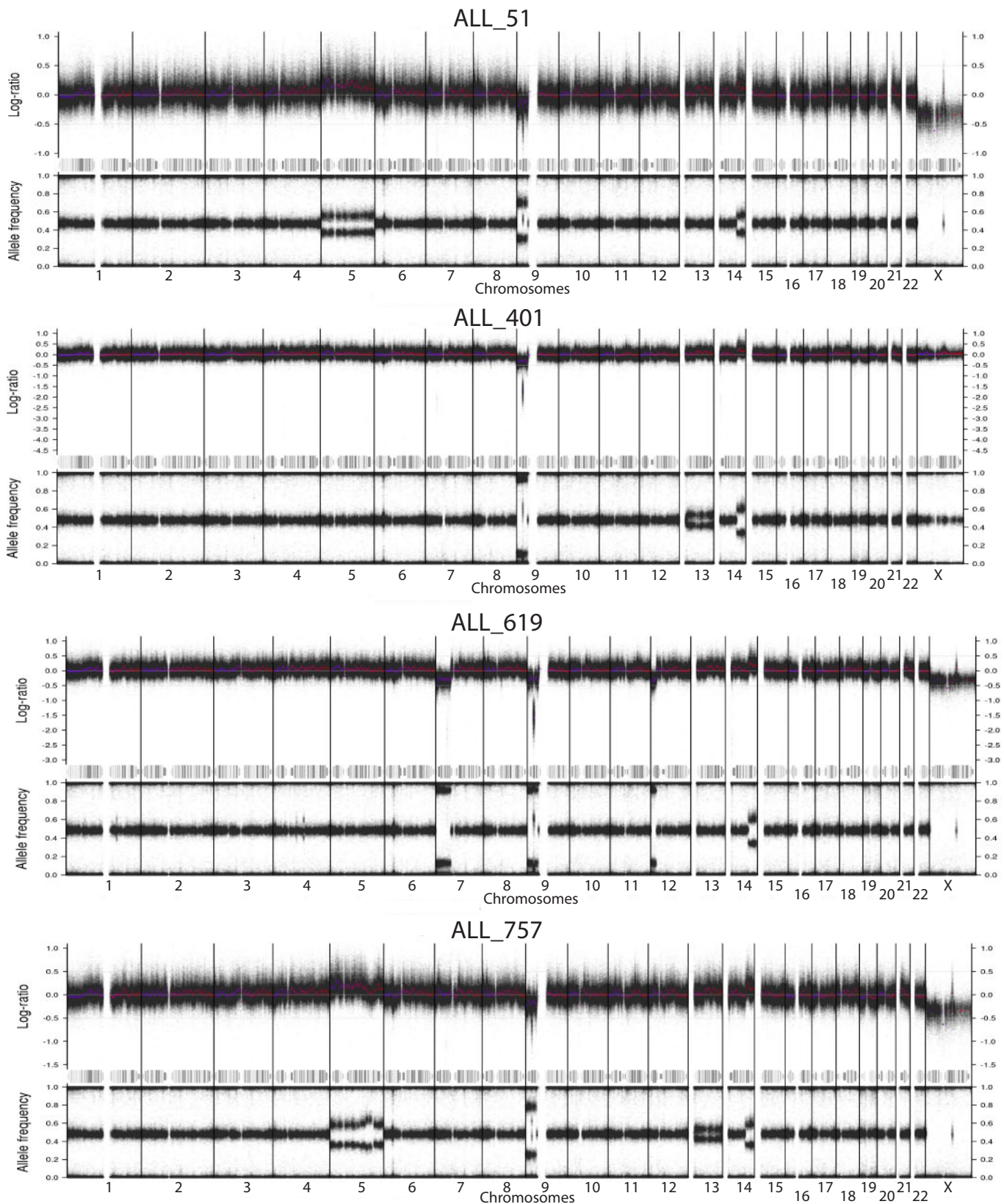


PAX5-ESRRB is a recurrent fusion gene in B-cell precursor pediatric acute lymphoblastic leukemia

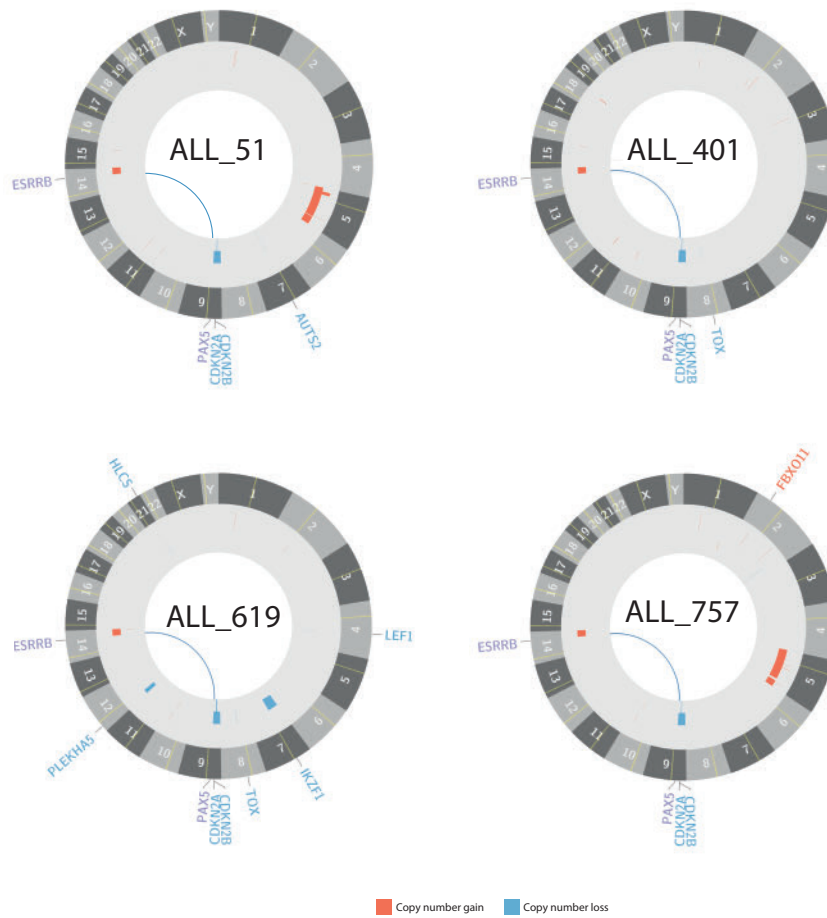
Yanara Marincevic-Zumiga,¹ Vasilios Zachariadis,² Lucia Cavalier,³ Anders Castor,⁴ Gisela Barbany,² Erik Forestier,⁵ Linda Fogelstrand,^{6,7} Mats Heyman,⁸ Jonas Abrahamsson,⁹ Gudmar Lönnmerholm,¹⁰ Ann Nordgren,² Ann-Christine Syvänen,¹ and Jessica Nordlund^{1}*
YM-Z and VZ contributed equally to this work.

¹Department of Medical Sciences, Molecular Medicine and Science for Life Laboratory, Uppsala University; ²Department of Molecular Medicine and Surgery, Karolinska Institutet, Stockholm; ³Department of Immunology, Genetics and Pathology, Uppsala University; ⁴Pediatric Oncology/Hematology, Skåne University Hospital, Lund; ⁵Department of Medical Biosciences, University of Umeå; ⁶Department of Clinical Chemistry and Transfusion Medicine, Institute of Biomedicine, Sahlgrenska Academy at University of Gothenburg; ⁷Laboratory of Clinical Chemistry, Sahlgrenska University Hospital, Gothenburg; ⁸Childhood Cancer Research Unit, Karolinska Institutet, Astrid Lindgren Children's Hospital, Karolinska University Hospital, Stockholm; ⁹Department of Pediatrics, Queen Silvia Children's Hospital, Gothenburg; and ¹⁰Department of Women's and Children's Health, Pediatric Oncology, Uppsala University, Sweden

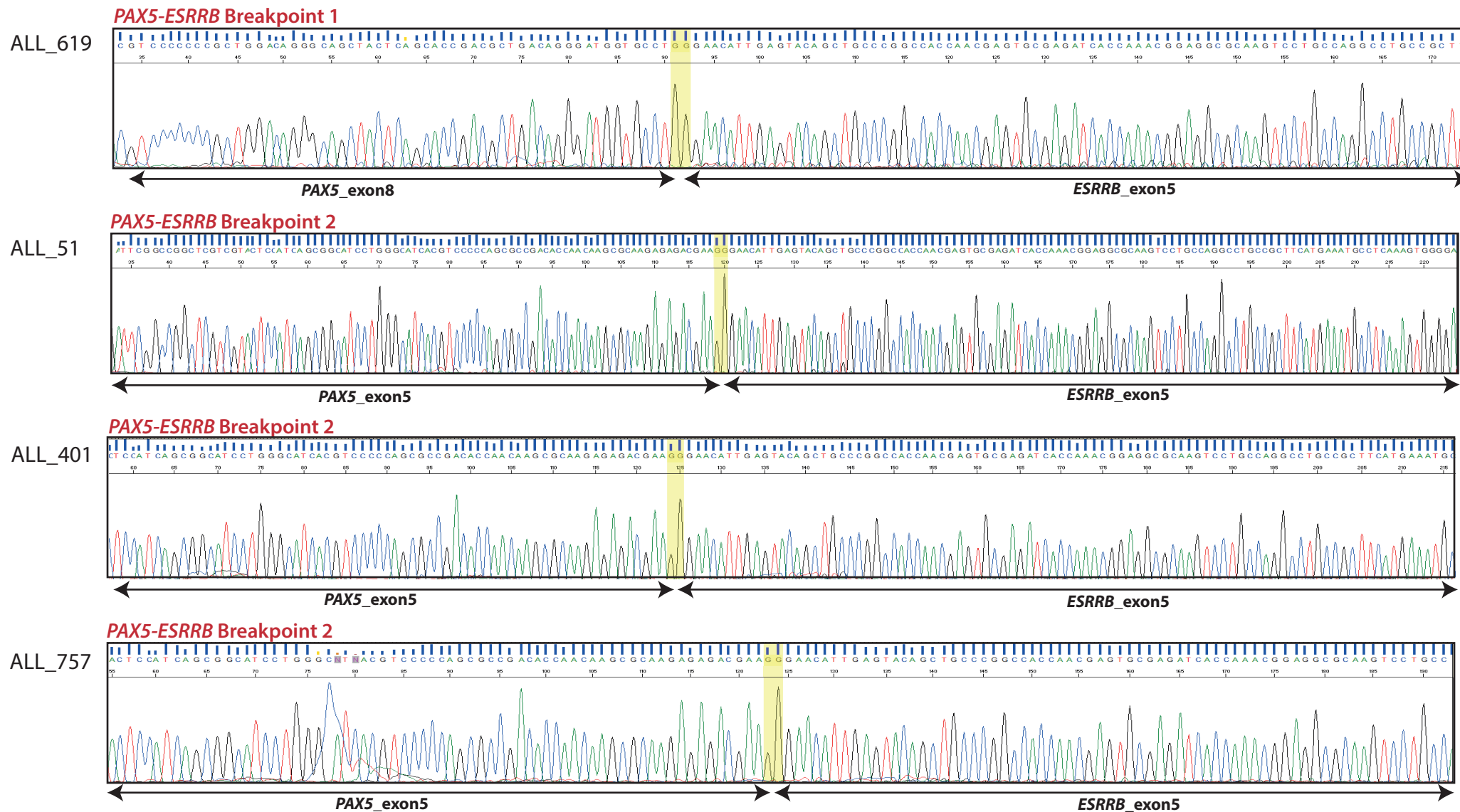
Correspondence: jessica.nordlund@medsci.uu.se
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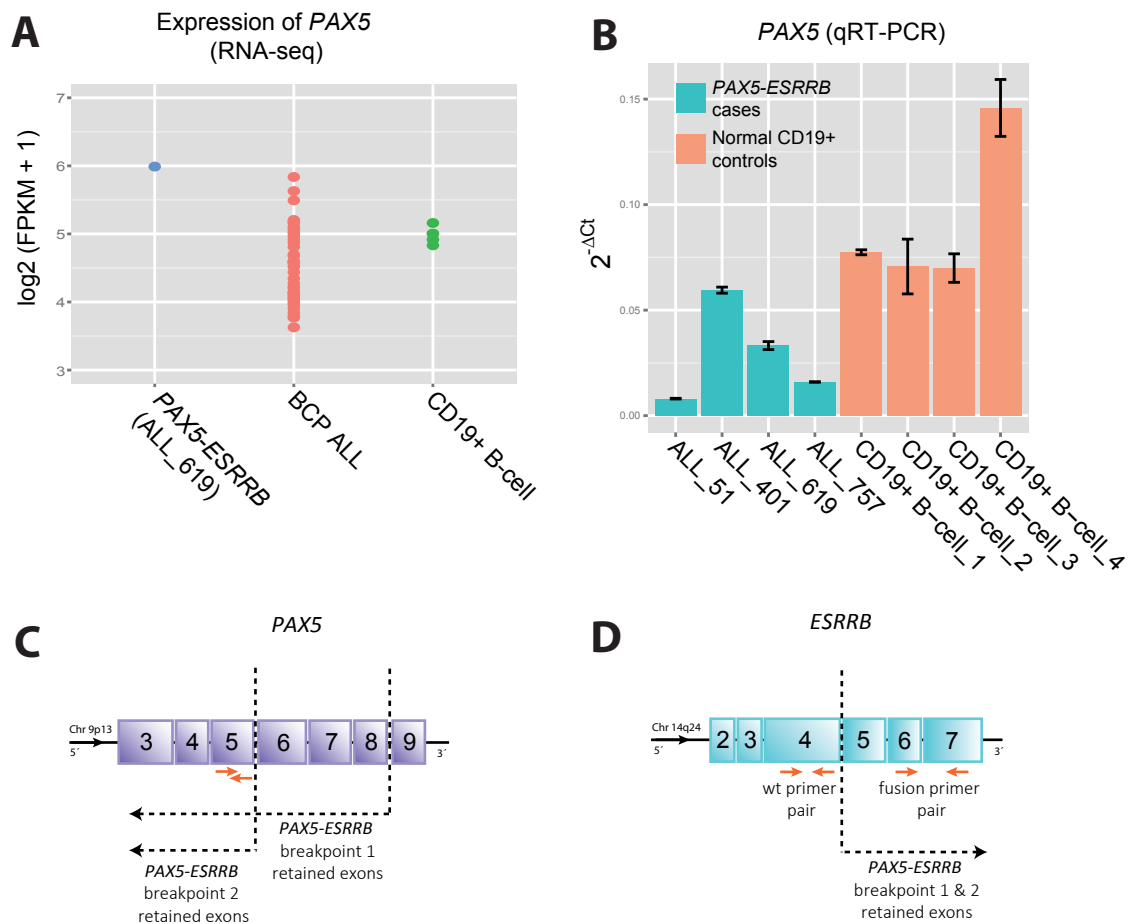
Supplementary Figure 1. Large scale genomic rearrangements in four BCP ALL patients. DNA from the four ALL patients was used to screen for copy number variations and analysed with the Tumor Aberration Prediction Suite (TAPS)¹. The breakpoints on chr9p and chr14q, within *PAX5* and *ESRRB* respectively, were confirmed in all cases. The LogR and B-allele frequency values of the deletion of chr9p and duplication of chr14q indicate their presence in the dominant clone, also when accounting for a differential degree of normal cell admixture in the different patient samples. The presence of bi-allelic markers across chr14q suggests that the 14q duplication occurred before or in connection to its translocation to chr9p. ALL_51 and ALL_757 both had amplification of chr5 and ALL_401 and ALL_757 shared an amplification of chr13. Patient ALL_619 also had a t(7;12) where the breakpoints were found downstream of *IKZF1* on chr7p12 and on chr12p12 within the *PLEKHA5* gene. This translocation resulted in a hemizygous deletion of *IKZF1*, however RNA-seq data from this patient did not reveal an expressed fusion transcript in consequence of this translocation. None of the other patients displayed evidence for *IKZF1* deletions based on CNV analysis.



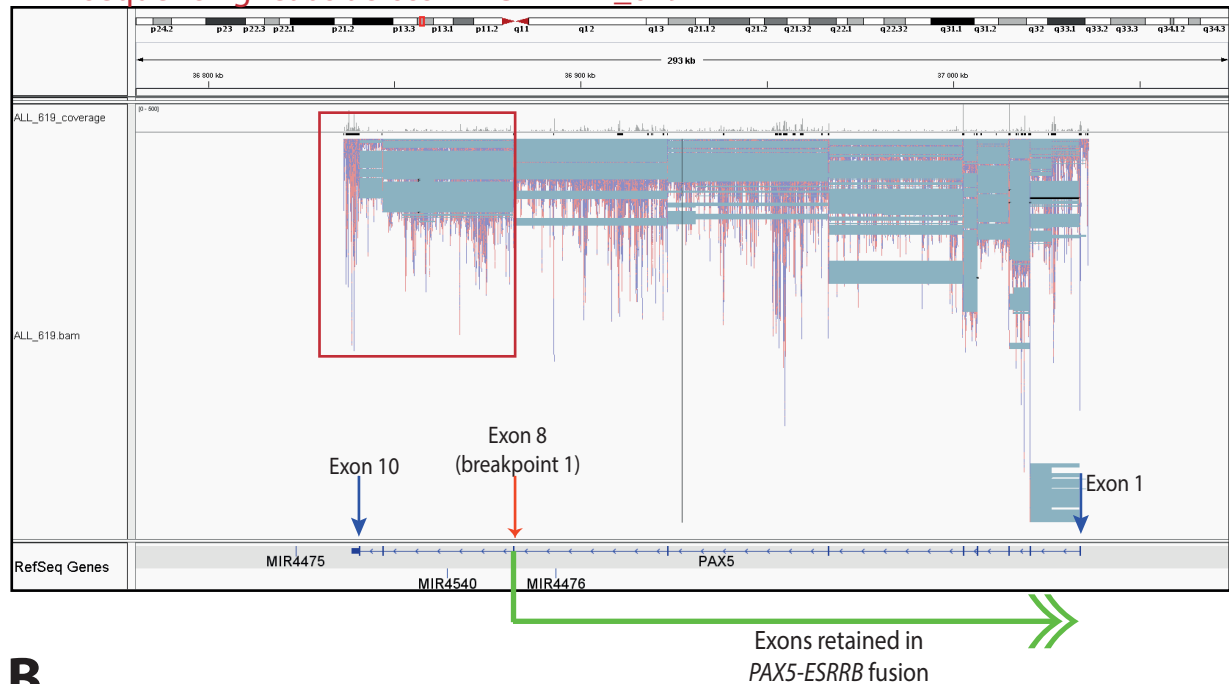
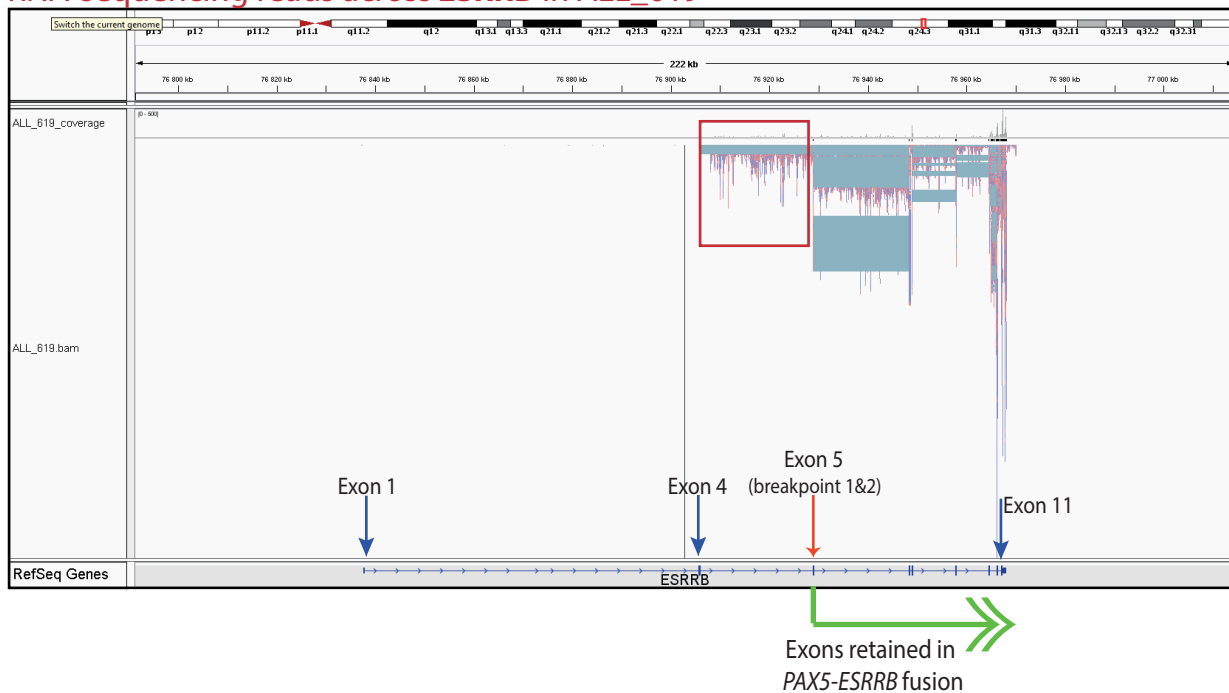
Supplementary Figure 2. Circos plots illustrating genome-wide copy number alterations detected with the 2.5M SNP array in the four BCP ALL cases with the *PAX5-ESRRB* fusion. In all cases, a deletion is observed in the chr9p region and a duplication of the chr14q region. Duplications are shown with red segments and deletions with blue segments. Identification of a fusion transcript as a result of the *der(9)t(9;14)PAX5-ESRRB* translocation is highlighted with a blue line in each circos plot.



