak_2061_lociStitched	10951	490	chr11:73095682-73096690	RELT	NM_032871	308	ARHGEF17	NM_014786	68358
chr17:74476653-74497290	3_peak_9124_lociStitched	8397	491	chr17:74476883-74478330	RHBDF2	NM_001005498	-2980	AANAT	NM_001088	23341
chrX:119882502-119890818	2_peak_29091_lociStitched	7272	492	chrX:119887235-119887658	C1GALT1C1	NM_001011551	-122655	MCTS1	NM_001137554	148108
chr8:96224802-96249202	8_peak_26676_lociStitched	10137	493	chr8:96226851-96227301	LINC01298	NR_046232	-8400	C8ORF37-AS1	NR_038207	-44062
chr2:61065978-61071609	1_peak_16228_lociStitched	5632	494	chr2:61067926-61068756	LINC01185	NR_033980	39656	REL	NM_001291746	-39837
chr3:169648930-169681551	8_peak_19512_lociStitched	6869	495	chr3:169658257-169658858	LOC100128164	NR_024409	19282	SEC62	NM_003262	-19340
chr18:74757658-74793050	9_peak_9795_lociStitched	9965	496	chr18:74766595-74767483	MBP	NM_001025092	-46299	ZNF236	NM_007345	239238
chr16:22448183-22464457	3_peak_7187_lociStitched	7581	497	chr16:22448536-22448952	RRN3P3	NR_027460	-7284	SMG1P1	NR_027154	7991
chr17:29815441-29836635	3_peak_8409_lociStitched	6900	498	chr17:29818313-29819149	RAB11FIP4	NM_032932	107396	EVI2A	NM_014210	-177271
chr10:88151157-88174298	4_peak_766_lociStitched	6475	499	chr10:88172744-88173537	GRID1	NM_017551	-36477	WAPAL	NM_015045	118814
chr10:11576852-11621735	11_peak_152_lociStitched	11523	500	chr10:11577403-11577860	USP6NL	NM_001080491	-25014	ECHDC3	NM_024693	-185063
chr16:57557122-57573935	4_peak_7551_lociStitched	5353	501	chr16:57570908-57571959	CCDC102A	NM_033212	4949	GPR114	NM_153837	-11073
chr8:103818098-103843675	4_peak_26763_lociStitched	7569	502	chr8:103819485-103819959	AZIN1	NM_148174	45542	ATP6V1C1	NM_001695	-202362
chr10:46147976-46158837	4_peak_456_lociStitched	9330	503	chr10:46148947-46149865	ZFAND4	NM_174890	14774	FAM21C	NM_001169107	-69242
chr3:14466102-14474775	3_peak_18149_lociStitched	7129	504	chr3:14472939-14474155	SLC6A6	NM_001134368	26362	GRIP2	NM_001080423	111412
chr16:11862436-11879310	6_peak_7013_lociStitched	6353	505	chr16:11876753-11877712	ZC3H7A	NM_014153	20241	BCAR4	NR_024050	51816
chr13:31015295-31038673	6_peak_4321_lociStitched	6998	506	chr13:31017916-31018684	HMGB1	NM_002128	13097	LINC00426	NR_024464	-78933
chr10:63657753-63664929	2_peak_533_lociStitched	6963	507	chr10:63661994-63662213	ARID5B	NM_032199	328	C10ORF107	NM_173554	238622
chr6:159447983-159484454	6_peak_24265_lociStitched	8344	508	chr6:159463509-159463997	TAGAP	NM_138810	-34	RSPH3	NM_031924	-45020
chr3:49977472-49994741	3_peak_18638_lociStitched	7095	509	chr3:49984128-49984977	RBM6	NM_001167582	8629	MON1A	NM_001142501	-18661
chr7:93678292-93683837	3_peak_25254_lociStitched	4812	510	chr7:93679097-93679835	BET1	NM_005868	-47374	GNG11	NM_004126	130048
chr6:146184322-146189397	1_peak_24074_lociStitched	5076	511	chr6:146186786-146187370	LOC100507557	NR_038245	50847	FBXO30	NM_032145	-50938
chr16:56454247-56459000	1_peak_7529_lociStitched	4754	512	chr16:56457540-56458026	AMFR	NM_001144	2827	NUDT21	NM_007006	28638
chrX:118799590-118830909	11_peak_29059_lociStitched	13759	513	chrX:118819341-118820499	SEPT6	NM_015129	12084	SOWAHD	NM_001105576	-77327
chr16:29596244-29623330	8_peak_7349_lociStitched	10237	514	chr16:29621758-29622625	SLC7A5P1	NR_002593	15251	SMG1P2	NR_002473	-32247
chr4:78073536-78078356	1_peak_20485_lociStitched	4821	515	chr4:78076882-78077348	CCNG2	NM_004354	-2411	CCNI	NM_006835	-78821
chr1:45178250-45197194	4_peak_11888_lociStitched	6676	516	chr1:45178875-45179523	KIF2C	NM_001297655	-17768	RPS8	NM_001012	-53524
chr17:28032492-28054358	4_peak_8381_lociStitched	5599	517	chr17:28033462-28034214	SSH2	NM_001282131	45025	CORO6	NM_032854	-94984
chr17:66201584-66235624	6_peak_9005_lociStitched	7377	518	chr17:66233484-66234294	LOC440461	NR_027283	23803	AMZ2	NM_001033574	-25541
chr3:71603609-71635968	5_peak_18867_lociStitched	8720	519	chr3:71631098-71631809	FOXP1	NM_001244808	13116	EIF4E3	NM_001134651	154738
chr22:50972565-50981398	2_peak_15574_lociStitched	6083	520	chr22:50973606-50973941	ODF3B	NM_001014440	-5973	TYMP	NM_001113756	-8467
chr17:3587409-3600288	10_peak_8036_lociStitched	9359	521	chr17:3599498-3599881	P2RX5	NM_001204520	5850	GSG2	NM_031965	-33349
chr1:219349816-219363710	3_peak_13483_lociStitched	5404	522	chr1:219361666-219361999	LYPLAL1	NM_001300772	8452	LYPLAL1-AS1	NR_038845	-9633
chr22:41870771-41876927	2_peak_15421_lociStitched	5852	523	chr22:41873898-41875287	ACO2	NM_001098	8720	PHF5A	NM_032758	-9141
chr3:62801278-62821895	6_peak_18779_lociStitched	7359	524	chr3:62803960-62804380	CADPS	NM_183393	49478	LINC00698	NR_027104	-276778
chr2:198158027-198174975	5_peak_17520_lociStitched	9410	525	chr2:198172044-198172380	ANKRD44	NM_001195144	9020	SF3B1	NM_001005526	133270
chr21:45615805-45640665	4_peak_14873_lociStitched	5835	526	chr21:45626516-45627629	ICOSLG	NM_001283050	32652	DNMT3L	NM_013369	53864
chr5:158378652-158387103	3_peak_22400_lociStitched	7950	527	chr5:158385287-158385669	EBF1	NM_182708	143911	RNF145	NM_001199382	251779
chr1:28453064-28478958	6_peak_11572_lociStitched	8281	528	chr1:28474498-28475075	PTAFR	NM_000952	37444	DNAJC8	NM_014280	93531
chr20:57695557-57700274	1_peak_14539_lociStitched	4718	529	chr20:57695557-57696442	ZNF831	NM_178457	-68160	EDN3	NM_001302456	-177567

chr3:72183876-72236059	8_peak_18884_lociStitched	9275	530	chr3:72212992-72213931	LINC00870	NR_038221	9559	RYBP	NM_012234	285807
chr7:2327799-2353957	6_peak_24388_lociStitched	11295	531	chr7:2339428-2339943	SNX8	NM_013321	13232	EIF3B	NM_003751	-53596
chr8:56883337-56919199	10_peak_26345_lociStitched	9778	532	chr8:56903283-56904032	SNORD54	NR_002437	85192	RPS20	NM_001023	85872
chr9:6409748-6434178	7_peak_27214_lociStitched	10133	533	chr9:6412517-6413258	UHRF2	NM_152896	8812	TPD52L3	NM_001001874	93614
chr10:49875423-49891230	6_peak_469_lociStitched	6929	534	chr10:49875943-49876689	WDFY4	NM_020945	-10192	ARHGAP22	NR_045675	-19016
chr13:30944820-30951478	2_peak_4316_lociStitched	6552	535	chr13:30945701-30946439	LINC00426	NR_024464	-98	KATNAL1	NM_032116	-66525
chr9:96030509-96058060	6_peak_27719_lociStitched	7789	536	chr9:96030785-96031753	C9ORF129	NM_001098808	64412	FAM120A	NM_001286723	-169694
chr1:225613015-225633378	4_peak_13557_lociStitched	8672	537	chr1:225623237-225624189	LBR	NM_194442	-6639	ENAH	NM_018212	217649
chr22:50730797-50757247	10_peak_15554_lociStitched	11359	538	chr22:50730814-50731635	PLXNB2	NM_012401	1979	DENND6B	NM_001001794	21467
chr13:103682569-103687974	1_peak_4821_lociStitched	5406	539	chr13:103683751-103684246	SLC10A2	NM_000452	33925	METTL21EP	NR_026965	152822
chr16:69403376-69416070	4_peak_7642_lociStitched	7581	540	chr16:69405467-69405944	TERF2	NM_005652	10168	TMED6	NM_144676	-24011
chr7:5719066-5743715	6_peak_24443_lociStitched	6994	541	chr7:5732893-5733787	RNF216-IT1	NR_046834	-11298	FSCN1	NM_003088	98954
chr5:158238770-158254087	7_peak_22384_lociStitched	10834	542	chr5:158246990-158247549	EBF1	NM_182708	280360	RNF145	NM_001199382	388228
chr12:95581715-95599726	6_peak_3620_lociStitched	8203	543	chr12:95591501-95591942	FGD6	NM_018351	20520	VEZT	NM_017599	-20802
chr19:44261782-44288914	8_peak_10743_lociStitched	7744	544	chr19:44269562-44270277	KCNN4	NM_002250	10061	LYPD5	NM_001288763	28833
chr13:111814186-111839838	7_peak_4850_lociStitched	7574	545	chr13:111836900-111837689	ARHGEF7	NM_001113513	-12161	TEX29	NM_152324	-146003
chr12:32039692-32060541	5_peak_3023_lociStitched	7083	546	chr12:32059525-32060161	KIAA1551	NM_018169	-62237	RNU6-78P	NR_046944	96686
chr19:17178075-17221581	14_peak_10316_lociStitched	7895	547	chr19:17220713-17221182	MYO9B	NM_004145	13237	HAUS8	NM_033417	-13485
chr1:54290797-54304329	2_peak_12008_lociStitched	4641	548	chr1:54303074-54303702	NDC1	NR_033142	6662	YIPF1	NM_018982	57924
chr16:58446307-58473259	7_peak_7571_lociStitched	6846	549	chr16:58460005-58460451	GINS3	NM_001126130	33485	NDRG4	NM_020465	-37766
chr3:13043754-13063822	8_peak_18116_lociStitched	9663	550	chr3:13056423-13057384	IQSEC1	NM_014869	-44590	RPL32	NM_000994	-170707
chr3:177055054-177079469	7_peak_19565_lociStitched	10265	551	chr3:177077626-177078025	LINC00578	NR_047568	-92448	TBL1XR1	NM_024665	-152213
chr8:86096583-86113406	3_peak_26602_lociStitched	8184	552	chr8:86102272-86102707	E2F5	NM_001083589	5084	C8ORF59	NM_001293320	27657
chr2:183580040-183593306	3_peak_17405_lociStitched	6154	553	chr2:183580452-183580847	DNAJC10	NR_073367	5905	FRZB	NM_001463	144825
chr1:55718151-55726817	3_peak_12025_lociStitched	5801	554	chr1:55725691-55726322	LOC100507634	NR_038320	41403	USP24	NM_015306	-41445
chr20:46096432-46122859	5_peak_14298_lociStitched	7240	555	chr20:46097123-46097676	NCOA3	NM_001174087	-20956	ZMYND8	NM_001281769	-124012
chr15:80300572-80311199	2_peak_6566_lociStitched	6361	556	chr15:80304349-80304807	BCL2A1	NM_004049	-42242	ST20	NR_037653	-89789
chr19:50918186-50935266	4_peak_10946_lociStitched	9547	557	chr19:50922736-50923097	SPIB	NM_001243998	4531	MYBPC2	NM_004533	-9434
chr11:59038227-59052452	2_peak_1679_lociStitched	5235	558	chr11:59040177-59041400	MPEG1	NM_001039396	-64845	DTX4	NM_015177	105527
chr6:158182278-158190919	4_peak_24241_lociStitched	4787	559	chr6:158184767-158186179	SNX9	NM_016224	-57605	SYNJ2	NM_003898	-216290
chr6:87808030-87833887	4_peak_23614_lociStitched	7211	560	chr6:87833708-87833959	CGA	NM_000735	-16093	ZNF292	NM_015021	-44311
chr9:112669306-112681905	7_peak_27836_lociStitched	7111	561	chr9:112680572-112681010	PALM2	NM_053016	133028	AKAP2	NM_001004065	-135273
chr19:39888644-39901638	4_peak_10639_lociStitched	8235	562	chr19:39900435-39901092	ZFP36	NM_003407	-2346	PLEKHG2	NM_022835	-8609
chr22:39459205-39470173	3_peak_15347_lociStitched	6954	563	chr22:39461968-39462496	APOBEC3G	NM_021822	-8321	APOBEC3H	NM_001166002	-28540
chr16:46943758-46953788	5_peak_7474_lociStitched	6802	564	chr16:46944907-46945308	GPT2	NM_001142466	29671	C16ORF87	NM_001001436	-83699
chr4:185186943-185210232	6_peak_21112_lociStitched	8382	565	chr4:185204252-185204728	ENPP6	NM_153343	-59473	LOC728175	NR_040108	76543
chr4:114557358-114564341	3_peak_20770_lociStitched	6502	566	chr4:114557704-114558544	CAMK2D	NM_172115	122234	ARSJ	NM_024590	340029
chr19:38441759-38477596	7_peak_10605_lociStitched	8128	567	chr19:38469514-38470244	SIPA1L3	NM_015073	61816	WDR87	NM_031951	-62331
chr2:106411599-106417688	1_peak_16809_lociStitched	6090	568	chr2:106413592-106414292	NCK2	NM_001004722	53123	LOC285000	NR_038891	-187627
chr14:77814057-77841009	12_peak_5504_lociStitched	9407	569	chr14:77826985-77827371	TMED8	NM_213601	15863	SAMD15	NM_001010860	-16229
chr12:6538707-6544074	peak_2698	5368	570	chr12:6541770-6543553	CD27	NM_001242	-12661	CD27-AS1	NR_015382	19293
chr10:30704273-30745072	10_peak_340_lociStitched	12543	571	chr10:30722096-30723758	MAP3K8	NM_001244134	1722	MTPAP	NM_018109	-86405
chr16:30195153-30205653	4_peak_7371_lociStitched	6258	572	chr16:30196777-30197505	LOC606724	NR_002454	398	SLX1A	NM_001015000	-4761
chr19:13262774-13274293	4_peak_10208_lociStitched	6322	573	chr19:13266072-13267541	IER2	NM_004907	7251	STX10	NM_001271611	-7345
chr1:149810791-149815924	peak_12600	5134	574	chr1:149812853-149813595	HIST2H3C	NM_021059	-592	HIST2H2AA4	NM_001040874	961
chr6:155479184-155505754	5_peak_24172_lociStitched	9435	575	chr6:155497684-155497975	TIAM2	NM_001010927	-45628	CLDN20	NM_001001346	-92678
chr12:72079408-72089224	4_peak_3480_lociStitched	6880	576	chr12:72081800-72082151	TMEM19	NM_018279	4438	ZFC3H1	NM_144982	-26567
chr11:111235201-111253634	6_peak_2351_lociStitched	7855	577	chr11:111249859-111250868	POU2AF1	NM_006235	5740	LOC100132078	NR_046085	44494
chr5:96206110-96233214	5_peak_21751_lociStitched	8142	578	chr5:96221768-96222064	ERAP2	NM_001130140	8018	LNPEP	NM_005575	-51684
chr16:85787758-85793323	3_peak_7835_lociStitched	5308	579	chr16:85789582-85790802	C16ORF74	NM_206967	-5851	EMC8	NM_001142288	42608
chr1:149820798-149826264	peak_12602	5467	580	chr1:149823317-149824113	HIST2H3C	NM_021059	-650	HIST2H2AA4	NM_001040874	903
chr18:77219351-77227358	3_peak_9817_lociStitched	5194	581	chr18:77220292-77220733	NFATC1	NM_001278673	63080	CTDP1	NM_048368	-216447
chr3:119256872-119282200	9_peak_19083_lociStitched	13761	582	chr3:119274192-119274615	CD80	NM_005191	8945	ADPRH	NM_001291950	-28744

chr22:43508669-43518362	5_peak_15481_lociStitched	8825	583	chr22:43514848-43515436	BIK	NM_001197	6761	TTLL1	NM_012263	-28081
chr6:107149289-107178272	5_peak_23754_lociStitched	6199	584	chr6:107163587-107164367	LOC100422737	NR_033557	71520	C6ORF203	NM_001142468	-185596
chr12:67006135-67019303	5_peak_3401_lociStitched	5639	585	chr12:67010299-67010934	GRIP1	NM_001178074	60206	HELB	NM_033647	316384
chr17:38017579-38027705	3_peak_8525_lociStitched	6581	586	chr17:38021125-38022119	ZPBP2	NM_198844	-1813	IKZF3	NM_001257413	-2201
chr20:46062389-46081161	6_peak_14292_lociStitched	6836	587	chr20:46067273-46067847	NCOA3	NM_001174087	-58826	ZMYND8	NM_001281769	-86142
chr6:32571096-32602559	14_peak_23130_lociStitched	7748	588	chr6:32590866-32591058	HLA-DQA1	NM_002122	-18356	HLA-DQB1	NM_002123	47639
chr17:1100843-1133001	9_peak_7976_lociStitched	6773	589	chr17:1101282-1102061	ABR	NM_001159746	-26306	BHLHA9	NM_001164405	-56936
chr1:38386060-38406273	7_peak_11772_lociStitched	7072	590	chr1:38388492-38388879	INPP5B	NM_001297434	1297	SF3A3	NM_006802	59595
chr7:155512877-155518346	1_peak_25830_lociStitched	5470	591	chr7:155517230-155517526	RBM33	NM_053043	78408	CNPY1	NM_001103176	-189072
chrX:40027489-40036770	3_peak_28671_lociStitched	8630	592	chrX:40028763-40029656	BCOR	NM_001123384	4453	ATP6AP2	NM_005765	-408087
chr1:33113068-33127821	3_peak_11692_lociStitched	5647	593	chr1:33115760-33116297	RBBP4	NM_001135256	3485	ZBTB8OS	NM_178547	-4259
chr9:112716188-112737696	4_peak_27844_lociStitched	8312	594	chr9:112734332-112735046	AKAP2	NM_001004065	-83936	C9ORF152	NM_001012993	243471
chr3:129128333-129158816	4_peak_19207_lociStitched	7647	595	chr3:129155280-129155549	EFCAB12	NM_207307	3920	IFT122	NM_052990	-15305
chr10:116255663-116260086	1_peak_1101_lociStitched	4424	596	chr10:116256538-116256880	ABLIM1	NM_006720	28811	AFAP1L2	NM_032550	-93337
chr13:77902425-77934375	5_peak_4718_lociStitched	6670	597	chr13:77913032-77913869	MYCBP2	NM_015057	-17223	SCEL	NM_001160706	-191409
chr5:136406345-136412230	2_peak_22109_lociStitched	3848	598	chr5:136408126-136408837	SPOCK1	NM_004598	425731	KLHL3	NM_001257195	632829
chr9:33117092-33165452	10_peak_27304_lociStitched	9638	599	chr9:33158944-33159370	B4GALT1	NM_001497	26084	SPINK4	NM_014471	-98924
chr19:38402280-38422835	7_peak_10595_lociStitched	8055	600	chr19:38405483-38405922	SIPA1L3	NM_015073	14696	WDR87	NM_031951	-15211
chr6:2854076-2864185	4_peak_22651_lociStitched	6379	601	chr6:2854211-2854997	SERPINB1	NM_030666	-16847	SERPINB9P1	NR_033851	17614
chr3:11640351-11647257	3_peak_18098_lociStitched	5280	602	chr3:11643014-11643664	VGLL4	NM_001284391	2251	TAMM41	NM_138807	244589
chr4:113200049-113211146	4_peak_20752_lociStitched	8996	603	chr4:113205584-113206414	TIFA	NM_052864	1462	ALPK1	NM_001253884	-12902
chr17:7738078-7754992	4_peak_8145_lociStitched	7679	604	chr17:7745633-7747298	KDM6B	NM_001080424	3300	TMEM88	NM_203411	-11849
chr9:100747170-100755383	2_peak_27762_lociStitched	8016	605	chr9:100753657-100753952	ANP32B	NM_006401	5787	HEMGN	NM_018437	-44079
chr2:98626551-98644981	4_peak_16718_lociStitched	8131	606	chr2:98643292-98644339	TMEM131	NM_015348	-23412	VWA3B	NM_144992	-67829
chr1:1706767-1714944	2_peak_11105_lociStitched	7435	607	chr1:1710279-1710834	NADK	NM_001198993	-558	SLC35E2	NM_001199787	-33417
chr16:10881662-10907447	6_peak_6947_lociStitched	9037	608	chr16:10884932-10885310	TVP23A	NM_001079512	18067	CIITA	NM_001286403	-76501
chr4:26824096-26834223	4_peak_20196_lociStitched	5794	609	chr4:26828365-26828794	STIM2	NM_020860	-33154	TBC1D19	NM_001292054	243613
chr17:43373196-43394000	6_peak_8642_lociStitched	8064	610	chr17:43373270-43373717	MAP3K14	NM_003954	10832	SPATA32	NM_152343	-44119
chr16:87836604-87845717	3_peak_7878_lociStitched	4845	611	chr16:87842983-87844478	KLHDC4	NM_001184854	-41562	SLC7A5	NM_003486	61940
chr15:85871145-85875263	1_peak_6625_lociStitched	4119	612	chr15:85874095-85874816	AKAP13	NM_006738	-50643	LOC642423	NR_049748	-124686
chr10:23648698-23660868	4_peak_284_lociStitched	7183	613	chr10:23657748-23658623	C10ORF67	NM_153714	-21011	OTUD1	NM_001145373	-73415
chr3:14727809-14733604	1_peak_18153_lociStitched	5796	615	chr3:14728827-14729297	C3ORF20	NM_001184957	14100	CCDC174	NM_016474	37453
chr13:27721506-27752076	7_peak_4249_lociStitched	9748	616	chr13:27750685-27751418	USP12	NM_182488	9242	RPL21	NM_000982	-88901
chr17:26371520-26385359	4_peak_8339_lociStitched	8689	617	chr17:26380798-26381124	NLK	NM_016231	8751	LYRM9	NM_001076680	-158030
chr18:77265673-77284854	8_peak_9821_lociStitched	6308	618	chr18:77283563-77284116	NFATC1	NM_001278673	114989	CTDP1	NM_048368	-164538
chr1:159024469-159042847	4_peak_12851_lociStitched	5181	619	chr1:159037515-159038413	AIM2	NM_004833	12989	IFI16	NM_005531	53976
chr12:113645438-113671033	6_peak_3913_lociStitched	7836	620	chr12:113646007-113646962	IQCD	NM_138451	664	TPCN1	NM_017901	-1008
chr16:30222663-30236510	10_peak_7375_lociStitched	8101	621	chr16:30226887-30227317	LOC613038	NR_002557	-11338	SULT1A3	NM_177552	19037
chr20:4952788-4971211	4_peak_13885_lociStitched	7451	622	chr20:4970234-4970495	SLC23A2	NM_005116	20146	TMEM230	NM_014145	131734
chr9:135256860-135260694	1_peak_28237_lociStitched	3835	623	chr9:135257485-135257974	TTF1	NM_001205296	23461	C9ORF171	NM_001282957	-26806
chr2:214091932-214104079	5_peak_17635_lociStitched	6261	624	chr2:214097614-214098265	LOC100130451	NM_001242575	50924	SPAG16	NM_001025436	-51098
chr1:207585087-207606142	3_peak_13425_lociStitched	9753	625	chr1:207603790-207604352	CR2	NM_001877	-32031	CR1	NM_000573	-73859
chr6:132004122-132013737	4_peak_23902_lociStitched	7712	626	chr6:132004627-132005093	OR2A4	NM_030908	13612	CTAGE9	NM_001145659	23228
chr2:60776007-60784243	2_peak_16224_lociStitched	7951	627	chr2:60782027-60783045	BCL11A	NM_018014	508	PAPOLG	NM_022894	-203240
chr5:78010694-78030153	7_peak_21637_lociStitched	5057	628	chr5:78023679-78024271	LHFPL2	NM_005779	-75775	SCAMP1	NM_001290229	364096
chr2:89050506-89055426	2_peak_16595_lociStitched	4783	629	chr2:89053775-89054399	ANKRD36BP2	NR_015424	-12453	RPIA	NM_144563	61790
chr15:67368322-67403302	9_peak_6379_lociStitched	9544	630	chr15:67385724-67386251	SMAD3	NM_005902	27617	AAGAB	NM_024666	161262
chr8:142172597-142193716	6_peak_27071_lociStitched	6554	632	chr8:142192120-142192938	DENND3	NM_014957	44436	SLC45A4	NM_001080431	55517
chr8:22831067-22840504	4_peak_26032_lociStitched	6095	633	chr8:22831586-22832201	RHOBTB2	NM_001160036	-9145	PEBP4	NM_144962	-50364
chr10:134360614-134386389	8_peak_1248_lociStitched	7290	634	chr10:134385489-134385861	INPP5A	NM_005539	22148	C10ORF91	NM_173541	114787
chr5:131750112-131763816	3_peak_22036_lociStitched	6863	635	chr5:131756528-131756871	C5ORF56	NR_045116	10499	LOC553103	NR_110997	-51356
chr8:29595119-29610838	5_peak_26138_lociStitched	8112	636	chr8:29602811-29603608	LINC00589	NR_026765	2647	FAM183CP	NR_024473	-176051
chr4:26883826-26888404	2_peak_20204_lociStitched	4450	637	chr4:26887596-26887787	STIM2	NM_020860	23802	TBC1D19	NM_001292054	300569

chr3:19383755-19390592	3_peak_18273_lociStitched	5790	638	chr3:19389165-19389759	KCNH8	NM_144633	197156	SATB1	NM_001131010	-906908
chr8:11274119-11317227	13_peak_25961_lociStitched	10998	639	chr8:11275397-11275870	FAM167A	NM_053279	28603	BLK	NM_001715	-55848
chr15:31507912-31531526	6_peak_5918_lociStitched	6731	640	chr15:31528232-31528786	LOC283710	NM_001243538	3331	TRPM1	NM_001252020	-66243
chr9:130788057-130796034	2_peak_28117_lociStitched	6761	641	chr9:130788553-130788927	NAIF1	NM_197956	37554	SLC25A25	NM_001006641	-38434
chr1:220392354-220397330	1_peak_13501_lociStitched	4977	642	chr1:220393226-220393720	SNORA36B	NR_002994	-20824	AURKAPS1	NR_001587	46215
chr10:11637091-11653161	3_peak_157_lociStitched	7153	643	chr10:11652249-11652579	USP6NL	NM_014688	8662	ECHDC3	NM_024693	-139230
chr7:5564927-5573121	4_peak_24441_lociStitched	7432	644	chr7:5571146-5572019	ACTB	NM_001101	1208	FBXL18	NM_024963	-15625
chr8:60017479-60031728	5_peak_26392_lociStitched	11154	645	chr8:60030769-60031291	TOX	NM_014729	7164	NSMAF	NM_003580	-452199
chr3:151911514-151923942	4_peak_19395_lociStitched	8344	646	chr3:151923133-151923362	MBNL1	NM_207292	-68101	MBNL1-AS1	NR_027038	69687
chr7:73506934-73516797	2_peak_25090_lociStitched	5229	647	chr7:73515035-73516159	LIMK1	NM_001204426	4379	ELN	NM_001278918	69746
chr2:241975599-241982009	2_peak_17978_lociStitched	6113	648	chr2:241981048-241981615	SNED1	NM_001080437	40549	LOC200772	NR_033841	-71936
chr12:92828423-92841234	3_peak_3569_lociStitched	3475	649	chr12:92838576-92839945	CLLU1OS	NM_001025232	-12904	CLLU1	NM_001025233	17093
chr12:12867365-12889973	4_peak_2841_lociStitched	9663	650	chr12:12878756-12879047	APOLD1	NM_001130415	-182	CDKN1B	NM_004064	8465
chr10:103726390-103746464	4_peak_1007_lociStitched	6673	651	chr10:103728586-103729192	C10ORF76	NM_024541	79505	HPS6	NM_024747	-88697
chr9:95821556-95827235	1_peak_27714_lociStitched	5680	652	chr9:95823903-95824897	SUSD3	NM_001287007	3425	C9ORF89	NM_032310	-34055
chr6:37117947-37145071	6_peak_23310_lociStitched	6886	653	chr6:37123180-37123834	PIM1	NM_002648	-6413	TMEM217	NM_145316	93904
chr19:8256519-8261523	4_peak_10063_lociStitched	4095	654	chr19:8258091-8259758	CERS4	NM_024552	-15196	FBN3	NM_032447	-46636
chr1:150583148-150594950	2_peak_12625_lociStitched	4476	655	chr1:150585839-150586236	ENSA	NM_207046	12560	MCL1	NM_182763	-36835

Supplementary Table 2. Genes differentially expressed in *Crebbp*$^{fl/fl}$ vs *Crebbp*$^{+/+}$ GC B cells (P ≤ 0.05, FC ≥ 1.2)

Gene Symbol	Probe ID	P-value*	Log2 Fold Change	KO mean	WT mean	FDR	Z-score	Fold change
Downregulated in *Crebbp*$^{fl/fl}$ *Cγ1-Cre*								
Crebbp	1436983_at	0.0000	-0.87	9.42	10.29	0.04	-5.57	0.5471
Nfkbil1	1449951_at	0.0000	-0.31	9.30	9.62	0.08	-4.37	0.8057
H2-Ab1	1425477_x_at	0.0000	-0.32	11.64	11.95	0.08	-3.93	0.8022
Shcbp1l	1429324_at	0.0000	-0.40	8.64	9.03	0.09	-3.39	0.7600
Napsa	1423590_at	0.0001	-0.46	10.84	11.31	0.09	-3.85	0.7258
Cacna1s	1420442_at	0.0001	-0.67	8.31	8.98	0.09	-3.58	0.6282
Hcls1	1418842_at	0.0001	-0.39	10.80	11.19	0.09	-3.22	0.7642
Sept9	1417038_at	0.0001	-0.34	9.79	10.13	0.09	-4.36	0.7903
Ehd4	1449852_a_at	0.0001	-0.27	11.67	11.95	0.09	-3.13	0.8273
Nfatc2	1439205_at	0.0001	-0.40	10.43	10.83	0.09	-3.62	0.7556
Camta1	1433971_at	0.0001	-1.51	5.27	6.78	0.09	-3.87	0.3508
Evl	1450106_a_at	0.0001	-0.52	10.31	10.83	0.09	-3.04	0.6976
Gltscr2	1451121_a_at	0.0001	-0.31	11.63	11.94	0.09	-2.86	0.8089
Tktl1	1449567_at	0.0001	-1.25	5.38	6.63	0.09	-4.81	0.4197
Dyrk3	1424229_at	0.0002	-0.51	7.77	8.28	0.09	-2.94	0.7031
BC028528	1427996_at	0.0002	-0.59	10.18	10.77	0.09	-3.83	0.6663
Gm9835	1419194_s_at	0.0002	-0.56	11.97	12.53	0.09	-3.10	0.6800
Gmfg	1419194_s_at	0.0002	-0.56	11.97	12.53	0.09	-3.10	0.6800
Crlf2	1418097_a_at	0.0002	-0.58	9.03	9.60	0.10	-2.72	0.6699
Ppan	1423703_at	0.0002	-0.32	10.63	10.95	0.10	-2.72	0.8036
Prrg1	1431484_at	0.0002	-0.67	4.32	4.98	0.10	-2.80	0.6301
Rab4b	1451643_a_at	0.0002	-0.46	10.81	11.27	0.10	-2.69	0.7275
Tnfaip8l2	1452948_at	0.0002	-0.47	9.85	10.31	0.10	-3.45	0.7234
BC021614	1424953_at	0.0003	-0.40	7.26	7.66	0.10	-2.64	0.7589
Armcx5	1424481_s_at	0.0003	-0.34	6.85	7.19	0.11	-2.52	0.7896
Hexa	1449024_a_at	0.0003	-0.52	10.21	10.73	0.11	-3.36	0.6982
Cd82	1416401_at	0.0003	-0.34	10.20	10.54	0.11	-4.02	0.7883
AB124611	1438475_at	0.0003	-0.27	10.52	10.79	0.11	-2.46	0.8306
Ece1	1455741_a_at	0.0003	-0.32	8.10	8.41	0.11	-3.51	0.8035
Gm7609	1422140_at	0.0003	-0.64	8.50	9.14	0.11	-2.45	0.6431
Btnl2	1442199_at	0.0003	-0.70	9.43	10.13	0.11	-2.81	0.6161
LOC100862597	1442199_at	0.0003	-0.70	9.43	10.13	0.11	-2.81	0.6161
Nsmaf	1416412_at	0.0004	-0.40	10.79	11.19	0.11	-2.85	0.7578
Fyn	1417558_at	0.0004	-0.62	9.40	10.01	0.11	-2.55	0.6522
Cnpy3	1426479_a_at	0.0004	-0.32	9.40	9.72	0.11	-2.54	0.8014
Cpne5	1442166_at	0.0004	-0.40	10.19	10.59	0.11	-2.40	0.7566
Rab37	1450167_at	0.0004	-0.71	6.63	7.34	0.11	-2.39	0.6115
Abhd6	1419103_a_at	0.0004	-0.37	8.23	8.60	0.11	-2.70	0.7755
Hs3st1	1423450_a_at	0.0004	-0.95	6.82	7.78	0.11	-2.79	0.5161
Wdfy4	1435582_at	0.0004	-0.29	11.69	11.98	0.11	-2.37	0.8204
Tspyl5	1455807_at	0.0005	-1.84	4.78	6.62	0.12	-3.05	0.2801
Ifnlr1	1460598_at	0.0005	-0.95	6.88	7.83	0.12	-2.75	0.5172
Echdc3	1418862_at	0.0005	-0.64	7.76	8.39	0.12	-2.37	0.6430
Cxxc5	1448960_at	0.0005	-0.40	10.59	10.99	0.12	-2.35	0.7574
Ddx25	1418263_at	0.0005	-0.93	8.39	9.32	0.12	-3.23	0.5239
Susd1	1458245_at	0.0005	-0.42	9.07	9.49	0.12	-2.35	0.7451
Fermt3	1433963_a_at	0.0005	-0.35	11.22	11.57	0.12	-4.53	0.7847
Spns3	1429140_at	0.0005	-0.52	8.44	8.96	0.12	-2.28	0.6969
Pdlim2	1423946_at	0.0006	-0.66	9.13	9.79	0.12	-3.71	0.6348
Il2rb	1448759_at	0.0006	-0.83	6.01	6.84	0.12	-2.61	0.5640
Lat	1460651_at	0.0006	-0.49	7.16	7.65	0.12	-2.30	0.7129
Rgs2	1419248_at	0.0006	-0.36	11.68	12.05	0.12	-2.29	0.7786
Ebi3	1449222_at	0.0006	-0.68	8.62	9.30	0.12	-2.36	0.6241
Haao	1432492_a_at	0.0006	-0.57	10.94	11.51	0.12	-2.23	0.6739
Bin1	1425532_a_at	0.0006	-0.51	9.92	10.43	0.12	-2.28	0.7014
H2-Q7	1418536_at	0.0006	-0.47	10.79	11.26	0.12	-2.23	0.7196
H2-Q9	1418536_at	0.0006	-0.47	10.79	11.26	0.12	-2.23	0.7196
Psd2	1428268_at	0.0007	-0.90	5.05	5.95	0.13	-2.17	0.5340
Bcl2a1a	1419004_s_at	0.0007	-0.39	12.51	12.90	0.13	-2.60	0.7647
Bcl2a1b	1419004_s_at	0.0007	-0.39	12.51	12.90	0.13	-2.60	0.7647
Bcl2a1d	1419004_s_at	0.0007	-0.39	12.51	12.90	0.13	-2.60	0.7647
Slc12a3	1422856_at	0.0007	-0.67	5.90	6.58	0.13	-2.30	0.6268
Psen2	1425869_a_at	0.0007	-0.53	9.41	9.94	0.13	-2.17	0.6913

Fam167a	1455872_at	0.0008	-0.84	6.24	7.08	0.13	-3.03	0.5571
Iqce	1434622_at	0.0008	-0.63	8.35	8.98	0.13	-2.42	0.6463
Palm	1423967_at	0.0008	-0.58	8.16	8.73	0.13	-2.75	0.6694
Krt222	1434535_at	0.0008	-0.63	9.75	10.38	0.13	-2.13	0.6465
Sh2d1b1	1423024_at	0.0008	-0.94	6.91	7.85	0.13	-2.16	0.5218
Sh2d1b2	1423024_at	0.0008	-0.94	6.91	7.85	0.13	-2.16	0.5218
Arid3b	1423526_at	0.0009	-0.49	9.47	9.95	0.13	-2.18	0.7142
Aldh3b1	1452301_at	0.0009	-0.38	7.79	8.17	0.13	-3.48	0.7694
Ubxn11	1426105_a_at	0.0009	-0.66	8.10	8.76	0.13	-2.22	0.6324
Ptms	1428707_at	0.0010	-0.52	7.28	7.79	0.13	-2.07	0.6981
Ppp1r18	1431299_a_at	0.0010	-0.28	11.01	11.29	0.14	-2.22	0.8240
Pxk	1451253_at	0.0010	-0.37	10.00	10.36	0.14	-2.08	0.7756
1700029M20Rik	1453154_at	0.0011	-0.90	5.75	6.65	0.14	-2.48	0.5364
Nek8	1450337_a_at	0.0011	-0.52	7.76	8.28	0.14	-2.33	0.6957
Slamf1	1425571_at	0.0011	-0.27	8.50	8.77	0.14	-2.03	0.8292
Gm15821	1453936_at	0.0011	-0.45	6.23	6.68	0.14	-2.57	0.7304
Jmjd1c	1426900_at	0.0011	-0.28	11.13	11.40	0.14	-2.10	0.8262
Cd40	1460415_a_at	0.0011	-0.52	9.86	10.38	0.14	-2.61	0.6982
Kptn	1423438_at	0.0011	-0.36	8.68	9.05	0.14	-2.01	0.7770
Xrn2	1450777_at	0.0012	-0.38	10.66	11.03	0.14	-3.77	0.7711
Cyp4f18	1419219_at	0.0012	-0.49	9.58	10.06	0.14	-1.99	0.7144
Trbv13-2	1427628_at	0.0012	-0.37	4.21	4.58	0.15	-2.18	0.7729
Aim1l	1437813_at	0.0012	-0.44	7.18	7.62	0.15	-1.99	0.7379
Lsp1	1417756_a_at	0.0012	-0.34	11.39	11.73	0.15	-2.08	0.7880
5031439G07Rik	1435745_at	0.0013	-0.27	11.58	11.85	0.15	-2.22	0.8317
Sh2d2a	1449105_at	0.0013	-0.56	7.06	7.61	0.15	-2.48	0.6805
Kif26b	1440990_at	0.0013	-0.40	5.32	5.72	0.15	-2.06	0.7572
Myadm	1439389_s_at	0.0013	-0.42	10.49	10.91	0.15	-2.19	0.7455
Ciita	1421210_at	0.0013	-0.47	8.88	9.35	0.15	-1.99	0.7205
Ccdc162	1445787_at	0.0013	-0.31	4.84	5.14	0.15	-2.03	0.8093
Nfic	1429148_at	0.0013	-0.36	6.79	7.15	0.15	-2.25	0.7817
Egr2	1427683_at	0.0014	-0.40	9.49	9.89	0.15	-2.39	0.7561
Kcnq5	1457587_at	0.0014	-0.31	10.49	10.80	0.16	-2.27	0.8091
St8sia6	1438566_at	0.0014	-0.40	7.73	8.14	0.16	-1.93	0.7555
Itprip	1433943_at	0.0014	-0.36	10.03	10.38	0.16	-1.95	0.7807
H2-DMa	1422527_at	0.0015	-0.37	12.46	12.82	0.16	-2.02	0.7746
Dkkl1	1417787_at	0.0015	-0.60	7.97	8.57	0.16	-2.00	0.6598
Tgfb3	1417455_at	0.0015	-0.91	5.28	6.19	0.16	-2.09	0.5334
Tmem51	1424383_at	0.0015	-1.09	7.23	8.32	0.16	-1.92	0.4699
M1ap	1449358_at	0.0016	-0.40	7.29	7.69	0.16	-1.91	0.7594
Rab30	1426452_a_at	0.0016	-0.30	11.20	11.50	0.16	-1.91	0.8115
Zbtb4	1429722_at	0.0016	-0.33	10.19	10.52	0.16	-2.45	0.7957
S1pr3	1437173_at	0.0016	-0.40	10.10	10.50	0.16	-2.07	0.7564
Dnm3	1425403_at	0.0016	-0.57	5.81	6.38	0.16	-2.04	0.6729
4922502D21Rik	1455808_at	0.0017	-0.75	5.27	6.02	0.16	-2.06	0.5947
Ethe1	1417203_at	0.0017	-0.58	8.69	9.27	0.16	-2.14	0.6712
Fam221a	1434428_at	0.0017	-0.44	8.37	8.81	0.16	-2.67	0.7389
Dnajc10	1452230_at	0.0018	-0.29	9.88	10.17	0.17	-2.55	0.8180
Prr5	1451463_at	0.0018	-0.30	9.85	10.15	0.17	-1.89	0.8143
Ryr1	1427306_at	0.0018	-1.00	10.33	11.33	0.17	-1.90	0.5013
Cyth4	1460437_at	0.0018	-0.50	8.21	8.71	0.17	-1.97	0.7077
Ncf1	1425609_at	0.0018	-0.58	6.06	6.65	0.17	-2.52	0.6676
1700024h08rik	1431333_at	0.0018	-0.45	5.64	6.08	0.17	-1.95	0.7334
Elk3	1435143_at	0.0018	-0.32	9.25	9.57	0.17	-2.08	0.8018
4930415F15Rik	1430044_at	0.0018	-0.30	5.88	6.18	0.17	-1.94	0.8146
9430038I01Rik	1453799_at	0.0018	-0.32	7.85	8.17	0.17	-1.89	0.8023
Arhgap39	1447521_x_at	0.0018	-0.40	9.49	9.90	0.17	-1.84	0.7561
Tcea3	1424531_a_at	0.0020	-0.47	6.33	6.80	0.18	-2.13	0.7221
Ccdc101	1451167_at	0.0020	-0.40	10.09	10.49	0.18	-2.27	0.7569
Plekho2	1427103_at	0.0021	-0.38	8.45	8.82	0.18	-1.80	0.7699
Jarid2	1422698_s_at	0.0021	-0.46	10.30	10.76	0.18	-1.94	0.7277
Pkn3	1434525_at	0.0021	-0.27	7.45	7.72	0.18	-1.79	0.8313
Ccdc69	1419985_s_at	0.0021	-0.35	9.60	9.96	0.18	-1.79	0.7837
Slc2a6	1434015_at	0.0022	-0.69	8.14	8.83	0.18	-1.89	0.6181
H2-M3	1421358_at	0.0022	-0.68	10.45	11.13	0.18	-2.27	0.6242
Yif1b	1428445_at	0.0022	-0.31	8.65	8.95	0.18	-2.05	0.8070
Odc1	1438761_a_at	0.0022	-0.34	11.93	12.27	0.18	-2.13	0.7903

