Supplementary Appendix

Supplement to: Ozdemirli M, Loughney TM, Deniz E, et al. Indolent CD4+ CAR T-cell lymphoma after cilta-cel CAR T-cell therapy. N Engl J Med 2024;390:2074-82. DOI: 10.1056/NEJMoa2401530

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Authors and affiliations

Author	Affiliations	Contributions
Metin Ozdemirli	Pathology, MedStar Georgetown University Hospital, Washington, DC, USA	Diagnosed the case, organized the study, wrote the initial draft and decided to publish.
Thomas M Loughney	Gastroenterology, MedStar Georgetown University Hospital, Washington, DC, USA	Primary gastroenterologist for the patient, wrote part of the paper and approved final version.
Emre Deniz	Lombardi Comprehensive Cancer Center, Georgetown University Medical Center, Washington, DC, USA	Analyzed the whole genome data, found the virus integration site, wrote part of the paper and approved final version.
Joeffrey J Chahine	Pathology, MedStar Georgetown University Hospital, Washington, DC, USA	Performed PCR studies and wrote part of the paper and approved final version.
Maher Albitar	Genomic Testing Cooperative, Irvine, CA, USA	Performed initial NGS sequencing and confirmed the presence of CAR-T fusions wrote part of the paper and approved final version
Stefania Pittaluga	National Institutes of Health, Bethesda, MD, USA	Confirmed the diagnosis, provided 2015 blood DNA sample, wrote part of the paper and approved final version.
Sam Sadigh	Brigham and Women's Hospital, Boston, MA, USA	Confirmed the diagnosis, wrote part of the paper and approved final version.
Philippe Armand	Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA, USA	Treating the patient for lymphoma, wrote part of the paper and approved final version.
Aykut Uren	Lombardi Comprehensive Cancer Center, Georgetown University Medical Center, Washington, DC, USA	Analyzed the whole genome sequencing data, found the virus integration site, wrote part of the paper and approved final version.
Kenneth C. Anderson	Dana-Farber Cancer Institute, Harvard Medical School, The Jerome Lipper Multiple Myeloma Center, Boston, MA, USA	Treating the patient for myeloma, wrote part of the paper and approved final version.

Supplemental Methods

Diagnostic workup included routine histologic examination of formalin-fixed parafin-embedded tissue sections, immunohistochemical analysis using Dako omnis automated system and multi-color flow cytometric analysis using BD FACSCanto II.

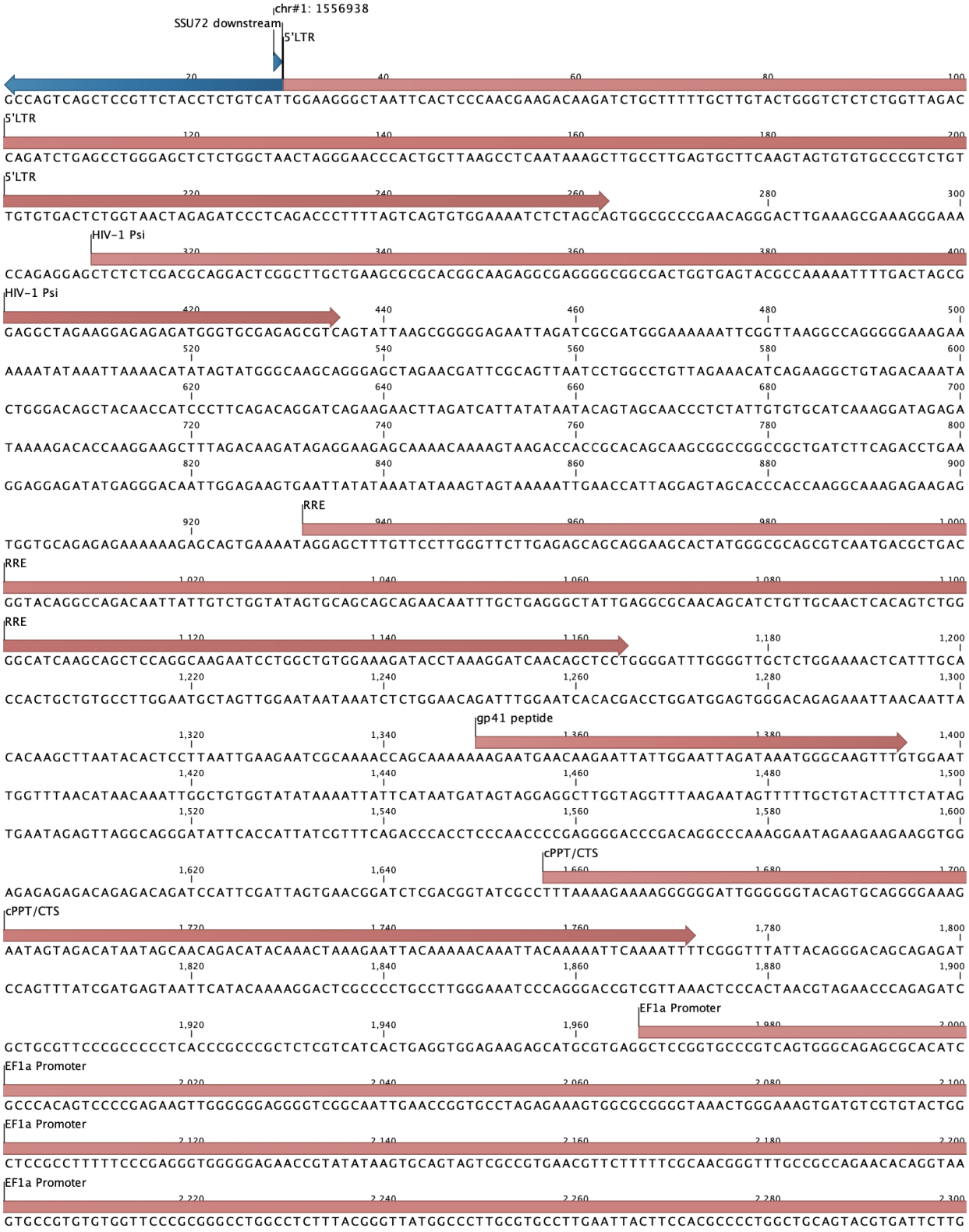
Polymerase Chain Reaction Analysis: The T-cell receptor gamma (*TCRG*), T-cell receptor beta (*TCRβ*), immunoglobulin heavy chain (IgH) and kappa light chain loci were amplified from genomic DNA by using multiplex primer PCR of InVivoScribe Clonality Assays. Fluorochrome dye-labeled specific primers permitted precise fragment sizing of PCR products by capillary electrophoresis (3500 Genetic Analyzer, Applied Biosystems). The performance characteristics of this assay has been independently determined by a European collaborative study involving 32 diagnostic PCR laboratories (BIOMED-2 Concerted Action), testing hundreds of clinical samples defined according to the WHO classification (van Dongen 2003 and Langerak 2012).

Next generation sequencing analysis: NGS for T cell receptor (TCR) gamma chain gene was performed on 2015 and 2023 peripheral blood samples at Duke University as part of clinical diagnosis. Targeted RNA-seq for the expression of 1600 hematologic neoplasm-related 1,600 genes and targeted DNA-seq for hematologic neoplasm-related 284 genes in two earlier duodenal tumor biopsy samples along with one reactive T cell sample were performed by Genomic Testing Cooperative (CA, USA) on tissue blocks. Exome RNA-Seq for the 2024 duodenal tumor was performed by Tempus Labs, Inc (IL, USA) by using IDT xGen Exome Research Panel v2 probe set that covers 19,433 genes of the human genome.

Whole Genome Sequencing and Data Analysis

Whole genome sequencing (WGS) was performed by Novogene Corporation Inc (Sacramento, CA, USA) on a NovaSeq X Plus platform with 150 bp (base pair) paired-end read length. Data was evaluated and visualized mainly by using the CLC Genomics Workbench 20.0.4 (Qiagen) software.

For building the entire lentiviral cassette, a seeding contig of DNA encoding the anti-BCMA CAR-T was first derived from the sequence data available on the online patent file of Ciltacabtagene autoleucel (Patent Publication Number: US20230270786A1). The WGS reads were then mapped to this contig by using the "map reads to contigs" workflow of the "de novo sequencing" tool of the CLC Genomics Workbench 20.0.4 software (Qiagen) with default parameters. The genomic loci flaking the lentiviral vector integration site in the tumor genome was then identified by adding the final lentiviral vector sequence to the human reference genome as an additional chromosome and mapping the WGS reads to this modified reference by using the "assemble sequences to reference" workflow of the CLC Genomics Workbench 20.0.4 software (Qiagen) with default parameters. Additionally, the sequencing data was aligned to the human reference genome (GRCh38) by using their bioinformatics pipeline by Novogene Inc.. For this, Burrows-Wheeler Aligner (BWA) was used for mapping the paired-end clean reads and Sambamba was used for sorting the BAM files and marking the duplicate reads (Li 2010) (Tarasov 2015). Various software packages and tools were used for annotating the germline and somatic sequence variants in the samples. For single nucleotide polymorphisms (SNPs), GTAK and MuTect; for small insertions and deletions (InDels), GTAK and Strelka; for structural variants (SVs), DELLY; and for copy number variants (CNVs), Control-FREEC were used (DePristo 2011) (Cibulskis 2013) (Saunders 2012) (Rausch 2012) (Boeva 2012). BAM files were visualized by using the CLC Genomics Workbench 20.0.4 (Qiagen) software.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5'LTR
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HIV-1 Psi
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HIV-1 Psi
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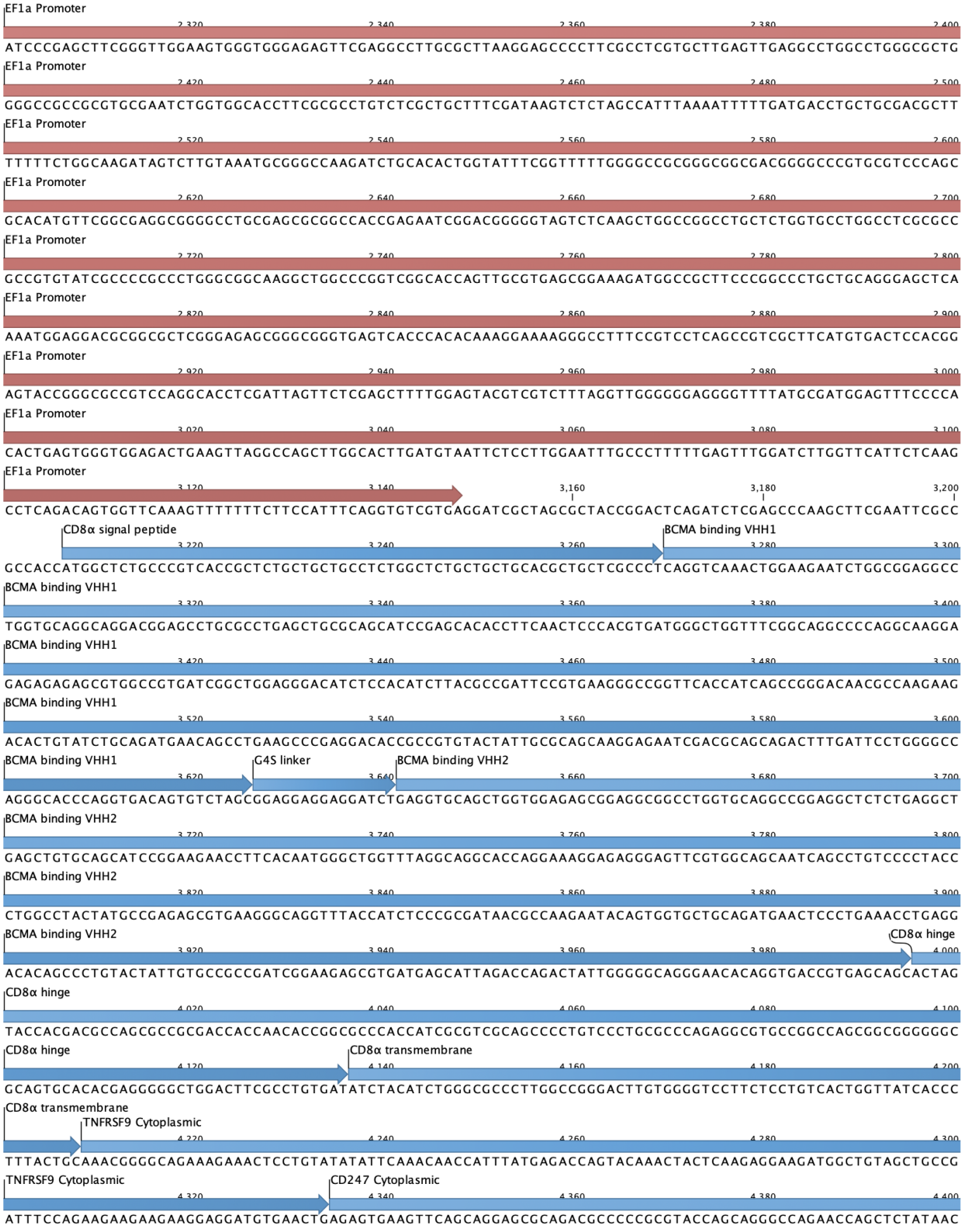
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BCMA binding VHH1
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BCMA binding VHH1
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BCMA binding VHH1
G4S linker
BCMA binding VHH2
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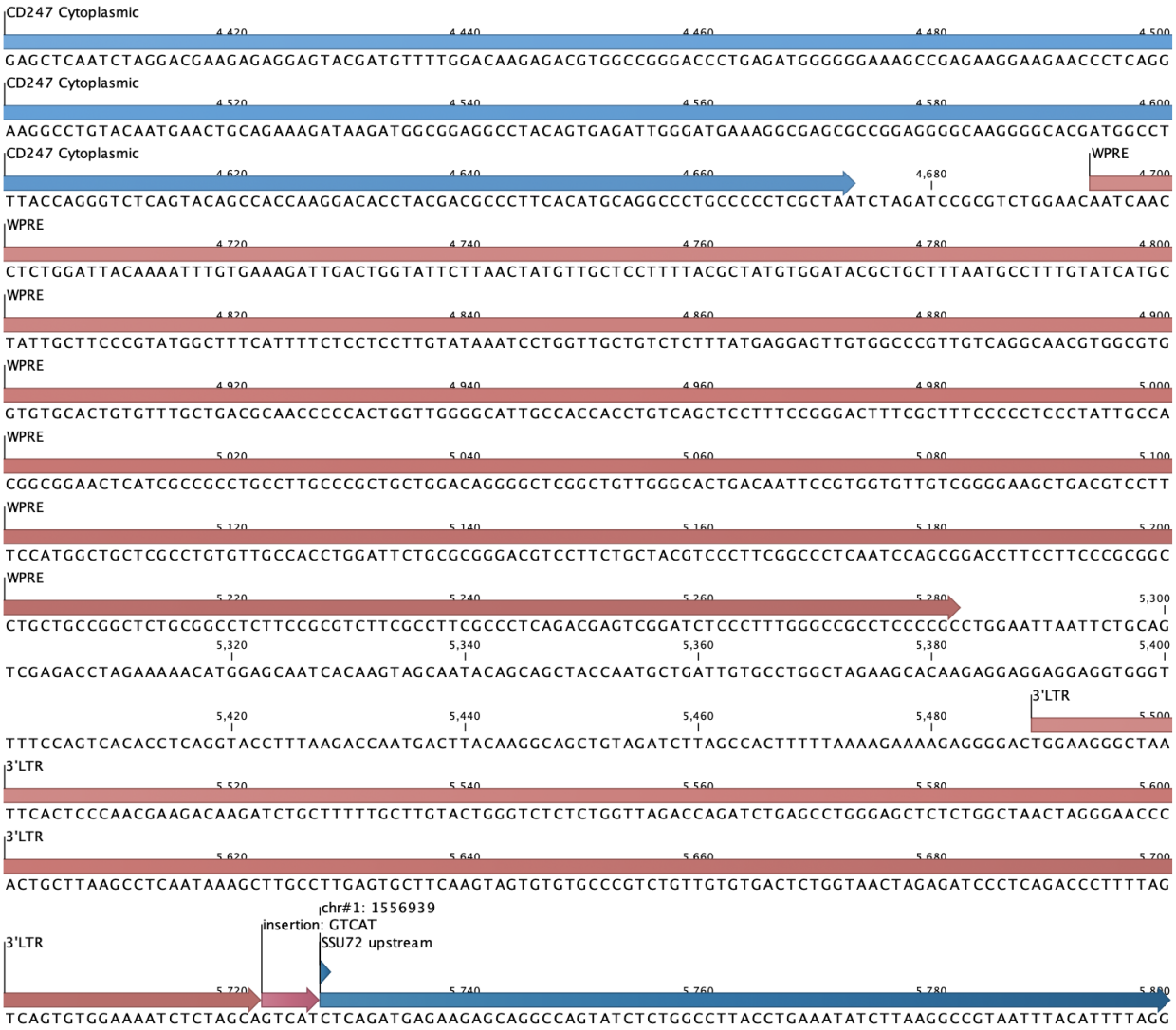

Figure S1: Sequence of the lentivirus carrying the anti-BCMA CAR-T expressing cassette and the corresponding genomic flanking regions at the integration site. Sequence was evaluated and annotated by using the CLC Genomics Workbench 20.0.4 software (Qiagen).

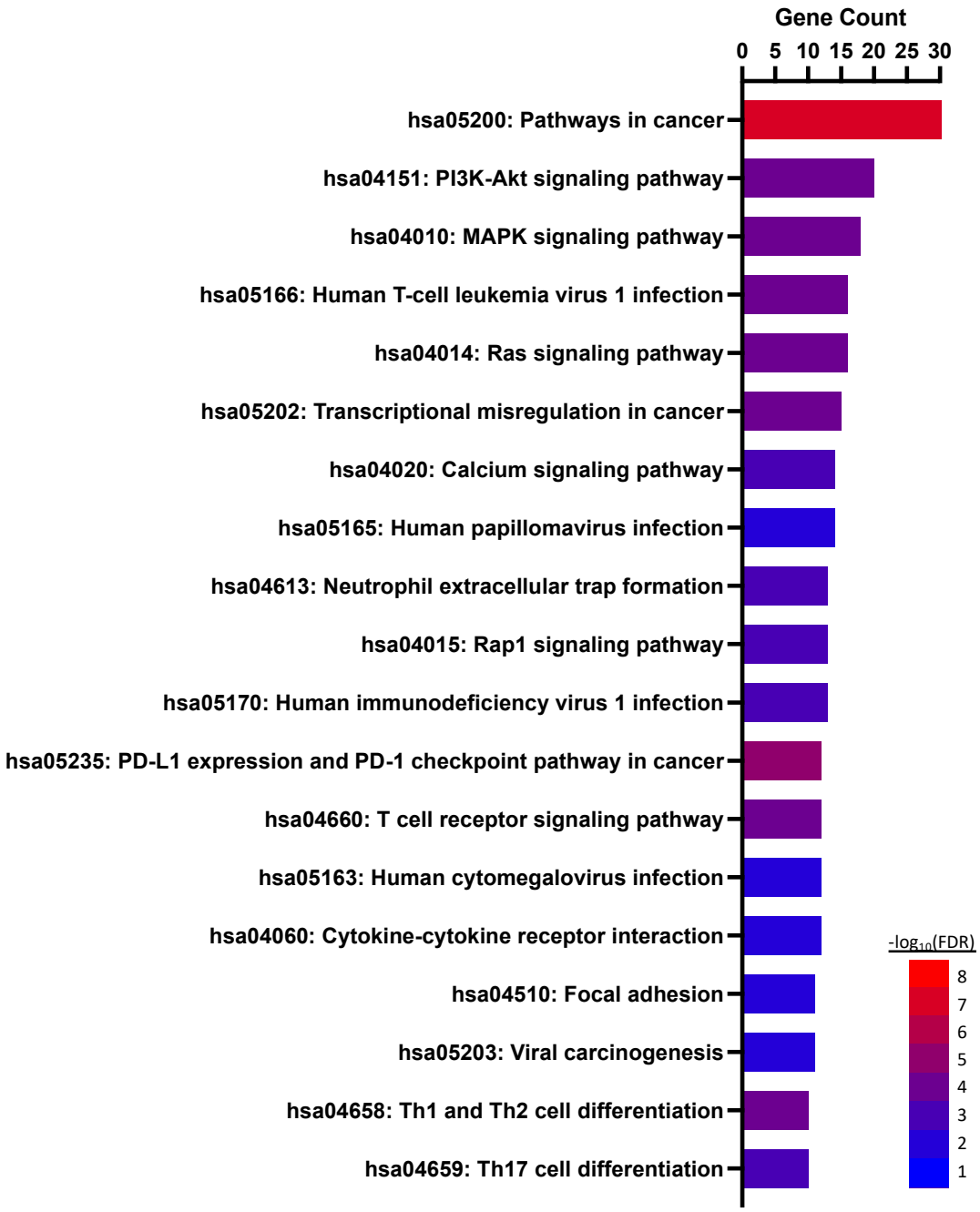

Figure S2: Biological pathways of the upregulated genes with somatic CNV. The genes located within the somatic CNV loci in the duodenal tumor sample in addition to being upregulated in the targeted RNA-seq were subjected to KEGG pathway analysis. Gene count is the number of genes found in the CNV gene list and FDR represents the significance of the enrichment of the genes in the corresponding pathway.

Table S1: Lists of germline SNPs, InDels, SVs, and CNVs in 2015 Blood Sample.

Table S1A: Germline single nucleotide polymorphisms (SNP) in the 2015 blood.

Priority	CHR	POS	ID	REF	ALT	Gene Name	Exonic Func	Alleles
H	1	12716215	rs3000860	C	A	AADACL3	stopgain	heterozygous
H	1	171208951	rs6661174	C	T	FMO2	stopgain	homozygous
H	2	37267465	.	C	A	PRKD3	stopgain	heterozygous
H	3	38702100	rs199931920	G	A	SCN10A	stopgain	heterozygous
H	4	94236958	.	G	T	SMARCAD1	stopgain	heterozygous
H	6	37282884	.	G	T	TBC1D22B	stopgain	heterozygous
H	7	100955394	.	C	G	MUC3A	stopgain	heterozygous
H	7	100960609	rs79874934	C	T	MUC3A	stopgain	heterozygous
H	9	34372875	rs4879782	G	C	MYORG	stopgain	heterozygous
H	9	122477222	rs45579335	G	T	OR1J1	stopgain	heterozygous
H	9	127403738	rs41276194	C	T	SLC2A8	stopgain	heterozygous
H	11	8461846	.	C	A	STK33	stopgain	heterozygous
H	11	60393809	.	C	A	MS4A7	stopgain	heterozygous
H	11	66560624	rs1815739	C	T	ACTN3	stopgain	heterozygous
H	11	99819645	rs12292659	C	T	CNTN5	stopgain	heterozygous
H	11	112179400	rs141806338	C	T	BCO2	stopgain	heterozygous
H	12	42144550	.	C	A	GXYLT1	stopgain	heterozygous
H	13	39029294	.	C	A	PROSER1	stopgain	heterozygous
H	14	63599645	rs944955056	G	A	WDR89	stopgain	heterozygous
H	15	88465680	.	C	A	MRPL46	stopgain	heterozygous
H	16	20979499	.	G	T	DNAH3	stopgain	heterozygous
H	17	21300898	rs55796947	C	T	MAP2K3	stopgain	heterozygous
H	17	50763441	rs143031243	G	A	ANKRD40CL	stopgain	heterozygous
H	18	63712604	rs4940595	G	T	SERPINB11	stopgain	heterozygous
H	19	6908743	.	G	T	ADGRE1	stopgain	heterozygous
H	19	46600969	rs117306460	T	C	PPP5D1	startloss	heterozygous
H	22	25903631	.	C	T	MYO18B	stopgain	heterozygous
H	22	36504216	rs140481636	G	A	FOXRED2	stopgain	heterozygous
H-	8	18222606	rs5030839	C	T	NAT1	stopgain	heterozygous
H-	14	31483548	rs17097921	G	A	GPR33	stopgain	homozygous
M	2	218165209	rs55808468	C	T	CXCR1	startloss	heterozygous

L	1	20175089	rs12139100	G	A	PLA2G2C	stopgain	heterozygous
L	1	52860749	rs61744306	A	G	ZYG11A	startloss	heterozygous
L	1	54785641	rs2270002	G	A	TTC22	stopgain	heterozygous
L	1	152350656	rs12568784	G	T	FLG2	stopgain	heterozygous
L	1	159815580	rs4301626	T	C	FCRL6	stoploss	heterozygous
L	1	161506414	rs9427397	C	T	FCGR2A	stopgain	heterozygous
L	1	171258077	rs10912675	T	C	FMO1	startloss	heterozygous
L	1	247949724	rs10888281	T	A	OR2L8	stopgain	homozygous
L	2	242800	rs10181051	T	C	SH3YL1	startloss	heterozygous
L	2	69431994	rs4453725	A	T	NFU1	startloss	heterozygous
L	2	85322745	rs4240199	A	G	TGOLN2	stoploss	heterozygous
L	2	95951363	rs76474100	G	A	ANKRD36C	stopgain	heterozygous
L	2	98609710	rs1062847	T	A	UNC50	startloss	heterozygous
L	2	111856852	rs72936240	G	A	ANAPC1	stopgain	heterozygous
L	2	126899285	rs61730220	C	T	TEX51	stopgain	heterozygous
L	2	190319749	rs291466	A	G	HIBCH	startloss	homozygous
L	2	219038536	rs6736922	T	G	CFAP65	startloss	homozygous
L	2	227611424	rs2176186	C	T	C2orf83	stopgain	heterozygous
L	2	241097382	rs2286323	A	G	MTERF4	startloss	heterozygous
L	3	37417267	rs113724034	A	C	C3orf35	startloss	heterozygous
L	3	75730499	rs200767888	G	C	ZNF717	stopgain	heterozygous
L	3	75732071	rs62250084	C	T	ZNF717	stopgain	heterozygous
L	3	75736880	rs77251052	A	C	ZNF717	stoploss	heterozygous
L	3	75737024	rs78135954	C	A	ZNF717	stopgain	heterozygous
L	3	75738339	rs201399274	A	T	ZNF717	stopgain	heterozygous
L	3	88467516	rs7635824	G	A	CSNKA2IP	stopgain	heterozygous
L	3	109337516	rs16855561	A	G	DPPA4	startloss	heterozygous
L	3	194341178	rs4974539	G	A	CPN2	stopgain	heterozygous
L	4	99564098	rs11944752	G	A	MTTP	startloss	heterozygous
L	4	151291451	rs2407221	T	G	PRSS48	stoploss	homozygous
L	5	33751349	rs1530507	A	T	ADAMTS12	stopgain	homozygous
L	5	41061613	rs1023840	C	T	MROH2B	stopgain	heterozygous
L	5	75669297	rs34358	G	A	ANKDD1B	stopgain	heterozygous
L	5	135446760	rs12520799	T	A	DCANP1	stopgain	homozygous
L	5	180851393	rs705441	C	G	ZFP62	startloss	homozygous
L	6	29101522	rs2394517	C	T	OR2J1	stopgain	homozygous
L	6	31157072	rs3130453	C	T	CCHCR1	stopgain	heterozygous
L	6	31157480	rs72856718	C	A	CCHCR1	stopgain	heterozygous
L	6	31356366	rs12697944	G	T	HLA-B	stopgain	heterozygous

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L	6	116828845	rs6907580	G	A	GPRC6A	stopgain	heterozygous
L	6	118894558	rs139800548	G	A	MCM9	stopgain	heterozygous
L	6	154107531	rs677830	C	T	OPRM1	stopgain	heterozygous
L	7	2762888	rs798488	T	C	GNA12	startloss	heterozygous
L	7	55473014	rs815957	G	A	VOPP1	stopgain	heterozygous
L	7	64978289	rs1404453	G	A	ZNF117	stopgain	heterozygous
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L	8	12134008	rs552054122	A	G	USP17L7	startloss	homozygous
L	8	19962213	rs328	C	G	LPL	stopgain	heterozygous
L	8	40015416	rs4503083	T	A	IDO2	stopgain	heterozygous
L	8	51372000	rs117752382	A	T	PXDNL	stopgain	heterozygous
L	8	99121478	rs7460625	T	G	VPS13B	stopgain	heterozygous
L	8	141136609	rs307772	T	C	DENND3	startloss	homozygous
L	9	116800	rs79220013	C	G	FOXD4	stoploss	heterozygous
L	9	122628962	rs1476860	G	A	OR1B1	stopgain	heterozygous
L	9	129027657	rs17433108	A	G	SH3GLB2	startloss	heterozygous
L	10	4847211	rs12240276	C	T	AKR1E2	stopgain	heterozygous
L	10	27398296	rs2505323	A	G	PTCHD3	stoploss	heterozygous
L	10	86962641	rs9864	A	T	SNCG	stoploss	heterozygous
L	11	5755254	rs4910844	A	T	OR52N4	stopgain	heterozygous
L	11	5856749	rs12419602	T	A	OR52E8	stoploss	heterozygous
L	11	5967993	rs61730422	G	A	OR56A5	stopgain	heterozygous
L	11	48264679	rs10838851	T	A	OR4X1	stopgain	homozygous
L	11	55572176	rs1459101	C	T	OR4C16	stopgain	heterozygous
L	11	56346040	rs1905055	T	C	OR8K1	startloss	heterozygous
L	11	56663740	rs11228710	C	T	OR5AR1	stopgain	heterozygous
L	11	58215722	rs7103033	A	G	OR1S1	stoploss	heterozygous
L	11	60497529	rs2298553	C	T	MS4A12	stopgain	heterozygous
L	11	63081015	rs11231341	A	C	SLC22A24	stopgain	heterozygous
L	11	63083303	rs77002186	G	A	SLC22A24	stopgain	heterozygous
L	11	124186025	rs2512227	T	G	OR10D3	stopgain	homozygous
L	12	10118488	rs16910526	A	C	CLEC7A	stopgain	heterozygous
L	12	11021672	rs79475879	T	C	TAS2R19	stoploss	heterozygous
L	12	11030436	rs78820764	C	T	TAS2R31	stopgain	heterozygous

L	12	11061546	rs2708381	C	T	TAS2R46	stopgain	heterozygous
L	12	47879112	rs2228570	A	G	VDR	startloss	heterozygous
L	12	55247471	rs4522268	C	T	OR6C74	stopgain	homozygous
L	12	113010483	rs15895	A	G	OAS2	stoploss	heterozygous
L	13	25097072	rs80062522	C	T	PABPC3	stopgain	heterozygous
L	13	25097231	rs76804900	G	T	PABPC3	stopgain	heterozygous
L	14	104729893	rs80097179	A	C	ADSS1	startloss	heterozygous
L	15	20534261	rs200467851	A	G	GOLGA6L6	stoploss	heterozygous
L	15	20535014	rs199807662	C	A	GOLGA6L6	stopgain	homozygous
L	16	81022836	rs3743503	T	G	CENPN	stoploss	heterozygous
L	17	7482961	rs7214088	G	A	SLC35G6	stopgain	heterozygous
L	17	19675560	rs7216	A	T	ALDH3A2	stopgain	homozygous
L	17	41439232	rs148768443	G	A	KRT38	stopgain	heterozygous
L	17	61590592	rs17610181	G	A	NACA2	stopgain	heterozygous
L	17	75589275	rs117940210	G	A	MYO15B	stopgain	heterozygous
L	19	1783028	rs60482625	T	C	ATP8B3	stoploss	heterozygous
L	19	35228117	rs541169	C	T	FAM187B	stopgain	heterozygous
L	19	36997597	rs1667366	T	C	ZNF568	stoploss	heterozygous
L	19	42935542	.	G	A	PSG7	stopgain	homozygous
L	19	48234449	rs2043211	A	T	CARD8	stopgain	heterozygous
L	19	48703417	rs601338	G	A	FUT2	stopgain	heterozygous
L	19	50983919	rs1624358	T	G	KLK7	startloss	homozygous
L	19	51501649	rs16982743	G	A	SIGLEC12	stopgain	heterozygous
L	19	54574903	.	G	A	LILRA2	stopgain	heterozygous
L	19	55987913	rs306457	G	C	NLRP8	stoploss	homozygous
L	19	57131414	rs9973206	C	A	USP29	stopgain	homozygous
L	19	57508524	rs67054060	G	A	ZNF773	stopgain	heterozygous
L	19	57633347	rs9749449	A	G	ZNF211	startloss	heterozygous
L	21	10569701	rs1810540	C	T	TPTE	stopgain	heterozygous
L	21	30371809	rs877346	A	T	KRTAP13-2	stopgain	heterozygous
L	21	42903610	rs4148974	C	T	NDUFV3	stopgain	heterozygous
L	22	16988159	rs28502153	C	A	GAB4	stopgain	homozygous
L	22	19524402	rs885985	G	A	CLDN5	stopgain	heterozygous
L	22	26466075	rs3747129	G	A	HPS4	stopgain	heterozygous
L	22	29441895	rs12484086	C	T	RFPL1	stopgain	homozygous
L	22	32479203	rs11107	G	A	FBXO7	startloss	heterozygous
L	22	41940168	rs5758511	G	A	CENPM	stopgain	heterozygous
L	X	1299043	rs28707649	C	T	CSF2RA	stopgain	heterozygous
L	X	104040193	rs2301384	C	T	H2BW2	stopgain	heterozygous

L	X	119471038	rs73213195	G	T	SLC25A5	stopgain	heterozygous
L-	5	766918	rs1809932	A	C	ZDHHC11B	startloss	heterozygous
L-	5	140557175	rs250426	G	T	SRA1	stopgain	heterozygous
L-	6	132617703	rs8192646	C	T	TAAR2	stopgain	heterozygous
L-	15	31076920	rs4779816	A	G	TRPM1	startloss	homozygous
L-	16	81208593	rs7499011	G	A	PKD1L2	stopgain	heterozygous
L*	7	127610853	rs712700	T	C	PAX4	stoploss	homozygous
L+	9	133154258	rs35898523	G	T	GBGT1	stopgain	heterozygous

TableS1B: Germline insertions/deletions (InDel) causing start-loss, stop-gain, or frameshifts in the 2015 blood.

Priority	CHR	POS	ID	REF	ALT	Gene Name	Exonic Func	Alleles
H	1	26345031	rs759140804	GAAATGAGGCATCA	G	CRYBG2	frameshift del	homozygous
H	1	26345047	rs755623773	AGCAC	A	CRYBG2	frameshift del	homozygous
H	1	26345053	.	GGGGCCCTTCACGACCTCTT TCCAGGTGGGGAACA	G	CRYBG2	frameshift del	homozygous
H	1	31698004	rs756796675	TG	T	COL16A1	stopgain	heterozygous
H	1	54139645	.	T	TGGGG	CDCP2	frameshift in	heterozygous
H	1	155250402	.	GACGAGTC	G	FAM189B	frameshift del	heterozygous
H	1	155250419	.	GT	G	FAM189B	frameshift del	heterozygous
H	1	155250422	.	GGC	G	FAM189B	frameshift del	heterozygous
H	1	156384556	rs587735548	T	TC	RHBG	frameshift in	homozygous
H	1	192158684	rs771673043	CA	C	RGS18	frameshift del	heterozygous
H	2	127052355	rs776737413	TCTGTGGGCTGGTAACAGG	T	BIN1	frameshift del	heterozygous
H	2	130963905	.	G	GGCCCGGAGCGGCGGCCGCGCGGCGACGAGGATGG GGCCGAGGACGCCGCGCGGCC	ARHGEF4	frameshift in	homozygous
H	2	240561457	rs768813095	C	CT	DUSP28	stopgain	heterozygous
H	5	176599120	rs761227225	TCAAAGACCCAGGA	T	GPRIN1	frameshift del	heterozygous
H	5	176599134	rs749944557	TCCTCCTTCCTC	T	GPRIN1	frameshift del	heterozygous
H	6	26204936	rs775447148	CTT	C	H4C5	frameshift del	heterozygous
H	6	31029204	rs753348485	T	TCA	MUC22	frameshift in	heterozygous
H	6	31029209	rs765208906	TCCAC	T	MUC22	stopgain	heterozygous
H	6	31029214	rs758478494	A	ATG	MUC22	frameshift in	heterozygous
H	6	31356428	rs760342210	G	GCC	HLA-B	frameshift in	heterozygous
H	6	31356430	rs753354858	AGG	A	HLA-B	frameshift del	heterozygous
H	6	31356747	rs750527298	GCC	G	HLA-B	frameshift del	heterozygous
H	6	31356751	rs749557905	G	GTT	HLA-B	frameshift in	heterozygous

H	6	31356824	rs9281379	C	CG	HLA-B	frameshift in	heterozygous
H	6	31356826	rs200186034	CT	C	HLA-B	frameshift del	heterozygous
H	6	32641443	rs760671632	TGA	T	HLA-DQA1	frameshift del	homozygous
H	6	32641447	rs764189141	T	TTC	HLA-DQA1	frameshift in	homozygous
H	6	32641499	rs758294111	TGG	T	HLA-DQA1	frameshift del	homozygous
H	6	32641502	rs777760029	C	CCT	HLA-DQA1	stopgain	homozygous
H	6	32641519	rs9282026	A	AG	HLA-DQA1	frameshift in	homozygous
H	6	32641521	rs199556640	CA	C	HLA-DQA1	stopgain	homozygous
H	6	116792599	rs371464745	T	TA	GPRC6A	frameshift in	heterozygous
H	7	100773854	.	G	GTT	ZAN	frameshift in	homozygous
H	7	100952832	.	C	CAG	MUC3A	frameshift in	heterozygous
H	7	100953155	.	CCGGT	C	MUC3A	frameshift del	heterozygous
H	7	100953160	.	T	TGAA	MUC3A	stopgain	heterozygous
H	7	100953163	.	C	CT	MUC3A	frameshift in	heterozygous
H	7	100953312	.	ACC	A	MUC3A	frameshift del	heterozygous
H	7	100953315	.	A	ATG	MUC3A	stopgain	heterozygous
H	7	100953330	.	ACT	A	MUC3A	frameshift del	heterozygous
H	7	100953364	.	TTC	T	MUC3A	frameshift del	heterozygous
H	7	100953409	.	G	GA	MUC3A	frameshift in	heterozygous
H	7	100953487	.	C	CCGTCG	MUC3A	frameshift in	heterozygous
H	7	100955245	.	TC	T	MUC3A	frameshift del	heterozygous
H	7	100955247	.	TTC	T	MUC3A	frameshift del	heterozygous
H	7	100955537	.	G	GTA	MUC3A	frameshift in	heterozygous
H	7	100955539	.	ATG	A	MUC3A	frameshift del	heterozygous
H	7	100955560	.	AGT	A	MUC3A	frameshift del	heterozygous
H	7	100955571	.	A	ATG	MUC3A	stopgain	heterozygous
H	7	100955959	.	ACC	A	MUC3A	frameshift del	heterozygous
H	7	151086835	rs766984834	T	TGGGG	AGAP3	frameshift in	homozygous

H	7	151195597	.	TC	T	IQCA1L	frameshift del	homozygous
H	11	1017035	rs754561621	A	AAT	MUC6	frameshift in	heterozygous
H	11	1017036	.	G	GCA	MUC6	frameshift in	heterozygous
H	11	1017040	rs752117134	GGT	G	MUC6	frameshift del	heterozygous
H	11	1018215	rs769713098	G	GCA	MUC6	frameshift in	heterozygous
H	11	1018222	.	A	AGG	MUC6	frameshift in	heterozygous
H	11	1018225	.	GTAGC	G	MUC6	frameshift del	heterozygous
H	11	4882548	rs776171797	CT	C	OR51T1	frameshift del	heterozygous
H	11	56375779	rs754716745	T	TGA	OR8U8,OR8U1	frameshift in	heterozygous
H	11	56375783	rs778684909	AGT	A	OR8U8,OR8U1	frameshift del	heterozygous
H	11	56375948	rs768918196	A	ACGGC	OR8U8,OR8U1	frameshift in	heterozygous
H	11	56375949	rs767571255	TATCA	T	OR8U8,OR8U1	frameshift del	heterozygous
H	11	56376306	rs765067633	T	TGA	OR8U1,OR8U8	frameshift in	heterozygous
H	11	56376308	rs758139791	CAT	C	OR8U8,OR8U1	frameshift del	heterozygous
H	11	72139110	.	CTA	C	FOLR3	stopgain	homozygous
H	12	865142	rs141823469	T	TC	WNK1	frameshift in	homozygous
H	12	51346623	rs753836828	CATAA	C	CELA1	frameshift del	heterozygous
H	12	51346631	rs370927847	A	AAG	CELA1	frameshift in	heterozygous
H	12	51346632	rs148235680	C	CG	CELA1	frameshift in	heterozygous
H	12	52949347	.	G	GA	KRT18	frameshift in	heterozygous
H	12	55427174	rs397719965	CA	C	OR6C76	frameshift del	homozygous
H	12	111347618	.	T	TGC	CUX2	frameshift in	heterozygous
H	13	30713841	rs369636483	G	GGTGT	ALOX5AP	frameshift in	heterozygous
H	13	52143914	.	CT	C	NEK3	frameshift del	homozygous
H	13	113800902	rs66696122	GCCTGCGGGAGGTGAGGGGCACCGGGGACCCCCATATCTACACCTGCGGGAGGTGAGGGGCGCTGGGGACCCCCGTATCTACA	G	TMEM255B	frameshift del	heterozygous
H	14	20198016	rs398077614	C	CA	OR11G2	frameshift in	heterozygous
H	14	73250008	rs766861816	GC	G	PAPLN	stopgain	heterozygous

H	14	94379487	.	CCT	C	SERPINA1	frameshift del	heterozygous
H	14	94379492	.	G	GAC	SERPINA1	frameshift in	heterozygous
H	15	31229302	rs34406656	CG	C	LOC283710	frameshift del	homozygous
H	15	41573467	rs769980669	G	GTGGGCGTTCGGGGTGACCAT	TYRO3	frameshift in	heterozygous
H	16	3069296	rs71818662	C	CG	IL32	frameshift in	heterozygous
H	17	81251178	.	TGGTAATCACAAGCCAAGTGACAATGCCGCAGGTGTTTTAAAGGGGAGCAAGGGAGATAAAAC	T	SLC38A10	frameshift del	heterozygous
H	17	81647906	.	T	TTAAC	TSPAN10	stopgain	heterozygous
H	19	8888821	rs746055260	GGCTT	G	MUC16	frameshift del	heterozygous
H	19	8888876	.	AT	A	MUC16	frameshift del	heterozygous
H	19	8916883	.	GC	G	MUC16	frameshift del	heterozygous
H	19	8916887	.	C	CT	MUC16	frameshift in	heterozygous
H	19	14472675	rs755626438	AG	A	PTGER1	frameshift del	heterozygous
H	19	37388950	rs376931538	C	CTGTG	ZNF527	frameshift in	heterozygous
H	19	37388952	rs200420244	AT	A	ZNF527	frameshift del	heterozygous
H	19	44236153	rs756327706	C	CA	ZNF227	frameshift in	heterozygous
H	19	52383892	rs34470614	TA	T	ZNF880	frameshift del	heterozygous
H	19	54250974	.	TG	T	LILRB5	frameshift del	heterozygous
H	19	54250979	.	GA	G	LILRB5	frameshift del	heterozygous
H	19	54251009	rs757234963	C	CA	LILRB5	frameshift in	heterozygous
H	20	145669	rs11467417	ACC	A	DEFB126	frameshift del	homozygous
H	22	36191797	.	ACT	A	APOL4	frameshift del	heterozygous
H-	4	968290	.	C	CGTGCCTCTCCTGCCCCGCCCCCCCAACTCCTCCACCTCCCA	DGKQ	frameshift in	heterozygous
H-	14	73592321	rs749641100	G	GC	ACOT4	frameshift in	heterozygous
H-	19	4511363	rs750600369	CCA	C	PLIN4	frameshift del	heterozygous
H-	19	4511367	rs777278419	G	GAC	PLIN4	frameshift in	heterozygous
H-	20	1915303	rs148409797	A	AGT	SIRPA	frameshift in	heterozygous
H-	20	1915304	rs749337996	CCT	C	SIRPA	frameshift del	heterozygous

H-*	21	45504511	rs149296338	CGGCCCCCCA	C	COL18A1	frameshift del	homozygous
H-*	15	40407805	.	GTT	G	IVD	frameshift del	homozygous
L	1	16759500	rs528252461	G	GC	MST1L	frameshift in	heterozygous
L	1	16759504	rs59375146	CCCCG	C	MST1L	frameshift del	heterozygous
L	1	16761046	rs113982165	GGTGCT	G	MST1L	frameshift del	heterozygous
L	1	26282334	rs752317296	TGGGGCCG	T	UBXN11	frameshift del	heterozygous
L	1	26282344	rs757094832	ACCGGGACCGGGACTGGG	A	UBXN11	frameshift del	heterozygous
L	1	26282357	rs761408866	CTGGGGCCGGG	C	UBXN11	frameshift del	heterozygous
L	1	26282368	rs749678087	ACCGGGACC	A	UBXN11	frameshift del	heterozygous
L	1	41382200	.	G	GGCCCGCGCCGGGACGCCCGCCTACTTCGGCGGCTGCAAGGGCGGCGCCTACGGCGGGGGCGGGGGCTTCGGGCCGCCGGCGATGGGCGCTCTGCGCCGTCTGCCCATGCAGACCATCCAGGAGAACAAGCAGGCCAGCTTCGTGCCGGCCGCGGCGCCCTTCCGCCCTGGGGCGCTGCCCGCGCTGCTGCCGCCGCCGCC	FOXO6	frameshift in	homozygous
L	1	120436638	.	AAG	A	NBPF8	frameshift del	heterozygous
L	1	152223252	rs34061715	AT	A	HRNR	startloss	homozygous
L	1	156595257	rs10637036	A	AAC	GPATCH4	frameshift in	homozygous
L	1	168136343	rs200664972	A	AG	GPR161	frameshift in	heterozygous
L	1	175160809	rs754204844	TC	T	KIAA0040	frameshift del	heterozygous
L	1	175160811	rs762930078	TTCTTCTTG	T	KIAA0040	frameshift del	heterozygous
L	1	204190483	rs71745629	CT	C	KISS1	stoploss	heterozygous
L	1	236736599	rs11355106	TC	T	ACTN2	frameshift del	heterozygous
L	1	247451959	rs35305980	GA	G	OR2B11	frameshift del	homozygous
L	1	248295573	rs11339452	CT	C	OR2T12	frameshift del	heterozygous
L	1	248362026	rs61248663	C	CTA	OR2T4	frameshift in	heterozygous
L	1	248362336	rs34079073	CA	C	OR2T4	frameshift del	heterozygous
L	1	248441258	rs150497047	T	TTC	OR2T7	frameshift in	homozygous
L	1	248453403	rs199823862	CTGCTGCG	C	OR2T2	stopgain	heterozygous
L	1	248638643	rs72452004	TCAGCACG	T	OR2T35	stopgain	heterozygous

L	2	95950753	rs764442566	C	CAA	ANKRD36C	frameshift in	heterozygous
L	2	95950757	rs373114066	AGC	A	ANKRD36C	frameshift del	heterozygous
L	2	97152523	rs746371426	GGC	G	ANKRD36	frameshift del	heterozygous
L	2	97152527	rs772505240	G	GTT	ANKRD36	frameshift in	heterozygous
L	2	97249150	rs775150727	GA	G	ANKRD36	frameshift del	heterozygous
L	2	112542424	rs138896228	TTCCGGCGTGTACCGAGAGACTGGCG	T	POLR1B	frameshift del	homozygous
L	2	174427852	rs145699077	TTCAAATTTATCAG	T	SCRN3	frameshift del	heterozygous
L	2	189805813	rs3214425	T	TA	PMS1	frameshift in	heterozygous
L	2	235852770	rs142341634	C	CCAGG	AGAP1	frameshift in	homozygous
L	3	28253011	rs35600760	GA	G	CMC1	frameshift del	heterozygous
L	3	38307655	rs138257211	ATTTG	A	SLC22A14	frameshift del	heterozygous
L	3	46373452	rs333	TACAGTCAGTATCAATTCTGGAAGAATTTCCAG	T	CCR5	frameshift del	heterozygous
L	3	56557250	rs150150392	T	TGGGGTAAGCA	CCDC66	stopgain	heterozygous
L	3	73062330	rs3832186	C	CA	EBLN2	frameshift in	heterozygous
L	3	75665673	rs373728386	AG	A	FRG2C	frameshift del	heterozygous
L	3	75732061	rs750314723	TC	T	ZNF717	frameshift del	heterozygous
L	3	75737404	.	C	CTG	ZNF717	frameshift in	heterozygous
L	3	75737609	rs145576551	TC	T	ZNF717	frameshift del	heterozygous
L	3	75737743	rs144168413	GT	G	ZNF717	frameshift del	heterozygous
L	3	75738115	rs776210532	CCT	C	ZNF717	frameshift del	heterozygous
L	3	75738283	rs761584387	CCT	C	ZNF717	frameshift del	heterozygous
L	3	75738661	rs138918118	C	CT	ZNF717	frameshift in	heterozygous
L	3	75739225	rs749453662	G	GTT	ZNF717	frameshift in	heterozygous
L	3	75741632	.	G	GGTCTCCAGCATCATGTCCCTGTACAGGTTTCTTCTGAGCATCATCCAGGTCCTGCTACTCCTCCCAGGTGAAGTGCATAGCTACCTCCTCAAAGGATGCCAACTCCTGTAATGATAGCAGGCTGTTATAA	ZNF717	stopgain	heterozygous
L	3	98354747	rs11288615	TA	T	OR5K4	frameshift del	heterozygous
L	3	98391562	rs144759043	G	GA	OR5K3	frameshift in	heterozygous
L	3	126006425	rs111477552	TAACA	T	SLC41A3	stopgain	homozygous

L	3	130471876	rs11355796	AT	A	COL6A5	stopgain	heterozygous
L	3	195726146	rs144288174	GC	G	MUC20	frameshift del	heterozygous
L	3	195784965	.	CTGACCTGTGGATGCTGAGG AAGTGTCGGTGACAGGAAG AGGGGTGGCG	C	MUC4	frameshift del	heterozygous
L	4	3074923	rs751281707	AGC	A	HTT	frameshift del	heterozygous
L	4	3074926	rs754481229	AGCAG	A	HTT	frameshift del	heterozygous
L	4	5989141	rs143859826	CCT	C	C4orf50	frameshift del	heterozygous
L	4	120798429	rs35363618	T	TA	PRDM5	frameshift in	heterozygous
L	4	139889929	rs373804063	GC	G	MAML3	frameshift del	heterozygous
L	4	139889931	rs58287721	TGCTGCTGCTGC	T	MAML3	frameshift del	heterozygous
L	4	151279866	rs148861921	G	GCAGGT	PRSS48	frameshift in	heterozygous
L	4	154323249	rs140019361	TTTTG	T	DCHS2	frameshift del	heterozygous
L	5	140807399	rs543774145	GC	G	PCDHA4	frameshift del	heterozygous
L	5	140807403	rs563991668	AGG	A	PCDHA4	frameshift del	heterozygous
L	5	149995316	rs3832324	CT	C	TIGD6	frameshift del	homozygous
L	5	153492228	rs3841128	T	TC	GRIA1	frameshift in	heterozygous
L	6	31056509	rs5875281	CCACT	C	HCG22	frameshift del	heterozygous
L	6	31138723	rs138474986	T	TC	PSORS1C1	frameshift in	heterozygous
L	6	31412380	rs1060499875	TGCTG	T	MICA	frameshift del	heterozygous
L	6	32521966	rs770213674	C	CTG	HLA-DRB5	frameshift in	heterozygous
L	6	32521968	rs771912768	CGG	C	HLA-DRB5	frameshift del	heterozygous
L	6	32521974	rs776663991	GC	G	HLA-DRB5	frameshift del	heterozygous
L	6	32521977	rs756617144	TG	T	HLA-DRB5	frameshift del	heterozygous
L	6	32521981	rs776055221	T	TGC	HLA-DRB5	frameshift in	heterozygous
L	6	32530181	rs756922265	A	AAC	HLA-DRB5	frameshift in	heterozygous
L	6	32530182	rs745343465	G	GAA	HLA-DRB5	frameshift in	heterozygous
L	6	32530183	rs796338972	CTT	C	HLA-DRB5	frameshift del	homozygous
L	6	32584170	rs67476479	CG	C	HLA-DRB1	frameshift del	heterozygous