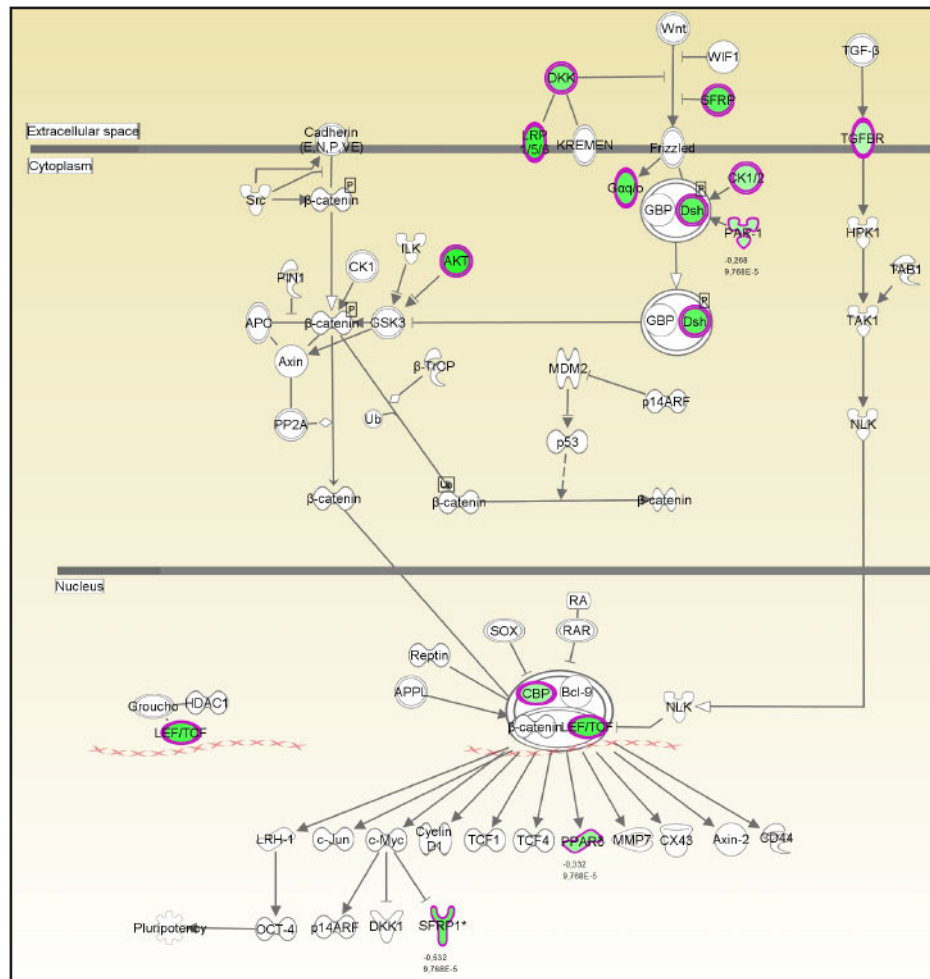
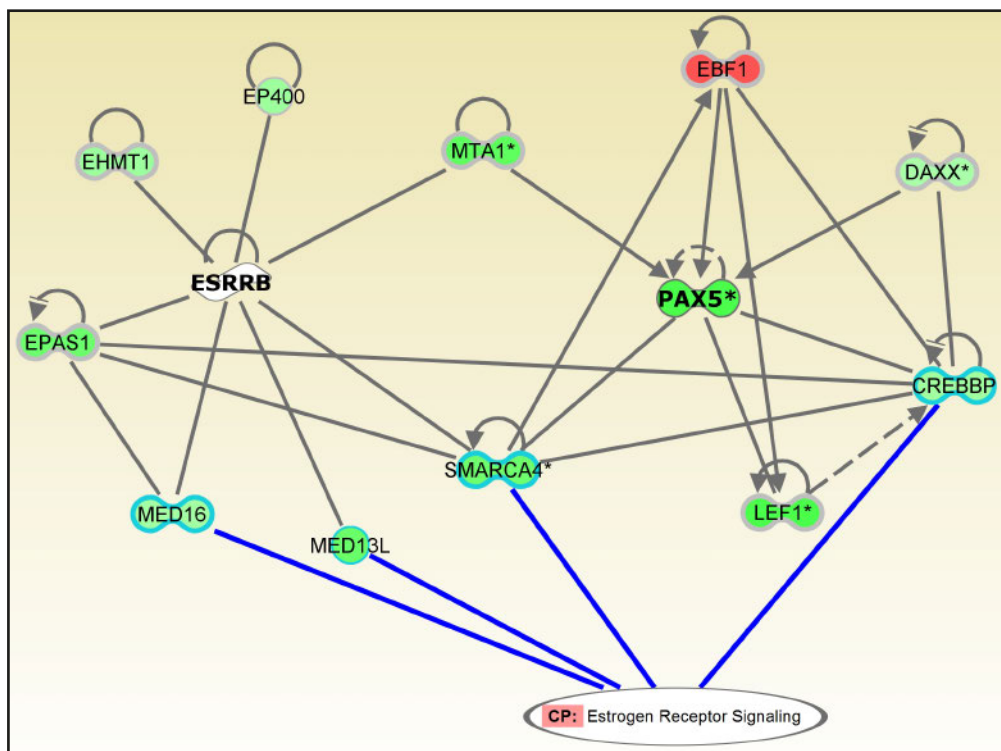
Supplementary Figure 3. Sanger sequencing traces across the fusion breakpoint (highlighted in yellow) between *PAX5* and *ESRRB* for the four *PAX5-ESRRB* cases. In ALL_619 (upper panel), a fusion between exon 8 of *PAX5* with exon 5 of *ESRRB* (breakpoint 1) was detected. In ALL_51, ALL_401 and ALL_757 (three lower panels), a fusion between exon 5 of *PAX5* and exon 5 of *ESRRB* (breakpoint 2) was detected.



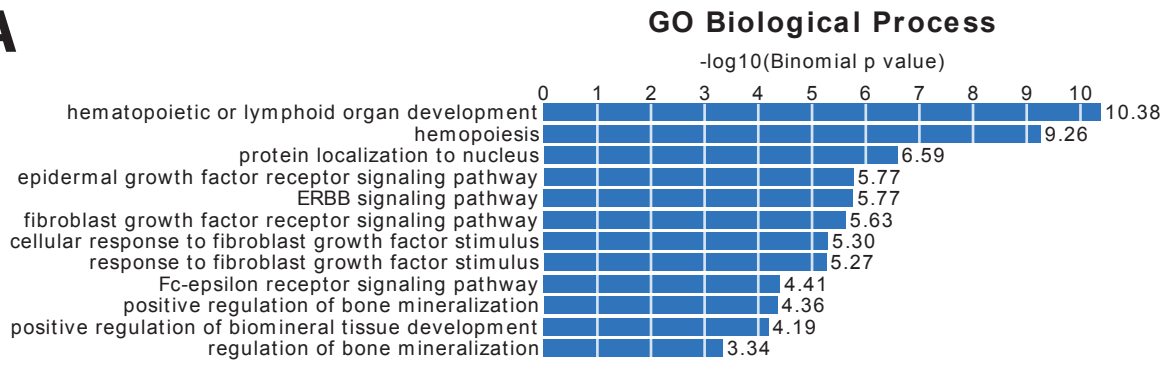
Supplementary Figure 4. (A) *PAX5* expression was detected by RNA-sequencing in ALL_619, in 41 BCP ALL cases, and in 5 normal B-cells. The observed *PAX5* expression in ALL_619 was derived from both the wild-type (wt) and the fusion variant of *PAX5* (Supplementary Figure 5). (B) *PAX5* expression was also detected in the four *PAX5-ESRRB* cases and in four normal B-cells using qRT-PCR. The quantified *PAX5* expression in the four *PAX5-ESRRB* cases comprised both the wt and fused *PAX5*. Samples were run in replicates and the average expression level ($2^{-\Delta Ct}$) of *PAX5* in each sample was calculated after normalization to *GAPDH* expression ($\Delta Ct = Ct(PAX5) - Ct(GAPDH)$). (C) qRT-PCR primers (red arrowheads) targeted against *PAX5* exon 5 and used for combined detection of wt and fused *PAX5* levels in the four *PAX5-ESRRB* cases compared to wt *PAX5* expression in normal B-cells. (D) qRT-PCR primers (red arrowheads) targeted against *ESRRB* exon 4 for detection of wt *ESRRB* expression and against *ESRRB* exon 6/7 for detection of fused *ESRRB* expression levels.

ARNA-sequencing reads across *PAX5* in ALL_619**B**RNA-sequencing reads across *ESRRB* in ALL_619

Supplementary Figure 5. Aligned RNA-sequencing reads visualized using the Integrative Genomics Viewer (IGV) in patient ALL_619. (A) RNA-seq reads that map to the *PAX5* gene. Reads spanning downstream of Exon 8 are derived from the wild-type (wt) *PAX5* transcript of the unaffected allele and are shown in the red box. The *PAX5* expression measured by RNA-sequencing represents both the wt and the *PAX5-ESRRB* fusion variant. The first and last exons of the *PAX5* transcript are denoted with Exon 1 and Exon 10, respectively. The *PAX5-ESRRB* breakpoint is marked with a red arrow, representing the fusion junction (Exon 8) for breakpoint variant 1. The green arrow delineates the exons that are retained in the *PAX5-ESRRB* fusion. (B) RNA-seq reads that map to the *ESRRB* gene. *ESRRB* expression was found to be derived from only the exons retained in the *PAX5-ESRRB* fusion (downstream of the breakpoint region, Exon 5). Expression of wt *ESRRB* was not detected by RNA-sequencing represented by the absence of reads aligning upstream of the fusion breakpoint. No reads were found mapping to Exon 4 of *ESRRB*. Intronic reads are observed between Exon 5 and Exon 4, which are derived from the unspliced *PAX5-ESRRB* transcript. The first and last exons of the *ESRRB* transcript are denoted with Exon 1 and Exon 11, respectively, and the *PAX5-ESRRB* breakpoint is marked with a red arrow, representing the fusion junction (Exon 5) for breakpoint variant 1 and 2. The green arrow delineates all the exons that are retained in the *PAX5-ESRRB* fusion transcript.

A**B**

Supplementary Figure 6. Ingenuity pathway analysis (IPA) of differentially methylated genes. (A) DMCs were enriched in genes involved in the Wnt/Beta catenin signaling pathway (p -value= 2.25×10^{-5}). Green indicates hypomethylated genes identified in the canonical pathway. (B) Gene network association of differentially methylated genes in relation to PAX5 and ESRRB based on literature-curated biological connections. Green and red colors indicate hypo- and hypermethylated genes respectively. Genes previously implicated in Estrogen Receptor Signaling are highlighted in turquoise and have been found to associate with ESRRB possibly due to the strong homology between Estrogen Related Receptors (ERR) and Estrogen Receptor alpha (ERa).

A**B**

No	Transcription factor	Number of DMCs	Number of probes on array after filtering ^a	p-value	Bonferroni corrected p-value
1	Egr1	154	107695	3,68E-05	0,00331
2	EBF1	394	177837	6,05E-05	0,00544
3	HLF	64	47926	2,16E-03	0,1945
4	IRF2	23	6217	2,81E-03	0,2526
5	IRF1	109	45227	1,00E-02	0,9000
6	RUNX1	485	236562	1,06E-02	0,9566
7	SP1	431	246672	1,13E-02	1,0185
8	RORA_1	114	73450	1,98E-02	1,7858
9	Ddit3::Cebpa	99	64630	2,11E-02	1,9029
10	Zfx	341	197236	2,29E-02	2,0581
11	Ar	24	7907	2,53E-02	2,2815
12	FOXF2	28	22260	2,62E-02	2,3550
13	Gata1	400	195884	4,58E-02	4,1247
14	NFE2L2	112	49401	4,76E-02	4,2857
15	PPARG::RXRA	177	81755	4,96E-02	4,4603
16	MIZF	62	41468	4,99E-02	4,4934
17	FOXA1	294	141359	5,29E-02	4,7646
18	TLX1::NFIC	21	7329	5,75E-02	5,1770
19	Stat3	232	109866	5,92E-02	5,3300
20	PLAG1	48	32650	7,35E-02	6,6122
21	RORA_2	21	16221	7,96E-02	7,1596
22	CTCF	51	34306	8,01E-02	7,2123
23	NR2F1	76	33354	1,01E-01	9,0708
24	Klf4	504	277709	1,11E-01	9,9568
25	Tal1::Gata1	101	45766	1,11E-01	10,0046
26	Sox17	386	191714	1,14E-01	10,2780
27	NHLH1	125	75169	1,17E-01	10,5086
28	Tcfcp2l1	383	214202	1,17E-01	10,5091
29	EWSR1-FLI1	0	1525	1,28E-01	11,4949
30	Pax6	29	11597	1,29E-01	11,5864
31	Nr2e3	250	121521	1,30E-01	11,6676
32	Hand1::Tcf2a	432	216668	1,43E-01	12,8918
33	HNF1B	23	16676	1,45E-01	13,0358
34	NR3C1	56	24465	1,50E-01	13,4688
35	Arnt	382	191977	2,06E-01	18,5799
36	Foxq1	73	44351	2,26E-01	20,3355
37	NFKB1	80	48127	2,43E-01	21,8430
38	STAT1	104	49405	2,48E-01	22,3567
39	REST	1	1886	2,79E-01	25,1131
40	NR1H2::RXRA	2	550	2,79E-01	25,1436
41	PPARG	0	1113	2,83E-01	25,4989
42	E2F1	123	70905	2,99E-01	26,9370
43	USF1	336	169632	3,00E-01	27,0151
44	Pou5f1	29	18854	3,03E-01	27,2686
45	MYC::MAX	95	45432	3,05E-01	27,4117
46	NKX3-1	136	77686	3,39E-01	30,5070
47	GABPA	270	149421	3,59E-01	32,2944
48	T	31	14142	3,76E-01	33,8682
49	INSM1	228	126570	3,78E-01	33,9885
50	ESR2	58	34330	4,00E-01	36,0326

51	Myf	275	139318	4,11E-01	37,0089
52	REL	280	142099	4,35E-01	39,1597
53	MAX	212	106948	4,42E-01	39,7687
54	RXRA::VDR	14	6056	4,53E-01	40,8032
55	HNF1A	20	12814	4,69E-01	42,2069
56	MEF2A	68	33088	4,69E-01	42,2251
57	FEV	325	176669	5,00E-01	45,0331
58	TP53	1	370	5,04E-01	45,3664
59	NFIL3	44	25736	5,54E-01	49,8469
60	NF-kappaB	172	94716	5,54E-01	49,8975
61	TBP	175	89097	5,75E-01	51,7159
62	NFYA	88	49499	5,83E-01	52,4482
63	TAL1::TCF3	113	57057	6,05E-01	54,4868
64	TEAD1	90	45267	6,07E-01	54,6582
65	Pax4	5	2153	6,12E-01	55,0980
66	RREB1	31	17968	6,61E-01	59,5273
67	Foxa2	200	102912	6,82E-01	61,3484
68	Esrrb	232	125465	7,00E-01	63,0366
69	NR4A2	374	200529	7,01E-01	63,0556
70	FOXI1	170	87622	7,28E-01	65,5203
71	Spz1	203	105334	7,76E-01	69,8195
72	PBX1	30	17076	7,87E-01	70,8490
73	Sox5	337	176053	8,04E-01	72,3432
74	Lhx3	42	21597	8,10E-01	72,8847
75	Mycn	282	150758	8,26E-01	74,3467
76	FOXD1	163	87680	8,28E-01	74,5200
77	Foxd3	180	93775	8,32E-01	74,8944
78	RXR::RAR_DR5	31	15926	8,52E-01	76,7166
79	Zfp423	175	93864	8,65E-01	77,8835
80	FOXO3	290	152004	8,84E-01	79,5397
81	Evi1	15	8669	9,00E-01	81,0217
82	RELA	125	65640	9,22E-01	83,0195
83	Sox2	34	18711	9,31E-01	83,8232
84	Myc	278	147404	9,41E-01	84,7195
85	Pax5	70	37588	9,50E-01	85,5447
86	CREB1	232	122571	1,00E+00	90
87	ELK4	119	62941	1,00E+00	90
88	ESR1	10	5777	1,00E+00	90
89	SRF	12	6576	1,00E+00	90
90	znf143	31	16679	1,00E+00	90

^aFiltering of 450k probes was performed as described by Nordlund *et. al* (2013).³

Supplementary Figure 7. (A) Gene ontology analysis was performed using the GREAT online tool to annotate DMCs to nearby genomic regions in respect to their biological functions. Enrichment of DMCs was found towards genes involved in hematopoiesis and lymphoid organ development. (B) Transcription factor (TF) binding motif analysis using the JASPAR database² was performed to annotate the DMC in relation to known binding sequences. A query window of 122 bp (+/- 60bp from the DMC) was used to search for sequence patterns that are associated with the differentially methylated CpG. TF binding motifs are sorted by lowest p-value. Enrichment towards the early growth response gene-1 (EGR1) (p-value $3,68 \times 10^{-5}$) and early-B-cell factor gene (EBF1) (p-value $6,05 \times 10^{-5}$) binding motifs (yellow marked) was identified. Interestingly, EGR1 has been implicated as a tumor suppressor in leukemia as well as in B-cell development, a function that might be impaired by aberrant methylation across or in proximity to the binding motif.^{4,5} EBF1 has been described as an important player for B lineage specification together with PAX5 and connected to PAX5 in a positive feedback loop.^{6,7}

Supplementary Tables

Supplementary Table 1. Summary of copy number changes identified in the four cases with the PAX5-ESRRB fusion.