Crisp3	1449838_at	0.0022	-1.48	6.47	7.95	0.18	-1.88	0.3586
Chd5	1436095_at	0.0022	-0.43	5.70	6.13	0.18	-2.22	0.7411
Slfn2	1450165_at	0.0022	-0.46	10.22	10.68	0.18	-1.89	0.7274
Coro7	1428150_at	0.0022	-0.44	7.92	8.36	0.18	-1.79	0.7348
Gm14085	1450639_at	0.0022	-0.29	11.37	11.66	0.18	-1.78	0.8185
Slc28a2	1450639_at	0.0022	-0.29	11.37	11.66	0.18	-1.78	0.8185
Il2rg	1416296_at	0.0023	-0.45	10.54	10.99	0.18	-1.91	0.7336
2900006B11Rik	1430253_at	0.0023	-0.34	5.43	5.77	0.18	-1.77	0.7875
Trabd2b	1443939_at	0.0023	-0.54	7.00	7.55	0.18	-2.17	0.6864
Stt3b	1426343_at	0.0023	-0.29	10.73	11.02	0.18	-1.78	0.8202
Use1	1451130_at	0.0023	-0.27	11.90	12.18	0.18	-2.52	0.8266
Ighm	1427851_x_at	0.0023	-0.56	4.74	5.30	0.18	-1.78	0.6766
Unc93b1	1423768_at	0.0024	-0.36	9.48	9.83	0.18	-1.78	0.7815
Pecam1	1421287_a_at	0.0024	-0.55	7.68	8.23	0.18	-1.91	0.6827
Sepn1	1426680_at	0.0025	-0.57	6.76	7.33	0.18	-1.88	0.6756
Gch1	1420499_at	0.0025	-0.59	6.22	6.82	0.18	-2.31	0.6622
Sept1	1449898_at	0.0025	-0.36	10.19	10.55	0.18	-1.90	0.7770
Muc1	1449199_at	0.0025	-0.36	6.20	6.56	0.18	-1.77	0.7786
Dll1	1419204_at	0.0025	-0.33	6.27	6.60	0.18	-1.78	0.7967
Ass1	1416239_at	0.0026	-0.76	6.89	7.65	0.19	-1.99	0.5911
Npr2	1427191_at	0.0026	-0.52	5.64	6.16	0.19	-2.32	0.6993
Ccdc175	1456101_at	0.0027	-1.19	8.43	9.62	0.19	-2.30	0.4371
Tespa1	1428959_at	0.0027	-0.64	9.50	10.14	0.19	-2.20	0.6433
Ezr	1450850_at	0.0028	-0.28	11.16	11.44	0.19	-1.84	0.8262
Kif9	1420395_a_at	0.0028	-0.41	6.94	7.35	0.19	-1.70	0.7542
Lrrc56	1427890_a_at	0.0029	-0.65	8.91	9.57	0.19	-1.96	0.6353
Nudt14	1424753_at	0.0030	-0.45	9.48	9.92	0.19	-2.09	0.7332
4933406P04Rik	1430093_at	0.0030	-0.52	5.62	6.13	0.19	-1.70	0.6998
Ublcp1	1415789_a_at	0.0030	-0.31	9.03	9.34	0.20	-2.04	0.8050
Syne1	1455493_at	0.0032	-0.52	8.98	9.50	0.20	-1.76	0.6980
Nr4a1	1416505_at	0.0032	-0.78	6.22	7.01	0.20	-2.25	0.5811
Grap	1429387_at	0.0032	-0.42	10.23	10.65	0.20	-1.84	0.7451
Gm9564	1458687_at	0.0032	-0.93	9.12	10.05	0.20	-2.31	0.5246
Cpe	1415949_at	0.0032	-1.16	4.74	5.90	0.20	-1.71	0.4471
Sapcd1	1422952_at	0.0033	-0.71	7.47	8.18	0.20	-2.82	0.6098
LOC100504863	1448398_s_at	0.0033	-0.35	9.62	9.97	0.20	-1.65	0.7846
Rpl22	1448398_s_at	0.0033	-0.35	9.62	9.97	0.20	-1.65	0.7846
Trio	1442751_at	0.0034	-0.47	5.06	5.53	0.21	-1.64	0.7206
Dkk4	1425447_at	0.0034	-0.44	6.00	6.44	0.21	-1.72	0.7393
LOC101055731	1425787_a_at	0.0035	-0.68	5.70	6.37	0.21	-2.23	0.6258
LOC101055745	1425787_a_at	0.0035	-0.68	5.70	6.37	0.21	-2.23	0.6258
Sytl3	1425787_a_at	0.0035	-0.68	5.70	6.37	0.21	-2.23	0.6258
Pqbp1	1417731_at	0.0035	-0.30	11.34	11.64	0.21	-1.69	0.8128
Trim7	1425743_at	0.0036	-0.43	6.28	6.72	0.21	-1.67	0.7399
Tnni2	1416889_at	0.0036	-0.45	8.74	9.19	0.21	-1.67	0.7321
Flna	1426677_at	0.0036	-0.43	9.99	10.41	0.21	-1.63	0.7437
Pear1	1425268_a_at	0.0036	-0.49	8.12	8.61	0.21	-1.63	0.7110
E330009J07Rik	1449056_at	0.0037	-0.64	9.54	10.18	0.21	-1.80	0.6419
Pygl	1417741_at	0.0037	-0.36	4.82	5.18	0.21	-1.97	0.7767
Padi2	1418252_at	0.0037	-0.90	9.86	10.76	0.21	-1.78	0.5349
Stk17b	1423452_at	0.0038	-0.29	11.35	11.65	0.21	-2.17	0.8171
Ahcyl2	1452703_at	0.0038	-0.34	9.56	9.91	0.21	-1.68	0.7874
Ret	1436359_at	0.0038	-0.75	7.24	7.98	0.21	-1.61	0.5966
Ssbp4	1449511_a_at	0.0038	-0.27	8.01	8.28	0.21	-1.62	0.8266
Kcnj11	1450515_at	0.0039	-0.31	5.90	6.21	0.21	-1.61	0.8043
Acy3	1448539_a_at	0.0039	-0.35	5.13	5.48	0.21	-1.69	0.7837
Tap2	1453913_a_at	0.0039	-0.29	9.55	9.85	0.21	-1.63	0.8155
Mta3	1421402_at	0.0039	-0.39	10.15	10.54	0.21	-1.60	0.7616
Strada	1428188_at	0.0039	-0.33	9.66	9.98	0.21	-1.98	0.7982
Cd99	1453556_x_at	0.0039	-0.30	8.88	9.18	0.21	-1.75	0.8144
Lck	1425396_a_at	0.0040	-0.70	9.80	10.50	0.21	-1.75	0.6165
Sema7a	1459903_at	0.0040	-0.40	10.49	10.88	0.21	-1.64	0.7601
Thada	1457106_at	0.0040	-0.41	7.87	8.28	0.21	-2.04	0.7540
Cd5	1418353_at	0.0040	-0.44	5.17	5.61	0.21	-1.81	0.7357
Igf2bp2	1437103_at	0.0041	-0.47	6.47	6.94	0.22	-1.59	0.7215
Abi3	1452928_at	0.0041	-0.33	10.36	10.69	0.22	-1.82	0.7956
Tpm2	1425028_a_at	0.0041	-0.80	4.71	5.51	0.22	-1.59	0.5756

Tubg2	1449318_at	0.0041	-0.83	4.92	5.75	0.22	-1.99	0.5632
Cd69	1428735_at	0.0042	-0.53	9.80	10.33	0.22	-1.61	0.6939
Hemgn	1418199_at	0.0042	-1.00	8.38	9.38	0.22	-2.42	0.4988
Rab31	1416165_at	0.0042	-0.31	9.29	9.61	0.22	-1.59	0.8044
1810043G02Rik	1424267_at	0.0042	-0.30	7.90	8.20	0.22	-2.09	0.8147
Cd164	1431527_at	0.0043	-0.36	6.28	6.65	0.22	-1.71	0.7790
Baiap2	1435128_at	0.0043	-0.32	6.36	6.67	0.22	-2.01	0.8014
Parvg	1416875_at	0.0043	-0.28	10.41	10.69	0.22	-1.76	0.8229
Atrip	1450672_a_at	0.0043	-0.30	9.57	9.86	0.22	-1.90	0.8150
Trex1	1450672_a_at	0.0043	-0.30	9.57	9.86	0.22	-1.90	0.8150
Myo1f	1421618_at	0.0043	-0.49	7.13	7.62	0.22	-1.59	0.7144
Cd180	1421547_at	0.0044	-0.31	10.88	11.19	0.22	-2.03	0.8063
Mpg	1417571_at	0.0044	-0.32	8.63	8.95	0.22	-1.56	0.7992
Kdm4a	1435340_at	0.0045	-0.28	9.34	9.62	0.22	-1.56	0.8255
Fnbp1	1426983_at	0.0045	-0.27	12.26	12.53	0.22	-1.66	0.8283
Vps8	1434050_at	0.0045	-0.39	7.31	7.69	0.22	-1.56	0.7654
Cbx4	1440479_at	0.0048	-0.34	6.07	6.41	0.23	-1.59	0.7906
Cryz	1438610_a_at	0.0048	-0.40	10.33	10.73	0.23	-1.57	0.7554
Orai2	1434763_at	0.0049	-0.33	8.30	8.63	0.23	-1.54	0.7936
Pbx1	1428647_at	0.0049	-0.62	6.05	6.67	0.23	-1.85	0.6521
Itk	1457120_at	0.0049	-0.51	3.19	3.70	0.23	-1.85	0.7035
Grk6	1450480_a_at	0.0052	-0.35	7.24	7.59	0.24	-1.52	0.7858
C920025E04Rik	1449556_at	0.0052	-0.50	11.14	11.64	0.24	-2.27	0.7086
H2-T23	1449556_at	0.0052	-0.50	11.14	11.64	0.24	-2.27	0.7086
9630010G10Rik	1460121_at	0.0052	-0.46	7.49	7.95	0.24	-1.53	0.7261
Rgs9	1418691_at	0.0053	-0.48	7.03	7.50	0.24	-1.51	0.7183
Card11	1435996_at	0.0053	-0.39	9.62	10.01	0.24	-1.51	0.7642
Rapgef3	1424471_at	0.0054	-0.48	7.64	8.12	0.24	-1.54	0.7178
Frat1	1449814_at	0.0054	-0.34	9.23	9.57	0.24	-1.52	0.7898
4930481A15Rik	1436146_at	0.0055	-0.41	6.07	6.48	0.24	-1.60	0.7544
Slc39a11	1424905_a_at	0.0055	-0.47	8.97	9.44	0.24	-1.61	0.7229
Gpr18	1439141_at	0.0055	-0.29	11.09	11.38	0.24	-1.50	0.8174
Slc25a25	1424735_at	0.0055	-0.39	6.97	7.36	0.24	-1.56	0.7638
4833403J16Rik	1429969_at	0.0056	-0.35	8.14	8.49	0.24	-1.54	0.7848
Rftn2	1452946_a_at	0.0056	-0.45	7.33	7.78	0.24	-1.51	0.7314
Zyx	1438552_x_at	0.0056	-0.38	5.23	5.61	0.24	-1.82	0.7682
Zc3h12a	1427348_at	0.0057	-0.34	9.13	9.47	0.24	-1.72	0.7923
Shisa5	1423986_a_at	0.0057	-0.36	10.68	11.04	0.25	-1.74	0.7796
Ffar2	1425216_at	0.0057	-0.90	7.75	8.65	0.25	-1.60	0.5342
Phlda1	1418835_at	0.0057	-0.32	8.13	8.46	0.25	-1.51	0.7984
Pde2a	1452202_at	0.0058	-1.14	6.73	7.87	0.25	-1.52	0.4544
4931428F04Rik	1435024_at	0.0058	-0.34	7.43	7.77	0.25	-1.53	0.7903
Frmd4b	1426594_at	0.0060	-0.31	5.04	5.35	0.25	-1.50	0.8065
Zbtb32	1432459_a_at	0.0063	-0.44	6.99	7.43	0.26	-1.97	0.7383
Endov	1437764_at	0.0064	-0.39	5.08	5.47	0.26	-1.48	0.7606
Ptprs	1426794_at	0.0064	-0.35	10.57	10.92	0.26	-2.19	0.7831
Txndc16	1427050_at	0.0064	-0.33	10.94	11.26	0.26	-1.45	0.7974
Xrcc1	1416587_a_at	0.0064	-0.47	11.11	11.57	0.26	-1.62	0.7237
Abtb1	1417000_at	0.0065	-0.41	8.80	9.21	0.26	-2.21	0.7534
Rps20	1421935_at	0.0066	-0.30	7.98	8.28	0.26	-1.45	0.8117
Snx8	1454667_at	0.0066	-0.28	11.82	12.11	0.26	-1.44	0.8217
Armc9	1435073_a_at	0.0066	-0.33	7.89	8.21	0.26	-1.46	0.7981
Smco2	1429675_at	0.0068	-0.36	5.02	5.38	0.26	-1.46	0.7783
Pyhin1	1435330_at	0.0068	-0.33	11.59	11.93	0.26	-1.59	0.7932
A430093F15Rik	1444299_at	0.0068	-0.69	4.66	5.34	0.26	-1.57	0.6211
2410004P03Rik	1431991_at	0.0068	-0.35	6.14	6.49	0.26	-1.58	0.7869
Extl1	1423305_at	0.0070	-0.44	7.36	7.80	0.27	-1.45	0.7358
Nron	1457187_at	0.0070	-0.31	5.25	5.56	0.27	-1.46	0.8065
Iqcg	1460467_at	0.0071	-0.31	5.40	5.71	0.27	-1.42	0.8084
Arhgap8	1451320_at	0.0072	-0.29	9.52	9.81	0.27	-1.43	0.8174
Ncan	1434679_at	0.0073	-0.69	4.80	5.49	0.27	-1.63	0.6218
Ctsc	1437939_s_at	0.0075	-0.50	7.16	7.67	0.27	-1.41	0.7063
Rgs13	1442263_at	0.0076	-0.61	11.20	11.81	0.27	-2.05	0.6552
Pdcd1lg2	1450290_at	0.0076	-0.36	7.25	7.61	0.27	-1.44	0.7806
Creg1	1415948_at	0.0076	-0.29	10.09	10.38	0.27	-2.30	0.8160
C030013C21Rik	1444183_at	0.0076	-0.29	5.12	5.41	0.27	-1.57	0.8185
Spp1	1449254_at	0.0078	-0.39	3.59	3.97	0.28	-1.39	0.7649

Gm568	1428038_at	0.0078	-0.78	5.74	6.52	0.28	-1.46	0.5822
Cystm1	1427878_at	0.0078	-0.39	7.24	7.63	0.28	-1.40	0.7622
Chst10	1426620_at	0.0079	-0.72	7.01	7.73	0.28	-1.50	0.6074
Gng12	1455089_at	0.0079	-0.27	10.16	10.43	0.28	-1.80	0.8319
Pinlyp	1429835_at	0.0081	-0.44	6.20	6.64	0.28	-1.38	0.7363
Sh3bp2	1448328_at	0.0082	-0.52	9.24	9.76	0.28	-1.89	0.6961
Tspan32	1418398_a_at	0.0083	-0.58	8.57	9.15	0.28	-1.44	0.6697
Mrgpre	1438568_at	0.0084	-0.62	7.06	7.69	0.29	-1.60	0.6503
Adck3	1417066_at	0.0084	-0.47	8.23	8.70	0.29	-1.39	0.7224
Srebf2	1426744_at	0.0086	-0.30	10.96	11.26	0.29	-1.50	0.8129
Ncf4	1418465_at	0.0086	-0.29	11.20	11.48	0.29	-1.97	0.8199
Atf3	1449363_at	0.0087	-0.54	6.10	6.64	0.29	-1.52	0.6892
Ltb	1419135_at	0.0089	-0.35	10.53	10.87	0.29	-1.39	0.7871
Stk11ip	1431792_a_at	0.0090	-0.54	9.43	9.97	0.30	-1.66	0.6891
Gimap6	1427891_at	0.0091	-0.27	11.39	11.67	0.30	-1.68	0.8282
Rexo1	1429489_at	0.0092	-0.28	8.20	8.48	0.30	-1.43	0.8263
Gm19345	1441120_at	0.0092	-0.40	7.18	7.59	0.30	-1.65	0.7554
Csf2rb	1421326_at	0.0092	-0.89	7.29	8.18	0.30	-1.36	0.5408
Rarres1	1438055_at	0.0093	-0.72	4.96	5.68	0.30	-1.51	0.6060
Hmgcs1	1441536_at	0.0093	-0.39	8.48	8.87	0.30	-1.56	0.7650
Ppcdc	1430813_at	0.0093	-0.29	5.20	5.49	0.30	-1.39	0.8180
Zfp961	1433390_at	0.0094	-0.30	4.96	5.27	0.30	-1.35	0.8114
Cybb	1436779_at	0.0094	-0.39	10.60	10.99	0.30	-1.59	0.7650
Lime1	1416869_x_at	0.0094	-0.32	8.82	9.14	0.30	-1.34	0.8026
Zgpat	1416869_x_at	0.0094	-0.32	8.82	9.14	0.30	-1.34	0.8026
Timm8a2	1447997_s_at	0.0095	-0.71	3.89	4.60	0.30	-1.37	0.6113
Dusp2	1450698_at	0.0096	-0.27	10.57	10.84	0.30	-1.43	0.8304
Pfkp	1437759_at	0.0096	-0.38	7.28	7.66	0.30	-1.36	0.7674
Akna	1452393_at	0.0097	-0.63	9.56	10.19	0.30	-1.46	0.6476
4921525O09Rik	1429472_at	0.0097	-0.30	6.31	6.61	0.30	-1.40	0.8096
Rnf167	1430527_a_at	0.0099	-0.29	10.22	10.51	0.30	-1.95	0.8198
Fcgr4	1425225_at	0.0099	-0.58	6.38	6.96	0.30	-1.33	0.6676
Kcnq2	1420800_a_at	0.0099	-0.30	6.84	7.13	0.30	-1.34	0.8139
H2-Oa	1419297_at	0.0100	-0.60	11.52	12.11	0.30	-1.42	0.6616
Dtx4	1455711_at	0.0100	-0.47	5.14	5.62	0.30	-1.43	0.7196
Tm6sf1	1424443_at	0.0100	-0.44	9.45	9.90	0.30	-1.33	0.7353
Prss55	1453316_at	0.0100	-0.50	6.66	7.16	0.30	-2.31	0.7073
Clic4	1438606_a_at	0.0101	-0.27	11.52	11.79	0.30	-1.38	0.8270
Car13	1439620_at	0.0101	-0.40	7.03	7.43	0.30	-1.47	0.7559
Aldh2	1448143_at	0.0101	-0.27	12.06	12.33	0.30	-1.46	0.8296
Lcp2	1418641_at	0.0101	-0.44	9.59	10.03	0.30	-1.40	0.7349
Cd22	1419769_at	0.0101	-0.30	11.53	11.84	0.30	-1.50	0.8097
Traf1	1423602_at	0.0102	-0.36	10.49	10.85	0.30	-1.34	0.7795
Myo18a	1451422_at	0.0102	-0.36	9.12	9.48	0.30	-1.33	0.7813
Il4ra	1423996_a_at	0.0103	-0.36	8.35	8.71	0.31	-1.40	0.7794
Kcnn4	1421038_a_at	0.0104	-0.38	9.49	9.87	0.31	-1.33	0.7706
Fam71e1	1437710_x_at	0.0105	-0.59	5.27	5.86	0.31	-1.36	0.6656
Irf2bpl	1447815_x_at	0.0105	-0.35	3.76	4.10	0.31	-1.33	0.7846
St6galnac3	1420903_at	0.0106	-0.30	4.93	5.23	0.31	-1.35	0.8135
Myo1e	1420159_at	0.0106	-0.47	7.39	7.85	0.31	-1.47	0.7242
AA388235	1437441_at	0.0107	-0.37	6.33	6.70	0.31	-1.54	0.7737
Ccr4	1421655_a_at	0.0107	-0.32	4.06	4.38	0.31	-1.32	0.8031
Bmf	1454880_s_at	0.0107	-0.47	7.71	8.18	0.31	-1.49	0.7199
Rnf157	1440400_at	0.0107	-0.33	9.05	9.38	0.31	-2.03	0.7945
Serpinf1	1453724_a_at	0.0108	-0.34	6.00	6.35	0.31	-1.31	0.7892
Rgs3	1454026_a_at	0.0109	-0.27	5.38	5.66	0.31	-1.87	0.8267
Rassf2	1443998_at	0.0109	-0.40	7.74	8.14	0.31	-1.32	0.7584
Gml	1422400_a_at	0.0110	-0.37	5.37	5.74	0.31	-1.31	0.7734
Hemt1	1422400_a_at	0.0110	-0.37	5.37	5.74	0.31	-1.31	0.7734
BC147527	1435840_x_at	0.0112	-0.44	6.54	6.97	0.31	-1.37	0.7392
Phf11d	1438868_at	0.0112	-0.45	7.93	8.37	0.31	-1.31	0.7346
Snx29	1456922_at	0.0112	-0.78	8.25	9.03	0.31	-1.40	0.5820
Itpr2	1444418_at	0.0112	-0.50	6.59	7.09	0.31	-1.59	0.7078
Junb	1415899_at	0.0114	-0.45	6.70	7.15	0.31	-1.44	0.7308
Msh5	1449537_at	0.0114	-0.31	7.19	7.50	0.31	-1.29	0.8084
Cd59a	1418710_at	0.0114	-0.53	8.90	9.42	0.31	-1.30	0.6948
Selplg	1449127_at	0.0115	-0.47	7.47	7.94	0.31	-1.51	0.7242

Slc7a7	1417392_a_at	0.0115	-0.57	8.89	9.46	0.31	-1.71	0.6713
Gm9796	1443132_at	0.0115	-0.27	4.54	4.81	0.31	-1.49	0.8281
A630023P12Rik	1455370_at	0.0115	-1.10	8.84	9.94	0.31	-1.42	0.4670
Gsn	1415812_at	0.0115	-0.33	10.31	10.64	0.31	-1.62	0.7956
St3gal2	1421890_at	0.0115	-0.28	6.65	6.93	0.31	-1.39	0.8225
Mical3	1439893_at	0.0116	-0.76	8.53	9.30	0.31	-1.33	0.5896
Cyp27a1	1417590_at	0.0117	-0.96	8.06	9.02	0.31	-1.59	0.5144
Spo11	1417021_a_at	0.0118	-0.71	5.47	6.18	0.31	-1.34	0.6112
Cenpb	1426051_a_at	0.0118	-0.28	6.57	6.85	0.31	-1.28	0.8235
Nr1h2	1416353_at	0.0119	-0.34	8.58	8.92	0.31	-1.28	0.7920
Ak7	1430781_at	0.0120	-0.65	8.59	9.24	0.31	-1.57	0.6363
Adra2b	1439645_at	0.0121	-0.31	5.86	6.17	0.31	-1.27	0.8049
2310015A10Rik	1447255_at	0.0122	-0.32	7.13	7.45	0.32	-1.27	0.7985
Ptp4a3	1418182_at	0.0122	-0.37	5.88	6.25	0.32	-1.76	0.7725
Ccdc28b	1442678_at	0.0123	-0.29	6.71	7.00	0.32	-1.35	0.8167
Cdk14	1419250_a_at	0.0124	-0.39	7.14	7.53	0.32	-1.40	0.7646
4933404O12Rik	1435827_at	0.0124	-0.45	8.31	8.76	0.32	-1.40	0.7345
Tmem107	1429058_at	0.0126	-0.39	8.98	9.37	0.32	-1.42	0.7645
Bbs2	1424478_at	0.0127	-0.38	9.30	9.69	0.32	-1.33	0.7666
Bmyc	1428669_at	0.0127	-0.37	10.27	10.64	0.32	-1.31	0.7720
Pdxk	1427930_at	0.0127	-0.28	6.70	6.98	0.32	-1.28	0.8243
Gh	1460310_a_at	0.0128	-0.40	9.37	9.77	0.32	-1.28	0.7584
Ccbp2	1422112_at	0.0128	-0.40	6.85	7.25	0.32	-1.30	0.7554
Plekhm3	1438108_at	0.0129	-0.48	7.44	7.92	0.32	-1.30	0.7175
1700009J07Rik	1432505_at	0.0130	-0.43	5.49	5.92	0.32	-1.39	0.7431
Map3k8	1419208_at	0.0130	-0.57	7.53	8.10	0.32	-1.35	0.6718
Tvp23a	1435130_at	0.0130	-0.39	6.78	7.17	0.32	-1.32	0.7639
Ccdc57	1429852_at	0.0131	-0.40	5.26	5.66	0.32	-1.48	0.7585
Egr3	1436329_at	0.0131	-0.61	9.09	9.70	0.32	-1.88	0.6567
Adat3	1450393_a_at	0.0131	-0.31	8.77	9.08	0.32	-1.65	0.8091
Scamp4	1450393_a_at	0.0131	-0.31	8.77	9.08	0.32	-1.65	0.8091
Hnrnpd	1458273_at	0.0132	-0.30	7.31	7.62	0.32	-1.30	0.8095
Rnf122	1454857_at	0.0133	-0.66	6.24	6.90	0.32	-1.96	0.6340
Tmem231	1456602_at	0.0133	-0.79	7.89	8.68	0.32	-1.49	0.5787
Arhgap9	1419810_x_at	0.0133	-0.52	8.48	9.00	0.32	-1.60	0.6960
Padi3	1419767_at	0.0134	-0.55	5.18	5.73	0.32	-1.24	0.6834
Fcer2a	1451713_a_at	0.0135	-0.50	7.81	8.31	0.33	-1.60	0.7063
Slc43a2	1434308_at	0.0136	-0.31	9.37	9.68	0.33	-1.25	0.8057
Usp2	1417168_a_at	0.0137	-0.49	9.47	9.96	0.33	-1.24	0.7131
Btbd19	1437606_at	0.0137	-0.33	11.05	11.38	0.33	-1.46	0.7975
Aim1	1426942_at	0.0137	-0.59	8.58	9.17	0.33	-1.45	0.6641
Ccdc9	1453609_s_at	0.0137	-0.29	9.12	9.41	0.33	-1.24	0.8162
Ctdp1	1452697_at	0.0138	-0.34	9.50	9.84	0.33	-1.28	0.7920
Herpud1	1435626_a_at	0.0139	-0.48	9.99	10.47	0.33	-1.28	0.7169
Srpk3	1418798_s_at	0.0139	-0.44	10.31	10.75	0.33	-1.30	0.7366
Samsn1	1421457_a_at	0.0140	-0.44	9.89	10.33	0.33	-1.24	0.7389
Akt2	1455703_at	0.0140	-0.28	7.26	7.54	0.33	-1.51	0.8256
Mef2d	1434487_at	0.0141	-0.27	10.45	10.72	0.33	-1.67	0.8267
Rasip1	1428016_a_at	0.0141	-0.36	5.75	6.11	0.33	-1.23	0.7796
Spata13	1454656_at	0.0141	-0.69	8.42	9.11	0.33	-1.44	0.6200
Nphp4	1434024_at	0.0142	-0.48	6.30	6.79	0.33	-1.56	0.7154
Emp1	1459171_at	0.0142	-0.28	5.11	5.39	0.33	-1.23	0.8233
Gpr126	1437409_s_at	0.0142	-0.29	3.26	3.55	0.33	-1.24	0.8192
Invs	1419308_at	0.0143	-0.32	9.57	9.88	0.33	-1.24	0.8024
4930523C07Rik	1438061_at	0.0143	-0.27	8.82	9.09	0.33	-1.40	0.8296
Ppfia4	1428577_at	0.0147	-0.46	5.71	6.17	0.33	-1.36	0.7258
Nfkb2	1425902_a_at	0.0147	-0.36	8.72	9.08	0.33	-1.25	0.7812
Fbxo2	1427004_at	0.0147	-0.41	6.46	6.86	0.33	-1.92	0.7545
H2-Q6	1431008_at	0.0150	-0.42	11.28	11.70	0.34	-1.27	0.7490
H2-Q8	1431008_at	0.0150	-0.42	11.28	11.70	0.34	-1.27	0.7490
LOC68395	1431008_at	0.0150	-0.42	11.28	11.70	0.34	-1.27	0.7490
Mxd3	1422970_at	0.0152	-0.27	8.22	8.49	0.34	-1.45	0.8299
Rasal3	1456870_at	0.0152	-0.29	7.49	7.78	0.34	-1.30	0.8186
Gjc3	1422042_at	0.0154	-0.40	4.35	4.75	0.34	-1.22	0.7582
Nfkbie	1431843_a_at	0.0154	-0.42	10.44	10.86	0.34	-1.51	0.7468
Slc4a8	1456519_at	0.0154	-0.64	4.52	5.16	0.34	-1.36	0.6437
Sept6	1420876_a_at	0.0156	-0.29	10.93	11.21	0.34	-1.40	0.8180

Pqlc1	1426567_a_at	0.0158	-0.31	7.79	8.10	0.34	-1.21	0.8076
AU042410	1440616_at	0.0159	-0.29	3.54	3.84	0.34	-1.41	0.8152
Pycr2	1448315_a_at	0.0160	-0.33	10.65	10.99	0.34	-1.25	0.7933
Adcy7	1450065_at	0.0161	-0.29	10.37	10.66	0.34	-1.23	0.8198
Fcrls	1448891_at	0.0162	-0.33	5.91	6.24	0.34	-1.21	0.7961
Parp1	1422503_s_at	0.0162	-0.39	11.11	11.51	0.34	-1.28	0.7612
Ndrg1	1423413_at	0.0162	-0.36	4.74	5.09	0.34	-1.55	0.7809
Trim14	1436199_at	0.0162	-0.38	8.39	8.77	0.34	-1.38	0.7710
Zfp94	1419521_at	0.0164	-0.42	8.67	9.08	0.34	-1.22	0.7495
Tpd52	1419494_a_at	0.0164	-0.33	10.60	10.93	0.34	-1.19	0.7929
Slc25a45	1426883_at	0.0165	-0.30	8.94	9.24	0.34	-1.31	0.8142
Ehf	1419474_a_at	0.0166	-0.55	7.69	8.25	0.34	-1.48	0.6818
Neu1	1416831_at	0.0168	-0.45	9.15	9.60	0.34	-1.33	0.7314
C430042M11Rik	1457878_at	0.0169	-0.33	9.68	10.00	0.34	-1.37	0.7971
Alcam	1443086_at	0.0169	-0.44	5.19	5.63	0.34	-1.26	0.7396
Crat	1417008_at	0.0169	-0.28	9.17	9.45	0.34	-1.19	0.8251
Cers4	1417782_at	0.0169	-0.48	6.91	7.39	0.34	-1.24	0.7185
Dbn1	1426024_a_at	0.0169	-0.42	5.90	6.33	0.34	-1.21	0.7460
Sult1a1	1427345_a_at	0.0170	-0.54	5.93	6.47	0.34	-1.22	0.6893
Sec22c	1456091_at	0.0170	-0.31	7.75	8.06	0.34	-1.18	0.8085
Smarcb1	1456938_at	0.0170	-0.36	7.86	8.22	0.34	-1.45	0.7769
Pea15a	1416407_at	0.0170	-0.31	8.31	8.62	0.35	-1.21	0.8059
Kcnk10	1431613_a_at	0.0171	-0.27	6.03	6.30	0.35	-1.19	0.8275
Zfp36	1452519_a_at	0.0171	-0.51	10.04	10.55	0.35	-1.27	0.7030
Slc45a4	1433559_at	0.0172	-0.27	9.59	9.86	0.35	-1.33	0.8291
Lrrc49	1451173_at	0.0175	-0.75	5.93	6.69	0.35	-1.30	0.5937
Micu1	1451207_at	0.0176	-0.40	9.06	9.47	0.35	-1.24	0.7555
Pglyrp1	1449184_at	0.0177	-0.87	8.15	9.03	0.35	-1.54	0.5454
Ctla4	1419334_at	0.0178	-0.42	6.94	7.36	0.35	-1.20	0.7487
Hsd11b1	1449038_at	0.0178	-0.89	6.86	7.75	0.35	-1.57	0.5386
Eepd1	1447828_x_at	0.0179	-0.38	3.62	4.00	0.35	-1.39	0.7675
Tpk1	1457662_x_at	0.0180	-0.42	5.56	5.98	0.35	-1.52	0.7489
Recql5	1421235_s_at	0.0182	-0.34	8.98	9.32	0.35	-1.45	0.7919
Arsb	1429189_at	0.0182	-0.37	7.46	7.83	0.35	-1.26	0.7745
Rapgef4	1444034_at	0.0183	-0.62	7.13	7.75	0.35	-1.19	0.6488
Actr3b	1435605_at	0.0183	-0.66	7.46	8.11	0.35	-1.16	0.6341
Ifi27l2a	1426278_at	0.0183	-0.70	11.48	12.18	0.35	-1.43	0.6153
Ston1	1439213_at	0.0185	-0.30	3.63	3.93	0.35	-1.20	0.8119
Aif1l	1424263_at	0.0187	-0.44	7.34	7.77	0.35	-1.19	0.7389
Gramd3	1428737_s_at	0.0188	-0.33	9.96	10.29	0.35	-1.19	0.7975
D5Wsu148e	1443734_at	0.0190	-0.29	6.37	6.66	0.35	-1.18	0.8180
Npy4r	1422271_at	0.0191	-0.28	4.67	4.95	0.35	-1.23	0.8228
Dok1	1417790_at	0.0192	-0.32	9.48	9.80	0.35	-1.45	0.7989
Piwil2	1449170_at	0.0192	-0.44	8.59	9.03	0.35	-1.19	0.7390
Tank	1421640_a_at	0.0194	-0.28	9.75	10.03	0.36	-1.40	0.8209
1700016K19Rik	1436593_at	0.0195	-0.43	4.33	4.76	0.36	-1.18	0.7432
BC026513	1431860_at	0.0197	-0.39	5.61	5.99	0.36	-1.21	0.7647
Irf4	1421173_at	0.0199	-0.31	11.45	11.75	0.36	-1.37	0.8070
1700012B15Rik	1431818_at	0.0200	-0.30	9.23	9.54	0.36	-1.18	0.8105
Mpeg1	1427076_at	0.0201	-0.68	8.61	9.29	0.36	-1.52	0.6242
Map3k7cl	1451810_at	0.0201	-0.27	3.54	3.81	0.36	-1.14	0.8283
Casp6	1415995_at	0.0202	-0.29	8.78	9.07	0.36	-1.14	0.8192
1700056E22Rik	1429677_at	0.0205	-0.30	7.11	7.41	0.36	-1.13	0.8117
Cbfa2t3	1440963_at	0.0206	-0.31	6.67	6.98	0.36	-1.15	0.8073
Zfp365	1433583_at	0.0206	-0.88	5.84	6.72	0.36	-1.27	0.5416
Dqx1	1450314_at	0.0208	-0.38	5.61	5.99	0.36	-1.51	0.7703
Krt28	1430132_at	0.0208	-0.39	4.53	4.92	0.37	-1.22	0.7623
Emp3	1417104_at	0.0208	-0.58	10.39	10.97	0.37	-1.29	0.6686
E2f1	1431875_a_at	0.0210	-0.27	7.80	8.07	0.37	-1.79	0.8305
Wsb2	1421846_at	0.0210	-0.27	7.50	7.78	0.37	-1.17	0.8272
Stk32b	1452420_at	0.0211	-0.27	5.40	5.68	0.37	-1.12	0.8283
Dedd2	1452070_at	0.0211	-0.40	8.42	8.81	0.37	-1.40	0.7603
Socs2	1438470_at	0.0213	-0.75	5.54	6.29	0.37	-1.19	0.5958
Camk2a	1442707_at	0.0217	-0.35	5.19	5.54	0.37	-1.33	0.7851
Prcp	1431361_at	0.0217	-0.48	5.07	5.55	0.37	-1.13	0.7168
Agpat4	1428336_at	0.0217	-0.33	6.90	7.23	0.37	-1.26	0.7949
Kif17	1422762_at	0.0219	-0.36	5.41	5.76	0.37	-1.38	0.7809