L	6	32584176	rs9281873	CCG	C	HLA-DRB1	frameshift del	heterozygous
L	6	32584177	rs758506454	CG	C	HLA-DRB1	frameshift del	heterozygous
L	6	32584181	rs200320734	C	CTT	HLA-DRB1	frameshift in	heterozygous
L	6	32584184	rs28986201	G	GT	HLA-DRB1	frameshift in	heterozygous
L	6	32584185	rs764153503	C	CT	HLA-DRB1	frameshift in	heterozygous
L	6	32584361	rs749085224	G	GTA	HLA-DRB1	frameshift in	heterozygous
L	6	32584369	rs767010367	AG	A	HLA-DRB1	frameshift del	heterozygous
L	6	32589725	.	G	GC	HLA-DRB1	frameshift in	heterozygous
L	6	43529350	rs143794012	G	GT	POLR1C	frameshift in	heterozygous
L	6	44172317	rs397947482	T	TGGCTGCC	CAPN11	frameshift in	heterozygous
L	6	116792598	rs550458778	A	AGG	GPRC6A	frameshift in	heterozygous
L	6	138218046	rs3841283	A	AG	PBOV1	frameshift in	heterozygous
L	6	160139865	rs113569197	CTGGTAAGT	C	SLC22A1	frameshift del	heterozygous
L	6	170561963	rs796868804	AGC	A	TBP	frameshift del	heterozygous
L	6	170561966	rs775626005	AGCAG	A	TBP	frameshift del	heterozygous
L	7	2250684	rs373496719	TC	T	NUDT1	stopgain	heterozygous
L	7	2513247	rs34637446	A	AGATG	LFNG	frameshift in	heterozygous
L	7	33635227	rs34415284	TC	T	BBS9	stopgain	homozygous
L	7	67281505	rs747172286	T	TGGGTGGC	SPDYE21	frameshift in	heterozygous
L	7	72744551	.	C	CA	TYW1B	stopgain	homozygous
L	7	76611468	rs71819724	CA	C	POMZP3	frameshift del	heterozygous
L	7	100064888	rs56833874	GTAGT	G	ZNF3	frameshift del	heterozygous
L	7	100787939	rs369526619	GGCTTCAGCTACCGCTTGCA AGGCCGCATGACCTAT	G	ZAN	frameshift del	homozygous
L	7	151086813	rs539642617	C	CG	AGAP3	frameshift in	homozygous
L	7	151086821	rs552859803	C	CG	AGAP3	frameshift in	homozygous
L	7	152247986	rs150073007	G	GT	KMT2C	stopgain	heterozygous
L	8	60222337	rs141606093	CAG	C	CA8	frameshift del	heterozygous
L	9	34893048	rs151257262	GC	G	FAM205C	frameshift del	heterozygous

L	9	35561915	rs143266743	CCCCACCCT	C	FAM166B	frameshift del	heterozygous
L	9	65283162	.	AG	A	FOXD4L5	frameshift del	heterozygous
L	9	68285995	rs200498038	G	GA	CBWD3	frameshift in	heterozygous
L	9	112453942	rs10538330	GATTA	G	C9orf147	frameshift del	homozygous
L	9	112460738	rs58832923	C	CCT	C9orf147	frameshift in	homozygous
L	9	135549839	rs112851559	G	GC	OBP2A	frameshift in	homozygous
L	9	135624500	rs34217442	CA	C	GLT6D1	frameshift del	heterozygous
L	10	49988768	rs555930275	A	AC	AGAP6	frameshift in	heterozygous
L	10	50008914	rs113234838	CAA	C	AGAP6	frameshift del	heterozygous
L	10	80081665	rs113172526	C	CA	TMEM254	frameshift in	heterozygous
L	10	113679881	rs10553596	CTT	C	CASP7	frameshift del	heterozygous
L	10	124021236	rs398015013	CG	C	CHST15	frameshift del	homozygous
L	10	132329982	rs11409148	G	GC	STK32C	frameshift in	heterozygous
L	11	704604	rs35782494	GA	G	TMEM80	frameshift del	homozygous
L	11	1621994	rs796366638	CGG	C	KRTAP5-4	frameshift del	heterozygous
L	11	1621997	rs755861260	AGCCACAGCCCCCACAGCCA GAGCCACAGCCCCCACAGCC G	A	KRTAP5-4	frameshift del	heterozygous
L	11	4368174	rs11310407	AG	A	OR52B4	frameshift del	heterozygous
L	11	4769643	rs34672924	CG	C	OR51F1	frameshift del	heterozygous
L	11	5151565	rs112098990	A	AC	OR52A1	frameshift in	heterozygous
L	11	5178587	rs5789371	GC	G	OR52Z1	frameshift del	heterozygous
L	11	5454201	rs35301588	T	TCA	OR51I2	frameshift in	homozygous
L	11	8434131	rs577863705	CACTTGAACCCAGGAGGCAG AGGTTGCAGTTG	C	STK33	frameshift del	heterozygous
L	11	56613070	rs71931749	CCAGA	C	OR5M1	frameshift del	heterozygous
L	11	60397879	rs3217518	ATT	A	MS4A14	frameshift del	heterozygous
L	11	77243743	rs34784710	T	TA	GDPD4	frameshift in	heterozygous
L	11	90086720	rs377696645	C	CT	UBTFL1	frameshift in	heterozygous
L	12	865189	rs11441897	T	TC	WNK1	frameshift in	homozygous

L	12	9733111	rs113222621	A	ATAAGT	CLECL1	frameshift in	heterozygous
L	12	11091468	rs760672236	A	ATT	TAS2R43	frameshift in	heterozygous
L	12	11091471	rs765322779	TCC	T	TAS2R43	frameshift del	heterozygous
L	12	55129802	rs398102299	AT	A	OR9K2	frameshift del	homozygous
L	12	56686880	rs10579382	CAT	C	PTGES3	startloss	homozygous
L	12	85244867	rs398102301	GA	G	LRRIQ1	frameshift del	heterozygous
L	12	103979950	rs151041931	G	GA	TDG	frameshift in	heterozygous
L	13	25096959	rs140090397	A	AT	PABPC3	frameshift in	heterozygous
L	13	25097134	rs376589131	AG	A	PABPC3	frameshift del	heterozygous
L	13	25097172	rs371130768	TTATGA	T	PABPC3	frameshift del	heterozygous
L	13	25097194	rs371570689	CA	C	PABPC3	frameshift del	heterozygous
L	13	77698132	rs201380414	T	TGG	SLAIN1	frameshift in	homozygous
L	13	77698141	rs542815284	G	GC	SLAIN1	frameshift in	homozygous
L	14	23104903	rs57331962	CA	C	LMLN2	frameshift del	heterozygous
L	14	23104905	rs55686792	GCA	G	LMLN2	frameshift del	heterozygous
L	14	67204765	rs151256654	C	CT	FAM71D	frameshift in	heterozygous
L	14	94366310	rs149961411	AG	A	SERPINA2	unknown	heterozygous
L	15	22769349	.	CCATCTGCTCCTCCTGCTTCCGCATCTGCTCCTCCTGCTTCCG	C	GOLGA6L7	unknown	homozygous
L	15	23440394	rs375981990	CT	C	GOLGA6L2	frameshift del	homozygous
L	15	23440457	rs763821476	TC	T	GOLGA6L2	frameshift del	heterozygous
L	15	23440459	rs756870099	TCTTCCTGCTCCCACATCTTCTCCTCCTGCTCCCGCATCTTC	T	GOLGA6L2	frameshift del	heterozygous
L	15	40807701	rs142730574	T	TGGGGC	ZFYVE19	frameshift in	heterozygous
L	15	83008518	rs534261421	C	CA	C15orf40	frameshift in	heterozygous
L	15	84512508	.	ATGTTCACGTAGCCTCTCCTCCTGTTCACACAGCCTCTCCTCCTGTTCACACAGCCTCTCCTCC	A	GOLGA6L4	unknown	heterozygous
L	15	98968575	rs398043625	A	AC	PGPEP1L	frameshift in	homozygous
L	16	400140	rs35963490	C	CAG	NME4	frameshift in	heterozygous
L	16	1256558	rs3830782	AG	A	TPSD1	frameshift del	heterozygous

L	16	57061930	rs142124514	AAAAG	A	NLRC5	frameshift del	homozygous
L	16	58543411	rs751489327	G	GA	CNOT1	frameshift in	heterozygous
L	16	88533287	rs796900280	GGA	G	ZFPM1	frameshift del	homozygous
L	16	88533292	rs67322929	CT	C	ZFPM1	frameshift del	homozygous
L	16	88714226	rs11278302	AGGTGTG	A	CTU2	frameshift del	homozygous
L	16	89224802	rs10625512	G	GGTGA	ZNF778	frameshift in	heterozygous
L	17	3690982	rs3215407	TG	T	P2RX5	frameshift del	homozygous
L	17	39402270	rs147479461	G	GC	FBXL20	frameshift in	homozygous
L	17	40701882	rs11309872	CA	C	KRT24	frameshift del	heterozygous
L	17	41302321	rs144150438	TGTACAGATGGTTG	T	KRTAP29-1	frameshift del	homozygous
L	17	47361520	rs10538163	CAGTG	C	EFCAB13	frameshift del	homozygous
L	17	75588737	rs200226778	C	CG	MYO15B	frameshift in	heterozygous
L	18	14782550	.	GACTC	G	ANKRD30B	frameshift del	heterozygous
L	18	14782556	.	A	ATTTT	ANKRD30B	frameshift in	heterozygous
L	18	63655777	rs60533853	T	TGCCA	SERPINB3	frameshift in	heterozygous
L	18	63655779	rs201374310	CT	C	SERPINB3	frameshift del	heterozygous
L	18	68691277	rs143627864	TAA	T	TMX3	stopgain	heterozygous
L	18	75285870	.	G	GGCCCC	TSHZ1	frameshift in	heterozygous
L	19	1004897	rs10666583	G	GCGTT	GRIN3B	frameshift in	heterozygous
L	19	17286688	rs1060499840	GTGTT	G	ANKLE1	frameshift del	heterozygous
L	19	20624371	rs35575803	G	GA	ZNF626	frameshift in	homozygous
L	19	43847014	rs71907168	GGGAGAT	G	ZNF283	startloss	heterozygous
L	19	44274642	rs59660444	CG	C	ZNF233	frameshift del	heterozygous
L	19	44793589	rs66944506	A	AC	CBLC	frameshift in	heterozygous
L	19	51332638	rs11402251	T	TG	VSIG10L	frameshift in	homozygous
L	19	51501537	rs368715137	G	GC	SIGLEC12	frameshift in	homozygous
L	19	53942340	rs11324363	AG	A	CACNG7	frameshift del	homozygous
L	19	54279045	.	AG	A	LILRB2	stopgain	heterozygous

L	19	54279050	.	T	TC	LILRB2	frameshift in	heterozygous
L	19	54633154	.	CAT	C	LILRB1	frameshift del	heterozygous
L	19	54633157	.	G	GCT	LILRB1	frameshift in	heterozygous
L	19	54633171	.	A	AAG	LILRB1	frameshift in	heterozygous
L	19	54633173	.	GTA	G	LILRB1	frameshift del	heterozygous
L	19	54813219	rs11371265	C	CA	KIR2DL4	frameshift in	homozygous
L	20	1611504	rs753408061	TGA	T	SIRPB1	frameshift del	homozygous
L	20	1611508	rs754616582	G	GAC	SIRPB1	frameshift in	homozygous
L	20	21126073	rs397791672	C	CG	KIZ	frameshift in	heterozygous
L	20	37179387	rs57415986	G	GCTTATAGACAGGGCCCCGCGGCCGGCACT	MROH8	unknown	homozygous
L	21	30541662	rs5843453	AG	A	KRTAP19-6	frameshift del	homozygous
L	21	33576378	rs34377180	G	GA	SON	frameshift in	homozygous
L	21	33576390	rs34373121	GA	G	SON	frameshift del	homozygous
L	21	44539673	rs781946879	A	ATG	KRTAP10-1	frameshift in	heterozygous
L	21	44539674	rs782130783	ATC	A	KRTAP10-1	frameshift del	heterozygous
L	21	44579846	rs781947916	AGG	A	KRTAP10-5	frameshift del	heterozygous
L	21	44579850	rs782129298	A	ACG	KRTAP10-5	frameshift in	heterozygous
L	21	44592350	rs71199613	G	GCT	KRTAP10-6	frameshift in	heterozygous
L	22	23998571	.	TA	T	GSTT4	frameshift del	heterozygous
L	22	23998574	.	TC	T	GSTT4	frameshift del	heterozygous
L	22	23998579	.	T	TCG	GSTT4,GSTTP2	frameshift in	heterozygous
L	X	50607726	rs587780460	T	TC	SHROOM4	frameshift in	heterozygous
L	X	50607728	rs143151534	T	TCC	SHROOM4	frameshift in	heterozygous
L	X	51496443	rs782744505	ATCCTCGAGGCAGCC	A	NUDT11	stopgain	homozygous
L	X	102140808	rs11408120	T	TG	TCEAL6	frameshift in	homozygous
L	X	102463309	rs782116629	GC	G	TCP11X2,TCP11X1	frameshift del	heterozygous
L	X	119469743	rs113356560	A	AG	SLC25A5	frameshift in	heterozygous

L	X	119469998	rs759019641	CT	C	SLC25A5	frameshift del	heterozygous
L	X	119470513	.	A	ACTGACCTCATGTACACAGGCAT	SLC25A5	frameshift in	heterozygous
L	X	119605952	rs5903560	C	CG	NKRF	unknown	homozygous
L-	1	46815074	rs3215983	GAT	G	CYP4B1	frameshift del	heterozygous
L-	12	14823483	rs10556010	CTA	C	C12orf60	frameshift del	heterozygous
L-	12	112931910	rs11352835	TA	T	OAS1	frameshift del	heterozygous
L-	16	81127868	rs145602984	G	GTACTGCCAAGCCTGGGGAAAGC	PKD1L2	unknown	heterozygous
L-	19	39906057	.	CCT	C	FCGBP	frameshift del	homozygous
L-	19	39906061	.	A	AGG	FCGBP	frameshift in	homozygous
L-	19	39906132	.	AGC	A	FCGBP	frameshift del	homozygous
L-	19	39906137	.	T	TGC	FCGBP	frameshift in	homozygous
L-	19	39906156	.	ACT	A	FCGBP	frameshift del	homozygous
L-	19	39906162	.	C	CAGGGG	FCGBP	frameshift in	homozygous
L-	19	39906164	.	A	AGG	FCGBP	frameshift in	homozygous
L-	19	39906168	.	GT	G	FCGBP	frameshift del	homozygous
L-	21	33488442	rs139852262	CAATTA	C	DNAJC28	frameshift del	heterozygous
L*	3	112534211	rs35560667	C	CA	ATG3	frameshift in	heterozygous
L*	17	42478928	rs201894757	T	TA	ATP6V0A1	frameshift in	heterozygous
L+	18	44876705	rs3085861	C	CTCTT	SETBP1	frameshift in	heterozygous

Table 1SC: Germline structural variants (SV) encompassing exonic regions in the 2015 blood.

Chr	Start	End	CONSENSUS	SV Type
1	16725228	234776441		
1	168216948	182305167	TTTCTGGAAGCGGCATTATCTGTAACCTTGTTTTGATCGTCTTAATAACAATCCTTTAAATGTTAATGTGAGAAATGACTAATAAACAATTATTAAAAATGAAAAAAAAAAAAAAGAAAAATCTCTTCCAAAAATATAAGATCCAAATACTTGGAACATTTTCTGAAGAAAAATGCAGTCAATATAAATCTAGTCAACAGTCCTGAAGCCAAAA	INV
1	209761663	209762735	TCAAGAAGCCACCCAAACACCACCGTGGTAAGAGCAGAGCCTCCCTCACTCCACAGGGCCTGCAGAGAATCCTGAGACAGCTGCCCCAGCTCACTTAGTAACTAGCTGTTACTAAGAGAAAGGAAGCTTTCCTTTGAATATGGAAGGAACCTTATGGATTATCTATTCCAAACTCCTCACTACA	DUP
1	209761990	209762732	AAAAAAAACAACAACTAGAGATTCTAGAGAGAAAACCTGGAGAAAAGTACAGCTCCACTTATGCCTGGCCTGAGGAGGACCATTTCTGCCAGTCAGGACAAGGATATCAGGAGCAATGGAGAGTCCCTGTCCCTCCCCACTTCCCTCACTTCCTCCCTGTAAGTTCTAAATCAACTTATCCTCCATCTCTCAGGTACTCAGACAAAGGCAGAAGGACCAACAAAAAA	DEL
1	212829026	212840324	TAGAGGGCAACCAAATAAAAAGTGAATGTCTTATTGAAATAAATACAAATGCCAAGAAGCTCTGGGTTCCAGGCCAGGCAGTGCTCTGCTTGGCATATGGACTAGGTTCTTAACCACACTTGAACCCGGAAGATAGAGGTTATAGTGAGCGGAGATCGTTCCATTGCACCCCAGCCTGGGCAGCAGAGCGAGTCTCCGTCTCAAAAACAAACACACAAAATTAATTTTAAT	DEL
1	248134553	248311115	ACCCCTCAACCATGCTTTCTCAGAAAACTCCATTTAAAATTCTCAGAAAACTCCATTTAAAATTCTCAGAAAACTCCATTTAAAATTTCAAAACATAATGAGTTTTGTTTTCCTATCGTTTTATTTTTACAGTATTTTCACCTCCTAATA	INV
1	248134573	248311162	ACAAAACTCATTATGTTTTGAAATTTTAAATGGAGTTTTCTGAGAATTTTAAATGGAGTTTTCTGAGAATTTTAAATGGAGTTTTCTGAGAAAGCATGGTTGAGGGGTTGATAGTTGAATATTGCTCGCGGGGTATGAGATAGAGAACTGCTAGAGCACCTAGT	INV
2	8171558	24375686		
2	17291495	208098577		
2	32916290	72947822		
2	32916326	73985339		
2	85498968	139081795		
2	106360592	109199850	CGAGATCATGCCACTGCACTCCAGCCTGGGTGACAGAGTGAGACTCCATCTCAAAAAATAAAATATAAAATAAAATAAAATAAAATAAAATAAAATAAAATAAATAAAATAACAAAATTGTCTTGGGGATTAGGGCTTAGATGTAGAAAGCTTAAGTGTACACAACCTTCAGTCTATAGCACCC	INV
2	227376384	227393657	TCTCCAAATCTCCCACTTACTTACCATATACCCACTACCACAAGCTGCAGCAGACATACTGAATATCTCACTTTCTTCCACATTCTCTATCTATCTGAGGATCATGAAAATATACCTGTAGTCTGAGCCCTTTTTACCACCCACCTGTTTGCTTGTGGGCATAGCCTCT	DUP
3	125966603	125980700	TCAACAGGATCAAATGCTGCTGATAGGTTGAGCCGAGGCTGAGAGATGATGTTGGATTTAACAGCATGTCACTGGGGACCTTGACACAAGTCATTTCAGTGGAGTGATGGGGATGACTGGGGTGGTGGTATGGGCTGAATTGTTCCCCCTAAAATTCATATGTCAAAGCCTTAACCCCAGAACTGGAGAATGCAATTGTATTTGAACATACGACCTTTAA	INV
3	125966619	125980783	TCATTTTCCTCTTCAGCTTTCACCCATTTCTCTGCTTCCCTTTATTGCCAAGTTCTTTAAAGAGTTGCCCATACCTGCCACCGCTAATTTCTCTCTTCCAAATCTCTTTTTAATCTAGCTGTGGGTGGAAATTATAAAGTTCAGAGTGTGCTTGCAAATCTACCCCAAAGCATTCTCCCACTCACAAGCATGACTTACCATCCTCCCAGATAGCCGCATATATACTTGTTA	INV
4	127124	133267	GATGGTCTCCATCTTCTGACCTCATGATCCACCGGCCTCGGCCTCCCAAAGTGCTGGGATTATAGGCGTGAGCCACCGTGCCTGGCTGAAGGTTTGTGAATAATTTTTGTGATATCCACTACCACAGATAAGTAAAAATGCCCTCACATTCAAAGGG	DEL
4	112475950	112577052	GGTTTGTCAAAGACCAGATGGTATAGTTGTGTGGTATTATTTCTGAGGGCTCTGTTCTGTTCCATTAGTTACCCTTTGTGGGTAACTCGACCTTTCTCTTTGGCCGCCCTTAACATTTTTTCCTTCATTTCAACTTTGGTGAATCTGACAATTATGTGTGTT	INV
5	66845096	117097867		
5	115902990	115913360	GTTCACAATATTCTTGCAGAAATGGTGATGGGGGGAATGGTATTGGAGACAAATATGAATGAGATTGTTACACAAATTGATGCACAAAATAAGCTGGAAAAATCTGAGGCTGGCTTAGCAGGAGCTCTAGCCCGTGCTGTATCAGCTGTA	DEL
5	115902990	115902990	GTTCACAATATTCTTGCAGAAATGGTGATGGGGGGAATGGTATTGGAGACAAATATGAATGAGATTGTTACACAAATTGATGCACAAAATAAGCTGGAAAAATCTGAGGCTGGCTTAGCAGGAGCTCTAGCCCGTGCTGTATCAGCTGTA	breakpoint
5	115913360	115913360	GTTCACAATATTCTTGCAGAAATGGTGATGGGGGGAATGGTATTGGAGACAAATATGAATGAGATTGTTACACAAATTGATGCACAAAATAAGCTGGAAAAATCTGAGGCTGGCTTAGCAGGAGCTCTAGCCCGTGCTGTATCAGCTGTA	breakpoint

5	116011043	116015208	CTCACTCATCTCCTAGACCAGGTCTATGACTAAGGTATTTTCTTCTAAGATCAATCAGCCCTTGTTAAGGACATAACTACTATGAAAAATATCATTTTATGTTATATTTTACAGAATACCTTATCCAATTAAAGATGTGGTTTTATGTTA	INV
5	178839096	180673897	GGAGCCTCCGTTTTCCCTTGCATATCTGTGAGGAGCAAGAGATGACGTAATCCAGGAGCCTCCCGGCTCCACATCCCACAGACGCCCTTTCTGATAAAGGAGCTCGTCCGGCGCCCGGACTGCGCGCACTGGAGGCCCTGAAGGAGCGGCT	INV
6	35786784	35799008	TGCCTGGCACATGGCGGGTGCCCAGCCATGTAATATGACCCCCTTCCTCTCACCTTTACATCCCTGGGGTGTGGAATGTAGAGAAATAGCTGGAGGAACCTTTTAAAAACTGTTCAGTCCCCTCCAGGCATCCACCGTCTGCACAGACTTACCCCGGCCCCCACGTAGAGACCACCCTGCCTGGCAGGAGCCAGAGGT	DUP
6	137955724	139947580	AAAAAAAAAGAAAAAAGAAAATACAAAGAACTTCTTCAAATGAACAACAATATCAACTATCACCACCGAGATAGCGCCACTGCACTCCAGCCTGGGTGACAGAGGGAGACTCTGTCTCAAAAAAAAAAAAAAAAGAAAAAGAAAAAAAGAAAAAAAAAAACCAAAGGA	INV
6	153428099	160785923	TATACCAGTTTATCATCCATGTTTTCTAGTTAGTGGGGACAAAGCACCATGTGATGGCCATTCACTCAAAGTATGAAAATGCACCTTTGAGGACAGAGCCAAATGCACCTTTGAGGGCAGAGCCAAAACTTTGGAAGGTGTCATCCCCAGACCAACACCATAG	INV
7	15653093	149121395		
7	26203021	26206367	ATAAAAAATGGCCTCCAACAAAACTACATTGCAAAAAATGGGAAAAAAACAGAATGGAAAGAGTAAAAAAGTTGAAGAGGCAGAGCCTGAAGAATTTGTCGTGGAAAAAGTACTAGATCGACGTGTAGTGAATGGGAAAGTGGAATATTT	DEL
7	26203021	26203021	ATAAAAAATGGCCTCCAACAAAACTACATTGCAAAAAATGGGAAAAAAACAGAATGGAAAGAGTAAAAAAGTTGAAGAGGCAGAGCCTGAAGAATTTGTCGTGGAAAAAGTACTAGATCGACGTGTAGTGAATGGGAAAGTGGAATATTT	breakpoint
7	26206367	26206367	ATAAAAAATGGCCTCCAACAAAACTACATTGCAAAAAATGGGAAAAAAACAGAATGGAAAGAGTAAAAAAGTTGAAGAGGCAGAGCCTGAAGAATTTGTCGTGGAAAAAGTACTAGATCGACGTGTAGTGAATGGGAAAGTGGAATATTT	breakpoint
7	31547158	31552382	GGAGCCATTAAAATATATCTCAGACCAACCATCTCCAATGCTATCAACCTAATATCAGCCAGAACTCGCAGTTTCACACATATCACAGCAAAATGCTTTCATCTGCAGTAACTTCCTTCATTGACAATTAAGTTAAATAATGAATGTATAGAATTCAGCATAGAATCTAGCACATAATAAGTATTCCACT	INV
7	37672736	158309265		
7	39799641	51381018	AGAAGAGATGAAGCAACAACGATGATTCTCCCTCAAAGGGAAGAAGAATCTGCCAGGTGTCGCTTTGAGGAGGCAGTGGTTACAAGACAGGCTGGGCGGAGGCAGTGGTTACAAGACAGGCTGGGCTGCAGAGCCCAAGTGGGAGGCTGCAG	INV
7	49971021	49985877	CCTGTAGTTCCAGCTACTCAGGGGGCTGAGGTGAGAGGATCACTTGAGCCCAGGGGGTTGAGGATTCAGTGAGCCACGATTGTGTAATATAATATTCTCACTGCCTTAAGCAGTGAGAAGAGACCTGGCCCCTTCAGCTGGTGTGTGTGGTGACCTGGTATGCAATCTGTGAGTTGGGAGCCTGCTGGCAGAACC	DEL
7	63953069	64357847	GTTGGGTTTCACTGGCCAGTGGAGTGAGGAGGCCCAGGTGGGCCCACAAAAGTGGCTGTGGGTAGGCTTACCACACGACTGGTTGCTTCTATGCCTACACTCACAAGAGAGATCTTCTTCTCTAAAGGCAAGCCCAGGGAGATCTGAGGCTCATGGGAGAAAGTGAAGAAAAAAGGTG	INV
7	65123242	65572718	CAAAAAGCCGCAGCGGGCGAAAAGCCGCGGCAGCGGGGGGCGAAAAGCCGCAGCAGCGGGGGGCCAAAAGCCGGACGGGCAGAAAGCCGCGGCAGCGGCGGGCAAAAAGCCGCGGCGGCAAAAAGGCGCGGCGGCGGGGGCAAAAAGCCGCGGCGGCG	INV
7	66904226	76074443	GAGGCCGCCGCGAGGCACGAGCTGGGCCTGGAGGGGCCCGCGTGAGGCAGGAGCCGGGCTCGTGGAGGCTGCCGGGAAGCCGGCACGAGCATGGCCGGGGAAGGCCGCCGGGAGGCGAGAGCTGGGCCTGGAAAGGCCGCCGCGAGGCAGGAGGCAGGCCTGGA	INV
7	67260214	72554722	CTGAGCTCAAGTAATCCACCCACCTTGGCCTCCCAAAGTGCTGGGATTACAGGCGTGAACCAAAGTGCTGGGATTACAGGCGTGAACCAAAGTGCTGGGATTACAGGCGTGAACCAACCGTGCCCAGCTTCTCACCCTCTCTTGACCCTTC	INV
7	76498794	76998000	GTGTGGAGGTGTGCAGGTGTGTAGGTATGTGCACGTGTGGGGTGTGTGGTATGTGGTGTGTGCAGGTGTGGGTATGTGGAGGTGTGGGGTGTGTGGAGGTGTGGGGTGTGTGGGGTGTGTAGAGGTGAGGGTGTGTGGGGTGTGTGGAGGTGAGGGTGTGTGGGGTGTATGGAGGTGTGGAGTGTATGGAGGTGTGGAG	DUP
9	122723874	122725567	TGTTGAATTTTACTATCTGTTTCTATGTAGTTTCAGAATTAAATGTTCTTTCGAAGTATAATAGCAAAGACTTGGGAACCAACCCAAATGCCCATCAATGATAGACTGGATAAAGAAAATCTGGCACATATACACCATGTAATACTATCC	INV
9	122723883	122725220	AGACAGCTTCTTCCCCACCTCAAATCTATTTTAAAAATCTTACTGCACCCATCAACCTGTCATCTACATTAGGTATTTCTCCTAATGCAATCCTTCTCCTAGCTCCCCACCCCCTGGCAGGCCCCAGTGTGTGATGTTCCCCTCCCTTTGTC	INV
10	21516869	21517131	TGGTGCGGAGGCGGGCAGAAGCCGTTGACCAGATGAAACCTCTCCAGGCAAGTGGCCCCCGCGGCGGCGGCGGCGGCGGCTGCCGGGTGTTTGCTGCACAGCAGGCTCCGAAAATAAGCAGGGTCCGAG	DEL
10	21516869	21516869	TGGTGCGGAGGCGGGCAGAAGCCGTTGACCAGATGAAACCTCTCCAGGCAAGTGGCCCCCGCGGCGGCGGCGGCGGCGGCTGCCGGGTGTTTGCTGCACAGCAGGCTCCGAAAATAAGCAGGGTCCGAG	breakpoint
10	21517131	21517131	TGGTGCGGAGGCGGGCAGAAGCCGTTGACCAGATGAAACCTCTCCAGGCAAGTGGCCCCCGCGGCGGCGGCGGCGGCGGCTGCCGGGTGTTTGCTGCACAGCAGGCTCCGAAAATAAGCAGGGTCCGAG	breakpoint
11	1408136	1414346	GGTTCCTGGTCCCAGGTCCTTCCACTCCAGAATCCACCTTTGAGCCCCATACTCTCTGCAGCCCATCCTCTGGCCTCCCTGGGGCAAACTGTGAGGCTTATGGTCGCACAGTGTGCTCCGGGGATCTCAGGGCGCTAGGAACTTCCCTCTGTAGAGAGTTGGCATCACTGGGATCCCAGGATGAACTTATGTGTGGAATGCGGTGTTC	DEL
11	1894079	1939843	CACACAAACACACACACACTCCCAGCCCAGGAAACAGAGTGAGGCCCTATCACACACACACACACACACACACACCCACACACCAGCCTGGGAAACAGAGTGAGGGCCTG	INV
11	5763343	5788053	TACCCCTTGATTGTTTCAACATGATTCTCCTTTCAATCCCTGTCTCCTTCCATTACATTATATTTATTTATTTATTTTTGAGACGGAGTTTCACATAGGTGAGGACTATGGCACAGATGTGGGCAGTGCAGGTGCTGAAGGCCTTCTGTCGAGCATCTGCTGAT	DEL
11	5788053	5788053	TACCCCTTGATTGTTTCAACATGATTCTCCTTTCAATCCCTGTCTCCTTCCATTACATTATATTTATTTATTTATTTTTGAGACGGAGTTTCACATAGGTGAGGACTATGGCACAGATGTGGGCAGTGCAGGTGCTGAAGGCCTTCTGTCGAGCATCTGCTGAT	breakpoint
11	6003075	6030573	ATGCCATGTAAAGTTTCCTGATCAATCTGGAGACCCAGTGTACCTTAAAACGTAGTAGAGAAGTACAGAAACATAAAAAGTACATTCCATCAGTAGATGGAACTGGAAAATGAGGAAGGAGGTAGATAATATATGGCATTGCCTGCTTTC	INV

11	7789626	7811832	TAATGGAAGAACATTCCATGCTCATGAATAGGTAGAATCAATATCGTGAAAATGGCCACACTGACCAAGGTAATTGGTCTATTCAGAGGTTCAACTTCTTCCTGGTTTAGTCTTGGGAGAGTGTATGTGTCAAGGAACTTATCCATTTCTTCTAGATTTTCTAGTTTATTT	DEL
11	58199876	78657987		
12	8208855	8238298	AAAGAGCTCATTCCAGCAGGATCAATGAAGAGAATTCACCAGAGGAACTAGTTCCAAAGGTATGGCAAGAGCTAAATCTTCCAACAGGGGCCCGTGGGGCAACCCAGAGTATAGTTTCAGATCAGCCCCAAACCTATGTGGAATGTGGGA	DUP
12	9402670	31118756	TGATCCTTAGAGAAAAGCCCCTCTTCCCCCCCTGGCTCTTAGGATCCCCATCGCAGGGCGGGGAGGCACCCACCGCGAGGCGGAGACTGAGAGCCAGCCCCTCTTCCCCCTCTGGCTCTTAGGATCCCCATCGTAAGGGGGGAAGACACC	DEL
12	11348640	95637181		
12	40483627	40483954	AAACTGGACTGTCAGCTGAAGTGACAGGGACAACTAGACTATCAGCTGGGGTGACAGGGAAAACTGGATCATCAGCAAGAGTGACAGGAAAAACTGGACCATCAGCAGAAGTAACAGGGAAAACTGGACTATCAGCTGGAGTGACGGGGA	DEL
12	40483627	40483627	AAACTGGACTGTCAGCTGAAGTGACAGGGACAACTAGACTATCAGCTGGGGTGACAGGGAAAACTGGATCATCAGCAAGAGTGACAGGAAAAACTGGACCATCAGCAGAAGTAACAGGGAAAACTGGACTATCAGCTGGAGTGACGGGGA	breakpoint
12	40483954	40483954	AAACTGGACTGTCAGCTGAAGTGACAGGGACAACTAGACTATCAGCTGGGGTGACAGGGAAAACTGGATCATCAGCAAGAGTGACAGGAAAAACTGGACCATCAGCAGAAGTAACAGGGAAAACTGGACTATCAGCTGGAGTGACGGGGA	breakpoint
12	52950388	52950388	GATCTTCGCAAATACTGTGGATAATGCCCACATCGTTCTGCAGATTGACAATGCCCGCCTTGCTGCTGATGATTTTAGAGTCAACTGTGAGACAGAGCTGGCCATGTGCCAGCCAGTAGAGAACGACATCCATGGGCTCTGCGAGGTCATTGATGACACCAATGT	BND
12	71139010	71139964	TAAAAAAAAAGTTTAAATGAATGAGATAATCAGAATTATCTCTTAGAGAGCATTGAGGAGGATAAATTGGGTTTGGATAATTCACAGGCATTCACTTAAAAAGTACAAATTGATCTTAAAAAGTACAAATCCTTGCCCTCATGGAGCTCACATTCTATTGAAGTGCTTATATTT	INV
12	71139498	71139975	CCTTCCCTAGTAGGTTCTAAAGGTCTTATGTATTATTTCGCACAATATCTGACACATAGAGGTATGGCAGTAATGTTGAATGTATGAATGAATGAATGAATGAATGAAGGATGTATTTCAGGGTCCTGGCACAGGACTTGACACATAGGAGGCACTCAATGGATATTTGTTGAATGAGCAAAATAAACTTCAAGGA	INV
12	103965852	125316602		
12	132001604	132977209	AAGAGATGGAGGAGTAGAGTCTTCTCTAAACTCCCCACAAGGAAAGGGAGATTCCCTTTCCCGGTCTGCTAAGTAACCGGTGCCTTTTCTAAGCACTGACGCTACCGCTAGACCATGGTCCGCTTGGCAACGGGCGTCTTCCCAGGCGCT	INV
13	94711391	94711575	GCAGTTGCACGGGATCATGTAGCCCGGGTTGCCGGGGCTGGGGTGCGAGTGCGTGTGCCCCCCGGCGGCGGCAGCGGCCGACTGCGGGAAGAAGACGCGTGCGGCGGCAGCGGCGGCGGCCGCGGCCGCCTTCTCGGGATTGGCGAGCAGCGACTCAGGCACCAGGCCCCCCCCCGCCCCCCCC	DEL
13	94711391	94711391	GCAGTTGCACGGGATCATGTAGCCCGGGTTGCCGGGGCTGGGGTGCGAGTGCGTGTGCCCCCCGGCGGCGGCAGCGGCCGACTGCGGGAAGAAGACGCGTGCGGCGGCAGCGGCGGCGGCCGCGGCCGCCTTCTCGGGATTGGCGAGCAGCGACTCAGGCACCAGGCCCCCCCCCGCCCCCCCC	breakpoint
13	94711575	94711575	GCAGTTGCACGGGATCATGTAGCCCGGGTTGCCGGGGCTGGGGTGCGAGTGCGTGTGCCCCCCGGCGGCGGCAGCGGCCGACTGCGGGAAGAAGACGCGTGCGGCGGCAGCGGCGGCGGCCGCGGCCGCCTTCTCGGGATTGGCGAGCAGCGACTCAGGCACCAGGCCCCCCCCCGCCCCCCCC	breakpoint
14	93246140	93246140	AGTACACCTCCTGCAGAAACCATGTTTACAGATCTGGACTCTTTTGTGGCCTTCCATCCACCCTGGAGTTTGAGACCAGATTGGGCAACATAGGGAAATCCTGTCTCTACCAAAAAAAATTTAAAAATTAGCTGGGTGTGGTGGCACATGCCTGTGGTCCCAGCTACTCA	BND
15	41561637	41562546	GGCTTCCTCAGCCTGAAGTCAGTGGAGCGCTCTGACGCCGGCCGGTACTGGTGCCAGGTGGAGGATGGGGGTGAAACCGAGATCTCCCAGCCAGTGTGGCTCACGGTAGAAGGTGTGCCATTTTTCACAGTGGAGCCAAAAGATCTGGCA	DEL
15	41561637	41561637	GGCTTCCTCAGCCTGAAGTCAGTGGAGCGCTCTGACGCCGGCCGGTACTGGTGCCAGGTGGAGGATGGGGGTGAAACCGAGATCTCCCAGCCAGTGTGGCTCACGGTAGAAGGTGTGCCATTTTTCACAGTGGAGCCAAAAGATCTGGCA	breakpoint
15	41562546	41562546	GGCTTCCTCAGCCTGAAGTCAGTGGAGCGCTCTGACGCCGGCCGGTACTGGTGCCAGGTGGAGGATGGGGGTGAAACCGAGATCTCCCAGCCAGTGTGGCTCACGGTAGAAGGTGTGCCATTTTTCACAGTGGAGCCAAAAGATCTGGCA	breakpoint
15	41572564	41573002	GCATGGGGACCTGCATGCCTTCCTGCTCGCCTCCCGGATTGGGGAGAACCCCTTTAACCTACCCCTCCAGACCCTGATCCGGTTCATGGTGGACATTGCCTGCGGCATGGAGTACCTGAGCTCTCGGAACTTCATCCACCGAGACCTGGCTGCTCGGAATTGCATGC	DEL
15	41572564	41572564	GCATGGGGACCTGCATGCCTTCCTGCTCGCCTCCCGGATTGGGGAGAACCCCTTTAACCTACCCCTCCAGACCCTGATCCGGTTCATGGTGGACATTGCCTGCGGCATGGAGTACCTGAGCTCTCGGAACTTCATCCACCGAGACCTGGCTGCTCGGAATTGCATGC	breakpoint
15	41573002	41573002	GCATGGGGACCTGCATGCCTTCCTGCTCGCCTCCCGGATTGGGGAGAACCCCTTTAACCTACCCCTCCAGACCCTGATCCGGTTCATGGTGGACATTGCCTGCGGCATGGAGTACCTGAGCTCTCGGAACTTCATCCACCGAGACCTGGCTGCTCGGAATTGCATGC	breakpoint
15	41573815	41577886	AACTACCTCATTGGCGGGAACCGCCTGAAACAGCCTCCGGAGTGTATGGAGGACGTGTATGATCTCATGTACCAGTGCTGGAGTGCTGACCCCAAGCAGCGCCCGAGCTTTACTTGTCTGCGAATGGAACTGGAGAACATCTTGGGCCAGCTGTCTGTGCTATCTGCCA	DEL
15	41573815	41573815	AACTACCTCATTGGCGGGAACCGCCTGAAACAGCCTCCGGAGTGTATGGAGGACGTGTATGATCTCATGTACCAGTGCTGGAGTGCTGACCCCAAGCAGCGCCCGAGCTTTACTTGTCTGCGAATGGAACTGGAGAACATCTTGGGCCAGCTGTCTGTGCTATCTGCCA	breakpoint
15	41577886	41577886	AACTACCTCATTGGCGGGAACCGCCTGAAACAGCCTCCGGAGTGTATGGAGGACGTGTATGATCTCATGTACCAGTGCTGGAGTGCTGACCCCAAGCAGCGCCCGAGCTTTACTTGTCTGCGAATGGAACTGGAGAACATCTTGGGCCAGCTGTCTGTGCTATCTGCCA	breakpoint
15	52523962	52524851	GTCCCAGCTACTCACGAGGCTGAGGTGGGAGGACAGCTTGAGCCCAGGAGTTAAAGGCTACAGTGAGCCATGTTCATTTCACTGCACTCCAGCCTGGGTGACACAGCAACAGTGCCATAGAATATAAAAGTGGATCTATCCCAGAAAAAATCTAGGCCATGTGGCTCCTGTATATATGAGAGGATATGT	DUP
16	15092397	29076807	AATTTTGCACTGACGGCATCATGCTATTATTAAATATTTGAATTCTGACCTGACCAAAAGCAAACCTCACACATTATCTCCTCTTACCGTTTTGTACTTCAGCAAGACTTCTGTCACAGTTCCACCAAACTGAACAGTTTTTCTTGGGGG	INV

16	21583120	22699436	GGGATAGCCAAGGAAGCTGCATTTTAACTAGCACCACAGGTGATCCTGACGCTAGTGATCTGAGGCCTGTTTTGAAAAACACTAATGCGCTGGCCAACATGGTGAAATCATGCTCAGGTGGTGAC GAGCAAACCCACCGGATTGGGGACATCCCAAGGGTAGGGAAACTGTCCACATTCCTTCCCTGTCAAGCATTTATTGAGCACCAATGGTCTGCCCTGTGCT	INV
16	28915183	68947714		
17	2514734	40523190		
17	21320184	21767823	ATCCAAGGAAAAGGAGGCACAGCATGAACTTGACAGCAGGGCCTGTCAAGTTGTTCTCCACTTGACAGCAGGCTTGACCCCTCTGGGTTGTTCTCCACAGGGCTTTGCCCATGGCACACTTTATC TGAGCACCTTCTATGTGCCACGTTG	INV
17	45578420	46289344	AGTGACATAAACACGGCTTGCTATATAGCCTTGACCTGCCAGGCTCAAGTGATCCTCCTGCCTTAACCCCTTCAAATAGCTACAGGTGCTCACCACCATGCCCAGCTACTTTTAATTCTTTCTATATGG TCACTTTCGATCTTTTAAAGTGTATTTTAATGTATAATTTTTTTTTAAGTTAAGAAACATGCTGCCTCCTGATG	DUP
17	46135415	64922332		
17	46210500	47098457	AAGAAAAGAAAATAAATATGTGAATATAATTTATGTGAGCTTTCACAAAACTCTTGATAAGATTCTAAATTAAAGTTTTTTTTTAAAGACCTGAGTGGCCACAGGATGAGAACATTTACTGTAGACTG GACATAACTGAGACACAGAAAATTATAGGTAGATGCTGAGGTACTTCCCCAA	DUP
17	72236721	79483469	GGAGGGAGGGAGGCAGGCAAGGAGGGAGGGAGGGAGGCAGGCAGGGAGGGAGGGAGGGAGGCCTGCAATTGTGCAGGGAAGAGCATTCCATGCAGTAGA	INV
18	29997100	69940479		
19	53433442	53470230	CTAAATACACACATTTGTCCTTTTTTTTTTTTTATTCACTCTTGTTCTGGGAAGGTGGGGGGCTGTCTGGAGCCCATTTCTTTGGCTTCGACTTCGCAAACAGCGTTATCTTGTAACTGTTCTCTAAGT GAGCTTGCTAGGCAGAGGAAA	DEL
22	23931955	23969109	ACTGAATGTCTAAAAAAACAAGTTTAAACTGTTTGTTACCCAAAGTTTGGTGCACTCTCCCTTTGCTCAGACAAGACATGCTATCCCCATGAGGTAGATAATCTCCATTATGCCAATTTTATGATGAGA AGACTAAGGCTCTTCATACTCCCCCGCCCTCAG	DEL
22	23946221	23995304	CTCTGGGCTTCTAATGGGCAGACACCTTCCTCCATGATGTTTGTAGCTGCAAAGCCTGGCACAGTCCCTCAAGACAAGCTTTTTGACTTGAACTGCTGATGGTCTTCCATGCACAATTCAACAGAA ACCCAGTAGCATACACTTCCTTGTATGCACTT	INV
22	29767547	29769677	CTGCTGTTCCGCAGGACCTCCACCTTCGCCCTCACCATCATCGTGGGCGTCATGTTCTTCGAGCGCGCCTTCGATCAAGGCGCGGACGCTATCTACGACCACATCAACGAGGGGAAGCTGTGGAA ACACATCAAGCACAAGTATGAGAACAAGTAGTTCCTTGGAGGCCCCCATCCAGG	DEL
22	29767547	29767547	CTGCTGTTCCGCAGGACCTCCACCTTCGCCCTCACCATCATCGTGGGCGTCATGTTCTTCGAGCGCGCCTTCGATCAAGGCGCGGACGCTATCTACGACCACATCAACGAGGGGAAGCTGTGGAA ACACATCAAGCACAAGTATGAGAACAAGTAGTTCCTTGGAGGCCCCCATCCAGG	breakpoint
22	29769677	29769677	CTGCTGTTCCGCAGGACCTCCACCTTCGCCCTCACCATCATCGTGGGCGTCATGTTCTTCGAGCGCGCCTTCGATCAAGGCGCGGACGCTATCTACGACCACATCAACGAGGGGAAGCTGTGGAA ACACATCAAGCACAAGTATGAGAACAAGTAGTTCCTTGGAGGCCCCCATCCAGG	breakpoint
X	11023956	85568529		
X	52857692	55652517	AAAAGCAAGGAGCCCCTGACCCCTTCTTCCAAACATACTCTTTTGTCTTTGTCTTTATGCCCGTGTTCATCCTCCTTTGTTCAGTCCAGCAAGGTCTGCAGCATTATAAAGTTCAAAGGCATGGGAAC CTAGAGCTGCCCCTTCTGTCTTTCTTTTAAGTAAGGTCCAAAGGTGAAAAGGAGATTCAATCCAGAAACAAAAGAACATGGTAAAGGC	DUP
X	85568166	135282945		
X	97200439	123648591	CGGAGCTCAGCAAGCTAAGAACCACTGGCTTGACATTCTCGCTGCCAGCACAGCAGTCTGGAGTCGAGCTGGGATGATCAAGCTTGGTGATAGGGAGGGTCATCCGCCATTACTGAGGTTTTAG TAGGTGGTTTTCCCCTGACAGTGCTG	DUP
Y	10795075	56831198	CAATCTCAGCCCACTTTTCATTTCAGCATTCCATTCCATTCCATTCCATTCCATTCCATTCCACTGTACTCCACTCCAATCCACTGAATTCCAGTCCACTCCACTCCAACCTATTCCATTCC ATTCAATTCCAATCCCTTC	DEL
Y	10821929	56834818	CCACTCCAATCCATTCCACTCCACTCCTCTCCACTCCACTCCTCTCCACTCCACTCCACTCCATTCCATTCCATTCCATACCATTCCTTTCCTTTCTTTCCAAAGGATCTCACTCTGTCACAGAGG CTGGAGTGCAGTGGCACAATCTCAGCTCACATT	DEL
Y	10910862	56837200	CCACCGTAGGCAGAGCCTAGACAAAAGTCCCATCACCTGGGTGATCAGTGCAGAGATAGGTCACAATGCCCCCATACACAGAGCCTATAAAATAGTCTCATCACCTGCACTACAGCCTGTGTGACA GAGGGAGACCCTGATGAAAGAAAGG	INV
Y	11021331	56836587	ATCCCATTCCATTCCTCTCTATTTCACTCCACTCCACTCCACTCCAATCCATTCCATTCCATTCCACTGCATTCAATTCCATTCCTTTCTTTCGAGAGTATCTCACTCTGTCACCCAGCCTGGAGCGCAGT GGCAGAATCTCAGCTCACA	DEL

Table 1D: Germline copy number variations (CNV) encompassing exonic regions in the 2015 blood.