Chr	Start	Stop	Sample	Size	Probes	log2	TotalCN	MinorCN	Call	GeneCount	GenesInSegment
1	76341966	76378502	ALL_401	36536	21	0.28420687	3	NA	Gain	1	MSH4
2	72192369	72213541	ALL_401	21172	14	0.28871827	3	NA	Gain	1	RPS20P10
2	95556329	95592172	ALL_401	35843	11	0.36470647	4	NA	Gain	4	AC097374.3, AC097374.4, RPS24P6, AC097374.2
2	100328931	100376139	ALL_401	47208	25	0.27041737	4	NA	Gain	1	AFF3
3	77833896	77856623	ALL_401	22727	16	0.39941852	4	NA	Gain	0	None
8	60031492	60445573	ALL_401	414081	262	-0.32590148	1	0	Loss	4	RP11-25K19.1, SNORA51, RNA5SP267, TOX
9	46587	19971287	ALL_401	19886328	25275	-0.298	1	0	Loss	256	RP11-143M1.3, RP11-143M1.4, ..., PTPRD, BNC2
9	19972161	22176961	ALL_401	2187154	2077	-1.702	0	0	Loss	64	AL512635.1, RP11-15P13.1, ..., RP11-145E5.5, CDKN2B-AS1
9	22202151	36993868	ALL_401	14790269	13628	-0.278	1	0	Loss	267	RP11-408N14.1, DMRTA1, ..., ANKRD18B, PAX5
10	95426888	95459817	ALL_401	32929	36	0.19044907	3	1	Gain	1	PDE6C, FRA10AC1
10	105882765	105905161	ALL_401	22396	26	0.16212527	3	NA	Gain	2	SFR1, WDR96
14	76925990	107287663	ALL_401	30350280	29662	0.186	3	1	Gain	785	ESRRB, CYCSP1, ..., TEX22, MTA1
15	42411116	45537407	ALL_401	3126291	NA	-0.01	2	0	CNLOH	NA	NA
1	70567392	70621632	ALL_51	54240	39	0.216769775	4	2	Gain	2	LRRC40, LRRC7
1	76344705	76378502	ALL_51	33797	17	0.299231875	4	NA	Gain	1	MSH4
5	14159	759044	ALL_51	744885	676	0.10116703	3	1	Gain	29	RP11-811115.1, Y_RNA, ..., CEP72, ZDHC11
5	840561	8702492	ALL_51	7861931	10099	0.121300075	3	1	Gain	125	RP11-661C8.3, RP11-43F13.3, ..., RP11-480D4.1, RP11-480D4.2
5	8744557	17338886	ALL_51	8594329	8015	0.110468465	3	1	Gain	109	RP11-315A16.1, MIR4636, ..., FBXL7, MYO10
5	17358730	30919960	ALL_51	13561230	9710	0.211753525	4	1	Gain	132	CTD-2139B15.5, RP11-321E2.5, ..., C5orf17, RP11-549K20.1
5	30926372	31216128	ALL_51	289756	370	0.167488925	3	1	Gain	4	RPL19P11, CTD-2127O16.2, RP11-152K4.2, CDH6
5	31218741	35704686	ALL_51	4485945	4777	0.097520285	3	1	Gain	86	RP11-152K4.1, Y_RNA, ..., SPEF2, ADAMTS12
5	35707388	36098822	ALL_51	391434	464	0.105313505	3	1	Gain	10	RP11-79C6.1, RP11-79C6.3, ..., UGT3A2, SPEF2
5	36103905	52228442	ALL_51	16124537	9305	0.137198075	3	1	Gain	180	MIR580, RNU6-1305P, ..., CTD-2127H9.1, RP11-357F12.1, CTD-2366F13.2, CTD-2366F13.1, ..., CTD-2081C10.1, CTD-2081C10.2
5	52255519	53932966	ALL_51	1677447	1451	0.131030175	3	1	Gain	23	AC112198.2, RP11-45H22.1, ..., ANKRD55, AC022431.2
5	53940980	56214284	ALL_51	2273304	2162	0.10486762	3	1	Gain	62	CTD-2310F14.1, AC016644.1, ..., SGTB, PDE4D
5	56217196	65369302	ALL_51	9152106	6767	0.134593775	3	1	Gain	110	AC025442.3, snoU13, ..., RP11-83M16.6, RP11-434D9.2
5	65379542	79028472	ALL_51	13648930	10913	0.105641145	3	1	Gain	281	CTC-431G16.3, RP11-168A11.4, ..., MAN2A1, CTD-3179P9.1
5	79034727	124854425	ALL_51	45819698	36501	0.141964875	3	1	Gain	592	CTC-394G3.1, CTC-394G3.2, ..., PRRC1, GRAMD3
5	124867384	126887706	ALL_51	2020322	1816	0.10725468	3	1	Gain	31	RP11-483H11.1, KDELC1P1, ..., CTC-432M15.3, FNIP1
5	126889490	132024166	ALL_51	5134676	3627	0.130485375	3	1	Gain	66	SOWAHA, SHROOM1, ..., SEPT8, TXNDC15
5	132051805	134730900	ALL_51	2679095	2473	0.088587845	3	1	Gain	83	CTC-203F4.2, H2AFY
5	134734562	134758316	ALL_51	23754	14	0.346382775	5	NA	Gain	2	C5orf20, TIFAB, ..., LECT2, FBXL21
5	134758826	135274148	ALL_51	515322	566	0.09938883	3	1	Gain	19	VTRNA2-1, SMAD5-AS1, ..., SIL1, LINC01024
5	135276701	140552874	ALL_51	5276173	4123	0.080465015	3	1	Gain	165	CKS1BP5, CTB-85P21.1, ..., KCTD16, CTC-359M8.1
5	143539785	146457496	ALL_51	2917711	2189	0.109074525	3	1	Gain	37	CTB-108O6.2, CTC-255N20.1, PPP2R2B, STK32A, DPYSL3
5	146460691	146893167	ALL_51	432476	401	0.124456875	3	1	Gain	5	CTC-327F10.1, CTC-327F10.5, ..., HTR4, CSNK1A1
5	146901220	151354642	ALL_51	4453422	5310	0.086832645	3	1	Gain	117	CTC-550M4.1, RN7SL177P, ..., LARP1, EBF1
5	151377281	158691810	ALL_51	7314529	5962	0.084553705	3	1	Gain	98	RNU4ATAC2P, AC008703.2, ..., WWC1, RP11-375B1.2
5	158711964	180700260	ALL_51	21988296	22306	0.09907768	3	1	Gain	420	AUTS2
7	69630207	69661099	ALL_51	30892	18	-0.388638575	0	0	Loss	1	ZDHC21, PTPRD, ..., ZDHC21, PTPRD
9	46587	19909690	ALL_51	19853001	25233	-0.155	1	0	Loss	254	RP11-378I6.1, RP11-378I6.2, ..., RP11-145E5.5, CDKN2B-AS1
9	19909755	22096055	ALL_51	2186300	2023	-0.504	0	0	Loss	64	RP11-408N14.1, DMRTA1, ..., ANKRD18B, PAX5
9	22097022	36993897	ALL_51	14896875	37650	-0.187305	1	0	Loss	269	NCR3L1, NUCB2
11	17295658	17388832	ALL_51	93174	56	0.148624375	3	1	Gain	2	None
11	91183072	91216210	ALL_51	33138	92	0.174266575	3	1	Gain	0	None
11	91225135	91245663	ALL_51	20528	73	0.241073875	4	2	Gain	0	None
14	76942104	107287663	ALL_51	30345559	29696	0.105553	3	1	Gain	823	ESRRB, CYCSP1, ..., MTA1, TC2N
15	81723633	81744347	ALL_51	20714	20	0.171584575	3	NA	Gain	1	CTD-2034I4.1
1	76341966	76387048	ALL_619	45082	31	0.255246951	4	2	Gain	2	ASB17, MSH4

2	100328931	100376139	ALL_619	47208	25	0.194357051	3	NA	Gain	1	AFF3
4	109030479	109093577	ALL_619	63098	37	-0.263384349	1	0	Loss	2	LEF1-AS1, LEF1
7	41421	50496841	ALL_619	50455420	51986	-0.296808087	1	0	Loss	834	AC093627.7, AC093627.8, ..., AC010971.1, IKZF1
8	60031492	60819763	ALL_619	788271	476	-0.290380299	1	0	Loss	9	RP11-25K19.1, SNORA51, ..., RP11-37919.3, TOX
9	46587	19462479	ALL_619	19415892	24741	-0.282	1	0	Loss	248	RP11-143M1.3, RP11-143M1.4, ..., PTPRD, BNC2
9	19464445	24172086	ALL_619	4707641	4478	-1.549	0	0	Loss	65	RP11-25202.2, AL158077.1, ..., RP11-145E5.5, CDKN2B-AS1
9	24175153	36863067	ALL_619	12687914	11595	-0.266	1	0	Loss	252	AL157830.1, RMRPP5, ..., ANKRD18B, PAX5
10	105882765	105905915	ALL_619	23150	29	0.202595351	3	NA	Gain	2	SFR1, WDR96
12	163819	19519133	ALL_619	19355314	20739	-0.306671499	1	0	Loss	531	RP11-598F7.3, RP11-598F7.4, ..., PLCZ1, PLEKHA5
14	76914562	107287663	ALL_619	30373101	29687	0.157	3	1	Gain	823	ESRRB, CYCSP1, ..., MTA1, LINC00221
21	38301643	38326215	ALL_619	24572	43	-0.367868549	1	0	Loss	2	DPRXP5, HLCS
1	76341966	76378502	ALL_757	36536	21	0.27176943	4	NA	Gain	1	MSH4
2	48060780	48086854	ALL_757	26074	15	0.29317443	4	NA	Gain	1	FBXO11
2	166428188	166456447	ALL_757	28259	13	0.39874153	5	NA	Gain	1	CSRNP3
2	212090820	212113283	ALL_757	22463	21	-0.33851307	0	0	Loss	0	None
5	14159	1492664	ALL_757	1478505	1561	0.13269533	3	1	Gain	52	RP11-81115.1, Y_RNA, ..., TRIP13, SLC6A3
5	1495764	17989289	ALL_757	16493525	17709	0.13939523	3	1	Gain	251	CTD-2243E19.3, CTD-2012J19.2, ..., RP11-480D4.2, MPO4
5	17999064	35704686	ALL_757	17705622	14444	0.19815578	3	1	Gain	185	RPL36AP21, SNORD81, ..., RP11-549K20.1, ADAMTS12
5	35707388	52247276	ALL_757	16539888	9801	0.15878393	3	1	Gain	189	RP11-79C6.1, RP11-79C6.3, ..., CTD-2127H9.1, RP11-357F12.1
5	52250469	61769985	ALL_757	9519516	7946	0.14359753	3	1	Gain	157	CTD-2366F13.2, CTD-2366F13.1, ..., IPO11, PDE4D
5	61783957	64018803	ALL_757	2234846	1501	0.16987203	3	1	Gain	19	CKS1B, RP11-9519.2, ..., RGS7BP, IPO11
5	64025303	68392360	ALL_757	4367057	3634	0.12948283	3	1	Gain	64	RP11-307L14.1, RP11-307L14.2, ..., RP11-83M16.6, RP11-434D9.2
5	68396580	68429040	ALL_757	32460	39	0.31488083	4	2	Gain	2	SLC30A5, CTC-498J12.3
5	68429784	83887091	ALL_757	15457307	12730	0.14066313	3	1	Gain	322	RN7SL103P, SNORA50, ..., VCAN-AS1, SV2C
5	83888703	84086841	ALL_757	198138	146	0.33761748	4	1	Gain	0	None
5	84091482	93901429	ALL_757	9809947	5958	0.19125368	3	1	Gain	104	RP11-509M23.1, CTC-384G19.1, ..., FAM172A, CTC-458G6.2
5	93907112	140552874	ALL_757	46645762	38638	0.097843805	3	1	Gain	763	AC093311.1, CTC-303L1.2, ..., GRAMD3, TXNDC15
5	151357064	158547680	ALL_757	7190616	5890	0.094131555	3	1	Gain	93	CTC-550M4.1, RN7SL177P, ..., LARP1, EBF1
5	158547876	158633589	ALL_757	85713	42	0.27840328	4	2	Gain	1	RNF145
5	158634789	158691810	ALL_757	57021	29	0.07041995	3	NA	Gain	5	SNORA68, CTB-11I22.1, CTB-11I22.2, UBLCP1, RNF145
5	158713672	161450193	ALL_757	2736521	2473	0.11812963	3	1	Gain	38	RNU4ATAC2P, AC008703.2, ..., GABRA6, ADRA1B
5	161454420	172250261	ALL_757	10795841	10541	0.13507813	3	1	Gain	122	RP11-96G10.1, RNU6-164P, ..., KCNIP1, WWC1
5	172254984	180700260	ALL_757	8445276	9283	0.10000505	3	1	Gain	259	CTC-308K20.1, CTC-308K20.2, ..., BTNL8, RP11-375B1.2
9	46587	19913075	ALL_757	19841210	25234	-0.198	1	0	Loss	250	RP11-143M1.3, RP11-143M1.4, ..., PTPRD, BNC2
9	19913493	21880170	ALL_757	1966677	1855	-0.586	0	0	Loss	57	RP11-378I6.1, RP11-378I6.2, ..., FOCAD, RP11-145E5.5
9	21880362	22046649	ALL_757	166287	113	-0.800	0	0	Loss	9	RP11-149I2.5, C9orf53, ..., RP11-145E5.5, CDKN2B-AS1
9	22046870	22124477	ALL_757	77607	76	-0.580	0	0	Loss	1	CDKN2B-AS1
9	22125347	36993788	ALL_757	14850636	13725	-0.173	1	0	Loss	269	RP11-408N14.1, DMRTA1, ..., ANKRD18B, PAX5
10	105882765	105905915	ALL_757	23150	30,000	0.16717468	3	NA	Gain	2	SFR1, WDR96
14	76925990	107287663	ALL_757	30297893	29691	0.211	3	1	Gain	761	ESRRB, CYCSP1, ..., MTA1, TC2N

Supplementary Table 2. Primers used for PCR, Sanger sequencing and expression analysis by real time PCR**Primers used for PCR and Sanger sequencing**

PrimerID	Primer sequence 5' -> 3'	Gene
PAX5_ESRRB_BP1_Forward	GTCCTACCCCATTTGTGACAG	<i>PAX5 (Breakpoint 1)</i>
PAX5_ESRRB_BP2_Forward	AGCTTCCAGTCACAGCATAG	<i>PAX5 (Breakpoint 2)</i>
PAX5_ESRRB_Reverse	CAGCCAATGATGACCACAAG	<i>ESRRB</i>

Primers used for real time PCR

PrimerID	Primer sequence 5' -> 3'	Gene (targeting transcript)
ESRRB_Forward_ret	GCCCATACCTGAGCTTACAA	<i>ESRRB (fusion-retained)</i>
PAX5_ESRRB_Reverse	CAGCCAATGATGACCACAAG	<i>ESRRB (fusion-retained)</i>
ESRRB_Forward_wt	CATCAAGTGCAGTACATGC	<i>ESRRB (wildtype)</i>
ESRRB_Reverse_wt	TAGTCCTCTTGAAGAAGGCC	<i>ESRRB (wildtype)</i>
PAX5_Forward	GCAGGTGTCCTCGGTGAG	<i>PAX5 (wildtype and fusion-retained)</i>
PAX5_Reverse	TCTCTCTGCGCTTGTTGGT	<i>PAX5 (wildtype and fusion-retained)</i>

Supplementary Table 3. Summary of identified PAX5 fusion by whole transcriptome sequencing of 42 BCP ALL cases used for the expression analysis of PAX5 and ESRRB (Supplementary Figure 4A and Figure 2A)

* Identified PAX5 fusion by RNA-sequencing using FusionCatcher software version 0.99.4a beta.

All PAX5 fusions have been validated by reverse transcription PCR and Sanger sequencing.

Sample ID	Immunophenotype	Subtype	PAX5 fusions*
ALL_619	BCP ALL	other	PAX5-ESRRB
ALL_180	BCP ALL	11q23/MLL	None
ALL_475	BCP ALL	11q23/MLL	None
ALL_5	BCP ALL	11q23/MLL	None
ALL_808	BCP ALL	11q23/MLL	None
ALL_680	BCP ALL	dic(9;20)	None
ALL_106	BCP ALL	HeH	None
ALL_170	BCP ALL	HeH	None
ALL_206	BCP ALL	HeH	None
ALL_210	BCP ALL	HeH	None
ALL_243	BCP ALL	HeH	None
ALL_247	BCP ALL	HeH	None
ALL_314	BCP ALL	HeH	None
ALL_321	BCP ALL	HeH	None
ALL_459	BCP ALL	HeH	None
ALL_462	BCP ALL	HeH	None
ALL_464	BCP ALL	HeH	None
ALL_467	BCP ALL	HeH	None
ALL_472	BCP ALL	HeH	None
ALL_474	BCP ALL	HeH	None
ALL_486	BCP ALL	HeH	None
ALL_492	BCP ALL	HeH	None
ALL_503	BCP ALL	HeH	None
ALL_543	BCP ALL	HeH	None
ALL_553	BCP ALL	HeH	None
ALL_555	BCP ALL	HeH	None
ALL_704	BCP ALL	HeH	None
ALL_174	BCP ALL	t(12;21)	None
ALL_458	BCP ALL	t(12;21)	None
ALL_541	BCP ALL	t(12;21)	None
ALL_609	BCP ALL	t(12;21)	None
ALL_612	BCP ALL	t(12;21)	None
ALL_678	BCP ALL	t(12;21)	None
ALL_681	BCP ALL	t(12;21)	None
ALL_695	BCP ALL	t(12;21)	None
ALL_709	BCP ALL	t(12;21)	None
ALL_829	BCP ALL	t(12;21)	None
ALL_363	BCP ALL	t(9;22)	None
ALL_544	BCP ALL	t(9;22)	None
ALL_620	BCP ALL	t(9;22)	None
ALL_7	BCP ALL	t(9;22)	None
ALL_702	BCP ALL	t(9;22)	None

Supplementary Table 4. Summary of identified PAX5 fusion by whole transcriptome sequencing of 34 BCP ALL cases included for the DNA methylation analysis (Figure 2C and 2D).

* Identified PAX5 fusion by RNA-sequencing using FusionCatcher software version 0.99.4a beta.

All PAX5 fusions have been validated by reverse transcription PCR and Sanger sequencing.

Sample ID	Immunophenotype	Subtype	PAX5 fusions*
ALL_401	BCP ALL	normal	PAX5-ESRRB
ALL_51	BCP ALL	normal	PAX5-ESRRB
ALL_619	BCP ALL	other	PAX5-ESRRB
ALL_757	BCP ALL	other	PAX5-ESRRB
ALL_707	BCP ALL	other	PAX5-ELN
ALL_246	BCP ALL	other	PAX5-ETV6
ALL_485	BCP ALL	other	PAX5-ETV6
ALL_539	BCP ALL	normal	PAX5-JAK2
ALL_392	BCP ALL	normal	PAX5-ZCCHC7
ALL_202	BCP ALL	11q23/MLL	Not analyzed
ALL_475	BCP ALL	11q23/MLL	None
ALL_5	BCP ALL	11q23/MLL	None
ALL_60	BCP ALL	11q23/MLL	Not analyzed
ALL_494	BCP ALL	dic(9;20)	None
ALL_537	BCP ALL	dic(9;20)	None
ALL_542	BCP ALL	dic(9;20)	None
ALL_680	BCP ALL	dic(9;20)	None
ALL_170	BCP ALL	HeH	None
ALL_635	BCP ALL	HeH	Not analyzed
ALL_64	BCP ALL	HeH	None
ALL_756	BCP ALL	HeH	Not analyzed
ALL_465	BCP ALL	t(1;19)	Not analyzed
ALL_562	BCP ALL	t(1;19)	Not analyzed
ALL_634	BCP ALL	t(1;19)	Not analyzed
ALL_683	BCP ALL	t(1;19)	Not analyzed
ALL_104	BCP ALL	t(12;21)	Not analyzed
ALL_173	BCP ALL	t(12;21)	Not analyzed
ALL_299	BCP ALL	t(12;21)	PAX5-ZCCHC7
ALL_322	BCP ALL	t(12;21)	Not analyzed
ALL_695	BCP ALL	t(12;21)	None
ALL_207	BCP ALL	t(9;22)	Not analyzed
ALL_544	BCP ALL	t(9;22)	None
ALL_7	BCP ALL	t(9;22)	None
ALL_702	BCP ALL	t(9;22)	None

Supplementary Table 5. List of identified differentially methylated sites.