Sgip1	1425180_at	0.0222	-0.44	3.93	4.37	0.37	-1.96	0.7380
Adssl1	1449383_at	0.0222	-0.57	7.62	8.20	0.37	-1.61	0.6715
Galnt6	1434399_at	0.0223	-0.45	7.91	8.36	0.37	-1.73	0.7318
Rem2	1448860_at	0.0224	-0.53	5.68	6.21	0.37	-1.17	0.6935
P2rx4	1441772_at	0.0224	-0.27	5.58	5.85	0.37	-1.16	0.8303
Spata9	1453213_at	0.0224	-0.36	5.58	5.94	0.37	-1.10	0.7799
Cyp19a1	1449920_at	0.0225	-0.27	3.74	4.01	0.37	-1.40	0.8296
Hsh2d	1442130_at	0.0225	-0.32	9.04	9.36	0.37	-1.20	0.7994
E130304I02Rik	1454261_at	0.0225	-0.27	4.52	4.80	0.37	-1.15	0.8280
St8sia1	1419695_at	0.0227	-0.59	5.57	6.16	0.37	-1.14	0.6665
Prkcz	1454902_at	0.0228	-0.29	5.99	6.28	0.37	-1.12	0.8179
Med16	1438416_at	0.0229	-0.36	7.66	8.02	0.37	-1.11	0.7767
Cnr2	1450476_at	0.0229	-0.41	8.58	8.99	0.37	-1.35	0.7544
Zfp423	1419380_at	0.0231	-0.45	5.48	5.93	0.38	-1.11	0.7308
Spag16	1429838_at	0.0231	-0.31	4.56	4.87	0.38	-1.50	0.8054
Slc12a8	1420334_at	0.0231	-0.35	6.06	6.40	0.38	-1.22	0.7865
Hormad2	1454052_at	0.0232	-0.28	5.45	5.73	0.38	-1.11	0.8211
Arhgap31	1455164_at	0.0234	-0.31	8.95	9.25	0.38	-1.09	0.8068
Morn1	1456435_at	0.0234	-0.81	6.95	7.77	0.38	-1.39	0.5685
Tgfbr2	1425444_a_at	0.0235	-0.31	6.27	6.58	0.38	-1.42	0.8065
Tbc1d22a	1451107_at	0.0237	-0.27	8.76	9.03	0.38	-1.11	0.8293
Mapre2	1442553_at	0.0237	-0.50	5.43	5.93	0.38	-1.31	0.7086
Grn	1448148_at	0.0238	-0.55	8.18	8.73	0.38	-1.21	0.6852
Jdp2	1450350_a_at	0.0238	-0.37	9.39	9.75	0.38	-1.09	0.7755
2310050B05Rik	1458369_at	0.0240	-0.46	5.98	6.44	0.38	-1.29	0.7280
Nog	1422300_at	0.0240	-0.40	4.19	4.59	0.38	-1.26	0.7589
Eif2ak3	1430371_x_at	0.0240	-0.29	7.72	8.01	0.38	-1.94	0.8191
Litaf	1416304_at	0.0240	-0.42	8.19	8.60	0.38	-1.80	0.7499
Tgm2	1417500_a_at	0.0242	-0.32	5.07	5.39	0.38	-1.36	0.8024
Mcm9	1430563_at	0.0243	-0.32	5.87	6.20	0.38	-1.12	0.7999
Fhl1	1417872_at	0.0245	-1.16	6.69	7.85	0.38	-1.25	0.4467
Pisd-ps3	1429452_x_at	0.0247	-0.32	8.36	8.68	0.38	-1.08	0.8016
Prrc1	1432631_at	0.0250	-0.28	7.07	7.35	0.38	-1.08	0.8259
H2-M10.1	1450587_at	0.0250	-0.29	5.60	5.89	0.38	-1.08	0.8203
Mfsd12	1434263_at	0.0254	-0.28	8.76	9.04	0.39	-1.13	0.8249
Ift172	1423068_at	0.0255	-0.36	7.99	8.35	0.39	-1.08	0.7808
Tnfaip8l1	1449125_at	0.0256	-0.45	6.97	7.42	0.39	-1.08	0.7326
Akap2	1449168_a_at	0.0259	-0.27	9.10	9.37	0.39	-1.08	0.8294
Il12a	1425454_a_at	0.0259	-0.42	6.88	7.30	0.39	-1.07	0.7464
Kmo	1418998_at	0.0261	-0.61	10.35	10.96	0.39	-1.08	0.6544
Hip1	1434557_at	0.0262	-0.51	6.38	6.89	0.39	-1.08	0.7017
Slc28a3	1419571_at	0.0265	-0.35	4.34	4.69	0.39	-1.06	0.7839
Tbxa2r	1419222_at	0.0266	-0.34	7.13	7.47	0.39	-1.19	0.7892
Ggnbp1	1433904_at	0.0266	-0.60	6.37	6.97	0.39	-1.17	0.6607
Arid4b	1446317_at	0.0266	-0.36	5.15	5.51	0.39	-1.14	0.7783
N6amt1	1453821_at	0.0267	-0.32	6.87	7.19	0.39	-1.14	0.8030
Iqsec1	1452327_at	0.0267	-0.38	8.94	9.33	0.39	-1.06	0.7675
Per1	1449851_at	0.0267	-0.46	7.85	8.31	0.39	-1.41	0.7247
Cd276	1417599_at	0.0269	-0.30	6.65	6.96	0.39	-1.05	0.8114
Cotl1	1416002_x_at	0.0269	-0.43	8.99	9.42	0.39	-1.44	0.7430
Ppap2a	1422620_s_at	0.0269	-0.29	9.90	10.19	0.39	-1.28	0.8207
Krtap5-1	1450539_at	0.0270	-0.35	6.26	6.62	0.39	-1.06	0.7831
Avil	1419148_at	0.0271	-0.37	6.54	6.91	0.39	-1.06	0.7754
Gpr110	1421443_at	0.0273	-0.36	3.62	3.98	0.39	-1.50	0.7791
BC051142	1437264_at	0.0274	-0.79	8.25	9.05	0.39	-1.28	0.5770
Amhr2	1427989_at	0.0274	-0.28	6.61	6.89	0.39	-1.13	0.8244
Zfp36l2	1437626_at	0.0275	-0.40	11.60	12.01	0.39	-1.20	0.7562
Gm10785	1442574_at	0.0276	-0.30	6.39	6.69	0.39	-1.08	0.8144
Acap1	1437117_at	0.0277	-0.37	10.94	11.31	0.39	-1.07	0.7754
Zmiz2	1460739_at	0.0279	-0.28	9.97	10.25	0.39	-1.05	0.8261
Fgd2	1419515_at	0.0279	-0.61	9.13	9.73	0.39	-1.06	0.6574
Gpr174	1440900_at	0.0279	-0.53	6.05	6.58	0.39	-1.40	0.6930
Sp100	1434457_at	0.0280	-0.30	7.43	7.73	0.39	-1.33	0.8107
B4galnt2	1442028_at	0.0282	-0.46	5.85	6.30	0.39	-1.06	0.7292
Aoc3	1449396_at	0.0285	-0.28	5.74	6.03	0.39	-1.04	0.8216
Myo15b	1435979_a_at	0.0287	-0.40	4.61	5.01	0.40	-1.05	0.7586
Unkl	1428565_at	0.0287	-0.30	8.40	8.70	0.40	-1.10	0.8126

Rhof	1434794_at	0.0287	-0.44	8.87	9.30	0.40	-1.17	0.7386
5730577I03Rik	1431312_at	0.0289	-0.27	5.95	6.21	0.40	-1.41	0.8305
Scgn	1451534_at	0.0291	-0.28	5.12	5.40	0.40	-1.18	0.8253
Mybbp1a	1423430_at	0.0292	-0.27	9.69	9.96	0.40	-1.07	0.8300
Defb2	1450554_at	0.0293	-0.28	5.05	5.33	0.40	-1.06	0.8260
Susd3	1428975_at	0.0296	-0.56	10.00	10.56	0.40	-1.03	0.6798
Lrrc8c	1423614_at	0.0296	-0.36	7.61	7.97	0.40	-1.04	0.7779
Arel1	1433767_at	0.0297	-0.36	10.14	10.50	0.40	-1.19	0.7799
Ndp	1449251_at	0.0298	-0.34	4.15	4.48	0.40	-1.06	0.7927
Pla2g12a	1452026_a_at	0.0299	-0.42	8.30	8.72	0.40	-1.09	0.7476
Spn	1439034_at	0.0301	-0.34	8.83	9.18	0.40	-1.16	0.7881
Ift122	1427239_at	0.0302	-0.45	7.12	7.57	0.40	-1.03	0.7308
Ms4a4c	1450291_s_at	0.0302	-0.52	9.61	10.13	0.40	-1.27	0.6975
Clcf1	1450262_at	0.0307	-0.41	7.38	7.80	0.40	-1.12	0.7513
Il23a	1419529_at	0.0307	-0.27	4.71	4.98	0.40	-1.08	0.8267
Magea1	1450542_s_at	0.0308	-0.30	3.96	4.26	0.40	-1.04	0.8144
Magea2	1450542_s_at	0.0308	-0.30	3.96	4.26	0.40	-1.04	0.8144
Magea3	1450542_s_at	0.0308	-0.30	3.96	4.26	0.40	-1.04	0.8144
Magea5	1450542_s_at	0.0308	-0.30	3.96	4.26	0.40	-1.04	0.8144
Magea6	1450542_s_at	0.0308	-0.30	3.96	4.26	0.40	-1.04	0.8144
Magea8	1450542_s_at	0.0308	-0.30	3.96	4.26	0.40	-1.04	0.8144
Dock9	1450931_at	0.0308	-0.42	7.45	7.87	0.40	-1.06	0.7483
Ly6d	1416930_at	0.0311	-0.48	10.49	10.97	0.40	-1.27	0.7183
AI131651	1440736_at	0.0311	-0.56	8.29	8.84	0.40	-1.02	0.6805
Unc119b	1460733_at	0.0313	-0.32	9.90	10.21	0.40	-1.15	0.8019
1700066M21Rik	1431183_at	0.0314	-0.26	5.71	5.98	0.40	-1.08	0.8327
Relb	1417856_at	0.0315	-0.38	8.65	9.03	0.40	-1.15	0.7701
Sprr2i	1422963_at	0.0315	-0.27	3.40	3.67	0.40	-1.02	0.8271
Dtx1	1458643_at	0.0316	-0.30	7.66	7.95	0.40	-1.12	0.8132
Tnfaip3	1433699_at	0.0319	-0.39	9.00	9.39	0.40	-1.02	0.7612
C76434	1443409_at	0.0321	-0.31	5.58	5.89	0.41	-1.04	0.8092
Gfi1b	1420399_at	0.0324	-0.33	6.99	7.33	0.41	-1.28	0.7932
C530008M17Rik	1454596_at	0.0324	-0.27	3.14	3.41	0.41	-1.01	0.8301
C030048H21Rik	1439194_at	0.0325	-0.36	4.65	5.01	0.41	-1.03	0.7795
Fhad1	1439190_at	0.0325	-0.28	6.34	6.62	0.41	-1.13	0.8220
Ccnd3	1438805_at	0.0325	-0.58	7.16	7.75	0.41	-1.05	0.6688
Cd72	1426112_a_at	0.0327	-0.39	11.94	12.33	0.41	-1.10	0.7629
Sp110	1429563_x_at	0.0328	-0.53	8.85	9.38	0.41	-1.50	0.6924
Samd5	1437887_at	0.0328	-0.31	5.80	6.11	0.41	-1.13	0.8084
Irf5	1460231_at	0.0330	-0.34	10.18	10.52	0.41	-1.68	0.7886
Fam122a	1453981_at	0.0332	-0.29	5.95	6.24	0.41	-1.14	0.8201
Cxcr5	1422003_at	0.0338	-0.35	10.60	10.94	0.41	-1.23	0.7863
Id2	1453596_at	0.0338	-0.44	4.91	5.35	0.41	-1.28	0.7382
BC029214	1455596_a_at	0.0341	-0.28	8.87	9.15	0.42	-1.00	0.8228
H2-Eb2	1440907_at	0.0342	-0.53	10.89	11.42	0.42	-1.08	0.6907
LOC100043315	1450328_at	0.0346	-0.27	4.02	4.29	0.42	-1.20	0.8275
Lipe	1422820_at	0.0349	-0.35	7.07	7.41	0.42	-1.04	0.7869
LOC101055998	1422820_at	0.0349	-0.35	7.07	7.41	0.42	-1.04	0.7869
Tfcp2l1	1460715_x_at	0.0351	-0.32	5.25	5.57	0.42	-0.99	0.8010
Cdc42se2	1435220_s_at	0.0353	-0.33	10.50	10.84	0.42	-1.04	0.7933
LOC101056447	1435220_s_at	0.0353	-0.33	10.50	10.84	0.42	-1.04	0.7933
Itgb1	1430630_at	0.0354	-0.28	4.54	4.82	0.42	-1.06	0.8254
Slc7a5	1418326_at	0.0354	-0.29	10.53	10.82	0.42	-1.25	0.8179
Nprl3	1433548_at	0.0355	-0.29	8.86	9.15	0.42	-1.01	0.8203
LOC101055758	1460416_s_at	0.0356	-0.41	9.40	9.82	0.42	-1.04	0.7505
Nxpe2	1453220_at	0.0356	-0.41	11.11	11.52	0.42	-1.25	0.7538
Gna15	1421302_a_at	0.0357	-0.41	5.85	6.26	0.42	-1.01	0.7519
Bre	1426312_at	0.0357	-0.29	9.63	9.92	0.42	-1.31	0.8183
LOC664787	1435660_at	0.0358	-0.55	9.56	10.11	0.42	-0.99	0.6812
Slc15a2	1424730_a_at	0.0358	-0.40	5.33	5.73	0.42	-0.98	0.7577
Nab2	1417930_at	0.0359	-0.46	8.26	8.72	0.42	-0.99	0.7246
Spink5	1430567_at	0.0360	-0.31	3.52	3.83	0.42	-1.00	0.8087
Prr24	1455135_at	0.0361	-0.49	9.12	9.61	0.42	-1.09	0.7120
Ccnd2	1416122_at	0.0364	-0.38	7.49	7.86	0.42	-0.98	0.7696
Sorcs2	1419358_at	0.0364	-0.34	6.59	6.93	0.42	-1.04	0.7888
5430427O19Rik	1430373_at	0.0365	-0.32	8.71	9.03	0.42	-1.01	0.8017
Anxa1	1448213_at	0.0365	-0.66	7.16	7.82	0.42	-0.98	0.6336

Rccd1	1456411_at	0.0366	-0.29	8.05	8.34	0.42	-1.09	0.8192
Man1c1	1436193_at	0.0368	-0.66	7.08	7.74	0.42	-0.98	0.6317
Fhod3	1435551_at	0.0371	-0.31	5.60	5.91	0.42	-0.97	0.8087
Cd68	1449164_at	0.0371	-0.35	8.54	8.89	0.42	-1.01	0.7864
Lrrc18	1449894_at	0.0378	-0.28	5.90	6.17	0.43	-1.10	0.8251
Sec16b	1450734_at	0.0381	-0.74	6.02	6.76	0.43	-1.18	0.5986
Magea7-ps	1422423_at	0.0386	-0.33	5.28	5.62	0.43	-1.30	0.7943
Tspan2	1424568_at	0.0387	-0.31	7.45	7.76	0.43	-0.96	0.8083
Efcab11	1431667_s_at	0.0388	-0.28	7.24	7.52	0.43	-0.98	0.8257
Hist2h2aa1	1438815_at	0.0389	-0.27	7.16	7.44	0.43	-0.96	0.8274
Hist2h2aa2	1438815_at	0.0389	-0.27	7.16	7.44	0.43	-0.96	0.8274
Nov	1426852_x_at	0.0389	-0.28	3.63	3.91	0.43	-1.07	0.8257
Vwa7	1450230_at	0.0393	-0.29	8.40	8.68	0.44	-1.07	0.8198
Tusc3	1421662_a_at	0.0397	-0.47	8.74	9.21	0.44	-1.09	0.7219
Il6ra	1452416_at	0.0397	-0.38	7.75	8.13	0.44	-1.08	0.7676
Acvrl1	1451604_a_at	0.0397	-0.30	5.75	6.05	0.44	-1.00	0.8142
Klf12	1441040_at	0.0401	-0.64	3.27	3.91	0.44	-1.02	0.6412
Nxpe4	1456111_at	0.0401	-0.30	5.87	6.16	0.44	-0.96	0.8145
Sit1	1418751_at	0.0401	-0.36	7.59	7.95	0.44	-0.95	0.7780
Eef1d	1459754_x_at	0.0403	-0.32	4.58	4.90	0.44	-1.02	0.7987
Gm20559	1436172_at	0.0403	-0.30	9.55	9.86	0.44	-1.05	0.8100
Ifngr2	1423557_at	0.0403	-0.31	7.88	8.19	0.44	-1.06	0.8061
Trav9d-3	1426113_x_at	0.0404	-0.45	6.56	7.01	0.44	-0.95	0.7338
Ccnb1ip1	1435998_at	0.0404	-0.39	4.96	5.35	0.44	-0.95	0.7650
Srcrb4d	1438147_at	0.0406	-0.29	7.93	8.22	0.44	-0.95	0.8167
Ceacam1	1460682_s_at	0.0407	-0.58	9.06	9.64	0.44	-1.22	0.6670
Ceacam2	1460682_s_at	0.0407	-0.58	9.06	9.64	0.44	-1.22	0.6670
Prkd2	1434333_a_at	0.0408	-0.30	10.45	10.74	0.44	-1.00	0.8141
Nfkbid	1436074_at	0.0409	-0.33	8.35	8.68	0.44	-0.96	0.7975
Ybx2	1420762_a_at	0.0409	-0.37	4.50	4.88	0.44	-0.95	0.7720
Sh3pxd2a	1428914_at	0.0412	-0.29	10.41	10.71	0.44	-1.27	0.8167
Tmem109	1416033_at	0.0413	-0.27	6.21	6.48	0.44	-0.97	0.8277
Stx3	1425536_at	0.0415	-0.59	6.22	6.81	0.44	-0.94	0.6622
Cd86	1420404_at	0.0417	-0.30	11.17	11.48	0.44	-1.27	0.8104
Def6	1452796_at	0.0418	-0.29	9.30	9.59	0.44	-1.07	0.8160
Gimap4	1424374_at	0.0419	-0.41	10.30	10.71	0.44	-1.22	0.7517
Rab6b	1434914_at	0.0420	-0.70	6.00	6.70	0.44	-1.01	0.6161
Derl3	1453677_a_at	0.0421	-0.32	8.86	9.19	0.44	-1.19	0.7984
Mical1	1416759_at	0.0428	-0.28	10.96	11.25	0.44	-0.97	0.8222
Fam49a	1454806_at	0.0430	-0.51	6.67	7.18	0.44	-0.97	0.7015
Amdhd2	1434855_at	0.0431	-0.28	9.40	9.68	0.44	-0.96	0.8224
Vopp1	1451127_at	0.0435	-0.58	7.39	7.97	0.44	-0.93	0.6691
Tns3	1455333_at	0.0439	-0.62	6.62	7.23	0.45	-0.98	0.6510
Rnf183	1425124_at	0.0439	-0.92	6.79	7.71	0.45	-1.52	0.5302
Kcnma1	1428948_at	0.0444	-0.29	3.90	4.19	0.45	-0.95	0.8182
Zfp513	1437483_at	0.0444	-0.31	8.87	9.17	0.45	-0.95	0.8073
Osbpl5	1425391_a_at	0.0444	-0.38	6.49	6.88	0.45	-0.98	0.7665
Tspan11	1445860_at	0.0445	-0.35	4.51	4.86	0.45	-0.93	0.7859
Dchs1	1429163_at	0.0445	-0.27	4.54	4.81	0.45	-0.96	0.8306
Mia	1419608_a_at	0.0445	-0.28	6.36	6.64	0.45	-0.94	0.8211
Ildr1	1423276_at	0.0447	-0.32	8.49	8.81	0.45	-0.94	0.7993
Unc13b	1417757_at	0.0448	-0.38	5.30	5.68	0.45	-1.03	0.7659
Sftpa1	1422334_a_at	0.0449	-0.33	5.08	5.41	0.45	-1.05	0.7969
Fxyd5	1418296_at	0.0450	-0.71	9.01	9.72	0.45	-1.12	0.6102
Slc20a1	1438824_at	0.0450	-0.61	5.90	6.51	0.45	-1.05	0.6557
Trpm5	1418783_at	0.0451	-1.09	7.23	8.32	0.45	-1.00	0.4704
Dpysl4	1418298_s_at	0.0451	-0.29	4.77	5.05	0.45	-1.03	0.8193
Pld4	1433678_at	0.0451	-0.47	11.03	11.50	0.45	-1.03	0.7219
Cep44	1440773_at	0.0453	-0.34	8.40	8.74	0.45	-1.00	0.7896
R74862	1418802_at	0.0453	-0.36	6.38	6.73	0.45	-1.21	0.7810
5530601H04Rik	1452750_at	0.0455	-0.30	9.18	9.49	0.45	-0.94	0.8099
Lefty1	1417638_at	0.0458	-0.49	8.50	8.99	0.45	-1.10	0.7134
Stx11	1453228_at	0.0463	-0.30	8.55	8.85	0.45	-0.96	0.8107
Slc11a1	1420361_at	0.0465	-0.39	6.22	6.60	0.45	-0.91	0.7650
Plekha6	1427149_at	0.0466	-0.29	2.97	3.27	0.45	-0.93	0.8156
1700001L19Rik	1453643_at	0.0468	-0.32	3.94	4.26	0.45	-1.47	0.8014
1600014K23Rik	1429793_at	0.0475	-0.37	5.60	5.97	0.45	-0.93	0.7746

Nxph4	1429753_at	0.0478	-0.53	6.07	6.60	0.45	-0.91	0.6934
Sh2d3c	1415886_at	0.0479	-0.33	8.19	8.52	0.45	-0.91	0.7955
Ralgds	1460634_at	0.0480	-0.35	9.48	9.83	0.45	-0.98	0.7843
Actn1	1427385_s_at	0.0481	-0.28	5.11	5.40	0.45	-0.90	0.8211
Med24	1431282_at	0.0482	-0.29	4.28	4.57	0.45	-0.91	0.8184
Arhgap32	1457597_at	0.0484	-0.29	4.49	4.78	0.45	-0.90	0.8180
Trim69	1418757_at	0.0486	-0.34	5.25	5.59	0.45	-0.92	0.7912
Spopl	1459560_at	0.0489	-0.27	8.01	8.28	0.45	-0.90	0.8265
Nfam1	1428790_at	0.0490	-0.26	6.72	6.99	0.46	-0.90	0.8329
Skap2	1460623_at	0.0494	-0.28	9.67	9.95	0.46	-1.02	0.8223
D17Wsu104e	1448440_x_at	0.0497	-0.28	8.83	9.11	0.46	-1.03	0.8210
B230104F01Rik	1431496_at	0.0499	-0.34	4.71	5.05	0.46	-0.90	0.7915
Slc30a1	1422786_at	0.0500	-0.29	6.33	6.62	0.46	-1.17	0.8165
Tekt5	1429355_at	0.0500	-0.27	6.19	6.46	0.46	-0.91	0.8282
Upregulated in *Crebbp$^{fl/fl}$ Cγ1-Cre*								
Dab2ip	1433558_at	0.0000	0.75	10.12	9.37	0.08	4.39	1.6850
Thyn1	1438480_a_at	0.0000	1.01	9.97	8.96	0.08	4.18	2.0144
Mfsd6	1424464_s_at	0.0000	0.90	8.63	7.73	0.08	4.21	1.8685
Comt	1418701_at	0.0001	1.23	10.09	8.86	0.09	3.18	2.3414
Tfdp2	1437174_at	0.0001	0.88	8.08	7.20	0.09	3.09	1.8435
Kdelc1	1436443_a_at	0.0001	1.11	8.58	7.47	0.09	3.05	2.1587
Lmo4	1420981_a_at	0.0001	0.72	10.37	9.65	0.09	3.08	1.6485
Rell1	1427243_at	0.0001	0.37	10.79	10.42	0.09	2.97	1.2885
Fmn2	1431725_at	0.0001	2.06	8.22	6.17	0.09	3.94	4.1613
Evi5	1417512_at	0.0001	1.08	8.72	7.64	0.09	2.90	2.1145
Lphn2	1434111_at	0.0001	1.53	8.13	6.59	0.09	3.22	2.8938
Scmh1	1441573_at	0.0001	0.85	8.70	7.85	0.09	3.58	1.7968
Acad8	1419262_at	0.0001	0.55	7.05	6.49	0.09	3.11	1.4684
Ndufs4	1459760_at	0.0002	0.28	6.51	6.23	0.09	2.81	1.2147
Clec16a	1455326_at	0.0002	1.19	8.15	6.96	0.09	3.14	2.2817
Nedd4	1421955_a_at	0.0002	1.05	10.03	8.97	0.09	4.45	2.0752
Ppm1e	1434990_at	0.0002	1.17	7.78	6.61	0.09	3.38	2.2518
Thbd	1448529_at	0.0002	0.87	7.78	6.91	0.10	2.83	1.8249
Tmem136	1457701_at	0.0002	2.11	9.24	7.14	0.10	2.86	4.3052
Nqo2	1449983_a_at	0.0002	0.57	8.81	8.25	0.10	2.67	1.4799
Rdx	1416180_a_at	0.0002	1.00	7.20	6.20	0.10	2.69	2.0008
Amer1	1439565_at	0.0002	0.45	9.91	9.45	0.10	2.67	1.3706
Cul7	1417039_a_at	0.0002	0.75	7.56	6.81	0.10	2.62	1.6833
Ggh	1419595_a_at	0.0002	0.75	7.19	6.44	0.10	2.65	1.6764
Pi4k2b	1416489_at	0.0002	0.68	10.08	9.39	0.10	2.58	1.6035
Pkp4	1452209_at	0.0003	0.38	12.03	11.65	0.11	2.64	1.2994
Epb4.1l5	1439284_at	0.0003	0.82	9.53	8.70	0.11	2.51	1.7677
Clstn1	1421861_at	0.0003	0.49	9.85	9.36	0.11	2.67	1.4033
Tspan6	1448501_at	0.0003	0.74	5.14	4.40	0.11	2.71	1.6671
2210013O21Rik	1430538_at	0.0004	0.33	10.60	10.27	0.11	2.78	1.2572
Rp2h	1454816_at	0.0004	0.27	9.05	8.79	0.11	2.49	1.2033
Rabl2	1431931_a_at	0.0004	0.53	7.56	7.03	0.11	3.04	1.4429
Uxs1	1452011_a_at	0.0004	0.42	9.28	8.86	0.11	2.38	1.3391
Raph1	1434303_at	0.0004	0.91	10.42	9.50	0.11	2.54	1.8826
BC030308	1440969_at	0.0005	0.46	7.93	7.47	0.12	2.97	1.3733
D3Ertd254e	1455757_at	0.0006	0.45	8.42	7.97	0.12	2.47	1.3625
Arhgef25	1419978_s_at	0.0006	0.47	7.14	6.67	0.12	2.46	1.3890
Inppl1	1460394_a_at	0.0006	0.86	8.10	7.24	0.12	2.51	1.8103
Ssx2ip	1448743_at	0.0006	0.45	9.82	9.37	0.12	2.97	1.3664
Zfp820	1455786_at	0.0006	1.06	4.58	3.51	0.12	2.86	2.0899
Spsb1	1449752_at	0.0007	0.77	7.35	6.57	0.13	2.19	1.7099
Gfi1	1417679_at	0.0007	1.27	8.31	7.04	0.13	2.70	2.4165
Spry2	1436584_at	0.0007	1.42	7.31	5.90	0.13	2.78	2.6689
Ctsl	1451310_a_at	0.0007	0.89	6.62	5.72	0.13	2.18	1.8579
Eno2	1418829_a_at	0.0007	1.26	7.39	6.13	0.13	2.22	2.3981
Alg11	1434187_at	0.0007	0.26	9.96	9.69	0.13	2.53	1.1983
Jmy	1420640_at	0.0008	0.44	9.04	8.60	0.13	2.14	1.3562
Pfn2	1418210_at	0.0008	0.46	10.41	9.95	0.13	2.15	1.3794
Pdlim1	1416554_at	0.0008	1.00	8.33	7.33	0.13	2.25	1.9989
Cbr1	1460196_at	0.0008	0.71	8.71	8.00	0.13	2.12	1.6367
D17H6S56E-5	1417822_at	0.0008	0.36	11.31	10.95	0.13	2.13	1.2852

Gnb4	1419469_at	0.0008	0.63	7.89	7.26	0.13	2.12	1.5495
Maoa	1428667_at	0.0009	0.51	6.25	5.74	0.13	2.52	1.4236
Stxbp1	1420506_a_at	0.0009	0.39	7.99	7.60	0.13	2.08	1.3115
Pafah2	1448489_at	0.0009	0.41	8.19	7.78	0.13	2.07	1.3319
Agl	1429083_at	0.0009	0.28	6.41	6.13	0.13	2.17	1.2181
C730049O14Rik	1435084_at	0.0009	0.43	8.80	8.37	0.13	2.11	1.3468
Nt5dc2	1424882_a_at	0.0009	0.84	9.86	9.02	0.13	2.10	1.7887
Mxi1	1450376_at	0.0009	0.90	9.10	8.20	0.13	2.07	1.8621
Brwd1	1452321_at	0.0010	0.31	12.16	11.85	0.14	2.52	1.2415
Tjp2	1450984_at	0.0010	0.39	8.00	7.61	0.14	2.06	1.3063
Slc39a8	1416832_at	0.0010	1.11	6.50	5.39	0.14	2.48	2.1655
Itm2a	1423608_at	0.0011	0.59	5.72	5.13	0.14	2.26	1.5036
Arhgef12	1423902_s_at	0.0011	0.29	11.38	11.09	0.14	2.81	1.2267
Arap2	1452291_at	0.0011	0.39	10.18	9.79	0.14	2.45	1.3133
Dirc2	1454654_at	0.0011	0.65	7.98	7.33	0.14	2.36	1.5741
Kdm5b	1427142_s_at	0.0011	1.38	8.01	6.64	0.14	2.64	2.5954
Vcl	1416156_at	0.0011	0.88	9.57	8.69	0.14	2.65	1.8412
Dcun1d4	1455079_at	0.0012	1.03	8.24	7.21	0.14	2.01	2.0443
Ccdc88a	1437216_at	0.0012	0.91	9.47	8.57	0.15	2.04	1.8726
5930405F01Rik	1441372_at	0.0012	1.02	7.47	6.45	0.15	2.00	2.0328
Sorbs1	1428471_at	0.0012	0.54	8.43	7.89	0.15	1.99	1.4495
Nmnat1	1429819_at	0.0013	0.28	8.62	8.35	0.15	1.98	1.2126
Dnmt3a	1460324_at	0.0013	0.40	7.66	7.26	0.15	2.15	1.3218
H6pd	1452145_at	0.0013	0.39	7.23	6.84	0.15	1.99	1.3103
Rap2b	1439548_at	0.0014	0.54	7.96	7.42	0.15	1.97	1.4548
Car2	1448752_at	0.0014	0.91	9.51	8.60	0.16	1.99	1.8787
Clip1	1431098_at	0.0014	0.41	8.40	8.00	0.16	1.93	1.3246
Pld6	1438493_at	0.0015	0.70	7.26	6.56	0.16	2.00	1.6270
Fn3krp	1443050_at	0.0015	0.33	4.51	4.18	0.16	1.99	1.2592
Bicd1	1438701_at	0.0015	1.69	7.28	5.59	0.16	3.45	3.2344
Cdkn2a	1450140_a_at	0.0016	0.41	6.70	6.29	0.16	1.91	1.3282
Man1a2	1420977_at	0.0016	0.31	10.08	9.78	0.16	1.89	1.2384
Trove2	1436534_at	0.0016	0.83	5.59	4.75	0.16	1.89	1.7834
Glul	1426235_a_at	0.0016	0.39	9.16	8.77	0.16	1.90	1.3141
Dip2a	1452908_at	0.0016	0.53	10.50	9.97	0.16	1.88	1.4408
Plekha1	1417965_at	0.0017	0.54	9.70	9.16	0.16	1.87	1.4531
Tmem55a	1424293_s_at	0.0017	1.07	9.55	8.48	0.16	2.32	2.1007
Marcks	1415971_at	0.0017	0.53	10.65	10.12	0.16	2.11	1.4415
Ank	1450627_at	0.0017	0.54	8.71	8.17	0.16	1.86	1.4584
Ptpn9	1451037_at	0.0019	0.94	8.62	7.69	0.17	4.43	1.9138
Mnd1	1452606_at	0.0019	0.33	11.26	10.93	0.17	1.86	1.2564
Trim2	1417027_at	0.0019	0.95	7.56	6.61	0.17	1.85	1.9328
Gm527	1439791_at	0.0019	0.36	5.32	4.96	0.17	1.86	1.2864
Myo9a	1459991_at	0.0019	0.35	5.62	5.27	0.17	1.86	1.2735
Ptgr1	1417777_at	0.0020	0.72	11.07	10.35	0.17	2.86	1.6459
Meis2	1417129_a_at	0.0020	0.51	4.83	4.32	0.18	1.81	1.4201
Sdc1	1415943_at	0.0020	0.74	8.67	7.93	0.18	1.88	1.6717
Ankrd39	1437499_at	0.0021	0.27	8.77	8.50	0.18	1.86	1.2076
Phf21a	1441145_at	0.0022	0.35	9.54	9.19	0.18	1.78	1.2705
Gabarapl1	1416418_at	0.0022	0.60	7.35	6.74	0.18	1.78	1.5210
Rtkn2	1418108_at	0.0023	0.89	7.20	6.30	0.18	2.44	1.8556
Zmat3	1449353_at	0.0023	0.48	10.32	9.84	0.18	2.06	1.3972
Nnt	1416105_at	0.0024	0.69	9.56	8.87	0.18	2.63	1.6177
Utrn	1452222_at	0.0024	0.87	8.98	8.11	0.18	1.80	1.8339
Cryl1	1447112_s_at	0.0024	0.43	6.76	6.34	0.18	1.78	1.3466
Smim13	1433986_at	0.0024	0.53	9.19	8.65	0.18	1.78	1.4472
Dzip1	1452793_at	0.0025	0.81	6.28	5.47	0.18	1.83	1.7513
Bhlhb9	1428512_at	0.0025	0.44	10.09	9.64	0.18	2.12	1.3599
9430052A13Rik	1433262_at	0.0026	0.28	5.32	5.04	0.19	1.75	1.2104
Vat1	1423726_at	0.0026	0.51	8.28	7.77	0.19	1.72	1.4285
Tmem159	1426436_at	0.0027	0.70	7.56	6.86	0.19	1.84	1.6245
Insr	1434446_at	0.0027	0.48	8.43	7.95	0.19	2.45	1.3919
Gnpda2	1426523_a_at	0.0027	0.29	9.86	9.57	0.19	2.13	1.2199
6720422M22Rik	1437798_at	0.0027	1.06	5.92	4.86	0.19	1.90	2.0876
Fam92a	1451570_a_at	0.0027	0.37	10.35	9.98	0.19	2.45	1.2903
Rab32	1416527_at	0.0027	0.83	8.71	7.88	0.19	1.72	1.7751
Kifap3	1417181_a_at	0.0028	0.49	7.81	7.32	0.19	1.70	1.4028

Gcsh	1432164_a_at	0.0028	0.29	10.43	10.14	0.19	1.70	1.2199
LOC674321	1432164_a_at	0.0028	0.29	10.43	10.14	0.19	1.70	1.2199
Fam210a	1436219_at	0.0028	0.44	7.98	7.54	0.19	2.10	1.3591
Cysltr2	1421642_a_at	0.0029	0.29	5.99	5.70	0.19	1.71	1.2231
Gid4	1438541_at	0.0029	0.50	7.98	7.48	0.19	1.85	1.4122
9430099H24Rik	1432806_at	0.0029	0.68	7.36	6.69	0.19	1.86	1.6001
Brpf3	1435225_s_at	0.0030	0.32	10.67	10.35	0.19	1.80	1.2491
A930004D18Rik	1439514_at	0.0030	0.95	6.83	5.87	0.19	1.70	1.9361
Myl4	1422580_at	0.0030	0.36	12.96	12.60	0.20	1.71	1.2814
Ids	1434751_at	0.0030	0.46	6.67	6.22	0.20	1.97	1.3720
LOC101056500	1432431_s_at	0.0031	0.58	5.19	4.61	0.20	1.76	1.4956
Macrod2	1432431_s_at	0.0031	0.58	5.19	4.61	0.20	1.76	1.4956
Slc25a24	1452717_at	0.0031	1.24	7.95	6.71	0.20	1.94	2.3699
Sgcb	1419668_at	0.0031	0.53	7.28	6.75	0.20	1.79	1.4444
Ip6k2	1428373_at	0.0032	0.43	8.58	8.15	0.20	1.80	1.3449
Dhrs7	1426440_at	0.0034	0.42	8.84	8.42	0.21	1.65	1.3399
Acpl2	1456735_x_at	0.0035	1.00	6.08	5.08	0.21	1.73	2.0030
4933439C10Rik	1456408_x_at	0.0035	0.33	6.54	6.21	0.21	1.90	1.2540
Akap12	1419706_a_at	0.0036	0.32	12.62	12.30	0.21	1.84	1.2474
Irf6	1418301_at	0.0036	0.85	6.36	5.50	0.21	1.63	1.8084
0610010F05Rik	1428652_at	0.0036	0.37	9.50	9.13	0.21	1.62	1.2928
Sccpdh	1426510_at	0.0037	0.93	8.93	8.00	0.21	1.91	1.9083
Spred1	1452911_at	0.0037	0.90	9.36	8.46	0.21	2.80	1.8705
Dimt1	1426291_at	0.0037	0.29	8.32	8.04	0.21	2.33	1.2191
Dennd5a	1424015_at	0.0038	0.52	9.41	8.89	0.21	2.72	1.4349
Mpzl1	1428167_a_at	0.0039	0.62	8.66	8.04	0.21	2.10	1.5386
Armcx4	1427167_at	0.0039	1.24	7.61	6.37	0.21	3.21	2.3608
Hsd17b10	1448286_at	0.0040	0.32	11.20	10.88	0.21	1.60	1.2483
Tbc1d19	1424918_at	0.0040	0.73	8.73	8.00	0.21	1.73	1.6552
Zdhhc2	1452655_at	0.0041	0.46	8.31	7.85	0.22	1.66	1.3764
D7Ertd558e	1458769_at	0.0042	0.67	8.48	7.80	0.22	1.86	1.5957
Hsd17b4	1417369_at	0.0043	0.27	9.29	9.02	0.22	1.64	1.2039
LOC101056649	1427434_at	0.0043	0.38	8.13	7.76	0.22	1.67	1.2970
Naip6	1427434_at	0.0043	0.38	8.13	7.76	0.22	1.67	1.2970
Naip7	1427434_at	0.0043	0.38	8.13	7.76	0.22	1.67	1.2970
Plekhh1	1447807_s_at	0.0043	0.46	8.43	7.97	0.22	1.57	1.3780
Idh1	1422433_s_at	0.0044	0.33	11.09	10.76	0.22	2.47	1.2564
Slc16a10	1436368_at	0.0044	0.66	7.25	6.59	0.22	1.57	1.5754
Bbs7	1454684_at	0.0045	0.52	6.62	6.10	0.22	1.57	1.4365
Trim37	1434554_at	0.0046	0.31	10.14	9.83	0.23	1.62	1.2422
Hic2	1437571_at	0.0046	0.51	6.10	5.59	0.23	1.69	1.4276
Gbf1	1432676_at	0.0047	0.42	7.28	6.86	0.23	1.61	1.3401
Arhgap29	1444512_at	0.0049	0.43	4.83	4.39	0.23	1.70	1.3481
Itga8	1454966_at	0.0049	0.28	3.31	3.04	0.23	1.56	1.2102
Zfp318	1430558_at	0.0050	0.50	8.41	7.91	0.23	1.61	1.4103
Usp31	1419828_at	0.0050	0.36	5.62	5.26	0.24	1.57	1.2872
Hmgcll1	1434913_at	0.0051	1.12	5.31	4.19	0.24	1.52	2.1764
Trps1	1438214_at	0.0052	1.11	8.68	7.56	0.24	1.79	2.1644
Mxd1	1434830_at	0.0052	0.47	8.65	8.18	0.24	1.61	1.3879
Rprd1a	1454964_at	0.0053	0.53	9.94	9.40	0.24	1.51	1.4448
Glo1	1436070_at	0.0054	0.39	7.75	7.36	0.24	1.75	1.3099
4930430F08Rik	1453468_at	0.0054	0.54	7.31	6.77	0.24	1.50	1.4536
Cpm	1453009_at	0.0055	0.49	10.68	10.19	0.24	2.85	1.4000
Map4k3	1446798_at	0.0055	0.81	5.61	4.80	0.24	2.20	1.7519
Ccdc109b	1418778_at	0.0055	0.67	7.18	6.51	0.24	1.69	1.5935
4930513N10Rik	1442152_at	0.0056	0.65	8.16	7.52	0.24	1.73	1.5660
A930035D04Rik	1436942_at	0.0056	0.39	7.18	6.79	0.24	1.58	1.3072
Zmynd11	1436153_a_at	0.0057	0.85	9.04	8.18	0.25	1.56	1.8066
Ldlrad4	1452343_at	0.0058	0.57	7.63	7.07	0.25	1.79	1.4802
Bivm	1434288_at	0.0058	0.41	6.44	6.03	0.25	1.68	1.3297
Tmlhe	1420726_x_at	0.0060	0.52	3.12	2.60	0.25	1.72	1.4338
Klhl23	1435743_at	0.0061	1.19	6.70	5.52	0.25	2.30	2.2777
Nxn	1422465_a_at	0.0062	0.50	7.94	7.44	0.26	1.53	1.4155
Ptpn21	1419054_a_at	0.0063	0.42	6.82	6.40	0.26	1.66	1.3344
Armcx2	1415780_a_at	0.0063	0.49	8.29	7.80	0.26	1.51	1.4035
Slk	1433999_at	0.0064	0.29	10.99	10.70	0.26	1.53	1.2262
Flrt3	1429310_at	0.0064	0.33	4.00	3.66	0.26	1.76	1.2606