Chr	Start	End	Gene Name	CopyNum	Size	CNV Type
1	820000	3910000	LINC00115,MIB2,FNDC10,LOC100129534,LOC100996583,LINC01134,TNFRSF14,PEX10,ISG15,SLC35E2A,VWA1,TNFRSF14-AS1,C1orf174,ATAD3C,CCNL2,PANK4,TMEM52,MIR429,LOC105378949,FAAP20,SAMD11,RNF223,SMIM1,TMEM88B,HES5,MORN1,PERM1,NADK,SKI,LOC105378948,HES4,ARHGEF16,PLEKHN1,LOC112268219,TTC34,CFAP74,LOC105378591,LRRC47,MIR200A,PUSL1,C1orf159,GABRD,SDF4,MMP23A,NOC2L,MIR551A,TPRG1L,PRDM16,MIR6808,CDK11A,PRXL2B,MIR6726,AURKAIP1,MIR4251,ATAD3A,LINC01342,SCNN1D,INTS11,TAS1R3,TMEM240,ANKRD65,ATAD3B,LINC01128,CALML6,ACTRT2,LINC02593,MIR6727,TNFRSF18,PRKCZ-AS1,GNB1,MIR200B,CPTP,FAM41C,LINC01770,MMEL1,KLHL17,LOC107985728,MMP23B,TTLL10,C1QTNF12,WRAP73,TP73-AS1,SNORD167,DVL1,CEP104,SLC35E2B,TNFRSF4,B3GALT6,LOC100288175,RER1,AGRN,MEGF6,MRPL20-AS1,MXRA8,PLCH2,UBE2J2,PRDM16-DT,MRPL20,ACAP3,CCDC27,TP73,SSU72,DFFB,CDK11B,LOC105378586,PRKCZ	3	3090000	gain
1	6593000	6632000	KLHL21,PHF13,THAP3	3	39000	gain
1	16882000	16985000	RNU1-1,RNU1-2,RNU1-3,RNVU1-18,LOC105376805,CROCC,RNU1-4,MFAP2	4	103000	gain
1	50954000	50983000	CDKN2C,FAF1	4	29000	gain
1	61035000	61092000	NFIA	3	57000	gain
1	152582000	152613000	LCE3C	0	31000	loss
1	248826000	248925000	ZNF672,PGBD2,ZNF692,MIR3124	3	99000	gain
2	3375000	3653000	COLEC11,RPS7,RNASEH1-AS1,ADI1,RNASEH1,TRAPPC12,EIPR1	3	278000	gain
2	44923000	44958000	SIX3,LINC01833,SIX3-AS1	3	35000	gain
2	74381000	74553000	TTC31,INO80B,LBX2,WBP1,LOXL3,C2orf81,DCTN1-AS1,INO80B-WBP1,DQX1,PCGF1,TLX2,MRPL53,DOK1,DCTN1,AUP1,HTRA2,RTKN,CCDC142,WDR54,LBX2-AS1,MOGS	3	172000	gain
2	104823000	104876000	POU3F3,LINC01159,PANTR1	3	53000	gain
2	176073000	176199000	MIR7704,HOXD1,LOC401021,EVX2,HOXD11,HOXD13,HOXD8,MIR10B,HOXD4,HOXD3,HOXD9,HAGLR,HOXD-AS2,HOXD12,HAGLROS,HOXD10	3	126000	gain
2	218835000	218904000	WNT10A,LINC01494,WNT6	3	69000	gain
2	222284000	222332000	CCDC140,PAX3,CT75	3	48000	gain
2	232340000	232456000	ECEL1P2,ALPP,ALPG,DIS3L2	3	116000	gain
2	238990000	239410000	MIR2467,HDAC4,HDAC4-AS1,MIR4440,MGC16025,MIR4441,MIR4269	3	420000	gain
2	241678000	241787000	GAL3ST2,ING5,DTYMK,D2HGDH	3	109000	gain
3	38011000	38088000	PLCD1,DLEC1	3	77000	gain
3	50171000	50364000	CYB561D2,TUSC2,SEMA3B,HYAL3,SLC38A3,HYAL2,RASSF1,SEMA3F,SEMA3B-AS1,ZMYND10,NAA80,RASSF1-AS1,IFRD2,MIR6872,NPRL2,MIR5787,GNAT1,CACNA2D2,TMEM115,HYAL1,GNAI2,LSMEM2	3	193000	gain
3	51948000	51999000	GPR62,PCBP4,PARP3,ACY1,ABHD14A-ACY1,ABHD14A,RPL29,ABHD14B	3	51000	gain
3	57739000	57770000	SLMAP	3	31000	gain

3	181696000	181725000	SOX2-OT,SOX2	3	29000	gain
3	184148000	184378000	ABCF3,ECE2,FAM131A,CLCN2,VWA5B2,THPO,PSMD2,MIR1224,EEF1AKMT4-ECE2,SNORD66,AP2M1,DVL3,EIF4G1,ALG3,EEF1AKMT4,CAMK2N2,POLR2H	3	230000	gain
4	637000	1009000	ATP5ME,LOC100129917,GAK,MYL5,PCGF3,IDUA,DGKQ,SLC49A3,TMEM175,PDE6B,SLC26A1,CPLX1	3	372000	gain
4	1173000	1876000	CTBP1-AS,NSD2,SLBP,FAM53A,TACC3,NKX1-1,MAEA,TMEM129,SPON2,LOC100130872,UVSSA,CTBP1-DT,FGFR3,CTBP1,LETM1	3	703000	gain
4	2232000	2474000	MIR4800,MXD4,RNF4,CFAP99,ZFYVE28,HAUS3,POLN	3	242000	gain
4	3220000	3820000	DOK7,RGS12,LINC00955,MSANTD1,HGFAC,LRPAP1,LINC02171,HTT,ADRA2C	3	600000	gain
4	14988000	15015000	CPEB2,C1QTNF7-AS1,CPEB2-DT	3	27000	gain
4	15767000	15800000	CD38	3	33000	gain
4	46369000	46395000	GABRA2	3	26000	gain
4	48258000	48381000	SLAIN2,TEC	3	123000	gain
4	68518000	68622000	UGT2B17	0	104000	loss
4	69266000	69365000	UGT2B28	1	99000	loss
4	80185000	80210000	PRDM8	3	25000	gain
4	110605000	110643000	PANCR,PITX2	3	38000	gain
4	128040000	128097000	LARP1B	3	57000	gain
4	146629000	146662000	POU4F2	3	33000	gain
4	173159000	173187000	GALNT7,LOC101930370	3	28000	gain
4	173502000	173545000	SCRG1,HAND2-AS1,HAND2	3	43000	gain
5	13000	685000	EXOC3-AS1,CCDC127,LRRC14B,HRAT5,PP7080,AHRR,TPPP,LOC100996325,SLC9A3,SDHA,EXOC3,MIR4456,PLEKHG4B,PDCD6-AHRR,SLC9A3-AS1,CEP72,PDCD6	3	672000	gain
5	815000	1949000	CLPTM1L,LINC02116,SLC6A18,TRIP13,IRX4,LPCAT1,LOC100506688,ZDHHC11,SLC6A19,MIR6075,MIR4277,CTD-2194D22.4,NKD2,LOC728613,TERT,CTD-3080P12.3,NDUFS6,SDHAP3,MIR4635,SLC6A3,SLC12A7,BRD9,MIR4457,LINC01511,MRPL36	3	1134000	gain
5	2733000	2763000	C5orf38,IRX2	3	30000	gain
5	43467000	43616000	TMEM267,C5orf34,NNT,NNT-AS1,PAIP1	3	149000	gain
5	73430000	73459000	LINC01386,FOXD1	3	29000	gain
5	77027000	77053000	AGGF1	3	26000	gain
5	77622000	77649000	OTP	3	27000	gain
5	81966000	81991000	ATG10	3	25000	gain
5	93564000	93626000	NR2F1,MIR2277,NR2F1-AS1,FAM172A	3	62000	gain
5	123081000	123108000	LOC105379152,PRDM6	3	27000	gain

5	139535000	139801000	CXXC5,PSD2-AS1,UBE2D2,PSD2,CXXC5-AS1	3	266000	gain
5	140784000	140883000	PCDHA11,PCDHA5,PCDHA4,PCDHA3,PCDHA9,PCDHA1,PCDHA6,PCDHA7,PCDHA8,PCDHA10,LOC112267934,PCDHA13,PCDHA2,PCDHA12	4	99000	gain
5	141097000	141169000	PCDHB4,PCDHB3,PCDHB6,PCDHB2,PCDHB17P,PCDHB5	3	72000	gain
5	141169000	141250000	PCDHB14,PCDHB8,PCDHB16,PCDHB9,PCDHB18P,PCDHB13,PCDHB15,PCDHB19P,PCDHB12,PCDHB11,PCDHB10,PCDHB7	4	81000	gain
5	141330000	141445000	PCDHGA8,PCDHGB5,PCDHGA1,PCDHGA3,PCDHGA2,PCDHGB2,PCDHGB4,PCDHGA11,PCDHGB6,PCDHGA12,PCDHGA10,PCDHGB7,PCDHGA9,PCDHGA5,PCDHGB8P,PCDHGA7,PCDHGA6,PCDHGA4,PCDHGB3,PCDHGB1	3	115000	gain
5	171373000	171459000	MIR3912,NPM1,FGF18	3	86000	gain
5	181157000	181282000	TRIM52-AS1,SNORD95,CTC-338M12.4,TRIM41,MIR4638,RACK1,SNORD96A,LINC01962,TRIM52,TRIM7	3	125000	gain
6	256000	391000	DUSP22	4	135000	gain
6	391000	546000	IRF4,EXOC2	3	155000	gain
6	1590000	1632000	FOXC1,GMDS,FOXCUT	3	42000	gain
6	3739000	3773000	PXDC1	3	34000	gain
6	10372000	10430000	TFAP2A-AS1,LINC00518,TFAP2A,TFAP2A-AS2	3	58000	gain
6	21578000	21615000	SOX4	3	37000	gain
6	32487000	32565000	HLA-DRB5,HLA-DRB6	0	78000	loss
6	43570000	43593000	XPO5,POLH	3	23000	gain
6	44234000	44284000	MIR4647,SLC35B2,HSP90AB1,NFKBIE,TMEM151B,SLC29A1,TCTE1	3	50000	gain
6	98822000	98851000	PNKY,POU3F2	3	29000	gain
6	99590000	99628000	PRDM13	3	38000	gain
6	125739000	125795000	NCOA7,HEY2	3	56000	gain
6	169632000	170605000	ERMARD,PDCD2,C6orf120,LOC102724511,LOC285804,LINC00242,PHF10,LINC01624,DLL1,TCTE3,WDR27,LOC154449,FAM120B,LOC100131532,TBP,PSMB1,MIR4644,LINC00574	3	973000	gain
7	199000	2729000	MAD1L1,ZFAND2A-DT,MIR4648,TTYH3,SNX8,HRAT92,SNORA114,LOC100128653,BRAT1,GNA12,ADAP1,LOC105375303,LFNG,IQCE,ELFN1-AS1,MRM2,FOXL3-OT1,PRKAR1B,TMEM184A,PRKAR1B-AS2,DNAAF5,ZFAND2A,PSMG3-AS1,FOXL3,MIR4655,C7orf50,INTS1,LOC112267991,CYP2W1,GPR146,CHST12,MIR339,FAM20C,MIR6836,COX19,MAFK,GET4,UNCX,LOC442497,TFAMP1,LOC116435278,NUDT1,GRIFIN,EIF3B,ELFN1,PSMG3,AMZ1,PDGFA,GPER1,PRKAR1B-AS1,SUN1,MICALL2	3	2530000	gain
7	6608000	6676000	C7orf26,ZNF316,ZNF853	3	68000	gain
7	20772000	20808000	SP8	3	36000	gain
7	27086000	27254000	HOXA13,HOXA10,HOXA5,EVX1-AS,HOTTIP,EVX1,HOXA-AS3,HOXA9,HOXA2,HOXA4,HOTAIRM1,HOXA10-HOXA9,HOXA1,HOXA11,HOXA-AS2,HOXA3,HOXA10-AS,MIR196B,HOXA11-AS,HOXA7,HOXA6	4	168000	gain
7	72536000	73332000	TRIM74,NSUN5P2,SPDYE8,TRIM73,GTF2IP1,NSUN5,SPDYE13,SPDYE15,SPDYE7P,SPDYE11,TRIM50,MIR4650-1,SPDYE9,MIR4650-2,TYW1B,FKBP6,NCF1B,POM121,SBDSP1,SPDYE10P,PMS2P7,LOC541473,LOC100101148,SPDYE14,STAG3L3,GTF2IP4	3	796000	gain
7	96991000	97037000	DLX5,DLX6-AS1,DLX6	3	46000	gain
7	100952000	100975000	MUC12,MUC3A	4	23000	gain

7	101147000	101371000	NAT16,COL26A1,VGF,PLOD3,AP1S1,LNCPRESS1,CLDN15,ZNHIT1,IFT22,MIR4653,FIS1,MOGAT3,EMSLR	3	224000	gain
7	155290000	155583000	INSIG1,BLACE,EN2,CNPY1,LOC100286906	3	293000	gain
8	650000	713000	ERICH1	3	63000	gain
8	11669000	11815000	C8orf49,SNORA99,NEIL2,FDFT1,GATA4	3	146000	gain
8	22554000	22614000	PDLIM2,SORBS3,C8orf58,CCAR2,LOC107986876	3	60000	gain
8	43242000	43298000	POTEA	3	56000	gain
8	54450000	54475000	SOX17	4	25000	gain
8	141076000	141558000	SLC45A4,DENND3,MROH5,GPR20,LOC105375787,LINC01300,PTP4A3	3	482000	gain
8	143221000	144837000	BOP1,GLI4,EXOSC4,LOC101928902,MIR661,CYHR1,DGAT1,SCX,FAM83H,FOXH1,HSF1,ZNF517,GRINA,MAFA,SLC39A4,PARP10,MIR6893,GPT,ZNF707,SPATC1,MIR10400,GFUS,RPL8,NAPRT,LRRC14,HGH1,MAPK15,NRBP2,MINCR,PLEC,LOC100130027,LOC101928160,MIR4664,MROH1,KIFC2,MIR6846,MIR6847,ADCK5,PYCR3,RHPN1-AS1,PPP1R16A,MIR7112,SLC52A2,ZNF623,WDR97,LOC100310756,MIR6850,C8orf82,LINC02878,GSDMD,ZFP41,OPLAH,MAFA-AS1,TONSL-AS1,ZNF7,CYC1,MIR6848,SMPD5,SHARPIN,CPSF1,LRRC24,PUF60,MIR6845,ZNF34,MIR6849,RHPN1,GPAA1,EEF1D,FBXL6,SCRT1,SCRIB,EPPK1,MFSD3,TIGD5,LOC105375800,SNORD149,ZC3H3,ZNF696,TOP1MT,MIR937,MIR1234,TONSL,RECQL4,CCDC166,MROH6,IQANK1,MAF1,ARHGAP39,VPS28,ZNF251,TMEM249,MIR939	3	1616000	gain
9	21950000	22021000	CDKN2B-AS1,CDKN2B,CDKN2A-DT,CDKN2A	3	71000	gain
9	34579000	34651000	ARID3C,RPP25L,SIGMAR1,DCTN3,CNTFR,GALT,CNTFR-AS1	3	72000	gain
9	72835000	72858000	TMC1	3	23000	gain
9	83790000	83989000	KIF27,HNRNPK,GKAP1,C9orf64,RMI1,MIR7-1	3	199000	gain
9	111614000	111660000	DNAJC25,DNAJC25-GNG10	3	46000	gain
9	120485000	120504000	CDK5RAP2	3	19000	gain
9	124000000	124034000	LOC100505588,LHX2	3	34000	gain
9	127717000	127941000	LOC102723566,MIR2861,TTC16,CDK9,TOR2A,PIP5KL1,MIR3960,ST6GALNAC6,DPM2,MIR4672,FAM102A,AK1,FPGS,SH2D3C,ENG,ST6GALNAC4	3	224000	gain
9	131504000	131575000	POMT1,UCK1,PRRT1B	3	71000	gain
9	133962000	134172000	RNU6ATAC,LOC100130548,BRD3,WDR5,VAV2,BRD3OS	3	210000	gain
9	135899000	137898000	DKFZP434A062,TRAF2,CARD9,MAN1B1-DT,MIR3621,CCDC183,TMEM141,TOR4A,RNF208,ABCA2,SLC34A3,DPP7,SNHG7,UAP1L1,TMEM210,MIR4292,INPP5E,FBXW5,MAN1B1,C9orf139,TPRN,PHPT1,NDOR1,FUT7,RNF224,NOTCH1,LCN12,LOC651337,NACC2,MIR7114,DNLZ,GRIN1,LINC02692,QSOX2,TMEM203,LCN6,CCDC183-AS1,STPG3,SNORA17A,NALT1,CAMSAP1,GPSM1,CLIC3,SNAPC4,MAMDC4,MIR4674,CACNA1B,NRARP,NSMF,CYSRT1,MIR126,ENTPD8,LCN10,ZMYND19,NELFB,AJM1,MIR602,NPDC1,LHX3,LOC100128593,DIPK1B,ANAPC2,PNPLA7,LRRC26,LINC01451,SSNA1,STPG3-AS1,AGPAT2,LCNL1,SEC16A,SNORA17B,TUBB4B,MIR4479,RABL6,CCDC187,PAXX,HSPC324,DPH7,LCN8,C8G,LCN15,MIR6722,TMEM250,PTGDS,SAPCD2,MRPL41,FAM166A,C9orf163,PMPCA,EXD3,ARRDC1,LOC100133077,MIR4673,EGFL7,UBAC1,ARRDC1-AS1,EHMT1,ENTPD2,ENTR1,LOC107987142,EDF1,NOXA1	3	1999000	gain
10	3029000	3182000	LOC101927824,PITRM1,PFKP,SNORD142,PITRM1-AS1	3	153000	gain
10	17611000	17638000	HACD1	3	27000	gain
10	21488000	21543000	MIR1915,MIR1915HG,SKIDA1,MLLT10	4	55000	gain

10	22308000	22351000	COMMD3-BMI1,COMMD3,SPAG6,BMI1	4	43000	gain
10	26562000	26660000	FAM238B,LOC101929117,FAM238A,APBB1IP	3	98000	gain
10	43397000	43468000	HNRNPF,ZNF487,SNORD3J	3	71000	gain
10	46514000	46560000	GPRIN2	4	46000	gain
10	62798000	62814000	ADO,EGR2	3	16000	gain
10	81858000	81885000	NRG3	3	27000	gain
10	86356000	86399000	GRID1	3	43000	gain
10	87070000	87104000	GLUD1,SHLD2	3	34000	gain
10	92667000	92701000	HHEX	3	34000	gain
10	100711000	100744000	PAX2	3	33000	gain
10	117527000	117560000	EMX2OS,EMX2	3	33000	gain
10	121585000	121612000	FGFR2	3	27000	gain
10	123124000	123159000	BUB3,HMX3,HMX2	3	35000	gain
10	132105000	133474000	ADGRA1-AS1,CFAP46,VENTX,INPP5A,LOC107984282,KNDC1,TUBGCP2,MIR3944,LRRC27,LINC01167,LINC01168,ECHS1,ADGRA1,FUOM,PAOX,STK32C,UTF1,PRAP1,MIR202,SPRN,MIR202HG,MTG1,NKX6-2,LINC02870,CALY,PWWP2B,ADAM8,JAKMIP3,ZNF511,LINC01166,DPYSL4,SCART1	3	1369000	gain
11	197000	1746000	KRTAP5-2,MIR210HG,KRTAP5-5,POLR2L,TMEM80,LINC02688,IFITM5,PTDSS2,PSMD13,DUSP8,KRTAP5-AS1,DRD4,TSPAN4,MIR210,DEAF1,FAM99B,RASSF7,GATD1,RIC8A,TOLLIP-AS1,IFITM1,MIR6744,MUC2,CHID1,BRSK2,SLC25A22,EPS8L2,FAM99A,KRTAP5-3,SIRT3,KRTAP5-6,PKP3,MUC5B,TOLLIP,TALDO1,LOC143666,IRF7,RNH1,LRRC56,SNORA52,KRTAP5-1,RPLP2,PIDD1,AP2A2,CDHR5,MUC6,CEND1,KRTAP5-4,LOC171391,IFITM3,MUC5B-AS1,CD151,HRAS,PGGHG,SCT,NLRP6,PHRF1,ODF3,LMNTD2-AS1,ANO9,MIR6743,MOB2,BET1L,LMNTD2,CRACR2B,IFITM2,IFITM10,MUC5AC,SIGIRR,B4GALNT4,PNPLA2	3	1549000	gain
11	5763000	5788000	OR52N1,OR52N5	1	25000	loss
11	31799000	31832000	PAUPAR,PAX6-AS1,PAX6	3	33000	gain
11	55598000	55685000	OR4C6,OR4P4,OR4C11,OR4S2	1	87000	loss
11	63979000	64379000	OTUB1,LOC114841035,MIR7155,VEGFB,BAD,DNAJC4,RPS6KA4,MACROD1,MIR1237,PPP1R14B-AS1,GPR137,PLCB3,CCDC88B,TRPT1,STIP1,KCNK4,FKBP2,FLRT1,FERMT3,PPP1R14B,CATSPERZ,TRMT112,ESRRA,KCNK4-TEX40,PRDX5,NUDT22	3	400000	gain
11	64698000	64923000	CDC42BPG,MIR6749,MEN1,NRXN2,PYGM,RASGRP2,ATG2A,MIR6750,MIR192,MIR194-2,MIR10392,EHD1,MIR194-2HG,SF1,MAP4K2	3	225000	gain
11	65526000	65670000	LTBP3,MAP3K11,SIPA1,RELA,ZNRD2-AS1,KCNK7,FAM89B,EHBP1L1,MIR4489,MIR4690,ZNRD2,PCNX3,SCYL1	3	144000	gain
11	66246000	66763000	KLC2,CNIH2,CCS,RAB1B,BBS1,RIN1,ZDHHC24,MRPL11,CTSF,CCDC87,TMEM151A,LOC101928069,CD248,C11orf80,SPTBN2,RBM4,SLC29A2,PELI3,B4GAT1,YIF1A,BRMS1,RBM14,RBM14-RBM4,RBM4B,NPAS4,ACTN3,LOC102724064,DPP3	3	517000	gain
11	67393000	67519000	PTPRCAP,CABP4,PPP1CA,CABP2,CORO1B,CDK2AP2,MIR6752,TBC1D10C,CARNS1,RAD9A,PITPNM1,AIP,GPR152,RPS6KB2,TMEM134	3	126000	gain
11	129988000	130102000	PRDM10,LINC00167,APLP2	3	114000	gain
12	173000	207000	IQSEC3,SLC6A12,SLC6A12-AS1	3	34000	gain
12	42219000	42245000	YAF2	3	26000	gain

12	52008000	52079000	ATG101,NR4A1,TAMALIN	3	71000	gain
12	53940000	54050000	HOXC-AS1,HOXC9,HOXC12,HOXC-AS3,HOXC8,MIR196A2,HOXC6,HOXC4,HOXC13,HOXC5,HOTAIR,HOXC11,HOXC10,HOXC-AS2,MIR615	3	110000	gain
12	113049000	113199000	DDX54,RASAL1,RITA1,MIR7106,IQCD,DTX1,CFAP73	3	150000	gain
12	114669000	114696000	TBX3	3	27000	gain
12	121794000	121843000	SETD1B,LINC01089,HPD	3	49000	gain
12	123355000	123420000	SBNO1,SBNO1-AS1,MIR8072,RILPL2,KMT5A	3	65000	gain
12	124280000	124574000	MIR6880,RFLNA,ZNF664-RFLNA,NCOR2	3	294000	gain
12	131764000	132985000	PUS1,FBRSL1,PXMP2,PGAM5,POLE,ULK1,MIR6763,LOC101928530,ANKLE2,EP400,CHFR,DDX51,P2RX2,EP400P1,LRCOL1,LOC101928416,NOC4L,LINC02361,GALNT9,SFSWAP,ZNF605,MMP17,GOLGA3,LOC100130238,SNORA49	3	1221000	gain
13	20120000	20191000	GJA3,GJB2	3	71000	gain
13	21441000	21463000	ZDHHC20	3	22000	gain
13	27949000	27977000	CDX2,LINC00543	4	28000	gain
13	45460000	45496000	COG3	3	36000	gain
13	52808000	52859000	PCDH8,MIR759	3	51000	gain
13	95635000	95703000	DNAJC3,DNAJC3-DT,DZIP1	3	68000	gain
13	99957000	100003000	LINC00554,LOC101927437,ZIC5,ZIC2	3	46000	gain
13	109762000	109802000	IRS2	3	40000	gain
13	110426000	110726000	COL4A2,NAXD,RAB20,COL4A2-AS2,CARS2,ING1,COL4A2-AS1	3	300000	gain
13	112037000	112988000	SOX1,ATP11A,MCF2L,LINC01070,SPACA7,LINC01043,ATP11AUN,LINC01044,LOC101928730,LOC100506016,TUBGCP3,ATP11A-AS1,MCF2L-AS1,SOX1-OT	3	951000	gain
13	112990000	113168000	F10,PROZ,F7,F10-AS1,MCF2L	3	178000	gain
13	113288000	114210000	GRTP1,LAMP1,LOC101928841,TMCO3,GAS6-AS1,RASA3,C13orf46,LINC00454,LINC00565,LINC00452,ADPRHL1,DCUN1D2,TFDP1,GAS6-DT,ATP4B,TMEM255B,GAS6,GRK1,LINC00552,GRTP1-AS1	3	922000	gain
14	18681000	19956000	DUXAP9,POTEH-AS1,OR4Q3,LINC01297-DUXAP10-NBEAP6,OR4K1,BMS1P18,BMS1P17,LNCRNA-ATB,LOC101929572,LOC100508046,BMS1P22,OR4N2,POTEM,POTEG,OR4K3,OR11H2,OR4K2,OR4K5,DUXAP10,OR4M1,LINC01297	3	1275000	gain
14	21062000	21106000	NDRG2,ZNF219,TMEM253,ARHGEF40	3	44000	gain
14	23287000	23397000	EFS,SLC22A17,IL25,PPP1R3E,MYH6,MIR208A,BCL2L2,CMTM5,PABPN1,BCL2L2-PABPN1	3	110000	gain
14	35806000	35835000	BRMS1L,RALGAPA1	3	29000	gain
14	36639000	36672000	PAX9	3	33000	gain
14	37545000	37627000	TTC6,MIPOL1,FOXA1	3	82000	gain
14	49585000	49642000	RN7SL1,LRR1,RPL36AL,MGAT2,RPS29,DNAAF2	3	57000	gain
14	53940000	53969000	BMP4,MIR5580	3	29000	gain

14	56787000	56826000	OTX2,OTX2-AS1	3	39000	gain
14	60631000	60661000	SALRNA1,MIR9718,SIX1	3	30000	gain
14	64470000	64555000	PPP1R36,AKAP5,ZBTB1,ZBTB25,LOC102723809,HSPA2	3	85000	gain
14	76726000	76766000	VASH1	3	40000	gain
14	88546000	88570000	PTPN21,ZC3H14	3	24000	gain
14	91235000	91312000	GPR68,CCDC88C	3	77000	gain
14	100133000	100347000	EVL,SLC25A47,SLC25A29,MIR345,WARS1,MIR6764,DEGS2,YY1	3	214000	gain
14	102894000	103287000	LINC00677,EXOC3L4,TNFAIP2,CDC42BPB,LBHD2,TRAF3,AMN,LINC00605	3	393000	gain
14	104805000	106880000	PLD4,TEX22,CDCA4,CRIP2,LINC00221,MIR8071-2,MIR5195,JAG2,MIR4538,LINC02298,TMEM121,TEDC1,MIR4539,ELK2AP,MIR4537,LOC105370697,LINC00226,MIR4507,MIR6765,AHNAK2,PACS2,CRIP1,LINC00638,MIR12121,ADAM6,MIR8071-1,BRF1,MTA1,LOC100507437,FAM30A,CEP170B,BTBD6,GPR132,NUDT14,CLBA1	3	2075000	gain
15	20645000	22301000	LOC101927079,MIR1268A,NF1P2,FAM30C,OR4N4C,CXADRP2,LINC02203,REREP3,MIR5701-2,LINC01193,MIR5701-1,OR4N3P,LOC646214,OR4N4,MIR3118-2,OR4M2,POTEB2,MIR3118-3,LOC642131,LOC102724760,MIR5701-3,MIR3118-4,IGHV1OR15-1,IGHV1OR15-3,POTEB3,NBEAP1,POTEB	5	1656000	gain
15	41485000	41519000	LTK,ITPKA,RPAP1	3	34000	gain
15	50151000	50192000	SLC27A2	3	41000	gain
15	62054000	62076000	LOC101928907,C2CD4A,VPS13C	3	22000	gain
15	89845000	89878000	MIR5094,ARPIN-AP3S2,AP3S2	3	33000	gain
15	96317000	96364000	MIR1469,NR2F2-AS1,NR2F2	3	47000	gain
16	34000	3309000	IL32,C1QTNF8,METRN,MMP25,PERCC1,PGAP6,ZNF213-AS1,WDR24,WFIKKN1,METTL26,IGFALS,RHOT2,PKMYT1,MIR6511B1,LUC7L,ZG16B,SNORA64,SNORA3C,ATP6V0C,ZNF200,FAHD1,MEIOB,CCDC78,UNKL,MPG,LINC00921,CASKIN1,LOC652276,DECR2,SLC9A3R2,RNPS1,CIAO3,RAB11FIP3,RAB40C,SNORA10,MIR4516,NME3,JMJD8,PRR35,PTX4,ZNF213,PRSS27,HBZ,TMEM204,LINC02124,BRICD5,CAPN15,RHBDF1,CASP16P,SYNGR3,ZSCAN10,GNG13,OR1F2P,LMF1,PRSS30P,RHBDL1,CLDN6,SNORA78,GNPTG,TEDC2,MLST8,PAQR4,MIR3177,MSRB1,MSLN,ERVK13-1,RPL3L,HAGH,TBC1D24,MIR1225,CCNF,ELOB,TRAF7,LOC101929613,TELO2,TIGD7,CLDN9,KREMEN2,CRAMP1,PRSS22,LOC729652,ABCA3,MIR3677,PIGQ,HBM,HBQ1,NUBP2,JPT2,CEROX1,HS3ST6,TPSG1,NME4,LINC00235,BAIAP3,TPSB2,SNORD60,NDUFB10,ARHGDIG,MIR940,TPSD1,CLCN7,KCTD5,TPSAB1,ABCA17P,ZNF263,AMDHD2,SPSB3,ZNF598,MEFV,LOC105371049,PGP,CEMP1,IFT140,PRR25,PKD1,NOXO1,HBA2,PRSS41,LOC105371046,NTN3,DNASE1L2,EME2,SRRM2,MIR6767,SSTR5,MCRIP2,TNFRSF12A,LINC00514,MIR3180-5,PDPK1,FLYWCH2,HCFC1R1,NTHL1,LINC00254,MIR6511B2,MIR662,CCDC154,SSTR5-AS1,FAM234A,MAPK8IP3,MIR6768,LMF1-AS1,NHLRC4,SNHG9,BICDL2,AXIN1,LINC02867,POLR3K,WDR90,FLJ42627,HBA1,ZNF205-AS1,ZNF75A,LOC106660606,SRRM2-AS1,MRPL28,TSC2,SOX8,GFER,PRSS33,RGS11,RAB26,SNRNP25,LOC100134368,UBE2I,FBXL16,MIR5587,MIR3178,LOC100128770,NPW,LOC105371038,LOC100287175,C16orf91,NPRL3,FLYWCH1,RPS2,CHTF18,OR1F1,PRSS21,RNF151,E4F1,MIR3176,PDIA2,MIR4717,RPUSD1,STUB1,THOC6,SNHG19,ZNF205,HAGHL,MMP25-AS1,ECI1,TSR3,TBL3,ANTKMT,CACNA1H,MRPS34	3	3275000	gain
16	21278000	21341000	CRYM,CRYM-AS1	3	63000	gain
16	28593000	28843000	MIR6862-1,NPIPB8,TUFM,EIF3C,SULT1A2,ATXN2L,SULT1A1,EIF3CL,NPIPB9,MIR6862-2	3	250000	gain
16	29963000	31241000	SNORA80C,VKORC1,STX1B,SETD1A,PRR14,LOC613038,RNF40,SEPTIN1,BOLA2,SLX1B,SULT1A4,TMEM219,LOC606724,PRSS36,ZNF771,CCDC189,LOC730183,FBXL19-AS1,PHKG2,BCKDK,KAT8,TBC1D10B,TBX6,SLX1A-SULT1A3,PYCARD,CORO1A,INO80E,ALDOA,NPIPB12,ZNF747,ZNF629,BCL7C,CD2BP2,PYCARD-AS1,SEPHS2,C16orf92,MIR4519,TRIM72,ZNF688,HIRIP3,STX4,HSD3B7,TMEM265,PRSS8,BOLA2B,DCTPP1,ZNF768,PRSS53,FBXL19,TAOK2,YPEL3,PPP4C,PYDC1,FUS,ZNF689,MYLPF,NPIPB13,ORAI3,TLCD3B,ZNF668,MIR762,SNORA30,FBRS,GDPD3,ITGAL,CTF1,SMG1P5,LOC112694756,LOC388242,SLX1A,SLX1B-SULT1A4,MAPK3,ZNF48,SULT1A3,MIR4518,ZNF785,ZNF646,SRCAP,MIR762HG,LOC101928595,ZNF764,DOC2A	3	1278000	gain
16	31424000	31485000	TGFB1I1,ARMC5,SLC5A2,ZNF843,ITGAD,COX6A2	3	61000	gain
16	49839000	49880000	ZNF423	3	41000	gain

16	51129000	51162000	MIR548AI,SALL1	3	33000	gain
16	56604000	56681000	MT2A,MT1B,MT1A,MT1JP,MT1G,MT1M,MT1L,MT1F,MT1IP,MT1H,MT1DP,MT1E	3	77000	gain
16	67151000	67198000	KIAA0895L,NOL3,E2F4,TRADD,FBXL8,HSF4,EXOC3L1	3	47000	gain
16	75454000	75569000	GABARAPL2,CHST5,CHST6,TMEM231,TMEM170A	3	115000	gain
16	85153000	85846000	LINC00311,MIR1910,COX4I1,LOC101928557,MIR12128,GSE1,C16orf74,EMC8,MIR5093,GINS2	3	693000	gain
16	86490000	86588000	FLJ30679,FENDRR,FOXF1,FOXL1,FOXC2-AS1,MTHFSD,FOXC2	3	98000	gain
16	88612000	90084000	SLC22A31,PIEZO1,VPS9D1,DEF8,LOC101927793,MIR4722,LOC100289580,CTU2,LINC00304,PABPN1L,GAS8,CBFA2T3,LOC101927817,SPATA2L,RNF166,SPIRE2,GALNS,SPG7,LINC02138,ZC3H18,GAS8-AS1,CENPBD1,CPNE7,RPL13,LOC100129697,TCF25,SNORD68,SNAI3-AS1,URAHP,ANKRD11,CHMP1A,ACSF3,DPEP1,SNAI3,SNORA119,TUBB3,FANCA,IL17C,LOC339059,APRT,TRAPPC2L,CDH15,CDK10,SPATA33,MC1R,ZNF778,ZNF276,MVD,LOC105371414,CDT1,PRDM7,AFG3L1P,DBNDD1,VPS9D1-AS1,LOC100287036,CYBA	3	1472000	gain
17	7198000	7461000	ELP5,TNK1,SPEM3,KCTD11,PLSCR3,SPEM1,GABARAP,TMEM95,GPS2,NEURL4,DLG4,ACAP1,YBX2,CLDN7,ZBTB4,NLGN2,CHRNB1,SPEM2,CTDNEP1,SLC2A4,TMEM256,MIR324,ACADVL,PHF23,DVL2,FGF11,EIF5A,TMEM102,TMEM256-PLSCR3	3	263000	gain
17	21675000	21967000	KCNJ18	5	292000	gain
17	44172000	44246000	MIR6782,ASB16-AS1,UBTF,ATXN7L3,TMUB2,ASB16	3	74000	gain
17	48534000	48645000	HOXB9,MIR10A,HOXB-AS3,HOXB2,HOXB3,MIR196A1,HOXB4,HOXB7,HOXB-AS1,HOXB6,HOXB8,HOXB5	3	111000	gain
17	62654000	62713000	LOC105371855,MARCHF10,MRC2	3	59000	gain
17	63429000	63475000	CYB561	3	46000	gain
17	67978000	68306000	ARHGAP27P2,AMZ2,LINC00674,BPTF,KPNA2,C17orf58,SLC16A6,ARSG	3	328000	gain
17	79704000	80116000	TBC1D16,CBX4,LINC01977,LINC01979,LINC02078,MIR1268B,CBX2,LINC01978,GAA,CCDC40,CBX8,MIR4739,ENPP7	3	412000	gain
17	80843000	83203000	MIR657,ARL16,MCRIP1,NPB,GPS1,CSNK1D,MIR338,MIR6787,LOC105371925,SLC16A3,NOTUM,LINC01970,MYADML2,SNORD134,SIRT7,FAAP100,AATK,CEP131,MIR1250,BAHCC1,TEX19,CCDC57,MIR3186,PDE6G,RPTOR,RFNG,PYCR1,DCXR-DT,RAC3,HEXD,FASN,MAFG-DT,ARHGDIA,PPP1R27,TEPSIN,HGS,CHMP6,WDR45B,MIR4740,DCXR,CD7,PCYT2,B3GNTL1,SLC38A10,MIR4525,SECTM1,LRRC45,BAIAP2,ZNF750,DUS1L,UTS2R,RAB40B,CYBC1,OXLD1,TBCD,CCDC137,NPLOC4,MAFG,TSPAN10,GCGR,SLC25A10,FN3K,MIR6786,BAIAP2-DT,PVALEF,NDUFAF8,ALYREF,ACTG1,MRPL12,CENPX,LOC400627,METRNL,FN3KRP,NARF,LOC101929552,TMEM105,LOC100130370,FSCN2,ANAPC11,MIR3065,OGFOD3,FOXK2,ASPSCR1,P4HB,LINC00482	3	2360000	gain
18	12404000	12437000	LOC105371998,PRELID3A	3	33000	gain
18	12864000	12920000	PTPN2	3	56000	gain
18	21582000	21624000	ESCO1,SNRPD1	3	42000	gain
18	46956000	47042000	ELOA2,KATNAL2	3	86000	gain
18	47236000	47267000	SKOR2	3	31000	gain
18	49797000	49817000	SCARNA17,ACAA2,SNHG22	4	20000	gain
18	57419000	57449000	ONECUT2	3	30000	gain
18	79359000	79910000	ATP9B,SLC66A2,LOC284240,KCNG2,LOC284241,NFATC1,CTDP1	3	551000	gain
19	259000	5260000	SHC2,PLPPR3,LOC100288123,OAZ1,MOB3A,NFIC,PCSK4,RNU6-1,EEF2,ABHD17A,EFNA2,PLIN3,SPPL2B,FZR1,TIMM13,MKNK2,MATK,CSNK1G2-AS1,TMIGD2,AMH,APC2,TNFAIP8L1,SEMA6B,PRSS57,RAX2,TPGS1,PALM,UHRF1,RNF126,YJU2,EBI3,ZNF57,ARID3A,TBXA2R,ARRDC5,POLRMT,ZBTB7A,MAP2K2,MIER2,ZNF555,ELANE,AZU1,MPND,ODF3L2,MISP,REXO1,IZUMO4,ZNF556,SCAMP4,SMIM24,CFD,MIR6789,NCLN,GADD45B,TMPRSS9,DIRAS1,DOT1L,MIR7-3,LSM7,TLE6,MIR4747,MADCAM1,DPP9,ATCAY,ATP5F1D,MIR7-3HG,PTBP1,CIRBP,MIR1268A,ZNF77,UQCR11,SLC39A3,RNU6-	3	5001000	gain

			8,ADAT3,HDGFL2,GIPC3,C19orf71,C2CD4C,ZNF554,C19orf25,MIR637,BSG,TCF3,RPS15,CIRBP-AS1,SBNO2,MIR4746,TMEM259,LMNB2,PWWP3A,GRIN3B,ATP8B3,CNN2,PLIN5,NMRK2,KDM4B,AP3D1,PIP5K1C,NDUFS7,ONECUT3,SF3A2,KISS1R,FAM174C,DPP9-AS1,FEM1A,DAZAP1,TLE2,ANKRD24,CDC34,GPX4,MYDGF,PLEKHJ1,PTPRS,JSRP1,GNA15,RNU6-7,GZMM,HMG20B,CBARP,BTBD2,MIR4321,ABCA7,CELF5,R3HDM4,MIR7850,UBXN6,THEG,SNORD37,LINC01775,MIDN,RNU6-2,PLIN4,PLK5,CACTIN-AS1,TLE5,GNG7,LINGO3,MIR1227,POLR2E,ARHGAP45,CACTIN,SHD,REEP6,TJP3,LOC100996351,SGTA,MBD3,CREB3L3,ADAMTSL5,MED16,TICAM1,SH3GL1,HCN2,STK11,MRPL54,PEAK3,RNU6-9,MIR3187,FSTL3,PLPP2,MIR1909,DOHH,KLF16,SIRT6,WDR18,MIR4745,GNA11,DAPK3,STAP2,CHAF1A,APBA3,ZFR2,PIAS4,CSNK1G2,PRTN3,MFSD12,S1PR4,FSD1,MEX3D,THOP1,GAMT,LRG1,MIR7108,FGF22			
19	10218000	10567000	MIR4322,ICAM1,CDKN2D,MIR1181,KEAP1,KRI1,MIR1238,ATG4D,ICAM5,MRPL4,S1PR2,RAVER1,ICAM3,CDC37,PDE4A,S1PR5,TYK2,ICAM4,ZGLP1,FDX2	3	349000	gain
19	12611000	13020000	MAST1,MIR5695,WDR83,TNPO2,TRIR,SNORD41,MAN2B1,BEST2,NFIX,ZNF791,GCDH,SYCE2,FARSA-AS1,HOOK2,DNASE2,JUNB,GADD45GIP1,RTBDN,RNASEH2A,FARSA,MIR6515,CALR,DAND5,MIR5684,RAD23A,KLF1,PRDX2,DHPS,SNORD135,GET3,FBXW9,MIR6794,GNG14,WDR83OS	3	409000	gain
19	13692000	14155000	PODNL1,MIR24-2,NANOS3,MIR181D,LOC100507373,RFX1,IL27RA,SAMD1,MIR27A,DCAF15,C19orf67,CC2D1A,ZSWIM4,MISP3,MIR1199,MRI1,LOC284454,RLN3,CCDC130,PALM3,ADGRL1,ASF1B,C19orf57,C19orf53,MIR181C,MIR23A,PRKACA	3	463000	gain
19	15353000	15475000	RASAL3,MIR1470,AKAP8L,AKAP8,WIZ,PGLYRP2	3	122000	gain
19	17195000	18946000	MIR3188,COPE,KCNN1,ELL,MAST3,BST2,PGLS,FKBP8,GDF1,LOC102725254,LSM4,IL12RB1,MIR3189,GDF15,NIBAN3,SNORA68,KXD1,CCDC124,IFI30,UPF1,PDE4C,PIK3R2,JUND,JAK3,RPL18A,MAP1S,HOMER3-AS1,MVB12A,INSL3,MPV17L2,ANKLE1,PGPEP1,BISPR,RAB3A,LOC100507551,USHBP1,CERS1,ISYNA1,LOC729966,MYO9B,DDX49,TMEM221,USE1,ANO8,GTPBP3,MRPL34,HOMER3,NR2F6,KLHL26,PLVAP,B3GNT3,BABAM1,REX1BD,CRTC1,ABHD8,NXNL1,ARRDC2,CRLF1,COMP,TMEM59L,UNC13A,OCEL1,FCHO1,SLC27A1,IQCN,LRRC25,SSBP4,COLGALT1,UBA52,SLC5A5,DDA1	3	1751000	gain
19	38175000	38498000	SIPA1L3,SPINT2,RYR1,C19orf33,PPP1R14A,DPF1,YIF1B,KCNK6,RASGRP4,SPRED3,FAM98C,GGN,PSMD8,CATSPERG	3	323000	gain
19	40417000	40689000	SPTBN4,SERTAD3,SHKBP1,NUMBL,LTBP4,BLVRB,SERTAD1	3	272000	gain
19	42207000	42418000	CNFN,DEDD2,TMEM145,LIPE,ZNF526,ERF,GSK3A,LIPE-AS1,CIC,MEGF8,PRR19,PAFAH1B3,LOC101930071,MIR8077	3	211000	gain
19	53860000	55685000	LENG8-AS1,LILRA1,LILRB4,LILRP2,MBOAT7,LILRB2,TARM1,LAIR1,MIR6805,ZNF628,BRSK1,NAT14,TMC4,PPP1R12C,KIR2DS4,LOC101928804,SNORD157,CCDC106,PPP6R1,KIR2DL3,CACNG6,TMEM86B,LILRA2,UBE2S,RPS9,CNOT3,KIR2DL4,MYADM,RPL28,FAM71E2,PRPF31,KIR2DS2,HSPBP1,PRKCG,ISOC2,KIR3DS1,KIR3DL2,LILRB3,KIR2DL1,SBK2,KIR3DX1,ZNF579,TMEM150B,LENG9,KIR2DS1,SHISA7,KIR2DL2,SBK3,FIZ1,CACNG8,LOC102725023,ZNF580,LENG1,COX6B2,CDC42EP5,SYT5,TTYH1,MIR935,EPS8L1,IL11,MIR6803,GP6,LILRA4,U2AF2,LOC112267881,NLRP7,ZNF865,LOC112268354,KIR3DL1,MIR7975,ZNF524,MIR6802,ZNF581,TFPT,KMT5C,TNNT1,LILRB1,LAIR2,MIR8061,SSC5D,ZNF784,NDUFA3,DNAAF3,CACNG7,NCR1,VSTM1,TMEM238,NLRP2,KIR2DS5,KIR3DL3,LOC112268355,LENG8,TNNI3,LILRA6,KIR2DS3,FCAR,RDH13,EPN1,OSCAR,PTPRH,MIR6804,LILRB5,TMEM190,MIR4752,LILRA5,TSEN34	3	1825000	gain
20	278000	426000	SOX12,RBCK1,NRSN2-AS1,C20orf96,NRSN2,TRIB3,ZCCHC3	3	148000	gain
20	634000	660000	SRXN1	3	26000	gain
20	1579000	1612000	SIRPB1	0	33000	loss
20	3768000	3795000	CDC25B,SPEF1,C20orf27,CENPB	4	27000	gain
20	5110000	5132000	TMEM230,PCNA,PCNA-AS1,CDS2	3	22000	gain
20	23348000	23367000	LINC01431,NXT1,GZF1	3	19000	gain
20	32166000	32206000	TM9SF4,PLAGL2,TSPY26P	3	40000	gain
20	33660000	33708000	PXMP4,ACTL10,NECAB3,E2F1,C20orf144	3	48000	gain
20	45290000	45323000	RBPJL,MATN4	3	33000	gain
20	49897000	49948000	LOC105372653,RNF114,SPATA2	3	51000	gain
20	59024000	59048000	PRELID3B,ATP5F1E,SLMO2-ATP5E,TUBB1	3	24000	gain

20	59922000	59952000	PPP1R3D,SYCP2,FAM217B	3	30000	gain
20	62123000	64283000	LOC105369209,UCKL1,KCNQ2,MIR941-4,ZBTB46-AS1,MIR941-3,TCFL5,PSMA7,SLCO4A1,MIR4326,MIR1-1,COL9A3,ADRM1,TNFRSF6B,RTEL1,YTHDF1,OGFR-AS1,FLJ16779,SLC17A9,CHRNA4,LINC00659,STMN3,MIR941-2,LAMA5-AS1,RTEL1-TNFRSF6B,MRGBP,OGFR,SLC2A4RG,GMEB2,NPBWR2,ARFGAP1,SNORA117,LINC01749,SAMD10,EEF1A2,ARFRP1,BIRC7,RPS21,GID8,MIR1-1HG,MIR647,MIR3196,HAR1B,HELZ2,MIR6813,RBBP8NL,LOC100130587,MTG2,COL20A1,MIR124-3,LINC01056,C20orf204,NKAIN4,CABLES2,LSM14B,BHLHE23,GATA5,TCEA2,PRPF6,MIR941-5,LAMA5,MYT1,SS18L1,HAR1A,LIME1,ABHD16B,SRMS,ZNF512B,DPH3P1,UCKL1-AS1,LINC00029,HRH3,MIR941-1,ZGPAT,MIR4758,FNDC11,SOX18,PTK6,LOC112268269,RGS19,NTSR1,DNAJC5,TPD52L2,PCMTD2,LKAAEAR1,OPRL1,MHENCR,ZBTB46,MIR1914,MIR1-1HG-AS1,OSBPL2,SLCO4A1-AS1,DIDO1,MIR133A2,PPDPF	3	2160000	gain
21	7916000	10764000	MIR6724-4,RNA45SN3,BAGE2,MIR10396B,LINC01667,BAGE3,RNA28SN1,BAGE,MIR3648-1,RNA45SN1,RNA28SN3,MIR6724-1,RNA18SN1,MIR3648-2,RNA18SN3,TPTE,RNA5-8SN5,BAGE4,LOC100507412,RNA5-8SN2,RNA18SN4,RNA18SN2,MIR663A,MIR10396A,LOC105379514,RNA18SN5,MIR6724-2,RNA28SN5,RNA45SN2,RNA5-8SN1,RNA45SN5,NCOR1P4,RNA28SN2,TEKT4P2,RNA5-8SN4,RNA5-8SN3,MIR6724-3	11	2848000	gain
21	28988000	29023000	RWDD2B,LTN1	3	35000	gain
21	34880000	34906000	RUNX1	3	26000	gain
21	36685000	36758000	SIM2,HLCS	3	73000	gain
21	36961000	37004000	HLCS	3	43000	gain
21	41729000	41805000	RIPK4,PRDM15,MIR6814	3	76000	gain
21	41807000	41842000	PRDM15	3	35000	gain
21	43644000	44023000	CSTB,PDXK,AATBC,RRP1B,HSF2BP,TRAPPC10,RRP1,AGPAT3	3	379000	gain
21	44093000	44335000	DNMT3L-AS1,LOC102723996,DNMT3L,GATD3A,TRAPPC10,CFAP410,GATD3B,AIRE,LOC102724159,ICOSLG,PWP2,PFKL,LINC01678	3	242000	gain
21	44335000	44348000	CFAP410	4	13000	gain
21	44348000	44819000	KRTAP12-4,KRTAP10-7,TRPM2-AS,KRTAP10-10,TSPEAR,KRTAP10-5,KRTAP12-3,KRTAP10-11,KRTAP12-2,LINC01424,TRPM2,SUMO3,KRTAP12-1,LINC02575,KRTAP10-8,KRTAP10-1,KRTAP10-9,LRRC3,TSPEAR-AS2,KRTAP10-2,TSPEAR-AS1,UBE2G2,KRTAP10-6,KRTAP10-3,KRTAP10-12,LRRC3-DT,KRTAP10-4	3	471000	gain
21	44834000	45069000	PICSAR,ITGB2-AS1,FAM207A,PTTG1IP,LINC00163,LINC01547,ITGB2	3	235000	gain
21	45258000	45394000	LINC00316,POFUT2,LINC00205,LINC00334	3	136000	gain
21	45403000	45655000	MIR6815,COL18A1-AS1,COL18A1-AS2,COL18A1,SLC19A1,PCBP3,LINC01694	3	252000	gain
21	45741000	45796000	PCBP3	3	55000	gain
21	46007000	46435000	FTCD-AS1,SNORD159,SPATC1L,COL6A2,MCM3AP-AS1,PCNT,MCM3AP,YBEY,C21orf58,LSS,FTCD	3	428000	gain
21	46629000	46679000	PRMT2	3	50000	gain
22	17072000	17179000	LINC01664,ADA2,TMEM121B,IL17RA,HDHD5-AS1,HDHD5	3	107000	gain
22	19728000	20454000	LINC00896,TRMT2A,RTL10,MIR4761,ZNF74,ZDHHC8,SNORA77B,KLHL22,MIR1306,TXNRD2,MIR6816,GNB1L,MIR1286,DGCR8,SCARF2,MIR3618,ARVCF,RTN4R,TANGO2,RANBP1,DGCR6L,FAM230G,LOC284865,TBX1,CCDC188,COMT,MIR185	3	726000	gain
22	41277000	41304000	ZC3H7B,RANGAP1	3	27000	gain
22	45851000	46094000	PRR34-AS1,MIRLET7BHG,LINC00899,LOC642648,MIR3619,PRR34,LOC730668,WNT7B	3	243000	gain
22	48465000	48700000	LOC284933,TAFA5	3	235000	gain

22	49533000	49972000	C22orf34,MIR3667,CRELD2,ZBED4,ALG12,BRD1,PIM3,MIR6821	3	439000	gain
22	49992000	50739000	ARSA,HDAC10,PPP6R2,NCAPH2,TTLL8,SCO2,MIOX,SBF1,TYMP,PLXNB2,MAPK12,LOC105373100,MIR12114,DENND6B,CHKB-CPT1B,PANX2,TUBGCP6,MAPK11,LMF2,MAPK8IP2,SHANK3,SELENOO,IL17REL,CHKB,CPT1B,TRABD,ADM2,CHKB-DT,ACR,MOV10L1,KLHDC7B,MLC1,SYCE3,ODF3B	3	747000	gain
X	24998000	25029000	ARX	3	31000	gain
X	40076000	40181000	BCOR	3	105000	gain
X	135413000	135447000	SMIM10L2A	3	34000	gain
X	137555000	137590000	ZIC3	3	35000	gain
X	154360000	154592000	FLNA,UBL4A,CTAG1A,G6PD,CH17-340M24.3,PLXNA3,FAM50A,ATP6AP1,EMD,CTAG1B,FAM3A,IKBKG,MIR6858,FAM223B,RPL10,LAGE3,GDI1,DNASE1L1,SLC10A3,FAM223A,SNORA70,TAZ	3	232000	gain

Table S2: Lists of somatic SNPs, InDels, SVs, and CNVs in 2023 duodenal tumor but not in 2015 blood.

Table S2A: Somatic single nucleotide polymorphisms (SNP) causing start-loss, stop-gain, or frameshifts in 2023 duodenal tumor but not in 2015 blood.