*Chromosomal coordinate GRCh37/hg19.

**Probe name identification

***Gene name based on UCSC

Chr	CpG Coordinate*	CpG ID **	Gene ID***	CpG Island relation	Gene region	Mean β -value (PAX5-ESRRB)	Mean β -value (BCP-ALL)	Delta Mean β -value	FDR corrected p-value
1	1277912	cg10556264	DVL1	Open sea	Body	0,56	0,90	-0,34	0,064
1	1277995	cg22709966	DVL1	Open sea	Body	0,37	0,90	-0,53	0,064
1	1420196	cg08253264	ATAD3B	N_Shore	Body	0,60	0,85	-0,25	0,083
1	1603847	cg03548463	LOC728661;CDK11B;CDK11B;CDK11B;CDK11B;CDK11B;CDK11B	S_Shore	Body;Body;Body;Body;Body;Body;Body;5'UTR	0,50	0,95	-0,45	0,064
1	1603934	cg09330116	LOC728661;CDK11B;CDK11B;CDK11B;CDK11B;CDK11B;CDK11B	S_Shore	Body;Body;Body;Body;Body;Body;Body;5'UTR	0,60	0,94	-0,34	0,064
1	1868501	cg06937595		Open sea		0,31	0,71	-0,39	0,064
1	2450741	cg07476798	PANK4	N_Shore	Body	0,75	0,97	-0,22	0,064
1	3017794	cg15818632	PRDM16;PRDM16	Open sea	Body;Body	0,68	0,95	-0,27	0,064
1	3806715	cg17879856	C1orf174	N_Shore	Body	0,43	0,91	-0,48	0,064
1	7121245	cg10115203	CAMTA1	N_Shore	Body	0,46	0,98	-0,52	0,064
1	8467904	cg19679865	RERE;RERE;RERE	Open sea	5'UTR;Body;Body	0,29	0,94	-0,65	0,064
1	8468871	cg04995521	RERE;RERE;RERE	Open sea	5'UTR;Body;Body	0,61	0,96	-0,35	0,083
1	8510607	cg17029193	RERE;RERE	Open sea	Body;Body	0,46	0,96	-0,51	0,064
1	8593495	cg21774136	RERE;RERE	Open sea	Body;Body	0,06	0,75	-0,70	0,064
1	8692312	cg07145988	RERE;RERE	Open sea	Body;Body	0,17	0,80	-0,63	0,064
1	8921294	cg20971527	ENO1	Open sea	3'UTR	0,52	0,97	-0,45	0,064
1	9103309	cg00155732	SLC2A5;SLC2A5;SLC2A5	S_Shelf	Body;Body;Body	0,19	0,74	-0,55	0,083
1	9748971	cg03265564	PIK3CD	N_Shore	5'UTR	0,40	0,89	-0,48	0,064
1	9774742	cg05341549	PIK3CD	N_Shore	Body	0,36	0,88	-0,53	0,064
1	9775755	cg23098018	PIK3CD	Island	Body	0,48	0,90	-0,42	0,064
1	9775838	cg09706586	PIK3CD	Island	Body	0,34	0,87	-0,53	0,064
1	9779309	cg07805542	PIK3CD	S_Shelf	Body	0,25	0,82	-0,57	0,064
1	9780758	cg15701170	PIK3CD	Open sea	Body	0,44	0,83	-0,39	0,064
1	9788517	cg01320698	PIK3CD	N_Shore	3'UTR	0,16	0,90	-0,74	0,064
1	9789165	cg07970040	CLSTN1;PIK3CD;CLSTN1	N_Shore	3'UTR;3'UTR;3'UTR	0,28	0,93	-0,65	0,064
1	9789174	cg04340595	CLSTN1;CLSTN1	N_Shore	3'UTR;3'UTR	0,17	0,82	-0,65	0,064
1	9789982	cg02769865	CLSTN1;CLSTN1	N_Shore	3'UTR;3'UTR	0,48	0,97	-0,49	0,072
1	9795222	cg08478622	CLSTN1;CLSTN1	S_Shelf	Body;Body	0,48	0,98	-0,50	0,064
1	9795376	cg19251737	CLSTN1;CLSTN1	S_Shelf	Body;Body	0,69	0,95	-0,27	0,064
1	9795590	cg12657380	CLSTN1;CLSTN1	Open sea	Body;Body	0,31	0,98	-0,67	0,064
1	9795934	cg03541746	CLSTN1;CLSTN1	Open sea	Body;Body	0,36	0,95	-0,59	0,064
1	9796011	cg11710086	CLSTN1;CLSTN1	Open sea	Body;Body	0,68	0,96	-0,28	0,064
1	9904386	cg22861669		Open sea		0,32	0,93	-0,60	0,064

1	10556294	cg22715764	PEX14	Open sea	Body	0,25	0,93	-0,67	0,064
1	12703968	cg09518518	AADACL4	Open sea	TSS1500	0,69	0,95	-0,26	0,083
1	16501734	cg03650713		Open sea		0,53	0,87	-0,34	0,083
1	17023283	cg11843516	ESPNP	Island	Body	0,52	0,29	0,23	0,064
1	19701756	cg05820435	CAPZB	Open sea	Body	0,35	0,82	-0,47	0,064
1	20235923	cg14851460	OTUD3	Open sea	3'UTR	0,34	0,93	-0,59	0,064
1	20238347	cg20686277	OTUD3	Open sea	3'UTR	0,56	0,96	-0,39	0,064
1	23953778	cg18418928	MDS2	Open sea	TSS200	0,42	0,87	-0,45	0,083
1	25893735	cg18792528	LDLRAP1	Open sea	3'UTR	0,32	0,88	-0,57	0,064
1	31235413	cg05928033		Open sea		0,56	0,94	-0,38	0,064
1	32568405	cg05941819	TMEM39B	Open sea	3'UTR	0,47	0,94	-0,47	0,064
1	39876059	cg19589131	KIAA0754;MACF1;MACF1	S_Shore	1stExon;Body;Body	0,53	0,96	-0,43	0,064
1	42724714	cg13794390	FOXJ3	Open sea	Body	0,28	0,90	-0,63	0,064
1	44358979	cg04511444	ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3	Open sea	Body;Body;Body;Body;Body;Body;Body;Body;Body;Body;Body	0,28	0,89	-0,61	0,064
1	44396475	cg22397365	ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3;ST3GAL3	N_Shelf	3'UTR;3'UTR;3'UTR;3'UTR;3'UTR;3'UTR;3'UTR;3'UTR;3'UTR;3'UTR	0,47	0,95	-0,49	0,083
1	51981505	cg20312179	EPS15	N_Shelf	Body	0,22	0,86	-0,64	0,064
1	65467980	cg06748470		N_Shore		0,57	0,97	-0,40	0,083
1	84158538	cg22695532		Open sea		0,10	0,62	-0,52	0,064
1	92414737	cg13299824	BRDT	Island	TSS200	0,25	0,69	-0,44	0,095
1	92414782	cg02935097	BRDT	Island	TSS200	0,55	0,93	-0,38	0,083
1	110186418	cg18933331		S_Shore		0,33	0,65	-0,31	0,083
1	110741823	cg20678043	SLC6A17	Open sea	3'UTR	0,89	0,36	0,53	0,064
1	112020858	cg09132577	C1orf162	Open sea	3'UTR	0,66	0,95	-0,29	0,064
1	116214059	cg24629380	VANGL1	Open sea	Body	0,39	0,89	-0,49	0,083
1	116518910	cg24044479	SLC22A15	Island	TSS1500	0,03	0,37	-0,34	0,064
1	116518985	cg23247704	SLC22A15	Island	TSS200	0,05	0,38	-0,33	0,064
1	145715636	cg10798745	CD160	S_Shore	TSS200	0,12	0,77	-0,65	0,083
1	150537574	cg24674754		S_Shelf		0,29	0,86	-0,57	0,064
1	152538857	cg24000437	LCE3E	Open sea	5'UTR	0,22	0,81	-0,59	0,064
1	152538888	cg23110514	LCE3E	Open sea	5'UTR	0,38	0,82	-0,43	0,083
1	154425845	cg17001401	IL6R;IL6R	Open sea	Body;Body	0,71	0,92	-0,22	0,064
1	156889128	cg12126706	C1orf92	N_Shore	TSS1500	0,42	0,91	-0,49	0,083
1	173826988	cg25061451	DARS2	Open sea	3'UTR	0,63	0,95	-0,33	0,064
1	179716171	cg08895981	FAM163A	S_Shelf	5'UTR	0,35	0,90	-0,56	0,064
1	181452048	cg15742412	CACNA1E	Island	TSS1500	0,06	0,46	-0,41	0,083
1	181955925	cg02339592		Open sea		0,70	0,92	-0,22	0,083
1	182602986	cg00091302		Open sea		0,80	0,15	0,65	0,064
1	198136518	cg09372617	NEK7	Open sea	5'UTR	0,19	0,90	-0,71	0,064
1	203457686	cg09807536	PRELP;PRELP	S_Shore	3'UTR;3'UTR	0,54	0,97	-0,43	0,064

1	203567067	cg13557373		Open sea		0,36	0,83	-0,47	0,064
1	205011227	cg19917714	CNTN2	Open sea	TSS1500	0,40	0,94	-0,53	0,064
1	205011262	cg03537215	CNTN2	Open sea	TSS1500	0,50	0,92	-0,42	0,064
1	206629196	cg26897909	SRGAP2;SRGAP2;SRGAP2	Open sea	Body;Body;3'UTR	0,75	0,95	-0,20	0,064
1	208377348	cg19721764	PLXNA2	Open sea	Body	0,28	0,89	-0,61	0,064
1	211765568	cg26192309		Open sea		0,71	0,94	-0,23	0,083
1	224804053	cg21290042	CNIH3	Island	TSS200	0,05	0,33	-0,28	0,064
1	229162085	cg22043888		Open sea		0,36	0,83	-0,47	0,083
1	230301268	cg20989443	GALNT2	Open sea	Body	0,30	0,89	-0,59	0,083
1	230310556	cg11222630	GALNT2	Open sea	Body	0,39	0,87	-0,48	0,064
1	230415902	cg00526336	GALNT2	S_Shore	3'UTR	0,52	0,92	-0,40	0,083
1	234370650	cg26802210	SLC35F3	S_Shelf	Body	0,76	0,98	-0,22	0,064
1	234669825	cg07109453		Open sea		0,45	0,95	-0,50	0,064
1	234858982	cg23257934		Open sea		0,66	0,98	-0,31	0,064
1	236557182	cg18964582	EDARADD	N_Shore	TSS1500	0,42	0,96	-0,54	0,064
1	241791729	cg08240832	OPN3	Open sea	Body	0,40	0,89	-0,49	0,083
1	243658800	cg00081019	SDCCAG8;AKT3	Open sea	Body;3'UTR	0,46	0,98	-0,52	0,064
1	243659016	cg23166773	SDCCAG8;AKT3	Open sea	Body;3'UTR	0,32	0,94	-0,62	0,064
2	420052	cg05464506		Island		0,46	0,86	-0,41	0,064
2	420061	cg02924234		Island		0,57	0,89	-0,32	0,083
2	522092	cg10874953		Open sea		0,43	0,93	-0,50	0,083
2	709250	cg21565937		Open sea		0,62	0,94	-0,32	0,083
2	1712800	cg20570797	PXDN	Open sea	Body	0,45	0,91	-0,46	0,064
2	2581323	cg05092362		Open sea		0,61	0,92	-0,31	0,083
2	3292956	cg19536922	TSSC1	S_Shore	Body	0,43	0,90	-0,48	0,083
2	3320529	cg11166303	TSSC1	N_Shore	Body	0,50	0,95	-0,44	0,083
2	3464931	cg08050967	TTC15	S_Shelf	Body	0,30	0,88	-0,58	0,083
2	3683186	cg24048627	COLEC11;COLEC11	Island	Body;Body	0,58	0,89	-0,31	0,083
2	3697458	cg05646015		N_Shore		0,31	0,79	-0,48	0,083
2	19157847	cg16707227		Open sea		0,69	0,99	-0,30	0,072
2	24658294	cg23924222		Open sea		0,29	0,87	-0,58	0,064
2	30006577	cg11495753	ALK	Open sea	Body	0,40	0,95	-0,55	0,064
2	38265394	cg18944924	FAM82A1	Open sea	Body	0,16	0,54	-0,38	0,064
2	38829176	cg13584608	HNRPLL;HNRPLL	Island	Body;Body	0,02	0,22	-0,20	0,095
2	39876715	cg06149733		Open sea		0,39	0,97	-0,58	0,064
2	39888273	cg25161170		Open sea		0,42	0,94	-0,52	0,064
2	45882221	cg21746573	PRKCE	S_Shelf	Body	0,32	0,92	-0,60	0,083
2	46564242	cg12608132	EPAS1	Open sea	Body	0,40	0,89	-0,49	0,064
2	46689610	cg13775088		Open sea		0,41	0,81	-0,40	0,083
2	47257584	cg22321808	TTC7A	Open sea	Body	0,44	0,85	-0,41	0,083
2	47743741	cg11691189		Open sea		0,27	0,87	-0,60	0,064
2	56150478	cg05385513	EFEMP1;EFEMP1;EFEMP1	Island	TSS200;5'UTR;5'UTR	0,34	0,85	-0,51	0,064
2	58853779	cg18869372		Open sea		0,39	0,87	-0,48	0,064

2	60753602	cg08426369	BCL11A;BCL11A;BCL11A	Open sea	Body;Body;Body	0,71	0,92	-0,20	0,064
2	62638371	cg08388802		Open sea		0,30	0,92	-0,61	0,064
2	70311984	cg00752969		N_Shore		0,23	0,86	-0,62	0,064
2	71753329	cg23280296	DYSF;DYSF;DYSF;DYSF;DYSF;DYSF;DYSF; DYSF;DYSF;DYSF;DYSF;DYSF;DYSF;DYSF	Open sea	Body;Body;Body;Body;Body;Bo dy;Body;Body;Body;Body;Body; Body;Body;Body	0,49	0,91	-0,42	0,083
2	97008030	cg03147185	NCAPH	Open sea	Body	0,18	0,71	-0,53	0,064
2	97201196	cg06496010	ARID5A	N_Shore	TSS1500	0,48	0,91	-0,42	0,083
2	101766314	cg02050985	TBC1D8	N_Shore	Body	0,45	0,90	-0,45	0,083
2	109648931	cg02286506		S_Shore		0,05	0,47	-0,42	0,064
2	109649281	cg07338715		S_Shore		0,16	0,83	-0,67	0,064
2	111980326	cg01183586		N_Shore		0,32	0,83	-0,51	0,083
2	121090150	cg20462191		Open sea		0,37	0,94	-0,57	0,064
2	121651050	cg18843856	GLI2	Open sea	Body	0,24	0,87	-0,62	0,064
2	129543148	cg16353174		Open sea		0,35	0,91	-0,56	0,064
2	131674361	cg10900202	ARHGEF4;ARHGEF4;ARHGEF4;ARHGEF4	S_Shore	5'UTR;1stExon;1stExon;5'UTR	0,72	0,94	-0,21	0,083
2	135970350	cg11949175	ZRANB3	Open sea	Body	0,72	0,97	-0,25	0,064
2	141755389	cg04528116	LRP1B	Open sea	Body	0,28	0,93	-0,65	0,064
2	145230271	cg19795996	ZEB2;ZEB2	Open sea	Body;Body	0,37	0,91	-0,54	0,064
2	148602075	cg06120425	ACVR2A	Island	TSS1500	0,02	0,26	-0,24	0,064
2	166563180	cg00396910		Open sea		0,43	0,89	-0,47	0,083
2	169025892	cg06754557	STK39	Open sea	Body	0,22	0,91	-0,69	0,083
2	171627280	cg24738387		Island		0,00	0,35	-0,35	0,064
2	173685275	cg09459581	RAPGEF4;RAPGEF4	Open sea	Body;TSS1500	0,34	0,89	-0,54	0,064
2	174014462	cg24218626	ZAK;ZAK	Open sea	Body;Body	0,39	0,92	-0,53	0,064
2	175581955	cg27337902		N_Shelf		0,16	0,74	-0,59	0,064
2	183409471	cg27492725		Open sea		0,42	0,87	-0,45	0,064
2	200716738	cg17379405		S_Shore		0,54	0,95	-0,41	0,072
2	201630341	cg17836014		Open sea		0,32	0,86	-0,54	0,064
2	201730594	cg16098332	CLK1;CLK1;CLK1;CLK1	S_Shore	TSS1500;TSS1500;TSS1500;TSS1 500	0,51	0,81	-0,30	0,064
2	202124040	cg23817555	CASP8;CASP8;CASP8;CASP8;CASP8;CASP 8	Open sea	5'UTR;Body;5'UTR;5'UTR;TSS15 00;5'UTR	0,49	0,81	-0,32	0,064
2	204732687	cg05074138	CTLA4;CTLA4	Open sea	1stExon;1stExon	0,26	0,92	-0,66	0,064
2	207395846	cg04371413	ADAM23	Open sea	Body	0,44	0,89	-0,45	0,083
2	218896725	cg24541021		N_Shore		0,43	0,88	-0,46	0,083
2	220072753	cg17109049	ZFAND2B	S_Shore	Body	0,25	0,85	-0,59	0,064
2	227659406	cg05263838	IRS1	N_Shelf	3'UTR	0,42	0,90	-0,48	0,064
2	228881614	cg11222933	SPHKAP;SPHKAP	Open sea	Body;Body	0,57	0,97	-0,40	0,064
2	233749442	cg20388707	NGEF;NGEF	Open sea	Body;Body	0,41	0,95	-0,54	0,072
2	233749736	cg21728844	NGEF;NGEF	Open sea	Body;Body	0,68	0,98	-0,30	0,083
2	233749749	cg06829186	NGEF;NGEF	Open sea	Body;Body	0,53	0,90	-0,38	0,064