Prkar2a	1428783_at	0.0065	0.39	9.48	9.08	0.26	1.47	1.3118
Dcbld2	1437635_at	0.0065	0.65	8.81	8.16	0.26	1.98	1.5723
Gpx7	1417836_at	0.0065	0.91	7.14	6.23	0.26	1.78	1.8808
Gspt2	1418109_at	0.0066	0.39	4.51	4.12	0.26	1.53	1.3082
Enah	1424800_at	0.0066	0.94	6.25	5.31	0.26	1.58	1.9187
Pls3	1423725_at	0.0066	1.49	6.32	4.83	0.26	1.88	2.8156
Smyd2	1424760_a_at	0.0066	0.66	8.82	8.16	0.26	1.47	1.5806
E030024N20Rik	1430386_at	0.0067	0.49	9.39	8.90	0.26	1.46	1.4036
Tulp3	1449008_at	0.0067	0.30	9.79	9.49	0.26	1.45	1.2322
Otud7b	1428953_at	0.0067	0.44	9.57	9.13	0.26	1.78	1.3560
Plekha8	1454819_at	0.0067	0.95	8.53	7.58	0.26	1.44	1.9377
Zdhhc23	1441069_at	0.0071	0.34	8.81	8.47	0.27	1.85	1.2661
Dst	1423626_at	0.0071	1.30	7.22	5.92	0.27	1.66	2.4612
Csnk2a1	1419035_s_at	0.0071	0.39	8.69	8.30	0.27	1.63	1.3117
LOC100047957	1419035_s_at	0.0071	0.39	8.69	8.30	0.27	1.63	1.3117
Cttn	1421315_s_at	0.0071	0.75	8.90	8.15	0.27	2.21	1.6854
AW209491	1423512_at	0.0072	0.27	8.20	7.92	0.27	1.51	1.2094
Nudt4	1449107_at	0.0073	0.40	8.80	8.39	0.27	1.43	1.3230
Dnajc12	1417441_at	0.0074	0.92	6.71	5.80	0.27	1.65	1.8911
Cdk7	1458987_at	0.0074	0.41	5.41	5.00	0.27	1.88	1.3266
Abcc5	1435685_x_at	0.0074	0.50	8.62	8.13	0.27	1.98	1.4098
Acer3	1429520_a_at	0.0077	0.44	7.89	7.45	0.27	1.43	1.3577
Cers6	1434418_at	0.0077	0.48	11.25	10.78	0.27	1.40	1.3923
Ccdc30	1430190_at	0.0079	0.72	5.88	5.16	0.28	1.84	1.6458
Prmt2	1437234_x_at	0.0079	1.08	9.07	7.99	0.28	2.78	2.1101
Flot2	1417544_a_at	0.0079	0.26	9.30	9.04	0.28	1.66	1.2001
Ear11	1425295_at	0.0080	0.26	3.21	2.94	0.28	1.39	1.1990
Bphl	1424242_at	0.0081	0.38	8.98	8.59	0.28	1.65	1.3027
Magee1	1422431_at	0.0081	0.60	6.29	5.69	0.28	1.39	1.5161
Rab39b	1435014_at	0.0082	1.15	6.66	5.51	0.28	1.49	2.2242
Ttk	1442594_at	0.0083	0.32	10.46	10.14	0.28	2.15	1.2477
Dnaja4	1418591_at	0.0084	0.83	6.32	5.49	0.29	1.37	1.7736
Faah	1434091_at	0.0085	0.88	7.40	6.51	0.29	1.51	1.8435
Dut	1419269_at	0.0085	0.27	10.32	10.06	0.29	1.43	1.2018
Prg3	1449924_at	0.0086	0.43	7.24	6.81	0.29	1.37	1.3486
Eef2k	1437829_s_at	0.0086	0.79	9.06	8.26	0.29	1.39	1.7328
Maged1	1450062_a_at	0.0086	0.36	8.95	8.59	0.29	1.37	1.2791
Kif3a	1420375_at	0.0087	0.33	7.08	6.75	0.29	1.41	1.2548
Fam168a	1454950_at	0.0088	0.27	7.97	7.69	0.29	1.37	1.2088
Rad52	1426296_at	0.0088	0.31	8.44	8.13	0.29	1.44	1.2423
Zfp763	1434675_at	0.0088	0.38	10.44	10.06	0.29	1.44	1.3026
Aamdc	1451381_at	0.0089	0.29	9.08	8.79	0.29	1.41	1.2240
Selenbp1	1450699_at	0.0089	0.33	6.74	6.41	0.29	1.50	1.2590
Decr1	1419367_at	0.0091	0.42	10.31	9.90	0.30	1.35	1.3349
Iglv1	1427292_at	0.0093	0.31	12.11	11.80	0.30	2.03	1.2439
Fads2	1419031_at	0.0095	0.34	10.62	10.28	0.30	1.34	1.2626
Tnfrsf10b	1421296_at	0.0095	0.70	5.80	5.09	0.30	1.40	1.6270
Ypel2	1434277_a_at	0.0096	0.61	10.45	9.84	0.30	1.38	1.5215
Rnf125	1429399_at	0.0097	0.44	8.00	7.55	0.30	1.48	1.3607
Elovl6	1417403_at	0.0098	0.36	7.60	7.24	0.30	1.37	1.2876
Gprasp1	1424455_at	0.0098	0.89	8.95	8.06	0.30	1.53	1.8488
Ccdc25	1451799_at	0.0098	0.78	9.04	8.26	0.30	1.60	1.7120
Usp49	1453037_at	0.0098	0.26	10.46	10.19	0.30	1.52	1.1999
Smad3	1454960_at	0.0100	0.50	9.65	9.15	0.30	1.43	1.4189
4930480K15Rik	1431858_at	0.0100	0.34	3.17	2.83	0.30	1.33	1.2671
Cnnm3	1420481_at	0.0100	0.52	10.54	10.02	0.30	1.35	1.4382
Lrrc28	1433858_at	0.0101	0.38	8.88	8.50	0.30	1.75	1.2982
Zfp248	1453531_at	0.0102	0.34	5.92	5.57	0.30	1.57	1.2696
Zfp40	1435984_at	0.0103	0.44	10.92	10.48	0.31	1.35	1.3597
March5	1452925_a_at	0.0105	0.31	9.81	9.50	0.31	1.31	1.2361
Tmem191c	1420192_at	0.0105	0.94	7.93	6.99	0.31	1.68	1.9144
Vangl1	1427234_at	0.0106	0.39	6.36	5.97	0.31	1.42	1.3121
Ick	1455687_at	0.0106	0.75	6.47	5.72	0.31	1.88	1.6816
Rab33a	1417529_at	0.0106	0.64	6.04	5.40	0.31	1.31	1.5579
Tmem201	1454868_at	0.0106	0.35	8.80	8.45	0.31	1.52	1.2702
Raet1a	1420603_s_at	0.0108	0.54	8.87	8.33	0.31	1.31	1.4532
Raet1b	1420603_s_at	0.0108	0.54	8.87	8.33	0.31	1.31	1.4532

Raet1c	1420603_s_at	0.0108	0.54	8.87	8.33	0.31	1.31	1.4532
Raet1d	1420603_s_at	0.0108	0.54	8.87	8.33	0.31	1.31	1.4532
Raet1e	1420603_s_at	0.0108	0.54	8.87	8.33	0.31	1.31	1.4532
Cnksr3	1433983_at	0.0108	0.45	6.80	6.35	0.31	1.34	1.3707
Slc25a13	1449481_at	0.0109	0.38	10.32	9.94	0.31	1.32	1.3007
Cd1d1	1449130_at	0.0109	0.71	7.02	6.31	0.31	1.31	1.6411
Prkaca	1450519_a_at	0.0109	0.30	12.06	11.76	0.31	2.32	1.2293
4930432F04Rik	1425311_at	0.0109	0.27	6.74	6.47	0.31	1.31	1.2020
Tmem41b	1437402_x_at	0.0109	0.35	10.50	10.15	0.31	1.73	1.2733
2900057C01Rik	1454384_at	0.0112	0.44	6.38	5.94	0.31	1.38	1.3579
Zfp827	1439493_at	0.0113	0.95	8.24	7.29	0.31	1.34	1.9360
Gtf2ird1	1460364_at	0.0113	0.50	7.11	6.61	0.31	1.65	1.4140
Cox6b2	1435275_at	0.0114	0.33	8.59	8.26	0.31	1.32	1.2585
Jazf1	1433894_at	0.0114	0.41	8.50	8.09	0.31	1.54	1.3272
Mpp5	1434954_at	0.0115	0.28	9.47	9.18	0.31	1.34	1.2163
Tet2	1438781_at	0.0117	0.52	8.65	8.14	0.31	1.32	1.4293
Tpmt	1430889_a_at	0.0117	0.33	6.46	6.13	0.31	1.30	1.2612
Gm4349	1443245_at	0.0118	0.80	6.97	6.17	0.31	1.66	1.7449
Chpt1	1455901_at	0.0118	0.71	4.10	3.39	0.31	1.45	1.6363
Cntln	1451469_at	0.0118	0.87	6.17	5.31	0.31	1.50	1.8242
Cited1	1449031_at	0.0119	0.47	5.65	5.18	0.31	1.42	1.3895
Cand2	1429621_at	0.0119	0.45	7.86	7.41	0.31	2.12	1.3657
Lrba	1451887_at	0.0119	0.36	6.61	6.25	0.31	1.59	1.2857
Frrs1	1423465_at	0.0120	0.65	10.31	9.67	0.31	1.49	1.5643
Fech	1418698_a_at	0.0120	0.26	9.52	9.26	0.31	1.46	1.1984
Arhgap18	1426952_at	0.0121	0.74	6.79	6.05	0.31	1.31	1.6700
Krt1	1422481_at	0.0121	0.69	5.28	4.59	0.31	1.46	1.6165
2210419D22Rik	1428500_at	0.0123	0.45	11.38	10.93	0.32	1.29	1.3626
Lrp6	1428500_at	0.0123	0.45	11.38	10.93	0.32	1.29	1.3626
Rsu1	1457220_at	0.0124	0.29	6.72	6.42	0.32	1.27	1.2235
Zfp647	1455633_at	0.0126	0.47	6.26	5.79	0.32	1.47	1.3838
Agphd1	1435691_at	0.0126	0.71	6.13	5.42	0.32	2.10	1.6408
Armc8	1434949_at	0.0126	0.30	8.71	8.42	0.32	1.27	1.2291
Galc	1452907_at	0.0127	0.59	6.57	5.99	0.32	1.90	1.5023
Nisch	1451338_at	0.0127	0.43	9.47	9.03	0.32	1.54	1.3502
Rps6kc1	1434563_at	0.0128	0.43	7.05	6.62	0.32	1.33	1.3449
Ncapd3	1430782_at	0.0129	0.43	7.67	7.24	0.32	1.31	1.3470
Megf9	1455960_at	0.0129	0.30	3.36	3.05	0.32	1.34	1.2339
Zfp458	1445824_at	0.0130	0.54	6.80	6.26	0.32	1.26	1.4493
Morn4	1434943_at	0.0130	0.56	7.22	6.66	0.32	1.26	1.4735
Celf4	1452240_at	0.0134	0.89	6.14	5.25	0.33	1.82	1.8540
Atp10a	1452013_at	0.0135	0.45	9.95	9.49	0.33	1.31	1.3698
Rgs11	1425245_a_at	0.0135	0.31	5.61	5.29	0.33	1.29	1.2433
Eif4e3	1417978_at	0.0135	0.44	6.80	6.35	0.33	1.26	1.3585
Mb21d2	1439014_at	0.0136	0.87	6.78	5.91	0.33	1.24	1.8295
Bcl7c	1447139_at	0.0136	0.53	5.27	4.74	0.33	1.24	1.4396
5730409N24Rik	1430362_at	0.0136	0.58	5.49	4.92	0.33	1.45	1.4933
Vsig10	1436591_at	0.0137	0.60	7.41	6.82	0.33	1.24	1.5117
Cry1	1433733_a_at	0.0138	0.42	9.15	8.72	0.33	1.31	1.3423
4632427E13Rik	1429331_at	0.0138	0.35	9.72	9.37	0.33	1.25	1.2764
Gls	1434657_at	0.0139	0.30	10.05	9.75	0.33	1.23	1.2316
Csrnp2	1434532_at	0.0140	0.47	9.91	9.44	0.33	1.25	1.3857
Spg20	1424876_s_at	0.0140	0.35	7.75	7.40	0.33	1.24	1.2779
Vkorc1l1	1429092_at	0.0140	0.28	10.21	9.93	0.33	1.83	1.2154
Ehd2	1435785_at	0.0140	0.36	10.74	10.38	0.33	1.29	1.2867
Med12l	1452864_at	0.0143	0.40	7.38	6.98	0.33	1.23	1.3163
Slc19a2	1441315_s_at	0.0145	0.40	9.11	8.71	0.33	1.28	1.3188
March8	1428385_at	0.0145	0.43	8.14	7.71	0.33	1.29	1.3507
LOC100047518	1455871_s_at	0.0146	0.49	10.73	10.25	0.33	1.55	1.4006
Rpl13	1455871_s_at	0.0146	0.49	10.73	10.25	0.33	1.55	1.4006
Tax1bp3	1455871_s_at	0.0146	0.49	10.73	10.25	0.33	1.55	1.4006
Pigf	1448896_at	0.0146	0.32	11.07	10.75	0.33	1.22	1.2466
LOC101056614	1421525_a_at	0.0148	0.74	7.02	6.28	0.33	1.54	1.6737
Naip5	1421525_a_at	0.0148	0.74	7.02	6.28	0.33	1.54	1.6737
Pbx3	1447640_s_at	0.0148	0.50	9.16	8.66	0.33	1.51	1.4126
Eid1	1448405_a_at	0.0149	0.34	9.99	9.65	0.34	1.24	1.2666
Gstm1	1448330_at	0.0150	0.26	5.54	5.27	0.34	1.26	1.2016

Gm3556	1456687_at	0.0150	0.27	9.19	8.92	0.34	1.22	1.2066
Bmpr2	1434310_at	0.0151	0.46	6.39	5.94	0.34	1.47	1.3717
Rnf38	1431993_a_at	0.0151	0.51	7.35	6.84	0.34	1.25	1.4213
Smad1	1448208_at	0.0151	0.85	9.31	8.47	0.34	1.33	1.7983
Mpp7	1455179_at	0.0153	0.48	8.37	7.89	0.34	1.36	1.3912
Zfp516	1437921_x_at	0.0154	0.59	7.69	7.10	0.34	1.38	1.5054
E130107B13Rik	1441668_at	0.0154	0.53	7.75	7.22	0.34	1.42	1.4481
Tmtc1	1435261_at	0.0154	0.55	5.70	5.16	0.34	1.25	1.4596
Ogt	1425517_s_at	0.0156	0.32	11.00	10.68	0.34	1.26	1.2477
Rcn1	1417090_at	0.0157	0.63	8.39	7.76	0.34	1.20	1.5517
Klhl7	1452660_s_at	0.0157	0.50	7.54	7.04	0.34	1.43	1.4129
Dsel	1438407_at	0.0158	0.99	7.29	6.30	0.34	1.22	1.9913
Rims2	1436470_at	0.0158	0.33	3.77	3.44	0.34	1.23	1.2605
Echdc2	1425788_a_at	0.0158	0.33	6.77	6.44	0.34	1.56	1.2556
Ndufaf2	1452923_at	0.0159	0.33	10.71	10.38	0.34	1.50	1.2553
C230085N15Rik	1457656_s_at	0.0160	0.64	8.88	8.24	0.34	1.25	1.5579
Intu	1454350_at	0.0160	0.65	5.54	4.89	0.34	1.61	1.5717
Mob3b	1429284_at	0.0161	0.56	7.72	7.16	0.34	1.22	1.4754
Egln1	1423785_at	0.0161	0.60	10.70	10.10	0.34	1.42	1.5155
Vwa5a	1426221_at	0.0162	0.89	7.81	6.92	0.34	1.31	1.8557
Dedd	1434994_at	0.0162	0.37	9.62	9.25	0.34	1.53	1.2904
Nipa1	1434864_at	0.0162	0.45	5.56	5.11	0.34	1.42	1.3684
Dcun1d3	1437763_at	0.0165	0.32	8.43	8.12	0.34	1.24	1.2447
Plcxd1	1437842_at	0.0165	0.42	6.90	6.48	0.34	1.51	1.3405
Notch1	1418633_at	0.0165	0.54	6.79	6.25	0.34	1.19	1.4525
Zxda	1439077_at	0.0166	0.39	8.36	7.97	0.34	1.24	1.3109
Zc3hav1l	1456756_at	0.0166	0.64	8.12	7.48	0.34	1.18	1.5597
Wls	1423825_at	0.0167	0.44	4.41	3.97	0.34	1.27	1.3550
Plin2	1448318_at	0.0169	0.51	8.31	7.80	0.34	1.20	1.4213
Nudt16l1	1437624_x_at	0.0170	0.28	11.87	11.59	0.34	1.21	1.2123
5230400M03Rik	1437493_at	0.0170	0.32	6.44	6.13	0.34	1.18	1.2444
Purg	1424970_at	0.0170	0.65	7.93	7.28	0.34	1.47	1.5650
Iglc2	1447918_x_at	0.0172	0.29	9.87	9.57	0.35	1.25	1.2260
Ahnak	1452217_at	0.0172	0.82	10.90	10.08	0.35	1.26	1.7649
Dync1li2	1433926_at	0.0173	0.28	10.31	10.03	0.35	1.17	1.2168
Zfp518b	1452340_at	0.0173	0.34	9.53	9.18	0.35	1.23	1.2699
Ttc30a2	1455921_at	0.0174	0.67	3.96	3.29	0.35	1.17	1.5929
D930016D06Rik	1424861_at	0.0174	0.32	10.28	9.96	0.35	1.27	1.2473
Elovl2	1416444_at	0.0174	0.29	3.89	3.60	0.35	1.18	1.2231
Il6st	1437303_at	0.0174	0.55	5.79	5.25	0.35	1.25	1.4607
Peg3	1433924_at	0.0175	0.81	6.00	5.19	0.35	1.42	1.7583
Ccbl2	1455991_at	0.0176	0.49	7.93	7.44	0.35	1.23	1.4073
Tram2	1439539_at	0.0177	0.27	10.85	10.58	0.35	1.27	1.2078
Ctnnd1	1422450_at	0.0177	1.02	3.90	2.88	0.35	1.30	2.0326
2900035I09Rik	1457130_at	0.0178	0.39	5.24	4.85	0.35	1.97	1.3111
Tube1	1431873_a_at	0.0179	0.27	9.00	8.73	0.35	1.24	1.2054
Fam199x	1439059_at	0.0179	0.45	9.50	9.05	0.35	1.47	1.3659
Arl2bp	1429859_a_at	0.0179	0.29	8.86	8.57	0.35	1.45	1.2230
Ndrg2	1448154_at	0.0180	0.45	4.89	4.44	0.35	1.38	1.3643
Kctd17	1435525_at	0.0181	0.35	6.25	5.90	0.35	1.45	1.2775
Mib1	1433853_at	0.0181	0.32	6.45	6.13	0.35	1.25	1.2473
Rnf144b	1439153_at	0.0182	0.66	6.90	6.24	0.35	1.26	1.5795
Atxn2	1438143_s_at	0.0182	0.28	11.15	10.87	0.35	1.49	1.2130
Mcee	1438477_a_at	0.0185	0.58	9.45	8.87	0.35	1.55	1.4984
B230217O12Rik	1440669_at	0.0186	0.43	5.77	5.34	0.35	1.15	1.3450
Gpn1	1442114_at	0.0186	0.30	8.20	7.90	0.35	1.18	1.2315
Clpb	1416541_at	0.0187	0.43	8.58	8.16	0.35	1.17	1.3441
Rasal2	1436248_at	0.0189	0.61	6.89	6.27	0.35	1.16	1.5313
4831440E17Rik	1458913_at	0.0190	0.46	5.37	4.91	0.35	1.15	1.3778
Nid1	1416808_at	0.0193	0.61	8.20	7.59	0.35	1.18	1.5286
Fam188a	1418963_at	0.0194	0.26	10.36	10.10	0.36	1.17	1.1983
3110057O12Rik	1455475_at	0.0195	0.34	6.85	6.51	0.36	1.15	1.2647
Lipa	1423140_at	0.0196	0.49	8.47	7.97	0.36	1.16	1.4067
C79946	1458768_at	0.0196	0.94	8.15	7.21	0.36	1.14	1.9175
Abi2	1436984_at	0.0196	0.31	11.05	10.74	0.36	1.25	1.2360
Mmp11	1417234_at	0.0198	0.63	5.92	5.29	0.36	1.14	1.5480
Aldh5a1	1453065_at	0.0199	0.54	5.46	4.92	0.36	1.15	1.4521

Cds2	1438957_x_at	0.0199	0.64	8.98	8.34	0.36	1.31	1.5613
Ap3s2	1428044_at	0.0202	0.53	5.91	5.38	0.36	1.13	1.4429
Nol11	1439166_at	0.0203	0.34	8.66	8.31	0.36	1.25	1.2690
Vim	1456292_a_at	0.0204	0.27	12.53	12.25	0.36	1.26	1.2075
Clpx	1439342_at	0.0205	0.32	8.62	8.30	0.36	1.16	1.2493
Dmxl2	1428749_at	0.0206	0.96	7.11	6.16	0.36	1.14	1.9429
Rad54l	1453926_at	0.0207	0.79	8.29	7.50	0.36	1.79	1.7302
Mtx3	1431071_at	0.0207	0.30	7.92	7.63	0.36	1.33	1.2281
Trmt1l	1456996_at	0.0207	0.48	6.94	6.46	0.36	1.24	1.3903
Prdm5	1442740_at	0.0207	0.80	4.54	3.74	0.36	1.15	1.7419
Bcs1l	1451541_at	0.0210	0.28	9.58	9.30	0.37	1.16	1.2144
B230214N19Rik	1440722_at	0.0211	0.66	8.50	7.84	0.37	1.19	1.5842
Bckdhb	1427153_at	0.0211	0.38	8.40	8.02	0.37	1.12	1.3018
Arxes1	1428333_at	0.0211	0.95	5.16	4.20	0.37	1.22	1.9334
Arxes2	1428333_at	0.0211	0.95	5.16	4.20	0.37	1.22	1.9334
Bik	1449836_x_at	0.0213	0.31	6.10	5.79	0.37	1.14	1.2372
Cdkn1b	1434045_at	0.0213	0.34	10.08	9.75	0.37	1.44	1.2623
P4htm	1459807_x_at	0.0213	0.61	6.13	5.53	0.37	1.14	1.5243
Mansc1	1423284_at	0.0214	0.73	5.86	5.13	0.37	1.22	1.6547
Cenpw	1453053_at	0.0215	0.46	8.32	7.87	0.37	1.25	1.3720
Zfp39	1441198_at	0.0215	0.40	9.34	8.94	0.37	1.43	1.3212
Grtp1	1439150_x_at	0.0216	0.30	8.62	8.32	0.37	1.14	1.2310
Pigb	1420128_s_at	0.0217	0.36	8.18	7.82	0.37	1.24	1.2853
Pxmp2	1417841_at	0.0217	0.46	8.02	7.56	0.37	1.14	1.3720
Tiam1	1418057_at	0.0218	0.41	7.10	6.70	0.37	1.11	1.3243
Vps36	1451343_at	0.0219	0.28	11.05	10.77	0.37	1.32	1.2152
Mlxipl	1419185_a_at	0.0219	0.30	4.11	3.81	0.37	1.11	1.2298
E230012J19Rik	1458156_at	0.0220	0.47	9.57	9.11	0.37	1.12	1.3811
Ube2e3	1448671_at	0.0220	0.56	7.11	6.55	0.37	1.12	1.4762
Zfp668	1458563_at	0.0221	0.41	5.70	5.29	0.37	1.16	1.3259
Lman1	1444037_at	0.0224	0.36	8.70	8.33	0.37	1.15	1.2862
Obsl1	1457121_at	0.0224	0.26	6.30	6.04	0.37	1.31	1.2012
Fam160a2	1429949_at	0.0224	0.49	9.28	8.79	0.37	1.26	1.4060
Vkorc1	1452770_at	0.0226	0.42	7.23	6.81	0.37	1.60	1.3346
Parp6	1440644_at	0.0226	0.62	5.05	4.43	0.37	1.26	1.5329
Ap3m1	1416375_at	0.0229	0.35	9.98	9.63	0.37	1.23	1.2764
Paip1	1425521_at	0.0230	0.32	6.35	6.04	0.37	1.21	1.2457
Gm1995	1439958_at	0.0231	0.39	5.91	5.52	0.38	1.18	1.3112
Gm7104	1439958_at	0.0231	0.39	5.91	5.52	0.38	1.18	1.3112
Gkap1	1417594_at	0.0232	0.37	9.14	8.77	0.38	1.38	1.2926
Zfp235	1449329_at	0.0232	0.53	9.74	9.21	0.38	1.13	1.4432
Ppa1	1416939_at	0.0232	0.29	10.43	10.14	0.38	1.36	1.2215
A730034C02	1421328_at	0.0233	0.30	3.31	3.01	0.38	1.17	1.2314
Map2	1421328_at	0.0233	0.30	3.31	3.01	0.38	1.17	1.2314
Pdzd4	1435457_at	0.0234	0.35	6.19	5.84	0.38	1.12	1.2770
Zfp605	1425320_at	0.0234	0.35	6.51	6.16	0.38	1.12	1.2759
4931428A05Rik	1432585_at	0.0235	0.33	3.50	3.17	0.38	1.20	1.2571
5830454E08Rik	1442415_at	0.0237	0.33	7.37	7.04	0.38	1.35	1.2583
Emp2	1425273_s_at	0.0238	0.35	4.99	4.64	0.38	1.28	1.2755
Emc9	1418474_at	0.0241	0.45	7.03	6.58	0.38	1.56	1.3661
Itgb5	1417534_at	0.0243	0.67	5.91	5.24	0.38	1.08	1.5863
Pnpla8	1457355_at	0.0244	0.31	8.32	8.01	0.38	1.18	1.2374
Zdhhc17	1458363_at	0.0245	0.39	6.18	5.79	0.38	1.51	1.3125
Lgalsl	1451313_a_at	0.0247	0.37	9.68	9.31	0.38	1.81	1.2926
Abca1	1421840_at	0.0247	0.41	9.63	9.22	0.38	1.42	1.3329
1500032P08Rik	1447537_at	0.0247	0.36	9.62	9.26	0.38	1.16	1.2799
Zfp113	1420675_at	0.0248	0.53	7.63	7.10	0.38	1.48	1.4469
Elovl4	1451308_at	0.0249	0.45	5.53	5.08	0.38	1.12	1.3623
Pdgfa	1449187_at	0.0250	0.71	7.85	7.15	0.38	1.09	1.6346
A830010M20Rik	1436117_at	0.0250	0.35	8.56	8.21	0.38	1.21	1.2769
Mccc2	1432472_a_at	0.0250	0.33	6.52	6.19	0.38	1.07	1.2550
Mut	1448486_at	0.0251	0.26	9.95	9.69	0.38	1.09	1.2006
Golim4	1459045_at	0.0252	0.92	6.83	5.91	0.38	1.08	1.8962
Lrrn3	1434539_at	0.0252	0.71	6.93	6.22	0.38	1.09	1.6389
2810468N07Rik	1452980_at	0.0254	0.54	6.34	5.79	0.39	1.16	1.4581
Slc30a4	1418843_at	0.0255	0.94	10.00	9.06	0.39	1.24	1.9171
Sh3rf1	1455149_at	0.0255	0.49	8.23	7.74	0.39	1.16	1.4058

Pkp2	1449799_s_at	0.0257	0.67	6.78	6.11	0.39	1.09	1.5939
Rcor3	1444364_at	0.0257	0.64	7.45	6.82	0.39	1.71	1.5530
Svip	1453049_at	0.0257	0.41	4.57	4.16	0.39	1.11	1.3271
Desi1	1457181_at	0.0258	0.33	8.58	8.25	0.39	1.15	1.2574
D5Ertd579e	1439691_at	0.0258	0.45	7.13	6.68	0.39	1.25	1.3653
Nts	1422860_at	0.0259	0.27	4.54	4.28	0.39	1.11	1.2048
Eps8	1422823_at	0.0261	0.54	3.85	3.32	0.39	1.09	1.4513
Hoxa5	1448926_at	0.0262	0.35	5.48	5.12	0.39	1.23	1.2782
Cast	1426098_a_at	0.0263	0.28	9.02	8.73	0.39	1.26	1.2163
AI597468	1433897_at	0.0263	0.27	11.23	10.96	0.39	1.07	1.2039
Gng3	1417428_at	0.0265	0.48	9.02	8.54	0.39	1.07	1.3922
Mecp2	1438538_at	0.0265	0.26	10.27	10.01	0.39	1.07	1.1996
Slc35f5	1452059_at	0.0265	0.63	8.46	7.83	0.39	1.29	1.5520
Phf13	1455175_at	0.0265	0.28	9.92	9.64	0.39	1.06	1.2151
Il15	1418219_at	0.0266	0.63	5.40	4.76	0.39	1.11	1.5516
Mtdh	1421110_at	0.0268	0.29	4.57	4.28	0.39	1.20	1.2258
Fndc3a	1426903_at	0.0268	0.29	9.73	9.44	0.39	1.06	1.2254
6720475M21Rik	1433246_at	0.0268	0.43	5.67	5.24	0.39	1.15	1.3487
Zfp2	1449913_at	0.0269	0.49	5.14	4.65	0.39	1.11	1.4005
Ranbp17	1450094_at	0.0269	0.45	5.87	5.41	0.39	1.16	1.3697
Anxa10	1449426_a_at	0.0270	0.79	6.39	5.59	0.39	1.22	1.7346
Kctd7	1440168_x_at	0.0270	0.39	10.28	9.89	0.39	1.14	1.3133
Bdh1	1452257_at	0.0270	0.46	9.21	8.75	0.39	1.08	1.3755
Trmt10c	1442716_at	0.0270	0.38	6.02	5.64	0.39	1.30	1.3036
Fbxl20	1452826_s_at	0.0271	0.29	7.90	7.62	0.39	1.13	1.2187
Chchd6	1438659_x_at	0.0271	0.34	8.97	8.64	0.39	1.08	1.2650
Satb1	1439449_at	0.0271	0.41	8.34	7.93	0.39	1.12	1.3327
Kif3c	1434947_at	0.0273	0.34	7.82	7.48	0.39	1.07	1.2666
Zfp93	1418955_at	0.0273	0.40	5.34	4.93	0.39	1.05	1.3224
Abca5	1434474_at	0.0275	0.37	6.00	5.63	0.39	1.14	1.2904
Uba5	1451973_at	0.0277	0.28	9.64	9.36	0.39	1.37	1.2119
Sox5	1423500_a_at	0.0277	0.37	7.54	7.17	0.39	1.12	1.2909
Kdsr	1440331_at	0.0278	0.45	7.38	6.93	0.39	1.05	1.3705
Dnajc28	1420543_at	0.0278	0.54	7.02	6.48	0.39	1.15	1.4541
Ints6	1436089_at	0.0278	0.29	10.29	10.00	0.39	1.14	1.2267
C630016I17Rik	1446298_at	0.0279	0.30	7.24	6.93	0.39	1.27	1.2334
Tnfaip1	1417865_at	0.0283	0.31	10.59	10.28	0.39	1.14	1.2406
Ctbs	1427658_at	0.0283	0.30	6.53	6.23	0.39	1.05	1.2340
Ddx60	1451777_at	0.0284	0.48	3.71	3.23	0.39	1.06	1.3951
Clip3	1430543_at	0.0289	0.50	6.37	5.86	0.40	1.21	1.4190
Hcfc2	1438328_at	0.0290	0.37	10.15	9.77	0.40	1.51	1.2953
Serbp1	1418565_at	0.0291	0.28	10.81	10.53	0.40	1.40	1.2116
Fabp5	1416022_at	0.0293	0.32	9.03	8.71	0.40	1.21	1.2463
C130057M05Rik	1457334_at	0.0293	0.50	7.41	6.91	0.40	1.06	1.4108
Als2cr12	1439758_at	0.0295	0.40	5.12	4.71	0.40	1.03	1.3204
Gm17748	1431505_at	0.0295	0.53	7.07	6.54	0.40	1.25	1.4460
Ppih	1431505_at	0.0295	0.53	7.07	6.54	0.40	1.25	1.4460
Aph1b	1456500_at	0.0296	0.67	4.56	3.89	0.40	1.16	1.5893
Tmem181a	1452848_at	0.0296	0.33	11.00	10.67	0.40	1.06	1.2558
Tmem181b-ps	1452848_at	0.0296	0.33	11.00	10.67	0.40	1.06	1.2558
Tmem181c-ps	1452848_at	0.0296	0.33	11.00	10.67	0.40	1.06	1.2558
Cenpv	1428706_at	0.0296	0.35	10.61	10.27	0.40	1.15	1.2723
Prss35	1434195_at	0.0297	0.33	3.95	3.62	0.40	1.05	1.2529
Ppp2r2a	1429715_at	0.0298	0.26	11.07	10.81	0.40	1.16	1.1978
2700089E24Rik	1460464_at	0.0299	0.34	9.32	8.98	0.40	1.03	1.2647
Spire1	1446117_at	0.0299	0.27	6.51	6.24	0.40	1.24	1.2099
Zfp949	1456518_at	0.0301	0.35	7.58	7.24	0.40	1.31	1.2727
Tspan3	1416009_at	0.0303	0.45	7.83	7.38	0.40	1.37	1.3649
Ap2b1	1427077_a_at	0.0303	0.26	9.30	9.04	0.40	1.35	1.2000
Zfp788	1441434_at	0.0305	0.39	8.42	8.03	0.40	1.26	1.3059
Ccdc58	1440260_at	0.0307	0.34	7.42	7.07	0.40	1.03	1.2695
Acadvl	1424184_at	0.0307	0.27	9.73	9.47	0.40	1.06	1.2031
Atg4c	1434014_at	0.0307	0.41	6.51	6.10	0.40	1.23	1.3261
Amigo2	1447769_x_at	0.0308	0.35	4.84	4.48	0.40	1.10	1.2785
Gm5595	1460017_at	0.0310	0.42	6.46	6.04	0.40	1.18	1.3370
Nav3	1456144_at	0.0311	0.67	4.96	4.30	0.40	1.03	1.5868
Gtpbp5	1430272_at	0.0313	0.28	7.35	7.06	0.40	1.30	1.2177

Prkar2b	1438664_at	0.0314	0.72	6.36	5.65	0.40	1.24	1.6423
Zfp128	1439875_at	0.0315	0.34	7.58	7.24	0.40	1.01	1.2661
Rnf11	1426404_a_at	0.0315	0.27	9.37	9.10	0.40	1.26	1.2050
Bcas3	1428454_at	0.0316	0.48	8.84	8.37	0.40	1.35	1.3903
Rrbp1	1436660_at	0.0316	0.36	7.19	6.83	0.40	1.11	1.2854
Sirt5	1428915_at	0.0317	0.52	7.77	7.25	0.40	1.23	1.4347
Trim32	1427476_a_at	0.0319	0.28	9.64	9.36	0.40	1.31	1.2172
Mxra8	1452330_a_at	0.0321	0.47	6.65	6.18	0.41	1.24	1.3884
Slc35b2	1429007_at	0.0322	0.37	9.52	9.14	0.41	1.15	1.2951
Tfpi	1451791_at	0.0325	0.31	5.48	5.17	0.41	1.05	1.2424
Ptger4	1424208_at	0.0325	0.36	10.72	10.36	0.41	1.24	1.2798
Eid2	1454931_at	0.0325	0.57	6.60	6.03	0.41	1.03	1.4896
Anxa5	1425567_a_at	0.0327	0.52	7.59	7.07	0.41	1.20	1.4355
Nudcd1	1429655_at	0.0327	0.26	8.76	8.49	0.41	1.02	1.2007
Tmem242	1424045_at	0.0328	0.29	7.45	7.16	0.41	1.34	1.2213
3830406C13Rik	1436388_a_at	0.0329	0.28	10.45	10.16	0.41	1.07	1.2177
Zfp358	1456151_at	0.0330	0.40	7.51	7.11	0.41	1.17	1.3240
Sema4f	1439768_x_at	0.0333	0.32	5.53	5.21	0.41	1.00	1.2466
Cdcp1	1427095_at	0.0337	0.35	4.27	3.92	0.41	1.02	1.2738
Trim13	1417888_at	0.0338	0.63	5.89	5.26	0.41	1.43	1.5464
Ocrl	1438284_at	0.0339	0.55	6.17	5.62	0.42	1.00	1.4606
Plod2	1416686_at	0.0341	0.54	4.73	4.19	0.42	1.23	1.4533
Ccl22	1417925_at	0.0341	0.54	6.05	5.51	0.42	1.09	1.4547
6720462K09Rik	1456896_at	0.0342	0.57	5.86	5.29	0.42	1.01	1.4853
Zfp937	1428033_at	0.0347	0.60	5.66	5.06	0.42	1.13	1.5176
Ero1l	1419030_at	0.0348	0.40	8.22	7.82	0.42	0.99	1.3152
Sept4	1455422_x_at	0.0348	0.55	5.08	4.53	0.42	1.08	1.4676
Nostrin	1441075_at	0.0348	0.34	6.54	6.21	0.42	1.03	1.2624
Amigo1	1447811_s_at	0.0349	0.59	8.47	7.88	0.42	1.15	1.5041
5830443J22Rik	1429902_at	0.0350	0.32	9.55	9.23	0.42	0.99	1.2492
Gsto1	1416531_at	0.0350	0.46	8.25	7.79	0.42	1.06	1.3738
Cadm1	1417378_at	0.0350	0.46	6.96	6.50	0.42	1.04	1.3713
3110007F17Rik	1439279_at	0.0351	0.75	4.57	3.82	0.42	0.99	1.6859
Il18	1417932_at	0.0355	0.76	4.64	3.89	0.42	1.18	1.6884
BC024137	1427513_at	0.0356	0.37	7.32	6.95	0.42	1.41	1.2935
Zfp449	1439945_at	0.0356	0.63	5.33	4.70	0.42	1.14	1.5484
Slfn9	1458803_at	0.0356	0.28	5.47	5.19	0.42	0.98	1.2148
Cercam	1435345_at	0.0357	0.46	7.15	6.69	0.42	1.01	1.3731
Gca	1424698_s_at	0.0359	0.40	7.86	7.46	0.42	1.31	1.3198
Epas1	1435436_at	0.0360	0.64	6.54	5.90	0.42	1.17	1.5577
Slc2a1	1426600_at	0.0360	0.30	11.62	11.33	0.42	0.98	1.2292
Tle3	1458512_at	0.0360	0.31	6.54	6.23	0.42	1.19	1.2358
Zbtb46	1429168_at	0.0360	0.37	4.77	4.41	0.42	1.07	1.2880
Ccdc171	1430298_at	0.0361	0.40	9.29	8.89	0.42	1.00	1.3211
Smpd2	1416999_at	0.0365	0.26	8.17	7.91	0.42	0.98	1.1992
LOC100862620	1444092_at	0.0367	0.60	6.06	5.46	0.42	1.51	1.5153
2410007B07Rik	1454215_at	0.0367	0.29	6.34	6.05	0.42	1.01	1.2261
Clock	1418660_at	0.0367	0.37	8.35	7.98	0.42	1.09	1.2896
Pawr	1426910_at	0.0369	0.54	10.89	10.35	0.42	1.18	1.4495
Klhl22	1426481_at	0.0373	0.33	6.53	6.20	0.43	1.05	1.2588
Zbtb10	1436068_at	0.0373	0.64	7.09	6.45	0.43	1.03	1.5577
Slc35a3	1424579_at	0.0374	0.34	9.92	9.57	0.43	1.13	1.2693
Crkl	1425604_at	0.0375	0.32	6.37	6.05	0.43	0.98	1.2463
AA408954	1420156_at	0.0376	0.43	4.96	4.53	0.43	1.01	1.3511
Scai	1445081_at	0.0377	0.33	8.65	8.32	0.43	1.06	1.2535
Letmd1	1441021_at	0.0381	0.57	7.90	7.33	0.43	1.34	1.4835
D930015E06Rik	1446219_at	0.0383	0.32	8.59	8.27	0.43	1.11	1.2475
Adhfe1	1424393_s_at	0.0383	0.31	9.97	9.66	0.43	0.97	1.2419
D030029J20Rik	1437885_at	0.0392	0.34	4.85	4.51	0.43	0.96	1.2686
Zfp629	1436537_at	0.0394	0.33	6.51	6.18	0.44	1.16	1.2596
5830426K05Rik	1432807_at	0.0395	0.48	6.25	5.77	0.44	0.96	1.3919
Atf7ip2	1427603_at	0.0396	0.44	5.60	5.16	0.44	0.96	1.3554
Zfp623	1426625_at	0.0396	0.57	7.25	6.68	0.44	0.98	1.4842
Zfp945	1437127_at	0.0399	0.49	8.12	7.62	0.44	0.96	1.4076
6030458C11Rik	1428013_at	0.0400	0.29	7.78	7.49	0.44	0.96	1.2267
Abl1	1444134_at	0.0401	0.28	6.23	5.95	0.44	0.95	1.2177
1110018F16Rik	1429468_at	0.0402	0.39	7.54	7.15	0.44	1.03	1.3109