Priority	CHR	POS	ID	REF	ALT	Gene Name	Exonic Func	Alleles
H	1	3412131	.	G	A	PRDM16	missense SNV	heterozygous
H	2	219252114	.	C	A	TUBA4A	missense SNV	heterozygous
H	5	128376835	.	G	A	FBN2	missense SNV	heterozygous
H	6	26027243	.	G	C	H4C2	missense SNV	heterozygous
H	11	66471361	.	T	C	PELI3	missense SNV	heterozygous
H	14	26448870	.	C	T	NOVA1	missense SNV	heterozygous
H	18	26916696	.	T	A	CHST9	missense SNV	heterozygous
H	19	1784827	rs760412040	G	A	ATP8B3	missense SNV	heterozygous
H	20	46046415	.	C	A	SLC12A5	missense SNV	heterozygous
H	20	62879637	.	C	T	DIDO1	missense SNV	heterozygous
H-	11	11372544	rs753266533	C	T	GALNT18	missense SNV	heterozygous
H*	17	59155138	.	T	G	SKA2	missense SNV	heterozygous
L	1	16945509	.	A	C	CROCC	missense SNV	heterozygous
L	2	96023181	rs201647131	G	A	GPAT2	missense SNV	heterozygous
L	6	29944246	rs138704952	G	C	HLA-A	missense SNV	heterozygous
L	8	99511151	.	C	T	VPS13B	synonymous SNV	heterozygous
L	11	7960823	.	C	T	NLRP10	synonymous SNV	heterozygous
L	15	72663042	rs372884155	C	T	GOLGA6B	synonymous SNV	heterozygous
L	16	19460248	rs746136772	C	T	TMC5	synonymous SNV	heterozygous
L	X	24528180	.	C	A	PDK3	synonymous SNV	heterozygous
M	3	49793236	rs148137199	C	T	CDHR4	missense SNV	heterozygous
M	11	6027673	rs750232504	C	T	OR56A1	missense SNV	heterozygous

Table S2B: Somatic insertions/deletions (InDel) causing start-loss, stop-gain, or frameshifts in 2023 duodenal tumor but not in 2015 blood.

Priority	CHR	POS	ID	REF	ALT	Gene Name	Exonic Func
H	2	96266382	.	T	TCCAC	CIAO1	frameshift in
H	2	105092504	.	C	CA	MRPS9	frameshift in
H	3	128101650	rs111737766	TA	T	RUVBL1	.
H	8	112503979	rs746839003	T	TA	CSMD3	.
H	10	58388809	rs756171504	C	CA	TFAM	frameshift in
H	12	96311180	rs11285567	TA	T	CDK17	.
H	19	5687950	.	CG	C	HSD11B1L	frameshift del
H-	8	64616285	rs780734030	G	GA	CYP7B1	.
L	1	165208094	rs754690851	TTGC	T	LMX1A	nonframeshift del
L	2	217848163	rs779148992	GGCT	G	TNS1	nonframeshift del
L	8	76863212	rs199874527	ACCT	A	ZFHX4	nonframeshift del
L	19	38849703	rs911771296	ACCG	A	HNRNPL	nonframeshift del

Table S2C: Somatic structural variants (SV) encompassing exonic regions in 2023 duodenal tumor but not in 2015 blood.

Chr	Start	End	CONSENSUS	SV Type
1	7920838	167438651	na	DUP
1	225059528	225105932	na	DUP
1	248443442	248648529	na	INV
3	185911071	185991504	na	DEL
5	697285	788536	na	DEL
5	140807394	140841519	na	DEL
7	142619529	142788503	na	DEL
7	142749971	142760952	na	DEL
7	65063405	65753035	na	DUP
7	43343004	151377651	TTATTTTGCAGAAAGGATCAAATTATCTTACGTAGAAACATTTTTTTTTTTCTTTTGAGATGGAGTCTTGCTCTGTCTCCCACG CTGCCATCTCTGCCAGGGTGCCACATGGGTTCCTGTGCCACCCTTTCCCCGCCCCTCAAATCGTCCT	INV
9	41034841	68397357	na	INV
13	108256777	108796830	na	DEL
13	19189980	21198132	na	INV
13	69698159	72986913	na	INV
18	10628106	12201532	na	INV
19	53437822	53475297	na	DEL
19	52539154	52783028	na	INV
X	48198661	48308182	na	DEL

Table S2D: Somatic copy number variations (CNV) encompassing exonic regions in 2023 duodenal tumor but not in 2015 blood.

Chr	Start	End	Gene Name	CopyNum	Size	CNVType
1	0	3797000	MMP23A,FAM41C,PANK4,MRPL20-AS1,LINC01342,TNFRSF4,TAS1R3,PRXL2B,NADK,PRKCZ,LINC01770,CDK11B,LOC729737,LOC107985728,RER1,WRAP73,MIR6859-4,MIR429,LOC105378949,CDK11A,OR4F16,RNF223,FNDC10,MRPL20,VWA1,LOC100129534,MXRA8,MIB2,LOC100132287,TNFRSF14-AS1,TP73-AS1,HES5,LOC105378591,MIR200A,TPRG1L,FAM138F,MIR6859-3,MMP23B,KLHL17,PLCH2,CPTP,ARHGEF16,MIR6859-2,TTC34,C1orf159,TNFRSF14,NOC2L,DDX11L1,SMIM1,AURKAIP1,SCNN1D,GNB1,TMEM240,LOC100132062,TMEM88B,LOC105378948,ATAD3B,TMEM52,LOC105378586,FAM138C,INTS11,OR4F3,DDX11L17,LINC02593,LOC100996583,MIR1302-10,C1QTNF12,LOC101928626,MORN1,TNFRSF18,SDF4,FAM87B,ISG15,HES4,GABRD,PLEKHN1,SLC35E2A,ACTRT2,ATAD3C,CALML6,PEX10,MEGF6,TP73,B3GALT6,PRDM16-DT,LOC100288069,MIR6727,MIR1302-2,ANKRD65,MIR12136,LOC112268219,OR4F5,SKI,DVL1,MIR200B,ACAP3,AGRN,SLC35E2B,PRDM16,MIR6726,MIR4251,ATAD3A,MIR1302-11,PRKCZ-AS1,UBE2J2,CFAP74,PERM1,MIR6859-1,CCNL2,LOC100288175,FAM138A,SSU72,SNORD167,WASH7P,MMEL1,MIR6808,OR4F29,TTLL10,FAAP20,CCDC27,SAMD11,PUSL1,MIR551A,LINC00115,FAM138D,LINC01128,LRRC47,MIR1302-9	1	3797000	loss
1	8372000	8820000	RERE-AS1,SNORD128,RERE	3	448000	gain
1	12240000	12490000	VPS13D	3	250000	gain
1	41592000	42333000	FOXJ3,GUCA2B,GUCA2A,HIVEP3	3	741000	gain
1	58650000	60621000	LOC101926944,MIR4711,HSD52,LINC01748,MYSM1,JUN,CYP2J2,LINC01135,C1orf87,HOOK1,FGGY,LINC01358	3	1971000	gain
1	66238000	66452000	PDE4B	4	214000	gain
1	66452000	108810000	SLC25A24,GBP3,UOX,MIR7852,ALG14-AS1,PKN2,SLC30A7,INSL5,LRRC8D,TYW3,MFSD14A,DEPDC1-AS1,SASS6,RPF1,PLPPR4,MIR3117,MIR378G,NBPF4,SNORD21,LINC01661,OLFM3,IL12RB2,IFI44,LINC01707,RTCA,DPYD-AS2,LOC100129620,DNAJA1P5,LRRC8C-DT,NEXN,LRRIQ3,LINC01787,LINC01650,LRRC7,GNG5,SLC44A3,MTF2,LHX8,DIRAS3,ARHGAP29,CTH,COL11A1,FNBP1L,CDC7,PKN2-AS1,NBPF6,LOC102606465,LINC01362,BARHL2,MIR7156,ZNHIT6,NEGR1-IT1,SNORD45B,PTGFR,FPGT,DNAI4,CNN3-DT,GTF2B,LINC01364,CCDC18-AS1,LRRC39,LINC01758,FRRS1,MIER1,CLCA4,LINC01555,GLMN,ADGRL2,MIR12133,TTLL7,MIR137,LINC02790,FUBP1,PIGK,AMY1B,LOC101927342,ZZZ3,LINC01781,GEMIN8P4,CNN3,MIR553,MCOLN2,VAV3-AS1,CDC14A,LINC01760,MIR4423,SPATA1,TGFBR3,BRDT,MIR2682,LINC01677,RPE65,PLPPR5,SRSF11,GCLM,BCAR3,TCTEX1D1,HENMT1,LRRC8B,MIG7,CLCA1,LMO4,MIR7856,DR1,LINC01349,ASB17,ADGRL4,MIR186,MIR137HG,IL23R,GBP1,AMY1C,LINC01725,RABGGTB,LOC729930,NEGR1,VAV3,AMY1A,ZRANB2-AS1,FPGT-TNNI3K,WLS,ZRANB2-AS2,NTNG1,CLCA2,EVI5,MIR760,SH3GLB1,SNORD3G,LINC01930,LOC100129138,CRYZ,C1orf141,LRRC53,SERBP1,DIPK1A,SNORA66,MCOLN3,AMY2A,LPAR3,LOC646626,SSX2IP,SLC44A3-AS1,TNNI3K,ST6GALNAC5,LINC01360,ALG14,GBP5,CTBS,BCL10,PRKACB,LINC02567,LINC01461,GADD45A,ERICH3,DBT,DNASE2B,LOC101927560,GFI1,MIGA1,STXBP3,LOC101928118,RPL5,BCAR3-AS1,MGC27382,LINC01761,SAMD13,DPH5,HS2ST1,LINC01676,SNX7,PALMD,MSH4,GNG12,AK5,ZNF326,SYDE2,GPR88,LINC02609,GIPC2,GBP1P1,DNAI3,TRMT13,NEXN-AS1,USP33,LINC01140,SLC44A5,DNAJB4,LINC02801,DLSTP1,HHLA3,MIR548N,CLCA4-AS1,LINC01708,ST6GALNAC3,ODF2L,ANKRD13C,SLC35D1,SETSIP,ABCD3,LRRC8C,ACADM,RWDD3,CCDC18,GBP2,LRRC40,LINC01712,C1orf146,AGL,SNORD45A,LOC101928436,PRMT6,CCN1,GBP4,GBP6,EXTL2,VCAM1,LOC101927434,LINC01763,KYAT3,ERICH3-AS1,LINC01307,FAM102B,F3,TLCD4-RWDD3,RBMXL1,HFM1,DNTTIP2,SNORD45C,ACTG1P4,RNPC3,FNDC7,TLCD4,LINC01776,LINC01361,LINC02238,PIN1P1,SELENOF,GBP7,S1PR1,LINC01788,SGIP1,LOC101928370,DPYD,C1orf52,DPYD-AS1,IFI44L,DEPDC1,ZNF644,TMED5,BTBD8,MIR1262,COL24A1,GNG12-AS1,PTBP2,ABCA4,RPAP2,AMY2B,RTCA-AS1,ZRANB2,PRPF38B,DDAH1,CLCA3P,PTGER3,SLC35A3,LINC02607,EPHX4	3	42358000	gain
1	110618000	111718000	TMIGD3,DENND2D,KCNA3,RAP1A,CEPT1,DRAM2,LINC01160,PGBP,PIFO,WDR77,ATP5PB,KCNA2,CHI3L2,C1orf162,LRIF1,LOC107985184,ADORA3,CD53,OVGP1,CHIA,CHIAP2	3	1100000	gain
1	113299000	124956000	TENT5C,RNVU1-19,NBPF8,PDE4DIPP2,ATP1A1,BCL2L15,LINC02868,LINC00623,WARS2-IT1,HSD3B2,NOTCH2NLR,ATP1A1-AS1,LOC100996720,PHTF1,AP4B1,SRGAP2-AS1,PHGDH,NOTCH2,PTPN22,TRIM45,FAM72B,WARS2-AS1,CD101,WARS2,SRGAP2C,PPIAL4A,H3P4,H2BP1,VANGL1,FCGR1B,LINC00622,NHLH2,SPAG17,SIKE1,AP4B1-AS1,TTF2,LOC100996263,LINC01780,MIR320B1,LOC105378933,ZNF697,CD58,PTGFRN,SYCP1,IGSF3,SYT6,RSBN1,TRIM33,HSD3B1,MAN1A2,ADAM30,LOC100996318,LOC107985524,OLFML3,MIR548AC,LINC01762,SEC22B,TSHB,BCAS2,DCLRE1B,HAO2-IT1,NBPF7,MAB21L3,HSD3BP4,TBX15,HIPK1,NRAS,RNVU1-20,CSDE1,LINC01649,HMGCS2,RNVU1-	3	11657000	gain

			4,TSPAN2,PFN1P2,VTCN1,MAGI3,GDAP2,NGF,REG4,CD2,NBPF26,SLC22A15,LOC105369199,HIPK1-AS1,MIR942,EMBP1,DENND2C,CASQ2,WDR3,LOC101929099,HAO2,NGF-AS1,AMPD1,LOC101928977,PDE4DIPP4,LINC01525			
1	160428000	160774000	CD84,SLAMF1,VANGL2,SLAMF6,SLAMF7,CD48	4	346000	gain
1	168316000	175031000	SELL,FMO2,GORAB,MRPS14,SNORD47,SNORD78,SNORD81,SNORD80,LOC101928596,MIR1295A,METTL18,LINC01142,LINC01681,MROH9,SNORD79,FMO4,CCDC181,ATP1B1,SUCO,RC3H1,MIR3119-1,TNFSF4,SERPINC1,XCL1,PRRX1,MIR3120,METTL11B,TEX50,TOP1P1,SELP,DARS2,MIR1295B,SNORD44,BLZF1,KLHL20,GAS5,FASLG,MYOCOS,SNORD77,DNM3OS,FMO3,FMO6P,CACYBP,GORAB-AS1,LINC00626,MIR3119-2,KIFAP3,ANKRD45,MIR199A2,XCL2,NME7,GPR52,C1orf105,LOC100506023,PRDX6,GAS5-AS1,LINC00970,SNORA103,EEF1AKNMT,RABGAP1L-DT,PIGC,RABGAP1L-AS1,SCYL3,SLC19A2,DNM3-IT1,SLC9C2,DPT,PRDX6-AS1,C1orf112,MYOC,SNORD74,LOC100505918,F5,MIR557,SELE,ZBTB37,RABGAP1L,CENPL,SNORD75,PRRC2C,SNORD76,MIR214,LOC101928565,FMO1,TNFSF18,DNM3,VAMP4	3	6715000	gain
1	183473000	200865000	DDX59,RGS1,SWT1,MIR4426,ZNF281,LINC01222,LINC01031,SMG7,LINC01720,C1orf53,GLRX2,BRINP3,LINC01350,TSEN15,CFHR3,MIR181A1HG,RGS13,COLGALT2,KCNT2,NR5A2,ZBTB41,ATP6V1G3,EDEM3,TRMT1L,LINC01724,MIR181B1,GS1-279B7.1,RGL1,MIR181A1,B3GALT2,PACERR,IVNS1ABP,LINC01037,RGS18,NCF2,LHX9,MIR4735,CFHR2,PTPRC,LINC01633,HMCN1,RGS2-AS1,UCHL5,RGS2,PDC-AS1,PLA2G4A,CFHR4,DDX59-AS1,APOBEC4,PTGS2,C1orf21,MIR1278,CDC73,LINC01680,ASPM,NEK7,RO60,LINC01036,CFH,DENND1B,NIBAN1,KIF14,LINC01351,ARPC5,RNF2,CRB1,PDC,CAMSAP2,CFHR5,TPR,CFHR1,LINC01221,LINC02789,LINC00862,PRG4,F13B,SCARNA18B,RGS21,ODR4	3	17392000	gain
1	206544000	207866000	IL24,FCMR,PIGR,MAPKAPK2,DYRK3,MIR29B2,IL10,MIR29C,C4BPB,YOD1,CD55,CD46,LOC148696,PFKFB2,IL20,CR1L,FCAMR,RASSF5,MIR29B2CHG,IL19,C1orf116,C4BPA,EIF2D,CR1,CR2	3	1322000	gain
1	214617000	223013000	TAF1A-AS1,LINC01710,CENPF,USH2A,RRP15,LINC01352,LYPLAL1-AS1,MARK1,LINC02257,LYPLAL1,MIR664A,HLX-AS1,MIR194-1,AIDA,IARS2,RAB3GAP2,LINC02474,LINC01655,SLC30A10,LYPLAL1-DT,TGFB2-AS1,MIA3,LINC00210,AURKAP1,MTARC2,KCTD3,MIR215,LINC02817,TAF1A,USH2A-AS2,DUSP10,SPATA17,EPRS1,KCNK2,BPNT1,HHIPL2,MTARC1,SNORA36B,SPATA17-AS1,FAM177B,TGFB2-OT1,RNU6ATAC35P,GPATCH2,BROX,DISP1,C1orf115,LINC01653,ZC3H11B,TGFB2,MIR548F3,HLX,ESRRG,LINC02869	3	8396000	gain
1	227882000	228495000	TRIM17,GUK1,OBSCN-AS1,GJC2,ARF1,RNF187,H2BU1,MRPL55,H2AW,MIR6742,C1orf35,IBA57,OBSCN,LINC02809,IBA57-DT,H3-4,LOC107985355,WNT3A,TRIM11,MIR4666A,MIR3620,WNT9A,MIR5008	1	613000	loss
1	235703000	235888000	LYST,MIR1537	4	185000	gain
1	237271000	239863000	RYR2,LINC01139,CHRM3,MIR4428,ZP4,LOC100130331,CHRM3-AS2	3	2592000	gain
2	11943000	15573000	LOC100506474,MIR3681HG,LINC00276,TRIB2,MIR3125,MIR3681,NBAS,LRATD1	3	3630000	gain
2	16337000	23319000	RHOB,GEN1,RDH14,LINC01376,LOC101928222,MSGN1,TDRD15,CYRIA,GDF7,LAPTM4A,LINC01822,LOC107985856,MATN3,NT5C1B,VSNL1,LINC01884,TTC32,LDAH,APOB,NT5C1B-RDH14,SDC1,SMC6,PUM2,WDR35,OSR1,RAD51AP2,HS1BP3-IT1,LINC00954,HS1BP3,MIR4757,KCNS3	3	6982000	gain
2	24497000	24760000	NCOA1	3	263000	gain
2	34164000	42368000	LOC375196,CYP1B1,SLC8A1-AS1,EIF2AK2,TMEM178A,FEZ2,CRIM1,MAP4K3-DT,LINC01320,CEBPZOS,SULT6B1,RMDN2,CYP1B1-AS1,SOS1,GPATCH11,EML4-AS1,QPCT,DHX57,THUMPD2,LINC02613,LINC01913,MIR548AD,LINC01317,STRN,LINC01914,CDC42EP3,CEBPZ,SRSF7,HEATR5B,SLC8A1,MORN2,GEMIN6,EML4,CDKL4,PRKD3,MAP4K3,PKDCC,HNRNPLL,C2orf91,COX7A2L,LINC01883,VIT,ARHGEF33,ATL2,CRIM1-DT,LINC00211,RMDN2-AS1,NDUFAF7,GALM	3	8204000	gain
2	43330000	43594000	THADA	3	264000	gain
2	49034000	60161000	SPTBN1,MIR3682,TSPYL6,PRORSD1P,MIR4431,LINC01793,LINC01813,NRXN1,RPL23AP32,LINC01122,ERLEC1,MTIF2,MIR216A,FSHR,CCDC85A,VRK2,GPR75-ASB3,MIR548BA,C2orf73,EFEMP1,ACYP2,MIR217HG,PNPT1,GPR75,FANCL,MIR217,LOC100129434,LINC01795,PSME4,RPS27A,CHAC2,CCDC88A,CFAP36,LINC01867,CLHC1,MIR216B,LOC730100,RTN4,ASB3,MIR4426,MIR8485,EML6,PPP4R3B	3	11127000	gain
2	62710000	69943000	SLC1A4,PLEK,LGALSL,WDR92,BMP10,LOC101927402,VPS54,SNORA36C,LOC101927661,LINC01805,FBXO48,LINC01828,CNRIP1,MXD1,MIR4778,SERTAD2,LINC01798,LINC01873,APLF,LINC01829,ETAA1,LINC01800,NFU1,LINC02245,DBIL5P2,ACTR2,SPRED2,LINC01799,MIR3126,GFPT1,LINC01797,MIR4433B,PNO1,EHBP1,RAB1A,MDH1,LOC107985770,LINC01628,GKN1,PROKR1,MEIS1-AS2,UGP2,PELI1,LOC100507006,PPP3R1,AFTPH,SNRNP27,LINC02579,LOC100132215,ANTXR1,MIR4434,ARHGAP25,AAK1,GKN2,LINC00309,GMCL1,MEIS1,ANXA4,WDPCP,MIR4433A,MEIS1-AS3,C1D,OTX1,CEP68,LINC01812	3	7233000	gain
2	75221000	84901000	SUCLG1,LOC105374820,CTNNA2-AS1,LRRTM4-AS1,DNAH6,LOC101927948,FUNDC2P2,REG1CP,GCFC2,LOC101927884,LRRTM4,LRRTM1,LOC101927967,MRPL19,MIR8080,MIR4264,REG1A,TRABD2A,SNAR-H,REG1B,EVA1A,CTNNA2,DHFRP3,REG3G,LINC01851,REG3A,LINC01815,LINC01809	3	9680000	gain
2	110121000	118163000	ACTR3,TMEM87B,LOC107985939,MIR4435-2,MIR4436B2,PAX8-AS1,FLJ42351,LOC100499194,PGM5P4-AS1,SNORD132,DPP10-AS1,ACTR3-AS1,LOC105373553,SLC20A1,LOC440895,IL37,IL36A,MIR4436B1,IL36RN,BCL2L11,LINC01106,RGPD6,IL36G,MIR4782,CCDC93,PAX8,LOC100288570,FOXD4L1,INSIG2,LIMS3-LOC440895,BUB1,FBLN7,SLC35F5,PSD4,NPHP1,ACOXL,DPP10-AS3,FAM138B,CBWD2,DPP10,DDX11L2,TTL,MIR4771-1,LINC01191,PGM5P4,LOC100507334,ZC3H8,POLR1B,CHCHD5,IL1RN,IL1B,LIMS4,MIR4435-1,WASH2P,MIR4771-	3	8042000	gain

			2,RPL23AP7,LIMS3,NT5DC4,RGPD5,LOC105373562,IL1A,PGM5P3-AS1,MIR1302-3,RGPD8,IL1F10,MIR4435-2HG,MTLN,IL36B,RABL2A,ZC3H6,ACOXL-AS1,DDX18,ANAPC1,MERTK,LINC01123,CKAP2L			
2	120302000	121352000	GLI2,TFCP2L1,LINC01101,CLASP1,INHBB	1	1050000	loss
2	121352000	126765000	LINC01941,NIFK,GYPC,CNTNAP5,LINC01826,NIFK-AS1,TSN,RNU4ATAC,LOC107985820,CLASP1	3	5413000	gain
2	135903000	143095000	MIR7157,SPOPL,HNMT,LRP1B,NXPH2,LOC101928273,THSD7B,CXCR4,DARS1,YY1P2,DARS-AS1,KYNU,LINC01832	3	7192000	gain
2	143095000	143706000	ARHGAP15	4	611000	gain
2	143706000	169166000	CYTIP,SNORA70F,TANC1,RBMS1,FAM133DP,GALNT5,CCDC148-AS1,LOC101928386,GRB14,MMADHC,FIGN,EPC2,B3GALT1,TBR1,MIR9899,SCN7A,KIF5C,CD302,GPD2,SLC38A11,WDSUB1,AHCTF1P1,LOC643072,ACVR2A,CCDC148,SCN9A,MBD5,TANK,LY75,GTDC1,LOC100144595,LY75-CD302,STAM2,SCN1A-AS1,PKP4,DAPL1,LOC101929512,LOC105373656,XIRP2-AS1,MARCHF7,BAZ2B,CERS6,ZEB2-AS1,MIR4773-2,LOC102724058,MIR4785,TTC21B,PLA2R1,GCG,CACNB4,B3GALT1-AS1,STK39,NEB,MIR6888,ABCB11,MIR4774,PRPF40A,DPP4-DT,SLC4A10,SCN3A,KCNH7-AS1,RPRM,SCN1A,ARHGAP15,RIF1,NMI,LINC01412,PSMD14,ARL6IP6,NOSTRIN,KCNJ3,ZEB2,RBM43,PKP4-AS1,DPP4,TNFAIP6,LYPD6B,LOC101929633,LRP2,ORC4,UPP2,RND3,ERMN,ACVR1C,PABPC1P2,COBLL1,LINC01931,ACVR1,CSRNP3,TTC21B-AS1,LOC101929319,LINC01920,KCNH7,XIRP2,TEX41,SCN2A,LINC02478,FMNL2,LINC01806,MMADHC-DT,LOC101929532,DHRS9,ITGB6,LINC01876,GALNT13,ARL5A,G6PC2,LOC100506124,CERS6-AS1,FLJ46875,FAP,IFIH1,NR4A2,LINC01817,GALNT3,MIR4773-1,GCA,LYPD6,LINC02612,SPC25	3	25460000	gain
2	176063000	176214000	HOXD1,HOXD13,HOXD3,MIR10B,HOXD10,HOXD8,EVX2,HAGLROS,MIR7704,HOXD11,HOXD-AS2,HOXD4,LOC401021,HAGLR,HOXD9,HOXD12	1	151000	loss
2	176214000	180990000	LOC105373759,TTN,SESTD1,MIR1246,AGPS,CWC22,MIR3128,PRKRA,PDE11A-AS1,RBM45,NFE2L2,MIR4444-1,MTX2,TTN-AS1,TTC30B,PJVK,TTC30A,FKBP7,PDE11A,MIR1258,SCHLAP1,LINC01116,UBE2E3,OSBPL6,CCDC141,PLEKHA3,LOC100130691,CHROMR,MIR6512,LOC101927055,HNRNPA3,ZNF385B,MIR4444-2,LINC01117	3	4776000	gain
2	180990000	181548000	MIR4437,UBE2E3,ITGA4,LINC01934,CERKL	4	558000	gain
2	181548000	197328000	FSIP2-AS1,ASDURF,PDE1A,FAM171B,CAVIN2,MIR1245B,NEUROD1,LOC105373782,MIR548AE1,SLC39A10,DNAJC10,HECW2,COL5A2,DNAH7,HECW2-AS1,MIR1245A,FSIP2,FRZB,ZC3H15,STAT1,OSGEPL1-AS1,ORMDL1,GTF3C3,WDR75,SLC40A1,DUSP19,ANKAR,DIRC1,NEMP2,PCGEM1,C2orf88,OSGEPL1,ANKRD44,INPP1,MFSD6,PPP1R1C,NAB1,NABP1-OT1,PMS1,NUP35,CERKL,ZSWIM2,C2orf66,MIR3129,STAT4,LINC01473,STK17B,TMEFF2,LOC729254,ANKRD44-AS1,ITGAV,ZNF804A,PGAP1,NCKAP1,NABP1,LOC105373805,COL3A1,ASNSD1,MSTN,MIR3606,GULP1,LINC01821,ITPRID2,MIR561,LOC100130452,MYO1B,ANKRD44-IT1,LINC01790,FSIP2-AS2,LINC01090,HIBCH,GLS,CCDC150,TFPI,CALCRL	3	15780000	gain
2	208270000	214799000	MAP2,LINC01953,ACADL,PIKFYVE,ERBB4,UNC80,LANCL1-AS1,MIR548F2,SPAG16,PTH2R,CPS1,LANCL1,MYL1,LOC101927960,KANSL1L-AS1,LINC01878,KANSL1L,MIR4438,MIR4776-2,VWC2L,BARD1,SPAG16-DT,IKZF2,CPS1-IT1,RPE,MIR4776-1,VWC2L-IT1	3	6529000	gain
2	219785000	230813000	SLC16A14,TM4SF20,SP140L,SGPP2,MIR4439,CAB39,DAW1,SCG2,SERPINE2,SP100,LINC01907,WDFY1,SP140,EPHA4,LINC01807,MFF-DT,C2orf83,PID1,COL4A4,LOC729968,CT75,ACSL3,FBXO36,SLC19A3,NYAP2,FARSB,IRS1,AGFG1,LOC646736,CUL3,MIR5703,PAX3,RHBDD1,CCDC140,AP1S3,MRPL44,DNER,KCNE4,TRIP12,MIR5702,DOCK10,SP110,MFF,SPHKAP,CCL20,FAM124B,MIR4268,MOGAT1,COL4A3,LINC01803	3	11028000	gain
2	237849000	242193529	CROCC2,MIR4786,ERFE,LOC150935,FAM240C,MGC16025,RTP5,CAPN10,HDAC4-AS1,ILKAP,NDUFA10,LINC01107,UBE2F-SCLY,LINC01940,DUSP28,HES6,KIF1A,CAPN10-DT,LOC100130449,RNPEPL1,ING5,D2HGDH,DTYMK,SCLY,ANKMY1,MIR4269,GAL3ST2,FARP2,PDCD1,HDLBP,LINC01238,LOC285097,AGXT,LINC01237,BOK,ESPNL,SEPTIN2,MAB21L4,LINC02610,MIR3133,TARDBPP3,PER2,LINC01880,MIR4441,AQP12A,UICLM,OR6B2,OR6B3,THAP4,MTERF4,OTOS,TRAF3IP1,STK25,ASB1,SNED1,AQP12B,LOC285191,TWIST2,GPC1,UBE2F,NEU4,GPR35,BOK-AS1,MIR2467,RAMP1,ANO7,ATG4B,COPS9,MIR149,LINC01881,MIR4440,LOC100287387,HDAC4,PPP1R7,KLHL30,LOC101927509,PASK	1	4344529	loss
3	0	9483000	LMCD1,LINC00312,IL5RA,CNTN4-AS2,GRM7,LOC101927394,MIR4790,LOC100130207,CHL1-AS2,SSUH2,LINC01986,CHL1,CAV3,CRBN,RAD18,BHLHE40-AS1,GRM7-AS2,CNTN6,CNTN4-AS1,SRGAP3-AS4,ARL8B,OXTR,ITPR1-DT,LMCD1-AS1,SRGAP3-AS2,SRGAP3-AS3,LRRN1,GRM7-AS3,ITPR1,THUMPD3-AS1,SUMF1,LINC01266,BHLHE40,GRM7-AS1,THUMPD3,CNTN4,EGOT,SETMAR,SETD5,CHL1-AS1,TRNT1,SRGAP3,EDEM1	3	9483000	gain
3	12646000	13897000	RAF1,HDAC11,CAND2,FBLN2,RPL32,WNT7A,SNORA93,SNORA7A,LINC02022,NUP210,TMEM40,HDAC11-AS1,LINC00620,IQSEC1	1	1251000	loss
3	14951000	27830000	MIR4270,COLQ,SLC4A7,LINC01980,ZNF385D-AS2,ANKRD28,UBE2E1,PP2D1,RBSN,ZNF385D-AS1,MIR3135A,NR1D2,DPH3,NKIRAS1,MIR3134,SATB1-AS1,LOC101927829,LINC00690,EAF1,TOP2B,CAPN7,ZNF385D,METTL6,VENTXP7,MIR4442,NGLY1,NEK10,UBE2E2-AS1,TBC1D5,RAB5A,OXSM,NR2C2,MIR3714,HACL1,MIR4791,THRB,EFHB,RARB-AS1,RFTN1,SH3BP5-AS1,LINC00691,BTD,THRB-AS2,LOC339862,MIR563,COL6A4P1,KCNH8,UBE2E1-AS1,RARB,THRB-AS1,SGO1-AS1,LOC105376975,RPL15,SH3BP5,DAZL,KAT2B,OXNAD1,PLCL2,MRPS25,SATB1,UBE2E2,EOMES,LINC00692,SGO1,GALNT15,LRRC3B	3	12879000	gain
3	27830000	28344000	LINC01981,AZI2,LINC01980,CMC1	4	514000	gain
3	28344000	31660000	RBMS3-AS1,RBMS3,LINC01985,ZCWPW2,STT3B,TGFBR2,MIR466,LINC00693,RBMS3-AS3,GADL1,AZI2	3	3316000	gain

3	33383000	37408000	C3orf35,CLASP2,FBXL2,LINC02033,UBP1,LRRFIP2,STAC,MLH1,GOLGA4,DCLK3,UBE2FP1,LOC152048,EPM2AIP1,ARPP21,PDCD6IP,MIR128-2,TRANK1,LOC101928135	3	4025000	gain
3	45819000	46444000	FYCO1,CCRL2,LZTFL1,CCR2,CCR1,LTF,CXCR6,CCR9,XCR1,CCR5AS,LINC02009,CCR5,CCR3	3	625000	gain
3	58732000	71719000	TMF1,SLC25A26,MAGI1-AS1,C3orf14,LMOD3,CFAP20DC-AS1,MIR1284,ADAMTS9-AS2,UBA3,LOC105377146,LINC00994,FOXP1-AS1,PSMD6-AS2,FRMD4B,MIR4272,SNTN,PRICKLE2,ADAMTS9,MIR3136,PSMD6,MIR548BB,TAFA4,FEZF2,PRICKLE2-AS3,CADPS,FHIT,SUCLG2-AS1,PTPRG-AS1,SYNPR-AS1,MAGI1,LRIG1,LINC00698,MDFIC2,MAGI1-IT1,C3orf49,ADAMTS9-AS1,MITF,PRICKLE2-AS2,EOGT,TAFA1,LOC339902,SCAANT1,SAMMSON,PTPRG,EIF4E3,SYNPR,KBTBD8,ATXN7,ARL6IP5,FOXP1,SUCLG2,LOC105377143,THOC7,THOC7-AS1,PRICKLE2-AS1,CFAP20DC	3	12987000	gain
3	73646000	105664000	GABRR3,ST3GAL6,TMEM30CP,LINC02005,ROBO2,RPL24,OR5H1,CHMP2B,LINC02025,C3orf38,LINC00971,NSUN3,OR5H6,LINC00879,MIR4795,NXPE3,ST3GAL6-AS1,CBLB,LINC02018,LOC101927374,CNTN3,MIR8060,OR5H2,PCNP,OR5K4,POU1F1,SNORA95,TOMM70,ARL13B,OR5K1,LINC02085,MIR3921,OR5K2,LINC02077,ROBO1,ALCAM,LINC02008,GPR15,MIR1324,CRYBG3,RIOX2,MIR4444-1,FRG2C,HTR1F,ZNF717,DCBLD2,MIR4273,MIR548AB,OR5AC2,LINC02070,SENP7,FILIP1L,CGGBP1,PROS1,HP09053,STX19,TFG,CMSS1,ARL6,TRMT10C,FAM86DP,LINC00506,CPOX,MTHFD2P1,CADM2,CLDND1,CSNKA2IP,TBC1D23,LNP1,NFKBIZ,ADGRG7,LINC00960,ZBTB11-AS1,DHFR2,MIR5688,OR5H14,LOC101929411,ZBTB11,MIR4444-2,COL8A1,OR5K3,CADM2-AS2,EPHA3,NIT2,ZNF654,MIR3923,EPHA6,TMEM45A,LINC02027,ZPLD1,CEP97,GBE1,PDCL3P4,ABI3BP,LINC02050,IMPG2,VGLL3,OR5H15,FAM172BP	3	32018000	gain
3	105664000	105857000	CBLB	4	193000	gain
3	105857000	109100000	GUCA1C,LINC00635,TRAT1,CBLB,MORC1,RETNLB,HHLA2,DUBR,DZIP3,LINC00636,LOC101929579,BBX,IFT57,CCDC54,CD47,LINC01990,MYH15,CIP2A,LINC00882,LINC01215	3	3243000	gain
3	109657000	122889000	LRRC58,ATG3,MIR4446,NDUFB4,FSTL1,CD80,UPK1B,FAM162A,PLA1A,COX17,ZBTB20-AS3,MIR568,USF3,SLC35A5,PARP15,HCLS1,CD200R1L,PLCXD2,EAF2,PLCXD2-AS1,GPR156,LINC02044,ABHD10,CCDC191,MIR4796,GRAMD1C,LINC02042,RABL3,IQCB1,TEX55,CD200R1,LSAMP,SIDT1,ZNF80,PHLDB2,CD86,NR1I2,CASR,STXBP5L,ZBED2,NEPRO,BTLA,PARP14,LOC101926968,LINC02024,LOC105374060,ADPRH,ARHGAP31,CCDC80,SPICE1,TBILA,GSK3B,MIR198,POPDC2,LINC00903,C3orf52,GAP43,TMPRSS7,POLQ,GCSAM,B4GALT4-AS1,NECTIN3-AS1,DTX3L,ATP6V1A,LSAMP-AS1,B4GALT4,ZBTB20,LINC02035,LOC102723582,SLC9C1,PARP9,MIR567,FBXO40,POGLUT1,ARHGAP31-AS1,LINC02049,ILDR1,ZDHHC23,NECTIN3,TIMMDC1,GOLGB1,CD96,DRD3,TMEM39A,IGSF11-AS1,NAA50,MIR8076,MIR5682,LOC105374042,WDR5B,CCDC58,CD200R1L-AS1,CFAP44,CD200,SLC15A2,LINC00901,CFAP44-AS1,IGSF11,ZBTB20-AS4,TAGLN3,CSTA,CFAP91,TIGIT,HGD,TUSC7,SLC49A4,GTPBP8,SNORD155,MIR4447,MIR9900,ARGFX,ZBTB20-AS5,QTRT2,KPNA1,MIR6529,ZBTB20-AS1,GTF2E1,BOC,HSPBAP1	3	13232000	gain
3	129646000	132785000	UBA5,ASTE1,ACKR4,NPHP3-AS1,NEK11,PIK3R4,NPHP3,LINC02014,NUDT16P1,COL6A5,NUDT16,LOC339874,NPHP3-ACAD11,ACAD11,ALG1L2,MIR5704,TRH,COL6A4P2,SNORA58,DNAJC13,MRPL3,TMCC1,COL6A6,LINC02021,TMCC1-AS1,ATP2C1,ACP3,CPNE4,FAM86HP	3	3139000	gain
3	141244000	152172000	AADACL2-AS1,LNCSRLR,ERICH6-AS1,CP,TSC22D2,TM4SF4,U2SURP,DIPK2A,GK5,LINC02010,CLRN1,SLC9A9,MED12L,CHST2,PLOD2,LINC01213,LINC02046,PXYLP1,MINDY4B,GYG1,RNF7,GRK7,GPR171,ERICH6,GPR87,ZIC4,LOC646903,PCOLCE2,P2RY13,PAQR9,LINC02032,XRN1,LOC101928166,TM4SF1-AS1,ZBTB38,ZIC1,TM4SF18,AADACL2,RASA2,RNF13,LOC440982,HLTF,SUCNR1,TM4SF1,COMMD2,MIR5186,TRPC1,PLSCR4,CLRN1-AS1,AGTR1,TFDP2,SERP1,SLC9A9-AS1,SELENOT,TMEM183B,SIAH2,P2RY12,CPA3,HLTF-AS1,AADAC,LOC101928105,CPB1,PLSCR1,LOC105374313,WWTR1-AS1,WWTR1,LINC02618,LOC100289361,ATP1B3,ATR,ANKUB1,P2RY14,EIF2A,AADACP1,HPS3,PLS1,PLSCR5,LOC100507389,PFN2,LINC01214,PLSCR2,IGSF10,PAQR9-AS1	3	10928000	gain
3	152172000	152474000	MBNL1-AS1,LOC101928166,TMEM14EP,MBNL1	4	302000	gain
3	152474000	169501000	MME,P2RY1,SLC66A1L,TIPARP,LINC02029,LEKR1,LINC01324,LXN,KCNAB1-AS2,LRRC77P,STRIT1,ARL14,SHOX2,LINC01100,SERPINI2,IQCJ,MECOM-AS1,MIR16-2,RARRES1,GMPS,DHX36,IL12A,PA2G4P4,LOC100996447,EGFEM1P,GPR149,LINC02877,VEPH1,SSR3,B3GALNT1,MLF1,KCNAB1-AS1,LINC02082,PPM1L,LINC00886,MIR551B,ARHGEF26,ZBBX,UC.134,TRIM59,KPNA4,PLCH1-AS2,MECOM,LINC01487,LINC01327,BCHE,NMD3,LINC02006,MIR1263,PLCH1,ARHGEF26-AS1,LINC00881,IQCJ-SCHIP1,PTX3,PDCD10,SI,MFSD1,C3orf33,OTOL1,RSRC1,LINC01192,IFT80,SMC4,SLITRK3,CCNL1,LINC02067,SPTSSB,IL12A-AS1,GFM1,SLC33A1,RAP2B,IQCJ-SCHIP1-AS1,KCNAB1,MIR3919,LINC00880,SCARNA7,WDR49,C3orf80,TRIM59-IFT80,SERPINI1,LINC01322,LOC105374194,SCHIP1,TIPARP-AS1,GOLIM4,MIR15B	3	17027000	gain
3	170980000	178568000	LINC00578,ECT2,LINC02068,TMEM212,KCNMB2-AS1,NAALADL2,TNIK,SPATA16,NCEH1,MIR569,MIR7977,GHSR,TMEM212-AS1,LINC01209,TBL1XR1,MIR4789,NAALADL2-AS3,LINC01014,NLGN1-AS1,LINC00501,MIR548I1,NAALADL2-AS1,SLC2A2,LINC01208,PLD1,TNFSF10,NAALADL2-AS2,NLGN1,FNDC3B,LINC02015,KCNMB2	3	7588000	gain
3	187742000	193706000	BCL6,OSTN,TPRG1-AS2,TP63,FGF12-AS2,OPA1-AS1,UTS2B,FLJ42393,FGF12-AS1,MIR28,PLAAT1,CLDN1,ATP13A5,TMEM207,LINC01991,CLDN16,LPP-AS2,GMNC,IL1RAP,PYDC2,P3H2-AS1,ATP13A5-AS1,FGF12,TPRG1,LINCR-0002,OPA1,SNAR-I,MB21D2,MGC2889,P3H2,LPP-AS1,MIR944,ATP13A4,CCDC50,LPP,ATP13A4-AS1,TPRG1-AS1,OSTN-AS1	3	5964000	gain
3	197059000	197293000	DLG1	3	234000	gain
4	11264000	14441000	LINC01097,BOD1L1,HS3ST1,LINC01096,NKX3-2,LINC02360,RAB28,MIR5091,MIR12113,LINC01182,LINC02270,MIR572,LINC01085	3	3177000	gain

4	17806000	24132000	KCNIP4-IT1,MIR7978,LOC100505912,PPARGC1A,MIR218-1,LCORL,GBA3,ADGRA3,DCAF16,SLIT2,SLIT2-IT1,MIR12115,KCNIP4,PACRGL,LOC105374516,NCAPG	3	6326000	gain
4	26546000	36068000	STIM2-AS1,LINC02353,LINC02501,STIM2,ARAP2,LINC02472,PCDH7,MIR4275,LOC101928622,LINC02261,LOC105377651,LINC02506,LINC02364,LINC02497,LINC02484,TBC1D19	3	9522000	gain
4	36068000	36403000	LOC439933,DTHD1,ARAP2	4	335000	gain
4	36403000	39357000	LINC02505,LINC02278,WDR19,TLR6,TLR10,LINC02616,TBC1D1,KLF3,C4orf19,MIR1255B1,RFC1,PGM2,TMEM156,LINC01259,RELL1,KLF3-AS1,TLR1,LINC01258,KLHL5,MIR574,FAM114A1,LINC02513,PTTG2,NWD2,MIR4801	3	2954000	gain
4	40150000	40317000	N4BP2,LINC02265,RHOH	3	167000	gain
4	42407000	48776000	COMMD8,TXK,TEC,FRYL,CORIN,LOC101927179,NIPAL1,YIPF7,CNGA1,GABRB1,ATP8A1,NFXL1,SLC10A4,GABRA4,GABRA2,GNPDA2,GUF1,COX7B2,GABRG1,ATP10D,LINC02475,KCTD8,LOC101927157,SLAIN2,MIR8053,LINC02383,ZAR1,GRXCR1	3	6369000	gain
4	57775000	79904000	CSN1S2BP,BMP2K,MTHFD2L,TMPRSS11E,CXCL3,AFP,ALB,SNORD161,ODAPH,ANXA3,PCAT4,CNOT6L,RUFY3,PPBP,LINC02499,FAM47E,EREG,GC,UGT2B4,LINC01094,CSN3,CDKL2,AFM,TMPRSS11D,MRPL1,DCK,SHROOM3,SDAD1-AS1,LOC101927237,SMR3B,SOWAHB,HTN1,AREG,MIR548AH,FDCSP,UGT2A3,ODAM,UGT2A1,STATH,CSN1S2AP,AMTN,ANKRD17,JCHAIN,LINC02619,CENPC,SLC4A4,UGT2B7,CABS1,SCARB2,UBA6-AS1,UGT2B11,UGT2B28,EPHA5,PF4V1,LINC02562,ENAM,UGT2B17,NPFFR2,RASSF6,CXCL1,UGT2B15,LOC550113,NAAA,BTC,RCHY1,LINC01088,ADGRL3-AS1,LINC02483,USO1,PARM1-AS1,TMPRSS11F,OPRPN,TECRL,MOB1B,MIR548AG1,PF4,TMPRSS11GP,SEPTIN11,CCNG2,SULT1B1,NUP54,YTHDC1,CSN1S1,SULT1E1,STBD1,PPEF2,EPGN,SYT14P1,G3BP2,FRAS1,FTLP10,LINC02232,MIR1269A,PPBPP2,LINC00989,PARM1,FAM47E-STBD1,GNRHR,UBA6,TMPRSS11B,ADAMTS3,PRR27,GRSF1,STAP1,THAP6,CXCL13,CXCL6,SMR3A,SDAD1,COX18,EPHA5-AS1,ADGRL3,CCDC158,CXCL8,GK2,CXCL5,ANTXR2,LINC02429,CCNI,UGT2B10,AMBN,CXCL9,LINC02494,TMPRSS11A,CXCL10,CSN2,HTN3,TMPRSS11BNL,ART3,UTP3,CXCL11,MUC7,LINC02271,MIR4450,PAQR3,UGT2A2,LOC105377267,NAA11,CXCL2	3	22129000	gain
4	79904000	80174000	ANTXR2	4	270000	gain
4	80174000	81811000	CFAP299,BMP3,PRDM8,PRKG2-AS1,FGF5,RASGEF1B,PRKG2	3	1637000	gain
4	83688000	100997000	MIR4452,HERC3,PIGY-DT,METAP1,PYURF,PPM1K,FAM13A-AS1,BMPR1B-DT,LOC101929210,GRID2,BMPR1B,ABCG2,ATOH1,PCNAP1,KLHL8,HSD17B11,NKX6-1,TRMT10A,IBSP,TSPAN5,DDIT4L,NAP1L5,H2AZ1,ADH1B,MAPK10,MIR3684,ADH1A,HERC6,ADH5,DSPP,SMARCAD1,DAPP1,LINC02267,CDS1,PKD2,AFF1,SLC10A6,NUDT9,PDLIM5,ADH4,STPG2,FAM13A,DMP1,MMRN1,UNC5C,AFF1-AS1,C4orf36,EMCN,LINC01216,HPGDS,LNCPRESS2,SPP1,LOC100507053,RAP1GDS1,PDHA2,MTTP,ADH7,WDFY3-AS2,H2AZ1-DT,SNCA,SPARCL1,LAMTOR3,ADH6,MIR4451,MIR5705,LOC101928978,ARHGAP24,MEPE,STPG2-AS1,C4orf54,SNCA-AS1,EIF4E,LOC101929353,WDFY3,CCSER1,C4orf17,GPRIN3,PPM1K-DT,HERC5,MAPK10-AS1,LOC105377342,DNAJB14,TIGD2,HSD17B13,SNORA101A,ADH1C,PIGY,PTPN13	3	17309000	gain
4	100997000	101330000	PPP3CA,MIR8066	4	333000	gain
4	101330000	108391000	GIMD1,CENPE,SGMS2,NFKB1,LEF1,CXXC4-AS1,BANK1,PPA2,INTS12,BDH2,LOC101929577,CYP2U1-AS1,CXXC4,LINC02173,SLC39A8,TBCK,AIMP1,UBE2D3-AS1,LOC102723704,DKK2,ARHGEF38-IT1,CYP2U1,MANBA,PPP3CA,TACR3,GSTCD,CISD2,MIR1255A,PAPSS1,ARHGEF38,NPNT,LOC105377621,LINC02428,SLC9B2,GSTCD-AS1,TET2-AS1,UBE2D3,HADH,SLC9B1,TET2,FLJ20021,LEF1-AS1	3	7061000	gain
4	110659000	112345000	FAM241A,MIR297,TIFA,AP1AR,ALPK1	3	1686000	gain
4	113007000	121141000	SNHG8,CEP170P1,PRSS12,LINC02264,LINC01061,PDE5A,NDST3,LOC101929762,SYNPO2,CAMK2D,USP53,LINC01365,MIR1973,LINC01378,MIR1243,GTF2IP12,ARSJ,NDNF,ANK2,METTL14,LINC02263,LINC02502,MYOZ2,MIR8082,LOC107986192,SNORA24,PRDM5,MAD2L1,FABP2,LINC02262,NDST4,C4orf3,TRAM1L1,SEC24D,LOC729218,MIR577,UGT8,SEPTIN7P14,TNIP3,METTL14-DT	3	8134000	gain
4	121141000	121228000	TNIP3	4	87000	gain
4	121228000	127510000	BBS7,CETN4P,ADAD1,SPATA5,IL21-AS1,PP12613,NUDT6,MIR2054,EXOSC9,FAT4,BBS12,QRFPR,LINC01091,IL21,TRPC3,SMIM43,ANXA5,CCNA2,LINC02516,FGF2,ANKRD50,SPRY1,IL2,KIAA1109	3	6282000	gain
4	128835000	138482000	SCLT1,C4orf33,PABPC4L,LINC02466,LINC02485,JADE1,LINC00613,PCDH18,SNHG27,LINC02462,LINC00616,LINC01256,LINC02510,LINC02172,LINC02511,SLC7A11,LINC02465,PCDH10,LINC02479,SLC7A11-AS1,LINC00499,LOC101927359	3	9647000	gain
4	141220000	150951000	LRBA,SMAD1-AS2,LOC105377480,ZNF827,REELD1,EDNRA,SMAD1-AS1,LOC105377458,IQCM,LOC729558,HHIP,MIR3139,GYPA,GAB1,LOC105377623,GUSBP5,LSM6,C4orf51,MMAA,FREM3,ARHGAP10,LINC02355,SMARCA5,IL15,SMAD1,MAB21L2,ZNF330,HHIP-AS1,ABCE1,NR3C2,SMARCA5-AS1,ANAPC10,MIR7849,TTC29,TMEM184C,PRMT9,LINC02432,MIR4799,SLC10A7,POU4F2,INPP4B,OTUD4,LINC02266,GYPB,DCLK2,GYPE,LOC101927636,LINC01095,USP38,MIR548G	3	9731000	gain