2	233749813	cg03936315	NGEF;NGEF	Open sea	Body;Body	0,53	0,92	-0,40	0,083
2	234296642	cg02442900	DGKD;DGKD	Open sea	Body;TSS200	0,20	0,85	-0,64	0,083
2	234296834	cg08436419	DGKD;DGKD;DGKD	Open sea	Body;5'UTR;1stExon	0,29	0,95	-0,66	0,064
2	235902088	cg13530377	SH3BP4	Open sea	5'UTR	0,23	0,67	-0,44	0,083
2	238362492	cg19839281		Open sea		0,38	0,81	-0,43	0,064
2	238652618	cg07558690	LRRFIP1;LRRFIP1;LRRFIP1;LRRFIP1;LRRFIP1	Open sea	Body;Body;Body;Body;Body	0,40	0,86	-0,46	0,064
3	9944537	cg05253480	IL17RE;IL17RE;IL17RE;IL17RE;IL17RE	Open sea	1stExon;5'UTR;1stExon;5'UTR;5'UTR	0,28	0,83	-0,54	0,064
3	11632974	cg00691123	VGLL4;VGLL4	Open sea	Body;Body	0,45	0,90	-0,45	0,064
3	18404925	cg02616489	SATB1;SATB1	Open sea	Body;Body	0,45	0,94	-0,49	0,064
3	24266783	cg01536744	THRB;THRB;THRB	Open sea	Body;Body;Body	0,62	0,91	-0,29	0,064
3	27771766	cg00810956		Island		0,07	0,47	-0,39	0,064
3	34884326	cg25707745		Open sea		0,36	0,90	-0,54	0,064
3	37814797	cg14928452	ITGA9	Open sea	Body	0,54	0,94	-0,41	0,064
3	43914187	cg05383958		Open sea		0,37	0,84	-0,47	0,083
3	46531037	cg11798489		Open sea		0,29	0,85	-0,56	0,083
3	47052636	cg00808403	LOC100129354	S_Shore	TSS1500	0,24	0,91	-0,67	0,064
3	47891136	cg20173193	DHX30;DHX30	Island	Body;Body	0,37	0,79	-0,42	0,083
3	49754491	cg02943194	AMIGO3;AMIGO3;RNF123	N_Shore	3'UTR;1stExon;Body	0,54	0,94	-0,40	0,064
3	53764604	cg03562531	CACNA1D;CACNA1D;CACNA1D	Open sea	Body;Body;Body	0,26	0,88	-0,62	0,064
3	58370946	cg06512815	PXK	Open sea	Body	0,35	0,93	-0,58	0,064
3	61623299	cg11934688	PTPRG	Open sea	Body	0,28	0,92	-0,64	0,064
3	73776626	cg23170981		Open sea		0,38	0,90	-0,52	0,064
3	102775941	cg15114431		Open sea		0,45	0,95	-0,49	0,064
3	105510465	cg04002063	CBLB	Open sea	Body	0,40	0,93	-0,53	0,064
3	114790596	cg07317983	ZBTB20;ZBTB20	Open sea	5'UTR;TSS1500	0,31	0,90	-0,59	0,064
3	129290078	cg04072910	PLXND1	Open sea	Body	0,53	0,90	-0,37	0,072
3	149954846	cg03633574		Open sea		0,46	0,89	-0,42	0,083
3	155422103	cg26690511	PLCH1	Open sea	TSS200	0,22	0,87	-0,65	0,083
3	170141005	cg09389280	CLDN11	S_Shelf	Body	0,49	0,87	-0,38	0,064
3	184971699	cg03414569	EHHADH;EHHADH;EHHADH	Island	5'UTR;Body;1stExon	0,04	0,38	-0,33	0,064
3	185300576	cg22691524		N_Shelf		0,35	0,82	-0,46	0,064
3	185348303	cg25634041	SEN2	Open sea	3'UTR	0,26	0,88	-0,62	0,064
3	186781783	cg22593953	ST6GAL1;ST6GAL1;ST6GAL1	Open sea	Body;Body;Body	0,53	0,95	-0,42	0,083
3	188888497	cg14768087	TPRG1	Open sea	TSS1500	0,74	0,94	-0,20	0,083
3	194018158	cg16924010		S_Shelf		0,31	0,04	0,27	0,064
3	194876491	cg17783135	C3orf21	Open sea	Body	0,62	0,98	-0,36	0,064
3	195310936	cg15231202	APOD;APOD	Open sea	1stExon;5'UTR	0,89	0,43	0,46	0,064
3	197094595	cg18149745		Open sea		0,26	0,85	-0,59	0,064
4	619162	cg06648812	PDE6B;PDE6B	N_Shore	TSS200;TSS200	0,30	0,73	-0,43	0,083
4	619314	cg04926732	PDE6B;PDE6B	N_Shore	TSS200;TSS200	0,31	0,80	-0,49	0,064
4	851793	cg24903637	GAK	Open sea	Body	0,42	0,87	-0,46	0,064

4	851935	cg24780007	GAK	Open sea	Body	0,59	0,97	-0,38	0,064
4	852022	cg17385318	GAK	Open sea	Body	0,53	0,92	-0,39	0,064
4	852280	cg18101784	GAK	Open sea	Body	0,77	0,98	-0,21	0,064
4	852566	cg04967009	GAK	Open sea	Body	0,64	0,98	-0,33	0,064
4	1032855	cg04231701		S_Shelf		0,35	0,90	-0,54	0,064
4	1239119	cg04642105	CTBP1;CTBP1	N_Shelf	Body;5'UTR	0,44	0,95	-0,52	0,064
4	1353919	cg09807315	KIAA1530	Open sea	Body	0,64	0,91	-0,27	0,064
4	1642054	cg09821936	FAM53A	N_Shelf	3'UTR	0,35	0,91	-0,56	0,064
4	1642257	cg15763121	FAM53A	N_Shelf	3'UTR	0,44	0,89	-0,45	0,064
4	1643073	cg16885470	FAM53A	N_Shelf	Body	0,69	0,91	-0,22	0,095
4	1798209	cg08145949	FGFR3;FGFR3;FGFR3	N_Shore	Body;Body;Body	0,53	0,81	-0,28	0,083
4	2307998	cg06704631	ZFYVE28	S_Shore	Body	0,23	0,83	-0,59	0,064
4	3288876	cg03257255		Open sea		0,46	0,95	-0,48	0,064
4	4431546	cg13003883	STX18	Open sea	Body	0,45	0,97	-0,52	0,064
4	5841630	cg05737153	CRMP1;CRMP1	Open sea	Body;Body	0,63	0,95	-0,32	0,064
4	8206575	cg18966920	SH3TC1	Open sea	5'UTR	0,53	0,95	-0,42	0,064
4	8474290	cg06005199	C4orf23	Open sea	Body	0,30	0,96	-0,66	0,064
4	8477562	cg19673881	C4orf23	Open sea	Body	0,23	0,85	-0,61	0,064
4	8477793	cg08371947	C4orf23	Open sea	3'UTR	0,20	0,79	-0,59	0,083
4	8477915	cg22993937	C4orf23	Open sea	3'UTR	0,26	0,91	-0,65	0,064
4	8478146	cg02192528	C4orf23	Open sea	3'UTR	0,27	0,95	-0,68	0,083
4	22509445	cg16694489	GPR125	Open sea	Body	0,33	0,93	-0,61	0,064
4	24860210	cg11207652	CCDC149;CCDC149	Open sea	Body;Body	0,46	0,96	-0,49	0,064
4	24914441	cg01899437	CCDC149;CCDC149	Open sea	1stExon;5'UTR	0,01	0,56	-0,55	0,064
4	24914750	cg21108841	CCDC149;CCDC149	Open sea	TSS200;5'UTR	0,01	0,46	-0,45	0,083
4	41218683	cg01473942		Island		0,08	0,53	-0,45	0,083
4	42764094	cg12367833		Open sea		0,28	0,87	-0,59	0,064
4	79732488	cg04334979	BMP2K;BMP2K	Open sea	Body;Body	0,77	0,98	-0,20	0,064
4	87770586	cg17691545	SLC10A6	Open sea	TSS200	0,51	0,97	-0,45	0,064
4	87770744	cg15881238	SLC10A6	Open sea	TSS1500	0,34	0,92	-0,58	0,064
4	87770782	cg13119182	SLC10A6	Open sea	TSS1500	0,34	0,91	-0,57	0,064
4	109030040	cg19296305	LEF1;LEF1;LEF1;LEF1	Open sea	Body;Body;Body;Body	0,28	0,88	-0,59	0,083
4	109057004	cg03041109	LEF1;LEF1;LEF1;LEF1	Open sea	Body;Body;Body;Body	0,28	0,82	-0,54	0,083
4	124430271	cg22931455		S_Shelf		0,46	0,97	-0,52	0,072
4	139482902	cg05422394		Island		0,47	0,96	-0,49	0,064
4	139482968	cg19315697		Island		0,64	0,96	-0,32	0,083
4	148947436	cg01782668	ARHGAP10	Open sea	Body	0,51	0,95	-0,45	0,064
4	152931291	cg05860371		Open sea		0,26	0,92	-0,66	0,064
4	156297616	cg17780956	MAP9	Island	5'UTR	0,01	0,42	-0,41	0,095
4	156298050	cg08015755	MAP9;MAP9	Island	5'UTR;1stExon	0,03	0,29	-0,26	0,083
4	159850063	cg19897908	C4orf45	Open sea	Body	0,54	0,97	-0,42	0,083
4	160078666	cg21971972		Open sea		0,61	0,95	-0,34	0,083
4	177045356	cg25249713	WDR17;WDR17	Open sea	Body;Body	0,53	0,93	-0,40	0,064

4	184403068	cg15720498		N_Shore		0,68	0,89	-0,21	0,064
4	190944304	cg09628649		Island		0,18	0,67	-0,49	0,083
5	500521	cg21620524	SLC9A3	Island	Body	0,46	0,83	-0,37	0,064
5	645207	cg07718713	CEP72	N_Shore	Body	0,34	0,91	-0,58	0,064
5	1020109	cg12192884	NKD2	Open sea	Body	0,47	0,89	-0,43	0,072
5	1118670	cg11887376		Open sea		0,40	0,90	-0,51	0,064
5	1201629	cg04309194	SLC6A19	Island	TSS200	0,38	0,88	-0,50	0,064
5	1201639	cg21492882	SLC6A19	Island	TSS200	0,31	0,87	-0,56	0,064
5	1201691	cg02389859	SLC6A19	Island	TSS200	0,25	0,86	-0,61	0,064
5	1201713	cg17650028	SLC6A19;SLC6A19	Island	5'UTR;1stExon	0,33	0,81	-0,48	0,064
5	1201978	cg02685680	SLC6A19	Island	Body	0,51	0,91	-0,40	0,083
5	1202449	cg24041118	SLC6A19	S_Shore	Body	0,39	0,92	-0,53	0,064
5	1484314	cg16194544	LPCAT1	S_Shore	Body	0,32	0,85	-0,53	0,064
5	1510684	cg11960719	LPCAT1	Open sea	Body	0,61	0,91	-0,30	0,083
5	1794994	cg21885134		Open sea		0,54	0,82	-0,28	0,083
5	1948995	cg19575753		Island		0,47	0,94	-0,47	0,083
5	1949198	cg00094735		Island		0,49	0,91	-0,42	0,064
5	4571101	cg17863578		Open sea		0,60	0,94	-0,34	0,083
5	32018601	cg13039251	PDZD2	Open sea	Body	0,71	0,97	-0,26	0,083
5	35230343	cg13880228	PRLR	Open sea	5'UTR	0,02	0,31	-0,29	0,064
5	53079912	cg05520712		Open sea		0,68	0,94	-0,25	0,064
5	53811272	cg11516463		N_Shelf		0,37	0,95	-0,58	0,064
5	65124049	cg20716653		Open sea		0,47	0,91	-0,44	0,064
5	74344416	cg13971504		N_Shelf		0,43	0,92	-0,50	0,064
5	76464212	cg10616795		Open sea		0,34	0,93	-0,59	0,064
5	79047136	cg22843111	CMYA5	Open sea	Body	0,37	0,91	-0,54	0,083
5	95976631	cg21541565		Open sea		0,42	0,93	-0,51	0,095
5	126220247	cg13963033	MARCH3	Open sea	Body	0,32	0,86	-0,55	0,083
5	134672054	cg03219838	H2AFY;H2AFY;H2AFY;H2AFY	Open sea	Body;Body;Body;Body	0,47	0,83	-0,36	0,072
5	134783075	cg13349425	C5orf20	Open sea	TSS200	0,19	0,78	-0,60	0,064
5	134783186	cg14722162	C5orf20	Open sea	TSS200	0,45	0,94	-0,49	0,072
5	134783229	cg26611500	C5orf20	Open sea	TSS200	0,61	0,96	-0,35	0,072
5	134783273	cg02379427	C5orf20	Open sea	TSS1500	0,56	0,93	-0,37	0,083
5	134784604	cg26353903	TIFAB	Open sea	3'UTR	0,34	0,89	-0,54	0,083
5	134785391	cg16339915	TIFAB	Open sea	Body	0,24	0,85	-0,62	0,083
5	134786942	cg16176675	TIFAB	Open sea	5'UTR	0,23	0,89	-0,66	0,064
5	134787465	cg03541914	TIFAB	Open sea	5'UTR	0,31	0,92	-0,60	0,083
5	136835107	cg12420858	SPOCK1	Island	TSS200	0,01	0,31	-0,30	0,083
5	137072746	cg26903996	KLHL3	Open sea	TSS1500	0,26	0,92	-0,66	0,095
5	138605898	cg10795552		N_Shelf		0,28	0,89	-0,61	0,083
5	138617804	cg17668981	MATR3	Open sea	5'UTR	0,67	0,93	-0,26	0,064
5	138733726	cg10202436	SPATA24	S_Shelf	Body	0,32	0,88	-0,56	0,064

5	141993376	cg17412464	FGF1;FGF1;FGF1;FGF1;FGF1;FGF1;FGF1;FGF1	Open sea	Body;Body;Body;Body;Body;Body;Body;Body;Body	0,57	0,97	-0,39	0,064
5	142740314	cg18484679	NR3C1;NR3C1;NR3C1;NR3C1;NR3C1;NR3C1;NR3C1;NR3C1	Open sea	Body;Body;Body;Body;Body;Body;Body;Body	0,22	0,78	-0,56	0,064
5	148650899	cg04979599	AFAP1L1;AFAP1L1	N_Shore	TSS1500;TSS1500	0,34	0,93	-0,60	0,064
5	148803404	cg18055067	LOC728264	Open sea	Body	0,73	0,96	-0,24	0,064
5	154892698	cg19748027		Open sea		0,57	0,25	0,32	0,095
5	158239759	cg18370682	EBF1	Open sea	Body	0,57	0,09	0,48	0,083
5	168245286	cg18068637	SLIT3	Open sea	Body	0,58	0,94	-0,36	0,064
5	172755413	cg18335607	STC2;STC2	Island	5'UTR;1stExon	0,05	0,48	-0,43	0,083
5	175955092	cg06850513	RNF44	Open sea	3'UTR	0,73	0,98	-0,25	0,064
5	175955105	cg25338204	RNF44	Open sea	3'UTR	0,63	0,92	-0,29	0,064
5	177374926	cg12571459		S_Shelf		0,36	0,93	-0,57	0,083
5	177853574	cg18009093	COL23A1	Open sea	Body	0,71	0,94	-0,23	0,083
5	178014589	cg01831657	COL23A1	N_Shore	Body	0,20	0,89	-0,69	0,083
5	179104144	cg02050202		N_Shore		0,48	0,89	-0,41	0,064
6	2110875	cg18551822	GMDS	Open sea	Body	0,42	0,91	-0,50	0,083
6	2375895	cg05612654		Open sea		0,71	0,96	-0,25	0,083
6	3089496	cg05798126	RIPK1	N_Shore	Body	0,32	0,94	-0,62	0,064
6	3750475	cg02037794	C6orf145	N_Shore	Body	0,59	0,87	-0,28	0,064
6	11710597	cg16533359		Open sea		0,16	0,75	-0,59	0,064
6	21200368	cg07905141	CDKAL1	Open sea	Body	0,29	0,87	-0,58	0,064
6	21832051	cg10126181	FLJ22536	Open sea	Body	0,12	0,71	-0,59	0,064
6	25369563	cg11784243	LRRC16A	Open sea	Body	0,36	0,94	-0,57	0,064
6	30520405	cg01079840	GNL1	N_Shelf	Body	0,43	0,85	-0,42	0,064
6	30720080	cg06126421		Open sea		0,24	0,86	-0,62	0,064
6	30720209	cg15342087		Open sea		0,29	0,88	-0,59	0,083
6	31105872	cg03034365	PSORS1C1;PSORS1C2	Open sea	Body;Body	0,40	0,86	-0,46	0,083
6	31106045	cg13671374	PSORS1C1;PSORS1C2	Open sea	Body;Body	0,38	0,85	-0,47	0,064
6	31597831	cg23426633	BAT2	N_Shore	Body	0,67	0,93	-0,26	0,083
6	31636980	cg23090283	CSNK2B	S_Shelf	Body	0,61	0,91	-0,30	0,072
6	32013974	cg13739666	TNXB;TNXB	Open sea	TSS200;Body	0,53	0,88	-0,35	0,064
6	32014096	cg25522795	TNXB;TNXB	Open sea	TSS200;Body	0,58	0,93	-0,35	0,064
6	32014100	cg18178844	TNXB;TNXB	Open sea	TSS200;Body	0,51	0,91	-0,40	0,064
6	32085092	cg18278744	ATF6B;ATF6B	Open sea	Body;Body	0,45	0,91	-0,46	0,064
6	32085328	cg12800270	ATF6B;ATF6B	Open sea	Body;Body	0,25	0,89	-0,63	0,083
6	32085535	cg07507218	ATF6B;ATF6B	Open sea	Body;Body	0,28	0,89	-0,61	0,064
6	32180641	cg20440187	NOTCH4	Open sea	Body	0,45	0,84	-0,38	0,083
6	32337906	cg21293943	C6orf10	Open sea	Body	0,76	0,97	-0,21	0,064
6	33265016	cg21241411	RGL2;RGL2	N_Shore	Body;Body	0,49	0,85	-0,36	0,083
6	33288964	cg14199833	DAXX;DAXX;DAXX;DAXX	Island	Body;Body;Body;Body	0,77	0,99	-0,22	0,064
6	33288995	cg00117005	DAXX;DAXX;DAXX;DAXX	Island	Body;Body;Body;Body	0,69	0,97	-0,28	0,064
6	35309928	cg18204017	PPARD;PPARD	N_Shore	TSS1500;TSS1500	0,64	0,98	-0,33	0,064