Dnajb14	1429468_at	0.0402	0.39	7.54	7.15	0.44	1.03	1.3109
Ndufb4	1432427_at	0.0402	0.41	5.09	4.68	0.44	0.97	1.3260
Tmtc3	1436826_at	0.0402	0.41	7.54	7.13	0.44	1.03	1.3315
Eogt	1454678_s_at	0.0402	0.34	10.01	9.67	0.44	1.00	1.2620
Gab2	1419829_a_at	0.0406	0.54	4.66	4.12	0.44	1.02	1.4494
9130009M17Rik	1432680_at	0.0407	0.43	7.42	6.99	0.44	1.01	1.3496
Tatdn1	1438513_at	0.0407	0.42	8.35	7.93	0.44	0.99	1.3339
Chst15	1426514_at	0.0408	0.30	8.63	8.33	0.44	1.09	1.2279
Slc36a4	1455249_at	0.0409	0.27	11.18	10.92	0.44	0.96	1.2043
Aco1	1423644_at	0.0410	0.35	8.90	8.55	0.44	1.04	1.2745
Rbm4b	1430032_at	0.0413	0.42	8.57	8.15	0.44	1.22	1.3336
Fzd7	1450044_at	0.0413	0.30	3.97	3.67	0.44	0.94	1.2335
Scrn3	1436573_at	0.0414	0.32	10.26	9.94	0.44	0.95	1.2474
Zfp316	1444528_at	0.0414	0.36	5.50	5.14	0.44	1.19	1.2807
Slc52a2	1437315_at	0.0414	0.65	9.00	8.35	0.44	1.33	1.5674
Zmym4	1438460_at	0.0417	0.29	9.53	9.24	0.44	0.94	1.2222
Camsap1	1455356_at	0.0418	0.31	8.59	8.28	0.44	0.94	1.2393
Cul9	1427620_at	0.0421	0.37	6.73	6.36	0.44	0.94	1.2941
2810002D19Rik	1452312_at	0.0421	0.28	9.26	8.98	0.44	1.50	1.2155
2810025M15Rik	1428452_at	0.0422	0.63	8.90	8.27	0.44	0.94	1.5509
Pvr	1423904_a_at	0.0423	0.45	5.53	5.08	0.44	1.02	1.3633
Slc25a36	1438520_at	0.0423	0.41	7.99	7.58	0.44	1.36	1.3302
Dynlt3	1449928_at	0.0424	0.28	9.58	9.31	0.44	0.95	1.2130
Zfp946	1429690_at	0.0425	0.34	8.14	7.80	0.44	1.16	1.2657
Gramd1c	1434725_at	0.0425	0.50	6.24	5.74	0.44	0.94	1.4162
9230108I15Rik	1438299_at	0.0426	0.40	8.08	7.68	0.44	0.94	1.3214
C80068	1438755_at	0.0428	0.28	6.89	6.62	0.44	1.05	1.2109
Fam210b	1424695_at	0.0435	0.33	6.53	6.21	0.44	0.93	1.2534
Cyth3	1418758_a_at	0.0435	0.43	7.04	6.62	0.44	1.11	1.3441
Stx12	1448936_at	0.0435	0.26	10.50	10.24	0.44	1.46	1.1979
Mfhas1	1429005_at	0.0436	0.58	8.93	8.36	0.44	1.15	1.4925
Cd55	1460242_at	0.0438	0.59	8.66	8.07	0.45	0.94	1.5058
Nefh	1424847_at	0.0441	0.72	8.06	7.35	0.45	1.17	1.6428
Tbc1d24	1448028_at	0.0451	0.62	7.74	7.11	0.45	1.02	1.5403
Agbl3	1431210_at	0.0451	0.28	3.70	3.42	0.45	0.96	1.2149
Ide	1453988_a_at	0.0451	0.39	7.42	7.03	0.45	0.93	1.3082
Rbbp9	1416174_at	0.0451	0.43	3.95	3.52	0.45	0.96	1.3506
Dcaf6	1453312_at	0.0452	0.38	9.46	9.08	0.45	1.16	1.3027
Mtmr10	1452288_at	0.0455	0.27	8.05	7.78	0.45	1.20	1.2041
C78339	1433475_a_at	0.0455	0.40	10.18	9.78	0.45	1.20	1.3201
Nfe2l3	1453614_a_at	0.0456	0.37	4.91	4.55	0.45	1.06	1.2889
Rimkla	1455378_at	0.0457	0.52	6.61	6.09	0.45	1.18	1.4347
Zfp599	1443688_at	0.0457	0.43	8.15	7.72	0.45	0.97	1.3508
9430020K01Rik	1428535_at	0.0460	0.30	3.85	3.56	0.45	1.05	1.2303
Gatsl2	1437252_at	0.0460	0.35	6.60	6.25	0.45	0.98	1.2784
Hbb-bh1	1450736_a_at	0.0461	0.47	10.29	9.83	0.45	0.97	1.3809
Acadsb	1455446_x_at	0.0462	0.34	7.71	7.36	0.45	0.95	1.2701
Timp2	1437081_at	0.0463	0.31	4.53	4.21	0.45	0.92	1.2419
L1cam	1450435_at	0.0466	0.67	7.82	7.15	0.45	0.95	1.5941
Smurf2	1429045_at	0.0466	0.29	10.27	9.99	0.45	0.91	1.2191
Dancr	1455878_at	0.0466	0.47	9.60	9.13	0.45	0.93	1.3815
Nudt7	1430896_s_at	0.0468	0.41	8.62	8.21	0.45	1.31	1.3273
Lrpap1	1436609_a_at	0.0470	0.30	10.26	9.96	0.45	0.95	1.2294
Appl2	1426743_at	0.0470	0.58	8.48	7.89	0.45	0.94	1.4995
Laptm4b	1436915_x_at	0.0471	0.48	4.90	4.43	0.45	0.91	1.3911
Zfp286	1442247_at	0.0473	0.27	5.06	4.79	0.45	0.97	1.2034
Setd1b	1437353_at	0.0473	0.29	9.06	8.78	0.45	1.04	1.2209
Repin1	1434043_a_at	0.0474	0.38	10.89	10.52	0.45	0.92	1.2976
Acss2	1422478_a_at	0.0478	0.50	8.98	8.48	0.45	0.97	1.4150
Tmod3	1439626_at	0.0478	0.42	7.08	6.66	0.45	0.92	1.3375
Nagk	1438800_at	0.0479	0.43	7.78	7.36	0.45	0.92	1.3442
Ddr1	1456226_x_at	0.0479	0.28	3.19	2.91	0.45	0.92	1.2163
2200002D01Rik	1428671_at	0.0480	0.35	7.83	7.49	0.45	0.92	1.2708
Ehbp1	1424586_at	0.0481	0.69	7.08	6.39	0.45	1.19	1.6127
Zfp418	1424974_at	0.0482	0.64	6.97	6.33	0.45	0.97	1.5594
Etv5	1428142_at	0.0482	0.54	8.62	8.08	0.45	0.94	1.4509
Car3	1449434_at	0.0485	0.73	4.99	4.25	0.45	0.91	1.6642

Ppap2b	1429514_at	0.0486	0.43	5.07	4.65	0.45	0.92	1.3444
Vav3	1448600_s_at	0.0488	0.66	6.61	5.95	0.45	1.01	1.5829
Mprip	1456763_at	0.0489	0.32	8.91	8.58	0.45	1.06	1.2514
Zfp760	1440226_at	0.0490	0.41	8.44	8.03	0.46	1.10	1.3290
Tbc1d4	1435292_at	0.0493	0.69	6.63	5.95	0.46	0.93	1.6088
Vwa8	1455376_at	0.0495	0.48	7.78	7.30	0.46	0.92	1.3981
Creb3l2	1437396_at	0.0496	0.27	4.78	4.51	0.46	0.90	1.2073
Erbb3	1434606_at	0.0499	0.35	9.22	8.87	0.46	0.90	1.2751
Nacc2	1429582_at	0.0500	0.26	6.60	6.34	0.46	1.03	1.1985

* Genes that are upregulated or downregulated in *Crebbp*$^{fl/fl}$ GC B cells are ordered by decreasing p value (most significant first).

Supplementary Table 3. List of CREBBP "core target" genes (bound by CREBBP in human GC B cells and downregulated in *Cγ1-Cre Crebbp*$^{fl/fl}$ GC B cells)

Genomic Location (hg19)	Best P-value (ChIPseeqer)	Assigned Gene Symbol	Distance to Assigned TSS (in bp)	H3K27 Ac	H3K4 me1	H3K4 me3	Super Enhancer in GC	Location relative to Assigned Gene (prom=-2/+1kb)	Class*	Mouse Gene Symbol
chrX:118819341-118820499	-52.57	SEPT6	7413	+	+	+	Yes	intronic	Other	Sept6
chrX:118816241-118816556	-47.27	SEPT6	10935	+	+	-	Yes	intronic	Active enhancer	Sept6
chrX:118812577-118812960	-39.17	SEPT6	14565	+	+	-	Yes	intronic	Active enhancer	Sept6
chrX:118830562-118830778	-31.71	SEPT6	-3337	+	+	-	Yes	intergenic	Active enhancer	Sept6
chrX:118822080-118822199	-23.15	SEPT6	5194	+	+	-	Yes	intronic	Active enhancer	Sept6
chr17:75436594-75438304	-1000.00	SEPT9	-9164	+	+	-	Yes	intergenic	Active enhancer	Sept9
chr17:75400986-75401336	-98.09	SEPT9	10	+	+	+	No	promoter,exonic	Other	Sept9
chr17:75461317-75462088	-81.12	SEPT9	-9623	+	+	-	Yes	intergenic	Active enhancer	Sept9
chr17:75468521-75469281	-72.48	SEPT9	-2424	+	+	-	Yes	intergenic	Active enhancer	Sept9
chr17:75440960-75442558	-63.89	SEPT9	-4854	+	+	-	Yes	intergenic	Active enhancer	Sept9
chr17:75321170-75321579	-51.63	SEPT9	5777	+	+	-	No	intronic	Active enhancer	Sept9
chr17:75319783-75320260	-48.89	SEPT9	4424	+	+	-	No	intronic	Active enhancer	Sept9
chr17:75458180-75458508	-48.82	SEPT9	8269	+	+	-	Yes	intronic	Active enhancer	Sept9
chr17:75328399-75328859	-41.98	SEPT9	13032	+	+	-	No	intronic	Active enhancer	Sept9
chr17:75449938-75450183	-32.58	SEPT9	-15	+	+	+	Yes	promoter	Other	Sept9
chr17:75434964-75435133	-18.45	SEPT9	-11565	+	+	-	Yes	intergenic	Active enhancer	Sept9
chr17:75456847-75456856	-13.93	SEPT9	6776	+	+	-	Yes	intronic	Active enhancer	Sept9
chr3:127454836-127455462	-42.83	ABTB1	63368	+	+	+	No	intergenic	Other	Abtb1
chr17:7240225-7240555	-37.58	ACAP1	542	+	+	+	No	promoter,intronic	Other	Acap1
chr11:67416386-67417100	-1000.00	ACY3	1387	+	+	-	No	intronic	Active enhancer	Acy3
chr11:67414066-67414708	-60.67	ACY3	3743	+	+	-	No	exonic	Active enhancer	Acy3
chr11:67415579-67416037	-30.74	ACY3	2322	+	+	-	No	intronic	Active enhancer	Acy3
chr11:67417922-67418225	-17.70	ACY3	57	+	+	+	No	promoter,exonic	Other	Acy3
chr19:1904326-1904661	-50.79	ADAT3	-878	+	+	-	No	promoter	Other	Adat3
chr1:227127399-227127719	-17.20	ADCK3	-379	+	-	+	No	promoter	Active promoter	Adck3
chr7:128864314-128864722	-49.35	AHCYL2	-337	+	-	+	No	promoter	Active promoter	Ahcyl2
chr6:106967745-106968215	-39.34	AIM1	8250	+	+	+	Yes	exonic	Other	Aim1
chr6:106972948-106973169	-38.04	AIM1	13328	+	+	+	Yes	intronic	Other	Aim1
chr6:106994863-106995078	-25.32	AIM1	35240	+	+	-	No	intronic	Active enhancer	Aim1
chr6:106961101-106961333	-22.37	AIM1	1487	+	+	+	Yes	intronic	Other	Aim1
chr6:106961506-106961733	-20.76	AIM1	1889	+	+	+	Yes	intronic	Other	Aim1
chr9:112676683-112677058	-62.53	AKAP2	-134008	+	+	-	Yes	intergenic	Active enhancer	Akap2
chr9:112905742-112906112	-61.36	AKAP2	18146	+	+	-	Yes	intronic	Active enhancer	Akap2
chr9:112736707-112737053	-57.57	AKAP2	-73998	+	+	-	No	intergenic	Active enhancer	Akap2
chr9:112680572-112681010	-56.34	AKAP2	-130087	+	+	-	Yes	intergenic	Active enhancer	Akap2
chr9:112734332-112735046	-50.08	AKAP2	-76189	+	+	-	No	intergenic	Active enhancer	Akap2
chr9:112910703-112910966	-40.57	AKAP2	23053	+	+	+	Yes	intronic	Other	Akap2
chr9:112729944-112730201	-36.24	AKAP2	-80806	+	+	-	No	intergenic	Active enhancer	Akap2
chr9:112904697-112904950	-33.59	AKAP2	17042	+	+	-	Yes	intronic	Active enhancer	Akap2
chr9:112729294-112729575	-30.39	AKAP2	-81444	+	+	+	No	intergenic	Other	Akap2
chr9:112890941-112891576	-27.95	AKAP2	3477	+	+	-	Yes	intronic	Active enhancer	Akap2
chr9:112730584-112730917	-24.96	AKAP2	-80128	+	+	-	No	intergenic	Active enhancer	Akap2
chr9:112820446-112820842	-18.05	AKAP2	9766	+	+	-	No	intronic	Active enhancer	Akap2
chr9:112906430-112906563	-17.94	AKAP2	18715	+	+	-	Yes	intronic	Active enhancer	Akap2
chr9:112890448-112890530	-15.94	AKAP2	2708	+	+	-	Yes	intronic	Active enhancer	Akap2
chr9:112875120-112875192	-15.28	AKAP2	-12625	+	+	-	Yes	intergenic	Active enhancer	Akap2
chr9:117134816-117135772	-1000.00	AKNA	21391	+	+	-	Yes	intronic	Active enhancer	Akna

chr9:117160004-117160640	-80.88	AKNA	-3637	+	+	+	Yes	intergenic	Other	Akna
chr9:117129050-117129458	-65.25	AKNA	27431	+	+	-	Yes	intronic	Active enhancer	Akna
chr9:117126915-117127326	-56.86	AKNA	29565	+	+	-	Yes	intronic	Active enhancer	Akna
chr9:117128628-117128900	-42.53	AKNA	27921	+	+	-	Yes	intronic	Active enhancer	Akna
chr9:117147713-117148083	-36.38	AKNA	8787	+	+	-	Yes	intronic	Active enhancer	Akna
chr9:117134300-117134481	-28.32	AKNA	22295	+	+	-	Yes	intronic	Active enhancer	Akna
chr9:117150267-117150504	-21.02	AKNA	6300	+	+	+	Yes	intronic	Other	Akna
chr3:104245915-104246328	-61.00	ALCAM	-839436	+	+	+	No	intergenic	Other	Alcam
chr3:104240773-104241134	-46.01	ALCAM	-844604	+	+	-	No	intergenic	Active enhancer	Alcam
chr3:105104804-105105174	-30.28	ALCAM	19432	+	+	-	No	intronic	Active enhancer	Alcam
chr3:105085447-105085742	-24.60	ALCAM	37	+	-	+	No	promoter,exonic	Active promoter	Alcam
chr3:104436099-104436337	-24.15	ALCAM	-649339	+	+	+	No	intergenic	Other	Alcam
chr12:112202297-112202488	-30.98	ALDH2	-2299	+	-	-	No	intergenic	Other	Aldh2
chr3:119041791-119042187	-58.77	ARHGAP31	28769	+	+	+	No	intronic	Other	Arhgap31
chr12:57871535-57872025	-47.29	ARHGAP9	-52	+	+	+	No	promoter	Other	Arhgap9
chr1:235490103-235490366	-32.80	ARID4B	568	+	-	+	No	promoter,exonic	Active promoter	Arid4b
chr1:235438769-235438857	-14.96	ARID4B	51989	+	-	-	No	intronic	Other	Arid4b
chr5:78183482-78183863	-55.01	ARSB	98094	+	+	-	No	intronic	Active enhancer	Arsb
chr15:80271156-80271675	-66.31	BCL2A1	-7772	+	+	-	Yes	intergenic	Active enhancer	Bcl2a1d
chr15:80269781-80270587	-56.17	BCL2A1	-6541	+	+	-	Yes	intergenic	Active enhancer	Bcl2a1d
chr15:80263451-80263869	-48.09	BCL2A1	-17	+	+	+	Yes	promoter	Other	Bcl2a1d
chr15:80304349-80304807	-42.84	BCL2A1	-40935	+	+	-	No	intergenic	Active enhancer	Bcl2a1d
chr15:80303520-80303776	-28.90	BCL2A1	-40005	+	+	-	No	intergenic	Active enhancer	Bcl2a1d
chr15:80302459-80302769	-28.39	BCL2A1	-38971	+	+	-	No	intergenic	Active enhancer	Bcl2a1d
chr15:80300901-80301094	-28.01	BCL2A1	-37354	+	+	-	No	intergenic	Active enhancer	Bcl2a1d
chr15:80254667-80254866	-23.54	BCL2A1	8877	+	+	-	Yes	intronic	Active enhancer	Bcl2a1d
chr15:80260615-80260803	-21.53	BCL2A1	2934	+	+	-	Yes	intronic	Active enhancer	Bcl2a1d
chr2:127883492-127883616	-14.15	BIN1	-18651	+	+	-	No	intergenic	Poised enhancer	Bin1
chr2:127662928-127663005	-13.58	BIN1	201937	+	+	-	No	intergenic	Active enhancer	Bin1
chr15:40407939-40408316	-67.99	BMF	-7042	+	+	-	No	intergenic	Active enhancer	Bmf
chr15:40390735-40391362	-48.74	BMF	7239	+	+	-	No	intronic	Active enhancer	Bmf
chr15:40393421-40393794	-40.88	BMF	4680	+	+	-	No	intronic	Active enhancer	Bmf
chr15:40388503-40388853	-36.96	BMF	9609	+	+	-	No	intronic	Active enhancer	Bmf
chr15:40385495-40385840	-26.73	BMF	12620	+	+	-	No	intronic	Active enhancer	Bmf
chr2:200775852-200776085	-25.50	C2orf69	-11	+	-	+	No	promoter	Active promoter	1700066M21Rik
chr2:200776186-200776672	-25.50	C2orf69	450	+	-	+	No	promoter,exonic	Active promoter	1700066M21Rik
chr7:50187968-50188396	-49.72	C7orf72	52500	+	+	-	Yes	intronic	Active enhancer	4930415F15Rik
chr7:50185407-50185970	-48.97	C7orf72	50006	+	+	-	Yes	intronic	Active enhancer	4930415F15Rik
chr7:50189045-50189191	-16.24	C7orf72	53436	+	+	-	Yes	intronic	Active enhancer	4930415F15Rik
chr7:50183492-50183606	-14.02	C7orf72	47867	+	+	-	Yes	intronic	Active enhancer	4930415F15Rik
chr1:6831228-6831590	-38.30	CAMTA1	-13975	+	+	-	No	intergenic	Active enhancer	Camta1
chr1:6844961-6845163	-29.59	CAMTA1	-322	+	-	+	No	promoter	Active promoter	Camta1
chr1:6837038-6837259	-22.92	CAMTA1	-8236	+	+	-	No	intergenic	Active enhancer	Camta1
chr7:3082648-3083053	-54.00	CARD11	729	+	+	+	No	promoter,intronic	Other	Card11
chr7:3018072-3018465	-41.50	CARD11	65311	+	+	+	No	intronic	Other	Card11
chr7:3132273-3132587	-27.93	CARD11	-48851	+	+	-	No	intergenic	Active enhancer	Card11
chr7:3020184-3020443	-23.58	CARD11	63266	+	+	-	No	intronic	Active enhancer	Card11
chr16:89034486-89035012	-79.96	CBFA2T3	8755	+	+	-	Yes	intronic	Active enhancer	Cbfa2t3
chr16:89049303-89050759	-75.63	CBFA2T3	-6527	+	+	-	Yes	intergenic	Active enhancer	Cbfa2t3
chr16:89038179-89038567	-54.46	CBFA2T3	5131	+	+	-	Yes	intronic	Active enhancer	Cbfa2t3
chr16:89043022-89043762	-45.52	CBFA2T3	112	+	+	+	Yes	promoter,exonic	Other	Cbfa2t3

chr16:89041975-89042174	-19.37	CBFA2T3	1430	+	+	+	Yes	intronic	Other	Cbfa2t3
chr16:89041052-89041331	-18.17	CBFA2T3	2313	+	+	-	Yes	intronic	Active enhancer	Cbfa2t3
chr16:89048723-89048867	-16.34	CBFA2T3	-5291	+	+	-	Yes	intergenic	Active enhancer	Cbfa2t3
chr6:41990005-41990626	-1000.00	CCND3	26317	+	+	-	Yes	intronic	Active enhancer	Ccnd3
chr6:41992846-41993725	-132.23	CCND3	23347	+	+	-	Yes	intronic	Active enhancer	Ccnd3
chr6:42013306-42013820	-99.09	CCND3	3069	+	+	-	Yes	intronic	Active enhancer	Ccnd3
chr6:41942209-41942541	-62.79	CCND3	-32789	+	+	-	No	intergenic	Active enhancer	Ccnd3
chr6:41975559-41975864	-43.02	CCND3	40921	+	+	-	Yes	intronic	Active enhancer	Ccnd3
chr6:41908458-41908960	-42.55	CCND3	877	+	-	+	No	promoter,intronic	Active promoter	Ccnd3
chr6:41978003-41978745	-37.57	CCND3	38258	+	+	-	Yes	intronic	Active enhancer	Ccnd3
chr6:42016324-42016599	-35.70	CCND3	171	+	-	+	No	promoter,exonic	Active promoter	Ccnd3
chr6:41987136-41987393	-33.21	CCND3	29368	+	+	-	Yes	intronic	Active enhancer	Ccnd3
chr6:41987852-41988015	-21.83	CCND3	28699	+	+	-	Yes	intronic	Active enhancer	Ccnd3
chr6:41901585-41901670	-19.71	CCND3	7959	+	+	-	No	intergenic	Active enhancer	Ccnd3
chr6:42007403-42007538	-19.37	CCND3	9162	+	+	-	Yes	intronic	Active enhancer	Ccnd3
chr6:41944098-41944267	-18.58	CCND3	-34596	+	+	-	No	intergenic	Active enhancer	Ccnd3
chr6:109704014-109704589	-35.25	CD164	-539	+	-	+	No	promoter	Active promoter	Cd164
chr6:109702702-109703128	-34.66	CD164	847	+	-	+	No	promoter,intronic	Active promoter	Cd164
chr5:66495755-66496871	-40.05	CD180	-3696	+	+	-	Yes	intergenic	Active enhancer	Cd180
chr5:66488977-66489259	-29.93	CD180	3499	+	+	+	Yes	intronic	Other	Cd180
chr5:66511777-66511961	-29.25	CD180	-19252	+	+	-	Yes	intergenic	Active enhancer	Cd180
chr5:66498701-66498934	-29.12	CD180	-6200	+	+	-	Yes	intergenic	Active enhancer	Cd180
chr5:66502884-66503042	-26.61	CD180	-10346	+	+	-	Yes	intergenic	Active enhancer	Cd180
chr5:66492517-66492876	-26.39	CD180	-79	+	+	+	Yes	promoter	Other	Cd180
chr5:66502322-66502632	-23.86	CD180	-9860	+	+	-	Yes	intergenic	Active enhancer	Cd180
chr5:66499959-66500242	-23.74	CD180	-7483	+	+	-	Yes	intergenic	Active enhancer	Cd180
chr5:66494747-66494916	-19.67	CD180	-2214	+	+	-	Yes	intergenic	Active enhancer	Cd180
chr19:35810938-35811447	-79.89	CD22	-8877	+	+	-	Yes	intergenic	Active enhancer	Cd22
chr19:35814131-35815393	-58.82	CD22	-5307	+	+	+	Yes	intergenic	Other	Cd22
chr19:35819795-35820237	-36.33	CD22	-53	+	+	+	Yes	promoter	Other	Cd22
chr19:35823824-35823970	-18.35	CD22	3825	+	+	-	Yes	intronic	Active enhancer	Cd22
chr20:44747312-44748159	-66.52	CD40	829	+	-	+	No	promoter,intronic	Active promoter	Cd40
chr20:44749117-44749425	-35.49	CD40	2365	+	+	+	No	intronic	Other	Cd40
chr11:60837996-60838137	-15.18	CD5	-31864	+	-	-	No	intergenic	Other	Cd5
chr17:7482776-7483017	-41.17	CD68	90	+	+	-	No	promoter,exonic	Other	Cd68
chr12:9917552-9917668	-23.83	CD69	-4113	+	+	-	No	intergenic	Active enhancer	Cd69
chr9:35618210-35620235	-1000.00	CD72	-798	+	+	+	No	promoter	Other	Cd72
chr9:35616918-35617436	-37.01	CD72	1247	+	+	+	No	exonic	Other	Cd72
chr11:44630212-44631576	-86.62	CD82	43753	+	+	-	Yes	intronic	Active enhancer	Cd82
chr11:44622406-44623049	-66.21	CD82	35586	+	+	-	Yes	intronic	Active enhancer	Cd82
chr11:44623167-44623335	-66.21	CD82	36110	+	+	-	Yes	intronic	Active enhancer	Cd82
chr11:44581024-44581510	-58.93	CD82	-5874	+	+	-	No	intergenic	Active enhancer	Cd82
chr11:44633977-44634168	-52.18	CD82	46931	+	+	-	Yes	intronic	Active enhancer	Cd82
chr11:44633324-44633794	-42.12	CD82	46418	+	+	-	Yes	intronic	Active enhancer	Cd82
chr11:44625618-44626121	-38.51	CD82	38728	+	+	+	Yes	intronic	Other	Cd82
chr11:44590233-44590555	-35.29	CD82	3253	+	+	-	No	intronic	Active enhancer	Cd82
chr11:44590751-44591048	-35.29	CD82	3758	+	+	-	No	intronic	Active enhancer	Cd82
chr11:44626505-44626680	-18.37	CD82	39451	+	+	+	Yes	intronic	Other	Cd82
chr3:121810483-121811010	-88.34	CD86	14050	+	+	-	No	intronic	Active enhancer	Cd86
chr3:121796495-121796888	-42.35	CD86	-5	+	+	+	No	promoter	Other	Cd86
chr3:121797174-121797756	-29.84	CD86	769	+	+	+	No	promoter,intronic	Other	Cd86

chr3:121811313-121811539	-20.75	CD86	14730	+	+	-	No	intronic	Active enhancer	Cd86
chr3:121796022-121796218	-17.70	CD86	-576	+	+	+	No	promoter	Other	Cd86
chr5:130715417-130715691	-27.25	CDC42SE2	115852	+	+	-	No	intronic	Active enhancer	Cdc42se2
chr5:130560211-130560462	-24.13	CDC42SE2	-39366	+	+	-	No	intergenic	Active enhancer	Cdc42se2
chr7:90366481-90366973	-76.43	CDK14	27597	+	+	-	No	intronic	Active enhancer	Cdk14
chr7:90401761-90402122	-68.04	CDK14	62811	+	+	-	No	intronic	Active enhancer	Cdk14
chr7:90384183-90384473	-46.73	CDK14	45198	+	+	-	No	intronic	Active enhancer	Cdk14
chr7:90339468-90339569	-21.39	CDK14	388	+	-	+	No	promoter,intronic	Active promoter	Cdk14
chr4:175204907-175205135	-25.41	CEP44	-34	+	-	+	No	promoter	Active promoter	Cep44
chr19:8259897-8260554	-92.30	CERS4	-13992	+	+	-	No	intergenic	Active enhancer	Cers4
chr19:8258091-8259758	-72.19	CERS4	-15293	+	+	-	No	intergenic	Active enhancer	Cers4
chr19:8257900-8257964	-67.45	CERS4	-16285	+	+	-	No	intergenic	Active enhancer	Cers4
chr19:8275287-8275893	-45.43	CERS4	1373	+	+	+	No	exonic	Other	Cers4
chr19:8256883-8257644	-45.16	CERS4	-16954	+	+	-	No	intergenic	Active enhancer	Cers4
chr2:101011698-101012056	-35.18	CHST10	22253	+	+	-	No	intronic	Active enhancer	Chst10
chr16:10985375-10986065	-125.00	CIITA	14665	+	+	-	Yes	intronic	Active enhancer	Ciita
chr16:10962258-10963006	-104.34	CIITA	-8423	+	+	-	Yes	intergenic	Active enhancer	Ciita
chr16:10982125-10982770	-51.38	CIITA	11392	+	+	+	Yes	intronic	Other	Ciita
chr16:10958624-10959111	-48.60	CIITA	-12188	+	+	-	Yes	intergenic	Active enhancer	Ciita
chr16:10965389-10965927	-46.69	CIITA	-5397	+	+	-	Yes	intergenic	Active enhancer	Ciita
chr16:10964056-10964391	-44.28	CIITA	-6832	+	+	-	Yes	intergenic	Active enhancer	Ciita
chr16:10980741-10981175	-41.12	CIITA	9903	+	+	+	Yes	intronic	Other	Ciita
chr16:10990004-10990932	-39.17	CIITA	19413	+	+	-	Yes	intronic	Active enhancer	Ciita
chr16:10970796-10971066	-34.22	CIITA	-124	+	-	+	Yes	promoter	Active promoter	Ciita
chr16:10965023-10965223	-33.38	CIITA	-5932	+	+	-	Yes	intergenic	Active enhancer	Ciita
chr16:10983850-10984024	-19.83	CIITA	12882	+	+	-	Yes	intronic	Active enhancer	Ciita
chr16:10974532-10974675	-19.08	CIITA	3548	+	+	-	Yes	intronic	Active enhancer	Ciita
chr16:10972267-10972600	-15.57	CIITA	1378	+	-	+	Yes	intronic	Putative active promoter	Ciita
chr16:10973187-10973249	-14.50	CIITA	2163	+	-	+	Yes	intronic	Putative active promoter	Ciita
chr1:25074784-25075671	-52.50	CLIC4	3467	+	+	+	Yes	intronic	Other	Clic4
chr1:25068941-25069283	-26.33	CLIC4	-2648	+	+	-	Yes	intergenic	Active enhancer	Clic4
chr1:25072620-25072988	-23.05	CLIC4	1044	+	-	+	Yes	intronic	Putative active promoter	Clic4
chr6:42896711-42898199	-77.88	CNPY3	595	+	-	+	No	promoter,exonic	Active promoter	Cnpy3
chr1:24239588-24240180	-146.72	CNR2	-67	+	+	+	Yes	promoter	Other	Cnr2
chr1:24242674-24243057	-87.40	CNR2	-3048	+	+	-	Yes	intergenic	Active enhancer	Cnr2
chr1:24243161-24243536	-87.40	CNR2	-3531	+	+	-	Yes	intergenic	Active enhancer	Cnr2
chr1:24235141-24236199	-73.12	CNR2	4147	+	+	-	Yes	intronic	Active enhancer	Cnr2
chr1:24236694-24237040	-53.46	CNR2	2950	+	+	-	Yes	intronic	Active enhancer	Cnr2
chr1:24257717-24258288	-42.03	CNR2	-18185	+	+	-	No	intergenic	Active enhancer	Cnr2
chr1:24237362-24238000	-30.46	CNR2	2136	+	+	-	Yes	intronic	Active enhancer	Cnr2
chr16:84627815-84628196	-62.05	COTL1	23697	+	+	+	Yes	intronic	Other	Cotl1
chr16:84633162-84633721	-53.81	COTL1	18261	+	+	+	Yes	intronic	Other	Cotl1
chr16:84641415-84641707	-39.60	COTL1	10141	+	+	-	Yes	intronic	Active enhancer	Cotl1
chr16:84631146-84631532	-39.00	COTL1	20363	+	+	-	Yes	intronic	Active enhancer	Cotl1
chr16:84650303-84650519	-24.40	COTL1	1291	+	+	+	No	intronic	Other	Cotl1
chr16:84634435-84634774	-23.43	COTL1	17098	+	+	-	Yes	intronic	Active enhancer	Cotl1
chr18:77385179-77385614	-89.30	CTDP1	-54405	+	+	-	No	intergenic	Poised enhancer	Ctdp1
chr11:118741000-118741890	-93.30	CXCR5	-13030	+	+	+	Yes	intergenic	Other	Cxcr5
chr11:118766176-118766781	-74.16	CXCR5	2377	+	+	-	Yes	intronic	Active enhancer	Cxcr5
chr11:118747500-118747927	-61.85	CXCR5	-6762	+	+	-	Yes	intergenic	Active enhancer	Cxcr5
chr11:118722724-118723243	-34.03	CXCR5	-31492	+	+	-	Yes	intergenic	Active enhancer	Cxcr5

chr11:118728256-118728613	-33.16	CXCR5	-26041	+	+	-	Yes	intergenic	Active enhancer	Cxcr5
chr11:118757462-118757821	-22.51	CXCR5	3166	+	+	-	Yes	intronic	Active enhancer	Cxcr5
chr11:118754345-118754543	-22.25	CXCR5	-31	+	+	+	Yes	promoter	Other	Cxcr5
chr11:118743046-118743177	-17.80	CXCR5	-11364	+	+	-	Yes	intergenic	Active enhancer	Cxcr5
chrX:30595897-30596102	-27.95	CXorf21	34	+	-	+	No	promoter,exonic	Active promoter	5430427O19Rik
chr5:139049373-139050437	-1000.00	CXXC5	21604	+	+	+	Yes	intronic	Other	Cxxc5
chr5:139015573-139016179	-69.07	CXXC5	-12425	+	+	-	Yes	intergenic	Active enhancer	Cxxc5
chr5:139028805-139029694	-37.62	CXXC5	948	+	-	+	Yes	promoter,intronic	Active promoter	Cxxc5
chr5:139034091-139034337	-30.17	CXXC5	5913	+	+	-	Yes	intronic	Active enhancer	Cxxc5
chr5:139031791-139031975	-22.79	CXXC5	3582	+	+	-	Yes	intronic	Active enhancer	Cxxc5
chr5:139043846-139044061	-22.54	CXXC5	15652	+	+	-	Yes	intronic	Active enhancer	Cxxc5
chr5:139047536-139047870	-20.51	CXXC5	19402	+	+	+	Yes	intronic	Other	Cxxc5
chr5:139048292-139048461	-16.84	CXXC5	20075	+	+	+	Yes	intronic	Other	Cxxc5
chr5:139018212-139018330	-16.18	CXXC5	-10030	+	+	-	Yes	intergenic	Active enhancer	Cxxc5
chrX:37655946-37656514	-1000.00	CYBB	16960	+	+	-	No	intronic	Active enhancer	Cybb
chrX:37614223-37614719	-119.50	CYBB	-24799	+	+	-	No	intergenic	Active enhancer	Cybb
chrX:37646599-37647062	-34.21	CYBB	7560	+	+	-	No	intronic	Active enhancer	Cybb
chrX:37645892-37646207	-31.98	CYBB	6779	+	+	-	No	intronic	Active enhancer	Cybb
chr22:37680761-37681486	-1000.00	CYTH4	2628	+	+	-	No	intronic	Active enhancer	Cyth4
chr22:37702930-37703470	-58.44	CYTH4	24705	+	+	-	No	intronic	Active enhancer	Cyth4
chr19:42705581-42706091	-76.89	DEDD2	16108	+	+	-	No	intronic	Active enhancer	Dedd2
chr19:42706236-42706328	-76.89	DEDD2	15662	+	+	-	No	intronic	Active enhancer	Dedd2
chr19:42703279-42703529	-40.22	DEDD2	18540	+	+	-	No	exonic	Active enhancer	Dedd2
chr19:42703874-42703951	-16.14	DEDD2	18032	+	+	-	No	exonic	Active enhancer	Dedd2
chr6:35267463-35267833	-55.93	DEF6	2053	+	+	-	No	intronic	Active enhancer	Def6
chr6:35265935-35266298	-37.31	DEF6	521	+	+	+	No	promoter,intronic	Other	Def6
chr6:35265566-35265706	-17.17	DEF6	41	+	-	+	No	promoter,exonic	Active promoter	Def6
chr22:24160851-24161274	-71.56	DERL3	20137	+	+	-	No	intergenic	Active enhancer	Derl3
chr22:24186644-24186863	-29.00	DERL3	-5554	+	+	-	No	intergenic	Active enhancer	Derl3
chr2:183582114-183582481	-56.61	DNAJC10	1529	+	-	+	Yes	intronic	Putative active promoter	Dnajc10
chr2:183580452-183580847	-55.40	DNAJC10	-119	+	-	+	Yes	promoter	Active promoter	Dnajc10
chr13:99698508-99698864	-53.19	DOCK9	39974	+	+	-	No	intronic	Active enhancer	Dock9
chr2:74798313-74798623	-40.89	DOK1	16956	+	+	-	No	intergenic	Active enhancer	Dok1
chr2:74801037-74801454	-35.51	DOK1	19733	+	+	-	No	intergenic	Active enhancer	Dok1
chr12:113512880-113513823	-1000.00	DTX1	17689	+	+	-	Yes	intronic	Active enhancer	Dtx1
chr12:113488569-113489000	-65.15	DTX1	-6878	+	+	-	Yes	intergenic	Active enhancer	Dtx1
chr12:113490128-113490514	-47.20	DTX1	-5341	+	+	-	Yes	intergenic	Active enhancer	Dtx1
chr12:113500226-113500750	-46.21	DTX1	4826	+	+	-	Yes	intronic	Active enhancer	Dtx1
chr12:113506083-113506526	-42.43	DTX1	10642	+	+	-	Yes	intronic	Active enhancer	Dtx1
chr12:113507821-113508376	-41.52	DTX1	12436	+	+	-	Yes	intronic	Active enhancer	Dtx1
chr12:113502551-113503187	-40.16	DTX1	7207	+	+	-	Yes	intronic	Active enhancer	Dtx1
chr12:113524123-113525306	-35.42	DTX1	29052	+	+	-	Yes	intronic	Active enhancer	Dtx1
chr12:113487835-113488175	-34.73	DTX1	-7657	+	+	-	Yes	intergenic	Active enhancer	Dtx1
chr12:113498451-113498682	-20.50	DTX1	2904	+	+	-	Yes	intronic	Active enhancer	Dtx1
chr2:96829428-96830058	-115.53	DUSP2	-18564	+	+	-	Yes	intergenic	Active enhancer	Dusp2
chr2:96811241-96812592	-83.62	DUSP2	-737	+	+	+	Yes	promoter	Other	Dusp2
chr2:96830424-96830768	-73.08	DUSP2	-19417	+	+	+	Yes	intergenic	Other	Dusp2
chr2:96822760-96823092	-44.17	DUSP2	-11747	+	+	-	Yes	intergenic	Active enhancer	Dusp2
chr2:96827748-96828029	-36.32	DUSP2	-16709	+	+	-	Yes	intergenic	Active enhancer	Dusp2
chr2:96823519-96823869	-30.71	DUSP2	-12515	+	+	-	Yes	intergenic	Active enhancer	Dusp2
chr2:96814259-96814504	-20.20	DUSP2	-3202	+	+	-	Yes	intergenic	Active enhancer	Dusp2