4	151423000	152311000	FAM160A1,GATB,LINC02273	3	888000	gain
4	152311000	152513000	FBXW7,FBXW7-AS1,MIR3140	4	202000	gain
4	155057000	164738000	NAF1,MIR3688-1,NPY2R,TKTL2,MARCHF1,LOC101928052,FSTL5,ASIC5,MIR3688-2,C4orf46,GRIA2,RXFP1,PDGFC,FNIP2,MAP9,GLRB,NPY5R,GASK1B,TMA16,LOC102724776,ETFDH,ANP32C,FAM198B-AS1,NPY1R,RAPGEF2,CTSO,GUCY1B1,TMEM144,LINC02233,GUCY1A1,MIR4454,TDO2,PPID,C4orf45,LINC02433	3	9681000	gain
4	165193000	168604000	DDX60L,TLL1,ANXA10,GK3P,SPOCK3,KLHL2,MSMO1,LOC101928131,CPE,DDX60,LINC01179,PALLD,MIR578	3	3411000	gain
4	170223000	182035000	ASB5,SAP30,LINC02382,SPATA4,NEIL3,FBXO8,SPCS3,LINC02500,WDR17,LINC00290,LINC01099,GLRA3,AGA,LINC02174,LINC02268,HMGB2,HPGD,LOC101930370,SCRG1,LINC01612,VEGFC,LINC01098,GALNT7,LOC441052,ADAM29,GPM6A,MIR4276,GALNTL6,LINC02431,GALNTL6-AS1,HAND2,HAND2-AS1,CEP44,LOC101928590,LINC02269,MIR548T,TEMN3-AS1,LOC101928551,LINC02509,MIR6082	3	11812000	gain
5	0	1975000	SDHAP3,CEP72,MIR4635,TERT,MIR4277,PLEKHG4B,AHRR,SLC6A18,SLC9A3-AS1,MIR4457,MRPL36,TPPP,BRD9,LRRC14B,MIR6075,PP7080,NDUFS6,ZDHHC11B,CTD-2194D22.4,LPCAT1,LINC01511,PDCD6-AHRR,LINC02116,SLC6A3,CCDC127,SLC6A19,CTD-3080P12.3,SDHA,HRAT5,CLPTM1L,PDCD6,MIR4456,NKD2,ZDHHC11,LOC100506688,SLC9A3,LOC100996325,SLC12A7,IRX4,EXOC3,TRIP13,EXOC3-AS1,LOC728613	1	1975000	loss
5	17798000	31553000	PRDM9,LOC105374704,LINC02223,CDH18,CDH9,LSP1P3,LINC02241,LINC02228,LINC02146,LINC02064,LINC02103,GUSBP1,LINC02211,PMCHL1,SNORA105A,CDH10,CDH6,CDH18-AS1,C5orf17,C5orf22,LOC101929645,DROSHA,LINC02109,SNORA105B,LINC02239,PURPL,CDH12	3	13755000	gain
5	38935000	39307000	C9,RICTOR,FYB1,OSMR	4	372000	gain
5	39307000	50490000	LOC101926960,CCL28,LOC648987,ANXA2R,MROH2B,PTGER4,LINC02104,PRKAA1,OXCT1,LOC100506639,NNT,LOC100132356,PAIP1,SELENOP,TTC33,FGF10,HMGCS1,TMEM267,OXCT1-AS1,MRPS30,MRPS30-DT,LOC153684,CARD6,C5orf34,LINC02224,FGF10-AS1,EMB,SNORD72,PLCXD3,NIM1K,LINC00603,FLJ32255,HCN1,FBXO4,CCDC152,GHR,NNT-AS1,RPL37,C5orf51,C7,ZNF131,DAB2,C9,C6	3	11183000	gain
5	50490000	50854000	PARP8	4	364000	gain
5	50854000	55426000	CDC20B,ARL15,LINC02118,ITGA2,SNX18,NDUFS4,MIR449C,LOC102467081,LOC102467080,MIR449B,LINC02106,GZMA,LINC01033,FST,DHX29,GPX8,ESM1,ISL1,LOC257396,MIR449A,PELO,MTREX,LINC02105,HSPB3,MCIDAS,LOC642366,PLPP1,CCNO,MOCS2,MIR581,ITGA1,GZMK	3	4572000	gain
5	57603000	68771000	ADAMTS6,LINC02108,ERBIN,LINC02101,SREK1,IPO11,SHLD3,TRAPPC13,RNF180,PART1,LRRC70,SHISAL2B,ERCC8,LOC101928651,IPO11-LRRC70,RGS7BP,CWC27,DEPDC1B,CD180,PLK2,LINC02219,SMIM15,LINC02065,SMIM15-AS1,LOC100303749,KIF2A,NDUFAF2,GAPT,LINC02242,MIR548AE2,DIMT1,CENPK,LINC02225,SREK1IP1,MAST4-AS1,LINC02229,PDE4D,LINCR-0003,MIR582,C5orf64-AS1,RAB3C,PIK3R1,TRIM23,ZSWIM6,SGTB,LOC101928858,PPWD1,LINC02057,ELOVL7,MAST4,HTR1A,NLN,C5orf64,LOC101928505	3	11168000	gain
5	83031000	111574000	MIR548P,LINC00491,ARSK,COX7C,CCNH,WDR36,STARD4-AS1,LOC285638,TMEM167A,SLC25A46,VCAN-AS1,RHOBTB3,MCTP1,PPIP5K2,LOC102724720,FAM172A,MIR548F3,ADGRV1,LINC01339,MIR4280,GIN1,MIR9-2,MIR583,TMEM232,MIR3660,LINC02115,LOC101929380,XRCC4,RIOK2,NUDT12,PCSK1,ARRDC3-AS1,POLR3G,POU5F2,MAN2A1,LOC101929710,LINC01554,LINC02062,LIX1,SLCO6A1,ERAP2,GLRX,MEF2C-AS1,LUCAT1,MEF2C,LYSMD3,SPATA9,LOC100289230,EFNA5,LINC01949,ELL2,MBLAC2,LINC01846,FAM81B,LINC01340,LINC01950,SNORD138,STARD4,LINC02234,GPR150,TTC37,PAM,FER,LOC644285,SLF1,TSLP,LINC02060,EDIL3,CAST,NBPF22P,SCARNA18,CETN3,RGMB-AS1,RFESD,KIAA0825,LINC01848,MIR2277,MACIR,RAB9BP1,RASA1,FBXL17,CAMK4,TMEM161B,NR2F1-AS1,LOC100133050,ST8SIA4,HAPLN1,SLCO4C1,LINC02113,VCAN,LINC00461,NR2F1,PJA2,LINC02488,CHD1,ERAP1,MEF2C-AS2,LINC00492,LOC731157,RGMB,LINC02059,ARRDC3,FAM174A,LNPEP,LINC01023,TMEM161B-AS1	3	28543000	gain
5	115188000	126497000	LVRN,LINC02214,ARL14EPL,SEMA6A-AS1,LINC02148,LOC101927190,FTMT,MIR1244-3,TICAM2,SRFBP1,LOC102467226,SEMA6A-AS2,LOC102467217,SEMA6A,LINC02201,COMMD10,GRAMD2B,PPIC,LOC101927488,AP3S1,MGC32805,ATG12,LOC100505841,MIR1244-2,LOX,LINC02039,DTWD2,LOC105379143,LOC101927100,LINCADL,MIR5706,MIR1244-1,SNCAIP,LINC02208,PRDM6,CEP120,TNFAIP8,LINC01170,SNX24,TMED7-TICAM2,LINC02240,ZNF608,LOC101927357,CSNK1G3,PRR16,FAM170A,SNX2,CCDC112,LOC101927421,MIR12130,PGGT1B,LINC02215,FEM1C,MIR1244-4,ZNF474,HSD17B4,DMXL1,TMED7,LOC105379152,CDO1,LINC00992,LINC02147	3	11309000	gain
5	126795000	132729000	LYRM7,PRRC1,KIF3A,MIR3936HG,LINC01184,FBN2,IL4,SLC22A4,HINT1,CTXN3,SLC12A2,LOC105379176,TH2LCRR,MIR4633,ISOC1,CHSY3,MIR3936,MARCHF3,LMNB1,IL13,RAPGEF6,IRF1-AS1,MIR4460,CSF2,ADAMTS19,IL5,CCDC192,C5orf63,CDC42SE2,ADAMTS19-AS1,PDLIM4,MEIKIN,P4HA2,SLC22A5,IL3,FNIP1,MEGF10,RAD50,MINAR2,P4HA2-AS1,IRF1,SLC27A6,MIR6830,ACSL6	3	5934000	gain
5	142730000	149244000	NR3C1,MIR5197,SH3RF2,GPR151,STK32A,PRELID2,FBXO38,POU4F3,JAKMIP2-AS1,MIR584,PPP2R2B-IT1,HTR4,ARHGAP26-IT1,SPINK9,HMHB1,SPINK5,PLAC8L1,ARHGAP26,DPYSL3,C5orf46,LINC01844,KCTD16,STK32A-AS1,SPINK14,SPINK6,RBM27,SH3TC2-DT,MARCOL,LOC102546294,SPINK7,PPP2R2B,SPINK13,GRXCR2,JAKMIP2,YIPF5,ABLIM3,TCERG1,SH3TC2,LARS1,ADRB2,ARHGAP26-AS1,SPINK1,SCGB3A2	3	6514000	gain
5	154771000	160107000	HAVCR2,LINC01845,RNF145,LINC01932,LINC02202,CLINT1,GEMIN5,UBLCP1,LOC102724404,CNOT8,SOX30,FAM71B,PPP1R2B,LOC285626,THG1L,KIF4B,LSM11,ADAM19,FNDC9,IL12B,ADRA1B,FAXDC2,ITK,SGCD,LINC01847,C5orf52,MRPL22,LARP1,CYFIP2,TIMD4,MED7,MIR378H,NIPAL4,TTC1,EBF1,PWWP2A,LINC02227,HAVCR1	3	5336000	gain
5	160376000	167809000	MIR146A,MIR3142,GABRG2,MIR3142HG,LINC01202,HMMR,TENM2,LOC101927908,MAT2B,ZBED8,GABRB2,ATP10B,LOC102546299,LINC01947,LINC02159,NUDCD2,GABRA1,GABRA6,HMMR-AS1,PTTG1,LINC02143,SLU7,CCNG1	3	7433000	gain

5	169312000	170250000	LINC01187,INSYN2B,LCP2,MIR378E,DOCK2,SPDL1,C5orf58,FOXI1	3	938000	gain
5	170250000	170344000	LCP2,LOC100128059,C5orf58,LINC01366	4	94000	gain
6	8351000	10066000	LOC100506207,HULC,SLC35B3	3	1715000	gain
6	11110000	12026000	HIVEP1,NEDD9,TMEM170B,LOC101928253,ERVFRD-1,ADTRP,SMIM13	3	916000	gain
6	12026000	12189000	HIVEP1	4	163000	gain
6	13626000	13700000	RANBP9,NOL7	4	74000	gain
6	15251000	16189000	DTNBP1,JARID2,MIR4639,MYLIP	3	938000	gain
6	18377000	19529000	RNF144B,MIR548A1HG,LOC105374960,MIR548A1,LOC101928519	3	1152000	gain
6	20325000	21240000	CDKAL1,E2F3	3	915000	gain
6	21981000	23956000	NBAT1,LOC105374972,CASC15,PRL,HDGFL1	3	1975000	gain
6	24651000	27166000	ZNF322,H2BC5,BTN2A3P,LOC100270746,H1-4,ARMH2,H3C1,MIR3143,SLC17A4,LOC108783645,BTN2A1,H1-2,GUSBP2,BTN3A2,HFE,H2BC8,TRIM38,H3C4,CARMIL1,H2BC10,H2BC4,ACOT13,H1-3,SCGN,RIPOR2,H1-6,HCG11,H4C7,H2BC9,H1-1,ABT1,H2AC11,GMNN,C6orf62,CMAHP,H3C2,H4C1,LOC101928663,SLC17A1,H2AC7,H2AC2P,H2AC8,H2AC1,H4C6,H2AC6,H3C3,LINC00240,H2BC11,H2BC12,H4C5,H4C8,H2BC6,H3C7,HMGN4,H3C8,SLC17A3,TDP2,BTN2A2,LOC105374988,H4C2,H3C6,H2AC4,H2BC1,H4C9,SLC17A2,BTN1A1,BTN3A1,BTN3A3,H2AC12,H4C4,H2BC7,H2BC3,LOC285819,H4C3	3	2515000	gain
6	27770000	32667000	SNORD84,HCG22,VARS2,HLA-V,CDSN,HSPA1A,C6orf47,MIR6833,ABHD16A,OR10C1,NCR3,GPSM3,OR5V1,IER3,MAS1L,MDC1,NEU1,ZNF165,HLA-E,HLA-J,SNORD48,HCP5B,SKIV2L,ZKSCAN4,TNXB,LY6G6C,SNORD52,HLA-F,HCG17,C4B_2,TNXA,ZNF311,DDX39B-AS1,SNORD117,C2-AS1,PSORS1C2,PRRT1,EHMT2,H4C12,CSNK2B,TRIM39,CCHCR1,NKAPL,TSBP1,ZBTB12,ZNRD1ASP,HLA-DQA1,ZNF192P1,TRIM39-RPP21,LTA,LOC100507547,HLA-G,MUC22,DHX16,SFTA2,MIR1236,MCCD1,OR12D2,TCF19,HCG27,LINC00243,HCG15,HLA-B,H3C11,NOTCH4,ZKSCAN8,ZSCAN16-AS1,LOC110384692,H3C10,RNF39,GNL1,HCG4B,TNF,MIR4646,OR2J2,SNORA38,ZSCAN26,HLA-L,GABBR1,NRM,HSPA1B,MICB-DT,MDC1-AS1,MIR6891,LOC101929006,C4B,TRIM40,MSH5-SAPCD1,H2BC17,C6orf15,HCG20,TRIM27,LY6G6F,H1-5,LY6G5B,NFKBIL1,HCG9,CFB,LY6G6E,TRIM31,PPP1R18,LINC01015,ZSCAN31,GPX6,PPT2-EGFL8,C4A,C2,ATF6B,PSORS1C3,LY6G6D,OR2J3,ZSCAN12,MIR4640,MPIG6B,H4C13,VARS1,HCG26,HLA-DQB1-AS1,H3C12,ATP6V1G2,NELFE,ATAT1,SNORD32B,GPX5,FKBPL,GTF2H4,CYP21A1P,GPANK1,LOC100129636,H2AC15,IER3-AS1,HCG14,LOC100287329,MICA,H2AC13,PGBD1,OR2H2,LINC01556,LST1,OR14J1,OR2B2,H2AC16,OR1F12,POU5F1,MICA-AS1,HCG18,HLA-DQB1,OR12D3,ZSCAN23,BTNL2,CYP21A2,TUBB,LY6G6F-LY6G6D,CLIC1,TRIM26,POLR1H,DDX39B,PRRC2A,LSM2,TRIM31-AS1,ZSCAN12P1,HLA-DRB1,HCG21,C6orf136,LINC02569,RNF5,SAPCD1,LINC02570,HLA-A,AGPAT1,AIF1,PPP1R11,TRIM15,OR2B3,BAG6,OR2B6,ZSCAN9,H2AC17,LINC02571,MUC21,MUCL3,OR2J1,DDR1,OR2W1,OR2H1,HCG4,TOB2P1,RPP21,PSORS1C1,AGER,LY6G5C,H2AC14,OR12D1,MRPS18B,PRR3,MICB,PBX2,HCP5,H4C11,OR11A1,DDAH2,HLA-C,SNHG32,VWA7,ZSCAN16,LINC00533,SAPCD1-AS1,ABCF1,HCG23,LINC01149,HLA-H,ATP6V1G2-DDX39B,HLA-DRB5,TRIM10,MIR6832,UBD,H2BC15,HLA-F-AS1,LTB,MIR6721,HLA-DRB6,H2BC14,ZBED9,PPT2,FLOT1,MSH5,DXO,EGFL8,ZFP57,MIR877,PPP1R10,HSPA1L,TSBP1-AS1,HLA-DRA,ZKSCAN3,APOM,SLC44A4,LINC01623,IFITM4P,STK19,H2BC13,MOG	3	4897000	gain
6	35574000	35678000	MIR5690,FKBP5	3	104000	gain
6	36037000	36121000	MAPK14	3	84000	gain
6	37825000	38106000	ZFAND3	3	281000	gain
6	42204000	42680000	TRERF1,MRPS10,UBR2	3	476000	gain
6	44387000	44455000	CDC5L,MIR4642	3	68000	gain
6	44802000	88785000	SCAT8,TRAM2-AS1,MIR10524,MIR133B,CGAS,LOC101926934,KHDRBS2,LINC01621,RPS16P5,TPBG,IL17F,BAG2,FBXO9,DPPA5,SNORD50A,PGM3,MCM3,LINC01590,SMAP1,RIPPLY2,LOC101928911,BCKDHB,ENPP4,RIMS1,GUSBP4,RUNX2,MIR30C2,IRAK1BP1,ZNF451-AS1,OPN5,SENP6,HMGN3-AS1,ADGRF1,MRAP2,TTK,C6orf141,COL12A1,SLC25A51P1,LINCMD1,LOC101926898,COL21A1,PRIM2,ENPP5,MIR5685,KLHL31,KHDC1,EVADR,CRISP1,OGFRL1,LRRC1,PAQR8,RAB23,CLIC5,ADGRF2,MEP1A,COX7A2,ORC3,MIR30A,DEFB114,LOC101927082,LOC105377879,FILIP1,LOC101927020,SNORD141A,SLC17A5,CYB5R4,ELOVL5,GSTA2,GSTA1,TMEM30A,PHF3,SPACA1,PHIP,CNR1,LCAL1,CGA,LOC101926915,LOC730101,LINC01611,CFAP206,ADGRF5,	3	43983000	gain

			ADGRB3,LINC01564,HCRTR2,ZNF292,RHAG,SNHG5,DEFB112,KCNQ5,MIR548U,MIR206,CYP39A1,ELOVL4,TENT5A,SUPT3H,LOC102723883,LOC101928540,GFRAL,RCAN2,TMEM30A-DT,COL19A1,GSTA4,LOC101927048,GSTA5,LOC101928307,TNFRSF21,RWDD2A,LINC00680-GUSBP4,RN7SK,AKIRIN2,LOC100506188,LCA5,DOP1A,DST,SDHAF4,LOC101928516,SLC25A27,EYS,TBX18,KHDC1L,GLYATL3,LINC02542,C6orf163,COL9A1,OOEP,HTR1B,LINC02549,IMPG1,DEFB113,ADGRF5-AS1,UBE3D,ZNF451,LOC101928489,MLIP,LGSN,TRAM2,LMBRD1,MLIP-IT1,FAM135A-AS1,MTO1,KCNQ5-IT1,LOC101927136,SNORD156,GSTA7P,SLC35A1,LOC101927189,NT5E,TINAG,MMUT,DDX43,LINC00472,MIR4282,SNAP91,HMGN3,GSTA3,RNGTT,TFAP2B,DEFB110,CILK1,PKHD1,KHDC3L,PTCHD4,DEFB133,DST-AS1,GCM1,ANKRD66,LINC02535,MYO6,TFAP2D,SNORD141B,LINC02540,KIAA1586,ME1,PLA2G7,KCNQ5-AS1,EFHC1,SH3BGRL2,IL17A,TMEM14A,FAM135A,CEP162,ADGRF4,LINC00680,SYNCRIP,IBTK,CRISP2,BMP5,PGK2,MEI4,MIR4463,MTRNR2L9,MLIP-AS1,SNORD50B,LOC101928936,RARS2,MIR586,LINC01626,GCLC,FAM83B,CD109,PTP4A1,TBX18-AS1,LOC441155,EEF1A1,CRISP3,LINC01526,GJB7,SNX14,SMIM8,PRSS35,HMGCLL1,B3GAT2,BEND6,CD2AP,HTR1E,TDRD6,CENPQ			
6	90501000	104725000	CCNC,CASC6,ASCC3,PNISR,FUT9,MIR4643,GRIK2,MIR548AI,USP45,LOC101927314,GPR63,MANEA,MCHR2-AS1,TSG1,PRDM13,FAXC,COQ3,EPHA7,PNKY,UFL1,MMS22L,LOC101927365,FBXL4,KLHL32,FHL5,MANEA-DT,MAP3K7,MCHR2,NDUFAF4,TSTD3,MIR2113,POU3F2,SIM1	3	14224000	gain
6	105454000	106512000	ATG5,PRDM1,LOC105377924,CRYBG1	3	1058000	gain
6	111828000	137937000	LOC101928304,MIR548B,FABP7,TBPL1,MIR548AJ1,LINC02880,MTFR2,LOC101927919,HBS1L,OLIG3,ROS1,VNN2,IL20RA,MYB,C6orf58,CEP85L,LINC02527,LOC285762,HDDC2,ARG1,RNF217,TAAR1,NKAIN2,IFNGR1,LINC00271,LOC100287467,ECHDC1,CLVS2,MIR548H5,CALHM5,RFPL4B,LOC105377967,LINC02523,NCOA7-AS1,THEMIS,LOC105377975,VNN3,SLC35D3,MAP3K5-AS1,SLC35F1,LINC02539,FRK,SLC2A12,SAMD3,FAM162B,TBC1D32,LINC01013,MIR588,HINT3,FYN,KIAA0408,WAKMAR2,CALHM4,HMGA1P7,TAAR9,PEX7,SNORD100,LOC644135,PDE7B,TAAR6,RFX6,LINC02518,TRAPPC3L,NT5DC1,LOC102724646,BCLAF1,SGK1,GJA1,TRDN,PLN,AKAP7,SMPDL3A,MAP3K5,NUS1,TMEM244,SNORD101,MIR3662,MROCKI,TRDN-AS1,ZUP1,MAN1A1,VGLL2,LINC01312,CALHM6,SOGA3,MED23,TMEM200A,BRD7P3,IL22RA2,LAMA4,LAMA2,TUBE1,LOC102723649,NHEG1,VNN1,CTAGE9,KPNA5,TPI1P3,CT69,RSPO3,MAP7,ALDH8A1,EPB41L2,GPRC6A,TARID,LINC01010,FAM229B,STX7,L3MBTL3,LINC02541,SELENOKP3,RSPH4A,TPD52L1,TRMT11,RWDD1,TCF21,AHI1,LOC101928429,MOXD1,LOC100126584,LAMA4-AS1,RNF146,COL10A1,TAAR3P,PKIB,SMLR1,HDAC2-AS2,ARHGAP18,CCN6,DSE,MIR548A2,HDAC2,SLC18B1,LINC02534,TNFAIP3,SERINC1,ENPP3,FAM184A,GOPC,TSPYL1,OR2A4,TSPYL4,TAAR2,HEY2,HS3ST5,HSF2,MARCKS,PTPRK,MCM9,RPS12,MIR3144,TAAR5,EYA4,PTPRK-AS1,CCN2,RNF217-AS1,DCBLD1,ASF1A,ENPP1,TAAR8,NCOA7,CENPW,SNORA33,LINC00326	3	26109000	gain
6	139166000	147396000	LUADT1,CITED2,FBXO30,LOC103352541,FILNC1,PLAGL1,STX11,FUCA2,HYMAI,ADGRG6,LINC01625,EPM2A,MIR4465,LOC101928661,RAB32,LOC153910,PHACTR2,VTA1,MIR3668,TXLNB,SHPRH,GJE1,STXBP5-AS1,STXBP5,UTRN,HECA,LTV1,AIG1,ZC2HC1B,SF3B5,LINC01277,NMBR,GRM1,PEX3,LOC100507477,PHACTR2-AS1,ADAT2,SNORA98,KATNBL1P6,HIVEP2,FBXO30-DT,ADGB	3	8230000	gain
6	149042000	149421000	TAB2-AS1,TAB2,SUMO4,UST	3	379000	gain
6	151911000	154259000	OPRM1,MYCT1,FBXO5,MTRF1L,ESR1,VIP,SYNE1,SYNE1-AS1,IPCEF1,RGS17	3	2348000	gain
6	154740000	154877000	MIR1273C,SCAF8	3	137000	gain
6	155140000	157125000	TFB1M,TIAM2,SNORD28B,LOC115308161,CLDN20,ARID1B,NOX3,MIR4466,MIR1202,LOC105378068	3	1985000	gain
6	163425000	163580000	QKI	3	155000	gain
6	164185000	165636000	MEAT6,PDE10A,C6orf118	3	1451000	gain
6	167832000	167948000	AFDN	3	116000	gain
6	167948000	168728000	KIF25,LOC105378137,SMOC2,HGC6.3,LOC101929420,AFDN,FRMD1,DACT2,KIF25-AS1	1	780000	loss
6	169956000	170535000	LOC100131532,MIR4644,LOC285804,FAM120B,DLL1,LINC01624,LOC154449,LOC102724511	1	579000	loss
6	170535000	170805979	TBP,PDCD2,PSMB1	3	270979	gain
7	0	2727000	IQCE,NUDT1,LOC100507642,ELFN1,SNORA114,PDGFA,LOC102723672,PSMG3-AS1,BRAT1,COX19,SNX8,DNAAF5,FAM20C,SUN1,GET4,LOC105375115,MIR6836,MICALL2,ELFN1-AS1,LOC442497,MAFK,PRKAR1B-AS2,PRKAR1B,LOC116435278,LFNG,TTYH3,ADAP1,EIF3B,LOC105375303,HRAT92,TMEM184A,PSMG3,MRM2,ZFAND2A-DT,CYP2W1,GPER1,PRKAR1B-AS1,AMZ1,ZFAND2A,LOC100128653,UNCX,C7orf50,TFAMP1,GRIFIN,MIR4648,LOC112267991,FOXL3,FOXL3-OT1,MIR4655,GPR146,MIR339,CHST12,MAD1L1,INTS1	1	2727000	loss
7	3929000	7017000	CYTH3,LOC105375131,RBAK-RBAKDN,PMS2CL,LOC100129484,USP42,WIPI2,RSPH10B,RNF216P1,RAC1,AP5Z1,MIR589,RNF216-IT1,ZNF316,ACTB,SDK1,ZNF890P,MIR4656,SNORA80D,CCZ1B,CCZ1,OCM,KDELR2,ZNF853,ANKRD61,GRID2IP,SLC29A4,MMD2,FAM220A,PMS2,SNORD	1	3088000	loss

			165,C7orf26,RADIL,RSPH10B2,AIMP2,EIF2AK1,PAPOLB,FSCN1,LOC221946,FBXL18,FOXK1,TNRC18,RBAK,MIR6874,RNF216,ZNF815P,ZNF12,DAGLB,ZDHHC4,RBAKDN			
7	7017000	20650000	NDUFA4,AHR,POLR1F,PER3P1,LOC100506098,LOC101927668,ARL4A,THSD7A,TMEM196,LOC101927769,LOC101927354,COL28A1,RPA3,CRPPA-AS1,ABCB5,MGC4859,GLCCI1-DT,LINC02888,LRRC72,TMEM106B,SOSTDC1,LINC02587,ICA1,AGMO,LOC102725191,HDAC9,AGR2,DGKB,LOC100131472,ETV1,CRPPA,TWIST1,MIOS,LOC101927811,FERD3L,LOC101927391,MIR1302-6,MIR3683,SCIN,MACC1-AS1,TSPAN13,SNX13,PRPS1L1,MACC1,VWDE,MIR3146,LOC100131257,UMAD1,NXPH1,GLCCI1,LINC02889,MEOX2,BZW2,LOC105375166,AGR3,C1GALT1,ANKMY2,LOC100505938,PHF14,ITGB8	3	13633000	gain
7	27082000	27262000	HOXA5,HOXA10,HOTTIP,HOXA7,MIR196B,HOXA13,HOXA11-AS,HOXA10-HOXA9,HOTAIRM1,HOXA-AS2,EVX1,HOXA9,EVX1-AS,HOXA11,HOXA3,HOXA6,HOXA4,HOXA-AS3,HOXA2,HOXA10-AS,HOXA1	1	180000	loss
7	36566000	38255000	SFRP4,STARD3NL,AOAH,EPDR1,NME8,GPR141,ELMO1-AS1,AOAH-IT1,MIR1200,ELMO1	3	1689000	gain
7	38255000	38330000	TARP	1	75000	loss
7	43585000	43715000	COA1,STK17A	3	130000	gain
7	47967000	50221000	UPP1,SPATA48,CDC14C,HUS1,C7orf57,SUN3,ABCA13,ZPBP,VWC2	3	2254000	gain
7	50221000	50382000	IKZF1	4	161000	gain
7	51657000	54533000	LINC01445,POM121L12,LINC01446	3	2876000	gain
7	57462000	63007000	ZNF716	3	5545000	gain
7	73520000	77180000	SPDYE11,GTF2IP1,PMS2P9,SPDYE17,GTF2I,RCC1L,LAT2,GTF2IP7,MIR4284,BAZ1B,YWHAG,ABHD11,CCDC146,TMEM120A,SPDYE13,NCF1,BUD23,CCL26,SSC4D,MIR4651,SPDYE12P,RHBDD2,PMS2P5,SRRM3,PMS2P3,SPDYE16,LOC100133091,LOC101926943,SPDYE10P,STYXL1,FAM185BP,STX1A,SPDYE14,GTF2IRD2,NCF1C,CLDN4,POR,SPDYE9,MIR590,TRIM74,ABHD11-AS1,TRIM73,NSUN5P1,METTL27,SPDYE8,HIP1,EIF4H,MDH2,PMS2P2,ELN,LOC541473,RFC2,LIMK1,POM121C,ZP3,SPDYE18,DNAJC30,POMZP3,DTX2P1-UPK3BP1-PMS2P11,CCL24,VPS37D,DTX2,FDPSP2,TMEM270,GTF2IRD2B,STAG3L1,UPK3B,STAG3L2,PMS2P7,SPDYE15,TBL2,SPDYE5,MLXIPL,CLDN3,GTF2IRD1,CLIP2,MIR10525,CASTOR2,SNORA14A,LOC100101148,BCL7B,HSPB1	1	3660000	loss
7	77180000	96976000	ABCB4,PON2,DMTF1,MTERF1,DYNC1I1,CDK6,CASD1,BET1,TFPI2-DT,GTPBP10,LOC101927269,PTPN12,TEX47,CLDN12,LOC101927420,AKAP9,CCDC146,ERVW-1,MAGI2-AS2,RBM48,CDK6-AS1,VPS50,LRRD1,STEAP2-AS1,TMBIM7P,DBF4,LINC00972,PCLO,RSBN1L,PPP1R9A,STEAP2,PDK4,MIR489,ELAPOR2,SEMA3C,SLC25A13,DLX6-AS1,MAGI2,SGCE,FGL2,STEAP1,GNAT3,RUNDC3B,PEG10,CDK14,SEMA3E,MIR591,GNG11,FAM133B,SAMD9,GNAI1,SRI,GNGT1,LOC102723899,TFPI2,FAM237B,CD36,LOC101409256,DPY19L2P4,LOC105369146,CALCR,PHTF2,MIR653,ASB4,HGF,CACNA2D1-AS1,LOC101927446,PON1,LOC101927243,APTR,GATAD1,RPL13AP17,SEM1,TMEM60,HEPACAM2,MIR4652,SRI-AS1,TMEM243,ZNF804B,SEMA3A,MAGI2-AS3,ABCB1,CYP51A1,TP53TG1,GSAP,PEX1,STEAP4,COL1A2,KRIT1,SAMD9L,PON3,SLC25A40,GRM3,SEMA3D,ANKIB1,LOC100128317,LOC101927378,CROT,CFAP69,ADAM22,FZD1,CYP51A1-AS1,CACNA2D1,COL1A2-AS1,MIR1285-1	3	19796000	gain
7	98188000	98884000	BRI3,MIR3609,SCARNA28,LMTK2,BAIAP2L1,TRRAP,TECPR1,BHLHA15,NPTX2,TMEM130	1	696000	loss
7	100431000	102473000	MUC3A,SLC12A9,LRWD1,NYAP1,PRKRIP1,ALKBH4,LRCH4,GNB2,PPP1R35,LOC100289561,PCOLCE,ACTL6B,GIGYF1,SERPINE1,UFSP1,EPHB4,ZAN,ZASP,TRIP6,MEPCE,MUC17,SAP25,AP1S1,SRRT,LOC105375429,LNCPRESS1,FBXO24,PLOD3,VGF,LOC100630923,TSC22D4,C7orf61,MIR4467,TFR2,EMSLR,MIR4653,ORAI2,MIR4285,SLC12A9-AS1,MIR548O,PCOLCE-AS1,MIR6875,MUC12-AS1,SH2B2,LINC01007,MOSPD3,NAT16,EPO,ZNHIT1,FIS1,IFT22,MYL10,CUX1,CLDN15,MIR5090,MOGAT3,POP7,AGFG2,TRIM56,SPDYE6,ACHE,COL26A1,MUC12	1	2042000	loss
7	108882000	128066000	GPR37,ANKRD7,GPR85,FEZF1-AS1,CFTR,MIR3666,CADPS2,WNT2,ING3,CAV1,CPED1,AASS,COMETT,CAPZA2,LSM8,ARF5,EIF3IP1,KCND2,LOC101928012,HRAT17,LMOD2,SLC13A1,LRRC4,TSPAN12,LOC101928211,SND1,ST7-OT4,CAV2,ST7-OT3,ZNF277,MIR592,BMT2,SND1-IT1,SNORA25B,LOC100996249,ZNF800,IFRD1,LRRN3,DOCK4-AS1,LOC101928283,HYAL4,GRM8-AS1,RNF133,RNU6-1,LOC105375483,ST7-AS2,C7orf66,SMIM30,CFTR-AS1,C7orf77,LINC02476,RNU6-8,POT1,GCC1,LINC01393,GRM8,POT1-AS1,DOCK4,RNU6-2,RNU6-9,MDFIC,TMEM229A,ASB15,TAS2R16,PAX4,SPAM1,PTPRZ1,WNT16,FAM3C,MIR6132,TFEC,ASB15-AS1,IMMP2L,FSCN3,ST7-AS1,RNU6-7,TES,CTTNBP2,WASL,LOC102724434,ASZ1,NDUFA5,RNF148,LINC01392,FOXP2,LOC100506682,LSMEM1,MET,PPP1R3A,FEZF1,ST7,LOC101928254,TMEM168,IQUB,HYAL6P	3	19184000	gain
7	130846000	131502000	MKLN1,LINC-PINT,PODXL,LINC00513,MKLN1-AS,MIR29A,MIR29B1	3	656000	gain
7	132775000	138076000	LOC101928861,AKR1B1,CREB3L2-AS1,CNOT4,NUP205,AKR1B15,LOC349160,LOC105375512,CHRM2,CYREN,MIR3654,SLC13A4,STRA8,BPGM,MIR6509,LRGUK,DGKI,WDR91,MTPN,AKR1B10,MIR6133,TMEM140,SLC35B4,MIR490,CREB3L2,AGBL3,EXOC4,CALD1,CHCHD3,PTN,FAM180A,LUZP6,STMP1	3	5301000	gain

7	141553000	148920000	PRSS2,SSBP1,LOC100507507,DENND11,PRSS37,LLCFC1,TRPV5,EPHA1-AS1,OR2A5,CTAGE4,GSTK1,OR6B1,MIR6892,TMEM139,TCAF1,TPK1,OR2A9P,OR2A14,KEL,MTRNR2L6,TRY2P,OR9A4,MGAM,OR2A42,TAS2R39,PIP,OR2A25,OR2A20P,ZYX,OR6W1P,NOBOX,CASP2,TMEM139-AS1,EPHB6,CTAGE15,TCAF2,CLCN1,LOC105375556,OR2A7,CNTNAP2,OR6V1,PRSS1,CTAGE8,CLEC5A,OR2A1,TAS2R4,OR10AC1,ARHGEF35-AS1,FAM131B,EZH2,ARHGEF34P,OR2A1-AS1,CTAGE6,TAS2R38,TAS2R40,TAS2R41,PRSS58,OR2A12,EPHA1,MIR11400,CUL1,WEE2,TAS2R60,OR2A2,TCAF2P1,CNTNAP2-AS1,TRPV6,MIR548F4,TAS2R5,ARHGEF35,OR2F1,WEE2-AS1,C7orf33,ARHGEF5,MOXD2P,OR9A2,MGAM2,AGK,TAS2R3,LOC154761,OR2F2	3	7367000	gain
7	150450000	150779000	GIMAP8,GIMAP7,GIMAP1-GIMAP5,GIMAP2,GIMAP5,GIMAP6,GIMAP1,GIMAP4	4	329000	gain
7	152034000	152401000	KMT2C,GALNT11	3	367000	gain
7	152401000	152936000	LINC01003,ACTR3B,KMT2C,XRCC2,FABP5P3	1	535000	loss
7	155181000	155618000	CNPY1,LOC100286906,INSIG1,BLACE,EN2	1	437000	loss
7	155618000	155767000	RBM33,LOC100506302	3	149000	gain
7	156674000	156872000	RNF32,LMBR1	3	198000	gain
7	156872000	159170000	PTPRN2-AS1,NCAPG2,UBE3C,LINC00689,NOM1,LMBR1,MNX1-AS2,VIPR2,MNX1,DNAJB6,MIR5707,PTPRN2,MIR153-2,MNX1-AS1,LOC101927914,LINC01022,ESYT2,MIR595,DYNC2I1	1	2298000	loss
8	2848000	6028000	CSMD1,LOC105377785	3	3180000	gain
8	9578000	9786000	TNKS,MIR597	3	208000	gain
8	13194000	17311000	C8orf48,VPS37A,ZDHHC2,MSR1,MICU3,FGF20,MTMR7,DLC1,LOC102725080,MIR383,CNOT7,TUSC3,SGCZ	3	4117000	gain
8	22016000	22252000	LGI3,FGF17,MIR320A,PHYHIP,NUDT18,DMTN,POLR3D,NPM2,BMP1,SFTPC,REEP4,HR,FAM160B2	1	236000	loss
8	23798000	24875000	ADAM28,ADAM7,LOC101929294,STC1,LOC101929315,ADAMDEC1	3	1077000	gain
8	28892000	30076000	LOC101929470,SARAF,HMBOX1,DUSP4,KIF13B,LINC00589,LINC02209,MIR3148,LINC02099	3	1184000	gain
8	31045000	33381000	WRN,NRG1-IT3,NRG1-IT1,FUT10,NRG1	3	2336000	gain
8	33816000	37448000	LINC01288,LOC101929550,UNC5D,LINC01605,KCNU1	3	3632000	gain
8	41921000	42043000	KAT6A	3	122000	gain
8	46451000	47715000	LINC00293,LOC100287846,SPIDR,ASNSP1	3	1264000	gain
8	49048000	51126000	PPDPFL,LOC100507464,SNTG1	3	2078000	gain
8	58554000	69819000	ADHFE1,COPS5,LINC00967,MTFR1,CPA6,LINC00251,RAB2A,MCMDC2,C8orf44,CRH,LOC100130298,YTHDF3-AS1,LOC102724612,MIR4470,MYBL1,LINC01414,PDE7A,GGH,SGK3,NSMAF,SULF1,C8orf34,RRS1,CA8,YTHDF3,LINC02155,LOC100505501,LINC01299,LOC401463,ARMC1,TCF24,PPP1R42,TTPA,SLCO5A1,SNORD87,VXN,VCPIP1,MIR124-2HG,TRIM55,MIR124-2,PTTG3P,CSPP1,PREX2,DNAJC5B,RRS1-AS1,LINC01301,TOX,CYP7B1,SDCBP,CHD7,LOC105375938,LINC01592,ASPH,ARFGEF1,LOC102724708,NKAIN3,C8orf44-SGK3,CLVS1,C8orf34-AS1,LINC01603,BHLHE22,LINC01289,SNHG6	3	11265000	gain
8	70106000	80159000	LOC102724874,UBE2W,HNF4G,ZFHX4,ZC2HC1A,LOC101927040,HEY1,MIR12123,RDH10,PEX2,LINC01617,C8orf89,MIR3149,LINC02605,KCNB2,IL7,LOC101926908,SBSPON,LOC101241902,STAU2,LOC101926892,LACTB2,STAU2-AS1,PKIA,PI15,TMEM70,NCOA2,MSC-AS1,MIR2052HG,MIR5681B,TRPA1,CRISPLD1,LINC01607,TERF1,RDH10-AS1,CASC9,TPD52,MRPS28,MIR2052,LACTB2-AS1,JPH1,LINC01111,MSC,ELOC,PKIA-AS1,TRAM1,GDAP1,RPL7,XKR9,MIR5681A,STMN2,LOC392232,LY96,ZFHX4-AS1,EYA1	3	10053000	gain
8	80965000	93198000	RIPK2,SLC7A13,E2F5,OSGIN2,LINC01419,FABP4,FABP12,FLJ46284,LINC01030,PMP2,LOC101929709,PSKH2,CA13,TRIQK,RALYL,LRRC69,LRRCC1,DCAF4L2,RBIS,FABP9,LOC102724710,SNX16,ZFAND1,PIP4P2,WWP1,SLC10A5,DECR1,CPNE3,NECAB1,MIR8084,REXO1L2P,RUNX1T1,ATP6V0D2,TMEM64,FABP5,LOC102723322,C8orf87,OTUD6B-AS1,LINC00534,IMPA1P1,MIR4661,SLC26A7,CNBD1,OTUD6B,CHMP4C,MMP16,LOC101927141,C8orf88,IMPA1,NBN,CA1,CA3-AS1,RMDN1,CA3,PAG1,CALB1,CA2,CNGB3	3	12233000	gain

8	96658000	97162000	CPQ,LOC101927066	3	504000	gain
8	98442000	100552000	OSR2,VPS13B,SPAG1,RGS22,COX6C,MIR875,FBXO43,POLR2K,ANKRD46,SNORD77B,MIR599,MIR4471,STK3,RNF19A	3	2110000	gain
8	101603000	102388000	NCALD,RRM2B,MIR5680,UBR5,LOC104054148,UBR5-AS1,GRHL2	3	785000	gain
8	103258000	115398000	EMC2,NUDCD1,ZFPM2,TRHR,SNORD173,DCSTAMP,FZD6,MIR2053,EBAG9,LINC01609,MIR548A3,SLC25A32,CTHRC1,LINC02237,KCNV1,ABRA,DCAF13,RIMS2,CSMD3,ZFPM2-AS1,LOC105375690,LINC01608,DPYS,ENY2,TMEM74,SYBU,ANGPT1,OXR1,LOC105369147,PKHD1L1,EIF3E,LOC100132813,LRP12,RSPO2	3	12140000	gain
8	115398000	115666000	TRPS1	4	268000	gain
8	115666000	119822000	CCN3,ENPP2,TAF2,EXT1,SNORD168,SAMD12,RAD21-AS1,SAMD12-AS1,MAL2,LINC00536,MIR548AZ,SLC30A8,LOC101927513,TRPS1,AARD,MIR3610,UTP23,MED30,MAL2-AS1,RAD21,COLEC10,EIF3H,LOC105375713,TNFRSF11B	3	4156000	gain
8	120134000	125117000	FAM83A,LINC00964,FAM83A-AS1,MIR4662A,NTAQ1,FER1L6-AS2,NDUFB9,MTSS1,FER1L6-AS1,ANXA13,RNF139,ZNF572,C8orf76,HAS2-AS1,LOC105375744,LOC101927588,LOC101927543,ZHX1,WASHC5,KLHL38,TATDN1,TMEM65,SMILR,NSMCE2,DERL1,ZHX2,TRMT12,TBC1D31,MIR4662B,SQLE,ATAD2,MIR548D1,LINC01151,ZHX1-C8orf76,MIR548AA1,FAM91A1,MRPL13,RNF139-AS1,COL14A1,HAS2,FBXO32,MTBP,MIR4663,FER1L6,MIR6844,SNTB1	3	4983000	gain
8	125117000	125236000	NSMCE2	4	119000	gain
8	125236000	125924000	NSMCE2,LINC00861,TRIB1	3	688000	gain
8	125962000	130346000	MYC,LINC00977,CASC8,ASAP1-IT1,LOC101927657,MIR5194,POU5F1B,MIR1208,LINC00976,ASAP1-IT2,TMEM75,CASC21,CYRIB,PCAT2,MIR1205,LRATD2,CASC11,PVT1,MIR1207,PCAT1,CCDC26,GSDMC,MIR1204,ASAP1,MIR3686,CCAT2,MIR1206,PRNCR1,CASC19,LINC00824,CCAT1	3	4384000	gain
8	131910000	132016000	EFR3A	4	106000	gain
8	132779000	132862000	PHF20L1	4	83000	gain
8	132862000	138036000	LOC105375773,MIR30B,LOC101927915,TG,LINC02055,ZFAT,MIR7848,LOC401478,ZFAT-AS1,MIR30D,KHDRBS3,ST3GAL1,PTCSC1,NCRNA00250,LOC101927822,LOC101927845,CCN4,LOC101927798,SLA,LINC01591,NDRG1	3	5174000	gain
8	140698000	140991000	PTK2,MIR151A	3	293000	gain
8	141275000	144859000	MIR937,ZNF251,LYNX1-SLURP2,LY6K,PYCR3,MIR1302-7,LYPD2,MIR7112,MIR6848,MROH5,GFUS,LY6E-DT,SCRT1,LOC101928902,LINC00051,NRBP2,GLI4,GML,LINC01300,LOC101928087,IQANK1,LY6L,PPP1R16A,MFSD3,MAPK15,LINC02878,PLEC,SLC52A2,RECQL4,MIR6847,NAPRT,TIGD5,ZFP41,GPR20,TONSL-AS1,EEF1D,ZNF623,MIR6845,LY6H,MROH6,TONSL,ZNF7,MIR939,PSCA,MROH1,SPATC1,CYP11B2,SCX,LRRC14,LY6D,SLURP2,GPAA1,ADCK5,MINCR,EPPK1,LY6E,GSDMD,KIFC2,CCDC166,MIR6893,MAFA,SLC45A4,PARP10,RPL8,TMEM249,GPIHBP1,C8orf82,SNORD149,CYP11B1,SLC39A4,GPT,LOC100130027,MAFA-AS1,TSNARE1,FOXH1,LOC101928160,PUF60,MIR1234,MIR661,RHPN1-AS1,SHARPIN,RHPN1,CPSF1,COMMD5,LRRC24,BOP1,ARC,VPS28,ZNF517,DGAT1,ZC3H3,C8orf31,LYNX1,MIR4664,LOC100310756,PTP4A3,FBXL6,SCRIB,HSF1,ZNF707,WDR97,GRINA,OPLAH,FAM83H,CDC42P3,MIR6846,MIR10400,CYC1,SMPD5,LNCOC1,EXOSC4,LOC105375800,HGH1,MIR6849,CYHR1,MIR6850,ARHGAP39,TOP1MT,JRK,MIR4472-1,ADGRB1,ZNF696,ZNF34,THEM6,MAF1,SLURP1	1	3584000	loss
9	0	479000	DOCK8-AS1,PGM5P3-AS1,WASHC1,KANK1,MIR1302-10,MIR1302-9,FAM138A,MIR1302-11,FOXD4,DOCK8,DDX11L5,FAM138C,FAM138F,CBWD1,MIR1302-2	3	479000	gain
9	1081000	6527000	CDC37L1-DT,KIAA2026,MIR101-2,AK3,LINC01231,RCL1,RLN2,CDC37L1,PLPP6,GLIS3-AS1,TPD52L3,VLDLR,RANBP6,RFX3-AS1,GLIS3,UHRF2,SLC1A1,VLDLR-AS1,PDCD1LG2,RFX3,INSL6,KCNV2,SMARCA2,MIR4665,PUM3,CD274,SPATA6L,MLANA,PLGRKT,RLN1,INSL4,JAK2,ERMP1,RIC1,IL33	3	5446000	gain
9	6816000	14775000	MPDZ,PTPRD,KDM4C,PTPRD-AS2,LURAP1L-AS1,SNORD137,LINC01235,LOC105375972,FREM1,LURAP1L,TYRP1,PTPRD-AS1,ZDHHC21,LINC00583,DMAC1,CER1,NFIB	3	7959000	gain
9	19964000	32583000	SMIM27,ELAVL2,EQTN,DMRTA1,MIR31HG,MIR4474,MIR491,IFNA7,DDX58,LINC00032,IFNE,LRRC19,IFT74-AS1,MIR873,ACO1,LINC01243,IZUMO3,IFNK,TUSC1,SNORA30B,MIR4473,IFT74,LINC01242,IFNA1,IFNA10,CDKN2B,MOB3B,LINGO2,IFNB1,MTAP,MIR31,LINC01241,IFNA4,FOCAD-AS1,TOPORS,FOCAD,CDKN2A-DT,IFNA6,CAAP1,LOC101929563,IFNW1,HACD4,IFNA22P,TEK,C9orf72,IFNA17,MIR876,NDUFB6,IFNA16,CDKN2A,IFNA8,MLLT3,IFNA5,CDKN2B-AS1,IFNA13,IFNA21,PLAA,KLHL9,LINC01239,LOC100506422,IFNA14,IFNA2	3	12619000	gain
9	37131000	37360000	ZCCHC7	3	229000	gain
9	72875000	74543000	RORB,LOC101927358,ANXA1,RORB-AS1,ALDH1A1	3	1668000	gain