6	39692744	cg07009823	KIF6	Island	Body	0,02	0,41	-0,39	0,064
6	39692861	cg16909109	KIF6	Island	Body	0,02	0,64	-0,62	0,064
6	39692938	cg26867890	KIF6	Island	Body	0,04	0,53	-0,49	0,083
6	39693159	cg10457563	KIF6;KIF6	S_Shore	1stExon;5'UTR	0,03	0,50	-0,47	0,064
6	39693228	cg18191162	KIF6	S_Shore	TSS200	0,03	0,44	-0,40	0,064
6	39693249	cg05643490	KIF6	S_Shore	TSS200	0,04	0,32	-0,28	0,064
6	39693357	cg07336230	KIF6	S_Shore	TSS200	0,01	0,49	-0,47	0,064
6	39693360	cg01138981	KIF6	S_Shore	TSS200	0,01	0,53	-0,52	0,064
6	39693366	cg26327118	KIF6	S_Shore	TSS200	0,02	0,34	-0,33	0,064
6	39759941	cg01499172	DAAM2	N_Shore	TSS1500	0,04	0,41	-0,37	0,064
6	39759955	cg14436871	DAAM2	N_Shore	TSS1500	0,03	0,26	-0,24	0,064
6	39759966	cg22174742	DAAM2	N_Shore	TSS1500	0,05	0,38	-0,33	0,083
6	39760092	cg03698948	DAAM2	Island	TSS1500	0,08	0,52	-0,44	0,064
6	112375206	cg26528298	WISP3;WISP3	Open sea	TSS200;TSS200	0,68	0,95	-0,27	0,064
6	112375333	cg10525372	WISP3;WISP3;WISP3	Open sea	TSS200;1stExon;5'UTR	0,27	0,92	-0,64	0,064
6	112375870	cg12557114	WISP3;WISP3	Open sea	Body;Body	0,78	0,99	-0,20	0,083
6	112537238	cg04204246	LAMA4;LAMA4;LAMA4	Open sea	Body;Body;Body	0,45	0,96	-0,51	0,064
6	119479475	cg22254606		Open sea		0,71	0,94	-0,24	0,072
6	119862526	cg13982037		Open sea		0,32	0,93	-0,61	0,083
6	128799726	cg11798873	PTPRK;PTPRK	Open sea	Body;Body	0,35	0,85	-0,51	0,064
6	143206075	cg06770429	HIVEP2	Open sea	5'UTR	0,07	0,63	-0,56	0,083
6	158706047	cg16740157		Open sea		0,76	0,97	-0,21	0,064
6	158734085	cg12601856	TULP4;TULP4;TULP4;TULP4	Open sea	1stExon;5'UTR;5'UTR;1stExon	0,47	0,94	-0,47	0,064
6	158734097	cg18978680	TULP4;TULP4;TULP4;TULP4	Open sea	1stExon;5'UTR;5'UTR;1stExon	0,48	0,95	-0,47	0,064
6	158734293	cg19987965	TULP4;TULP4;TULP4;TULP4	Open sea	1stExon;5'UTR;5'UTR;1stExon	0,71	0,97	-0,25	0,064
6	158734300	cg07165851	TULP4;TULP4;TULP4;TULP4	Open sea	1stExon;5'UTR;5'UTR;1stExon	0,53	0,94	-0,42	0,064
6	158734420	cg23816737	TULP4;TULP4;TULP4;TULP4	Open sea	1stExon;5'UTR;5'UTR;1stExon	0,48	0,94	-0,46	0,064
6	159457714	cg19885651	TAGAP;TAGAP	Open sea	Body;Body	0,56	0,91	-0,36	0,083
6	168352607	cg02914962	MLLT4;MLLT4;MLLT4	Island	Body;Body;Body	0,96	0,47	0,50	0,064
7	85832	cg20000107		S_Shelf		0,27	0,93	-0,66	0,064
7	162457	cg15920750		S_Shelf		0,37	0,88	-0,51	0,083
7	162691	cg07314530		S_Shelf		0,38	0,92	-0,54	0,064
7	162838	cg20485191		S_Shelf		0,39	0,93	-0,54	0,064
7	919584	cg07607077	C7orf20	S_Shore	Body	0,51	0,94	-0,43	0,064
7	1039620	cg13575205	C7orf50;C7orf50;C7orf50	N_Shore	Body;Body;Body	0,47	0,83	-0,37	0,083
7	1858916	cg22963979	MAD1L1;MAD1L1;MAD1L1	Open sea	Body;Body;Body	0,32	0,09	0,24	0,083
7	2647927	cg05223392	IQCE;IQCE	S_Shelf	Body;Body	0,39	0,88	-0,49	0,064
7	5736195	cg02543993	RNF216;RNF216	Open sea	Body;Body	0,63	0,92	-0,29	0,064

7	6204863	cg13562102	CYTH3	N_Shore	Body	0,55	0,98	-0,42	0,083
7	6205671	cg24921319	CYTH3	Island	Body	0,68	0,97	-0,29	0,064
7	6435090	cg22104063	RAC1;RAC1	Open sea	Body;Body	0,62	0,96	-0,34	0,064
7	6651748	cg21408734		N_Shelf		0,44	0,72	-0,28	0,064
7	23514478	cg13080716		S_Shore		0,40	0,05	0,36	0,064
7	27556963	cg17681079		Open sea		0,57	0,94	-0,37	0,083
7	28221667	cg04266607	JAZF1	S_Shore	TSS1500	0,60	0,93	-0,33	0,064
7	29186231	cg15375469	CPVL;CPVL	Open sea	TSS200;TSS200	0,03	0,31	-0,29	0,064
7	29237766	cg20304988	CHN2	S_Shelf	Body	0,38	0,94	-0,56	0,064
7	29847991	cg08792423		S_Shore		0,21	0,92	-0,71	0,064
7	43153223	cg17045801	HECW1	Island	5'UTR	0,03	0,43	-0,40	0,064
7	47623878	cg11834170		S_Shelf		0,39	0,93	-0,53	0,064
7	50779714	cg12358041	GRB10;GRB10;GRB10	Open sea	5'UTR;Body;Body	0,30	0,88	-0,58	0,064
7	50857635	cg05343808	GRB10	N_Shelf	5'UTR	0,36	0,87	-0,51	0,064
7	56147257	cg19956914	SUMF2;SUMF2;SUMF2;SUMF2;SUMF2	Open sea	Body;Body;Body;Body;Body	0,22	0,76	-0,54	0,064
7	56160737	cg26422861	PHKG1	Open sea	TSS200	0,50	0,85	-0,35	0,083
7	56160770	cg08370546	PHKG1	Open sea	TSS200	0,51	0,88	-0,37	0,083
7	65617362	cg19072291	CRCP;CRCP;CRCP;CRCP;CRCP	Open sea	3'UTR;3'UTR;Body;3'UTR;3'UTR	0,47	0,92	-0,46	0,064
7	69580970	cg26764358	AUTS2;AUTS2;AUTS2	Open sea	Body;Body;Body	0,75	0,97	-0,22	0,083
7	73897230	cg18325315	GTF2IRD1;GTF2IRD1	S_Shelf	5'UTR;5'UTR	0,47	0,94	-0,47	0,083
7	75260791	cg00361176	HIP1	Open sea	Body	0,27	0,87	-0,60	0,064
7	100483871	cg16645828	SRRT;SRRT;SRRT;SRRT	N_Shore	Body;Body;Body;Body	0,52	0,95	-0,44	0,083
7	105134734	cg08392746	PUS7	Open sea	Body	0,58	0,96	-0,38	0,064
7	128550967	cg07046546	KCP;KCP	S_Shore	TSS200;TSS200	0,43	0,87	-0,45	0,083
7	128551065	cg11461236	KCP;KCP	S_Shore	TSS1500;TSS1500	0,59	0,91	-0,32	0,064
7	135198360	cg09932730		S_Shelf		0,35	0,78	-0,43	0,064
7	137531791	cg22428147	DGKI	Island	TSS200	0,07	0,51	-0,44	0,064
7	138560796	cg22417613	KIAA1549;KIAA1549	Open sea	Body;Body	0,14	0,53	-0,40	0,083
7	140251789	cg08319291	DENND2A	Open sea	Body	0,32	0,87	-0,55	0,064
7	148936221	cg11112729	ZNF212	N_Shore	TSS1500	0,73	0,97	-0,23	0,064
7	151169370	cg20333869	RHEB	Open sea	Body	0,46	0,95	-0,50	0,064
7	151191667	cg18237616	RHEB	Open sea	Body	0,76	0,97	-0,21	0,064
7	157317020	cg14981549		N_Shore		0,31	0,88	-0,56	0,083
7	157320135	cg19377014		N_Shore		0,16	0,60	-0,44	0,064
7	158770704	cg26317888		S_Shelf		0,29	0,79	-0,50	0,064
7	158771848	cg14022542		Open sea		0,31	0,90	-0,59	0,064
7	158855141	cg12906589	VIPR2	N_Shore	Body	0,66	0,93	-0,26	0,064
7	158857749	cg16215071	VIPR2	S_Shore	Body	0,53	0,95	-0,42	0,064
8	876130	cg13553662		Open sea		0,95	0,24	0,70	0,064
8	17580950	cg22348298	MTUS1;MTUS1;MTUS1;MTUS1	Open sea	TSS1500;Body;Body;TSS1500	0,51	0,87	-0,36	0,083
8	25902980	cg22524065	EBF2	Island	TSS1500	0,01	0,31	-0,30	0,064

8	25903209	cg00424572	EBF2	Island	TSS1500	0,04	0,39	-0,34	0,083
8	26371569	cg11277148	PNMA2	Island	TSS200	0,04	0,32	-0,29	0,064
8	28232176	cg26101942	ZNF395	Open sea	5'UTR	0,53	0,97	-0,43	0,083
8	28727543	cg26890195	INTS9;INTS9;INTS9	Open sea	Body;Body;Body	0,63	0,95	-0,32	0,064
8	41127218	cg25927227	SFRP1	Open sea	Body	0,22	0,76	-0,53	0,064
8	41134425	cg07296835	SFRP1	Open sea	Body	0,65	0,87	-0,22	0,064
8	41814854	cg02707799	MYST3;MYST3;MYST3	Open sea	Body;Body;Body	0,29	0,95	-0,66	0,064
8	76320144	cg02169338		Island		0,00	0,36	-0,35	0,083
8	80964918	cg19925215	TPD52;TPD52;TPD52	Open sea	Body;Body;Body	0,24	0,72	-0,48	0,064
8	103564136	cg25452299	ODF1	Open sea	1stExon	0,67	0,96	-0,30	0,064
8	105235715	cg01779771	RIMS2;RIMS2	Island	Body;Body	0,03	0,24	-0,20	0,064
8	105235978	cg25259711	RIMS2;RIMS2	Island	Body;Body	0,05	0,28	-0,23	0,064
8	105379392	cg23305365		N_Shore		0,59	0,93	-0,34	0,072
8	107672853	cg08924256	OXR1;OXR1	S_Shelf	Body;Body	0,44	0,89	-0,45	0,064
8	141985597	cg03268399	PTK2;PTK2	Open sea	5'UTR;Body	0,34	0,86	-0,52	0,064
8	143841610	cg11351841		Open sea		0,25	0,50	-0,25	0,083
8	144105210	cg16400320		N_Shore		0,62	0,91	-0,29	0,083
8	144582077	cg12688965	ZC3H3	Open sea	Body	0,55	0,97	-0,42	0,064
8	144600686	cg13191508	ZC3H3	N_Shore	Body	0,49	0,96	-0,47	0,083
9	36985761	cg03261800	PAX5	N_Shore	Body	0,13	0,72	-0,59	0,083
9	36999934	cg13695362	PAX5	N_Shelf	Body	0,54	0,92	-0,38	0,064
9	80462928	cg14111697	GNAQ	Open sea	Body	0,27	0,80	-0,53	0,064
9	88137984	cg00201468		Island		0,02	0,34	-0,32	0,064
9	95986383	cg13707760	WNK2	Open sea	Body	0,20	0,74	-0,54	0,064
9	116166950	cg21246479		S_Shelf		0,46	0,93	-0,48	0,064
9	117157157	cg02619205	AKNA	N_Shelf	TSS1500	0,14	0,75	-0,61	0,072
9	130854713	cg14554539	SLC25A25;SLC25A25	Open sea	Body;Body	0,49	0,94	-0,45	0,064
9	135279160	cg21207320	TTF1	N_Shelf	5'UTR	0,62	0,94	-0,32	0,064
9	139299357	cg14108380	SDCCAG3;SDCCAG3;SDCCAG3	N_Shelf	Body;Body;Body	0,25	0,91	-0,66	0,083
9	139796499	cg14003265	TRAF2	Open sea	Body	0,41	0,82	-0,41	0,083
9	140611316	cg14156842	EHMT1;EHMT1	N_Shore	Body;Body	0,63	0,96	-0,32	0,064
10	521758	cg02531768	DIP2C	N_Shelf	Body	0,32	0,84	-0,52	0,064
10	521787	cg06061092	DIP2C	N_Shelf	Body	0,41	0,93	-0,53	0,064
10	521830	cg04328729	DIP2C	N_Shelf	Body	0,21	0,83	-0,62	0,064
10	1256339	cg18093771	ADARB2	S_Shelf	Body	0,53	0,91	-0,39	0,083
10	1402076	cg08978835	ADARB2	N_Shelf	Body	0,63	0,96	-0,33	0,064
10	8373416	cg27470208		Open sea		0,34	0,94	-0,59	0,064
10	8373522	cg04640972		Open sea		0,09	0,66	-0,57	0,064
10	8373659	cg09234252		Open sea		0,34	0,91	-0,57	0,083
10	11248175	cg02783838	CUGBP2;CUGBP2;CUGBP2;CUGBP2	Open sea	Body;Body;Body;Body	0,30	0,87	-0,57	0,064
10	14993673	cg05657208	DCLRE1C;DCLRE1C;DCLRE1C;DCLRE1C	N_Shelf	Body;5'UTR;5'UTR;5'UTR	0,82	0,22	0,61	0,083
10	26222922	cg15081351	MYO3A	Island	TSS200	0,03	0,54	-0,51	0,064

10	31604348	cg09968147		N_Shelf		0,42	0,93	-0,51	0,064
10	35636096	cg11730023	CCNY;CCNY	Open sea	Body;5'UTR	0,27	0,87	-0,60	0,064
10	35703322	cg16832648	CCNY;CCNY	Open sea	Body;5'UTR	0,42	0,88	-0,46	0,064
10	44394566	cg08247887		Open sea		0,52	0,85	-0,34	0,083
10	44806558	cg03516452		Island		0,10	0,43	-0,33	0,064
10	49460154	cg16379205	FRMPD2;FRMPD2	Open sea	Body;Body	0,18	0,70	-0,52	0,064
10	49688893	cg21355487	ARHGAP22	S_Shore	Body	0,18	0,74	-0,56	0,083
10	63629487	cg25403283		Open sea		0,26	0,93	-0,66	0,083
10	65846243	cg12044919		Open sea		0,26	0,88	-0,62	0,064
10	71813286	cg03349922	H2AFY2	Island	5'UTR	0,05	0,43	-0,38	0,064
10	71891123	cg24659758	AIFM2	N_Shore	5'UTR	0,37	0,89	-0,52	0,064
10	81664567	cg00978912		Island		0,02	0,26	-0,24	0,064
10	81915574	cg10664971	ANXA11;ANXA11;ANXA11	Open sea	3'UTR;3'UTR;3'UTR	0,53	0,96	-0,44	0,083
10	82173535	cg26773567	C10orf58;C10orf58	Open sea	TSS200;5'UTR	0,38	0,93	-0,56	0,064
10	88403555	cg15514393		Open sea		0,50	0,93	-0,43	0,083
10	88534973	cg06941037	BMPR1A	Open sea	5'UTR	0,74	0,31	0,43	0,064
10	98156120	cg11613902	TLL2	Open sea	Body	0,22	0,80	-0,58	0,064
10	99331808	cg10343327	ANKRD2;ANKRD2	S_Shore	TSS1500;TSS1500	0,60	0,95	-0,35	0,064
10	100993108	cg22823644	HPSE2;HPSE2;HPSE2;HPSE2	N_Shore	Body;Body;Body;Body	0,05	0,48	-0,43	0,083
10	102825226	cg10369116	KAZALD1	N_Shore	3'UTR	0,44	0,82	-0,38	0,064
10	108924366	cg24403845	SORCS1;SORCS1	Island	TSS200;TSS200	0,01	0,49	-0,49	0,064
10	114823094	cg00831931	TCF7L2;TCF7L2;TCF7L2;TCF7L2;TCF7L2; TCF7L2	Open sea	Body;Body;Body;Body;Body;Bo dy	0,69	0,93	-0,23	0,064
10	115015742	cg18683103		Open sea		0,58	0,94	-0,36	0,083
10	115424103	cg04712892	NRAP;NRAP	Open sea	TSS1500;TSS1500	0,62	0,93	-0,31	0,083
10	121575345	cg05643988	INPP5F	N_Shelf	Body	0,72	0,97	-0,24	0,064
10	125805783	cg26306435	CHST15;CHST15	S_Shore	1stExon;5'UTR	0,56	0,95	-0,39	0,064
10	134362170	cg19137806	INPP5A	S_Shore	Body	0,80	0,23	0,57	0,083
10	135436212	cg00880918		Island		0,08	0,41	-0,33	0,083
11	442955	cg19691177	ANO9	Open sea	TSS1500	0,24	0,88	-0,63	0,064
11	504930	cg20813589	RNH1;RNH1;RNH1;RNH1;RNH1;RNH1;R NH1;RNH1	N_Shore	5'UTR;5'UTR;5'UTR;5'UTR;5'UTR ;5'UTR;5'UTR;5'UTR	0,30	0,81	-0,51	0,064
11	504933	cg23927970	RNH1;RNH1;RNH1;RNH1;RNH1;RNH1;R NH1;RNH1	N_Shore	5'UTR;5'UTR;5'UTR;5'UTR;5'UTR ;5'UTR;5'UTR;5'UTR	0,29	0,78	-0,49	0,064
11	504937	cg23687466	RNH1;RNH1;RNH1;RNH1;RNH1;RNH1;R NH1;RNH1	N_Shore	5'UTR;5'UTR;5'UTR;5'UTR;5'UTR ;5'UTR;5'UTR;5'UTR	0,35	0,85	-0,50	0,064
11	660680	cg02877433	DEAF1	Island	Body	0,60	0,91	-0,32	0,064
11	856942	cg09631059	TSPAN4;TSPAN4;TSPAN4;TSPAN4;TSPA N4;TSPAN4;TSPAN4	N_Shore	5'UTR;Body;Body;Body;Body;Bo dy;Body	0,21	0,85	-0,64	0,064
11	857033	cg22749642	TSPAN4;TSPAN4;TSPAN4;TSPAN4;TSPA N4;TSPAN4;TSPAN4	N_Shore	5'UTR;Body;Body;Body;Body;Bo dy;Body	0,31	0,87	-0,56	0,072
11	859670	cg24134897	TSPAN4;TSPAN4;TSPAN4;TSPAN4;TSPA N4;TSPAN4;TSPAN4	S_Shore	5'UTR;Body;Body;Body;Body;Bo dy;Body	0,44	0,94	-0,50	0,064