chr2:96825198-96825429	-16.28	DUSP2	-14134	+	+	-	Yes	intergenic	Active enhancer	Dusp2
chr20:32273183-32273397	-22.40	E2F1	920	+	-	+	No	promoter,intronic	Active promoter	E2f1
chr1:21660630-21661313	-54.60	ECE1	11063	+	+	+	No	intronic	Other	Ece1
chr1:21663047-21663493	-39.55	ECE1	8764	+	+	-	No	intronic	Active enhancer	Ece1
chr1:21651745-21652040	-32.88	ECE1	20142	+	+	-	No	intronic	Active enhancer	Ece1
chr1:21651209-21651365	-17.34	ECE1	20747	+	+	-	No	intronic	Active enhancer	Ece1
chr10:11725530-11725978	-98.50	ECHDC3	-58602	+	+	-	Yes	intergenic	Active enhancer	Echdc3
chr10:11726139-11727540	-98.50	ECHDC3	-57517	+	+	+	Yes	intergenic	Other	Echdc3
chr10:11719463-11720490	-67.33	ECHDC3	-64380	+	+	-	Yes	intergenic	Active enhancer	Echdc3
chr10:11727829-11728168	-52.38	ECHDC3	-56358	+	+	-	Yes	intergenic	Active enhancer	Echdc3
chr10:11724323-11724557	-23.17	ECHDC3	-59916	+	+	-	Yes	intergenic	Active enhancer	Echdc3
chr7:36231586-36232114	-77.38	EEPD1	39014	+	+	-	Yes	intronic	Active enhancer	Eepd1
chr7:36230022-36230337	-27.23	EEPD1	37343	+	+	-	Yes	intronic	Active enhancer	Eepd1
chr10:64612830-64613131	-50.03	EGR2	-34053	+	+	-	No	intergenic	Active enhancer	Egr2
chr10:64576355-64576917	-48.62	EGR2	-510	+	-	+	No	promoter	Active promoter	Egr2
chr8:22562397-22562977	-63.22	EGR3	-11872	+	+	+	No	intergenic	Other	Egr3
chr8:22558477-22559187	-40.28	EGR3	-8017	+	+	-	No	intergenic	Active enhancer	Egr3
chr15:42259968-42260445	-75.66	EHD4	4549	+	+	-	No	intronic	Active enhancer	Ehd4
chr15:42262143-42262532	-44.67	EHD4	2418	+	+	-	No	intronic	Active enhancer	Ehd4
chr15:42263823-42264027	-20.15	EHD4	830	+	-	+	No	promoter,intronic	Active promoter	Ehd4
chr2:88906208-88906563	-46.07	EIF2AK3	20709	+	+	-	Yes	intronic	Active enhancer	Eif2ak3
chr2:88899111-88899381	-39.31	EIF2AK3	27848	+	+	-	Yes	intronic	Active enhancer	Eif2ak3
chr2:88927615-88927754	-16.26	EIF2AK3	-590	+	-	+	No	promoter	Active promoter	Eif2ak3
chr12:96602333-96603277	-110.49	ELK3	14598	+	+	-	Yes	intronic	Active enhancer	Elk3
chr12:96605798-96606145	-66.06	ELK3	17764	+	+	-	Yes	intronic	Active enhancer	Elk3
chr12:96588184-96588475	-57.44	ELK3	122	+	-	+	Yes	promoter,exonic	Active promoter	Elk3
chr12:96608746-96609182	-53.69	ELK3	20757	+	+	-	Yes	intronic	Active enhancer	Elk3
chr12:96592791-96593140	-50.33	ELK3	4758	+	+	-	Yes	intronic	Active enhancer	Elk3
chr12:96589199-96589597	-47.72	ELK3	1191	+	-	+	Yes	intronic	Putative active promoter	Elk3
chr12:96584279-96584532	-34.10	ELK3	-3802	+	+	-	Yes	intergenic	Active enhancer	Elk3
chr12:96537210-96537561	-31.49	ELK3	-50822	+	+	-	No	intergenic	Active enhancer	Elk3
chr12:96540627-96541186	-30.13	ELK3	-47301	+	+	+	No	intergenic	Other	Elk3
chr12:96582727-96582835	-21.92	ELK3	-5426	+	+	-	Yes	intergenic	Active enhancer	Elk3
chr12:96607432-96607555	-17.69	ELK3	19286	+	+	-	Yes	intronic	Active enhancer	Elk3
chr12:96604135-96604264	-14.88	ELK3	15992	+	+	-	Yes	intronic	Active enhancer	Elk3
chr14:100531571-100531740	-35.67	EVL	-96	+	-	+	No	promoter	Active promoter	Evl
chr14:100534875-100535426	-35.41	EVL	3399	+	+	+	No	intronic	Other	Evl
chr14:100532628-100532876	-32.82	EVL	1001	+	+	+	No	intronic	Other	Evl
chr14:100539170-100539584	-26.38	EVL	7626	+	+	-	No	intronic	Active enhancer	Evl
chr6:159239967-159240104	-23.62	EZR	421	+	-	+	Yes	promoter,intronic	Active promoter	Ezr
chr6:159240473-159240666	-21.95	EZR	-113	+	+	+	Yes	promoter	Other	Ezr
chr8:11314163-11314442	-81.26	FAM167A	9974	+	-	-	No	intronic	Other	Fam167a
chr8:11275397-11275870	-72.32	FAM167A	48643	+	+	-	No	intergenic	Active enhancer	Fam167a
chr8:11276891-11277291	-42.81	FAM167A	47185	+	+	-	No	intergenic	Active enhancer	Fam167a
chr2:16836173-16836670	-98.99	FAM49A	10713	+	+	-	No	intronic	Active enhancer	Fam49a
chr2:16806398-16807423	-97.53	FAM49A	40224	+	+	-	No	intronic	Active enhancer	Fam49a
chr2:16838197-16838705	-71.83	FAM49A	8683	+	+	-	No	intronic	Active enhancer	Fam49a
chr2:16803883-16804204	-54.13	FAM49A	43091	+	+	-	No	intronic	Active enhancer	Fam49a
chr2:16835023-16835381	-40.48	FAM49A	11932	+	+	-	No	intronic	Active enhancer	Fam49a
chr2:16811724-16812111	-35.22	FAM49A	35217	+	+	-	No	intronic	Active enhancer	Fam49a
chr2:16841554-16841742	-24.05	FAM49A	5486	+	+	-	No	intronic	Active enhancer	Fam49a

chr2:16839481-16839616	-21.89	FAM49A	7586	+	+	-	No	intronic	Active enhancer	Fam49a
chr19:7766895-7767255	-45.28	FCER2	-43	+	+	-	No	promoter	Other	Fcer2a
chr19:7770525-7770876	-44.99	FCER2	-3668	+	+	-	No	intergenic	Active enhancer	Fcer2a
chr11:63973017-63973395	-86.45	FERMT3	-946	+	+	-	No	promoter	Other	Fermt3
chr11:63973883-63974366	-50.03	FERMT3	-28	+	+	+	No	promoter	Other	Fermt3
chr11:63982621-63982881	-36.61	FERMT3	8599	+	+	-	No	intronic	Active enhancer	Fermt3
chr11:63975170-63975412	-19.36	FERMT3	1139	+	+	+	No	intronic	Other	Fermt3
chr11:63983055-63983179	-17.61	FERMT3	8965	+	+	-	No	intronic	Active enhancer	Fermt3
chr19:35953357-35953975	-140.28	FFAR2	13049	+	+	-	No	intergenic	Active enhancer	Ffar2
chr6:37017332-37018406	-80.96	FGD2	44446	+	+	-	No	intergenic	Active enhancer	Fgd2
chr6:36975241-36975899	-42.95	FGD2	2147	+	+	+	No	intronic	Other	Fgd2
chr6:36973270-36973561	-38.00	FGD2	-8	+	+	+	No	promoter	Other	Fgd2
chr6:37016534-37016996	-34.95	FGD2	43342	+	+	-	No	intergenic	Active enhancer	Fgd2
chr6:36971851-36972119	-28.80	FGD2	-1438	+	+	-	No	promoter	Other	Fgd2
chr6:36972390-36972713	-28.80	FGD2	-872	+	+	-	No	promoter	Other	Fgd2
chr6:36974083-36974266	-18.49	FGD2	751	+	-	+	No	promoter,intronic	Active promoter	Fgd2
chr9:132801722-132802217	-76.04	FNBP1	3504	+	+	-	Yes	intronic	Active enhancer	Fnbp1
chr9:132751318-132751785	-57.57	FNBP1	53922	+	+	-	Yes	intronic	Active enhancer	Fnbp1
chr9:132785320-132785783	-48.14	FNBP1	19922	+	+	-	Yes	intronic	Active enhancer	Fnbp1
chr9:132769718-132770039	-39.08	FNBP1	35595	+	+	-	Yes	intronic	Active enhancer	Fnbp1
chr9:132752614-132753019	-32.29	FNBP1	52657	+	+	-	Yes	intronic	Active enhancer	Fnbp1
chr9:132758591-132759038	-25.43	FNBP1	46659	+	+	-	Yes	intronic	Active enhancer	Fnbp1
chr9:132754661-132754786	-19.22	FNBP1	50750	+	+	-	Yes	intronic	Active enhancer	Fnbp1
chr6:112085511-112085849	-48.99	FYN	-5346	+	+	-	No	intergenic	Active enhancer	Fyn
chr6:112083280-112083608	-37.62	FYN	-3110	+	+	-	No	intergenic	Active enhancer	Fyn
chr6:112072343-112072589	-27.13	FYN	7868	+	+	-	No	intronic	Active enhancer	Fyn
chr14:55321078-55321276	-17.54	GCH1	48365	+	+	-	No	intronic	Active enhancer	Gch1
chrX:78394401-78394640	-26.71	GPR174	-31949	+	+	-	No	intergenic	Active enhancer	Gpr174
chr13:99934577-99934967	-46.26	GPR18	-24090	+	+	-	No	intergenic	Active enhancer	Gpr18
chr13:99911308-99911450	-31.81	GPR18	-697	+	-	-	No	promoter	Other	Gpr18
chr13:99910642-99910764	-25.56	GPR18	-21	+	-	+	No	promoter	Active promoter	Gpr18
chr5:125797929-125798217	-24.63	GRAMD3	-2714	+	+	-	No	intergenic	Active enhancer	Gramd3
chr17:18964754-18965005	-125.75	GRAP	-14543	+	+	+	No	intergenic	Other	Grap
chr17:18965115-18966259	-125.75	GRAP	-15351	+	+	+	No	intergenic	Other	Grap
chr17:18966361-18967416	-125.75	GRAP	-16552	+	+	+	No	intergenic	Other	Grap
chr17:18939129-18940250	-119.11	GRAP	10647	+	+	-	Yes	intronic	Active enhancer	Grap
chr17:18940524-18940677	-111.16	GRAP	9736	+	+	-	Yes	intronic	Active enhancer	Grap
chr17:18941085-18942692	-85.87	GRAP	8448	+	+	-	Yes	intronic	Active enhancer	Grap
chr17:18950112-18950646	-73.54	GRAP	-43	+	+	+	No	promoter	Other	Grap
chr17:18945728-18946947	-67.70	GRAP	3999	+	+	-	Yes	intronic	Active enhancer	Grap
chr17:18943573-18944122	-67.01	GRAP	6489	+	+	-	Yes	intronic	Active enhancer	Grap
chr17:18942829-18943066	-18.08	GRAP	7389	+	+	-	Yes	intronic	Active enhancer	Grap
chr5:176857878-176859009	-75.86	GRK6	4756	+	+	-	No	intronic	Active enhancer	Grk6
chr5:176852860-176853002	-24.67	GRK6	-756	+	+	+	No	promoter	Other	Grk6
chr5:176856294-176856566	-24.53	GRK6	2743	+	+	-	No	intronic	Active enhancer	Grk6
chr17:42425463-42425937	-120.66	GRN	3209	+	+	-	No	intronic	Active enhancer	Grn
chr17:42424714-42424907	-26.04	GRN	2319	+	+	-	No	intronic	Active enhancer	Grn
chr2:43037559-43037622	-18.60	HAAO	-17839	+	+	+	No	intergenic	Other	Haao
chr2:43037892-43037924	-16.83	HAAO	-18157	+	+	+	No	intergenic	Other	Haao
chr2:43038040-43038435	-16.08	HAAO	-18486	+	+	+	No	intergenic	Other	Haao
chr9:100700478-100700925	-78.14	HEMGN	-26	+	+	-	No	promoter	Poised enhancer	Hemgn

chr9:100697124-100697286	-23.58	HEMGN	3470	+	+	-	No	intronic	Active enhancer	Hemgn
chr16:56945700-56946273	-76.46	HERPUD1	-20016	+	+	-	No	intergenic	Active enhancer	Herpud1
chr16:56950931-56951289	-53.58	HERPUD1	-14892	+	+	-	No	intergenic	Active enhancer	Herpud1
chr16:56974882-56975374	-51.60	HERPUD1	9126	+	+	-	Yes	intronic	Active enhancer	Herpud1
chr16:56965268-56965799	-41.81	HERPUD1	-469	+	+	+	Yes	promoter	Other	Herpud1
chr16:56976005-56976450	-39.58	HERPUD1	10225	+	+	-	Yes	intronic	Active enhancer	Herpud1
chr7:75370114-75370863	-60.50	HIP1	-2198	+	+	-	No	intergenic	Active enhancer	Hip1
chr7:75292144-75292718	-42.79	HIP1	75859	+	+	+	No	intronic	Other	Hip1
chr7:75368857-75369068	-39.70	HIP1	-672	+	-	+	No	promoter	Active promoter	Hip1
chr7:75319662-75319819	-18.60	HIP1	48550	+	+	-	No	intronic	Active enhancer	Hip1
chr4:83295181-83295431	-30.02	HNRNPD	-157	+	-	+	No	promoter	Active promoter	Hnrnpd
chr4:11101597-11102093	-83.67	HS3ST1	328692	+	-	-	No	intergenic	Other	Hs3st1
chr4:11100110-11100495	-50.76	HS3ST1	330235	+	+	-	No	intergenic	Active enhancer	Hs3st1
chr19:16252005-16252386	-43.90	HSH2D	7357	+	+	-	Yes	intronic	Active enhancer	Hsh2d
chr19:16253771-16254080	-35.88	HSH2D	9087	+	+	-	Yes	intronic	Active enhancer	Hsh2d
chr19:16254298-16254505	-33.46	HSH2D	9563	+	+	+	Yes	intronic	Other	Hsh2d
chr19:16255681-16255956	-22.45	HSH2D	10980	+	+	-	Yes	intronic	Active enhancer	Hsh2d
chr19:16260693-16260867	-21.58	HSH2D	15942	+	+	-	Yes	intronic	Active enhancer	Hsh2d
chr2:8723664-8724140	-87.38	ID2	-98211	+	+	-	No	intergenic	Active enhancer	Id2
chr2:8716866-8717272	-56.46	ID2	-105044	+	+	-	No	intergenic	Active enhancer	Id2
chr2:8718560-8718977	-47.49	ID2	-103345	+	+	-	No	intergenic	Active enhancer	Id2
chr2:8666024-8666440	-43.94	ID2	-155881	+	+	-	No	intergenic	Active enhancer	Id2
chr2:8655435-8655852	-37.01	ID2	-166470	+	+	-	No	intergenic	Active enhancer	Id2
chr2:8715517-8715761	-29.82	ID2	-106474	+	+	+	No	intergenic	Other	Id2
chr2:8692479-8692908	-27.55	ID2	-129420	+	+	+	No	intergenic	Other	Id2
chr2:8656197-8656371	-22.38	ID2	-165829	+	+	-	No	intergenic	Active enhancer	Id2
chr2:8714454-8714665	-20.60	ID2	-107554	+	+	-	No	intergenic	Active enhancer	Id2
chr2:8713835-8713927	-20.37	ID2	-108232	+	+	-	No	intergenic	Active enhancer	Id2
chr21:34746324-34747032	-57.29	IFNGR2	-28524	+	+	+	Yes	intergenic	Other	Ifngr2
chr21:34755342-34756337	-52.81	IFNGR2	-19363	+	+	+	Yes	intergenic	Other	Ifngr2
chr21:34752863-34753235	-38.21	IFNGR2	-22153	+	+	-	Yes	intergenic	Active enhancer	Ifngr2
chr1:24515794-24517906	-1000.00	IFNLR1	-3085	+	+	-	Yes	intergenic	Active enhancer	Ifnlr1
chr1:24513804-24514328	-29.53	IFNLR1	-301	+	+	+	No	promoter	Other	Ifnlr1
chr3:129155280-129155549	-38.14	IFT122	-3465	+	+	-	No	intergenic	Active enhancer	Ift122
chr3:129153875-129153997	-15.94	IFT122	-4943	+	+	+	No	intergenic	Other	Ift122
chr3:159640800-159641036	-22.24	IL12A	-65705	+	+	-	No	intergenic	Active enhancer	Il12a
chr16:27309443-27309889	-65.00	IL4R	-15564	+	+	-	Yes	intergenic	Active enhancer	Il4ra
chr16:27312773-27313107	-50.54	IL4R	-12290	+	+	-	Yes	intergenic	Active enhancer	Il4ra
chr16:27329798-27330146	-36.76	IL4R	4742	+	+	-	Yes	intronic	Active enhancer	Il4ra
chr16:27310908-27311021	-36.08	IL4R	-14266	+	+	-	Yes	intergenic	Active enhancer	Il4ra
chr16:27311159-27311387	-36.08	IL4R	-13957	+	+	-	Yes	intergenic	Active enhancer	Il4ra
chr16:27326751-27326884	-18.82	IL4R	1587	+	+	+	Yes	intronic	Other	Il4ra
chr1:154379710-154380285	-1000.00	IL6R	2328	+	+	-	No	intronic	Active enhancer	Il6ra
chr1:154385777-154385990	-30.55	IL6R	8214	+	+	-	No	intronic	Active enhancer	Il6ra
chr1:154380806-154381035	-23.33	IL6R	3251	+	+	-	No	intronic	Active enhancer	Il6ra
chr3:121713860-121714586	-101.40	ILDR1	26904	+	+	-	No	intronic	Active enhancer	Ildr1
chr3:121721920-121722376	-53.85	ILDR1	18979	+	+	-	No	intronic	Active enhancer	Ildr1
chr3:121716840-121717125	-35.87	ILDR1	24145	+	+	-	No	intronic	Active enhancer	Ildr1
chr3:121711429-121711880	-29.96	ILDR1	29473	+	+	-	No	intronic	Active enhancer	Ildr1
chr3:13125335-13125813	-77.67	IQSEC1	-10957	+	+	-	No	intergenic	Active enhancer	Iqsec1
chr3:13056423-13057384	-63.26	IQSEC1	-47705	+	+	-	No	intergenic	Active enhancer	Iqsec1

chr3:13053774-13054234	-55.15	IQSEC1	-44806	+	+	-	No	intergenic	Active enhancer	Iqsec1
chr3:13058383-13058530	-47.76	IQSEC1	-49258	+	+	-	No	intergenic	Active enhancer	Iqsec1
chr3:13057620-13058212	-47.76	IQSEC1	-48718	+	+	+	No	intergenic	Other	Iqsec1
chr3:13129380-13129858	-43.75	IQSEC1	-15002	+	+	-	No	intergenic	Active enhancer	Iqsec1
chr3:13127998-13128511	-43.60	IQSEC1	-13637	+	+	-	No	intergenic	Active enhancer	Iqsec1
chr3:13050801-13051110	-42.44	IQSEC1	-41757	+	+	-	No	intergenic	Active enhancer	Iqsec1
chr3:13053158-13053395	-41.46	IQSEC1	-44078	+	+	-	No	intergenic	Active enhancer	Iqsec1
chr3:13062510-13062936	-38.14	IQSEC1	51894	+	+	+	No	intronic	Other	Iqsec1
chr3:13152185-13152507	-27.12	IQSEC1	-37729	+	+	-	No	intergenic	Active enhancer	Iqsec1
chr6:471222-471459	-17.55	IRF4	79601	-	+	-	No	intergenic	Poised enhancer	Irf4
chr6:490225-490373	-17.02	IRF4	98560	+	+	-	No	intergenic	Active enhancer	Irf4
chr6:376922-377024	-17.02	IRF4	-14766	-	+	-	No	intergenic	Poised enhancer	Irf4
chr7:128580606-128580853	-24.11	IRF5	5	+	+	-	No	promoter,exonic	Poised promoter	Irf5
chr10:33403347-33403858	-94.93	ITGB1	-156309	+	+	-	No	intergenic	Active enhancer	Itgb1
chr10:33384802-33385146	-46.53	ITGB1	-137681	+	+	-	No	intergenic	Active enhancer	Itgb1
chr10:33260767-33260936	-33.01	ITGB1	-13558	+	+	-	No	intergenic	Active enhancer	Itgb1
chr10:33250503-33250821	-27.29	ITGB1	-3369	+	+	-	No	intergenic	Active enhancer	Itgb1
chr10:33284852-33284979	-17.28	ITGB1	-37622	+	+	-	No	intergenic	Active enhancer	Itgb1
chr5:156642114-156642489	-28.64	ITK	34394	+	+	-	No	intronic	Active enhancer	Itk
chr5:156644789-156645030	-22.57	ITK	37002	+	+	-	No	exonic	Active enhancer	Itk
chr5:156641529-156641746	-22.21	ITK	33730	+	+	-	No	intronic	Active enhancer	Itk
chr10:106097269-106098209	-43.67	ITPRIP	512	+	-	+	No	promoter,intronic	Active promoter	Itprip
chr6:14910919-14911299	-53.89	JARID2	-335097	+	+	-	No	intergenic	Active enhancer	Jarid2
chr14:75906684-75907047	-55.75	JDP2	8028	+	+	-	No	intronic	Active enhancer	Jdp2
chr14:75937121-75937526	-43.89	JDP2	38486	+	+	-	No	exonic	Active enhancer	Jdp2
chr10:65020631-65020993	-87.04	JMJD1C	8171	+	+	-	Yes	intronic	Active enhancer	Jmjd1c
chr10:65028912-65029185	-26.11	JMJD1C	-65	+	-	+	Yes	promoter	Active promoter	Jmjd1c
chr10:65001670-65001900	-25.70	JMJD1C	27198	+	+	-	No	intronic	Active enhancer	Jmjd1c
chr10:65020289-65020473	-25.09	JMJD1C	8602	+	+	-	Yes	intronic	Active enhancer	Jmjd1c
chr10:65022612-65022791	-22.30	JMJD1C	6282	+	+	-	Yes	intronic	Active enhancer	Jmjd1c
chr10:65027223-65027369	-16.80	JMJD1C	1687	+	-	+	Yes	intronic	Putative active promoter	Jmjd1c
chr19:12900852-12901205	-33.23	JUNB	-1282	+	-	+	No	promoter	Active promoter	Junb
chr19:12896571-12896717	-28.95	JUNB	-5666	+	+	-	No	intergenic	Active enhancer	Junb
chr19:12902163-12902554	-25.05	JUNB	48	+	-	+	No	promoter,intronic	Active promoter	Junb
chr19:12899668-12899939	-19.52	JUNB	-2507	+	+	-	No	intergenic	Active enhancer	Junb
chr19:12903296-12903452	-15.91	JUNB	1064	+	-	+	No	intronic	Putative active promoter	Junb
chr11:17413253-17413415	-25.91	KCNJ11	-2456	+	+	-	No	intergenic	Active enhancer	Kcnj11
chr11:17413615-17413750	-18.66	KCNJ11	-2804	+	+	-	No	intergenic	Active enhancer	Kcnj11
chr10:79382592-79383063	-73.57	KCNMA1	14750	+	+	+	No	intronic	Other	Kcnma1
chr19:44281594-44282148	-53.60	KCNN4	3538	+	+	-	No	intronic	Active enhancer	Kcnn4
chr19:44281081-44281423	-44.95	KCNN4	4157	+	+	-	No	intronic	Active enhancer	Kcnn4
chr19:44282827-44282935	-23.43	KCNN4	2528	+	+	-	No	intronic	Active enhancer	Kcnn4
chr6:73332563-73332655	-32.94	KCNQ5	1038	+	+	+	No	intronic	Other	Kcnq5
chr6:73332797-73333047	-32.94	KCNQ5	1351	+	-	+	No	intronic	Putative active promoter	Kcnq5
chr6:73442562-73443050	-21.10	KCNQ5	111235	+	+	-	No	intronic	Active enhancer	Kcnq5
chr6:73329845-73330004	-18.22	KCNQ5	-1647	+	+	+	No	promoter	Other	Kcnq5
chr1:175158080-175158510	-43.08	KIAA0040	3654	+	+	-	No	intronic	Active enhancer	4930523C07Rik
chr1:175194252-175195046	-38.88	KIAA0040	-32420	+	+	-	No	intergenic	Active enhancer	4930523C07Rik
chr1:175166669-175167004	-38.41	KIAA0040	-4607	+	+	-	No	intergenic	Active enhancer	4930523C07Rik
chr1:175178307-175178474	-32.71	KIAA0040	-16161	+	+	-	No	intergenic	Active enhancer	4930523C07Rik
chr1:175199706-175199983	-24.81	KIAA0040	-37615	+	+	-	No	intergenic	Active enhancer	4930523C07Rik
chr22:45631123-45631889	-59.57	KIAA0930	5144	+	+	-	No	intronic	Active enhancer	5031439G07Rik

chr3:47333227-47333446	-32.16	KIF9	-8999	+	+	-	No	intergenic	Active enhancer	Kif9
chr13:74709849-74710153	-54.24	KLF12	-1935	+	-	+	No	promoter	Active promoter	Klf12
chr13:74561669-74562284	-53.19	KLF12	146090	+	+	-	Yes	intronic	Active enhancer	Klf12
chr13:74637069-74637455	-45.35	KLF12	70804	+	+	-	No	intronic	Active enhancer	Klf12
chr13:74541998-74542412	-42.19	KLF12	165861	+	+	-	Yes	intronic	Active enhancer	Klf12
chr13:74600988-74601251	-35.39	KLF12	106947	+	+	+	No	intronic	Other	Klf12
chr13:74547066-74547556	-35.36	KLF12	160755	+	+	+	Yes	intronic	Other	Klf12
chr13:74547713-74548050	-33.58	KLF12	160185	+	+	-	Yes	intronic	Active enhancer	Klf12
chr13:74708825-74708936	-23.98	KLF12	-814	+	-	+	No	promoter	Active promoter	Klf12
chr13:74562735-74562949	-21.57	KLF12	145224	+	+	-	Yes	intronic	Active enhancer	Klf12
chr13:74530313-74530418	-15.32	KLF12	177701	+	+	-	Yes	intronic	Active enhancer	Klf12
chr1:241715364-241715698	-48.88	KMO	20097	+	+	+	No	intronic	Other	Kmo
chr1:241695219-241695506	-21.33	KMO	-72	+	-	+	No	promoter	Active promoter	Kmo
chr1:32715445-32716148	-92.17	LCK	-1044	+	+	-	Yes	promoter	Active Enhancer	Lck
chr1:32716652-32717255	-62.97	LCK	113	+	+	+	Yes	promoter,exonic	Other	Lck
chr1:32721424-32721590	-36.06	LCK	4667	+	+	-	Yes	intronic	Active enhancer	Lck
chr1:32729395-32729791	-32.80	LCK	-10119	+	+	-	Yes	intergenic	Active enhancer	Lck
chr1:32717523-32717953	-27.45	LCK	898	+	+	-	Yes	promoter,intronic	Active Enhancer	Lck
chr1:32720752-32720947	-17.30	LCK	4009	+	+	-	Yes	intronic	Active enhancer	Lck
chr20:62362073-62362387	-42.27	LIME1	-5748	+	+	-	No	intergenic	Active enhancer	Lime1
chr20:62359717-62360048	-26.35	LIME1	-8096	+	+	-	No	intergenic	Active enhancer	Lime1
chr16:11713339-11713658	-32.62	LITAF	-32176	+	+	-	No	intergenic	Active enhancer	Litaf
chr16:11716279-11716554	-25.31	LITAF	-35094	+	+	+	No	intergenic	Other	Litaf
chr11:536666-536759	-20.27	LRRC56	-810	+	+	+	No	promoter	Other	Lrrc56
chr1:90172233-90172432	-42.43	LRRC8C	73688	+	+	-	No	intronic	Active enhancer	Lrrc8c
chr1:90171843-90172040	-26.98	LRRC8C	73297	+	+	-	No	intronic	Active enhancer	Lrrc8c
chr1:90185161-90185320	-24.36	LRRC8C	86596	+	+	-	No	intergenic	Active enhancer	Lrrc8c
chr11:1874085-1874469	-61.85	LSP1	77	+	+	+	No	promoter,exonic	Other	Lsp1
chr11:1871933-1872052	-21.09	LSP1	-2208	+	+	-	No	intergenic	Active enhancer	Lsp1
chr11:1872264-1872560	-21.09	LSP1	-1788	+	+	+	No	promoter	Poised promoter	Lsp1
chr6:31550036-31550524	-47.65	LTB	-78	+	+	+	No	promoter	Other	Ltb
chr6:31548762-31549457	-30.47	LTB	1093	+	-	+	No	intronic	Putative active promoter	Ltb
chr6:31547360-31547526	-16.49	LTB	2759	+	-	-	No	intergenic	Other	Ltb
chr6:31547656-31547815	-16.49	LTB	2467	+	-	-	No	intergenic	Other	Ltb
chr1:25911432-25911575	-19.23	MAN1C1	-32456	+	+	-	No	intergenic	Poised enhancer	Man1c1
chr10:30779206-30779680	-62.61	MAP3K8	56493	+	+	-	No	intergenic	Active enhancer	Map3k8
chr10:30722096-30723758	-58.59	MAP3K8	-23	+	+	+	No	promoter	Other	Map3k8
chr10:30783462-30783819	-58.25	MAP3K8	60690	+	+	-	No	intergenic	Active enhancer	Map3k8
chr10:30818409-30818911	-50.10	MAP3K8	95710	+	+	+	No	intergenic	Other	Map3k8
chr10:30777190-30777650	-49.78	MAP3K8	54470	+	+	+	No	intergenic	Other	Map3k8
chr10:30782664-30783282	-48.67	MAP3K8	60023	+	+	-	No	intergenic	Active enhancer	Map3k8
chr10:30716476-30716869	-46.69	MAP3K8	-6278	+	+	-	No	intergenic	Active enhancer	Map3k8
chr10:30723887-30723907	-40.38	MAP3K8	947	+	-	+	No	promoter,intronic	Active promoter	Map3k8
chr10:30786732-30786984	-28.82	MAP3K8	63908	+	+	-	No	intergenic	Active enhancer	Map3k8
chr10:30794512-30794761	-28.42	MAP3K8	71686	+	+	-	No	intergenic	Active enhancer	Map3k8
chr10:30791251-30791951	-27.43	MAP3K8	68651	+	+	+	No	intergenic	Other	Map3k8
chr10:30724018-30724157	-24.51	MAP3K8	1137	+	-	+	No	intronic	Putative active promoter	Map3k8
chr10:30707701-30707929	-22.89	MAP3K8	-15135	+	+	-	No	intergenic	Active enhancer	Map3k8
chr10:30709876-30709994	-22.44	MAP3K8	-13015	+	+	-	No	intergenic	Active enhancer	Map3k8
chr10:30712458-30712588	-14.12	MAP3K8	-10427	+	+	-	No	intergenic	Active enhancer	Map3k8
chr1:156462193-156462876	-63.72	MEF2D	-2143	+	+	-	Yes	intergenic	Active enhancer	Mef2d

chr1:156458873-156459017	-22.84	MEF2D	1446	+	+	-	Yes	intronic	Active enhancer	Mef2d
chr1:156494953-156495121	-22.32	MEF2D	-24403	+	+	-	No	intergenic	Active enhancer	Mef2d
chr1:156470865-156471050	-21.47	MEF2D	-323	+	-	+	Yes	promoter	Active promoter	Mef2d
chr1:156474749-156475037	-20.44	MEF2D	-4259	+	+	+	Yes	intergenic	Other	Mef2d
chr6:109775806-109776946	-81.28	MICAL1	814	+	+	+	No	promoter,intronic	Other	Mical1
chr6:109780128-109780443	-24.20	MICAL1	-3095	+	+	-	No	intergenic	Active enhancer	Mical1
chr6:109777149-109777252	-19.43	MICAL1	-10	+	-	+	No	promoter	Active promoter	Mical1
chr22:18477480-18477917	-100.66	MICAL3	29627	+	+	-	Yes	intronic	Active enhancer	Mical3
chr22:18479268-18479741	-64.33	MICAL3	27821	+	+	-	Yes	intronic	Active enhancer	Mical3
chr22:18487917-18488523	-46.86	MICAL3	19105	+	+	-	Yes	intronic	Active enhancer	Mical3
chr11:59040177-59041400	-91.17	MPEG1	-60294	+	+	-	Yes	intergenic	Active enhancer	Mpeg1
chr11:58984071-58984707	-85.22	MPEG1	-3895	+	+	-	No	intergenic	Active enhancer	Mpeg1
chr11:58980272-58980638	-46.48	MPEG1	39	+	+	-	No	promoter,intronic	Other	Mpeg1
chr11:59051821-59052171	-43.21	MPEG1	-71502	+	+	+	Yes	intergenic	Other	Mpeg1
chr11:59038720-59039015	-32.06	MPEG1	-58373	+	+	-	Yes	intergenic	Active enhancer	Mpeg1
chr11:59039286-59039784	-31.83	MPEG1	-59041	+	+	-	Yes	intergenic	Active enhancer	Mpeg1
chr11:58990108-58990428	-21.18	MPEG1	-9774	+	+	-	No	intergenic	Active enhancer	Mpeg1
chr16:134921-135028	-21.88	MPG	6805	+	+	-	No	intronic	Active enhancer	Mpg
chr6:31708350-31708447	-15.49	MSH5	673	+	+	+	No	promoter,intronic	Other	Msh5
chr2:42795069-42795496	-60.00	MTA3	97	+	+	+	No	promoter,exonic	Other	Mta3
chr2:42794124-42794536	-56.95	MTA3	-855	+	+	-	No	promoter	Other	Mta3
chr17:27465976-27466337	-30.38	MYO18A	41251	+	+	+	No	intronic	Other	Myo18a
chr17:27467317-27467472	-14.00	MYO18A	40013	+	+	+	No	intronic	Other	Myo18a
chr15:59691614-59692553	-75.85	MYO1E	-27012	+	+	-	Yes	intergenic	Active enhancer	Myo1e
chr15:59590169-59590973	-65.23	MYO1E	74500	+	+	-	No	intronic	Active enhancer	Myo1e
chr15:59592574-59592962	-52.22	MYO1E	72303	+	+	-	No	intronic	Active enhancer	Myo1e
chr15:59664734-59665523	-41.93	MYO1E	-57	+	-	+	No	promoter	Active promoter	Myo1e
chr15:59687404-59687748	-28.56	MYO1E	-22505	+	+	-	Yes	intergenic	Active enhancer	Myo1e
chr12:57481239-57482385	-34.39	NAB2	-865	+	+	+	No	promoter	Other	Nab2
chr12:57480873-57481064	-23.18	NAB2	-1709	+	-	+	No	promoter	Active promoter	Nab2
chr12:57487577-57487750	-21.67	NAB2	4986	+	+	-	No	intronic	Active enhancer	Nab2
chr7:74188005-74188522	-130.93	NCF1	-46	+	+	+	No	promoter	Other	Ncf1
chr7:74178176-74178615	-113.88	NCF1	-9914	+	+	+	No	intergenic	Other	Ncf1
chr7:74178743-74181047	-113.88	NCF1	-8414	+	+	+	No	intergenic	Other	Ncf1
chr7:74177699-74177977	-18.36	NCF1	-10471	+	+	+	No	intergenic	Other	Ncf1
chr22:37256697-37257317	-1000.00	NCF4	-23	+	+	+	No	promoter	Other	Ncf4
chr22:37258279-37258704	-70.88	NCF4	1461	+	+	-	No	intronic	Active enhancer	Ncf4
chr17:27055709-27056050	-89.51	NEK8	47	+	-	+	No	promoter,intronic	Active promoter	Nek8
chr17:27054949-27055498	-29.29	NEK8	-609	+	+	+	No	promoter	Other	Nek8
chr22:42793225-42793569	-47.56	NFAM1	35004	+	+	+	No	intronic	Other	Nfam1
chr22:42793004-42793107	-41.61	NFAM1	35346	+	+	-	No	intronic	Active enhancer	Nfam1
chr20:50031181-50031549	-63.85	NFATC2	127893	+	+	-	No	intronic	Active enhancer	Nfatc2
chr20:50077433-50077802	-40.50	NFATC2	81641	+	+	-	No	intronic	Active enhancer	Nfatc2
chr20:50097396-50097580	-36.23	NFATC2	61770	+	+	-	No	intronic	Active enhancer	Nfatc2
chr20:50097898-50098199	-36.23	NFATC2	61210	+	+	-	No	intronic	Active enhancer	Nfatc2
chr20:49996972-49997203	-34.18	NFATC2	162171	+	+	-	No	intergenic	Active enhancer	Nfatc2
chr20:50114150-50114965	-31.01	NFATC2	44701	+	+	-	No	intronic	Active enhancer	Nfatc2
chr20:50017069-50017301	-27.52	NFATC2	142073	+	+	-	No	intronic	Active enhancer	Nfatc2
chr20:50142616-50142806	-26.53	NFATC2	16547	+	+	-	No	intronic	Active enhancer	Nfatc2
chr20:50115082-50115374	-24.18	NFATC2	44030	+	+	-	No	intronic	Active enhancer	Nfatc2
chr20:50078089-50078208	-14.13	NFATC2	81110	+	+	-	No	intronic	Active enhancer	Nfatc2

chr10:104154949-104155218	-28.98	NFKB2	-270	+	-	+	No	promoter	Active promoter	Nfkb2
chr10:104153811-104154065	-25.46	NFKB2	71	+	-	+	No	promoter,exonic	Active promoter	Nfkb2
chr19:36390582-36390890	-39.31	NFKBID	816	+	-	+	No	promoter,intronic	Active promoter	Nfkbid
chr19:36391423-36391689	-27.96	NFKBID	-4	+	-	+	No	promoter	Active promoter	Nfkbid
chr6:44231936-44233097	-63.20	NFKBIE	1009	+	+	+	No	intronic	Other	Nfkbie
chr6:44230915-44231522	-24.32	NFKBIE	2307	+	+	+	No	intronic	Other	Nfkbie
chr6:31526494-31527203	-110.70	NFKBIL1	11495	+	+	-	No	intergenic	Active enhancer	Nfkbil1
chr8:59571766-59571913	-20.25	NSMAF	127	+	-	+	No	promoter,exonic	Active promoter	Nsmaf
chr8:59562377-59562581	-19.82	NSMAF	9487	+	+	-	No	intronic	Active enhancer	Nsmaf
chr7:102081984-102083403	-81.11	ORAI2	8716	+	+	-	Yes	intronic	Active enhancer	Orai2
chr7:102065186-102067350	-78.20	ORAI2	-7709	+	+	+	Yes	intergenic	Other	Orai2
chr7:102072177-102072554	-56.52	ORAI2	-1612	+	+	-	Yes	promoter	Active Enhancer	Orai2
chr7:102085421-102085824	-37.56	ORAI2	11645	+	+	-	Yes	intronic	Active enhancer	Orai2
chr7:102056309-102056658	-26.84	ORAI2	-17494	+	+	-	Yes	intergenic	Active enhancer	Orai2
chr7:102071330-102071526	-23.88	ORAI2	-2549	+	+	-	Yes	intergenic	Active enhancer	Orai2
chr7:102061539-102061718	-22.57	ORAI2	-12349	+	+	-	Yes	intergenic	Active enhancer	Orai2
chr7:102074398-102074498	-19.28	ORAI2	471	+	-	+	Yes	promoter,intronic	Active promoter	Orai2
chr7:102073303-102073401	-16.28	ORAI2	-625	+	+	-	Yes	promoter	Active Enhancer	Orai2
chr1:17467915-17468329	-24.68	PADI2	-22174	+	+	+	No	intergenic	Other	Padi2
chr1:226556707-226557218	-133.51	PARP1	38839	+	+	-	Yes	intronic	Active enhancer	Parp1
chr1:226558230-226559201	-63.74	PARP1	37086	+	+	+	Yes	intronic	Other	Parp1
chr1:226624563-226625114	-53.97	PARP1	-29037	+	+	-	No	intergenic	Active enhancer	Parp1
chr1:226594030-226594573	-30.83	PARP1	1500	+	-	+	No	intronic	Putative active promoter	Parp1
chr1:226593251-226593461	-28.62	PARP1	2445	+	+	+	No	intronic	Other	Parp1
chr1:226632708-226632962	-27.42	PARP1	-37034	+	+	-	No	intergenic	Active enhancer	Parp1
chr1:226595145-226595333	-22.29	PARP1	562	+	-	+	No	promoter,intronic	Active promoter	Parp1
chr22:44578473-44578714	-38.62	PARVG	1823	+	+	+	No	intronic	Other	Parvg
chr22:44577494-44577788	-21.45	PARVG	871	+	-	+	No	promoter,exonic	Active promoter	Parvg
chr8:22437484-22438147	-121.67	PDLIM2	-172	+	+	+	No	promoter	Other	Pdlim2
chr21:45144807-45145059	-23.19	PDXK	5955	+	+	-	No	intronic	Active enhancer	Pdxk
chr1:160173707-160174940	-1000.00	PEA15	-786	+	+	+	No	promoter	Other	Pea15a
chr1:160176513-160176802	-40.00	PEA15	1548	+	+	-	No	intronic	Active enhancer	Pea15a
chr17:8042022-8042283	-38.57	PER1	13601	+	-	-	No	intergenic	Other	Per1
chr14:105391021-105391418	-61.21	PLD4	32	+	+	-	No	promoter,exonic	Other	Pld4
chr2:208848336-208848673	-52.02	PLEKHM3	41780	+	+	-	No	intronic	Active enhancer	Plekhm3
chr6:30650246-30651501	-96.72	PPP1R18	4220	+	+	+	No	intronic	Other	Ppp1r18
chr6:30654672-30655645	-66.18	PPP1R18	-65	+	+	+	No	promoter	Other	Ppp1r18
chr6:30655970-30655996	-66.18	PPP1R18	-311	+	+	-	No	promoter	Other	Ppp1r18
chr6:30653307-30654339	-46.10	PPP1R18	1270	+	+	+	No	exonic	Other	Ppp1r18
chr6:30656200-30656752	-33.74	PPP1R18	-804	+	+	-	No	promoter	Other	Ppp1r18
chr6:30652537-30653013	-26.82	PPP1R18	2318	+	+	+	No	exonic	Other	Ppp1r18
chr6:30651901-30652058	-16.09	PPP1R18	3114	+	+	+	No	intronic	Other	Ppp1r18
chr6:106545294-106545900	-23.93	PRDM1**	-1140	+	+	+	No	promoter	Poised promoter	Prdm1
chr19:47221489-47222876	-72.75	PRKD2	-1798	+	+	-	No	promoter	Putative enhancer	Prkd2
chr19:47217829-47217991	-21.57	PRKD2	-333	+	+	+	No	promoter	Other	Prkd2
chr5:139126713-139127298	-31.26	PSD2	-48401	+	+	+	No	intergenic	Other	Psd2
chr8:142412745-142413140	-44.31	PTP4A3	-18546	+	+	-	No	intergenic	Active enhancer	Ptp4a3
chr19:5276796-5277134	-32.48	PTPRS	63849	+	+	-	No	intronic	Active enhancer	Ptprs
chr3:58335213-58336072	-61.43	PXK	17025	+	+	-	Yes	intronic	Active enhancer	Pxk
chr3:58324216-58324601	-35.00	PXK	5791	+	+	-	Yes	intronic	Active enhancer	Pxk
chr3:58340963-58341212	-28.13	PXK	22470	+	+	-	Yes	intronic	Active enhancer	Pxk