9	79369000	81466000	TLE4,LINC01507	3	2097000	gain
9	91048000	91359000	AUH,LINC00484,LOC100129316	3	311000	gain
9	95848000	96015000	LINC00476,ERCC6L2	3	167000	gain
9	98998000	104192000	MRPL50,STX17-AS1,SMC2,MSANTD3-TMEFF1,SMC2-AS1,TMEFF1,MSANTD3,BAAT,STX17,TGFBR1,TMEM246-AS1,CYLC2,ALDOB,RNF20,ERP44,SEC61B,NR4A3,CAVIN4,LOC101928438,GRIN3A,COL15A1,LINC00587,PPP3R2,PLPPR1,ZNF189,ALG2,LINC01492,TEX10,LOC101928523,INVS,NAMA,PGAP4	3	5194000	gain
9	114732000	121441000	CNTRL,LOC101928748,TNFSF8,STOM,TRIM32,LOC101928797,TRAF1,MIR147A,DELEC1,BRINP1,ASTN2-AS1,PHF19,B3GNT10,CDK5RAP2,TNFSF15,CUTALP,C5,PAPPA-AS1,TNC,C5-OT1,MEGF9,GSN,LINC01613,TLR4,LOC101928775,LINC02578,FBXW2,ASTN2,GSN-AS1,SNORA70C,RAB14,PSMD5,PAPPA,LINC00474	3	6709000	gain
9	123525000	123914000	DENND1A	3	389000	gain
9	125473000	125967000	LOC51145,PBX3,MAPKAP1	3	494000	gain
9	127390000	129885000	PRRX2-AS1,COQ4,ST6GALNAC6,CRAT,DOLK,PTPA,NIBAN2,DYNC2I2,FPGS,CIZ1,MIR3911,GOLGA2,PTGES2,NAIF1,NTMT1,ENDOG,CFAP157,ODF2,PHYHD1,LRSAM1,SPOUT1,SLC2A8,C9orf106,LINC01503,TBC1D13,KYAT1,SLC25A25-AS1,URM1,DOLPP1,TOR1A,ENG,SPTAN1,FAM102A,TOR1B,TOR2A,AK1,TTC16,MIGA2,LRRC8A,LCN2,RPL12,PTGES2-AS1,ASB6,PIP5KL1,MIR199B,MIR4672,PKN3,LOC102723566,C9orf78,MIR1268A,MIR3960,ST6GALNAC4,MIR219B,DPM2,ZER1,SH2D3C,PTRH1,PTGES,ZNF79,SNORA65,SLC27A4,MIR2861,STXBP1,MIR219A2,ZDHHC12,LOC100506100,NUP188,SET,SH3GLB2,LINC00963,USP20,GARNL3,MIR6855,GLE1,C9orf50,LOC101929331,SWI5,TRUB2,IER5L,CDK9,C9orf16,CERCAM,DNM1,SLC25A25,PRRX2,MIR3154	1	2495000	loss
9	130150000	131125000	FIBCD1,QRFP,ASS1,EXOSC2,LOC100272217,HMCN2,AIF1L,MIR6856,FUBP3,ABL1,MIR12126,NCS1,LAMC3,PRDM12	1	975000	loss
9	131624000	131735000	RAPGEF1	3	111000	gain
9	133047000	138394717	MIR3689E,AJM1,LOC102723971,FAM157B,CACFD1,MIR4669,ADAMTS13,FAM166A,DBH,STPG3-AS1,WDR5,MIR4479,MIR6722,ABCA2,MAN1B1,TMEM141,PPP1R26-AS1,AGPAT2,LOC401557,LCN10,SOHLH1,FCN2,LOC101928932,PHPT1,PAXX,FBXW5,TOR4A,CCDC187,UBAC1,LOC651337,SURF2,RABL6,INPP5E,TPRN,RNF224,FCN1,SURF1,RXRA,MIR3689A,CACNA1B,STPG3,EHMT1,DIPK1B,C9orf139,MIR4292,TRAF2,PTGDS,NELFB,LOC101448202,CEL,GPSM1,CCDC183-AS1,NOTCH1,LCN15,MIR126,QSOX2,HSPC324,ABO,MIR3689B,LHX3,FUT7,MAN1B1-DT,TUBBP5,MIR3689D1,CARD9,SURF6,RALGDS,NSMF,ENTR1,SAPCD2,LOC100130548,OLFM1,PNPLA7,LOC101928525,LINC01502,LOC100133077,MYMK,SLC2A6,GBGT1,OBP2B,SEC16A,COL5A1,TUBB4B,SNHG7,VAV2,RNU6ATAC,SNAPC4,FAM163B,LINC02247,MIR4673,STKLD1,MIR602,MIR3621,SNORD24,PPP1R26,ARRDC1-AS1,EXD3,NRARP,REXO4,ANAPC2,SNORA17B,MIR7114,GTF3C5,LOC100128593,EGFL7,LOC107987142,LINC02692,DPP7,NALT1,BRD3OS,MIR3689D2,LCN1,BRD3,PMPCA,MRPS2,GRIN1,SURF4,ENTPD2,MED22,MAMDC4,KCNT1,LRRC26,LOC101928786,CYSRT1,DKFZP434A062,MIR3689F,MIR6877,SNORD36C,NACC2,SNORD36B,ZMYND19,OBP2A,RPL7A,LCN9,NOXA1,ENTPD8,RNF208,LCN6,UAP1L1,CLIC3,NPDC1,C9orf163,EDF1,MIR4674,DBH-AS1,DPH7,NDOR1,PAEP,MIR3689C,LCN8,SNORA17A,GLT6D1,SNORD36A,C9orf62,C8G,MRPL41,DNLZ,C9orf116,SARDH,LCN12,LOC105376331,TMEM250,CCDC183,SSNA1,COL5A1-AS1,CELP,SLC34A3,TMEM210,CAMSAP1,ADAMTSL2,LINC01451,TMEM203,LCNL1,ARRDC1	1	5347717	loss
10	0	263000	LOC102723376,TUBB8,LINC02564,ZMYND11	3	263000	gain
10	3434000	5461000	AKR1C2,LINC02561,LINC00703,AKR1C4,NET1,AKR1E2,TUBAL3,LINC02669,LINC00705,LINC02639,MIR6078,LOC105376360,LOC101927964,AKR1C1,LINC00702,KLF6,AKR1C6P,UCN3,AKR1C8P,AKR1C3,MANCR	3	2027000	gain
10	6258000	11603000	LOC101928272,USP6NL,ITIH2,CELF2-AS2,SFTA1P,ATP5F1C,CELF2-AS1,LINC00709,GATA3,LINC00710,CELF2,TAF3,PRKCQ-AS1,SFMBT2,LINC02648,MIR4454,CELF2-DT,PRKCQ,LINC00708,LINC02670,LINC02676,LINC02656,KIN,ITIH5,LINP1,LINC02649,LOC105376398,LINC00706,LINC00707,GATA3-AS1,SNORD129	3	5345000	gain
10	18797000	21151000	NEBL,MALRD1,MIR4675,LOC101928834,PLXDC2	3	2354000	gain
10	21569000	22601000	BMI1,DNAJC1,SPAG6,LOC100499489,LOC100130992,COMMD3-BMI1,EBLN1,PIP4K2A,COMMD3,MLLT10	3	1032000	gain
10	22601000	22702000	PIP4K2A	4	101000	gain
10	31322000	31531000	ZEB1,LOC100505502	4	209000	gain
10	42742000	43513000	LINC01264,BMS1,SNORD3J,LINC02623,HNRNPF,MIR5100,ZNF487,RASGEF1A,LOC283028,RET,FXYD4,CSGALNACT2,LOC105378269	1	771000	loss
10	49819000	61936000	ASAH2B,LINC00845,MIR548F1,LNCAROD,SGMS1,LINC01553,LOC105378305,LINC00844,LOC102724719,CCDC6,UBE2D1,LOC105378311,CCEPR,CISD1,AGAP6,WASHC2A,LOC112268068,TIMM23B,ASAH2,CABCOCO1,TFAM,PHYHIPL,SGMS1-	3	12117000	gain

			AS1,LOC107984236,MIR3924,PRKG1,FAM133CP,FAM13C,PRKG1-AS1,MRLN,PCDH15,MBL2,A1CF,TMEM26-AS1,RHOBTB1,TIMM23B-AGAP6,CSTF2T,MIR605,DKK1,FAM21EP,MTRNR2L5,ZWINT,PARG,IPMK,BICC1,TMEM26,ANK3,SNORA74C-2,SLC16A9,CDK1,ARID5B			
10	61936000	62091000	ARID5B	4	155000	gain
10	62091000	68160000	MIR7151,NRBF2,ZNF365,DNAJC12,LINC01515,MYPN,ANXA2P3,REEP3,ADO,LOC101928961,LRRTM3,LINC02671,HERC4,CTNNA3,RTKN2,JMJD1C,LOC105378330,ARID5B,LOC283045,POU5F1P5,JMJD1C-AS1,EGR2,SIRT1,MIR1296	3	6069000	gain
10	80868000	86058000	CDHR1,LINC02650,LINC02647,RGR,LRIT1,CCSER2,NRG3,LINC01520,LRIT2,CERNA2,C10orf99,LOC101929662,LINC01519,NRG3-AS1,GRID1,GHITM,GRID1-AS1,LINC00858	3	5190000	gain
10	87505000	92034000	MIR4679-2,LINC01375,IFIT1,IFIT3,LIPF,HECTD2,SLC16A12-AS1,FLJ37201,KLLN,LINC02653,IFIT1B,STAMBPL1,KIF20B,ACTA2,TNKS2,ANKRD22,PAPSS2,RNLS,CH25H,NUDT9P1,PTEN,PANK1,BTAF1,IFIT2,FAS-AS1,ATAD1,LINC01374,MINPP1,SLC16A12,HTR7,FAS,LIPM,TNKS2-AS1,ACTA2-AS1,LINC00502,PCGF5,LINC00865,RPP30,LIPJ,CFL1P1,MIR107,HECTD2-AS1,IFIT5,PPP1R3C,MIR4679-1,XLOC_008559,LIPK,LIPN,LOC105378430,FGFBP3,LIPA,ANKRD1	3	4529000	gain
10	103882000	115958000	MIR6715B,LOC105378479,SORCS3,HABP2,MIR6715A,ADD3-AS1,ADD3,CFAP58,TRUB1,CFAP43,CCDC186,MIR4680,STN1,ABLIM1,MIR609,AFAP1L2,COL17A1,MIR4483,TCF7L2,NHLRC2,MIR2110,LOC103344931,BBIP1,ADRB1,SORCS1,TECTB,MIR548E,MIR4295,SLK,SHOC2,MXI1,PDCD4,LINC02620,ADRA2A,DUSP5,SMNDC1,LINC02624,PDCD4-AS1,NRAP,ATRNL1,LINC02626,RBM20,CASP7,SMC3,SNORA87,FAM160B1,CFAP58-DT,TDRD1,ITPRIP-AS1,GSTO1,LOC101927692,HEAT2,XPNPEP1,MIR936,ZDHHC6,PLEKHS1,GPAM,GUCY2GP,VWA2,VTI1A,SORCS3-AS1,LINC02627,ACSL5,LINC01435,ITPRIP,MIR4482,SFR1,GSTO2,DCLRE1A,RPL13AP6	3	12076000	gain
10	132029000	133476000	JAKMIP3,MTG1,STK32C,LINC01167,CFAP46,TUBGCP2,PAOX,VENTX,FUOM,ADAM8,LOC107984282,CALY,MIR202HG,MIR202,LINC01168,SPRN,LINC02870,LINC01166,PWWP2B,ADGRA1,ZNF511,DPYSL4,NKX6-2,ADGRA1-AS1,UTF1,INPP5A,LRRC27,PRAP1,KNDC1,SCART1,MIR3944,ECHS1	1	1447000	loss
11	0	2330000	IGF2,MUC2,RNH1,IGF2-AS,MIR483,MIR6744,H19,FAM99A,CTSD,MUC5AC,LMNTD2-AS1,MIR4686,RASSF7,TOLLIP-AS1,INS-IGF2,RPLP2,MIR675,TNNT3,LINC01150,MUC6,CEND1,SYT8,SIGIRR,IFITM2,IFITM5,BRSK2,CHID1,TNNI2,ANO9,TH,SNORD131,LINC01219,SNORA52,KRTAP5-3,POLR2L,ODF3,HRAS,TALDO1,MIR6743,LOC171391,INS,RIC8A,SCT,TOLLIP,LMNTD2,MIR4298,CDHR5,ASCL2,IFITM3,NLRP6,MIR7847,PTDSS2,GATD1,MOB2,DRD4,IFITM1,C11orf21,MRPL23-AS1,PIDD1,TMEM80,PSMD13,LINC01001,CRACR2B,KRTAP5-6,EPS8L2,KRTAP5-4,MUC5B,TSPAN4,FAM99B,CD81-AS1,MUC5B-AS1,DEAF1,SIRT3,IFITM10,B4GALNT4,TSPAN32,AP2A2,KRTAP5-1,CD151,LRRC56,IRF7,MIR210,PHRF1,KRTAP5-AS1,PKP3,LINC02688,DUSP8,MIR210HG,SLC25A22,LSP1,LOC143666,PNPLA2,KRTAP5-5,BET1L,SCGB1C1,PGGHG,KRTAP5-2,MRPL23	1	2330000	loss
11	11863000	11962000	USP47	4	99000	gain
11	13121000	16601000	PDE3B,PTH,CALCB,CALCA,LINC02751,LINC02683,SPON1,FAR1,RRAS2,LINC02545,CYP2R1,ARNTL,LINC02548,COPB1,MIR6073,PSMA1,INSC,SOX6,BTBD10	3	3480000	gain
11	21119000	31523000	KIF18A,DCDC1,IMMP1L,NELL1,ANO5,BBOX1,LUZP2,ARL14EP,BBOX1-AS1,LINC01616,MIR8068,ANO3,SLC17A6,LGR4-AS1,LINC02546,DNAJC24,FSHB,LIN7C,SVIP,METTL15,LGR4,MIR8054,CCDC179,SLC5A12,KCNA4,LINC00678,FIBIN,BDNF,MIR610,BDNF-AS,GAS2,MIR8087,FANCF,ELP4,MPPED2,LINC01495,ANO3-AS1,MUC15,CCDC34	3	10404000	gain
11	34923000	35258000	PDHX,MIR1343,SLC1A2,LOC100507144,SNORD164,CD44	4	335000	gain
11	36281000	44256000	EXT2,COMMD9,MIR670,HSD17B12,ALKBH3-AS1,IFTAP,ACCSL,LINC02740,RAG2,PRR5L,API5,LINC02759,LRRC4C,SEC14L1P1,MIR670HG,C11orf96,ACCS,TRAF6,LINC01493,ALKBH3,MIR129-2,TTC17,RAG1,HNRNPKP3,LINC02760,LINC02745,LINC01499	3	7975000	gain
11	45941000	46120000	PHF21A	3	179000	gain
11	47987000	57143000	OR4A47,OR5D13,LOC646813,OR8K5,OR9G4,OR5I1,OR4C45,LINC02735,OR4B1,OR4A15,OR8H2,OR5M11,OR4C3,OR4S2,OR5T3,OR4C15,OR5D16,FOLH1,OR5AK4P,OR5D18,OR5R1,OR5M10,TRIM49B,OR5M9,LOC440040,OR5F1,OR4A16,OR4P4,OR5AP2,OR5M1,OR4C6,OR9G1,OR5L1,OR4X1,OR5AK2,OR8U8,OR10AG1,OR4C5,OR4C46,OR5J2,TRIM48,MIR3161,OR4C16,OR5AL1,OR8U1,OR8J1,OR8H3,OR8I2,TRIM51,OR5L2,OR5D14,OR5T2,OR5AR1,OR5T1,SEPTIN7P11,OR5W2,OR5M8,OR4X2,OR4C11,OR7E5P,OR5M3,PTPRJ,OR4S1,MIR6128,OR4A5,OR4C13,OR5AS1,TRIM51HP,OR8K1,OR4C12,OR8H1,OR9G9,OR8K3,TRIM64C,OR8J3	3	9156000	gain
11	58071000	60702000	GLYAT,MS4A3,ZFP91-CNTF,TCN1,OR10V1,MIR3162,MS4A14,OR10Q1,MS4A12,MS4A4E,MS4A8,OR5A1,OR5B17,MS4A6A,OR1S2,GLYATL2,GLYATL1,MIR6503,OR4D9,OR10V2P,GLYATL1B,OOSP4B,LPXN,ZFP91,OR4D10,OR5AN1,OR9Q1,OR5B3,MS4A2,FAM111A,LINC00301,LOC283194,OR5B12,OOSP2,OR9Q2,MS4A4A,OR5A2,MS4A6E,CNTF,MS4A5,MPEG1,OOSP1,PATL1,STX3,OR4D11,FAM111B,OR9I1,OR10W1,MRPL16,OSBP,MS4A7,OR5B21,FAM111A-DT,MS4A1,DTX4,CBLIF,OR5B2,OR4D6,OR1S1,MS4A13	3	2631000	gain
11	61477000	61924000	SYT7,MYRF-AS1,MYRF,FADS3,MIR1908,RPLP0P2,DAGLA,FADS2,FADS1,MIR611,TMEM258,RAB3IL1,FEN1,PPP1R32,LRRC10B,MIR4488,MIR6746,LOC101927495	1	447000	loss
11	63753000	66072000	ARL2,SPDYC,CAPN1,FRMD8,MAP3K11,PRDX5,FAM89B,MIR4489,FERMT3,RTN3,NRXN2,MASCRNA,MIR612,MEN1,FLRT1,GAL3ST3,MIR1237,RELA,TRPT1,MACROD1,VPS51,SNORD13F,SLC22A12,CATSPER1,EFEMP2,DRAP1,KAT5,SCYL1,ESRRA,TRMT112,MIR6751,VEGFB,MARK2,ATG2A,AP5B1,KCNK4-TEX40,MIR192,EHD1,TIGD3,PACS1,LOC728975,GPHA2,MIR6749,MIR194-2,ZNRD2,RCOR2,SLC22A11,KCNK4,RNASEH2C,POLA2,SF1,CDCA5,LOC114841035,MIR6879,LOC101927789,ARL2-SNX15,PPP1R14B,PLCB3,BANF1,ZFPL1,MIR10392,NAA40,PPP2R5B,CDC42EP2,OVOL1,MRPL49,RPS6KA4,RASGRP2,SF3B2,ZNRD2-AS1,CST6,MIR7155,FAU,MIR4690,TALAM1,NAALADL1,BATF2,KCNK7,MAP4K2,PCNX3,CFL1,COX8A,LTBP3,TMEM262,MALAT1,DNAJC4,CATSPERZ,SNX32,MIR194-2HG,SPINDOC,ZNHIT2,BAD,SNX15,SIPA1,C11orf95,FKBP2,DPF2,NUDT22,FIBP,EHBP1L1,SLC22A20P,NEAT1,EIF1AD,OVOL1-	1	2319000	loss

			AS1,CCDC88B,TSGA10IP,OTUB1,MIR6750,SLC25A45,CDC42BPG,STIP1,MUS81,SART1,GPR137,C11orf68,LINC02724,CCDC85B,SYVN1,MAJIN,SAC3D1,CTSW,TM7SF2,PYGM,PPP1R14B-AS1,FOSL1			
11	66072000	66229000	PACS1	3	157000	gain
11	66229000	68469000	DPP3,CORO1B,CNIH2,LOC102724064,YIF1A,MIR6752,CCS,CD248,CARNS1,FAM86C2P,KDM2A,PELI3,TBX10,CABP4,AIP,C11orf72,KMT5B,KLC2,GPR152,ALDH3B1,RIN1,ALDH3B2,LOC100130987,SLC29A2,NDUFV1,LOC107984341,MIR7113,RBM14-RBM4,SSH3,NPAS4,RPS6KB2,RBM4,PC,MIR4691,BBS1,DOC2GP,CDK2AP2,POLD4,TMEM151A,RHOD,PTPRCAP,LOC101928069,MRPL11,ANKRD13D,RAB1B,SYT12,MIR6753,PACS1,RAD9A,SPTBN2,ACTN3,UNC93B1,RBM14,C11orf24,CTSF,RBM4B,PPP6R3,GRK2,GSTP1,ZDHHC24,CABP2,BRMS1,LRFN4,C11orf80,CLCF1,TCIRG1,NUDT8,ACY3,PPP1CA,LRP5,CCDC87,TMEM134,RCE1,CHKA,TBC1D10C,MIR3163,NDUFS8,B4GAT1,C11orf86,MIR6860,PITPNM1	1	2240000	loss
11	68469000	68622000	PPP6R3	3	153000	gain
11	68622000	71585000	MIR3664,IGHMBP2,MRGPRF,FGF3,SMIM38,GAL,KRTAP5-7,DHCR7,LTO1,CCND1,LINC02753,LOC338694,PPFIA1,ACTE1P,KRTAP5-11,CTTN,FGF19,SHANK2-AS3,CPT1A,ANO1,KRTAP5-10,SHANK2-AS1,MIR6754,MRGPRF-AS1,MRGPRD,LOC102724265,KRTAP5-8,SHANK2,TPCN2,MRPL21,TESMIN,FGF4,MIR548K,MYEOV,NADSYN1,FADD,LINC01488,KRTAP5-9,LINC02584,MIR3164	1	2963000	loss
11	72834000	73211000	FCHSD2	3	377000	gain
11	73211000	73400000	P2RY2,P2RY6,ARHGEF17,RELT,LOC100287837	1	189000	loss
11	75890000	76144000	UVRAG	3	254000	gain
11	76144000	76337000	UVRAG,WNT11	1	193000	loss
11	76337000	76572000	THAP12,GVQW3,EMSY	3	235000	gain
11	76866000	77029000	ACER3	3	163000	gain
11	77029000	77215000	OMP,B3GNT6,MYO7A,CAPN5	1	186000	loss
11	79671000	104604000	PIWIL4,PANX1,MMP8,LOC100129203,MMP10,TMEM126B,FUT4,JRKL,GPR83,HIKESHI,LOC102723838,CCDC81,WTAPP1,SRSF8,CWC15,MIR3166,TRIM64,C11orf97,MIR4693,FAT3,MMP1,NAALAD2,PCF11,LINC02552,TRIM49C,JRKL-AS1,DCUN1D5,CCDC82,LINC02720,MMP27,TRIM77,MTMR2,CEP295,LOC101928424,BIRC3,MIR1261,SCARNA9,SNORD5,LINC02746,PICALM,CHORDC1,CFAP300,TRIM51EP,CCDC89,FAM181B,YAP1,MMP12,DYNC2H1,RAB30,MTNR1B,SNORD13I,CEP126,DDI1,TRIM49D2,MIR4490,KDM4E,SNORA25,TMEM123,EED,PRCP,MIR3920,GRM5,PRSS23,TRIM64B,MIR1304,KDM4D,SNORA1,LOC105369438,FZD4,TMEM135,CCDC83,ANKRD49,HEPHL1,FAM76B,MIR1260B,ARHGAP42,IZUMO1R,CTSC,SESN3,MIR4300,UBTFL1,LOC101929295,SMCO4,CEP57,OR7E2P,PDGFD,ANKRD42,TRIM53AP,MRE11,ENDOD1,MAML2,SNORA32,TMEM126A,SLC36A4,TYR,MIR548L,PGR-AS1,DEUP1,MMP13,TRIM49,LINC02711,TRIM49D1,RAB38,BIRC2,RAB30-DT,AMOTL1,SNORA8,MMP20,MED17,SNORA40,PCF11-AS1,VSTM5,ME3,LINC02737,CCDC90B,TRPC6,MIR4300HG,NOX4,CREBZF,ARHGAP42-AS1,FOLH1B,SNORA70E,LOC642414,FZD4-DT,CNTN5,DLG2,DDIAS,GRM5-AS1,ANGPTL5,SYTL2,PGR,DISC1FP1,MIR6755,MMP7,SNORD6,SNORA18,C11orf54,MMP3,TAF1D,LOC100506282	3	24933000	gain
11	104604000	105067000	CASP1,CASP4LP,CASP4,CASP5,CASP12,CARD16,CASP1P2,LINC02552	4	463000	gain
11	105067000	107570000	CWF19L2,GUCY1A2,MSANTD4,GRIA4,AASDHPPT,CARD18,KBTBD3,LOC101928535,ALKBH8,LINC02719,CARD17,CASP1P2	3	2503000	gain
11	108018000	111165000	CUL5,C11orf65,POGLUT3,DDX10,LINC02550,ARHGAP20,RDX,ZC3H12C,FDX1,C11orf87,LINC02732,NPAT,EXPH5,ATM,ACAT1	3	3147000	gain
11	115187000	115499000	LOC105369509,CADM1,LOC105369507	3	312000	gain
11	116845000	117083000	APOA1-AS,SIK3	3	238000	gain
11	118194000	118521000	JAML,CD3E,LOC101929089,ATP5MG,CD3D,CD3G,KMT2A,UBE4A,LOC100131626,MPZL2,MPZL3	3	327000	gain
11	120338000	120477000	ARHGEF12	3	139000	gain
11	127088000	128742000	MIR6090,FLI1,ETS1-AS1,LINC02098,LOC101929538,SENCR,ETS1,LOC101929473,LINC02712	3	1654000	gain
12	665000	1478000	ERC1,RAD52,WNK1	3	813000	gain

12	8942000	10023000	LOC642846,MIR1244-2,KLRB1,CD69,LOC728715,M6PR,KLRG1,LOC102724020,CLEC1B,MIR1244-1,CLEC12A,CLEC12B,CLEC2D,A2MP1,DDX12P,CLEC2A,MIR1244-3,A2M-AS1,CLEC2B,A2M,LOC101928030,KLRF2,MIR1244-4,LOC374443,LINC00987,PZP,LOC408186,LOC105369728,KLRF1,CLEC12A-AS1,LINC02470,LINC00612,CLECL1,LINC02367	3	1081000	gain
12	14366000	14481000	ATF7IP	4	115000	gain
12	14481000	29591000	RERG,ARNTL2,MED21,PYROXD1,MGP,LINC02468,BCAT1,RASSF8,ATF7IP,LINC00477,LOC105369691,ARNTL2-AS1,ABCC9,LINC02378,LMO3,CFAP94,FAR2,IRAG2,MGST1,KCNJ8,AEBP2,MIR4302,IAPP,LOC645177,TMTC1,TM7SF3,MANSC4,GOLT1B,SOX5-AS1,PLCZ1,SMCO3,LINC01489,RERGL,CAPZA3,ST8SIA1,RASSF8-AS1,FGFR1OP2,LDHB,PTHLH,PPFIBP1,MIR3974,PTPRO,WBP11,ERGIC2,ARHGDIB,ETFRF1,PLEKHA5,LOC729291,SLC15A5,LMNTD1,SLCO1B3-SLCO1B7,SLCO1B1,LOC100506606,KRAS,SSPN,RECQL,SLCO1A2,H4-16,PDE6H,REP15,H2AJ,SPX,ETNK1,CMAS,KLHL42,GUCY2C,STRAP,SLCO1B3,PLBD1,PDE3A,PIK3C2G,OVCH1-AS1,SKP1P2,C12orf60,SLCO1C1,MIR920,DERA,STK38L,SMCO2,ERP27,BHLHE41,EPS8,LOC101928441,SLCO1B7,CCDC91,INTS13,ITPR2,OVCH1,PLBD1-AS1,C2CD5,RERG-AS1,GYS2,LINC02398,SOX5,ART4,C12orf71,MRPS35,C12orf77	3	15110000	gain
12	33080000	34196000	SYT10,ALG10	3	1116000	gain
12	38215000	41626000	MUC19,ABCD2,ALG10B,KIF21A,LRRK2,SLC2A13,PDZRN4,LINC02471,C12orf40,CPNE8,CNTN1	3	3411000	gain
12	42838000	47721000	RPAP3,MIR4698,LOC100288798,RACGAP1P1,LOC105369747,ADAMTS20,ENDOU,SLC38A4,LINC02461,DBX2,PCED1B,LINC02156,IRAK4,PLEKHA8P1,TMEM117,PCED1B-AS1,SLC38A1,SCAF11,TWF1,ARID2,MIR4494,ANO6,LINC00938,AMIGO2,PUS7L,SLC38A2,NELL2	3	4883000	gain
12	54496000	55635000	OR6C4,OR6C74,OR6C65,OR9K2,GLYCAM1,OR6C2,OR10A7,PDE1B,OR6C6,TESPA1,PPP1R1A,NCKAP1L,OR6C68,OR6C1,MUCL1,LACRT,OR2AP1,DCD,OR6C70,NEUROD4,OR6C76,OR6C3,OR6C75	3	1139000	gain
12	57918000	62256000	GIHCG,LINC02388,ATP23,SLC16A7,LRIG3,TAFA2,LINC02403,LOC100506869	3	4338000	gain
12	62256000	62418000	USP15,MIR6125	4	162000	gain
12	62418000	68559000	TMBIM4,GRIP1,TBC1D30,PPM1H,RPSAP52,RXYLT1,LINC02425,MIR548C,LINC02384,RXYLT1-AS1,MIRLET7I,LINC02408,LINC02421,HMGA2,IRAK3,IFNG-AS1,AVPR1A,IFNG,MIR548Z,LINC01479,DPY19L2,MIR6074,CAND1,LLPH-DT,MON2,LINC02389,GNS,LINC02420,MIR10527,LINC02231,LINC01465,WIF1,HMGA2-AS1,LOC100507065,IL22,LLPH,MSRB3,MIR6502,C12orf56,C12orf66,LINC02454,HELB,RASSF3,DYRK2,SRGAP1,LOC105369187,IL26,MDM1,TBK1,XPOT,LOC102724421,LEMD3	3	6141000	gain
12	70220000	92867000	LRRIQ1,PPFIA2,LGR5,CCER1,TBC1D15,CNOT2,ATXN7L3B,MYF5,THAP2,NAP1L1,POC1B,LINC02424,OSBPL8,MRS2P2,POC1B-AS1,CCDC59,MIR3059,LUM,TRHDE-AS1,GLIPR1L2,ZDHHC17,MYF6,LINC02399,PHLDA1,RAB21,SLC6A15,TPH2,NTS,KITLG,LINC02392,CSRP2,GLIPR1L1,MGAT4C,E2F7,MKRN9P,PTPRQ,ATP2B1,CLLU1,TMEM19,CEP290,BBS10,DCN,LINC02397,TSPAN8,C12orf50,PTPRB,RASSF9,GALNT4,MIR4699,MIR617,OTOGL,POC1B-GALNT4,ALX1,LINC02426,SYT1,MIR618,KCNMB4,TRHDE,EPYC,PPFIA2-AS1,ACSS3,TSPAN19,LIN7A,BTG1,PTPRR,LINC02258,KERA,PAWR,TMTC3,EEA1,KCNC2,C12orf29,LINC02444,CAPS2,ATP2B1-AS1,PPP1R12A,METTL25,DUSP6,LINC00615,PPP1R12A-AS1,KRR1,LINC01490,GLIPR1,LINC02458,LINC02882,LOC100130268,PRANCR,LOC105369879,NAV3,LINC01619,LNCOG,ZFC3H1,TMTC2,PLEKHG7,LOC101928617,CLLU1-AS1,MIR1252	3	22647000	gain
12	101919000	103572000	NUP37,PARPBP,PAH,ASCL1,LOC101929058,LINC00485,IGF1,C12orf42,DRAM1,WASHC3,LINC02401,PMCH,LOC105369945	3	1653000	gain
12	115954000	116267000	MED13L,MIR620	3	313000	gain
12	130005000	132871000	ULK1,GOLGA3,ANKLE2,PUS1,FZD10,LINC02361,SNORA49,LINC01257,LINC02419,LINC02414,LOC100130238,MMP17,EP400P1,SFSWAP,DDX51,PIWIL1,LINC02370,LINC02415,ADGRD1,MIR6763,FBRSL1,LRCOL1,PXMP2,CHFR,NOC4L,PGAM5,RIMBP2,GALNT9,RAN,LINC02418,EP400,LOC101928416,FZD10-AS1,P2RX2,STX2,POLE,ADGRD1-AS1	1	2866000	loss
13	19967000	20099000	ZMYM2	3	132000	gain
13	27546000	27715000	LNX2,POLR1D	3	169000	gain
13	28145000	28485000	FLT1,PAN3	3	340000	gain
13	29758000	29821000	UBL3	4	63000	gain
13	32620000	35609000	STARD13,KL,LINC00457,NBEA,LINC00423,LINC02344,STARD13-AS,MAB21L1,RFC3,PDS5B,LINC02343	3	2989000	gain
13	36944000	40965000	SLC25A15,ALG5,MIR320D1,LINC00571,LINC00332,MRPS31,TPTE2P5,LINC00437,LINC01048,POSTN,SUGT1P3,NHLRC3,STOML3,CSNK1A1L,SUPT20H,FOXO1,LINC00548,LINC00366,LINC00547,COG6,PROSER1,ELF1,FREM2-AS1,MIR621,LINC00598,UFM1,MIR4305,TRPC4,FREM2,EXOSC8,LHFPL6	3	4021000	gain

13	40965000	41024000	ELF1	4	59000	gain
13	41589000	44572000	TNFSF11,NRAD1,SERP2,SMIM2-IT1,ENOX1-AS2,SMIM2-AS1,LINC02341,LACC1,MIR8079,VWA8,FAM216B,CCDC122,ENOX1,TUSC8,TSC22D1,EPSTI1,VWA8-AS1,AKAP11,DNAJC15,LINC00390,DGKH,LINC00428,LINC00400,SMIM2,LINC01050	3	2983000	gain
13	45937000	49546000	SUCLA2,CYSLTR2,LINC01198,FNDC3A,NUDT15,RB1-DT,CDADC1,MLNR,LINC00562,ESD,CPB2-AS1,LINC00563,ITM2B,LRCH1,LOC112268117,RCBTB2,PHF11,LINC00462,CPB2,ZC3H13,RCBTB1,LOC105370203,CAB39L,MED4-AS1,SETDB2,HTR2A,LCP1,LRRC63,RUBCNL,HTR2A-AS1,LPAR6,MED4,RB1,SETDB2-PHF11	3	3609000	gain
13	50010000	50969000	TRIM13,DLEU7,DLEU2,MIR15A,MIR16-1,KCNRG,DLEU1-AS1,DLEU1,ST13P4,RNASEH2B,DLEU7-AS1,RNASEH2B-AS1	3	959000	gain
13	51351000	51440000	SERPINE3,INTS6	4	89000	gain
13	53477000	72979000	LINC02338,LOC647264,PRR20A,PCDH9-AS2,MIR548X2,TDRD3,PCDH9,DIAPH3-AS2,DIAPH3,LINC00358,LINC00376,PCDH20,LINC00558,LOC102723968,PCDH17,LINC00348,PRR20B,LINC00550,LINC00459,LINC02339,MIR5007,PCDH9-AS3,LINC00383,PIBF1,LINC00434,DIAPH3-AS1,BORA,LINC00458,MIR3169,LINC00378,LINC00364,LINC00374,LINC00355,LINC00448,OR7E156P,PRR20E,KLHL1,LINC00395,PRR20D,DIS3,LINC01074,MIR1297,PCDH9-AS4,MZT1,ATXN8OS,LINC01052,MIR4704,DACH1,PRR20C,LINC01075	3	19502000	gain
13	73673000	80193000	CTAGE11P,LOC100129307,LOC780529,OBI1,TBC1D4,LMO7,LINC01080,LINC00381,SCEL,FBXL3,COMMD6,MYCBP2,RBM26-AS1,LINC01038,EDNRB-AS1,LINC01078,NDFIP2,LMO7DN,LINC00561,KCTD12,MIR3665,LOC100288208,LINC00382,RBM26,LINC01068,SCEL-AS1,SLAIN1,POU4F1,LINC01069,UCHL3,LINC00347,BTF3P11,LMO7-AS1,EDNRB,LINC00402,OBI1-AS1,MYCBP2-AS1,CLN5,ACOD1,KLF12,LINC00331,NDFIP2-AS1,LINC00446,LMO7DN-IT1	3	6520000	gain
13	80380000	94345000	GPC5,LINC00559,LINC00377,LINC01047,MIR4500HG,LINC00440,SLITRK1,GPC6-AS2,LINC00430,GPC5-AS1,LINC00375,LINC00380,LINC01049,LINC00564,LINC00353,GPC6-AS1,LINC00433,MIR19B1,LINC00560,MIR17HG,MIR20A,SNORA107,SLITRK5,SLITRK6,MIR18A,LINC01040,MIR92A1,LINC00351,MIR622,MIR19A,MIR17,GPC6,LINC00397,LINC00373,LINC00363,MIR548AS,LINC00379,MIR4500,LINC00410,GPC5-AS2,LINC00333	3	13965000	gain
13	95699000	97506000	LINC00359,DNAJC3,LINC00456,HS6ST3,MIR4501,OXGR1,UGGT2,RAP2A,MBNL2	3	1807000	gain
13	99251000	99375000	UBAC2,GPR183,FKSG29,MIR623,GPR18	3	124000	gain
13	99924000	100089000	PCCA-DT,LOC101927437,LINC00554,ZIC5,ZIC2	1	165000	loss
13	101467000	109720000	LINC00343,ITGBL1,EFNB2,LINC01309,DAOA-AS1,FGF14-AS2,FAM155A,METTL21EP,LINC00551,POGLUT2,MIR4705,MYO16,BIVM,BIVM-ERCC5,ERCC5,TPP2,MYO16-AS1,LINC00460,FAM155A-IT1,FGF14-AS1,CCDC168,ARGLU1,DAOA,ABHD13,FGF14-IT1,LINC00443,TNFSF13B,FGF14,METTL21C,MIR2681,TEX30,MIR1267,LIG4,SNORD31B,LINC00399,SLC10A2	3	8253000	gain
13	111389000	114208000	GRTP1-AS1,PCID2,LINC00552,TFDP1,GAS6-DT,DCUN1D2,F10-AS1,TUBGCP3,F10,RASA3,SPACA7,LINC00452,LINC00565,LINC01044,C13orf46,ATP11A-AS1,TMCO3,F7,MCF2L-AS1,ATP4B,LINC00354,SOX1-OT,ATP11AUN,LINC00454,MIR8075,ADPRHL1,TMEM255B,LAMP1,SOX1,GRTP1,CUL4A,GRK1,LOC101928841,LINC01043,LOC101928730,LOC100506016,LINC02337,GAS6,GAS6-AS1,MCF2L,PROZ,ATP11A,LINC01070	1	2819000	loss
14	22535000	22576000	LINC02332,DAD1	4	41000	gain
14	24510000	33768000	RNU6-1,COCH,LOC728755,AP4S1,ARHGAP5,NUBPL,NPAS3,HECTD1,GPR33,LINC02313,STXBP6,CTSG,G2E3-AS1,FOXG1-AS1,LINC02293,MIR4307,NOVA1,SCFD1,GZMB,LOC100506071,FOXG1,RNU6-7,HEATR5A,ARHGAP5-AS1,AKAP6,LINC02282,G2E3,LINC00645,RNU6-9,MIR3171,SNORA89,RNU6-2,LINC02294,LINC01551,STRN3,LOC101927124,PRKD1,MIR624,RNU6-8,MIR4307HG,DTD2,LINC02588,GZMH	3	9258000	gain
14	35543000	35784000	SNORA101B,RALGAPA1	3	241000	gain
14	36727000	63518000	DDHD1,FKBP3,AP5M1,DMAC2L,NEMF,LOC101927690,LINC00643,TRIM9,JKAMP,CNIH1,LINC01599,TOMM20L,SLC25A21,RPL13AP3,RPL10L,PELI2,SLC35F4,LRFN5,LRRC9,TMEM30B,TOGARAM1,PSMA3,RN7SL3,C14orf39,FANCM,FBXO33,KLHDC2,SEC23A-AS1,RPS29,POLE2,SAV1,KCNH5,PYGL,LINC01588,ARID4A,KLHDC1,LINC01500,MIR6076,MNAT1,HIF1A,LGALS3,EXOC5,ERO1A,NAA30,LINC00517,ARMH4,SOS2,LOC105370457,FRMD6-AS1,MIR4503,RHOJ,LINC00639,FRMD6-AS2,MIR9718,TRMT5,HIF1A-AS1,LOC105370489,LINC02302,STYX,NID2,PSMC6,LINC02310,L3HYPDH,C14orf28,SIX6,MIR4308,RN7SL1,ATG14,OTX2,PTGER2,LINC02322,GPHB5,TMEM260,DLGAP5,L2HGDH,DACT1,CGRRF1,SOCS4,LINC00871,ARF6,TIMM9,SNAPC1,CCDC198,VCPKMT,BMP4,LINC02315,DHRS7,KTN1-AS1,SNORD127,OTX2-AS1,LOC112268136,CDKN3,KIAA0586,GNPNAT1,FOXA1,ATL1,PSMA3-AS1,RPL36AL,PRKCH,LOC101927620,LINC01303,GCH1,WDHD1,GMFB,TBPL2,HIF1A-AS2,GPR135,PNN,TTC6,MIR5586,LINC00520,MGAT2,LINC00519,DNAAF2,SYT16,SLC38A6,ACTR10,FLJ22447,MIR4504,TXNDC16,LINC00216,FERMT2,RN7SL2,MIS18BP1,NIN,LINC00640,SAMD4A,SIX4,SLC25A21-AS1,FSCB,MIR5580,CLEC14A,PRPF39,KLHL28,LINC00648,ABHD12B,RTN1,SSTR1,DAAM1,SIX1,KTN1,LOC101927418,MIPOL1,MDGA2,TRAPPC6B,RTRAF,SALRNA1,FRMD6,MIR548Y,LRR1,HIF1A-AS3,MAP4K5,SEC23A,MAPK1IP1L,TMX1,GPR137C,PCNX4,PPP2R5E,LOC102723604,FBXO34,LOC100288846,LINC00644,LOC105370473,MIA2,CCDC175,GNG2,PTGDR,GEMIN2,CDKL1,PPM1A,LINC02303	3	26791000	gain

14	65425000	67390000	CCDC196,EIF2S1,GPHN,PLEK2,FUT8,MPP5,FAM71D,MIR625,ATP6V1D	3	1965000	gain
14	67636000	68805000	ZFYVE26,RAD51B,RDH12,ZFP36L1,LOC100996664,RDH11,VTI1B,ARG2	3	1169000	gain
14	69616000	69709000	SUSD6	3	93000	gain
14	70914000	71118000	PCNX1	3	204000	gain
14	78293000	81224000	LOC105370586,DIO2,SNORA79,NRXN3,GTF2A1,CEP128,TSHR,DIO2-AS1,LOC101928504	3	2931000	gain
14	81900000	88112000	LINC02328,SNORD3P3,FLRT2,LINC01148,GPR65,GALC,LINC01146,LINC02330,LINC02301,LINC01147,LINC02329,LINC00911	3	6212000	gain
14	90860000	91041000	RPS6KA5	3	181000	gain
14	96509000	96573000	PAPOLA	3	64000	gain
14	96800000	96889000	VRK1	3	89000	gain
14	99502000	99979000	CCNK,CYP46A1,CCDC85C,EML1,EVL,HHIPL1	1	477000	loss
14	99979000	100125000	MIR151B,EVL,MIR342	3	146000	gain
14	100125000	100349000	YY1,SLC25A47,EVL,MIR345,MIR6764,WARS1,SLC25A29,DEGS2	1	224000	loss
14	100522000	100914000	MIR665,RTL1,MIR493,WDR25,MEG8,MIR2392,SNORD112,MIR337,LINC00523,MIR127,MIR431,MIR136,MIR433,MEG3,BEGAIN,MIR432,MIR770,DLK1,MIR370	1	392000	loss
14	101639000	101878000	PPP2R5C,LINC00239	3	239000	gain
14	104078000	107043718	MIR203B,TMEM121,MIR12121,CLBA1,PACS2,MIR203A,ELK2AP,ADSS1,MIR4710,MTA1,SIVA1,LOC105370697,MIR4539,KIF26A,AHNAK2,LINC00638,ZBTB42,FAM30A,ASPG,MIR8071-2,LOC100507437,MIR4537,CDCA4,CEP170B,CRIP1,ADAM6,MIR6765,MIR4538,LINC02298,MIR5195,NUDT14,TEX22,LINC02280,MIR4507,TEDC1,TMEM179,BRF1,AKT1,MIR8071-1,LOC105370708,PLD4,LINC02691,LINC00221,CRIP2,GPR132,BTBD6,INF2,JAG2,C14orf180,LINC00226	1	2965718	loss
15	24964000	25168000	SNORD109A,SNORD116-9,SNORD116-1,SNORD109B,SNORD64,SNORD108,SNORD116-28,SNORD116-27,SNORD116-30,SNORD116-7,SNORD116-10,SNORD116-29,SNURF,PWAR5,SNORD116-22,SNORD116-16,SNORD116-18,SNORD116-19,SNORD116-3,SNORD116-11,SNORD116-23,SNORD116-12,SNORD116-15,SNHG14,SNORD116-5,SNORD116-25,SNORD116-20,SNORD116-8,SNORD116-14,SNORD116-6,SNORD116-21,SNORD116-2,SNORD107,SNORD116-24,SNORD116-4,PWAR1,PWARSN,SNORD116-17,PWAR6,SNRPN,SNORD116-26,IPW,SNORD116-13	3	204000	gain
15	25266000	25427000	SNHG14,SNORD115-48,UBE3A,SNORD115-46,SNORD109B,SNORD115-47,SNORD109A	3	161000	gain
15	35123000	40229000	TMCO5A,LINC01852,SRP14,LOC105370941,MIR3942,FSIP1,EIF2AK4,SPRED1,ANP32AP1,C15orf54,LINC02694,LOC145845,CSNK1A1P1,FAM98B,DPH6,LINC02345,SRP14-AS1,THBS1,BUB1B,MIR8063,BUB1B-PAK6,MEIS2,MIR4510,CDIN1,RASGRP1,GPR176,DPH6-DT,BMF	3	5106000	gain
15	45893000	50146000	MIR4716,COPS2,GALK2,NDUFAF4P1,SLC12A1,ATP8B4,CTXN2,SHC4,FBN1,SLC24A5,SECISBP2L,DUT,LOC105370802,LINC01491,EID1,DTWD1,MYEF2,FGF7,CEP152,SEMA6D,FAM227B	3	4253000	gain
15	52305000	55285000	LINC02490,ONECUT1,MYO5A,LOC105370829,RSL24D1,FAM214A,RAB27A,ARPP19,WDR72,UNC13C	3	2980000	gain
15	56082000	57295000	TCF12,RFX7,MNS1,SNORD13D,TEX9,ZNF280D,LOC145783	3	1213000	gain
15	61845000	62047000	VPS13C	4	202000	gain
15	63489000	63824000	USP3-AS1,USP3,HERC1,FBXL22	3	335000	gain
15	67072000	67797000	C15orf61,SMAD3,MAP2K5,IQCH-AS1,IQCH,AAGAB	3	725000	gain
15	68074000	68192000	CALML4,PIAS1	3	118000	gain
15	69164000	69266000	GLCE	3	102000	gain

15	75845000	76033000	UBE2Q2,NRG4,FBXO22	3	188000	gain
15	76211000	77504000	ISL2,ETFA,PSTPIP1,RCN2,TSPAN3,SCAPER,HMG20A,PEAK1,TYRO3P,LINC00597,MIR3713	3	1293000	gain
15	77504000	78011000	LINGO1-AS2,LINGO1-AS1,LOC645752,LINGO1,LOC91450,TBC1D2B,COMMD4P1,LOC101929457	1	507000	loss
15	78011000	78075000	TBC1D2B	4	64000	gain
15	85471000	85733000	AKAP13	3	262000	gain
15	86084000	87923000	LINC00052,NTRK3,LINC01584,AGBL1-AS1,LOC105370954,LOC102724452,AGBL1	3	1839000	gain
15	90370000	90617000	IQGAP1,CRTC3	3	247000	gain
15	92883000	93020000	CHD2,CHASERR,MIR3175	3	137000	gain
15	94233000	94307000	MCTP2	4	74000	gain
15	94307000	96245000	LOC105369212,MCTP2,NR2F2-AS1,LINC01197,LINC00924,LOC440311	3	1938000	gain
15	96505000	98075000	LINC00923,LINC02254,LOC101927310,SPATA8,LINC02251,ARRDC4,SPATA8-AS1	3	1570000	gain
15	99176000	99399000	LRRC28,TTC23,HSP90B2P	3	223000	gain
15	99574000	99709000	MEF2A	3	135000	gain
15	101634000	101991189	FAM138E,MIR6859-3,WASH3P,MIR1302-2,LOC100128108,MIR6859-4,OR4F4,OR4F6,MIR6859-2,OR4F15,TM2D3,MIR1302-10,OR4F13P,DDX11L9,MIR6859-1,MIR1302-11,MIR1302-9,TARS3	3	357189	gain
16	0	3060000	PERCC1,LOC100287175,MIR4717,WDR24,CEMP1,TEDC2,DECR2,TBC1D24,SPSB3,WASIR2,SRRM2,RAB40C,RPUSD1,HBM,PRSS21,MIR3180-5,NPW,SSTR5-AS1,DNASE1L2,SNHG19,NME4,FBXL16,RGS11,LINC02124,TRAF7,TELO2,LOC105371049,WDR90,LINC02867,MIR1225,LOC105371038,PTX4,PGAP6,SNORA78,LMF1-AS1,MIR6859-3,MIR662,TBL3,MSLN,PRSS22,LOC729652,POLR3K,PRR25,MLST8,HBA1,PRR35,BRICD5,LOC105371046,MIR5587,MIR6511B2,SSTR5,BAIAP3,LOC652276,MIR6767,CLDN6,KCTD5,PRSS30P,LINC00235,RHOT2,HAGHL,PDPK1,CRAMP1,NHLRC4,LMF1,MRPS34,MIR3176,TPSD1,ANTKMT,LOC106660606,MRPL28,LINC00514,CLCN7,TPSAB1,SNORD60,RNF151,TSC2,RPL3L,THOC6,ZNF598,RNPS1,TPSB2,FLYWCH1,MSRB1,FAHD1,ABCA3,MMP25,ABCA17P,CACNA1H,ERVK13-1,UBE2I,RAB26,RAB11FIP3,TSR3,SYNGR3,PIGQ,MIR6859-4,GNG13,ECI1,TPSG1,LUC7L,HS3ST6,TMEM204,CEROX1,LOC100134368,MIR3177,METTL26,MIR6768,LINC00254,WFIKKN1,SNRNP25,LOC100128770,CCDC78,SNORA3C,CLDN9,TNFRSF12A,RHBDL1,UNKL,JPT2,STUB1,PDIA2,MIR6859-2,GFER,SLC9A3R2,SNORA64,PGP,C16orf91,ARHGDIG,CAPN15,NPRL3,ELOB,MIR3677,GNPTG,ATP6V0C,MMP25-AS1,NDUFB10,IFT140,PRSS27,C1QTNF8,MIR940,IGFALS,HAGH,SRRM2-AS1,NME3,MIR6511B1,MCRIP2,RPS2,CHTF18,NUBP2,CCDC154,AXIN1,JMJD8,MPG,RHBDF1,MEIOB,NOXO1,SOX8,METRN,FAM234A,KREMEN2,BICDL2,PAQR4,AMDHD2,MIR6859-1,FLYWCH2,HBA2,PRSS33,MIR4516,EME2,CIAO3,ZG16B,DDX11L10,SNHG9,FLJ42627,MIR3178,PKMYT1,HBQ1,MAPK8IP3,NTHL1,PRSS41,NTN3,HCFC1R1,E4F1,SNORA10,LOC101929613,CASKIN1,CCNF,HBZ,PKD1	1	3060000	loss
16	3873000	5250000	SEC14L5,TFAP4,SRL,HMOX2,C16orf89,ADCY9,EEF2KMT,C16orf71,NAGPA,LINC02861,GLYR1,UBALD1,GLIS2-AS1,SEPTIN12,ANKS3,CDIP1,PPL,ZNF500,UBN1,DNAJA3,LINC01569,MGRN1,NMRAL1,C16orf96,PAM16,ALG1,CREBBP,CORO7,MIR6769A,NAGPA-AS1,VASN,ROGDI,CORO7-PAM16,SMIM22,NUDT16L1,GLIS2	1	1377000	loss
16	14073000	14273000	MRTFB	3	200000	gain
16	23845000	24022000	PRKCB	3	177000	gain
16	28106000	28202000	XPO6	3	96000	gain
16	28202000	31547000	FUS,TBC1D10B,DCTPP1,SNORA30,ORAI3,TRIM72,SLX1A-SULT1A3,NPIPB6,ZNF771,STX4,LOC388242,C16orf54,SEZ6L2,ATP2A1-AS1,PPP4C,ZNF629,MIR4721,STX1B,NPIPB9,ALDOA,C16orf92,MIR4518,SPNS1,MIR4517,SULT1A1,CTF1,TBX6,TMEM265,MIR3680-1,CDIPT,PRRT2,NPIPB13,CD19,SMG1P6,CDIPTOSP,SPN,ZNF785,MIR3680-2,SULT1A4,KAT8,KIF22,SBK1,APOBR,KCTD13,EIF3C,BOLA2,QPRT,ATXN2L,SLX1A,SMG1P2,YPEL3,TMEM219,HSD3B7,CORO1A,TAOK2,LOC101928595,SETD1A,LOC730183,COX6A2,RNF40,ZNF764,ZNF689,SRCAP,FBXL19-AS1,ATP2A1,ZNF747,LAT,SGF29,CLN3,MIR6862-2,LOC613038,CCDC189,MYLPF,EIF3CL,ZNF646,ZNF668,SLC5A2,ZNF48,PRR14,SNX29P2,FBRS,FBXL19,NUPR1,ZNF768,RRN3P2,TUFM,ITGAX,LOC112694	1	3345000	loss