11	2595800	cg12223985	KCNQ1;KCNQ1	N_Shore	Body;Body	0,53	0,97	-0,44	0,064
11	8033848	cg08375396		Open sea		0,51	0,96	-0,45	0,064
11	8692821	cg08616663		Open sea		0,74	0,96	-0,22	0,083
11	8731033	cg12308279	ST5;ST5;ST5	Open sea	Body;Body;Body	0,27	0,88	-0,61	0,064
11	10715213	cg04968127	MRV11;MRV11;MRV11;MRV11;MRV11	Open sea	1stExon;5'UTR;1stExon;5'UTR;TSS200	0,33	0,77	-0,44	0,064
11	10715217	cg15283950	MRV11;MRV11;MRV11;MRV11;MRV11	Open sea	1stExon;5'UTR;1stExon;5'UTR;TSS200	0,33	0,79	-0,47	0,064
11	10715221	cg16014606	MRV11;MRV11;MRV11;MRV11;MRV11	Open sea	1stExon;5'UTR;1stExon;5'UTR;TSS200	0,33	0,88	-0,54	0,064
11	12010020	cg10364881	DKK3;DKK3;DKK3	Open sea	Body;Body;Body	0,47	0,93	-0,46	0,064
11	20046011	cg12859429	NAV2;NAV2;NAV2;NAV2	Open sea	Body;Body;Body;Body	0,41	0,85	-0,43	0,064
11	20631898	cg05572763	SLC6A5	Open sea	Body	0,14	0,35	-0,20	0,064
11	20690682	cg06873316	NELL1;NELL1	Island	TSS1500;TSS1500	0,01	0,37	-0,36	0,064
11	20691126	cg23861668	NELL1;NELL1;NELL1;NELL1	Island	5'UTR;5'UTR;1stExon;1stExon	0,01	0,42	-0,42	0,083
11	26291263	cg18970929		Open sea		0,58	0,90	-0,32	0,064
11	33913716	cg11822932	LMO2;LMO2	Open sea	1stExon;5'UTR	0,37	0,06	0,30	0,064
11	36119923	cg12152338	LDLRAD3	Open sea	Body	0,32	0,83	-0,50	0,064
11	45234273	cg06095065	PRDM11	Island	Body	0,28	0,68	-0,40	0,083
11	45234334	cg22373225	PRDM11	Island	Body	0,77	0,98	-0,21	0,064
11	46071833	cg04074945	PHF21A;PHF21A	Open sea	Body;Body	0,44	0,92	-0,47	0,064
11	59822727	cg14328641	MS4A3;MS4A3;MS4A3	Open sea	TSS1500;TSS1500;TSS1500	0,23	0,80	-0,57	0,064
11	59822765	cg08111960	MS4A3;MS4A3;MS4A3	Open sea	TSS1500;TSS1500;TSS1500	0,28	0,81	-0,53	0,064
11	63676370	cg08669010	MARK2;MARK2;MARK2;MARK2;MARK2	Island	Body;Body;Body;Body;Body	0,61	0,88	-0,27	0,064
11	65622347	cg04528382	CFL1	N_Shelf	3'UTR	0,31	0,78	-0,47	0,064
11	66082889	cg05478809	CD248	N_Shore	1stExon	0,43	0,93	-0,50	0,064
11	66083224	cg20367218	CD248	N_Shore	1stExon	0,45	0,96	-0,51	0,064
11	67387650	cg05233950		S_Shelf		0,31	0,95	-0,64	0,064
11	67914463	cg27606671		Open sea		0,44	0,84	-0,40	0,064
11	68142732	cg14083356	LRP5	Open sea	Body	0,59	0,93	-0,34	0,064
11	68167030	cg18935453	LRP5	Open sea	Body	0,26	0,91	-0,64	0,064
11	68517529	cg13052101	MTL5;MTL5	N_Shore	Body;Body	0,67	0,95	-0,28	0,064
11	68748461	cg02023548	MRGPRD	Open sea	TSS200	0,29	0,74	-0,45	0,064
11	69339188	cg12597472		Open sea		0,24	0,89	-0,65	0,064
11	69418071	cg02104112		Open sea		0,44	0,95	-0,50	0,064
11	73494570	cg22716292		S_Shelf		0,51	0,90	-0,39	0,064
11	74154543	cg07814661		Open sea		0,32	0,94	-0,62	0,064
11	93218074	cg06776644	C11orf75	Open sea	5'UTR	0,36	0,93	-0,57	0,064
11	93466913	cg00530918	SNORA8;SNORA18;MIR1304;SNORD5	Open sea	TSS1500;TSS200;Body;TSS1500	0,41	0,94	-0,53	0,083
11	110581872	cg24575245	ARHGAP20	Island	Body	0,01	0,35	-0,35	0,083

11	113558886	cg18231614	TMPRSS5	Open sea	3'UTR	0,50	0,92	-0,43	0,064
11	117695828	cg15929395	FXVD2;FXVD2;FXVD2	Open sea	Body;TSS1500;TSS1500	0,65	0,18	0,48	0,083
11	120044594	cg11534593		Open sea		0,24	0,88	-0,64	0,064
11	123309227	cg18159802		Open sea		0,26	0,66	-0,40	0,064
11	126215608	cg09694921	DCPS	Open sea	3'UTR	0,67	0,95	-0,27	0,064
11	129683974	cg08524015		N_Shore		0,67	0,93	-0,27	0,083
11	129793108	cg16983588	PRDM10;PRDM10;PRDM10;PRDM10	Open sea	Body;Body;Body;Body	0,39	0,88	-0,49	0,083
11	133910341	cg21599336	LOC100128239	S_Shelf	Body	0,39	0,82	-0,43	0,083
11	133916576	cg08929806		Open sea		0,73	0,97	-0,24	0,064
11	133916608	cg07972805		Open sea		0,75	0,96	-0,21	0,064
12	5149153	cg23737927		N_Shelf		0,29	0,90	-0,62	0,064
12	6178606	cg25884442	VWF	Open sea	Body	0,38	0,87	-0,49	0,064
12	6882856	cg19421125	LAG3	Island	Body	0,13	0,74	-0,61	0,083
12	7072696	cg00366413	MIR141;MIR200C	Open sea	TSS1500;TSS200	0,40	0,83	-0,43	0,083
12	11932089	cg07066860	ETV6	Open sea	Body	0,54	0,96	-0,42	0,064
12	14996143	cg13573513	ART4;ART4	Open sea	5'UTR;1stExon	0,73	0,96	-0,23	0,064
12	19557334	cg20894640		Open sea		0,34	0,89	-0,55	0,083
12	20365720	cg23655651		Open sea		0,29	0,93	-0,64	0,064
12	27174164	cg20332143	MED21	N_Shore	TSS1500	0,76	0,96	-0,21	0,064
12	27925367	cg04279139	LOC100133893	Open sea	TSS1500	0,28	0,92	-0,64	0,083
12	29394828	cg18809074	FAR2	Open sea	5'UTR	0,38	0,89	-0,50	0,064
12	29814017	cg16818056	TMTC1	Open sea	Body	0,51	0,94	-0,43	0,083
12	42983805	cg16087447	PRICKLE1	Island	TSS1500	0,05	0,48	-0,43	0,064
12	45270702	cg20422505	NELL2;NELL2;NELL2;NELL2;NELL2	Island	Body;TSS1500;TSS1500;TSS200;TSS1500	0,06	0,43	-0,36	0,064
12	45270788	cg04685534	NELL2;NELL2;NELL2;NELL2;NELL2	Island	Body;TSS1500;TSS1500;TSS200;TSS1500	0,12	0,60	-0,49	0,083
12	45270799	cg23185921	NELL2;NELL2;NELL2;NELL2;NELL2	Island	Body;TSS1500;TSS1500;TSS200;TSS1500	0,04	0,34	-0,31	0,064
12	45270828	cg01247426	NELL2;NELL2;NELL2;NELL2;NELL2	Island	Body;TSS1500;TSS1500;TSS200;TSS1500	0,06	0,38	-0,32	0,083
12	48743861	cg25479963	ZNF641;ZNF641	N_Shore	5'UTR;1stExon	0,21	0,64	-0,43	0,064
12	52412667	cg12521267		S_Shelf		0,32	0,85	-0,53	0,083
12	52437299	cg05261299		Open sea		0,61	0,95	-0,33	0,064
12	52474047	cg20342460		Island		0,71	0,96	-0,25	0,083
12	68953689	cg18148620		Open sea		0,69	0,97	-0,28	0,064
12	80084980	cg17621054	PAWR	Island	TSS200	0,01	0,38	-0,38	0,064
12	93096780	cg12755471	C12orf74	Open sea	TSS200	0,43	0,89	-0,47	0,064
12	93096811	cg27576271	C12orf74	Open sea	TSS200	0,69	0,96	-0,27	0,064
12	93096819	cg26383838	C12orf74	Open sea	TSS200	0,61	0,94	-0,33	0,064
12	93096844	cg25382573	C12orf74;C12orf74	Open sea	5'UTR;1stExon	0,54	0,95	-0,40	0,064
12	93113987	cg13213118		Open sea		0,32	0,94	-0,61	0,064
12	94619636	cg06595153	PLXNC1	Open sea	Body	0,47	0,97	-0,50	0,083

12	103889516	cg10096177	C12orf42;C12orf42	Island	5'UTR;5'UTR	0,01	0,39	-0,38	0,083
12	103889655	cg00259618	C12orf42;C12orf42;C12orf42	Island	5'UTR;1stExon;5'UTR	0,02	0,41	-0,39	0,064
12	111137054	cg03492136		Open sea		0,59	0,96	-0,37	0,064
12	111473641	cg16241421	CUX2	N_Shore	Body	0,06	0,31	-0,25	0,083
12	112074044	cg11578064		Open sea		0,69	0,96	-0,27	0,083
12	112550460	cg04853995		S_Shelf		0,72	0,94	-0,22	0,083
12	116648435	cg21142349	MED13L	Open sea	Body	0,38	0,87	-0,49	0,083
12	116737735	cg02467956		Open sea		0,55	0,93	-0,38	0,083
12	121877053	cg14387153	KDM2B;KDM2B	N_Shelf	Body;Body	0,68	0,94	-0,26	0,064
12	124919231	cg15390816	NCOR2;NCOR2	Open sea	Body;Body	0,40	0,87	-0,47	0,064
12	124985584	cg21867733	NCOR2;NCOR2	Open sea	5'UTR;5'UTR	0,38	0,80	-0,42	0,064
12	131692000	cg16704720	LOC116437	Open sea	Body	0,75	0,96	-0,20	0,083
12	132406608	cg23947919	ULK1	Open sea	3'UTR	0,34	0,90	-0,56	0,064
12	132406623	cg13575885	ULK1	Open sea	3'UTR	0,39	0,93	-0,54	0,064
12	132551592	cg24980032	EP400	Open sea	Body	0,55	0,86	-0,32	0,083
12	133056857	cg04222307		Island		0,70	0,94	-0,24	0,083
12	133057193	cg07161061		S_Shore		0,39	0,86	-0,47	0,064
12	133132156	cg06868569	FBRSL1	Island	Body	0,71	0,96	-0,25	0,064
12	133140449	cg25394452	FBRSL1	Island	Body	0,63	0,98	-0,35	0,064
12	133186599	cg09444108		N_Shore		0,66	0,97	-0,31	0,064
13	21005388	cg07092805	CRYL1	Open sea	Body	0,58	0,10	0,48	0,083
13	24038285	cg05439724		N_Shelf		0,39	0,90	-0,51	0,083
13	29158152	cg06301555		Open sea		0,50	0,95	-0,45	0,083
13	30740197	cg01333242		Open sea		0,29	0,94	-0,66	0,064
13	33305966	cg23199907	PDS5B	Open sea	Body	0,33	0,86	-0,53	0,083
13	76279228	cg15229454	LMO7	Open sea	Body	0,49	0,96	-0,47	0,064
13	78298547	cg20094321	SLAIN1	Open sea	Body	0,49	0,94	-0,45	0,064
13	80910763	cg00185066	SPRY2	N_Shelf	3'UTR	0,62	0,97	-0,35	0,064
13	80911626	cg22369786	SPRY2	N_Shore	Body	0,20	0,96	-0,76	0,064
13	80911692	cg15374435	SPRY2	N_Shore	Body	0,28	0,97	-0,69	0,064
13	80911808	cg18607411	SPRY2	N_Shore	Body	0,32	0,95	-0,63	0,064
13	94965245	cg18397405	GPC6	Open sea	Body	0,61	0,91	-0,29	0,064
13	114057379	cg16041981		S_Shore		0,66	0,97	-0,31	0,083
13	114074465	cg05387119		Open sea		0,38	0,91	-0,54	0,083
13	114075519	cg10940789		Open sea		0,36	0,84	-0,49	0,064
13	114075643	cg19445097		Open sea		0,32	0,86	-0,53	0,064
13	114075670	cg10203223		Open sea		0,31	0,75	-0,44	0,064
13	114076387	cg06864391	ADPRHL1	Open sea	3'UTR	0,33	0,94	-0,61	0,083
13	114077033	cg16322397	ADPRHL1;ADPRHL1	Open sea	3'UTR;3'UTR	0,46	0,90	-0,44	0,064
13	114077172	cg19423472	ADPRHL1;ADPRHL1	Open sea	Body;Body	0,44	0,90	-0,46	0,064
14	20967426	cg19881557		Open sea		0,93	0,44	0,49	0,064
14	21501986	cg27142656	RNASE13	Open sea	Body	0,49	0,88	-0,39	0,064
14	21524938	cg15487725	RNASE8	Open sea	TSS1500	0,57	0,92	-0,35	0,083

14	22966633	cg20507742		Open sea		0,37	0,88	-0,51	0,083
14	34385840	cg20515423		Open sea		0,68	0,94	-0,26	0,083
14	45693776	cg06887716	C14orf106	Open sea	Body	0,47	0,95	-0,48	0,064
14	53658573	cg13507452		Open sea		0,45	0,93	-0,48	0,083
14	61858317	cg15505219	PRKCH	Open sea	Body	0,43	0,92	-0,50	0,064
14	62531354	cg20289412	SYT16	Open sea	Body	0,46	0,95	-0,49	0,072
14	65563665	cg16583315	MAX;MAX;MAX;MAX;MAX;MAX	Open sea	Body;Body;Body;Body;Body;Body	0,56	0,94	-0,38	0,083
14	65652792	cg24017995		Open sea		0,26	0,84	-0,58	0,064
14	67894263	cg18887839		Open sea		0,40	0,94	-0,54	0,064
14	69424756	cg18655522	ACTN1;ACTN1;ACTN1	Open sea	Body;Body;Body	0,51	0,89	-0,37	0,064
14	72231668	cg15926477		Open sea		0,41	0,93	-0,52	0,064
14	77255429	cg05349242	ANGEL1	Open sea	3'UTR	0,71	0,93	-0,22	0,064
14	78450828	cg14330143		S_Shelf		0,32	0,88	-0,57	0,064
14	89628886	cg09293533	FOXN3;FOXN3	Island	Body;Body	0,75	0,96	-0,20	0,064
14	90854534	cg00747890		Open sea		0,64	0,97	-0,33	0,083
14	93814037	cg04994970	COX8C;KIAA1409	Island	Body;5'UTR	0,99	0,48	0,51	0,064
14	93814104	cg05794411	COX8C;KIAA1409	Island	Body;5'UTR	0,94	0,37	0,57	0,064
14	97092150	cg26292021		Open sea		0,29	0,84	-0,55	0,064
14	97092205	cg26034481		Open sea		0,41	0,93	-0,52	0,083
14	102504851	cg22797490	DYNC1H1	Open sea	Body	0,76	0,99	-0,22	0,064
14	103360112	cg23020514	TRAF3;TRAF3;TRAF3	Open sea	Body;Body;Body	0,38	0,96	-0,58	0,064
14	103369717	cg01813877	TRAF3;TRAF3;TRAF3	Open sea	Body;Body;Body	0,36	0,97	-0,62	0,064
14	105857176	cg07521618	PACS2;PACS2	Open sea	Body;Body	0,33	0,92	-0,59	0,064
14	105857208	cg15483436	PACS2;PACS2	Open sea	Body;Body	0,46	0,97	-0,51	0,064
14	105857250	cg12158535	PACS2;PACS2	Open sea	Body;Body	0,27	0,72	-0,46	0,083
14	105911797	cg23976487	MTA1	Island	Body	0,42	0,94	-0,53	0,083
14	105912068	cg16608593	MTA1	Island	Body	0,68	0,95	-0,27	0,095
14	105917199	cg05324618	MTA1	S_Shore	Body	0,60	0,94	-0,34	0,083
14	105948819	cg13805951		N_Shelf		0,33	0,88	-0,55	0,064
14	106598038	cg13982546		Open sea		0,61	0,92	-0,31	0,064
15	22960638	cg21211873	CYFIP1;CYFIP1	Open sea	Body;Body	0,53	0,90	-0,37	0,064
15	32964688	cg11848157	SCG5;SCG5	Open sea	Body;Body	0,37	0,91	-0,54	0,083
15	40028527	cg25403635	FSIP1	Open sea	Body	0,65	0,97	-0,32	0,064
15	40443853	cg06926377		Open sea		0,24	0,80	-0,56	0,064
15	40570508	cg17222755		N_Shore		0,34	0,82	-0,48	0,064
15	52201614	cg08687995	TMOD3	Open sea	3'UTR	0,58	0,95	-0,37	0,083
15	60803663	cg09628822	RORA;RORA;RORA;RORA	Open sea	Body;Body;Body;Body	0,43	0,98	-0,55	0,064
15	65911129	cg12790698		Open sea		0,24	0,84	-0,59	0,064
15	69383275	cg08041140	MIR548H4;TMEM84	Open sea	Body;Body	0,24	0,75	-0,51	0,083
15	71184476	cg18517195	LRRC49;THAP10	Island	TSS1500;1stExon	0,04	0,70	-0,66	0,064
15	71184590	cg05764376	LRRC49;THAP10	Island	TSS1500;1stExon	0,03	0,45	-0,42	0,064
15	71184614	cg12698487	LRRC49;THAP10;THAP10	Island	TSS1500;5'UTR;1stExon	0,02	0,68	-0,65	0,064

15	71184618	cg15191798	LRRC49;THAP10;THAP10	Island	TSS1500;5'UTR;1stExon	0,06	0,66	-0,60	0,072
15	71184823	cg03950172	LRRC49;THAP10	S_Shore	TSS200;TSS200	0,03	0,40	-0,37	0,064
15	71184870	cg07161172	LRRC49;THAP10	S_Shore	TSS200;TSS200	0,01	0,66	-0,65	0,064
15	71184872	cg16034881	LRRC49;THAP10	S_Shore	TSS200;TSS200	0,01	0,45	-0,44	0,064
15	71184881	cg24190127	LRRC49;THAP10	S_Shore	TSS200;TSS200	0,00	0,56	-0,55	0,064
15	71184982	cg00366471	LRRC49;THAP10	S_Shore	TSS200;TSS1500	0,08	0,42	-0,34	0,064
15	71185186	cg01323862	LRRC49;LRRC49;THAP10	S_Shore	5'UTR;1stExon;TSS1500	0,02	0,25	-0,23	0,064
15	71185242	cg02260353	LRRC49;THAP10	S_Shore	1stExon;TSS1500	0,03	0,30	-0,27	0,083
15	71185252	cg15089487	LRRC49;THAP10	S_Shore	1stExon;TSS1500	0,02	0,50	-0,48	0,064
15	71185336	cg01710857	LRRC49;THAP10	S_Shore	Body;TSS1500	0,01	0,28	-0,27	0,064
15	71717382	cg03472130	THSD4	Open sea	Body	0,42	0,92	-0,50	0,064
15	77472416	cg23387863	SGK269	Open sea	Body	0,49	0,88	-0,39	0,064
15	85575240	cg12125241	PDE8A;PDE8A	Open sea	Body;Body	0,59	0,94	-0,35	0,083
15	90455332	cg05173987	C15orf38	N_Shore	Body	0,41	0,86	-0,45	0,083
15	93130167	cg12165943		Open sea		0,46	0,93	-0,47	0,064
15	99670282	cg19847601	SYNM;SYNM	Open sea	Body;Body	0,57	0,91	-0,34	0,083
15	99722217	cg10765992	TTC23;TTC23;TTC23;TTC23;TTC23;TTC23;TTC23	Open sea	Body;Body;Body;Body;Body;Body;Body	0,22	0,85	-0,63	0,083
15	99979346	cg09182750		Open sea		0,41	0,77	-0,36	0,064
15	99979389	cg18776206		Open sea		0,61	0,94	-0,33	0,064
15	101679061	cg11084729		Open sea		0,26	0,88	-0,62	0,064
15	101698514	cg07714300		Open sea		0,41	0,87	-0,46	0,064
16	1364331	cg06703573	UBE2I;UBE2I;UBE2I;UBE2I	Island	Body;Body;Body;Body	0,73	0,96	-0,23	0,083
16	1580059	cg04635340	IFT140	N_Shelf	Body	0,47	0,94	-0,47	0,083
16	1581129	cg04905421	IFT140	N_Shelf	Body	0,38	0,88	-0,50	0,064
16	1581834	cg02102832	IFT140	N_Shore	Body	0,39	0,95	-0,56	0,064
16	2086421	cg15909006	SLC9A3R2;SLC9A3R2	Island	Body;Body	0,42	0,94	-0,52	0,083
16	2552820	cg00472758	TBC1D24	S_Shelf	3'UTR	0,30	0,87	-0,56	0,064
16	3025755	cg10106095	PKMYT1;PKMYT1	N_Shelf	Body;Body	0,57	0,99	-0,42	0,072
16	3872322	cg06716922	CREBBP;CREBBP	Open sea	Body;Body	0,65	0,96	-0,31	0,064
16	14658873	cg04380939	PARN;PARN	Open sea	Body;Body	0,41	0,93	-0,51	0,083
16	23765258	cg01062539	CHP2	N_Shore	TSS1500	0,33	0,90	-0,57	0,064
16	24748339	cg09018299	TNRC6A	Open sea	Body	0,43	0,93	-0,49	0,064
16	28205389	cg26730763	XPO6	Open sea	Body	0,12	0,64	-0,52	0,083
16	29205409	cg09053271		Open sea		0,66	0,87	-0,22	0,064
16	29298242	cg05130405		S_Shore		0,52	0,78	-0,25	0,064
16	29819931	cg03527802	MAZ;MAZ	S_Shore	Body;Body	0,27	0,81	-0,54	0,064
16	29820119	cg02586198	MAZ;MAZ	S_Shore	Body;Body	0,33	0,90	-0,57	0,064
16	29820429	cg27220660	MAZ;MAZ	S_Shore	Body;Body	0,24	0,88	-0,63	0,064
16	29820460	cg03523538	MAZ;MAZ	S_Shore	Body;Body	0,25	0,87	-0,61	0,064
16	29821824	cg00037223	MAZ;MAZ	N_Shore	3'UTR;3'UTR	0,32	0,81	-0,49	0,064
16	30386144	cg06044662	MYLPPF;MYLPPF	N_Shelf	5'UTR;1stExon	0,48	0,90	-0,42	0,064
16	30386150	cg00256074	MYLPPF;MYLPPF	N_Shelf	5'UTR;1stExon	0,50	0,97	-0,47	0,064