chr3:58323577-58323720	-18.45	PXK	5031	+	+	-	Yes	intronic	Active enhancer	Pxk
chr3:58341939-58342108	-17.15	PXK	23406	+	+	-	Yes	intronic	Active enhancer	Pxk
chr11:82774139-82775352	-43.95	RAB30	7759	+	+	+	Yes	intronic	Other	Rab30
chr11:82773736-82774014	-37.46	RAB30	8629	+	+	-	Yes	intronic	Active enhancer	Rab30
chr11:82777587-82777765	-19.73	RAB30	4828	+	+	-	Yes	intronic	Active enhancer	Rab30
chr18:9673410-9673655	-32.45	RAB31	-34696	+	-	-	No	intergenic	Other	Rab31
chr17:72738417-72738665	-28.16	RAB37	5185	+	+	-	No	intronic	Active enhancer	Rab37
chr19:41283051-41284303	-1000.00	RAB4B	-447	+	+	+	No	promoter	Other	Rab4b
chr20:4803122-4803588	-114.61	RASSF2	936	+	-	+	No	promoter,intronic	Active promoter	Rassf2
chr20:4792280-4792913	-69.38	RASSF2	3173	+	+	-	Yes	intronic	Active enhancer	Rassf2
chr20:4793104-4795827	-69.38	RASSF2	1304	+	+	+	Yes	intronic	Other	Rassf2
chr20:4822697-4822854	-31.65	RASSF2	-18484	+	+	-	No	intergenic	Active enhancer	Rassf2
chr20:4821738-4821867	-19.95	RASSF2	-17511	+	+	-	No	intergenic	Active enhancer	Rassf2
chr20:4821484-4821630	-17.97	RASSF2	-17266	+	+	-	No	intergenic	Active enhancer	Rassf2
chr17:73682500-73682878	-45.42	RECQL5	-19420	+	+	-	No	intergenic	Active enhancer	Recql5
chr17:73685572-73685970	-43.84	RECQL5	-22502	+	+	-	No	intergenic	Active enhancer	Recql5
chr17:73685000-73685222	-26.77	RECQL5	-21842	+	+	-	No	intergenic	Active enhancer	Recql5
chr19:45519549-45520122	-82.49	RELB	15128	+	+	-	No	intronic	Active enhancer	Relb
chr14:23357849-23358196	-31.65	REM2	5590	+	+	-	No	intergenic	Active enhancer	Rem2
chr14:23357232-23357628	-31.25	REM2	4998	+	+	-	No	intergenic	Active enhancer	Rem2
chr14:23356530-23356777	-24.02	REM2	4221	+	+	+	No	exonic	Other	Rem2
chr1:192595653-192596032	-49.67	RGS13	-9426	+	+	-	Yes	intergenic	Active enhancer	Rgs13
chr1:192608686-192608873	-24.18	RGS13	3511	+	+	-	Yes	intronic	Active enhancer	Rgs13
chr1:192578323-192578479	-21.73	RGS13	-26867	+	+	-	No	intergenic	Active enhancer	Rgs13
chr9:116285683-116286415	-61.59	RGS3	-12708	+	+	+	No	intergenic	Other	Rgs3
chr9:116342842-116343315	-56.07	RGS3	-79	+	+	+	No	promoter	Other	Rgs3
chr9:116344150-116344479	-54.72	RGS3	1157	+	+	+	No	intronic	Other	Rgs3
chr9:116341234-116342002	-27.08	RGS3	-1539	+	+	+	No	promoter	Other	Rgs3
chr9:116279536-116279678	-17.02	RGS3	15900	+	+	+	No	intronic	Other	Rgs3
chr17:63096212-63096673	-41.32	RGS9	-37014	+	+	+	No	intergenic	Other	Rgs9
chr17:63177372-63177547	-32.37	RGS9	44003	+	+	-	No	intronic	Active enhancer	Rgs9
chr17:63151012-63151243	-26.34	RGS9	17671	+	+	-	No	intronic	Active enhancer	Rgs9
chr12:122227201-122228095	-41.04	RHOF	3946	+	+	-	No	intronic	Active enhancer	Rhof
chr8:33411564-33412761	-73.20	RNF122	12484	+	+	-	No	intronic	Active enhancer	Rnf122
chr17:4843376-4844365	-28.97	RNF167	240	+	+	+	No	promoter,exonic	Other	Rnf167
chr21:15929705-15930114	-46.29	SAMSN1	-11228	+	+	-	No	intergenic	Active enhancer	Samsn1
chr3:42653745-42654076	-29.62	SEC22C	-11338	+	+	-	No	intergenic	Active enhancer	Sec22c
chr12:109027403-109027811	-65.42	SELPLG	63	+	+	-	No	promoter,exonic	Poised promoter	Selplg
chr12:109028939-109029766	-49.45	SELPLG	-1682	+	+	-	No	promoter	Poised promoter	Selplg
chr12:109028371-109028543	-20.17	SELPLG	-787	+	+	-	No	promoter	Poised promoter	Selplg
chr15:74695164-74697055	-1000.00	SEMA7A	29892	+	+	+	Yes	intergenic	Other	Sema7a
chr15:74721292-74721817	-58.83	SEMA7A	4447	+	+	-	No	intronic	Active enhancer	Sema7a
chr9:130541542-130541893	-30.07	SH2D3C	-669	+	+	-	No	promoter	Other	Sh2d3c
chr9:130538703-130538912	-28.19	SH2D3C	2241	+	+	+	No	intronic	Other	Sh2d3c
chr9:130540966-130541100	-21.23	SH2D3C	15	+	+	+	No	promoter,exonic	Other	Sh2d3c
chr4:2813664-2814199	-120.82	SH3BP2	-15	+	+	+	No	promoter	Other	Sh3bp2
chr3:48514369-48514709	-41.34	SHISA5	203	+	-	+	No	promoter,exonic	Active promoter	Shisa5
chr9:35635896-35636565	-68.41	SIT1	14717	+	+	-	No	intergenic	Active enhancer	Sit1
chr9:35634537-35635687	-65.90	SIT1	15835	+	+	+	No	intergenic	Other	Sit1
chr9:35646967-35647661	-62.80	SIT1	3633	+	+	+	No	intergenic	Other	Sit1
chr9:35649307-35649800	-55.88	SIT1	1394	+	+	+	No	exonic	Other	Sit1

chr7:26903280-26903447	-28.95	SKAP2	978	+	-	+	No	promoter,intronic	Active promoter	Skap2
chr7:26904015-26904612	-28.27	SKAP2	28	+	-	+	No	promoter,exonic	Active promoter	Skap2
chr1:160623376-160623870	-47.27	SLAMF1	-6522	+	+	-	Yes	intergenic	Active enhancer	Slamf1
chr1:160634465-160634868	-43.73	SLAMF1	-17565	+	+	-	Yes	intergenic	Active enhancer	Slamf1
chr1:160594264-160594594	-40.77	SLAMF1	22672	+	+	-	Yes	intronic	Active enhancer	Slamf1
chr1:160616442-160617137	-34.13	SLAMF1	312	+	+	+	Yes	promoter,exonic	Other	Slamf1
chr1:160611317-160611506	-20.61	SLAMF1	5690	+	+	-	Yes	intronic	Active enhancer	Slamf1
chr1:160595770-160595873	-16.89	SLAMF1	21280	+	+	-	Yes	intronic	Active enhancer	Slamf1
chr3:124866061-124866345	-34.05	SLC12A8	64040	+	+	-	No	intronic	Active enhancer	Slc12a8
chr3:124866482-124866637	-34.05	SLC12A8	63684	+	+	-	No	intronic	Active enhancer	Slc12a8
chr3:124864974-124865188	-28.39	SLC12A8	65162	+	+	-	No	intronic	Active enhancer	Slc12a8
chr3:124873933-124874101	-20.73	SLC12A8	56226	+	+	+	No	intronic	Other	Slc12a8
chr9:130834898-130835103	-15.40	SLC25A25	4521	+	+	-	No	intronic	Active enhancer	Slc25a25
chr9:136343713-136343860	-16.58	SLC2A6	490	+	+	+	No	promoter,intronic	Other	Slc2a6
chr17:1496106-1496750	-63.62	SLC43A2	11900	+	+	-	No	intronic	Active enhancer	Slc43a2
chr17:1530460-1530841	-48.36	SLC43A2	1019	+	+	-	No	intronic	Active enhancer	Slc43a2
chr8:142192120-142192938	-108.99	SLC45A4	46144	+	+	-	Yes	intergenic	Active enhancer	Slc45a4
chr8:142188641-142189393	-80.32	SLC45A4	49656	+	+	-	Yes	intergenic	Active enhancer	Slc45a4
chr8:142216472-142216946	-39.14	SLC45A4	21964	+	+	+	No	intergenic	Other	Slc45a4
chr12:51762617-51763175	-109.89	SLC4A8	-22205	+	+	-	No	intergenic	Active enhancer	Slc4a8
chr14:23272577-23272721	-30.36	SLC7A7	12452	+	+	-	No	intronic	Active enhancer	Slc7a7
chr22:24142458-24143762	-1000.00	SMARCB1	13960	+	+	-	No	intronic	Active enhancer	Smarcb1
chr22:24141174-24141647	-50.41	SMARCB1	12260	+	+	-	No	intronic	Active enhancer	Smarcb1
chr16:12127606-12128487	-98.53	SNX29	57455	+	+	-	No	intronic	Active enhancer	Snx29
chr16:12128831-12129243	-30.34	SNX29	58446	+	+	-	No	intronic	Active enhancer	Snx29
chr16:12241592-12241799	-25.03	SNX29	171104	+	+	-	No	intronic	Active enhancer	Snx29
chr16:12139852-12140053	-22.76	SNX29	69361	+	+	+	No	intronic	Other	Snx29
chr7:2339428-2339943	-90.55	SNX8	14425	+	+	-	Yes	intronic	Active enhancer	Snx8
chr7:2347352-2347773	-42.63	SNX8	6548	+	+	+	Yes	intronic	Other	Snx8
chr7:2338769-2339179	-40.01	SNX8	15136	+	+	-	Yes	intronic	Active enhancer	Snx8
chr7:2353465-2353623	-27.50	SNX8	566	+	-	+	Yes	promoter,intronic	Active promoter	Snx8
chr2:214543452-214543975	-56.80	SPAG16	394610	+	-	-	No	intronic	Other	Spag16
chr2:214616162-214616439	-23.58	SPAG16	467197	+	+	-	No	intronic	Active enhancer	Spag16
chr13:24848613-24848917	-25.40	SPATA13	3940	+	+	-	No	intronic	Active enhancer	Spata13
chr20:55891570-55892256	-75.52	SPO11	-12918	+	-	-	No	intergenic	Other	Spo11
chr20:55892899-55893346	-24.92	SPO11	-11709	+	+	-	No	intergenic	Active enhancer	Spo11
chr22:42258131-42259078	-34.31	SREBF2	29521	+	+	-	Yes	intronic	Active enhancer	Srebf2
chr22:42255220-42255410	-29.41	SREBF2	26232	+	+	-	Yes	intronic	Active enhancer	Srebf2
chr16:70466418-70467125	-1000.00	ST3GAL2	6220	+	+	-	Yes	intronic	Active enhancer	St3gal2
chr16:70463833-70466136	-70.57	ST3GAL2	8007	+	+	-	Yes	intronic	Active enhancer	St3gal2
chr16:70438252-70438578	-44.54	ST3GAL2	34576	+	+	-	Yes	intronic	Active enhancer	St3gal2
chr2:197040786-197041287	-96.36	STK17B	-4700	+	+	+	Yes	intergenic	Other	Stk17b
chr2:197139137-197139811	-84.47	STK17B	-103138	+	+	-	Yes	intergenic	Active enhancer	Stk17b
chr2:197104853-197105280	-74.83	STK17B	-68730	+	+	-	Yes	intergenic	Active enhancer	Stk17b
chr2:197133299-197133909	-55.62	STK17B	-97268	+	+	-	Yes	intergenic	Active enhancer	Stk17b
chr2:197024863-197025174	-53.73	STK17B	11318	+	+	-	Yes	intronic	Active enhancer	Stk17b
chr2:197134022-197134155	-46.17	STK17B	-97752	+	+	+	Yes	intergenic	Other	Stk17b
chr2:197040215-197040557	-40.36	STK17B	-4050	+	+	+	Yes	intergenic	Other	Stk17b
chr2:197041583-197042047	-37.46	STK17B	-5479	+	+	+	Yes	intergenic	Other	Stk17b
chr2:197106808-197107371	-34.63	STK17B	-70753	+	+	+	Yes	intergenic	Other	Stk17b
chr2:197075996-197076310	-34.28	STK17B	-39817	+	+	+	No	intergenic	Other	Stk17b

chr2:197127876-197128261	-31.83	STK17B	-91732	+	+	-	Yes	intergenic	Active enhancer	Stk17b
chr2:197132740-197133019	-31.68	STK17B	-96543	+	+	-	Yes	intergenic	Active enhancer	Stk17b
chr2:197098580-197098861	-28.32	STK17B	-62384	+	+	-	Yes	intergenic	Active enhancer	Stk17b
chr2:197140370-197140569	-24.66	STK17B	-104133	+	+	-	Yes	intergenic	Active enhancer	Stk17b
chr2:197042583-197042708	-19.81	STK17B	-6309	+	+	-	Yes	intergenic	Active enhancer	Stk17b
chr2:197125444-197125516	-16.20	STK17B	-89144	+	+	-	Yes	intergenic	Active enhancer	Stk17b
chr17:61819044-61819597	-28.69	STRADA	10	+	+	+	No	promoter,exonic	Other	Strada
chr17:61819723-61819956	-28.41	STRADA	-509	+	-	+	No	promoter	Active promoter	Strada
chr3:31268743-31268955	-45.76	STT3B	-305144	+	+	-	No	intergenic	Active enhancer	Stt3b
chr3:31267840-31268302	-45.35	STT3B	-305922	+	+	-	No	intergenic	Active enhancer	Stt3b
chr3:31574260-31574460	-26.92	STT3B	367	+	-	+	No	promoter,exonic	Active promoter	Stt3b
chr6:144471884-144472025	-20.69	STX11	300	+	-	+	No	promoter,intronic	Active promoter	Stx11
chr9:114867191-114867577	-67.38	SUSD1	70193	+	+	-	No	intronic	Active enhancer	Susd1
chr9:114799929-114800565	-34.83	SUSD1	137330	+	+	-	Yes	intergenic	Active enhancer	Susd1
chr9:114798112-114798721	-31.87	SUSD1	139161	+	+	-	Yes	intergenic	Active enhancer	Susd1
chr9:95823903-95824897	-64.16	SUSD3	3430	+	+	+	No	intronic	Other	Susd3
chr9:95820535-95820826	-40.67	SUSD3	-290	+	+	-	No	promoter	Other	Susd3
chr9:95826622-95826907	-31.79	SUSD3	5794	+	+	-	No	intronic	Active enhancer	Susd3
chr9:95821822-95822072	-21.88	SUSD3	977	+	+	+	No	promoter,intronic	Other	Susd3
chr6:152623068-152623566	-42.05	SYNE1	334669	+	-	+	No	intronic	Other	Syne1
chr6:159136888-159137308	-32.65	SYTL3	66052	+	+	-	No	intronic	Active enhancer	Sytl3
chr2:161993308-161993509	-27.51	TANK	-58	+	-	+	No	promoter	Active promoter	Tank
chr2:161947061-161947150	-25.34	TANK	-46361	+	+	+	No	intergenic	Other	Tank
chr2:162027441-162027563	-24.91	TANK	10563	+	+	-	No	intronic	Active enhancer	Tank
chr2:162016883-162017021	-23.22	TANK	13	+	-	+	No	promoter,exonic	Active promoter	Tank
chr2:161945278-161945453	-19.16	TANK	-48101	+	+	-	No	intergenic	Active enhancer	Tank
chr2:161960888-161961050	-17.52	TANK	-32497	+	+	+	No	intergenic	Other	Tank
chr22:47169144-47170973	-1000.00	TBC1D22A	234	+	+	-	Yes	promoter,exonic	Active Enhancer	Tbc1d22a
chr22:47166564-47167010	-78.75	TBC1D22A	-3037	+	+	-	Yes	intergenic	Active enhancer	Tbc1d22a
chr22:47165127-47165525	-61.26	TBC1D22A	-4498	+	+	-	Yes	intergenic	Active enhancer	Tbc1d22a
chr22:47158994-47159352	-61.03	TBC1D22A	-466	+	-	+	No	promoter	Active promoter	Tbc1d22a
chr22:47158524-47158672	-24.88	TBC1D22A	84	+	-	+	No	promoter,exonic	Active promoter	Tbc1d22a
chr22:47164508-47164646	-21.27	TBC1D22A	4938	+	+	-	Yes	intronic	Active enhancer	Tbc1d22a
chr22:47171243-47171380	-14.98	TBC1D22A	1487	+	+	-	Yes	intronic	Active enhancer	Tbc1d22a
chr12:55378351-55378783	-50.91	TESPA1	-37	+	-	+	No	promoter	Active promoter	Tespa1
chr12:55385280-55385505	-18.65	TESPA1	-6862	+	+	-	No	intergenic	Active enhancer	Tespa1
chr14:76426670-76426784	-18.45	TGFB3	21638	+	+	-	No	intronic	Active enhancer	Tgfb3
chr3:30686200-30686609	-72.62	TGFBR2	38410	+	+	-	Yes	exonic	Active enhancer	Tgfbr2
chr3:30685611-30686031	-72.17	TGFBR2	37827	+	+	-	Yes	intronic	Active enhancer	Tgfbr2
chr3:30684300-30684781	-59.99	TGFBR2	36546	+	+	-	Yes	intronic	Active enhancer	Tgfbr2
chr3:30691056-30691418	-53.64	TGFBR2	43243	+	+	-	Yes	intronic	Active enhancer	Tgfbr2
chr3:30645629-30645885	-32.05	TGFBR2	-2237	+	+	-	Yes	intergenic	Active enhancer	Tgfbr2
chr3:30647948-30648154	-28.53	TGFBR2	57	+	+	+	Yes	promoter,exonic	Other	Tgfbr2
chr3:30690502-30690745	-26.65	TGFBR2	42629	+	+	-	Yes	intronic	Active enhancer	Tgfbr2
chr3:30648644-30648920	-23.04	TGFBR2	788	+	-	+	Yes	promoter,intronic	Active promoter	Tgfbr2
chr20:36825661-36825813	-30.72	TGM2	-32037	+	+	-	No	intergenic	Active enhancer	Tgm2
chr20:36825942-36826028	-30.72	TGM2	-32285	+	+	-	No	intergenic	Active enhancer	Tgm2
chrX:153562181-153562443	-36.82	TKTL1	28903	+	+	-	No	intergenic	Active enhancer	Tktl1
chr11:60683076-60683310	-23.67	TMEM109	1822	+	+	+	No	intronic	Other	Tmem109
chr11:60677856-60678060	-21.63	TMEM109	-3413	+	+	-	No	intergenic	Active enhancer	Tmem109
chr6:138188562-138188917	-31.74	TNFAIP3	414	+	-	+	No	promoter,intronic	Active promoter	Tnfaip3

chr6:138075614-138075830	-29.24	TNFAIP3	-112603	+	+	-	No	intergenic	Active enhancer	Tnfaip3
chr19:4639025-4639220	-27.76	TNFAIP8L1	-405	+	+	-	No	promoter	Poised promoter	Tnfaip8l1
chr7:47614300-47614622	-52.56	TNS3	7281	+	+	-	No	intronic	Active enhancer	Tns3
chr7:47188984-47189456	-39.52	TNS3	432522	+	+	-	No	intergenic	Active enhancer	Tns3
chr7:47640556-47641185	-28.25	TNS3	-19128	+	+	-	No	intergenic	Active enhancer	Tns3
chr8:81050800-81051219	-59.82	TPD52	32426	+	+	+	Yes	intronic	Other	Tpd52
chr8:81074253-81074609	-43.60	TPD52	9004	+	+	-	Yes	intronic	Active enhancer	Tpd52
chr8:81082571-81083533	-37.69	TPD52	383	+	+	+	Yes	promoter,intronic	Other	Tpd52
chr8:81058781-81059619	-32.70	TPD52	24235	+	+	-	Yes	intronic	Active enhancer	Tpd52
chr8:81079584-81079860	-26.85	TPD52	3713	+	+	-	Yes	intronic	Active enhancer	Tpd52
chr8:81055659-81055786	-21.53	TPD52	27713	+	+	-	Yes	intronic	Active enhancer	Tpd52
chr7:144531991-144532675	-23.54	TPK1	813	+	-	+	No	promoter,intronic	Active promoter	Tpk1
chr7:144522377-144522686	-22.73	TPK1	10615	+	+	+	No	intronic	Other	Tpk1
chr9:123698157-123699055	-93.14	TRAF1	-7155	+	+	-	Yes	intergenic	Active enhancer	Traf1
chr9:123706677-123707059	-84.52	TRAF1	-15417	+	+	-	Yes	intergenic	Active enhancer	Traf1
chr9:123693801-123694419	-57.87	TRAF1	-2659	+	+	-	Yes	intergenic	Active enhancer	Traf1
chr9:123667638-123668069	-48.18	TRAF1	8997	+	+	-	Yes	intronic	Active enhancer	Traf1
chr9:123696680-123696949	-25.46	TRAF1	-5363	+	+	-	Yes	intergenic	Active enhancer	Traf1
chr9:123691083-123691517	-25.32	TRAF1	151	+	+	+	Yes	promoter,intronic	Other	Traf1
chr9:123697610-123697906	-24.16	TRAF1	-6307	+	+	-	Yes	intergenic	Active enhancer	Traf1
chr9:123688697-123689078	-23.29	TRAF1	286	+	+	+	Yes	promoter,exonic	Other	Traf1
chr9:123690693-123690904	-22.99	TRAF1	653	+	+	+	Yes	promoter,intronic	Other	Traf1
chr9:123697376-123697381	-19.12	TRAF1	-5927	+	+	-	Yes	intergenic	Active enhancer	Traf1
chr9:100866173-100866321	-36.42	TRIM14	15388	+	+	-	Yes	intronic	Active enhancer	Trim14
chr9:100866759-100867032	-35.84	TRIM14	14740	+	+	-	Yes	intronic	Active enhancer	Trim14
chr9:100870287-100870579	-33.23	TRIM14	11202	+	+	-	Yes	intronic	Active enhancer	Trim14
chr9:100870790-100871212	-33.23	TRIM14	10634	+	+	-	Yes	intronic	Active enhancer	Trim14
chr9:100871386-100871659	-33.23	TRIM14	10113	+	+	-	Yes	intronic	Active enhancer	Trim14
chr9:100864252-100864500	-32.32	TRIM14	17259	+	+	-	Yes	intronic	Active enhancer	Trim14
chr9:100881602-100881770	-19.61	TRIM14	-51	+	+	+	Yes	promoter	Other	Trim14
chr15:45020878-45021340	-40.89	TRIM69	-7451	+	+	+	No	intergenic	Other	Trim69
chr15:45018805-45019133	-39.81	TRIM69	-9591	+	+	+	No	intergenic	Other	Trim69
chr15:45016759-45017036	-22.74	TRIM69	-11663	+	+	-	No	intergenic	Active enhancer	Trim69
chr5:180616680-180616831	-15.25	TRIM7	11175	+	-	+	No	intergenic	Other	Trim7
chr5:180617651-180617766	-14.17	TRIM7	10222	+	-	+	No	intergenic	Other	Trim7
chr5:14287077-14287451	-38.00	TRIO	143435	+	+	-	No	intronic	Active enhancer	Trio
chr5:14277634-14277922	-34.79	TRIO	133949	+	+	-	No	intronic	Active enhancer	Trio
chr5:14212324-14212721	-28.99	TRIO	68693	+	+	-	No	intronic	Active enhancer	Trio
chr5:14155292-14155459	-19.63	TRIO	11546	+	+	-	No	intronic	Active enhancer	Trio
chr16:10884932-10885310	-47.47	TVP23A	27500	+	+	-	No	intronic	Active enhancer	Tvp23a
chr16:10906209-10906581	-31.26	TVP23A	6226	+	+	-	No	intronic	Active enhancer	Tvp23a
chr16:10906772-10907052	-31.26	TVP23A	5709	+	+	-	No	intronic	Active enhancer	Tvp23a
chr16:10896538-10896695	-29.23	TVP23A	16005	+	+	-	No	intronic	Active enhancer	Tvp23a
chr16:10898613-10898789	-18.46	TVP23A	13920	+	+	-	No	intronic	Active enhancer	Tvp23a
chr16:10900704-10900831	-17.09	TVP23A	11854	+	+	-	No	intronic	Active enhancer	Tvp23a
chr1:26645150-26645410	-36.49	UBXN11	-524	+	+	+	No	promoter	Other	Ubxn11
chr11:67770832-67771158	-66.16	UNC93B1	600	+	-	+	No	promoter,intronic	Active promoter	Unc93b1
chr11:67770134-67770731	-66.16	UNC93B1	1163	+	+	+	No	intronic	Other	Unc93b1
chr19:17302594-17303069	-46.48	USE1	-23324	+	+	-	No	intergenic	Active enhancer	Use1
chr19:17294622-17295210	-33.42	USE1	-31239	+	+	-	No	intergenic	Active enhancer	Use1
chr7:55600957-55601723	-106.71	VOPP1	4069	+	+	-	Yes	intronic	Active enhancer	Vopp1

chr7:55601935-55603344	-106.71	VOPP1	2770	+	+	-	Yes	intronic	Active enhancer	Vopp1
chr7:55638822-55639550	-38.79	VOPP1	1014	+	+	+	Yes	intronic	Other	Vopp1
chr7:55583628-55583876	-30.31	VOPP1	21657	+	+	-	Yes	intronic	Active enhancer	Vopp1
chr7:55637067-55637349	-30.20	VOPP1	2992	+	+	-	Yes	intronic	Active enhancer	Vopp1
chr7:55637546-55637790	-30.20	VOPP1	2532	+	+	-	Yes	intronic	Active enhancer	Vopp1
chr7:55635291-55635478	-29.27	VOPP1	4816	+	+	-	Yes	intronic	Active enhancer	Vopp1
chr7:55625356-55625734	-28.08	VOPP1	-5079	+	+	-	Yes	intergenic	Active enhancer	Vopp1
chr7:55638119-55638275	-17.91	VOPP1	2003	+	+	+	Yes	intronic	Other	Vopp1
chr10:49892476-49893747	-66.93	WDFY4	-407	+	+	+	No	promoter	Other	Wdfy4
chr10:49879410-49880044	-45.94	WDFY4	-13791	+	+	+	Yes	intergenic	Other	Wdfy4
chr10:49880355-49880845	-37.29	WDFY4	-12918	+	+	+	Yes	intergenic	Other	Wdfy4
chr10:49886092-49886381	-29.00	WDFY4	-7282	+	+	-	Yes	intergenic	Active enhancer	Wdfy4
chr10:49880967-49880974	-25.09	WDFY4	-12548	+	+	+	Yes	intergenic	Other	Wdfy4
chr10:49889932-49890100	-19.07	WDFY4	-3502	+	+	-	Yes	intergenic	Active enhancer	Wdfy4
chr19:44066846-44067262	-76.69	XRCC1	12676	+	+	-	No	intronic	Active enhancer	Xrcc1
chr1:37942693-37943407	-61.57	ZC3H12A	2931	+	+	+	No	intronic	Other	Zc3h12a
chr1:37944574-37945302	-28.05	ZC3H12A	4819	+	+	+	No	intronic	Other	Zc3h12a
chr19:39900077-39900320	-30.50	ZFP36	2711	+	+	+	No	intergenic	Other	Zfp36
chr19:39893313-39893643	-28.06	ZFP36	-4009	+	+	+	No	intergenic	Other	Zfp36
chr19:39894524-39894678	-21.27	ZFP36	-2886	+	+	-	No	intergenic	Active enhancer	Zfp36
chr2:43358361-43358932	-71.40	ZFP36L2	95099	+	+	-	No	intergenic	Active enhancer	Zfp36l2
chr2:43446849-43447513	-62.02	ZFP36L2	6564	+	+	+	No	intergenic	Other	Zfp36l2
chr2:43401528-43401902	-44.16	ZFP36L2	52030	+	+	-	No	intergenic	Active enhancer	Zfp36l2
chr2:43396265-43396766	-40.84	ZFP36L2	57230	+	+	-	No	intergenic	Active enhancer	Zfp36l2
chr2:43361182-43361686	-35.08	ZFP36L2	92311	+	+	-	No	intergenic	Active enhancer	Zfp36l2
chr2:43448740-43449097	-26.90	ZFP36L2	4827	+	+	-	No	intergenic	Active enhancer	Zfp36l2
chr2:43445666-43445835	-23.30	ZFP36L2	7995	+	+	+	No	intergenic	Other	Zfp36l2
chr2:43448105-43448274	-20.88	ZFP36L2	5556	+	+	-	No	intergenic	Active enhancer	Zfp36l2
chr2:43452844-43453034	-19.64	ZFP36L2	806	+	-	+	No	promoter,intronic	Active promoter	Zfp36l2
chr10:64412975-64413423	-75.50	ZNF365	132992	+	+	-	No	intronic	Active enhancer	Zfp365
chr10:64415272-64415602	-48.12	ZNF365	135230	+	+	-	No	intronic	Active enhancer	Zfp365
chr10:64391836-64392551	-37.75	ZNF365	111986	+	+	+	No	intronic	Other	Zfp365
chr10:64396696-64397434	-35.02	ZNF365	116858	+	+	+	No	intronic	Other	Zfp365
chr10:64391120-64391285	-28.91	ZNF365	110995	+	+	-	No	intronic	Active enhancer	Zfp365
chr10:64288250-64288499	-26.86	ZNF365	8167	+	+	-	No	intronic	Active enhancer	Zfp365
chr10:64397793-64398111	-19.46	ZNF365	117745	+	+	-	No	intronic	Active enhancer	Zfp365

* Poised promoters were defined based on the concurrent presence of H3K27me3 marks

** The *Prdm1* gene was filtered out in the GEP analysis, but was in the leading edge of the GSEA analysis of $Crebbp^{fl/fl}$ vs $Crebbp^{+/+}$ GC B cells, and was experimentally validated.

Supplementary Table 4. Pathway enrichment analysis of CREBBP "core target" genes (bound by CREBBP in human GC B cells and downregulated in Crebbp$^{fl/fl}$ mouse GC B cells)

Gene Set Name	Gene Size (K)	Description*	N of Genes in Overlap (k)	k/K	NOM p-val	FDR q-val
MSigDB Database						
mature B cell related						
REACTOME_IMMUNE_SYSTEM	933	Genes involved in Immune System	24	0.026	1.02E-10	1.35E-07
PID_NFAT_TFPATHWAY	47	Calcineurin-regulated NFAT-dependent transcription in lymphocytes	6	0.128	1.44E-07	4.78E-05
ST_FAS_SIGNALING_PATHWAY	65	Fas Signaling Pathway	6	0.092	1.02E-06	2.70E-04
KEGG_CYTOKINE_CYTOKINE_RECEPTOR_INTERACTION	267	Cytokine-cytokine receptor interaction	10	0.038	1.27E-06	2.70E-04
REACTOME_CD28_DEPENDENT_PI3K_AKT_SIGNALING	22	Genes involved in CD28 dependent PI3K/Akt signaling	4	0.182	4.38E-06	6.00E-04
REACTOME_ADAPTIVE_IMMUNE_SYSTEM	539	Genes involved in Adaptive Immune System	13	0.024	4.51E-06	6.00E-04
REACTOME_CYTOKINE_SIGNALING_IN_IMMUNE_SYSTEM	270	Genes involved in Cytokine Signaling in Immune system	9	0.033	1.11E-05	1.05E-03
ST_GAQ_PATHWAY	28	G alpha q Pathway	4	0.143	1.20E-05	1.06E-03
ST_TUMOR_NECROSIS_FACTOR_PATHWAY	29	Tumor Necrosis Factor Pathway.	4	0.138	1.38E-05	1.08E-03
REACTOME_CD28_DEPENDENT_VAV1_PATHWAY	11	Genes involved in CD28 dependent Vav1 pathway	3	0.273	2.06E-05	1.38E-03
PID_BCR_5PATHWAY	65	BCR signaling pathway	5	0.077	2.07E-05	1.38E-03
REACTOME_CD28_CO_STIMULATION	32	Genes involved in CD28 co-stimulation	4	0.125	2.07E-05	1.38E-03
SIG_CD40PATHWAYMAP	34	Genes related to CD40 signaling	4	0.118	2.65E-05	1.68E-03
KEGG_B_CELL_RECEPTOR_SIGNALING_PATHWAY	75	B cell receptor signaling pathway	5	0.067	4.15E-05	2.30E-03
PID_RAC1_REG_PATHWAY	38	Regulation of RAC1 activity	4	0.105	4.15E-05	2.30E-03
KEGG_CELL_ADHESION_MOLECULES_CAMS	134	Cell adhesion molecules (CAMs)	6	0.045	6.66E-05	3.41E-03
BIOCARTA_TNFR2_PATHWAY	18	TNFR2 Signaling Pathway	3	0.167	9.92E-05	4.89E-03
KEGG_JAK_STAT_SIGNALING_PATHWAY	155	Jak-STAT signaling pathway	6	0.039	1.48E-04	7.04E-03
REACTOME_CTLA4_INHIBITORY_SIGNALING	21	Genes involved in CTLA4 inhibitory signaling	3	0.143	1.60E-04	7.09E-03
KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY	102	Toll-like receptor signaling pathway	5	0.049	1.79E-04	7.44E-03
REACTOME_SIGNALING_BY_ILS	107	Genes involved in Signaling by Interleukins	5	0.047	2.24E-04	8.77E-03
PID_IL12_2PATHWAY	63	IL12-mediated signaling events	4	0.064	3.03E-04	1.06E-02
REACTOME_COSTIMULATION_BY_THE_CD28_FAMILY	63	Genes involved in Costimulation by the CD28 family	4	0.064	3.03E-04	1.06E-02
REACTOME_INTERFERON_GAMMA_SIGNALING	63	Genes involved in Interferon gamma signaling	4	0.064	3.03E-04	1.06E-02
KEGG_MAPK_SIGNALING_PATHWAY	267	MAPK signaling pathway	7	0.026	4.58E-04	1.38E-02
PID_CD40_PATHWAY	31	CD40/CD40L signaling	3	0.097	5.21E-04	1.50E-02
KEGG_BASE_EXCISION_REPAIR	35	Base excision repair	3	0.086	7.47E-04	1.95E-02
ST_GA13_PATHWAY	37	G alpha 13 Pathway	3	0.081	8.80E-04	2.25E-02
ST_B_CELL_ANTIGEN_RECEPTOR	40	B Cell Antigen Receptor	3	0.075	1.11E-03	2.57E-02
REACTOME_TRYPTOPHAN_CATABOLISM	11	Genes involved in Tryptophan catabolism	2	0.182	1.37E-03	2.93E-02
PID_RHOA_REG_PATHWAY	46	Regulation of RhoA activity	3	0.065	1.66E-03	3.30E-02
PID_TNF_PATHWAY	46	TNF receptor signaling pathway	3	0.065	1.66E-03	3.30E-02
SIG_BCR_SIGNALING_PATHWAY	46	Members of the BCR signaling pathway	3	0.065	1.66E-03	3.30E-02
PID_CXCR4_PATHWAY	102	CXCR4-mediated signaling events	4	0.039	1.86E-03	3.63E-02
PID_PI3KCI_PATHWAY	49	Class I PI3K signaling events	3	0.061	2.00E-03	3.64E-02
REACTOME_TRAFFICKING_AND_PROCESSING_OF_ENDOSOMAL_TLR	14	Genes involved in Trafficking and processing of endosomal TLR	2	0.143	2.24E-03	4.02E-02
PID_PTP1B_PATHWAY	52	Signaling events mediated by PTP1B	3	0.058	2.37E-03	4.20E-02
BIOCARTA_CD40_PATHWAY	15	CD40L Signaling Pathway	2	0.133	2.57E-03	4.44E-02
PID_NFAT_3PATHWAY	54	Role of Calcineurin-dependent NFAT signaling in lymphocytes	3	0.056	2.64E-03	4.50E-02
REACTOME_SIGNALING_BY_RHO_GTPASES	113	Genes involved in Signaling by Rho GTPases	4	0.035	2.69E-03	4.53E-02

Gene Set Name	Gene Size (K)	Description*	N of Genes in Overlap (k)	k/K	NOM p-val	FDR q-val
other						
PID_TCR_PATHWAY	66	TCR signaling in naive CD4+ T cells	7	0.106	4.75E-08	2.11E-05
BIOCARTA_TH1TH2_PATHWAY	19	Th1/Th2 Differentiation	5	0.263	3.52E-08	2.11E-05
KEGG_T_CELL_RECEPTOR_SIGNALING_PATHWAY	108	T cell receptor signaling pathway	7	0.065	1.42E-06	2.70E-04
ST_T_CELL_SIGNAL_TRANSDUCTION	45	T Cell Signal Transduction	5	0.111	3.32E-06	5.52E-04
REACTOME_DEVELOPMENTAL_BIOLOGY	396	Genes involved in Developmental Biology	11	0.028	6.67E-06	8.06E-04
PID_CD8_TCR_PATHWAY	53	TCR signaling in naïve CD8+ T cells	5	0.094	7.55E-06	8.37E-04
BIOCARTA_NKT_PATHWAY	29	Selective expression of chemokine receptors during T-cell polarization	4	0.138	1.38E-05	1.08E-03
KEGG_LEISHMANIA_INFECTION	72	Leishmania infection	5	0.069	3.40E-05	2.06E-03
REACTOME_AXON_GUIDANCE	251	Genes involved in Axon guidance	8	0.032	4.70E-05	2.50E-03
BIOCARTA_CTLA4_PATHWAY	21	The Co-Stimulatory Signal During T-cell Activation	3	0.143	1.60E-04	7.09E-03
REACTOME_TCR_SIGNALING	54	Genes involved in TCR signaling	4	0.074	1.67E-04	7.16E-03
BIOCARTA_DC_PATHWAY	22	Dendritic cells in regulating TH1 and TH2 Development	3	0.136	1.85E-04	7.44E-03
PID_GLYPICAN_1PATHWAY	27	Glypican 1 network	4	0.148	1.03E-05	1.05E-03
BIOCARTA_EPHA4_PATHWAY	10	Eph Kinases and ephrins support platelet aggregation	2	0.200	1.12E-03	2.57E-02
PID_FCER1_PATHWAY	62	Fc-epsilon receptor I signaling in mast cells	4	0.065	2.85E-04	1.06E-02
KEGG_LEUKOCYTE_TRANSENDOTHELIAL_MIGRATION	118	Leukocyte transendothelial migration	5	0.042	3.53E-04	1.17E-02
REACTOME_GENERATION_OF_SECOND_MESSENGER_MOLECULES	27	Genes involved in Generation of second messenger molecules	3	0.111	3.44E-04	1.17E-02
KEGG_ENDOCYTOSIS	183	Endocytosis	6	0.033	3.63E-04	1.18E-02
REACTOME_SEMAPHORIN_INTERACTIONS	68	Genes involved in Semaphorin interactions	4	0.059	4.07E-04	1.29E-02
BIOCARTA_VIP_PATHWAY	29	Neuropeptides VIP and PACAP inhibit the apoptosis of activated T cells	3	0.103	4.26E-04	1.32E-02
PID_EPHRINB_REV_PATHWAY	30	Ephrin B reverse signaling	3	0.100	4.72E-04	1.40E-02
KEGG_AXON_GUIDANCE	129	Axon guidance	5	0.039	5.30E-04	1.50E-02
REACTOME_HEMOSTASIS	466	Genes involved in Hemostasis	9	0.019	6.80E-04	1.89E-02
KEGG_NATURAL_KILLER_CELL_MEDIATED_CYTOTOXICITY	137	Natural killer cell mediated cytotoxicity	5	0.037	6.96E-04	1.89E-02
KEGG_PRIMARY_IMMUNODEFICIENCY	35	Primary immunodeficiency	3	0.086	7.47E-04	1.95E-02
KEGG_ALLOGRAFT_REJECTION	38	Allograft rejection	3	0.079	9.52E-04	2.39E-02
KEGG_HEMATOPOIETIC_CELL_LINEAGE	88	Hematopoietic cell lineage	4	0.046	1.08E-03	2.57E-02
KEGG_TRYPTOPHAN_METABOLISM	40	Tryptophan metabolism	3	0.075	1.11E-03	2.57E-02
REACTOME_PECAM1_INTERACTIONS	10	Genes involved in PECAM1 interactions	2	0.200	1.12E-03	2.57E-02
PID_AMB2_NEUTROPHILS_PATHWAY	41	amb2 Integrin signaling	3	0.073	1.19E-03	2.64E-02
REACTOME_NETRIN1_SIGNALING	41	Genes involved in Netrin-1 signaling	3	0.073	1.19E-03	2.64E-02
REACTOME_CELL_SURFACE_INTERACTIONS_AT_THE_VASCULAR_	91	Genes involved in Cell surface interactions at the vascular wall	4	0.044	1.22E-03	2.66E-02
REACTOME_PLATELET_ADHESION_TO_EXPOSED_COLLAGEN	12	Genes involved in Platelet Adhesion to exposed collagen	2	0.167	1.63E-03	3.30E-02
REACTOME_RESOLUTION_OF_AP_SITES	12	Genes involved in Resolution of AP sites via the single-nucleotide replacement pathway	2	0.167	1.63E-03	3.30E-02
BIOCARTA_TCR_PATHWAY	49	T Cell Receptor Signaling Pathway	3	0.061	2.00E-03	3.64E-02
PID_ARF6_TRAFFICKING_PATHWAY	49	Arf6 trafficking events	3	0.061	2.00E-03	3.64E-02
BIOCARTA_TCRA_PATHWAY	13	Lck and Fyn tyrosine kinases in initiation of TCR Activation	2	0.154	1.92E-03	3.64E-02
REACTOME_DCC_MEDIATED_ATTRACTIVE_SIGNALING	13	Genes involved in DCC mediated attractive signaling	2	0.154	1.92E-03	3.64E-02
REACTOME_OTHER_SEMAPHORIN_INTERACTIONS	15	Genes involved in Other semaphorin interactions	2	0.133	2.57E-03	4.44E-02
BIOCARTA_GATA3_PATHWAY	16	GATA3 participate in activating the Th2 cytokine genes expression	2	0.125	2.93E-03	4.87E-02