			756,AHSP,ZNF688,GDPD3,SMG1P5,MAPK3,VKORC1,SEPTIN1,SLX1B,SULT1A2,INO80E,DOC2A,SULT1A3,BCL7C,LOC606724,BOLA2B,RABEP2,ZG16,XPO6,PHKG2,MIR762HG,PYCARD,PAGR1,MIR4519,SH2B1,NPIPB11,SNORA80C,RUSF1,ASPHD1,BCKDK,TGFB1I1,SEPHS2,SLX1B-SULT1A4,CD2BP2,MAZ,HIRIP3,PRSS36,NPIPB8,PRSS53,ITGAD,IL27,PYDC1,NPIPB12,ITGAM,ITGAL,MVP,PRSS8,MIR6862-1,MIR762,BOLA2-SMG1P6,PYCARD-AS1,ZNF843,NFATC2IP,TLCD3B,ARMC5,LINC02190			
16	47081000	47701000	ITFG1,ITFG1-AS1,NETO2,PHKB	3	620000	gain
16	49407000	49947000	ADAM3B,ZNF423	1	540000	loss
16	50744000	50798000	CYLD	4	54000	gain
16	51431000	54091000	RBL2,LOC643802,CHD9,RPGRIP1L,FTO,FTO-IT1,LINC01571,LOC105371267,LINC00919,CASC22,TOX3,LOC102723373,LINC02180,CASC16,AKTIP	3	2660000	gain
16	58519000	58596000	SNORA46,SNORA50A,CNOT1,SETD6	3	77000	gain
16	58804000	65468000	CDH11,APOOP5,LINC00922,CDH8,LINC02126,MIR4426,LINC02141	3	6664000	gain
16	72160000	72783000	PMFBP1,LINC01572,ZFHX3	3	623000	gain
16	75190000	75282000	LOC100506281,CTRB1,CTRB2,BCAR1	1	92000	loss
16	75940000	77087000	LINC02125,CNTNAP4,MIR4719	3	1147000	gain
16	84745000	90338345	LINC02139,LOC100129697,ANKRD11,LINC01082,MVD,LINC02188,CDH15,GINS2,CDT1,PRDM7,LINC02138,C16orf95,LOC101928737,LOC101928557,TCF25,SNORD68,ZFPM1,SPIRE2,FOXC2-AS1,USP10,ACSF3,LOC100289580,LINC02135,CBFA2T3,ZNF276,FAM157C,ZC3H18,TUBB3,LINC02182,LOC400553,LOC101928682,SLC22A31,CDK10,LOC101927817,LINC01081,RNF166,FLJ30679,BANP,VPS9D1-AS1,CA5A,SNAI3-AS1,GALNS,MTHFSD,FOXL1,LOC100128882,LOC101927793,IRF8,ZNF778,GAS8,CENPBD1,MIR1910,FANCA,MIR6775,URAHP,MIR5189,LINC00311,FBXO31,FOXF1,AFG3L1P,C16orf74,LOC100287036,MIR11401,LOC105371414,MIR12128,CRISPLD2,LINC02189,MIR5093,FENDRR,LOC339059,LOC101928708,ZDHHC7,MIR6774,JPH3,DPEP1,FOXC2,APRT,CIBAR2,MIR4722,DEF8,SPG7,RPL13,VPS9D1,IL17C,CTU2,CPNE7,SLC7A5,SNORA119,LOC101928659,EMC8,COX4I1,LOC102724467,PIEZO1,DBNDD1,PABPN1L,GSE1,MAP1LC3B,ZCCHC14,KIAA0513,MC1R,GAS8-AS1,SNAI3,CYBA,LINC00304,ZC3H18-AS1,CHMP1A,TRAPPC2L,KLHDC4,SPATA33,ZNF469,LINC00917,LINC02181,SPATA2L	1	5593345	loss
17	720000	2071000	DBIL5P,WDR81,GLOD4,MYO1C,PITPNA,MIR22HG,SMG6,SMYD4,MIR3183,PRPF8,TRARG1,PITPNA-AS1,BHLHA9,SERPINF1,MIR22,INPP5K,CRK,LOC101927727,SCARF1,OVCA2,RILP,RPA1,ABR,MIR132,NXN,SLC43A2,DPH1,MIR212,MRM3,YWHAE,LOC105371485,TLCD2,HIC1,SERPINF2,TIMM22,TLCD3A,RTN4RL1,GEMIN4	1	1351000	loss
17	2685000	3039000	LOC105371592,MIR1253,PAFAH1B1,CCDC92B,RAP1GAP2,LOC101927911,CLUH,MIR6776	1	354000	loss
17	3521000	4013000	HASPIN,P2RX5-TAX1BP3,LINC01975,ZZEF1,EMC6,P2RX1,NCBP3,TAX1BP3,CAMKK1,TRPV3,P2RX5,ITGAE,ATP2A3,TRPV1,CTNS,SHPK	1	492000	loss
17	4346000	5140000	PSMB6,ZMYND15,TM4SF5,ENO3,KIF1C-AS1,MED11,ZNF232,C17orf107,ZNF232-AS1,SMTNL2,GGT6,ZFP3,PLD2,GP1BA,SPAG7,GLTPD2,CXCL16,USP6,CHRNE,MYBBP1A,MIR6864,RNF167,MIR6865,SLC52A1,CAMTA2,MINK1,SPNS3,PFN1,LINC01996,KIF1C,ALOX15,ARRB2,LOC101559451,SPNS2,INCA1,SLC25A11,PELP1,VMO1,UBE2G1	1	794000	loss
17	6978000	7856000	EFNB3,TMEM88,MPDU1,TNFSF12-TNFSF13,BCL6B,SENP3,SOX15,NLGN2,ALOX12,EIF5A,SLC35G6,FXR2,SPEM3,SPEM1,GPS2,KCTD11,SNORA48,MIR497HG,ASGR1,TMEM95,DNAH2,KDM6B,TMEM102,GABARAP,TP53,SLC16A11,SNORD10,ELP5,FGF11,MIR324,ZBTB4,PHF23,SHBG,SLC2A4,ACAP1,TNK1,MIR195,SENP3-EIF4A1,CD68,MIR497,TNFSF12,SLC16A13,ASGR2,DVL2,RNASEK,CLEC10A,C17orf49,SPEM2,LOC100996842,ATP1B2,SNORA67,NEURL4,TMEM256,PLSCR3,ALOX12-AS1,RPL29P2,EIF4A1,CTDNEP1,CHRNB1,CLDN7,WRAP53,RNASEK-C17orf49,ACADVL,SAT2,DLG4,YBX2,POLR2A,TNFSF13,TMEM256-PLSCR3	1	878000	loss
17	12028000	12144000	MIR744,MAP2K4	3	116000	gain
17	14084000	14204000	COX10	4	120000	gain
17	21221000	21525000	KCNJ12,MAP2K3,NATD1	1	304000	loss
17	28043000	28199000	NLK	3	156000	gain
17	29626000	30516000	SSH2,GOSR1,CPD,TMIGD1,MIR3184,EFCAB5,MIR423,SLC6A4,BLMH,NSRP1	3	890000	gain
17	31138000	31379000	OMG,EVI2B,NF1,EVI2A	3	241000	gain

17	35205000	35724000	LOC107985033,SNORD7,SLFN13,SNHG30,AP2B1,SLFN14,SLFN12,SLFN12L,SLFN5,SLFN11,PEX12	3	519000	gain
17	39761000	39882000	IKZF3,ZPBP2	3	121000	gain
17	40512000	41156000	KRTAP4-8,KRTAP1-5,KRTAP2-3,KRT39,KRTAP3-2,KRT26,LOC100996750,KRTAP2-4,KRT23,SMARCE1,KRTAP4-7,TMEM99,KRTAP4-9,KRT20,KRTAP4-11,KRT25,KRT10,KRTAP1-3,KRT27,KRT24,KRTAP2-2,CCR7,KRTAP9-7,KRT28,KRT222,KRTAP4-12,KRTAP4-5,KRTAP4-6,KRT40,KRTAP2-1,KRTAP1-4,KRTAP3-3,KRTAP1-1,KRTAP3-1,KRT12	3	644000	gain
17	48139000	48464000	MIR1203,THRA1/BTR,SKAP1,LOC101927166	3	325000	gain
17	49589000	49836000	SLC35B1,SPOP,KAT7,FAM117A	3	247000	gain
17	49836000	50684000	CACNA1G-AS1,ACSF2,LOC105371824,LINC01969,H1-9P,MRPL27,SPATA20,FLJ45513,MYCBPAP,TMEM92-AS1,EPN3,SGCA,TAC4,ITGA3,EME1,COL1A1,DLX3,ABCC3,PICART1,SAMD14,LRRC59,XYLT2,TMEM92,CACNA1G,CHAD,RSAD1,PPP1R9B,PDK2,DLX4	1	848000	loss
17	51804000	55212000	LINC02089,TOM1L1,KIF2B,LINC01982,STXBP4,COX11,LINC02876,CA10	3	3408000	gain
17	59608000	59853000	PTRH2,CLTC,VMP1,MIR21,DHX40	3	245000	gain
17	60737000	61259000	BCAS3	3	522000	gain
17	61517000	62064000	INTS2,NACA2,MED13,BRIP1	3	547000	gain
17	62974000	63428000	TANC2	3	454000	gain
17	63428000	63546000	KCNH6,CYB561,ACE	1	118000	loss
17	63830000	64012000	SCN4A,PRR29,CD79B,CSHL1,PSMC5,GH2,SMARCD2,CSH2,CSH1,TCAM1P,PRR29-AS1,GH1,ICAM2	1	182000	loss
17	64012000	64125000	ERN1,ICAM2	3	113000	gain
17	67067000	67209000	HELZ	3	142000	gain
17	68609000	72093000	LINC01482,LINC01028,ABCA9-AS1,ABCA5,ABCA6,MIR4524B,LOC102723517,LINC02097,ABCA9,SOX9-AS1,ABCA8,MAP2K6,KCNJ16,LINC01483,ABCA10,PRO1804,MIR4524A,KCNJ2,LINC01497,LINC01152,CASC17,KCNJ2-AS1,ROCR,LOC105371880	3	3484000	gain
17	77960000	78093000	TNRC6C	3	133000	gain
17	78093000	78679000	TMC8,LINC01993,LOC101928674,DNAH17-AS1,TMEM235,TNRC6C,C17orf99,DNAH17,LOC105371910,CYTH1,SOCS3,SCAT1,SYNGR2,TMC6,TK1,PGS1,AFMID,BIRC5	1	586000	loss
17	78679000	78780000	CYTH1	3	101000	gain
17	78780000	80257000	LGALS3BP,LINC01978,LINC01979,TIMP2,LINC02078,CANT1,CBX4,MIR1268B,EIF4A3,CARD14,TBC1D16,C1QTNF1,ENGASE,C1QTNF1-AS1,ENPP7,CBX8,USP36,GAA,SGSH,MIR4739,CCDC40,CBX2,CEP295NL,LINC01977,SLC26A11,RBFOX3,CYTH1	1	1477000	loss
17	80414000	80543000	ENDOV,NPTX1,MIR4730,RNF213-AS1	1	129000	loss
17	80815000	83257441	RAB40B,NDUFAF8,METRNL,BAIAP2,GPS1,DCXR-DT,RAC3,TMEM105,RFNG,LINC00482,LOC101929552,MIR4525,NOTUM,MIR657,RPTOR,FN3KRP,ARL16,AATK,CEP131,FSCN2,MYADML2,ALYREF,P4HB,SECTM1,B3GNTL1,PDE6G,RPL23AP87,FOXK2,TEX19,BAIAP2-DT,CCDC137,SLC25A10,OXLD1,MIR4740,ARHGDIA,DCXR,ZNF750,PPP1R27,HEXD,CD7,SLC16A3,OGFOD3,TEPSIN,MRPL12,MCRIP1,TBCD,BAHCC1,PVALEF,MIR1250,FAAP100,CYBC1,CCDC57,ACTG1,FASN,LRRC45,LOC100130370,SNORD134,MIR3186,GCGR,LOC105371925,FN3K,LOC400627,MIR6786,ANAPC11,WDR45B,NPB,HGS,TSPAN10,UTS2R,LINC01970,PCYT2,CHMP6,MAFG,MIR338,ASPSCR1,NPLOC4,MAFG-DT,NARF,DUS1L,MIR3065,CENPX,MIR6787,PYCR1,CSNK1D,SIRT7,SLC38A10	1	2442441	loss
18	170000	266000	USP14,THOC1	3	96000	gain
18	1007000	2807000	SMCHD1,NDC80,LINC00470,CBX3P2,METTL4	3	1800000	gain
18	2932000	2995000	CHORDC1P4,LPIN2	4	63000	gain

18	7583000	8357000	PTPRM	3	774000	gain
18	9094000	9264000	NDUFV2-AS1,ANKRD12,NDUFV2	3	170000	gain
18	20960000	21108000	ROCK1	3	148000	gain
18	21758000	21873000	MIB1,MIR133A1,MIR133A1HG,MIR1-2	3	115000	gain
18	22276000	23003000	RBBP8,MIR4741,LOC101927571,CTAGE1	3	727000	gain
18	23785000	24102000	LAMA3,TTC39C,TTC39C-AS1	3	317000	gain
18	27234000	35715000	SLC25A52,NOL4,DSG3,DSG1-AS1,RNF125,MIR302F,CCDC178,DSG4,B4GALT6,DSC1,ZNF24,TRAPPC8,DTNA,MEP1B,DSG1,ZNF396,INO80C,WBP11P1,CDH2,DSCAS,DSC3,ZNF397,TTR,DSG2-AS1,KLHL14,GALNT1,MAPRE2,GAREM1,ZSCAN30,DSC2,ZNF271P,RNF138,DSG2,MIR3975,ASXL3,LOC105372038	3	8481000	gain
18	36805000	37225000	KIAA1328,TPGS2,LOC105372069	3	420000	gain
18	37225000	37588000	KIAA1328,SNORA111,LOC105372068,CELF4	1	363000	loss
18	38088000	45216000	SLC14A2,SYT4,LINC01601,MIR924,RIT2,MIR4319,SETBP1,LINC01478,MIR924HG,MIR5583-2,PIK3C3,LINC00907,LINC01902,KC6,LINC01477,MIR5583-1	3	7128000	gain
18	46807000	46849000	PIAS2	3	42000	gain
18	47840000	47923000	SMAD2	4	83000	gain
18	49093000	49450000	DYM	3	357000	gain
18	50886000	57032000	LINC01416,TXNL1,ME2,SMAD4,TCF4-AS1,CCDC68,LINC01917,MIR4529,ELAC1,LINC01415,C18orf54,MBD2,SNORA37,LOC642484,DYNAP,LINC01630,LINC01919,LINC01929,LINC01539,MIR4528,LINC01905,DCC,STARD6,MEX3C,TCF4,POLI,WDR7,RAB27B	3	6146000	gain
18	58500000	58752000	MALT1,LOC101927322,SNORA108,ALPK2	3	252000	gain
18	60036000	62203000	CDH20,RNF152,LINC01544,MC4R,RELCH,PIGN	3	2167000	gain
18	62203000	62311000	RELCH	4	108000	gain
18	62729000	70212000	SERPINB5,LINC01924,PHLPP1,LOC643542,CD226,BCL2,LINC00305,SERPINB7,SERPINB12,SERPINB11,LINC01538,VPS4B,MIR5011,SERPINB2,SERPINB13,HMSD,CCDC102B,DOK6,DSEL,KDSR,RTTN,CDH19,LINC01903,SERPINB8,LOC105372179,SERPINB4,SERPINB3,TMX3,SERPINB10,CDH7	3	7483000	gain
18	70580000	73750000	LINC02864,GTSCR1,LINC01541,NETO1,MIR548AV,LOC100505797,CBLN2,LINC02582,LINC01899	3	3170000	gain
18	74590000	75050000	ZNF407,LINC00909	3	460000	gain
18	79330000	79918000	SLC66A2,LOC284240,CTDP1,ATP9B,KCNG2,NFATC1,LOC284241	1	588000	loss
19	0	6552000	MIR1302-9,TLE2,ZNF554,CIRBP-AS1,CFD,CAPS,TLE6,PSPN,MICOS13,TNFSF9,GTF2F1,BTBD2,RNU6-8,MISP,STAP2,MBD3,MAP2K2,TIMM13,RNF126,TUBB4A,GADD45B,MATK,FGF22,MKNK2,FAM138A,MIR1268A,MIR1302-11,PLEKHJ1,PRSS57,MIR4745,PWWP3A,SEMA6B,GAMT,STK11,MIR4746,RAX2,RNU6-2,CATSPERD,KDM4B,PLK5,MIR7850,ELANE,DAPK3,FSD1,TMEM259,FUT3,MYDGF,KLF16,C19orf25,RNU6-9,MIR6790,GPX4,NFIC,MIR637,TMIGD2,MIR1302-10,ALKBH7,RPS15,VMAC,LINGO3,RPL36,THEG,MIR1227,POLRMT,DAZAP1,NDUFS7,PIAS4,SH3GL1,GZMM,ATCAY,CSNK1G2-AS1,CDC34,MLLT1,FSTL3,MPND,POLR2E,SAFB2,MRPL54,CHAF1A,ZNF556,WASH5P,MIR6885,ARRDC5,NMRK2,MFSD12,MIR7108,RNU6-7,EFNA2,PIP5K1C,PTBP1,CRB3,LRG1,MIR6789,TNFAIP8L1,LSM7,APC2,PTPRS,SLC25A23,GNA15,UBXN6,MIR7-3,ACER1,REEP6,SMIM24,CLPP,WDR18,GNG7,TLE5,MEX3D,NRTN,SBNO2,CREB3L3,FAM174C,S1PR4,SHC2,CELF5,REXO1,TJP3,PRR22,KHSRP,GNA11,FEM1A,ZNRF4,MIR4747,CBARP,SAFB,OAZ1,DPP9,ATP5F1D,NDUFA11,DENND1C,FZR1,CSNK1G2,ADAMTSL5,THOP1,PLIN4,SCAMP4,HDGFL2,ZNF77,R3HDM4,APBA3,LINC01775,PCSK4,PEAK3,SLC39A3,ABCA7,PLPPR3,SPPL2B,ARID3A,ZFR2,TBXA2R,CNN2,MIR3940,LOC101928844,MED16,MIR4321,MIR1302-2,PLPP2,DIRAS1,ACSBG2,ADAT3,PLIN5,LMNB2,MIR1909,YJU2,MIR7-3HG,DUS3L,LONP1,FUT5,SNORD37,SIRT6,MADCAM1,MOB3A,LINC01002,LOC390877,AZU1,CIRBP,RANBP3,HSD11B1L,AMH,AP3D1,UQCR11,MIR3187,FUT6,FAM138C,GIPC3,ZBTB7A,PRTN3,ZNF555,ODF3L2,UHRF1,LOC100288123,SF3A2,IZUMO4,PALM,C19orf71,TCF3,DOHH,ONECUT3,PLIN3,SLC25A41,	1	6552000	loss

			RFX2,JSRP1,FAM138F,MIDN,ZNF57,LOC100996351,HCN2,KISS1R,TICAM1,LOC100128568,SHD,ABHD17A,BSG,SGTA,HMG20B,C2CD4C,OR4F17,TPGS1,DOT1L,CACTIN-AS1,MIER2,NCLN,TMPRSS9,ANKRD24,TINCR,ARHGAP45,EEF2,GRIN3B,DPP9-AS1,RNU6-1,EBI3,ATP8B3,CACTIN			
19	7407000	8704000	CLEC4G,RETN,MYO1F,RAB11B-AS1,TGFBR3L,EVI5L,ELAVL1,CLEC4GP1,RAB11B,ACTL9,PRAM1,CCL25,LYPLA2P2,MARCHF2,PET100,PEX11G,STXBP2,LRRC8E,MIR6792,MIR4999,ZNF414,CAMSAP3,TRAPPC5,CERS4,SNAPC2,NFILZ,FBN3,NDUFA7,RPS28,PCP2,PNPLA6,MCOLN1,TIMM44,CD320,ARHGEF18,CD209,CLEC4M,ZNF358,PRR36,HNRNPM,CTXN1,ANGPTL4,KANK3,MCEMP1,MAP2K7,XAB2,TEX45,FCER2,ADAMTS10	1	1297000	loss
19	9806000	11595000	RGL3,YIPF2,C3P1,MIR6886,PDE4A,KRI1,PRKCSH,C19orf38,LDLR,ICAM3,SHFL,FDX2,CDC37,ILF3,S1PR2,PPAN-P2RY11,SNORD105,SMARCA4,QTRT1,ATG4D,ZNF653,SNORD105B,EIF3G,ACP5,TMEM205,KANK2,CCDC159,RAB3D,TSPAN16,TIMM29,CNN1,ELAVL3,DNMT1,P2RY11,DOCK6,RDH8,CCDC151,SWSAP1,CDKN2D,ICAM1,FBXL12,PIN1,S1PR5,PLPPR2,ECSIT,SPC24,ILF3-DT,MIR5589,RAVER1,KEAP1,ICAM5,EPOR,MIR1238,MIR4748,MIR7974,CARM1,LOC105372273,MIR6793,ZGLP1,TMED1,ICAM4,ELOF1,MIR4322,MIR199A1,AP1M2,MRPL4,OLFM2,PPAN,ANGPTL6,MIR638,ANGPTL8,LDLR-AS1,DNM2,COL5A3,UBL5,TYK2,SLC44A2,MIR1181	1	1789000	loss
19	12634000	14576000	RNASEH2A,TNPO2,CACNA1A,WDR83OS,GNG14,PRKACA,NDUFB7,NACC1,DNASE2,TRMT1,NFIX,LINC01842,DCAF15,NANOS3,RFX1,STX10,GCDH,FARSA,PRDX2,LOC284454,C19orf67,MRI1,CCDC130,MIR1199,ZSWIM4,RAD23A,MAST1,PTGER1,JUNB,ADGRE5,RTBDN,DDX39A,MIR181C,MIR27A,SYCE2,BEST2,DHPS,ADGRL1,MIR5695,LOC100507373,CALR,HOOK2,C19orf57,MIR181D,PKN1,TRIR,WDR83,RLN3,FARSA-AS1,LYL1,MIR24-2,DNAJB1,MIR5684,GIPC1,SNORD135,PODNL1,PALM3,DAND5,ASF1B,IL27RA,GADD45GIP1,FBXW9,LINC01841,SAMD1,IER2,MAN2B1,MIR639,C19orf53,KLF1,MIR6515,MIR6794,MISP3,GET3,MIR23A,TECR,SNORD41,CC2D1A	1	1942000	loss
19	16658000	19664000	COLGALT1,ARRDC2,MIR3188,MRPL34,GDF15,HOMER3,CILP2,LOC102725254,CRTC1,PLVAP,SMIM7,HOMER3-AS1,HAPLN4,PGLS,SNORA118,ABHD8,BST2,MVB12A,NWD1,TSSK6,REX1BD,ELL,TM6SF2,MPV17L2,GDF1,LPAR2,FKBP8,LRRC25,MIR640,SSBP4,BABAM1,USHBP1,USE1,F2RL3,GTPBP3,MAP1S,MIR3189,RFXANK,SNORA68,GMIP,JAK3,GATAD2A,JUND,MAST3,TMEM161A,CERS1,LOC100507551,TMEM38A,SUGP1,IL12RB1,NIBAN3,PDE4C,SLC27A1,CRLF1,NR2C2AP,BORCS8,KLHL26,ATP13A1,COMP,PGPEP1,IQCN,DDA1,SLC5A5,DDX49,NCAN,YJEFN3,MEF2B,INSL3,KXD1,ARMC6,OCEL1,SUGP2,RAB3A,HAUS8,ISYNA1,LSM4,NR2F6,BORCS8-MEF2B,CCDC124,COPE,RPL18A,KCNN1,CPAMD8,TMEM221,UNC13A,B3GNT3,ANO8,UBA52,NDUFA13,NXNL1,MAU2,UPF1,PBX4,TMEM59L,BISPR,IFI30,FCHO1,MYO9B,SLC25A42,SIN3B,LOC729966,ANKLE1,PIK3R2	1	3006000	loss
19	24052000	27794000	LOC101927151,ZNF254,LINC00662,HAVCR1P1	3	3742000	gain
19	29957000	30040000	URI1	3	83000	gain
19	32534000	33960000	PDCD5,WDR88,FAAP24,RGS9BP,TDRD12,CEBPG,SLC7A10,GPATCH1,SNORA68B,CEBPA-DT,NUDT19,LRP3,SLC7A9,ANKRD27,PEPD,CEBPA,CHST8,KCTD15,CEP89,RHPN2	1	1426000	loss
19	35004000	36326000	PRODH2,LRFN3,ETV2,HAUS5,ARHGAP33,LOC100134317,COX7A1,USF2,CD22,LGI4,MIR5196,HCST,ZNF565,TMEM147-AS1,SDHAF1,HPN,CLIP3,ATP4A,LINC00665,FFAR2,LOC105372383,MIR6887,FXYD5,COX6B1,LINC01766,IGFLR1,APLP1,KRTDAP,PROSER3,UPK1A-AS1,OVOL3,LSR,FFAR3,LIN37,NPHS1,FAM187B,TBCB,KIRREL2,KMT2B,U2AF1L4,PSENEN,ALKBH6,FXYD7,SBSN,ZBTB32,THAP8,TYROBP,GPR42,FXYD3,RBM42,MAG,HSPB6,LINC01531,HPN-AS1,GRAMD1A,POLR2I,FFAR1,GAPDHS,ZNF146,NFKBID,LINC01529,DMKN,WDR62,CAPNS1,SCN1B,TMEM147,HAMP,FXYD1,UPK1A,SYNE4,LOC101927572	1	1322000	loss
19	38062000	38648000	RYR1,LOC105372397,FAM98C,GGN,DPF1,RASGRP4,PPP1R14A,EIF3K,SNORD152,KCNK6,MAP4K1,SPINT2,PSMD8,ACTN4,SIPA1L3,CATSPERG,YIF1B,SPRED3,C19orf33	1	586000	loss
19	38697000	39550000	ECH1,ACP7,EID2B,PAK4,MIR4530,NFKBIB,IFNL4,HNRNPL,NCCRP1,IFNL2,MRPS12,CAPN12,SIRT2,GMFG,ACTN4,SYCN,LGALS7B,RINL,TIMM50,FBXO27,ZFP36,DLL3,SUPT5H,SELENOV,LGALS4,LRFN1,IFNL3,EID2,PLEKHG2,MED29,SNORD175,FBXO17,CCER2,SARS2,LGALS7,RPS16,SAMD4B,PAF1,IFNL1	1	853000	loss
19	40151000	40706000	C19orf47,CCNP,SERTAD3,LTBP4,COQ8B,MAP3K10,SHKBP1,BLVRB,MIR6796,AKT2,SPTBN4,TTC9B,NUMBL,PLD3,MIR641,PRX,HIPK4,SERTAD1	1	555000	loss
19	41891000	42425000	TMEM145,RABAC1,DEDD2,ERF,ERFL,LOC100505622,GRIK5,GSK3A,MIR8077,LIPE-AS1,ZNF574,POU2F2,ZNF526,LOC101930071,PAFAH1B3,MIR4323,PRR19,ARHGEF1,MEGF8,LOC100505585,CIC,ATP1A3,LIPE,CNFN	1	534000	loss
19	43818000	44482000	ZNF233,ZNF222,ZNF221,ZNF155,LOC100379224,LOC100505715,ZNF227,ZNF226,LYPD5,ZNF225,ZNF45,ZNF283,ZNF224,ZNF112,ZNF234,ZNF285,ZNF229,ZNF180,ZNF230,LOC101928063,ZNF235,ZNF404,ZNF223,ZNF284	3	664000	gain
19	44772000	46041000	IGFL4,GPR4,CCDC61,QPCTL,MIR6088,POLR1G,DMPK,EXOC3L2,MIR330,SIX5,FBXO46,EML2-AS1,ZNF296,EML2,APOC2,TOMM40,SYMPK,RELB,PPP1R37,OPA3,TRAPPC6A,GEMIN7-AS1,GEMIN7,NANOS2,MIR642B,NECTIN2,APOC4,DM1-AS,PPM1N,IRF2BP1,DMWD,MARK4,MYPOP,ERCC1,CKM,MEIOSIN,PGLYRP1,APOE,RSPH6A,FOXA3,NOVA2,CBLC,CLASRP,PPP1R13L,APOC4-APOC2,BCAM,ERCC2,APOC1,NKPD1,BLOC1S3,VASP,APOC1P1,SNRPD2,RTN2,MIR642A,CLPTM1,KLC3,GIPR,MIR769,FOSB	1	1269000	loss
19	46173000	46878000	CALM3,LOC93429,SLC1A5,DACT3,CCDC8,AP2S1,IGFL2-AS1,STRN4,PPP5D1,PPP5C,PRKD2,IGFL1,MIR320E,DACT3-AS1,HIF3A,ARHGAP35,PNMA8B,PTGIR,FKRP,GNG8,SNAR-E,PNMA8A	1	705000	loss
19	46878000	46984000	ARHGAP35	3	106000	gain
19	46984000	48203000	SLC8A2,SNORD23,BICRA,SNAR-A3,KPTN,MEIS3,CCDC9,C5AR2,SULT2A1,NAPA,SNAR-A4,ZSWIM9,C5AR1,SNAR-A7,TPRX1,PLA2G4C-AS1,SNAR-A6,DHX34,SNAR-A5,SNAR-A8,SAE1,SNAR-A13,SNAR-C3,NOP53,TMEM160,NOP53-AS1,CRX,LIG1,SNAR-C4,NPAS1,MIR3190,SNAR-C5,NAPA-AS1,BSPH1,ZC3H4,SNAR-A1,BBC3,SNAR-A9,SNAR-A2,SNAR-A11,SNAR-A14,INAFM1,SNAR-A12,ELSPBP1,SNAR-C1,SNAR-A10,ZNF541,PLA2G4C,MIR3191,EHD2,CABP5,SELENOW,SNAR-C2,ARHGAP35	1	1219000	loss
19	48203000	48264000	CARD8-AS1,CARD8	3	61000	gain

19	48264000	51109000	PPFIA3,C19orf73,BCAT2,KLKP1,CA11,ZNF114,SNAR-A11,RASIP1,SYNGR4,SYT3,PRMT1,SNAR-A14,KLK8,KLK12,CTU1,SNAR-A10,FUT2,KLK5,MIR5088,SLC6A16,PRRG2,MIR4750,LOC101928295,CD37,DBP,HRC,SNAR-D,PLEKHA4,SHANK1,AKT1S1,SEC1P,SLC17A7,CGB2,DKKL1,KLK1,ADM5,MIR6798,SNRNP70,KCNJ14,ALDH16A1,SNAR-B2,KLK14,FUZ,TEAD2,KDELR1,NTF4,PTOV1-AS2,SNAR-F,LHB,NAPSA,LOC105372440,KCNC3,RPL18,LRRC4B,LMTK3,KLK4,GPR32,CGB1,KLK7,PNKP,FAM71E1,KLK6,LOC101059948,MYBPC2,MED25,TRPM4,KLK2,PPP1R15A,NR1H2,FCGRT,VRK3,MIR4324,KLK3,SNAR-G1,FGF21,TBC1D17,C19orf81,TSKS,CPT1C,TMEM143,MAMSTR,SNORD33,MYH14,SNAR-A9,KLK9,SNORD88A,KLK11,NUP62,SNORD34,SNAR-A7,SNORD35A,PIH1D1,SNORD88C,RPS11,TULP2,ZNF473,DHDH,MIR4749,SNAR-A6,FLT3LG,ASPDH,KLK10,LIN7B,MIR4751,GRIN2D,IL4I1,KCNA7,NUCB1,KASH5,FAM83E,SNAR-A5,MIR6800,FUT1,SNAR-A8,RRAS,LOC400710,PTH2,GRWD1,BAX,NAPSB,CCDC114,LOC105372441,ATF5,GYS1,SPHK2,IZUMO1,ACP4,SNAR-G2,MIR150,RPL13A,RUVBL2,SIGLEC16,KLK15,SNAR-A3,IZUMO2,NUCB1-AS1,EMP3,JOSD2,MIR6799,SNORD35B,CGB7,LINC01869,SIGLEC11,SPIB,LOC105447645,IRF3,SULT2B1,PTOV1-AS1,SNAR-B1,NTN5,POLD1,SNORD88B,EMC10,FTL,CGB3,CGB8,HSD17B14,KLK13,CGB5,PRR12,PTOV1,AP2A1,SCAF1,NOSIP,SPACA4,RCN3,C19orf48,BCL2L12,SNAR-A4,GFY,CLEC11A,CYTH2,SNORD32A	1	2845000	loss
19	51773000	52163000	ZNF613,ZNF350,ZNF649,ZNF350-AS1,ZNF577,ZNF836,ZNF432,ZNF841,ZNF614,ZNF616,ZNF615,FPR3,ZNF649-AS1	3	390000	gain
19	53580000	55701000	TMEM238,MIR1283-2,MIR527,ISOC2,CCDC106,MIR512-2,SBK3,MIR518E,NLRP7,MIR518C,CACNG6,LAIR1,TMC4,DNAAF3,MIR516B1,SHISA7,PTPRH,MIR525,MIR8061,KIR3DS1,MIR520D,MIR520H,PPP1R12C,OSCAR,CACNG8,KIR2DS2,KIR2DS3,KIR2DS4,PRKCG,MIR512-1,MIR6802,KMT5C,TSEN34,ZNF331,MIR4752,MIR6803,PPP6R1,CACNG7,MIR520B,KIR2DL3,MIR518A2,ZNF865,MIR520C,VSTM1,TNNI3,NAT14,KIR2DL4,EPN1,MIR519B,CDC42EP5,ZNF581,TTYH1,MIR7975,MIR523,FCAR,MIR520A,COX6B2,LILRA1,ZNF580,MIR516A2,LOC102725023,LENG8,LILRB1,NLRP12,IL11,KIR2DS1,NDUFA3,MYADM,LOC284379,BRSK1,RDH13,MIR524,MIR498,MIR1323,MIR515-1,CNOT3,MIR519E,TFPT,TNNT1,MIR526B,U2AF2,MIR519A1,KIR2DL1,KIR3DL3,KIR2DL2,LILRA2,MIR526A2,RPL28,MIR516A1,MIR516B2,MIR6805,MIR371B,LAIR2,MIR6804,MIR518D,ZNF579,LILRP2,HSPBP1,LENG9,NLRP2,MIR520G,FIZ1,MIR517A,KIR2DS5,ZNF784,SBK2,LILRA4,LILRB5,MIR519A2,MIR518B,MIR373,MIR520F,MIR1283-1,GP6,MIR517C,LILRB2,LOC112268355,MIR517B,SSC5D,MIR522,LENG1,MIR515-2,TMEM190,LOC101928804,MBOAT7,LILRA6,MIR520E,MIR519C,MIR371A,LOC112267881,LILRA5,LILRB3,MIR521-1,MIR518A1,SYT5,ZNF524,SNORD157,MIR519D,LILRB4,MIR372,KIR3DX1,MIR518F,DPRX,UBE2S,FAM71E2,KIR3DL1,KIR3DL2,NCR1,TMEM86B,RPS9,MIR521-2,TARM1,EPS8L1,MIR935,ZNF628,MIR526A1,PRPF31,LOC112268354,LENG8-AS1,TMEM150B	1	2121000	loss
19	57926000	58617616	ZNF606,LINC02560,MIR10394,MIR6806,RPS5,ZNF418,ZNF8,SLC27A5,ZNF132,A1BG,ZNF497,ZNF584,MIR6807,CHMP2A,ZNF544,ZSCAN18,ZSCAN1,C19orf18,ZSCAN22,ZNF324B,UBE2M,TRIM28,ZNF446,ZNF324,A1BG-AS1,MZF1,LOC105372480,ZNF135,ZNF274,ZNF8-ERVK3-1,LOC100128398,ZNF837,ZBTB45,CENPBD1P1,MIR4754,RNF225,MZF1-AS1,ERVK3-1,LOC105372483,ZNF256,ZNF329	1	691616	loss
20	257000	431000	SOX12,C20orf96,RBCK1,DEFB132,NRSN2,TRIB3,NRSN2-AS1,ZCCHC3	1	174000	loss
20	431000	550000	RBCK1,CSNK2A1,TBC1D20	3	119000	gain
20	1340000	1771000	SIRPB3P,SIRPB1,NSFL1C,FKBP1A,SIRPG,SIRPG-AS1,SIRPB2,SIRPD,MIR6869,FKBP1A-SDCBP2,SDCBP2-AS1	3	431000	gain
20	2885000	3010000	PTPRA	3	125000	gain
20	3010000	3275000	MRPS26,UBOX5,DDRGK1,AVP,OXT,PTPRA,SLC4A11,UBOX5-AS1,LZTS3,ITPA,GNRH2,C20orf194,FASTKD5	1	265000	loss
20	3653000	3892000	CDC25B,HSPA12B,LINC01730,ADAM33,MAVS,SPEF1,AP5S1,SIGLEC1,C20orf27,PANK2,GFRA4,CENPB	1	239000	loss
20	6251000	16516000	SNAP25-AS1,MKKS,LAMP5,MIR6870,ISM1-AS1,LAMP5-AS1,LOC102606466,SPTLC3,MACROD2,LOC613266,RNU105B,BMP2,LINC01722,BTBD3,LINC02871,PLCB4,JAG1,ANKEF1,LOC101929413,MACROD2-IT1,FLRT3,LINC01751,LINC01713,PARAL1,MACROD2-AS1,CASC20,HAO1,KIF16B,TMX4,LINC01428,ESF1,SNAP25,PLCB1,SEL1L2,LINC01706,PAK5,ISM1,LOC339593,LINC00687,SLX4IP,PLCB1-IT1,LINC01752,MIR8062,LINC01723,NDUFAF5,TASP1	3	10265000	gain
20	20440000	20700000	RALGAPA2	3	260000	gain
20	21315000	21385000	XRN2	3	70000	gain
20	33631000	33805000	E2F1,ZNF341-AS1,CBFA2T2,ZNF341,PXMP4,ACTL10,NECAB3,C20orf144	1	174000	loss
20	37694000	37866000	CTNNBL1	3	172000	gain
20	37866000	37988000	CTNNBL1,VSTM2L,TTI1	1	122000	loss
20	37988000	38102000	RPRD1B,TTI1	3	114000	gain

20	38484000	38582000	RALGAPB,ADIG,MIR548O2	3	98000	gain
20	41316000	41404000	CHD6,ZHX3,EMILIN3,LPIN3	1	88000	loss
20	41404000	41611000	CHD6	3	207000	gain
20	44943000	45085000	TOMM34,STK4-AS1,STK4	3	142000	gain
20	45816000	46360000	NCOA5,ZSWIM3,ZNF335,SNX21,SLC35C2,SPATA25,CDH22,ACOT8,CTSA,PCIF1,NEURL2,UBE2C,SLC12A5,MMP9,CD40,ZSWIM1,TNNC2,PLTP,SLC12A5-AS1	1	544000	loss
20	47573000	47657000	NCOA3	3	84000	gain
20	48694000	48822000	PREX1	3	128000	gain
20	50580000	50881000	PARD6B,MIR1302-5,RIPOR3-AS1,MIR645,BCAS4,RIPOR3,PTPN1	1	301000	loss
20	50881000	50956000	DPM1,ADNP,ADNP-AS1	3	75000	gain
20	51383000	51410000	NFATC2	4	27000	gain
20	52212000	53318000	TSHZ2,LINC01524	3	1106000	gain
20	58233000	58454000	VAPB,PPP4R1L,RAB22A	3	221000	gain
20	59048000	59274000	ZNF831	3	226000	gain
20	59836000	59922000	SYCP2,PHACTR3	3	86000	gain
20	61228000	64444167	MIR133A2,CABLES2,MIR1-1HG-AS1,NKAIN4,CHRNA4,MIR941-4,MIR1-1HG,LOC100130587,SS18L1,UCKL1-AS1,RTEL1,OPRL1,ZBTB46-AS1,FLJ16779,MRGBP,MIR3196,FNDC11,MIR1-1,LAMA5,LIME1,RBBP8NL,MIR3195,MIR941-2,SLC2A4RG,GMEB2,ZGPAT,TPD52L2,UCKL1,COL20A1,ABHD16B,ARFGAP1,LINC00029,MIR1257,SLCO4A1,ZNF512B,SRMS,LKAAEAR1,TNFRSF6B,MIR1914,MYT1,MIR941-3,PRPF6,MIR941-5,RPS21,SOX18,HAR1A,ZBTB46,KCNQ2,LAMA5-AS1,MIR4326,EEF1A2,TCFL5,LINC00266-1,GATA5,RGS19,MIR647,PCMTD2,MIR941-1,LINC01056,LINC01749,SLCO4A1-AS1,HELZ2,TCEA2,LINC00659,LOC112268269,PTK6,ADRM1,OGFR,TAF4,LSM14B,OSBPL2,NPBWR2,MIR4758,MHENCR,BHLHE23,DIDO1,NTSR1,MIR124-3,HAR1B,CDH4,PPDPF,HRH3,C20orf204,GID8,STMN3,MTG2,COL9A3,LOC105369209,MIR6813,PSMA7,RTEL1-TNFRSF6B,BIRC7,SLC17A9,SAMD10,ARFRP1,OGFR-AS1,SNORA117,DNAJC5,DPH3P1,YTHDF1,LOC100128310	1	3216167	loss
21	14096000	14485000	LIPI,RBM11,HSPA13,ABCC13	3	389000	gain
21	14485000	14605000	SAMSN1,LOC388813,SAMSN1-AS1	4	120000	gain
21	14605000	15754000	NRIP1,LOC388813,USP25,LINC02246	3	1149000	gain
21	15754000	15897000	USP25	4	143000	gain
21	17582000	17778000	C21orf91-OT1,BTG3,CXADR,BTG3-AS1	3	196000	gain
21	17778000	17805000	C21orf91-OT1,C21orf91	4	27000	gain
21	17805000	23698000	LINC00308,LINC01683,LINC00317,LINC01687,LINC00320,MIR6130,NCAM2,C21orf91,MIR548XHG,D21S2088E,LINC01425,TMPRSS15,LINC02573,MIR548X,CHODL,CHODL-AS1	3	5893000	gain
21	24011000	25600000	LINC01684,LINC00158,LINC01689,LINC00515,MIR155HG,MIR155,MRPL39,LINC01692	3	1589000	gain
21	26291000	31452000	LINC00113,KRTAP19-1,KRTAP20-4,USP16,MIR4327,LINC00161,KRTAP13-4,CLDN8,KRTAP13-1,KRTAP15-1,KRTAP13-3,MAP3K7CL,KRTAP19-4,KRTAP21-1,KRTAP22-2,LTN1,CYYR1-AS1,MIR4759,KRTAP6-3,KRTAP7-1,KRTAP19-3,KRTAP26-1,KRTAP20-2,KRTAP19-8,LINC01697,KRTAP24-1,KRTAP27-1,KRTAP20-1,KRTAP21-3,KRTAP13-2,GRIK1,KRTAP21-2,TIAM1,GRIK1-AS2,N6AMT1,CCT8,KRTAP8-1,KRTAP11-1,KRTAP19-5,KRTAP23-1,KRTAP19-2,CYYR1,LINC00314,KRTAP19-7,CLDN17,ADAMTS1,KRTAP6-1,BACH1-IT2,KRTAP20-3,KRTAP6-2,GRIK1-AS1,RWDD2B,LINC00189,BACH1-IT3,KRTAP19-6,BACH1,KRTAP25-1,KRTAP22-1,LINC01695,ADAMTS5,LINC00307	3	5161000	gain

21	31668000	31721000	SOD1,SCAF4	3	53000	gain
21	32632000	32761000	PAXBP1-AS1,PAXBP1,SYNJ1	3	129000	gain
21	33897000	34142000	ATP5PO,SLC5A3,MRPS6,LOC101928126,ITSN1,LINC00649	3	245000	gain
21	34798000	35383000	RUNX1-IT1,RUNX1,LOC100506403	3	585000	gain
21	37075000	37189000	TTC3,TTC3-AS1	3	114000	gain
21	37378000	37512000	DYRK1A	3	134000	gain
21	39185000	39301000	BRWD1	3	116000	gain
21	42166000	42207000	ABCG1	3	41000	gain
21	42387000	42436000	UBASH3A,TMPRSS3	3	49000	gain
21	43686000	44019000	RRP1B,TRAPPC10,PDXK,RRP1,AATBC,AGPAT3,CSTB	1	333000	loss
21	44254000	45075000	ITGB2,FAM207A,DNMT3L,TSPEAR-AS1,KRTAP12-2,KRTAP10-8,KRTAP10-9,TRPM2-AS,LRRC3,ADARB1,PICSAR,KRTAP10-5,TRPM2,KRTAP10-2,LRRC3-DT,KRTAP10-6,UBE2G2,CFAP410,KRTAP10-12,KRTAP12-4,KRTAP10-1,KRTAP10-3,LINC01424,KRTAP10-10,ITGB2-AS1,AIRE,KRTAP10-11,KRTAP10-4,PFKL,TSPEAR,SSR4P1,SUMO3,LINC00163,TSPEAR-AS2,KRTAP12-1,KRTAP12-3,KRTAP10-7,PTTG1IP,LINC01547,LINC02575	1	821000	loss
21	45247000	45649000	COL18A1,PCBP3,MIR6815,LINC01694,LINC00334,COL18A1-AS1,LINC00316,LINC00205,POFUT2,COL18A1-AS2,SLC19A1	1	402000	loss
21	45862000	46459000	LOC101928796,COL6A1,FTCD-AS1,MCM3AP,YBEY,C21orf58,PCBP3,LSS,COL6A2,DIP2A,MCM3AP-AS1,FTCD,PCNT,SNORD159,SPATC1L	1	597000	loss
22	17100000	17177000	HDHD5,HDHD5-AS1,IL17RA,TMEM121B,LINC01664	1	77000	loss
22	18948000	19227000	CLTCL1,DGCR2,ESS2,TSSK2,SLC25A1,GSC2,DGCR11,DGCR5,LINC01311	1	279000	loss
22	19505000	20450000	GNB1L,CLDN5,MIR3618,TBX1,CCDC188,LOC284865,RANBP1,TXNRD2,TRMT2A,RTL10,MIR6816,ZDHHC8,SNORA77B,TANGO2,CDC45,MIR185,ARVCF,SEPT5-GP1BB,GP1BB,FAM230G,LINC00895,KLHL22,ZNF74,DGCR6L,LINC00896,MIR1306,SEPTIN5,COMT,DGCR8,MIR4761,MIR1286,SCARF2,RTN4R	1	945000	loss
22	20955000	21749000	TMEM191C,YPEL1,MIR649,BCRP2,CCDC116,RIMBP3C,FAM230H,P2RX6P,UBE2L3,SDF2L1,TUBA3FP,THAP7-AS1,LRRC74B,PPIL2,AIFM3,RIMBP3B,SLC7A4,LINC01637,PI4KAP2,THAP7,LOC107985532,LZTR1,P2RX6,POM121L8P,HIC2,FAM230B,MIR130B,MIR301B,GGT2,YDJC	1	794000	loss
22	21866000	21998000	PPM1F,PRAMENP,MAPK1,PPM1F-AS1,TOP3B	1	132000	loss
22	24150000	24283000	CABIN1,SPECC1L,SUSD2,SPECC1L-ADORA2A,POM121L9P,GGT5	1	133000	loss
22	24283000	24404000	SPECC1L-ADORA2A,SPECC1L	3	121000	gain
22	27851000	27885000	PITPNB	4	34000	gain
22	27885000	27980000	PITPNB,TTC28,MIR3199-2,TTC28-AS1,MIR3199-1	3	95000	gain
22	27980000	28032000	TTC28,TTC28-AS1	1	52000	loss
22	29689000	29746000	NF2,CABP7,ZMAT5	1	57000	loss
22	29896000	30016000	HORMAD2-AS1,MIR6818,MTMR3	3	120000	gain
22	30087000	30199000	HORMAD2	3	112000	gain
22	31003000	31144000	INPP5J,PLA2G3,SMTN,SELENOM	1	141000	loss

22	35620000	36012000	RBFOX2,APOL6,APOL5,MB	3	392000	gain
22	36125000	36384000	MYH9,APOL2,APOL4,APOL1,APOL3,MIR6819	3	259000	gain
22	37007000	37145000	KCTD17,TEX33,TST,MPST,TMPRSS6,IL2RB	1	138000	loss
22	37318000	38478000	H1-0,EIF3L,TPTEP2-CSNK1E,PDXP-DT,PDXP,ANKRD54,ELFN2,MIR659,GCAT,LGALS1,GGA1,CDC42EP1,SNORA92,CSNK1E,GALR3,SOX10,TPTEP2,NOL12,POLR2F,MIR6820,SLC16A8,MIR4534,TMEM184B,BAIAP2L2,PLA2G6,MFNG,LGALS2,TRIOBP,LOC100506271,MAFF,MICALL1,PICK1,LOC102724378,KCNJ4,MIR658,CARD10,C22orf23,SH3BP1,KDELR3	1	1160000	loss
22	38478000	38501000	KDELR3,DDX17	3	23000	gain
22	39223000	39732000	SYNGR1,RPL3,MIEF1,CACNA1I,PDGFB,SNORD43,TAB1,ATF4,MGAT3-AS1,SNORD83B,SNORD83A,LOC100506472,RPS19BP1,MGAT3,SNORD139	1	509000	loss
22	39732000	39970000	ENTHD1,GRAP2	3	238000	gain
22	39970000	40050000	TNRC6B,LOC114841040,GRAP2,FAM83F	1	80000	loss
22	40050000	40341000	TNRC6B	3	291000	gain
22	41180000	41428000	TEF,CHADL,L3MBTL2,RANGAP1,EP300,EP300-AS1,L3MBTL2-AS1,MIR6889,ZC3H7B	1	248000	loss
22	41895000	41984000	CENPM,TNFRSF13C,SHISA8,SEPTIN3,MIR378I,LINC00634,MIR33A,SREBF2	1	89000	loss
22	42266000	42799000	OGFRP1,SERHL,LINC01315,POLDIP3,SERHL2,A4GALT,CYB5R3,RRP7A,NFAM1,ATP5MGL,ARFGAP3,RNU12,RRP7BP,TCF20	1	533000	loss
22	43009000	43572000	TSPO,BIK,MCAT,TTLL12,EFCAB6,SCUBE1,LINC01639,SCUBE1-AS1,MPPED1,PACSIN2,EFCAB6-AS1,TTLL1,TTLL1-AS1,SCUBE1-AS2	1	563000	loss
22	43817000	44453000	LINC01656,SAMM50,PNPLA5,PARVG,SHISAL1,PNPLA3,SULT4A1,PARVB	1	636000	loss
22	44520000	45126000	PHF21B,PRR5-ARHGAP8,ARHGAP8,LINC00207,LOC101927551,PRR5,LINC00229	1	606000	loss
22	45126000	45184000	NUP50,LOC105373064,NUP50-DT	3	58000	gain
22	45184000	45313000	FAM118A,UPK3A,NUP50,LOC105373064,MIR1249,KIAA0930	1	129000	loss
22	45408000	45676000	SMC1B,LINC01589,FBLN1,RIBC2,ATXN10	1	268000	loss
22	45676000	45856000	MIR4762,ATXN10	3	180000	gain
22	45856000	46153000	PRR34-AS1,MIRLET7BHG,PPARA,LINC00899,LOC642648,WNT7B,MIRLET7B,PRR34,MIRLET7A3,MIR3619,LOC730668,MIR4763	1	297000	loss
22	46244000	46749000	TRMU,GTSE1,CERK,GTSE1-DT,TTC38,CELSR1,PKDREJ,GRAMD4,CDPF1	1	505000	loss
22	46956000	47465000	LOC339685,TBC1D22A,LINC01644	1	509000	loss
22	48298000	50336000	MAPK12,MIR4535,DENND6B,MOV10L1,PLXNB2,SELENOO,IL17REL,LINC01310,TAFA5,TRABD,LOC284933,TTLL8,CRELD2,PANX2,MIR3667,MLC1,HDAC10,TUBGCP6,ZBED4,PIM3,BRD1,MIR6821,C22orf34,MAPK11,ALG12	1	2038000	loss
22	50422000	50818468	CHKB-CPT1B,ODF3B,CPT1B,ARSA,CHKB,PPP6R2,MAPK8IP2,LMF2,CHKB-DT,RPL23AP82,SHANK3,TYMP,SCO2,MIOX,LOC105373100,SYCE3,RABL2B,NCAPH2,ACR,KLHDC7B,SBF1,ADM2	1	396468	loss
X	3990000	9316000	VCX2,LOC101928201,NLGN4X,MIR4767,STS,PNPLA4,FAM9B,PUDP,FAM9A,ANOS1,MIR4770,VCX3A,MIR651,VCX3B,LOC105373156,VCX	3	5326000	gain
X	10225000	16489000	PIR,GS1-594A7.3,ARHGAP6,TLR8,BMX,PIGA,PRPS2,FRMPD4,EGFL6,GLRA2,MSL3,CA5BP1-CA5B,ATXN3L,MIR548AX,FAM9C,TLR7,ZRSR2,CLCN4,ASB11,CLTRN,PIR-FIGF,TLR8-AS1,GEMIN8,LINC01203,FANCB,MOSPD2,ASB9,TRAPPC2,TCEANC,AP1S2,GRPR,ACE2,MIR6086,MAGEB17,HCCS,CA5BP1,LINC02154,VEGFD,UBE2E4P,RAB9A,OFD1,INE2,GPM6B,MID1,AMELX,TMSB4X,GS1-600G8.3,CA5B	3	6264000	gain

X	20146000	21641000	RPS6KA3,CNKSR2	3	1495000	gain
X	24726000	24987000	POLA1,SCARNA23	3	261000	gain
X	24987000	25046000	POLA1,ARX	1	59000	loss
X	25046000	30182000	PPP4R3C,DCAF8L1,DCAF8L2,MAGEB5,MAGEB6,MAGEB18,IL1RAPL1,MAGEB10,MIR6134,VENTXP1,MIR4666B	3	5136000	gain
X	31561000	39445000	MIR548AJ2,OTC,FAM47B,DMD,LANCL3,CFAP47,MID1IP1,XK,SYTL5,DYNLT3,FAM47A,LOC101928627,MAGEB16,TSPAN7,FAM47C,SRPX,MIR3915,MID1IP1-AS1,CYBB,H2AP,TMEM47,FTHL18,MIR548F5,LINC01281,LINC01282,RPGR,PRRG1	3	7884000	gain
X	41101000	41235000	USP9X	3	134000	gain
X	41514000	44430000	PINCR,NDP,GPR82,PPP1R2C,CASK,MAOB,MAOA,GPR34,NDP-AS1,EFHC2	3	2916000	gain
X	44874000	46228000	LINC02595,MIR221,KDM6A,DIPK2B,MIR222,LINC01204,MFFP3	3	1354000	gain
X	58291000	68305000	ASB12,VSIG4,ZC4H2,EDA2R,LAS1L,ZC3H12B,ARHGEF9-IT1,MIR223,ARHGEF9,MSN,MIR1468,OPHN1,SPIN4,HEPH,AR,AMER1,FRMD8P1,MTMR8,LINC01278	3	10014000	gain
X	69619000	70010000	EDA	3	391000	gain
X	78295000	79066000	LPAR4,CYSLTR1,P2RY10,RTL3,MIR4328	3	771000	gain
X	79066000	79278000	GPR174	4	212000	gain
X	79278000	100325000	PABPC5-AS1,MIR548M,MIR361,RPS6KA6,DIAPH2,CHM,TENT5D,TGIF2LX,KLHL4,DACH2,RPA4,SH3BGRL,NAP1L3,MIR1321,MIR548I4,PCDH19,BRDTP1,MIR4454,HDX,CPXCR1,ITM2A,CYLC1,APOOL,POF1B,CHMP1B2P,PCDH11X,FAM133A,POU3F4,PABPC5,HMGN5,LOC101928128,UBE2DNL,BRWD3,TBX22,ZNF711,SATL1,DIAPH2-AS1	3	21047000	gain
X	104464000	107226000	PWWP3B,RADX,MIR548AN,RNF128,NUP62CL,IL1RAPL2,TBC1D8B,NRK,SERPINA7,MORC4,CLDN2,TEX13A,RIPPLY1,RBM41,DNAAF6	3	2762000	gain
X	108010000	115174000	PSMD10,MIR652,LHFPL1,MIR448,CHRDL1,MIR4329,MIR764,MIR1264,VSIG1,TRPC5OS,MIR3978,SNORA35,KCNE5,TRPC5,PAK3,ACSL4,TDGF1P3,AMMECR1,DCX,MIR1912,RTL9,SNORA35B,IL13RA2,NXT2,GUCY2F,COL4A6,LOC101928437,MIR1911,ATG4A,RTL4,LOC105373311,MIR1298,SERTM2,XACT,SNORD96B,ALG13,MIR4454,LRCH2,IRS4,CAPN6,AMOT,LOC101928358,COL4A5,TMEM164,HTR2C	3	7164000	gain
X	115975000	118102000	KLHL13,SLC6A14,CT83,AGTR2,LOC100126447	3	2127000	gain
X	121233000	123710000	THOC2,MIR3672,GRIA3	3	2477000	gain
X	123964000	129489000	SMARCA1,ACTRT1,TENM1,STAG2,SH2D1A,PRR32,DCAF12L1,TEX13C,LOC101928495,DCAF12L2,TEX13D	3	5525000	gain
X	141638000	149617000	MIR509-1,MIR514A1,MIR513A2,MIR506,MIR509-2,MAGEA9B,HSFX1,SLITRK4,MIR509-3,MIR892C,EOLA1,FMR1,HSFX2,LINC00893,TMEM185A,MIR888,MIR891A,IDS,SPANXN2,MIR508,FMR1NB,MIR514A3,UBE2NL,MIR892A,MAGEC1,MIR510,MIR890,CXorf51A,MIR513A1,CXorf51B,FMR1-AS1,SLITRK2,SPANXA2-OT1,MAGEA9,MAGEC3,SPANXN1,AFF2,MIR513C,MIR514B,MAGEC2,MIR514A2,MIR513B,SPANXD,MIR891B,SPANXN4,MIR507,HSFX3,SPANXN3,MIR892B	3	7979000	gain
X	152031000	152510000	MAGEA10,MIR105-2,MIR105-1,MIR767,MAGEA10-MAGEA5,GABRA3,MAGEA5	3	479000	gain
X	152510000	154662000	ECMXP,MAGEA6,LCA10,HCFC1,SLC10A3,SNORA70,SSR4,PNMA5,PNMA6A,OPN1MW2,ZNF275,MIR12129,NSDHL,RPL10,LOC105373383,ABCD1,SLC6A8,FAM223A,RENBP,TMEM187,PNMA3,EMD,ARHGAP4,ATP2B3,LOC105373378,PNMA6E,MAGEA2B,LAGE3,OPN1MW,CSAG1,HCFC1-AS1,MIR3202-2,BGN,ATP6AP1,NAA10,CTAG1B,MIR6858,CETN2,PNMA6F,TKTL1,HAUS7,FAM3A,DUSP9,CCNQ,OPN1LW,PNCK,MIR3202-1,G6PD,AVPR2,IDH3G,MAGEA1,BCAP31,GABRQ,CSAG4,IKBKG,FAM223B,L1CAM,MAGEA2,MAGEA3,PLXNA3,ZFP92,OPN1MW3,MECP2,SRPK3,TEX28,MIR718,CSAG3,CH17-340M24.3,TREX2,IRAK1,PLXNB3,CTAG2,UBL4A,FLNA,PDZD4,FAM50A,DNASE1L1,CTAG1A,MAGEA12,TAZ,ZNF185,GDI1	1	2152000	loss
X	154662000	156040895	F8A2,F8A1,CLIC2,LOC101927830,VBP1,SPRY3,GAB3,IL9R,DKC1,SNORA56,H2AB3,VAMP7,CMC4,MPP1,MIR1184-2,DDX11L16,MIR664B,SMIM9,RAB39B,H2AB2,TMLHE,TMLHE-AS1,H2AB1,MIR1184-3,MTCP1,F8A3,MIR1184-1,F8,BRCC3,WASIR1,SNORA36A,FUNDC2	3	1378895	gain

Table S3: List of the genes with expression values detected by targeted-RNAseq. 2 different duodenal tumor biopsies and reactive T-cells as control with a corresponding list of the genes located in the somatic CNV genomic loci.