16	30410429	cg01392867	ZNF48	N_Shore	3'UTR	0,31	0,93	-0,62	0,064
16	31580153	cg08980382	CSDAP1	Island	Body	0,46	0,76	-0,30	0,083
16	48180664	cg12940073	ABCC12;ABCC12	Open sea	5'UTR;1stExon	0,68	0,96	-0,28	0,083
16	49733377	cg05345876	ZNF423	S_Shore	Body	0,48	0,90	-0,42	0,083
16	50637092	cg05779675	NKD1	Open sea	Body	0,64	0,94	-0,29	0,083
16	50704117	cg27400165	SNX20;SNX20	N_Shelf	Body;Body	0,47	0,90	-0,43	0,064
16	56719841	cg27146356		S_Shelf		0,26	0,86	-0,60	0,083
16	56782670	cg06576192	NUP93	Open sea	Body	0,71	0,97	-0,26	0,064
16	57149847	cg00664454	CPNE2	Open sea	Body	0,37	0,89	-0,51	0,064
16	57416332	cg09416109	CX3CL1	Island	Body	0,61	0,93	-0,32	0,083
16	58686097	cg26834627		Open sea		0,38	0,89	-0,51	0,064
16	66070379	cg08995327		Open sea		0,58	0,94	-0,37	0,072
16	69958792	cg09419444	WWP2;WWP2	Open sea	TSS200;Body	0,56	0,94	-0,37	0,083
16	70507094	cg10364459	FUK	Island	Body	0,58	0,97	-0,39	0,064
16	70507104	cg04454426	FUK	Island	Body	0,59	0,96	-0,37	0,064
16	74134895	cg05207637		Open sea		0,20	0,74	-0,54	0,083
16	85254209	cg03662545		Open sea		0,52	0,81	-0,29	0,083
16	85876389	cg02928123		N_Shelf		0,62	0,92	-0,29	0,083
16	86580384	cg08470264	MTHFSD;MTHFSD;MTHFSD;MTHFSD;MTHFSD;MTHFSD;MTHFSD	Open sea	Body;Body;Body;Body;Body;Body;Body;Body	0,43	0,88	-0,45	0,064
16	86580410	cg09775238	MTHFSD;MTHFSD;MTHFSD;MTHFSD;MTHFSD;MTHFSD;MTHFSD	Open sea	Body;Body;Body;Body;Body;Body;Body;Body	0,50	0,95	-0,44	0,083
16	87312115	cg27189533		Open sea		0,50	0,82	-0,32	0,064
16	88099702	cg04286195	BANP;BANP	N_Shore	Body;Body	0,49	0,97	-0,48	0,064
16	88099722	cg05762553	BANP;BANP	N_Shore	Body;Body	0,44	0,95	-0,51	0,064
16	88099740	cg06969933	BANP;BANP	N_Shore	Body;Body	0,36	0,92	-0,55	0,083
16	88101502	cg01616967	BANP;BANP	Island	Body;Body	0,67	0,99	-0,33	0,064
16	88101664	cg00462560	BANP;BANP	Island	Body;Body	0,56	0,93	-0,37	0,064
16	88125381	cg06869935		Open sea		0,44	0,89	-0,45	0,064
16	88137697	cg10263737		S_Shore		0,56	0,91	-0,35	0,064
16	88294570	cg03451750		S_Shore		0,48	0,86	-0,38	0,064
16	88442535	cg02656871		Island		0,71	0,97	-0,26	0,064
16	88673997	cg27608022	ZC3H18	Open sea	Body	0,43	0,95	-0,52	0,064
16	88966005	cg26544924	CBFA2T3;CBFA2T3	N_Shore	Body;Body	0,33	0,86	-0,53	0,064
16	88966346	cg08875273	CBFA2T3;CBFA2T3	Island	Body;Body	0,39	0,94	-0,55	0,064
16	88966376	cg02512021	CBFA2T3;CBFA2T3	Island	Body;Body	0,59	0,98	-0,40	0,072
16	89601834	cg07778534	SPG7;SPG7	N_Shore	Body;Body	0,71	0,99	-0,27	0,064
16	89629499	cg07344397	RPL13;RPL13	S_Shore	3'UTR;3'UTR	0,24	0,48	-0,23	0,083
17	217243	cg15238325		Open sea		0,74	0,26	0,47	0,083
17	217614	cg17978293		Open sea		0,69	0,46	0,23	0,064
17	1820445	cg15093383		Open sea		0,39	0,91	-0,52	0,064
17	1957926	cg25893992	HIC1	Island	TSS1500	0,14	0,56	-0,42	0,064
17	1958090	cg19058189	HIC1	Island	TSS1500	0,08	0,29	-0,21	0,083

17	2085005	cg19503963	SMG6;SMG6	Open sea	Body;Body	0,27	0,92	-0,65	0,064
17	2807593	cg21613389	RAP1GAP2;RAP1GAP2	Open sea	Body;Body	0,29	0,93	-0,64	0,064
17	4079262	cg11477010	ANKFY1	Open sea	Body	0,45	0,94	-0,50	0,064
17	4079306	cg12077963	ANKFY1	Open sea	Body	0,17	0,95	-0,78	0,064
17	4464011	cg00382185	GGT6;GGT6	Open sea	TSS200;TSS200	0,50	0,91	-0,41	0,064
17	4464022	cg00145141	GGT6;GGT6	Open sea	TSS200;TSS200	0,65	0,95	-0,30	0,064
17	5403149	cg15045292	LOC728392	Island	3'UTR	0,31	0,64	-0,33	0,064
17	19220813	cg12137220	EPN2;EPN2;EPN2	Open sea	Body;Body;Body	0,55	0,11	0,44	0,064
17	21176176	cg18983818		N_Shelf		0,33	0,88	-0,55	0,064
17	25798878	cg10334489	KSR1	Open sea	TSS200	0,38	0,78	-0,40	0,064
17	38081995	cg10909506	ORMDL3	N_Shore	5'UTR	0,34	0,90	-0,56	0,083
17	39576227	cg19832556		Open sea		0,42	0,89	-0,47	0,064
17	41128692	cg16981346	AARSD1;AARSD1;AARSD1;AARSD1	N_Shelf	Body;Body;Body;Body	0,59	0,95	-0,36	0,083
17	45867833	cg06532163		S_Shore		0,15	0,62	-0,47	0,083
17	45983023	cg13611006	SP2	Open sea	Body	0,46	0,88	-0,42	0,064
17	48298072	cg17192511		Open sea		0,67	0,97	-0,29	0,064
17	55365912	cg13654836	MSI2;MSI2	Open sea	Body;Body	0,45	0,89	-0,44	0,083
17	55622595	cg18052713	MSI2;MSI2	Open sea	Body;Body	0,43	0,94	-0,50	0,064
17	56357994	cg09421562	MPO	S_Shore	1stExon	0,40	0,90	-0,50	0,064
17	56401623	cg16723994	BZRAP1;BZRAP1	N_Shore	Body;Body	0,34	0,89	-0,55	0,064
17	62287566	cg26007445	TEX2	Open sea	Body	0,64	0,92	-0,28	0,064
17	71280700	cg18238808	CDC42EP4	N_Shore	3'UTR	0,34	0,88	-0,53	0,083
17	73033009	cg24709951		S_Shore		0,16	0,80	-0,64	0,083
17	74006440	cg09795027	EVPL	S_Shore	Body	0,75	0,25	0,51	0,083
17	74735058	cg01132443	MFSD11	S_Shore	Body	0,25	0,81	-0,56	0,083
17	75347770	cg26003222	SEPT9;SEPT9;SEPT9	Open sea	5'UTR;Body;Body	0,65	0,96	-0,31	0,064
17	76121872	cg13562841	TMC6;TMC6	Open sea	Body;Body	0,50	0,95	-0,45	0,064
17	76226735	cg09445803	LOC283999	N_Shore	TSS1500	0,72	0,95	-0,23	0,083
17	76498535	cg24738140	DNAH17	N_Shore	Body	0,70	0,96	-0,26	0,064
17	76673269	cg10999621	CYTH1;CYTH1	Open sea	Body;Body	0,42	0,89	-0,47	0,083
17	77044255	cg24917359	C1QTNF1;C1QTNF1;C1QTNF1	Island	3'UTR;3'UTR;3'UTR	0,53	0,95	-0,42	0,083
17	79878651	cg19246600	MAFG;MAFG	N_Shore	3'UTR;3'UTR	0,21	0,89	-0,68	0,064
17	80744833	cg11524039	TBCD	S_Shelf	Body	0,38	0,93	-0,56	0,064
17	80858539	cg17579154	TBCD	S_Shore	Body	0,44	0,96	-0,52	0,064
17	80858893	cg22990129	TBCD	S_Shore	Body	0,33	0,89	-0,56	0,064
17	80858983	cg02768197	TBCD	S_Shore	Body	0,38	0,92	-0,54	0,064
17	80859477	cg08153595	TBCD	N_Shelf	Body	0,38	0,70	-0,32	0,064
17	80859886	cg21376658	TBCD	N_Shelf	Body	0,60	0,98	-0,38	0,064
17	80859946	cg06791695	TBCD	N_Shelf	Body	0,49	0,96	-0,48	0,083
17	80893951	cg12963111	TBCD	Open sea	Body	0,23	0,79	-0,56	0,083
17	80894030	cg25898516	TBCD	Open sea	Body	0,44	0,93	-0,49	0,083
17	80894218	cg14269021	TBCD	Open sea	Body	0,36	0,97	-0,61	0,064
17	80894243	cg10473821	TBCD	Open sea	Body	0,35	0,98	-0,63	0,064

17	80965469	cg10338364	B3GNTL1	S_Shelf	Body	0,58	0,96	-0,38	0,064
18	5896267	cg23841467		S_Shore		0,06	0,38	-0,31	0,083
18	13267090	cg21737421	C18orf1;C18orf1	S_Shelf	5'UTR;5'UTR	0,28	0,96	-0,67	0,064
18	28956808	cg03761952	DSG4;DSG4;DSG4;DSG4	Open sea	1stExon;1stExon;5'UTR;5'UTR	0,40	0,97	-0,57	0,064
18	30353283	cg06591973	KLHL14	S_Shore	TSS1500	0,79	0,09	0,70	0,064
18	33078719	cg27318281	INO80C;INO80C	S_Shore	TSS1500;TSS1500	0,52	0,90	-0,38	0,064
18	47088248	cg27113059	LIPG	Island	TSS200	0,11	0,53	-0,42	0,083
18	55102849	cg14345128	ONECUT2	N_Shore	TSS200	0,00	0,31	-0,31	0,064
18	60245587	cg13863769	ZCCHC2	Open sea	3'UTR	0,66	0,95	-0,28	0,083
18	77289452	cg15755154		Island		0,53	0,92	-0,38	0,064
18	77921368	cg20989899	PARD6G;LOC100130522;LOC100130522	S_Shelf	Body;Body;Body	0,34	0,89	-0,55	0,064
19	643555	cg12062672	FGF22	Island	Body	0,42	0,93	-0,51	0,064
19	883879	cg17385497	MED16	N_Shore	Body	0,50	0,80	-0,30	0,072
19	1427972	cg13600493	DAZAP1;DAZAP1	N_Shore	Body;Body	0,43	0,94	-0,51	0,083
19	2337318	cg01571977	SPPL2B;SPPL2B	N_Shore	Body;Body	0,30	0,89	-0,59	0,083
19	4045108	cg00405939		Island		0,72	0,99	-0,27	0,064
19	4090224	cg21124940		Island		0,60	0,92	-0,32	0,083
19	4180820	cg24152732	SIRT6	N_Shore	Body	0,21	0,80	-0,59	0,064
19	10420164	cg09488991	ZGLP1;ZGLP1	Island	1stExon;5'UTR	0,39	0,89	-0,49	0,083
19	11144017	cg18040892	SMARCA4;SMARCA4;SMARCA4;SMARCA4;SMARCA4;SMARCA4;SMARCA4	Island	Body;Body;Body;Body;Body;Body;Body;Body	0,46	0,94	-0,48	0,064
19	11144151	cg04328842	SMARCA4;SMARCA4;SMARCA4;SMARCA4;SMARCA4;SMARCA4;SMARCA4	Island	Body;Body;Body;Body;Body;Body;Body;Body	0,44	0,91	-0,47	0,064
19	13112283	cg22824635	NFIX	Island	Body	0,48	0,98	-0,50	0,072
19	15512044	cg10754777	AKAP8L	Island	Body	0,67	0,98	-0,31	0,095
19	17320534	cg09277933	MYO9B;MYO9B	N_Shore	Body;Body	0,44	0,98	-0,55	0,072
19	18545062	cg24878115	SSBP4;SSBP4	Island	3'UTR;3'UTR	0,67	0,96	-0,29	0,064
19	34396910	cg19538733		Island		0,01	0,36	-0,35	0,083
19	40788787	cg06055845	MIR641;AKT2	N_Shore	TSS1500;5'UTR	0,20	0,83	-0,63	0,083
19	40788926	cg26620021	MIR641;AKT2	N_Shore	TSS1500;5'UTR	0,14	0,83	-0,69	0,064
19	44302822	cg09253581	LYPD5;LYPD5	Island	Body;Body	0,10	0,45	-0,34	0,064
19	51304161	cg04547809	SNORD88A;C19orf48;C19orf48	N_Shelf	TSS1500;5'UTR;5'UTR	0,46	0,95	-0,49	0,064
20	1165206	cg06645286	C20orf46	N_Shore	TSS200	0,52	0,89	-0,37	0,064
20	5296267	cg10863075	PROKR2	Island	TSS1500	0,05	0,34	-0,29	0,064
20	5296442	cg19623717	PROKR2	Island	TSS1500	0,04	0,50	-0,46	0,064
20	5296943	cg09914742		Island		0,02	0,53	-0,51	0,072
20	5297429	cg17352975		Island		0,02	0,45	-0,43	0,064
20	19866743	cg09219364		Open sea		0,56	0,87	-0,31	0,083
20	30583001	cg23509641	XKR7	Island	Body	0,04	0,30	-0,26	0,064

20	33300430	cg15636879	TP53INP2	S_Shelf	3'UTR	0,28	0,83	-0,54	0,083
20	39998953	cg14816917		S_Shelf		0,57	0,89	-0,32	0,064
20	43247325	cg07097722	PKIG;PKIG;PKIG	Open sea	3'UTR;3'UTR;3'UTR	0,22	0,74	-0,52	0,064
20	51592177	cg10373607	TSHZ2	S_Shelf	Body	0,39	0,97	-0,58	0,064
20	51648789	cg20128380	TSHZ2	Open sea	Body	0,42	0,91	-0,49	0,064
20	55204266	cg24581326	TFAP2C	Island	TSS200	0,02	0,33	-0,31	0,083
20	55839663	cg27565555	BMP7	Island	Body	0,02	0,52	-0,50	0,083
20	57393277	cg25188071	MIR296	Open sea	TSS1500	0,30	0,88	-0,58	0,064
21	44861617	cg08073507		N_Shelf		0,32	0,86	-0,53	0,083
21	44880700	cg03160378		S_Shelf		0,57	0,93	-0,37	0,064
21	45842649	cg24355182	TRPM2	N_Shelf	Body	0,39	0,90	-0,50	0,083
22	19938916	cg18773129	COMT;COMT;COMT	Open sea	5'UTR;5'UTR;TSS200	0,48	0,97	-0,49	0,064
22	19938981	cg06787004	COMT;COMT;COMT	Open sea	5'UTR;5'UTR;TSS200	0,55	0,95	-0,39	0,083
22	21133553	cg06658625	SERPIND1;PI4KA	Open sea	5'UTR;Body	0,36	0,87	-0,52	0,064
22	22118304	cg11335969	MAPK1	Open sea	3'UTR	0,57	0,96	-0,39	0,064
22	26895578	cg26291543	TFIP11;TFIP11	S_Shore	Body;Body	0,69	0,96	-0,26	0,064
22	37545924	cg25246692	IL2RB;IL2RB	Open sea	5'UTR;1stExon	0,05	0,26	-0,21	0,083
22	40439969	cg04078118	TNRC6B	N_Shore	TSS1500	0,58	0,88	-0,29	0,064
22	42356813	cg14697880		S_Shelf		0,30	0,87	-0,58	0,064
22	42473469	cg15767901	FAM109B	N_Shelf	Body	0,34	0,93	-0,59	0,072
22	42473790	cg17916520	FAM109B	N_Shore	Body	0,30	0,81	-0,51	0,064
22	43265579	cg00218945		N_Shore		0,65	0,94	-0,29	0,064
22	44565030	cg27592453	PARVB;PARVB	Open sea	3'UTR;3'UTR	0,33	0,92	-0,59	0,064
22	50985681	cg04177826	KLHDC7B	Island	TSS1500	0,73	0,26	0,47	0,083

SUPPLEMENTARY REFERENCES

1. Rasmussen M, Sundstrom M, Goransson Kultima H, et al. Allele-specific copy number analysis of tumor samples with aneuploidy and tumor heterogeneity. *Genome biology*. 2011;12(10):R108.
2. Mathelier A, Zhao X, Zhang AW, et al. JASPAR 2014: an extensively expanded and updated open-access database of transcription factor binding profiles. *Nucleic acids research*. 2014;42:D142-147.
3. Nordlund J, Backlin CL, Zachariadis V, et al. DNA methylation-based subtype prediction for pediatric acute lymphoblastic leukemia. *Clin Epigenetics*. 2015;7(1):11.
4. Verduci L, Azzalin G, Gioiosa S, et al. microRNA-181a enhances cell proliferation in acute lymphoblastic leukemia by targeting EGR1. *Leukemia research*. 2015;39(4):479-485.
5. Gibbs JD, Liebermann DA, Hoffman B. Egr-1 abrogates the E2F-1 block in terminal myeloid differentiation and suppresses leukemia. *Oncogene*. 2008;27(1):98-106.
6. Nechanitzky R, Akbas D, Scherer S, et al. Transcription factor EBF1 is essential for the maintenance of B cell identity and prevention of alternative fates in committed cells. *Nature immunology*. 2013;14(8):867-875.
7. Roessler S, Gyory I, Imhof S, et al. Distinct promoters mediate the regulation of Ebf1 gene expression by interleukin-7 and Pax5. *Molecular and cellular biology*. 2007;27(2):579-594.