Gene Set Name	Gene Size (K)	Description*	N of Genes in Overlap (k)	k/K	NOM p-val	FDR q-val
LymphoChIP Database						
CD40_upregulated_Burkitt_lymphoma	101	Basso K et. al. Blood. 2004 Dec 15;104(13):4088-96.	15	0.150	6.31E-12	1.83E-09
NFkB_Up_all_OCILy3_Ly10	68	Lam LT et. al. Blood. 2008 Apr 1;111(7):3701-13.	11	0.160	3.84E-09	0.000000371
GC_B_cell_U133Plus	334	Dave SS et. al. NEJM 354:2431 (2006)	20	0.060	6.89E-09	0.000000499
NFkB_Up_HBL1	221	Staudt's lab Unpublished data	17	0.080	3.73E-09	0.000000541
NFkB_Up_bothOCILy3andLy10	40	Lam LT et. al. Clin Cancer Res. 2005 Jan 1;11(1):28-40. Lam LT et. al. Blood. 2008 Apr 1;111(7):3701-13.	9	0.220	1.15E-08	0.000000665
Myc_ChIP_PET_Expr_Down	262	Zeller KI et. al. Proc Natl Acad Sci U S A. 2006 Nov 21;103(47):17834-9.	16	0.060	0.000000256	0.0000124
IL6_Ly10_Up_group1	26	Lam LT et. al. Blood. 2008 Apr 1;111(7):3701-13.	7	0.270	0.000000333	0.0000138
Blimp_Bcell_repressed	65	Shaffer AL et. al. Immunity. 2002 Jul;17(1):51-62.	9	0.140	0.000000593	0.0000215
IL10_OCILy3_Up	124	Lam LT et. al. Blood. 2008 Apr 1;111(7):3701-13.	11	0.090	0.00000125	0.0000404
Myc_ChIP_PET_2plus	3297	Zeller KI et. al. Proc Natl Acad Sci U S A. 2006 Nov 21;103(47):17834-9. .	66	0.020	0.00000153	0.0000442
IL6_Ly10_Up_all	40	Lam LT et. al. Blood. 2008 Apr 1;111(7):3701-13.	7	0.180	0.00000487	0.000128
Quiescence_heme_cluster1	152	Su AI et. al. Proc Natl Acad Sci U S A. 2004 Apr 20;101(16):6062-7.	11	0.070	0.00000786	0.00019
Quiescence_heme_all	273	Su AI et. al. Proc Natl Acad Sci U S A. 2004 Apr 20;101(16):6062-7.	14	0.050	0.0000122	0.000252
NFkB_Up_BCR_paper	69	Davis RE et. al. Nature. 2010 Jan 7;463(7277):88-92.	8	0.120	0.0000113	0.000252
Blood_Module-3.2_Inflammation-1	245	Chaussabel D et. al. Immunity. 2008 Jul 18;29(1):9-11.	13	0.050	0.00002	0.000362
Dendritic_cell_CD123pos_blood	328	Lindstedt M et. al. J Immunol 175:4839 (2005)	15	0.050	0.0000193	0.000373
JAK_Up_HBL1	349	Staudt's lab Unpublished data	15	0.040	0.0000381	0.000649
BCL6_ChIP-CHIP_all_Ci	3016	Ci W et. al. Blood. 2009 May 28;113(22):5536-48.	57	0.020	0.0000573	0.000923
GC_B_cell_BL_equal_DLBCL	233	Dave SS et. al. Molecular diagnosis of Burkitt's lymphoma. NEJM 354:2431 (2006)	12	0.050	0.0000618	0.000943
Tcell_PIind_CsAdown4x	69	Feske S et. al. Nat Immunol. 2001 Apr;2(4):316-24.	7	0.100	0.000116	0.00169
Tcell_PIind4x_Feske_Fig6	101	Feske S et. al. Nat Immunol. 2001 Apr;2(4):316-24.	8	0.080	0.000134	0.00184
GC_B_cell_BLlow_DLBCLhigh	49	Dave SS et. al. NEJM 354:2431 (2006)	6	0.120	0.000205	0.00271
Blood_Module-2.6_Myeloid_lineage-2	145	Chaussabel D et. al. Immunity. 2008 Jul 18;29(1):9-11.	9	0.060	0.000219	0.00276
Resting_blood_B_cell_GNF	83	Su AI et. al. Proc Natl Acad Sci U S A. 2004 Apr 20;101(16):6062-7.	7	0.080	0.000322	0.00389
ABCgtGCB_U133AB	286	Staudt's lab Unpublished data	12	0.040	0.000369	0.00412
Pan_B_U133plus	86	Staudt's lab Unpublished data	7	0.080	0.00039	0.00419
Hematopoietic_Node1658	85	Su AI et. al. Proc Natl Acad Sci U S A. 2004 Apr 20;101(16):6062-7.	7	0.080	0.000366	0.00425
Tcell_PIind_CalciumDefPtdown4x_Feske_Fig6	85	Feske S et. al. Nat Immunol. 2001 Apr;2(4):316-24.	7	0.080	0.000366	0.00425
Blood_Module-2.1_Cytotoxic_cells	160	Chaussabel D et. al. Immunity. 2008 Jul 18;29(1):9-11.	9	0.060	0.000425	0.00441
GCB_gt_ABC_U133plus	308	Staudt's lab Unpublished data	12	0.040	0.000684	0.00684
GC_T_helper_up2x_Chtanova	427	Chtanova T et. al. J Immunol. 2004 Jul 1;173(1):68-78.	14	0.030	0.00101	0.00920
B_cell_up_anergy	18	Glynne R et. al. Nature. 2000 Feb 10;403(6770):672-6.	4	0.220	0.000969	0.00937
PMBL_HL_high	69	Rosenwald A et. al. J Exp Med. 2003 Sep 15;198(6):851-62.	6	0.090	0.00101	0.00946
Tcell_PIind4x_CsAindependent	19	Feske S et. al. Nat Immunol. 2001 Apr;2(4):316-24.	4	0.210	0.00114	0.01000
OCAB_up	7	Kim U et. al. Proc Natl Acad Sci U S A. 2003 Jul 22;100(15):8868-73.	3	0.430	0.00247	0.02110
Blood_Module-1.3_B_cells	55	Chaussabel D et. al. Immunity. 2008 Jul 18;29(1):9-11.	5	0.090	0.00322	0.02670
Tcell_PIrep_CalciumDefPtup4x_Feske_Fig4	29	Feske S et. al. Nat Immunol. 2001 Apr;2(4):316-24.	4	0.140	0.00397	0.03200
Blood_Module-3.3_Inflammation-2	233	Chaussabel D et. al. Immunity. 2008 Jul 18;29(1):9-11.	9	0.040	0.00459	0.03590
Thymic_DP_Tcell_gt_Thymic_progenitor_Tcell	65	Lee MS et. al. 2004 Aug;16(8):1109-24. Epub 2004 Jun 21.	5	0.080	0.00587	0.04360
MCL_gt_SLL_DLBCL	33	Rosenwald A et. al. Cancer Cell. 2003 Feb;3(2):185-97.	4	0.120	0.00573	0.04380
Myc_ChIP_PET_3plus	473	Zeller KI et. al. Proc Natl Acad Sci U S A. 2006 Nov 21;103(47):17834-9.	13	0.030	0.00676	0.04900

*For the Lymphochip database, the reference study from which the signature was derived is listed

Supplementary Table 5. Leading edge associated with the GSEA presented in Figure 2G

GENE SYMBOL	PROBE ACCESSION	RANK IN GENE LIST	RANK METRIC SCORE	RUNNING ES	CORE ENRICHMENT
GSEA of Crebbp core targets in the rank of genes differentially expressed in Crebbp$^{fl/fl}$ vs Crebbp$^{+/+}$ GC B cells					
Snx29	1456922_at	18640	-0.573234	-0.611521	Yes
Slc45a4	1433559_at	18651	-0.573812	-0.609580	Yes
Hsh2d	1442130_at	18672	-0.576436	-0.608076	Yes
Stt3b	1426343_at	18703	-0.578022	-0.607015	Yes
Hnrnpd	1458273_at	18750	-0.583464	-0.606649	Yes
Il6ra	1452416_at	18773	-0.585525	-0.605197	Yes
Ezr	1450850_at	18805	-0.589647	-0.604133	Yes
Nfatc2	1439205_at	18896	-0.600871	-0.605669	Yes
Rnf167	1430527_a_at	18917	-0.603093	-0.604054	Yes
Cd180	1421547_at	18995	-0.613127	-0.604956	Yes
Trim14	1430796_at	19044	-0.620909	-0.604524	Yes
Wdfy4	1435582_at	19078	-0.626080	-0.603397	Yes
Nfam1	1428790_at	19190	-0.640877	-0.605709	Yes
Rab4b	1451643_a_at	19218	-0.644276	-0.604237	Yes
Cd68	1449164_at	19232	-0.645519	-0.602132	Yes
Jdp2	1424972_at	19234	-0.645830	-0.599486	Yes
Prkd2	1434333_a_at	19385	-0.664278	-0.603451	Yes
Herpud1	1448185_at	19448	-0.672104	-0.603434	Yes
Traf1	1423602_at	19451	-0.672374	-0.600723	Yes
Ppan	1423703_at	19452	-0.672503	-0.597922	Yes
Strada	1438591_at	19496	-0.677811	-0.597028	Yes
Grap	1429387_at	19546	-0.684528	-0.596376	Yes
Fam49a	1454806_at	19584	-0.688829	-0.595167	Yes
Dtx1	1425822_a_at	19682	-0.702496	-0.596595	Yes
Myo1e	1420159_at	19687	-0.702876	-0.593846	Yes
Irf5	1460231_at	19819	-0.724291	-0.596709	Yes
Gch1	1420499_at	19966	-0.748602	-0.600143	Yes
Hip1	1432017_at	19982	-0.749584	-0.597693	Yes
Sit1	1418751_at	20047	-0.760551	-0.597398	Yes
Use1	1423817_s_at	20265	-0.799882	-0.603805	Yes
Elk3	1448797_at	20330	-0.811768	-0.603296	Yes
Gpr174	1440900_at	20401	-0.822596	-0.603011	Yes
Bmf	1454880_s_at	20403	-0.823052	-0.599627	Yes
Jmjd1c	1426900_at	20538	-0.847713	-0.602110	Yes
Sytl3	1445310_at	20575	-0.852143	-0.600176	Yes
Itpr2	1424834_s_at	20707	-0.882969	-0.602377	Yes
Derl3	1453677_a_at	20734	-0.888056	-0.599845	Yes
Hemgn	1418199_at	20737	-0.888498	-0.596234	Yes
Tpk1	1425388_a_at	20746	-0.890098	-0.592885	Yes
Gramd3	1428736_at	20749	-0.891335	-0.589262	Yes
Parp1	1443573_at	20826	-0.909118	-0.588886	Yes
Evl	1440885_at	20904	-0.928996	-0.588472	Yes
Zc3h12a	1427348_at	20945	-0.940130	-0.586351	Yes
Itk	1430833_at	20991	-0.954221	-0.584396	Yes
Chst10	1426620_at	20992	-0.954513	-0.580420	Yes
Cd5	1418353_at	21021	-0.963140	-0.577665	Yes
Rab31	1416165_at	21026	-0.964276	-0.573828	Yes
Rgs3	1449516_a_at	21057	-0.972264	-0.571124	Yes
Trio	1454711_at	21061	-0.973085	-0.567206	Yes
Fyn	1448765_at	21083	-0.977668	-0.564076	Yes
Tmem109	1437008_x_at	21148	-0.999908	-0.562783	Yes
Cotl1	1437811_x_at	21183	-1.009390	-0.560104	Yes
Arsb	1429189_at	21237	-1.028101	-0.558200	Yes
Selplg	1449127_at	21309	-1.051576	-0.557007	Yes
Sh2d3c	1415886_at	21316	-1.055900	-0.552877	Yes
Cd22	1419769_at	21324	-1.061516	-0.548770	Yes
Fermt3	1443641_at	21380	-1.081757	-0.546732	Yes
Rab30	1426452_a_at	21388	-1.084969	-0.542527	Yes
Akap2	1449168_a_at	21402	-1.090813	-0.538567	Yes
Cd82	1416401_at	21430	-1.103936	-0.535180	Yes
Gpr18	1439141_at	21466	-1.118472	-0.532092	Yes
Mical3	1439893_at	21504	-1.137960	-0.529013	Yes
Syne1	1455493_at	21528	-1.148617	-0.525260	Yes
Tespa1	1439981_at	21539	-1.154173	-0.520901	Yes
Cxcr5	1422003_at	21560	-1.161566	-0.516961	Yes

Sh3bp2	1448328_at	21598	-1.179394	-0.513709	Yes
Ncf4	1418465_at	21631	-1.197819	-0.510155	Yes
Ptprs	1426794_at	21664	-1.216876	-0.506523	Yes
Card11	1430257_at	21679	-1.225263	-0.502047	Yes
Ahcyl2	1452703_at	21697	-1.234039	-0.497670	Yes
Clcf1	1437271_at	21712	-1.241624	-0.493126	Yes
Srebf2	1426744_at	21771	-1.267823	-0.490448	Yes
Plekhm3	1455331_at	21775	-1.269120	-0.485296	Yes
Cnr2	1450476_at	21798	-1.285427	-0.480929	Yes
Pdxk	1427931_s_at	21807	-1.293144	-0.475902	Yes
Dusp2	1450698_at	21862	-1.330840	-0.472782	Yes
Cbfa2t3	1440963_at	21874	-1.342244	-0.467684	Yes
Ubxn11	1426105_a_at	21876	-1.343435	-0.462133	Yes
Sema7a	1459903_at	21885	-1.349662	-0.456870	Yes
Junb	1415899_at	21904	-1.365759	-0.451989	Yes
Zfp36	1452519_a_at	21923	-1.378148	-0.447057	Yes
Zfp365	1433583_at	21937	-1.388077	-0.441858	Yes
Acap1	1434873_a_at	21938	-1.388191	-0.436076	Yes
Rab37	1433947_at	21941	-1.390540	-0.430373	Yes
Rhof	1434794_at	21975	-1.424525	-0.425920	Yes
Skap2	1460623_at	21999	-1.448820	-0.420918	Yes
Arhgap9	1419810_x_at	22024	-1.467439	-0.415882	Yes
Iqsec1	1452327_at	22025	-1.469980	-0.409759	Yes
Fgd2	1419515_at	22047	-1.494683	-0.404476	Yes
Jarid2	1422698_s_at	22054	-1.505766	-0.398473	Yes
Pxk	1451253_at	22088	-1.544847	-0.393519	Yes
Per1	1449851_at	22091	-1.551585	-0.387146	Yes
Smarcb1	1456938_at	22107	-1.571859	-0.381271	Yes
Echdc3	1418862_at	22115	-1.579760	-0.375005	Yes
Lime1	1448500_a_at	22124	-1.592196	-0.368732	Yes
Ppp1r18	1431299_a_at	22127	-1.594774	-0.362179	Yes
Cyth4	1460437_at	22136	-1.609292	-0.355834	Yes
Tank	1421640_a_at	22160	-1.642140	-0.350027	Yes
Nek8	1450337_a_at	22179	-1.673874	-0.343862	Yes
Trim7	1439352_at	22204	-1.730077	-0.337733	Yes
Ciita	1421211_a_at	22210	-1.741439	-0.330703	Yes
Id2	1422537_a_at	22224	-1.765146	-0.323934	Yes
Rnf122	1454857_at	22227	-1.771168	-0.316646	Yes
Grn	1456567_x_at	22238	-1.788281	-0.309646	Yes
Adck3	1417067_s_at	22247	-1.799316	-0.302510	Yes
Tgfb3	1417455_at	22286	-1.925836	-0.296193	Yes
Nfkbie	1458299_s_at	22289	-1.929343	-0.288247	Yes
Cd86	1420404_at	22306	-1.982565	-0.280706	Yes
Nab2	1417930_at	22310	-1.993818	-0.272536	Yes
Klf12	1439847_s_at	22316	-2.008478	-0.264394	Yes
Lck	1425396_a_at	22323	-2.044157	-0.256149	Yes
Slc2a6	1434015_at	22326	-2.048720	-0.247705	Yes
Tnfaip3	1433699_at	22361	-2.096725	-0.240497	Yes
Ifngr2	1423557_at	22362	-2.097431	-0.231760	Yes
Nfkb2	1425902_a_at	22363	-2.099496	-0.223015	Yes
Ncf1	1456772_at	22368	-2.122901	-0.214352	Yes
Hs3st1	1423450_a_at	22372	-2.160137	-0.205488	Yes
Map3k8	1419208_at	22394	-2.204385	-0.197249	Yes
Pld4	1433678_at	22400	-2.220590	-0.188223	Yes
Slamf1	1425570_at	22408	-2.274669	-0.179062	Yes
Cd40	1449473_s_at	22419	-2.358995	-0.169685	Yes
Stx11	1453228_at	22430	-2.436237	-0.159986	Yes
Cd72	1426112_a_at	22441	-2.532118	-0.149887	Yes
Cd69	1428735_at	22454	-2.636260	-0.139445	Yes
Relb	1417856_at	22459	-2.713200	-0.128323	Yes
Camta1	1433972_at	22469	-2.773071	-0.117175	Yes
Ffar2	1425216_at	22477	-2.808074	-0.105793	Yes
Fcer2a	1422122_at	22482	-2.840946	-0.094138	Yes
Samsn1	1421457_a_at	22486	-2.889887	-0.082236	Yes
Fam167a	1455872_at	22491	-2.986498	-0.069975	Yes
Bcl2a1d	1419004_s_at	22495	-3.097661	-0.057207	Yes
Irf4	1421173_at	22498	-3.102655	-0.044372	Yes
Nfkbid	1436074_at	22503	-3.156071	-0.031406	Yes
Egr2	1427683_at	22507	-3.248923	-0.018007	Yes
Egr3	1436329_at	22523	-4.495359	0.000045	Yes

GSEA of LZ-upregulated genes in the rank of genes differentially expressed in DZ vs LZ GC B cells

Rgs1	1417601_at	25	0.354511	0.032362	Yes
Nr4a1	1416505_at	56	0.295961	0.058971	Yes
Ebi3	1449222_at	247	0.189698	0.068396	Yes
Gatm	1423569_at	254	0.189214	0.085997	Yes
Map3k8	1419208_at	311	0.183558	0.100829	Yes
Lck	1425396_a_at	388	0.171893	0.113667	Yes
Junb	1415899_at	449	0.163374	0.126414	Yes
Egr3	1436329_at	470	0.161406	0.140763	Yes
Grn	1448148_at	471	0.161325	0.155998	Yes
Sub1	1422692_at	594	0.149021	0.164621	Yes
Cyth4	1460437_at	614	0.147376	0.177689	Yes
Per1	1449851_at	649	0.143716	0.189742	Yes
Nab2	1417930_at	744	0.136848	0.198466	Yes
Clcf1	1450262_at	766	0.135867	0.210358	Yes
Cdk5r1	1421123_at	811	0.132624	0.220917	Yes
Rsad1	1440875_a_at	845	0.130715	0.231787	Yes
Ciita	1421210_at	858	0.129736	0.243502	Yes
Cd40	1460415_a_at	891	0.128031	0.254163	Yes
Arid3b	1423526_at	951	0.125018	0.263334	Yes
Rhof	1434794_at	1046	0.120313	0.270496	Yes
Myc	1424942_a_at	1213	0.114032	0.273848	Yes
Abhd6	1419103_a_at	1370	0.108939	0.277167	Yes
Jarid2	1422698_s_at	1374	0.108874	0.287314	Yes
Samsn1	1421457_a_at	1393	0.107993	0.296708	Yes
Tnfaip3	1433699_at	1423	0.107060	0.305523	Yes
Relb	1417856_at	1434	0.106622	0.315145	Yes
Orai1	1424989_at	1455	0.105920	0.324254	Yes
Slc2a3	1427770_a_at	1471	0.105367	0.333534	Yes
Iqsec1	1452327_at	1505	0.104481	0.341927	Yes
Egr2	1427683_at	1523	0.104042	0.350993	Yes
Il2rg	1416296_at	1537	0.103788	0.360213	Yes
Slc39a14	1425649_at	1545	0.103597	0.369684	Yes
Dusp10	1417164_at	1676	0.100224	0.373340	Yes
Nfkbie	1431843_a_at	1726	0.098902	0.380491	Yes
Bcl3	1418133_at	1728	0.098869	0.389783	Yes
Akap5	1447301_at	1752	0.098371	0.398045	Yes
Traf4	1416571_at	1782	0.097582	0.405965	Yes
Nfkbid	1436074_at	1844	0.095810	0.412287	Yes
Akap1	1418279_a_at	1898	0.094583	0.418852	Yes
Sema7a	1459903_at	1978	0.092608	0.424068	Yes
Ier2	1416442_at	2063	0.090773	0.428887	Yes
Slc23a2	1417330_at	2143	0.089744	0.433833	Yes
Prdm1	1420425_at	2300	0.086922	0.435072	Yes
Cd82	1416401_at	2537	0.082725	0.432340	Yes
Invs	1419308_at	2616	0.081627	0.436564	Yes
Cd72	1426112_a_at	2699	0.080419	0.440495	Yes
Plk3	1434496_at	2816	0.078758	0.442750	Yes
Slamf1	1425571_at	2849	0.078269	0.448711	Yes
Arhgap24	1424842_a_at	2863	0.078080	0.455504	Yes
Il4i1	1419192_at	2880	0.077883	0.462144	Yes
Irf2bp2	1433634_at	2902	0.077538	0.468529	Yes
Bcl2a1d	1419004_s_at	3012	0.076173	0.470852	Yes
Kynu	1430570_at	3219	0.073342	0.468575	Yes
Ccr6	1450357_a_at	3344	0.071731	0.469809	Yes
Aldoc	1451461_a_at	3413	0.070741	0.473451	Yes
Mybbp1a	1423430_at	3604	0.068412	0.471423	Yes
Zmiz2	1460739_at	3624	0.068189	0.477014	Yes
Zbtb8a	1452063_at	3659	0.067775	0.481895	Yes
Cr2	1425289_a_at	3664	0.067731	0.488113	Yes
Bhlhe40	1418025_at	3680	0.067450	0.493812	Yes
Cd86	1420404_at	3723	0.066943	0.498258	Yes
Irf4	1421173_at	3740	0.066647	0.503837	Yes

Supplementary Table 6. Pathway enrichment analysis of genes co-bound by CREBBP and BCL6 in human GC B cells

Gene Set Name	# Genes in Gene Set (K)	# Genes in Overlap (k)	k/K	p-value	FDR q-value
MSigDB analysis					
REACTOME_IMMUNE_SYSTEM	933	207	0.222	5.27E-62	7.01E-59
REACTOME_ADAPTIVE_IMMUNE_SYSTEM	539	122	0.226	9.97E-38	6.63E-35
KEGG_B_CELL_RECEPTOR_SIGNALING_PATHWAY	75	41	0.547	2.09E-30	9.27E-28
PID_BCR_5PATHWAY	65	36	0.554	3.85E-27	1.02E-24
REACTOME_CYTOKINE_SIGNALING_IN_IMMUNE_SYSTEM	270	66	0.244	5.62E-23	9.35E-21
PID_CXCR4_PATHWAY	102	40	0.392	9.95E-23	1.47E-20
SIG_BCR_SIGNALING_PATHWAY	46	27	0.587	1.26E-21	1.40E-19
KEGG_CHEMOKINE_SIGNALING_PATHWAY	190	52	0.274	9.01E-21	8.56E-19
REACTOME_SIGNALING_BY_THE_B_CELL_RECEPTOR_BCR	126	42	0.333	1.28E-20	1.06E-18
KEGG_MAPK_SIGNALING_PATHWAY	267	61	0.229	9.26E-20	7.24E-18
REACTOME_SIGNALING_BY_RHO_GTPASES	113	38	0.336	6.03E-19	4.22E-17
REACTOME_INNATE_IMMUNE_SYSTEM	279	61	0.219	9.36E-19	6.23E-17
REACTOME_METABOLISM_OF_LIPIDS_AND_LIPOPROTEINS	478	82	0.172	8.69E-18	4.81E-16
REACTOME_TOLL_RECEPTOR_CASCADES	118	37	0.314	2.44E-17	1.30E-15
REACTOME_SIGNALING_BY_ILS	107	35	0.327	3.92E-17	2.00E-15
REACTOME_ANTIGEN_ACTIVATES_B_CELL_RECEPTOR_LEADING_TO_GENERATION_OF_SECOND_MESSENGERS	29	19	0.655	6.54E-17	3.11E-15
REACTOME_SIGNALING_BY_GPCR	920	122	0.133	2.03E-16	8.71E-15
PID_IL2_1PATHWAY	55	25	0.455	1.39E-16	6.36E-15
PID_PI3KCI_PATHWAY	49	23	0.469	9.38E-16	3.67E-14
REACTOME_TRANSMEMBRANE_TRANSPORT_OF_SMALL_MOLECULES	413	71	0.172	1.21E-15	4.59E-14
REACTOME_DOWNSTREAM_SIGNAL_TRANSDUCTION	95	31	0.326	2.61E-15	9.13E-14
KEGG_CYTOKINE_CYTOKINE_RECEPTOR_INTERACTION	267	54	0.202	3.04E-15	1.04E-13
REACTOME_GAB1_SIGNALOSOME	38	20	0.526	4.10E-15	1.30E-13
BIOCARTA_IL2RB_PATHWAY	38	20	0.526	4.10E-15	1.30E-13
KEGG_REGULATION_OF_ACTIN_CYTOSKELETON	216	47	0.218	1.04E-14	3.15E-13
KEGG_JAK_STAT_SIGNALING_PATHWAY	155	39	0.252	1.26E-14	3.67E-13
PID_IL4_2PATHWAY	65	25	0.385	1.63E-14	4.60E-13
SIG_PIP3_SIGNALING_IN_B_LYMPHOCYTES	36	19	0.528	1.87E-14	5.18E-13
BIOCARTA_BCR_PATHWAY	37	19	0.514	3.62E-14	9.83E-13
KEGG_FOCAL_ADHESION	201	44	0.219	5.81E-14	1.51E-12
PID_RAC1_REG_PATHWAY	38	19	0.500	6.84E-14	1.72E-12
BIOCARTA_MAPK_PATHWAY	87	28	0.322	8.48E-14	2.09E-12
REACTOME_MYD88_MAL_CASCADE_INITIATED_ON_PLASMA_MEMBRANE	83	27	0.325	1.75E-13	4.00E-12
REACTOME_GPCR_DOWNSTREAM_SIGNALING	805	104	0.129	1.81E-13	4.08E-12
REACTOME_TRANS_GOLGI_NETWORK_VESICLE_BUDDING	60	23	0.383	1.97E-13	4.37E-12
KEGG_FC_EPSILON_RI_SIGNALING_PATHWAY	79	26	0.329	3.58E-13	7.80E-12
PID_FCER1_PATHWAY	62	23	0.371	4.48E-13	9.31E-12
REACTOME_ACTIVATED_TLR4_SIGNALLING	93	28	0.301	5.50E-13	1.12E-11
PID_MYC_REPRESS_PATHWAY	63	23	0.365	6.65E-13	1.34E-11
PID_IL6_7_PATHWAY	47	20	0.426	7.05E-13	1.40E-11
PID_SMAD2_3NUCLEAR_PATHWAY	82	26	0.317	9.58E-13	1.87E-11
REACTOME_CELL_CYCLE	421	66	0.157	1.01E-12	1.91E-11
REACTOME_GOLGI_ASSOCIATED_VESICLE_BIOGENESIS	53	21	0.396	1.02E-12	1.91E-11
REACTOME_PHOSPHOLIPID_METABOLISM	198	41	0.207	2.81E-12	5.05E-11
PID_IFNG_PATHWAY	40	18	0.450	3.10E-12	5.35E-11
ST_B_CELL_ANTIGEN_RECEPTOR	40	18	0.450	3.10E-12	5.35E-11
REACTOME_G_ALPHA1213_SIGNALLING_EVENTS	74	24	0.324	4.10E-12	6.90E-11

PID_P53_DOWNSTREAM_PATHWAY	137	33	0.241	4.87E-12	7.99E-11
BIOCARTA_FCER1_PATHWAY	41	18	0.439	5.21E-12	8.45E-11
REACTOME_COSTIMULATION_BY_THE_CD28_FAMILY	63	22	0.349	5.93E-12	9.39E-11
KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY	102	28	0.275	6.70E-12	1.04E-10
KEGG_PHOSPHATIDYLINOSITOL_SIGNALING_SYSTEM	76	24	0.316	7.83E-12	1.20E-10
BIOCARTA_IL7_PATHWAY	17	12	0.706	1.00E-11	1.50E-10
REACTOME_TRAF6_MEDIATED_INDUCTION_OF_NFKB_AND_MAP_KINASES_UPON_TLR7_8_OR_9_ACTIVATION	77	24	0.312	1.07E-11	1.59E-10
PID_ATF2_PATHWAY	59	21	0.356	1.17E-11	1.71E-10
REACTOME_IL_3_5_AND_GM_CSF_SIGNALING	43	18	0.419	1.40E-11	2.00E-10
PID_FAS_PATHWAY	38	17	0.447	1.40E-11	2.00E-10
REACTOME_GPCR_LIGAND_BINDING	408	62	0.152	1.87E-11	2.65E-10
REACTOME_REGULATION_OF_SIGNALING_BY_CBL	18	12	0.667	2.84E-11	3.90E-10
PID_IL2_STAT5_PATHWAY	30	15	0.500	3.01E-11	4.04E-10
PID_TELOMERASE_PATHWAY	68	22	0.324	3.37E-11	4.46E-10

continues on next page

Supplementary Table 6 (continued). Pathway enrichment analysis of genes co-bound by CREBBP and BCL6 in human GC B cells

Category	Term	Count	%	PValue	Genes	Bonferroni	Benjamini	FDR
DAVID analysis								
Genes bound at promoter regions								
KEGG_PATHWAY	hsa04662:B cell receptor signaling pathway	16	2.91	0.000000	PIK3CG, PIK3CD, NFKBIA, CD72, VAV1, CD19, DAPP1, RAC2, SOS1, PIK3CA, PIK3AP1, NFATC4, CD79A, INPP5D, PIK3R1, SYK	0.000003	0.000003	0.000025
PANTHER_PATHWAY	P00010:B cell activation	15	2.73	0.000001	PIK3CG, PTPRC, GRAP, PIK3CD, NFKBIA, MAPK10, VAV1, ITPR2, CD19, RAC2, SOS1, PIK3CA, NFATC4, CD79A, SYK	0.000042	0.000042	0.000579
KEGG_PATHWAY	hsa04670:Leukocyte transendothelial migration	16	2.91	0.000009	PIK3CG, ITGAL, ICAM1, GNAI3, NCF1, NCF4, PIK3CD, NCF1C, ITGA4, VAV1, CYBA, RASSF5, PTK2, RAC2, PIK3CA, PIK3R1, RHOH	0.001344	0.000672	0.011135
PANTHER_PATHWAY	P00006:Apoptosis signaling pathway	15	2.73	0.000082	PIK3CG, CFLAR, CREB1, MAP2K3, BCL2A1, PIK3CD, NFKBIA, MAPK10, BIRC3, DAXX, ATF6, PRKRA, CASP8, PIK3CA, KLHL20	0.006213	0.002075	0.086254
Genes bound at TSS-distal regions								
PANTHER_PATHWAY	P00010:B cell activation	35	1.76	0.000000	GRAP, NFKBIA, RHOQ, LOC407835, FOS, GRAPL, CALML3, SOS1, PPP3CC, CD22, PPP3CA, NFATC2, NFATC3, BLNK, SYK, NFATC1, PIK3CG, PRKCA, PTPN6, PTPRC, VAV3, MAP2K1, LYN, MAPK10, PRKCE, VAV2, PRKCD, NFKBIL1, ITPR1, ITPR2, PRKCB, MAPK13, PLCG2, CD79B, IKBKB	0.000000	0.000000	0.000000
KEGG_PATHWAY	hsa04662:B cell receptor signaling pathway	31	1.55	0.000000	PPP3R1, NFKBIA, LOC407835, FOS, RASGRP3, DAPP1, SOS1, CD22, PPP3CC, PIK3AP1, PPP3CA, INPP5D, NFATC2, PIK3R3, NFATC3, PIK3R1, NFATC1, BLNK, SYK, PIK3CG, PTPN6, VAV3, CR2, MAP2K1, LYN, MALT1, VAV2, PRKCB, PLCG2, CD79B, IKBKB	0.000000	0.000000	0.000001
REACTOME_PATHWAY	REACT_11044:Signaling by Rho GTPases	31	1.55	0.000011	FGD2, PREX1, RHOQ, AKAP13, ARHGAP17, MYO9B, ARHGAP15, STARD13, HMHA1, ARHGAP22, ARHGAP6, TAGAP, TIAM2, SOS1, RHOBTB2, INPP5B, RHOH, NGEF, BCR, VAV3, ABR, ARHGEF18, TRIO, ARHGEF12, VAV2, ARHGAP24, ARHGAP26, ARHGAP25, RASGRF1, CHN2, ARAP2	0.000730	0.000365	0.011583
PANTHER_PATHWAY	P00031:Inflammation mediated by chemokine and cytokine signaling pathway	60	3.01	0.000127	RHOQ, PTEN, CXCR5, GRAPL, CXCR4, IFNG, GNG2, XCR1, IFNGR1, GNG7, PRKCA, PIK3CG, SOCS3, MYLK3, PIK3C2B, RELB, CCL4L1, MYH9, PRKCE, PRKCD, PRKCB, ARPC1B, ALOX15, CCR7, CCR6, CX3CR1, GNB5, PTAFR, GRAP, CYTH1, CCR1, ADRBK2, NFKBIA, ADRBK1, ITGB1, CCL4, PTK2, STAT4, PTK2B, ALOX5AP, ITGB7, SOS1, CAMK2D, CAMK2B, INPP5D, NFATC2, NFATC3, NFATC1, VAV3, ITGA4, VAV2, ITPR1, ITPR2, RGS13, RGS20, RGS1, PLCG2, GRK6, JAK1, IKBKB	0.012607	0.003167	0.140723

* Only pathways relevant to mature B cell biology and with FDR<0.15 are retained in the table

Supplementary Table 7. Analysis of the rearranged *IGHV* genes and Sμ region in B-cell lymphomas from *Crebbp floxed/Cγ1-Cre/VavP-BCL2* mice

Mouse ID	Genotype	Histologic Diagnosis	Region amplified	Status	V gene	JH gene	N of bp analyzed (J gene)	N of mutations	% mutations
31LN	VavPBcl2/CBP HET	FL	IGHV-D-J	C, M	VH7183	JH3	839	11	1.31
47LN	VavPBcl2/CBP HET	FL	IGHV-D-J	C, M	J558	JH4	277	21	7.58
73LN	VavPBcl2/CBP HET	FL	IGHV-D-J	C, M	VH7183	JH4	292	41	14.04
83LN	VavPBcl2/CBP HET	FL	IGHV-D-J	C, UM	J558	JH4	290	0	0.00
56LN	VavPBcl2/CBP HET	FL	IGHV-D-J	C, UM	VHQ52	JH2	1229	0	0.00
9LN	VavPBcl2/CBP WT	FL	IGHV-D-J	C, M	VH7183	JH4	280	1	0.36
42MSLN	VavPBcl2/CBP WT	FL	IGHV-D-J	C, M	J558	JH2	1237	34	2.75
97LN	VavPBcl2/CBP WT	FL	IGHV-D-J	C, M	J558	JH3	835	45	5.39
40LN	VavPBcl2/CBP WT	FLIS	IGHV-D-J	C, UM	J558	JH4	280	0	0.00
84SP	VavPBcl2/CBP WT	FL	IGHV-D-J	C, UM	J588	JH2	1230	0	0.00
84LN	VavPBcl2/CBP WT	FL	IGHV-D-J	C, UM	J588	JH2	1230	0	0.00
75LN	VavPBcl2/CBP HET	FLIS	IGHV-D-J	P	na	na	na	na	na
75SP	VavPBcl2/CBP HET	FLIS	IGHV-D-J	P	na	na	na	na	na
31LN	VavPBcl2/CBP HET	FL	IGH Sμ	clonal*	na	na	571	2^	0.35
85LN	VavPBcl2/CBP HET	FL	IGH Sμ	clonal*	na	na	396	14	3.54
85SP	VavPBcl2/CBP HET	FL	IGH Sμ	clonal*	na	na	405	14	3.46
78LN	VavPBcl2/CBP HET	FL	IGH Sμ	clonal*	na	na	503	8	1.59
33LN	VavPBcl2/CBP HET	FL	IGH Sμ	clonal*	na	na	578	15	2.60
54LN	VavPBcl2/CBP WT	FL	IGH Sμ	clonal*	na	na	572	5	0.87
9LN	VavPBcl2/CBP WT	FL	IGH Sμ	clonal*	na	na	572	1	0.17
42MSLN	VavPBcl2/CBP WT	FL	IGH Sμ	clonal*	na	na	563	6	1.07
97LN	VavPBcl2/CBP WT	FL	IGH Sμ	clonal*	na	na	569	7	1.23
84LN	VavPBcl2/CBP WT	FL	IGH Sμ	clonal*	na	na	573	13	2.27

Abbreviations: LN, lymph node; SP, spleen; MSLN, mesenteric lymph node; C=clonal; P=polyclonal. M=mutated; UM=unmutated; na, not applicable (no clonal VDJ rearrangement amplified, or Sμ region analysis).
V gene mutations analyzed with IMGT; J gene mutations analyzed by BLAST to the most similar mouse strain
* as assessed based on Southern blot analysis of the rearranged IGHV genes
^ including one deletion of 350bp

Supplementary Table 8. List of antibodies used in FACS analysis

Antibody name	Source	Catalog #	clone #	Fluorochrome	Dilution Factor
BCL6	BD Pharmingen	561525	K112-91	Alex Fluo 647	1:50
CD4	BD Pharmingen	553051	RM4-5	APC	1:100
IgG1	BD Pharmingen	550874	X56	APC	1:100
IgM	BD Pharmingen	550676	II/41	APC	1:100
MAC1	BD Pharmingen	553312	M1/70	APC	1:100
CD86	eBioscience	17-0862	GL1	APC	1:400
BrdU	BD Pharmingen	552598	nd	APC	1:50
CD19	BD Pharmingen	553785	1D3	FITC	1:100
CD21	BD Pharmingen	553818	7G6	FITC	1:100
Ig,k	BD Pharmingen	550003	187.1	FITC	1:100
CD93	BD Pharmingen	559156	AA4.1	FITC	1:100
Annexin V	BD Pharmingen	556419	na	FITC	1:20
CD38	eBioscience	11-0381	90	FITC	1:100
PNA	Vector	FL-1071	na	FITC	1:100
CD138	BD Pharmingen	553714	281-2	PE	1:100
CD23	BD Pharmingen	553139	B3B4	PE	1:100
CD95	BD Pharmingen	554258	Jo2	PE	1:100
IgD	BD Pharmingen	558597	11-26c.2a	PE	1:100
B220	BD Pharmingen	553090	RA3-6B2	PE	1:100
CD43	BD Pharmingen	553271	S7	PE	1:100
CD5	BD Pharmingen	553023	53-7.3	PE	1:100
CD8	BD Pharmingen	553032	53-6.7	PE	1:100
GL7	BioLegend	144607	GL7	PE	1:100
CD19	BD Pharmingen	562329	1D3	PE-CF594	1:100
CD95	BD Pharmingen	557653	Jo2	PE-Cy7	1:250
CD93	ebioscience	25-5892	AA4.1	PE-Cy7	1:100
B220	BD Pharmingen	553093	RA3-6B2	PerCP-Cy5.5	1:100
CXCR4	eBioscience	46-9991	2B11	PerCP-eFluor 710	1:100
IgD	Miltenyi biotec	130-103-005	11-26c.2a	VioGreen	1:50

na, not applicable; nd, not determined