Gene Name	Targeted RNAseq Expression Value			Fold Change (Tumor vs Tcell) (log2)	Somatic CNV Number (Duodenum vs 2015Blood)
	Duodenum Biopsy (June 2023)	Duodenum Biopsy (September 2023)	Reactive T-cells		
STK17B	7931.51	14919.17	0.01	20.12	3
CCK	482.69	295.35	0.01	15.25	No Change
CDX2	281.66	290.22	0.01	14.80	No Change
FGF10	38.13	60.78	0.01	12.27	3
FEV	25.47	62.34	0.01	12.10	No Change
CTRB2	0.01	66.48	0.01	11.70	1
FGF4	2.40	53.31	0.01	11.44	1
TLX3	0.21	54.89	0.01	11.43	No Change
DMRTA2	0.04	53.92	0.01	11.40	No Change
KRT8	14942.23	12922.94	6.73	11.02	No Change
TLX1	1.17	38.35	0.01	10.95	No Change
OLIG1	0.30	36.29	0.01	10.84	No Change
FGF3	0.17	34.61	0.01	10.76	1
FGF23	0.05	31.53	0.01	10.62	No Change
GRM3	0.07	30.73	0.01	10.59	3
OLIG2	0.16	27.96	0.01	10.46	No Change
IBSP	0.01	27.35	0.01	10.42	3
WNT8B	0.19	25.59	0.01	10.33	No Change
HMGA2	6.72	16.86	0.01	10.20	3
DMRT1	0.01	22.20	0.01	10.12	No Change
PHOX2B	1.69	19.04	0.01	10.02	No Change
METTL7B	155.68	179.42	0.17	9.91	No Change
SSX2B	0.01	17.67	0.01	9.79	No Change
IL3	0.01	16.39	0.01	9.68	3
ADGRG7	383.86	506.80	0.57	9.60	3
CEACAM8	0.38	14.94	0.01	9.58	No Change
SSX4	0.15	11.89	0.01	9.23	No Change
KLK2	0.09	7.94	0.01	8.65	1
PRKCG	14.05	30.65	0.06	8.62	1
SLC34A2	56.50	22.90	0.11	8.55	No Change
GABRG2	1.41	6.02	0.01	8.54	3

NKX2-1	0.01	40.68	0.06	8.48	No Change
ATP1B4	0.01	6.68	0.01	8.39	No Change
AGR3	640.19	464.11	1.73	8.32	3
XKR3	0.91	5.26	0.01	8.27	No Change
AFP	0.11	5.92	0.01	8.24	3
NKX2-5	0.01	39.89	0.07	8.20	No Change
SLCO1B3	0.22	5.59	0.01	8.18	3
KRT19	10711.88	8425.61	34.09	8.13	No Change
SCGB2A2	0.01	5.56	0.01	8.12	No Change
PROM1	198.84	149.50	0.72	7.92	No Change
PRKACG	0.11	52.17	0.11	7.89	No Change
EPCAM	8410.01	7035.73	32.95	7.87	No Change
SPP1	103.40	449.00	1.18	7.87	3
GYPA	0.01	4.57	0.01	7.84	3
TMPRSS2	367.74	522.93	2.00	7.80	No Change
CTRB1	0.35	54.45	0.12	7.80	1
CXCL8	355.49	262.95	1.40	7.79	3
HNF1A	72.25	88.38	0.37	7.77	No Change
PLA2G2A	2898.75	2584.90	12.57	7.77	No Change
HOXD13	0.01	23.99	0.06	7.74	1
FGF19	0.07	20.90	0.05	7.71	1
FGF6	0.01	55.97	0.14	7.66	No Change
DLL3	0.72	60.59	0.18	7.40	1
GDF6	1.63	36.36	0.13	7.21	No Change
PAX5	0.02	2.92	0.01	7.20	No Change
DUSP26	4.47	26.88	0.11	7.13	No Change
GFAP	0.35	38.96	0.15	7.03	No Change
NUTM1	0.07	24.27	0.10	6.87	No Change
NR5A1	0.02	20.88	0.09	6.83	No Change
CDX1	493.76	421.24	4.10	6.80	No Change
DKK4	36.41	93.63	0.61	6.74	No Change
MPO	1.36	44.45	0.22	6.71	No Change
CSF3	7.87	28.67	0.18	6.68	No Change
PCA3	0.43	21.73	0.11	6.62	No Change
SSX1	0.01	1.95	0.01	6.61	No Change
H3-3A	0.01	1.94	0.01	6.61	No Change
CPS1	1344.29	1527.51	15.55	6.53	3
PAX7	0.01	37.12	0.21	6.45	No Change
KLK3	0.98	19.88	0.12	6.43	1
MYH11	1484.37	702.06	12.89	6.41	No Change
WT1	0.06	23.71	0.14	6.38	No Change

TERT	3.31	55.47	0.36	6.37	1
CXXC4	6.57	20.35	0.18	6.25	3
ITPKA	109.57	129.37	1.59	6.23	No Change
B3GAT1	33.07	63.49	0.65	6.21	No Change
PTPRR	34.35	39.53	0.52	6.14	3
GZMA	4595.95	5057.75	69.56	6.12	3
FGF8	0.15	32.61	0.24	6.07	No Change
ALK	4.69	25.49	0.24	5.95	No Change
GATA6	210.77	213.51	3.47	5.93	No Change
GRIN2B	1.10	31.93	0.27	5.91	No Change
LEFTY2	0.08	42.56	0.37	5.86	No Change
EPHA10	25.43	47.23	0.64	5.83	No Change
CD38	362.62	321.00	6.03	5.82	No Change
PRDM7	0.04	9.35	0.08	5.82	1
FGF9	4.19	10.59	0.14	5.73	No Change
CEBPE	2.67	64.51	0.71	5.57	No Change
ROS1	1.59	8.71	0.11	5.56	3
NODAL	0.09	28.00	0.30	5.54	No Change
DNTT	0.17	9.77	0.11	5.51	No Change
FRMPD4	0.32	22.79	0.29	5.30	3
BTBD18	0.20	21.73	0.29	5.26	No Change
IFNG	208.37	283.28	6.45	5.25	3
MUC1	2728.57	2859.51	73.68	5.24	No Change
IDO1	3269.57	6096.93	125.66	5.22	No Change
CD19	0.41	16.17	0.23	5.17	1
IGFBP2	977.23	833.71	25.52	5.15	No Change
SOX11	0.18	21.15	0.30	5.14	No Change
GRM1	0.13	28.35	0.41	5.13	3
FGFR4	205.59	193.77	5.91	5.08	No Change
FCRL4	0.12	7.32	0.12	5.00	No Change
FCGR3A	383.00	324.64	11.47	4.95	No Change
MME	109.92	142.00	4.24	4.89	3
MNX1	52.26	94.57	2.49	4.88	1
TPO	11.97	44.00	1.01	4.80	No Change
DUSP9	0.27	51.12	0.94	4.77	1
OLR1	16.60	13.05	0.56	4.72	No Change
HEPH	737.12	884.32	31.13	4.70	3
LGR5	50.29	64.45	2.23	4.69	3
CREB3L1	522.82	543.94	20.81	4.68	No Change
LHX4	0.67	19.78	0.42	4.62	No Change
PDCD1	191.61	290.27	10.00	4.59	1

IL13RA2	31.88	10.86	0.90	4.58	3
ACSL6	40.04	61.34	2.16	4.55	3
ZIC2	0.63	66.60	1.45	4.53	1
PRDM16	67.48	90.47	3.47	4.51	1
DACH2	2.23	31.03	0.74	4.49	3
PTCRA	1.89	72.83	1.71	4.45	No Change
ANPEP	5402.39	8929.71	334.23	4.42	No Change
PLAT	699.70	372.63	25.13	4.42	No Change
HGF	175.11	134.20	7.27	4.41	3
TNFRSF17	0.08	10.37	0.25	4.41	No Change
SH3GL2	1.68	5.01	0.16	4.37	No Change
LDHC	0.98	12.04	0.33	4.31	No Change
PPARG	238.20	201.40	11.21	4.29	No Change
FCGR1A	165.82	192.02	9.25	4.27	No Change
ALDH1A1	1260.30	1404.63	70.29	4.24	3
MECOM	527.84	397.48	25.22	4.20	3
LAG3	622.53	519.66	31.72	4.17	No Change
LHX2	2.78	37.31	1.12	4.16	No Change
EGR4	1.21	70.14	2.16	4.05	No Change
PRSS3	0.31	0.01	0.01	4.02	No Change
SFRP4	8.07	33.14	1.28	4.01	3
PAK5	1.25	18.76	0.65	3.95	3
LAMA1	21.38	22.30	1.42	3.94	No Change
IL6	116.65	78.59	6.55	3.90	No Change
SULF1	324.48	404.21	25.17	3.86	3
CTNND2	17.90	37.41	1.98	3.80	No Change
SH2D5	0.65	17.16	0.64	3.80	No Change
POU5F1	27.40	56.91	3.21	3.71	3
CD247	444.94	458.08	35.23	3.68	No Change
IL1B	241.72	775.37	40.30	3.66	3
GATA1	3.64	51.24	2.22	3.63	No Change
FBN2	21.13	66.83	3.56	3.63	3
ETV4	95.77	103.37	8.15	3.61	No Change
PPP3R2	0.15	10.53	0.45	3.58	3
CSF3R	291.04	260.13	23.38	3.56	No Change
CYP2C19	561.71	359.45	39.27	3.55	No Change
POU2AF1	19.11	23.83	1.88	3.51	No Change
PTGS2	573.96	134.38	31.59	3.49	3
LUC7L2	0.09	0.14	0.01	3.46	No Change
CD22	12.44	21.12	1.53	3.45	1
ACVR1C	12.54	16.12	1.34	3.42	3

NKX3-1	4.28	19.86	1.15	3.39	No Change
MPL	0.74	12.46	0.64	3.38	No Change
SMAD6	48.81	87.97	6.60	3.37	No Change
CDKN2A	35.29	162.03	9.58	3.37	3
AKR1C3	473.46	766.83	61.68	3.33	3
PAX8	2.75	9.02	0.59	3.33	3
AURKA	186.40	177.63	18.57	3.29	No Change
UPK3A	2.52	35.60	1.97	3.27	1
CDC25A	45.33	44.78	4.82	3.22	No Change
INHBA	162.18	187.58	18.92	3.21	No Change
FGF2	159.21	54.93	11.82	3.18	3
MYCN	26.44	85.57	6.38	3.13	No Change
IGF1	134.20	104.49	13.77	3.12	3
NTF3	10.72	49.45	3.47	3.12	No Change
HOXA11	0.03	23.17	1.37	3.08	1
DACH1	121.03	163.74	17.66	3.01	3
BDNF	13.51	18.54	2.03	2.98	3
SYP	21.11	36.84	3.76	2.95	No Change
HOXD11	0.01	28.29	1.88	2.91	1
ACE	281.30	350.21	42.39	2.90	1
WNT6	1.24	72.47	4.98	2.89	No Change
TAL2	2.64	31.12	2.31	2.87	No Change
DTX1	19.95	57.76	5.40	2.85	No Change
FOXL2	0.03	29.50	2.08	2.83	No Change
CD68	4429.17	3710.32	586.18	2.80	1
KCNB1	3.20	32.49	2.58	2.79	No Change
CD2	2094.92	2300.83	318.72	2.79	3
TSHR	7.95	28.37	2.64	2.78	3
NEURL1	23.26	47.96	5.19	2.78	No Change
THBS1	4443.68	1419.29	438.06	2.74	3
MTUS2	4.21	22.52	2.01	2.73	No Change
GNG4	0.95	0.61	0.12	2.71	No Change
SCN8A	3.98	16.29	1.56	2.70	No Change
NUTM2B	19.63	168.80	14.67	2.68	No Change
BCL2A1	160.48	306.07	36.44	2.68	No Change
TNFRSF11A	247.50	203.67	35.57	2.66	No Change
FGF14	5.64	8.74	1.14	2.66	3
IL13	0.20	9.47	0.77	2.65	3
PRMT8	0.17	5.93	0.49	2.65	No Change
SPRY4	57.52	62.69	9.67	2.64	No Change
PPARGC1A	53.81	47.97	8.22	2.63	3

LDHB	5295.56	5290.34	855.34	2.63	3
TTK	154.79	123.43	22.51	2.63	3
PRF1	887.80	808.13	137.85	2.62	No Change
KALRN	158.56	176.28	27.28	2.62	No Change
MAD2L1	298.40	245.16	44.79	2.60	3
FASLG	173.87	255.62	35.59	2.59	3
FRK	180.69	191.28	30.97	2.59	3
H4C9	2310.26	2289.02	386.43	2.57	3
IKZF3	164.33	201.15	30.97	2.56	3
TENT5C	139.24	159.57	25.34	2.56	3
SERP2	26.10	31.64	4.93	2.55	3
TCL1A	0.01	9.37	0.81	2.54	No Change
AMH	6.94	78.26	7.37	2.53	1
EPHA7	14.15	37.24	4.46	2.53	3
PIMREG	31.35	71.85	9.04	2.51	No Change
CD70	31.09	70.05	8.89	2.51	No Change
HAVCR2	635.35	595.12	108.30	2.51	3
RHOH	256.99	363.41	54.91	2.50	3
JAK3	453.54	625.23	95.49	2.50	1
CCNA2	423.32	376.24	71.41	2.49	3
CD3E	1119.26	1285.27	218.97	2.46	3
UBE2C	338.57	290.02	57.35	2.45	1
NAPSA	31.64	52.14	7.65	2.45	1
H2AC16	7184.93	5564.50	1167.11	2.45	3
NFYC	0.04	0.07	0.01	2.45	No Change
USP6	0.56	10.70	1.03	2.45	1
DKK1	29.86	22.50	4.83	2.44	3
NAMPT	0.10	0.01	0.01	2.42	No Change
FUT4	113.09	144.96	24.14	2.42	3
SF3A1	0.04	0.16	0.02	2.40	No Change
CD3D	1886.91	1869.31	364.81	2.36	3
TLL2	4.45	17.82	2.17	2.36	No Change
LINGO2	0.64	17.57	1.80	2.34	3
TG	12.29	33.56	4.54	2.34	3
H2BC17	4520.22	3318.11	777.96	2.33	3
NDC80	194.49	184.16	37.59	2.33	3
RASGEF1A	46.74	67.34	11.39	2.32	1
LHFPL3	0.24	29.18	2.97	2.31	No Change
TYMS	556.14	541.34	111.12	2.30	No Change
CD24	4091.72	2020.48	619.51	2.30	No Change
PLCG2	334.99	325.14	67.16	2.30	No Change

GTSE1	142.66	155.66	30.40	2.29	1
GZMB	1874.74	2420.21	438.20	2.29	3
CXCR4	1339.31	949.91	235.12	2.28	3
EPHA3	45.02	65.15	11.36	2.28	3
MELK	205.56	177.84	39.74	2.27	No Change
H2AC17	5856.96	4892.47	1118.96	2.26	3
KNL1	222.02	191.35	43.57	2.25	No Change
TRHDE	8.01	36.34	4.68	2.25	3
HSPA5	4370.09	4630.80	949.92	2.24	No Change
IDH1	775.79	845.77	173.59	2.22	No Change
LRRC59	637.53	705.30	144.22	2.22	1
NGF	1.94	40.68	4.60	2.21	3
TAL1	2.23	20.30	2.43	2.21	No Change
EDIL3	176.75	227.59	43.85	2.21	3
ATP8A2	5.94	10.98	1.85	2.20	No Change
CDC25C	25.58	33.49	6.48	2.19	No Change
MYO1F	839.34	814.39	182.61	2.18	1
PLA2G5	2.48	5.73	0.91	2.17	No Change
CD28	113.40	127.44	26.70	2.17	No Change
SOX2	4.10	49.07	5.92	2.17	No Change
LCK	680.13	681.80	151.64	2.17	No Change
NOS3	109.37	71.42	20.18	2.16	No Change
GLI1	12.66	52.72	7.31	2.16	No Change
ITGB3	90.93	111.89	22.74	2.16	No Change
ARHGAP26	228.43	218.55	50.43	2.15	3
H2BC11	6292.95	5381.24	1322.35	2.14	3
HOXA13	0.59	37.54	4.34	2.13	1
MKI67	1421.04	1235.96	303.82	2.13	No Change
LYN	426.35	532.59	109.67	2.13	No Change
AURKB	233.46	262.34	56.71	2.13	No Change
ITGA2B	2.30	24.62	3.11	2.12	No Change
CD3G	499.43	450.11	109.98	2.11	3
CARD11	394.85	472.51	100.57	2.11	No Change
SLC45A3	44.60	70.72	13.40	2.11	No Change
PIK3CD	356.67	430.28	92.16	2.09	No Change
CDK1	411.18	345.73	89.14	2.09	3
RAC2	1100.24	1324.67	286.88	2.08	No Change
CD7	122.04	146.06	32.10	2.06	1
RASGRF2	40.79	40.67	9.81	2.05	No Change
ARHGAP20	18.98	25.66	5.50	2.02	3
RNF213	3153.96	4315.55	920.77	2.02	No Change

TNFRSF10B	203.79	217.68	52.01	2.02	No Change
GOT1	366.79	409.23	96.41	2.01	No Change
TNFRSF9	66.34	93.04	20.04	1.99	No Change
IRF1	745.10	1158.52	239.57	1.99	3
P2RY8	63.70	81.70	18.43	1.98	No Change
BUB1B	183.50	184.15	46.79	1.97	3
BLM	118.99	111.48	29.37	1.97	No Change
TFRC	1128.92	812.11	248.07	1.97	No Change
CD14	852.05	520.90	176.10	1.96	No Change
HECW1	3.13	34.12	4.81	1.95	No Change
CHEK1	116.02	88.45	26.43	1.95	No Change
LNP1	5.64	10.44	2.09	1.95	3
PTPRC	2957.26	3317.01	814.34	1.95	3
FEN1	270.27	284.33	72.44	1.94	1
ANGPT1	20.26	37.58	7.56	1.94	3
H3C2	3931.84	3154.70	926.38	1.94	3
CDKN1C	54.56	92.80	19.32	1.93	No Change
HDAC1	1245.27	1167.76	317.28	1.93	No Change
TACC3	567.23	655.96	161.15	1.92	No Change
CANT1	556.94	547.17	145.70	1.92	1
SDHA	1462.61	1502.57	391.34	1.92	1
CASP3	378.28	420.70	105.49	1.92	No Change
CMKLR1	93.26	87.41	23.87	1.92	No Change
IL21R	68.98	94.04	21.56	1.92	No Change
PRPF8	0.06	0.02	0.01	1.91	1
GBP1	1681.12	2814.45	602.54	1.90	3
FGF1	1.40	2.38	0.51	1.90	No Change
PRKCB	511.05	658.89	157.38	1.89	3
BHLHE22	4.51	35.78	5.46	1.88	3
DGKI	4.62	10.78	2.09	1.88	3
TOP2A	611.84	600.34	164.59	1.88	No Change
DTX4	128.78	164.38	39.92	1.88	3
SOD2	6676.43	4735.57	1556.00	1.87	No Change
CAMK2B	5.54	10.26	2.19	1.85	No Change
H2AC11	9790.97	7223.04	2362.87	1.85	3
IRAG2	149.69	147.63	41.32	1.85	3
RPS6KA1	627.10	615.97	174.17	1.84	No Change
HIF1A	2483.83	1616.93	583.17	1.81	3
MYB	356.18	298.34	93.59	1.81	3
CALR	9392.22	13535.31	3294.10	1.80	1
CACNA1F	2.75	24.42	3.96	1.78	No Change

H1-3	2850.41	3478.81	921.83	1.78	3
TCF7L2	475.78	410.33	129.93	1.77	3
MCAM	259.40	260.72	76.89	1.76	No Change
STAT4	129.90	105.82	35.01	1.75	3
FHL2	756.15	589.43	200.49	1.75	No Change
NTRK1	7.64	49.67	8.55	1.75	No Change
EVI2B	0.06	0.01	0.01	1.74	3
CHST11	146.37	208.17	52.96	1.74	No Change
ICAM1	469.80	766.06	187.92	1.72	1
RANBP17	33.11	31.54	9.84	1.72	No Change
IKZF1	470.71	643.75	169.95	1.71	3
ABCC3	796.29	675.60	224.58	1.71	1
RAD51	41.61	44.10	13.17	1.70	No Change
FZD2	23.66	63.46	13.50	1.69	No Change
IRS4	0.73	38.91	6.17	1.68	3
CENPF	340.68	351.64	107.88	1.68	3
BIN1	347.46	387.12	115.38	1.67	No Change
PAG1	185.81	219.63	63.71	1.67	3
RGS7	4.48	3.89	1.32	1.67	No Change
BAIAP2L1	428.29	387.15	128.64	1.66	1
CBLB	568.72	654.64	193.05	1.66	3
ATRNL1	14.76	57.47	11.43	1.66	3
STIL	186.75	165.16	56.24	1.65	No Change
H2BC5	11708.62	9696.43	3427.71	1.64	3
FGF13	10.45	20.10	4.90	1.64	No Change
EPO	0.10	14.98	2.42	1.64	1
BCAS4	19.07	29.69	7.86	1.63	1
CARMIL2	126.91	181.89	49.85	1.63	No Change
LPXN	353.43	380.50	118.62	1.63	3
XBP1	2881.84	2307.32	844.26	1.62	No Change
GPC3	26.31	42.49	11.21	1.62	No Change
CREB3L2	353.38	321.91	110.32	1.61	3
H2AX	520.51	385.14	148.51	1.61	No Change
SDHB	785.68	812.48	263.43	1.60	No Change
TRAF3	0.09	0.01	0.02	1.60	No Change
ITGAX	276.98	258.33	88.60	1.59	1
PCLO	98.43	108.13	34.51	1.58	3
CIP2A	145.59	135.64	47.20	1.57	3
GNA12	243.94	225.16	78.92	1.57	No Change
SOCS2	91.93	71.74	27.58	1.57	No Change
STAT1	3026.35	3797.88	1153.10	1.57	3

ACSL3	412.96	367.19	132.39	1.56	3
BAX	890.00	945.09	312.57	1.55	1
FHIT	33.20	50.82	14.35	1.55	3
FANCA	126.52	133.75	44.48	1.55	1
PHB	679.81	635.60	228.34	1.53	No Change
CCND2	429.37	535.72	167.55	1.53	No Change
PTTG1	496.29	554.79	183.13	1.52	3
CCDC88C	520.55	669.37	207.52	1.52	No Change
ETS1	740.24	739.60	258.57	1.52	3
CYFIP2	220.17	265.29	85.21	1.51	3
PC	104.38	107.16	37.19	1.51	1
HSP90AA1	6875.30	7305.77	2508.87	1.50	No Change
FLNC	113.81	77.03	33.86	1.49	No Change
DGKZ	883.98	884.71	314.80	1.49	No Change
B2M	55876.22	62980.02	21208.58	1.49	No Change
VCAM1	366.10	630.26	178.39	1.48	3
KDR	111.33	125.27	42.43	1.48	No Change
EYA1	1.36	6.59	1.42	1.48	3
LASP1	633.80	719.82	243.05	1.48	No Change
MET	435.11	234.12	120.29	1.48	3
DLL4	42.59	68.67	20.06	1.47	No Change
RASGRF1	1.85	18.45	3.67	1.47	No Change
FCER2	1.98	25.57	5.00	1.46	1
TNFRSF10D	40.74	45.45	15.66	1.46	No Change
GNA11	442.54	356.13	145.68	1.45	1
RCSD1	358.84	476.03	152.55	1.45	No Change
CD5	235.03	279.61	94.70	1.44	No Change
CTNNB1	3459.08	2710.39	1143.69	1.43	No Change
RASGRP1	428.29	473.53	167.75	1.43	3
INPP4B	339.85	458.16	149.80	1.41	3
MFNG	129.14	143.73	51.27	1.41	1
PRKCA	105.72	106.18	39.90	1.41	No Change
RUNX2	86.97	122.20	39.56	1.40	3
VEGFD	9.93	10.55	3.88	1.40	3
ASTN2	19.77	49.19	13.12	1.39	3
SRRM3	2.73	31.28	6.48	1.39	1
PCNA	966.74	853.89	347.14	1.39	No Change
SOCS3	260.66	243.16	96.67	1.38	1
CD4	612.21	651.65	243.19	1.38	No Change
H2BC12	6477.89	5406.17	2290.38	1.38	3
INPP5D	406.56	428.92	162.72	1.36	No Change

DPP4	246.58	233.47	93.61	1.36	3
CD274	66.92	106.80	33.98	1.35	3
DGKB	1.48	5.63	1.40	1.35	3
IDH2	2722.83	2207.06	969.54	1.35	No Change
AKAP12	410.32	173.56	115.19	1.34	No Change
RPA3	89.39	70.42	31.62	1.34	3
RPN1	2003.46	1942.37	781.48	1.34	No Change
RNF43	166.42	200.74	73.89	1.31	No Change
DAB2IP	452.11	547.16	201.67	1.31	No Change
TLR4	175.28	138.73	63.71	1.30	3
CASP8	556.72	685.42	252.50	1.30	No Change
ZAP70	512.27	692.10	247.04	1.29	No Change
PATZ1	167.32	212.28	78.02	1.28	No Change
IL15	32.72	28.64	12.66	1.28	3
KIAA1549	20.98	31.72	10.89	1.27	No Change
SORBS2	72.43	68.62	29.20	1.27	No Change
SOCS1	144.05	266.75	85.28	1.27	No Change
ANLN	276.02	265.56	112.95	1.26	No Change
ENG	529.40	506.19	216.26	1.26	1
NFATC2	346.38	420.23	160.20	1.26	3
CYP1B1	37.23	52.25	18.72	1.26	3
PDE4DIP	854.36	811.89	348.67	1.26	No Change
RMI2	28.29	49.22	16.34	1.25	No Change
ZRSR2	335.81	463.07	169.37	1.24	3
ATIC	526.65	518.92	221.82	1.24	No Change
FLT1	212.11	200.81	87.64	1.24	3
NGFR	25.82	42.35	14.47	1.24	No Change
WDR1	1922.47	1975.60	831.87	1.23	No Change
COX6C	632.98	567.37	256.51	1.23	3
PPP2R2B	125.42	163.11	61.69	1.23	3
NSD2	435.87	435.26	186.27	1.23	No Change
RYR3	5.03	18.13	4.95	1.23	No Change
INPP4A	354.90	383.14	157.89	1.22	No Change
WNT11	10.87	50.94	13.34	1.21	1
NCAM1	50.06	47.86	21.16	1.21	No Change
MAGED1	765.03	831.64	345.11	1.21	No Change
HMGA1	858.47	769.20	352.64	1.21	No Change
LRPPRC	641.97	582.15	265.46	1.21	No Change
CEP85L	247.69	268.74	112.12	1.20	3
H2BC4	12701.18	9776.45	4880.74	1.20	3
CDH11	278.30	389.98	145.48	1.20	3

MDH1	796.63	846.97	358.10	1.20	3
BMP4	149.89	242.35	85.53	1.20	3
ITGA5	246.06	203.44	98.19	1.19	No Change
GRB2	302.48	289.57	129.93	1.19	No Change
MMP9	328.49	414.25	163.01	1.19	1
FANCD2	149.91	145.69	64.97	1.19	No Change
HERPUD1	1272.97	937.22	488.69	1.18	No Change
FSTL3	26.62	34.58	13.56	1.17	1
ATG5	220.82	213.79	96.45	1.17	3
NBN	542.79	550.98	242.90	1.17	3
EPOR	23.33	55.79	17.59	1.17	1
PMS1	252.53	234.93	108.70	1.17	3
KLHL6	47.88	61.38	24.39	1.16	No Change
TNFRSF6B	415.61	342.56	169.47	1.16	1
TOP1	1158.76	1116.19	510.48	1.16	No Change
CHCHD7	83.56	78.65	36.40	1.16	No Change
LMO7	1296.89	1079.96	533.62	1.16	3
RPN2	1741.84	1532.36	736.56	1.15	No Change
CDC14B	44.54	38.95	18.79	1.15	No Change
HLA-DRB1	8327.11	8963.12	3894.31	1.15	3
BRCA1	111.68	103.06	48.55	1.14	No Change
HEY1	11.06	45.75	12.91	1.14	3
CD8A	118.49	95.20	48.76	1.13	No Change
PAK1	356.54	370.30	165.98	1.13	No Change
FANCI	172.27	152.78	74.25	1.13	No Change
H1-2	5005.25	4815.90	2246.69	1.13	3
TPM3	1098.84	1287.15	546.47	1.13	No Change
ITGAE	46.53	37.14	19.20	1.12	1
FH	640.99	641.14	294.42	1.12	No Change
POLD4	176.97	178.10	81.64	1.12	1
PLCB1	61.11	70.25	30.24	1.12	3
ZFTA	15.30	48.63	14.73	1.12	No Change
TRIM27	266.41	275.64	125.22	1.11	3
SERPINE1	127.16	93.81	51.08	1.11	1
TNFRSF14	616.02	654.14	294.06	1.11	1
EED	448.75	447.61	207.73	1.11	3
CASP7	341.00	401.15	172.23	1.11	3
NTRK3	5.15	20.01	5.89	1.09	3
SDHD	657.04	661.08	309.85	1.09	No Change
FLT4	37.66	65.05	24.18	1.09	No Change
HMGB1	1970.10	2451.58	1041.79	1.09	No Change

SPECC1	222.15	274.18	117.05	1.08	No Change
LGALS3	5970.88	5216.15	2640.98	1.08	3
PDGFRA	319.62	461.67	185.12	1.08	No Change
BRCA2	137.65	116.12	60.19	1.08	No Change
BCL2L1	523.74	517.19	247.39	1.07	No Change
LRP5	525.81	495.60	242.94	1.07	1
MLLT3	97.46	114.32	50.44	1.07	3
NDUFAF1	177.26	201.86	90.54	1.07	No Change
MLLT11	8.34	12.56	5.00	1.06	No Change
GANAB	1046.80	980.98	486.38	1.06	No Change
FANCB	52.02	51.82	24.91	1.06	3
KRAS	121.05	105.51	54.47	1.06	3
BIRC3	582.55	883.45	352.54	1.06	3
FZD8	25.69	73.06	23.79	1.05	No Change
LRRK2	208.05	203.26	99.19	1.05	3
SMC1A	488.92	525.04	245.18	1.05	No Change
PTPRO	33.09	51.85	20.54	1.05	3
AKAP6	40.61	21.76	15.12	1.04	3
FANCF	94.64	139.88	56.86	1.04	3
NUTM2A	22.60	167.92	46.32	1.04	No Change
VEGFA	179.94	219.46	97.21	1.04	No Change
FGFR1OP	0.03	0.01	0.01	1.04	No Change
GRB10	61.72	67.15	31.53	1.03	No Change
BRSK1	19.54	35.89	13.62	1.02	1
PIK3CG	237.57	263.74	123.51	1.02	No Change
TCTA	42.92	70.12	27.87	1.02	No Change
HIPK2	219.32	190.53	101.46	1.01	No Change
ATM	433.32	467.54	224.42	1.01	3
METTL18	127.36	120.22	61.70	1.00	3
HNRNPA2B1	5739.02	6207.07	2978.79	1.00	No Change
CCNE1	63.81	63.21	31.68	1.00	No Change
CENPU	142.38	128.66	67.67	1.00	No Change
CD79A	1.40	23.66	6.29	0.99	No Change
BCL10	357.54	248.38	152.39	0.99	3
ITGA8	38.81	42.03	20.45	0.98	No Change
SPN	143.96	166.73	78.63	0.98	1
XPO1	885.94	807.36	430.12	0.98	No Change
C11orf54	199.60	189.34	98.80	0.98	3
KPNB1	1380.13	1260.95	671.36	0.98	No Change
RELN	22.06	28.21	12.79	0.98	No Change
MMP7	74.21	52.99	32.35	0.98	3

SMARCA5	589.82	544.27	288.59	0.97	3
PIK3R1	352.09	355.34	180.07	0.97	3
PPP2R1B	439.29	426.73	221.04	0.97	No Change
CCNG1	459.47	431.39	228.18	0.97	3
RCHY1	114.28	125.96	61.59	0.96	3
RNF217-AS1	0.01	0.03	0.01	0.96	3
SUV39H2	91.70	79.39	43.95	0.96	No Change
C10orf55	5.58	59.85	16.85	0.96	No Change
PCSK7	495.48	611.50	285.70	0.95	No Change
ATP6V1G2-DDX39B	19.72	60.18	20.69	0.95	3
EDNRB	270.60	246.18	134.80	0.94	3
HES5	1.09	17.76	4.92	0.94	1
PTCH1	76.28	105.99	47.66	0.94	No Change
LCP1	1609.38	1905.14	923.45	0.93	3
CAPZB	1441.83	1503.37	775.58	0.93	No Change
SEPTIN6	305.05	370.78	178.06	0.92	No Change
CIT	96.56	104.20	52.92	0.92	No Change
ZNF444	54.28	97.01	39.89	0.92	No Change
RAD52	60.65	67.88	34.00	0.92	3
PHF6	219.45	213.47	114.71	0.92	No Change
SPTBN1	2601.86	2485.33	1351.19	0.91	3
CHUK	275.73	251.64	140.22	0.91	No Change
FCGBP	4171.13	7909.12	3212.28	0.91	No Change
RET	15.21	43.76	15.72	0.91	1
SKP2	294.38	251.41	145.74	0.90	No Change
NPM1	3023.32	2747.50	1541.15	0.90	No Change
WNT10B	14.61	51.91	17.77	0.90	No Change
HOXA3	34.95	72.40	28.71	0.90	1
FANCC	46.50	55.18	27.28	0.90	No Change
LPP	197.02	150.07	93.29	0.90	3
TPM4	1396.28	1548.80	792.59	0.89	No Change
THRA	0.03	0.01	0.01	0.89	No Change
CCND3	342.27	437.27	210.90	0.89	No Change
EPHA5	0.54	12.76	3.60	0.88	3
TFPT	184.48	235.04	114.15	0.88	1
ID1	877.91	636.18	411.98	0.88	No Change
XIAP	132.85	128.63	71.67	0.87	No Change
AIP	519.87	547.85	292.77	0.87	1
MAP2K6	102.15	124.28	62.42	0.86	3
SRC	168.36	163.67	91.66	0.86	No Change
WDCP	46.36	52.71	27.38	0.86	No Change

RAD51D	52.26	75.72	35.46	0.85	No Change
BCL3	652.15	740.07	386.30	0.85	No Change
TGFBR2	787.98	700.68	414.84	0.84	3
ATR	282.67	296.15	161.71	0.84	3
CDKN1B	601.51	608.18	338.83	0.84	No Change
SLX4	86.38	126.66	59.99	0.83	No Change
CAMK2A	0.40	11.01	3.22	0.83	No Change
ETV1	17.85	23.08	11.58	0.82	3
NRG1	443.68	381.42	233.70	0.82	3
TERF1	175.95	208.02	108.89	0.82	3
RHOA	2565.57	2731.83	1502.54	0.82	No Change
TGFB3	53.20	46.20	28.23	0.82	No Change
TNFRSF4	123.13	232.98	101.45	0.81	1
CRADD	100.17	137.77	67.85	0.81	No Change
CHEK2	91.94	102.39	55.84	0.80	No Change
LRRC7	1.69	14.41	4.63	0.80	3
ADD3	605.10	617.88	351.90	0.80	3
MCL1	1974.23	1715.58	1062.75	0.80	No Change
IRF8	482.65	621.02	318.29	0.79	1
CARM1	299.44	253.59	159.80	0.79	1
DNMT1	676.14	693.04	395.67	0.79	1
OFD1	291.99	352.48	186.73	0.79	3
SBDS	860.11	595.48	421.79	0.79	No Change
TCF7	181.58	204.63	112.10	0.78	No Change
TEAD2	79.01	89.53	49.20	0.78	1
PLCB4	61.59	76.70	40.40	0.78	3
RUNX1	354.50	343.20	204.04	0.77	3
HSP90AB1	5403.85	5239.98	3116.37	0.77	No Change
MSI2	279.51	279.52	164.28	0.77	No Change
MAP2K3	578.08	461.69	305.80	0.77	1
ACVR1	0.02	0.01	0.01	0.77	3
CLTC	1352.15	1351.54	798.03	0.76	3
ST6GAL1	104.87	94.34	58.80	0.76	No Change
RBM15	489.07	536.52	302.88	0.76	No Change
CAMTA1	503.39	511.79	299.85	0.76	No Change
DEK	1503.99	1437.39	869.58	0.76	No Change
CD74	24542.57	22989.09	14069.07	0.76	No Change
MYD88	245.35	325.12	168.96	0.76	No Change
HHEX	64.10	101.27	49.02	0.75	No Change
NCSTN	486.97	475.99	286.04	0.75	No Change
SDHAF2	175.20	161.02	99.90	0.75	No Change

NT5C2	268.51	252.42	154.87	0.75	No Change
MAGEE1	18.01	85.60	30.81	0.75	No Change
DDX6	636.86	616.23	372.72	0.75	No Change
MYH9	5411.90	6347.71	3498.09	0.75	3
MAP2K2	1385.33	1368.64	819.93	0.75	1
IL2RA	135.11	63.40	59.12	0.75	No Change
CSF1	283.13	341.92	186.42	0.75	No Change
CKS1B	141.78	142.64	84.97	0.74	No Change
CCDC28A	136.23	125.77	78.42	0.74	No Change
GNA13	512.92	503.92	304.41	0.74	No Change
AHCYL1	483.99	470.81	286.00	0.74	No Change
BRIP1	62.79	60.63	36.99	0.74	3
RAD51C	185.31	217.91	120.94	0.74	No Change
CD47	397.69	411.41	242.78	0.74	3
CD52	1659.35	1319.92	895.45	0.73	No Change
CCL2	1506.61	1066.60	774.67	0.73	No Change
EIF4E	380.68	328.03	213.46	0.73	3
SQSTM1	1204.79	1223.81	731.77	0.73	No Change
PPP3CC	250.91	250.88	151.30	0.73	No Change
NCOA4	1049.33	1151.07	663.71	0.73	No Change
SGPP2	852.47	944.61	542.42	0.73	3
U2AF1	1175.30	1154.59	703.67	0.73	No Change
ZC3H7A	382.26	363.19	226.36	0.72	No Change
CLTA	1441.18	1487.13	889.40	0.72	No Change
RECQL4	93.74	121.66	65.44	0.72	1
PRKDC	876.93	775.93	502.96	0.72	No Change
MAPK9	195.42	183.40	115.51	0.71	No Change
ASPH	929.14	768.28	517.78	0.71	3
E2F1	75.28	73.55	45.57	0.71	1
PKM	4492.39	4180.39	2665.15	0.70	No Change
SET	1330.27	1345.39	822.38	0.70	1
SEPTIN2	722.94	837.18	480.72	0.70	1
TFG	987.48	911.04	585.21	0.70	3
MAPK3	1019.78	880.64	585.84	0.70	1
ELF4	221.58	212.37	134.04	0.69	No Change
ADM	39.70	65.47	32.50	0.69	No Change
RAD21	1032.64	924.57	606.20	0.69	3
JAK2	517.45	609.78	349.14	0.69	3
COL11A1	0.36	5.33	1.77	0.69	3
HSPA4	968.90	948.33	596.96	0.68	No Change
PTPRK	479.05	430.55	283.53	0.68	3

LDHA	7794.12	8204.20	4991.72	0.68	No Change
AK2	427.57	462.38	278.07	0.68	No Change
VHL	166.07	213.07	118.63	0.68	No Change
NPM2	11.92	37.65	15.54	0.67	1
EML4	812.92	905.02	539.49	0.67	3
PTPA	221.60	199.51	132.25	0.67	1
PRKG2	10.51	16.32	8.46	0.67	3
TET1	44.23	49.82	29.65	0.67	No Change
MDM2	209.85	198.70	128.80	0.67	No Change
LILRA4	4.46	33.51	11.99	0.66	1
EIF4A2	2180.63	1995.89	1322.43	0.66	No Change
TRIM24	271.44	241.65	162.84	0.66	No Change
SDHC	343.01	259.62	191.31	0.66	No Change
XRCC6	1633.30	1614.80	1032.04	0.65	No Change
AKT1	923.39	866.50	569.50	0.65	1
AK5	6.86	12.27	6.09	0.65	3
CD36	215.84	250.08	148.57	0.65	3
GPHN	116.95	111.65	72.91	0.65	3
CNTRL	308.10	378.01	219.27	0.65	3
H1-4	7426.73	7509.77	4777.51	0.64	3
RB1	373.12	318.22	221.29	0.64	3
PPP2CB	1044.75	788.75	587.87	0.64	No Change
TEAD4	146.16	124.19	86.69	0.64	No Change
MLH1	269.02	286.85	178.42	0.64	3
PCBP1	3594.13	3302.88	2216.85	0.64	No Change
CBFB	519.74	510.05	331.15	0.64	No Change
FUT1	17.03	30.92	15.45	0.63	1
MAP2K1	359.77	348.07	228.09	0.63	No Change
EZH2	351.80	371.51	233.68	0.63	3
TMEM230	178.26	143.27	103.94	0.63	No Change
CAPRIN1	1484.96	1321.07	908.00	0.63	No Change
FANCG	102.44	103.99	67.13	0.62	No Change
HDAC2	206.19	186.60	127.87	0.62	3
CD59	204.06	158.47	118.41	0.61	No Change
FRYL	406.37	402.75	264.36	0.61	3
TNFAIP3	599.96	560.27	379.48	0.61	3
KIF5B	1342.32	1228.33	842.54	0.61	No Change
SRSF3	960.99	964.83	631.34	0.61	No Change
PTK2	408.83	349.74	249.00	0.61	3
ETV5	40.00	56.16	31.58	0.61	No Change
RAP1GDS1	182.17	210.42	129.00	0.61	3

CAD	247.19	252.58	164.53	0.60	No Change
VSIR	138.83	134.53	90.02	0.60	No Change
RABEP1	549.54	524.28	353.98	0.60	No Change
DDIT3	273.01	266.15	178.37	0.60	No Change
POFUT1	74.96	88.48	54.08	0.60	No Change
ESR1	6.43	22.58	9.60	0.59	3
EXT2	335.92	310.49	214.27	0.59	3
PLAU	516.43	333.35	282.12	0.59	No Change
GNAS	4236.79	4110.24	2781.96	0.59	No Change
SNAPC3	228.38	271.69	166.83	0.58	No Change
MSH6	368.26	359.89	243.03	0.58	No Change
AFF3	49.05	69.83	39.69	0.58	No Change
SUZ12	415.76	394.26	270.59	0.58	No Change
CD200	26.94	23.69	16.91	0.58	3
MB21D2	126.07	120.95	82.57	0.58	3
OCLN	333.66	269.45	201.92	0.58	No Change
FLCN	208.77	275.92	162.30	0.58	No Change
VEGFC	47.41	46.00	31.34	0.58	3
STAT5B	403.50	397.37	268.82	0.57	No Change
STAT5A	408.08	427.75	281.56	0.57	No Change
CACNA1G	2.81	39.36	14.21	0.57	1
RPS6KA3	318.06	298.20	207.73	0.57	3
MAX	519.28	630.49	388.02	0.57	No Change
PSIP1	594.86	640.97	417.99	0.56	No Change
ZNF24	173.99	198.46	126.09	0.56	3
APLP2	1585.80	1648.55	1096.07	0.56	No Change
NIN	745.33	793.74	522.14	0.56	3
DDX3X	1447.08	1376.54	958.74	0.56	No Change
POT1	68.34	58.20	43.03	0.56	3
KDM6A	425.13	397.60	280.12	0.55	3
SHC1	376.32	398.02	263.85	0.55	No Change
VTI1A	67.17	79.01	49.82	0.55	3
GIT2	402.67	380.05	266.85	0.55	No Change
DUSP2	174.92	137.23	106.46	0.55	No Change
TNC	1355.32	540.96	649.95	0.54	3
CEP57	328.26	295.08	213.83	0.54	3
TMEM30A	502.75	439.54	323.40	0.54	3
DLEC1	3.45	20.28	8.15	0.54	No Change
EGF	2.17	9.49	4.01	0.54	No Change
SPRY2	200.59	158.51	123.51	0.54	No Change
COL6A3	1193.82	1981.61	1092.66	0.54	No Change

PAFAH1B2	650.06	637.19	443.04	0.54	No Change
CTNNA1	1852.05	1926.74	1301.11	0.54	No Change
WDR18	234.47	257.06	169.33	0.54	1
DPYD	444.24	471.18	315.39	0.54	3
MAPK8	92.74	69.57	56.08	0.53	No Change
ITGA7	84.35	88.58	59.76	0.53	No Change
ATF1	212.50	160.66	129.03	0.53	No Change
GMPS	500.29	421.06	319.54	0.53	3
SMARCB1	541.04	527.04	370.59	0.53	No Change
CD58	621.42	495.94	387.69	0.53	3
CRTC1	53.72	70.90	43.24	0.53	1
PTPN2	436.84	416.23	296.08	0.53	No Change
RICTOR	275.09	261.63	186.33	0.53	3
U2AF2	832.31	869.44	590.90	0.53	1
NF2	359.03	369.14	252.90	0.53	1
IFRD1	215.84	169.95	134.02	0.53	3
FANCL	148.94	137.56	99.72	0.52	3
SMAP1	258.42	268.77	183.69	0.52	3
FLI1	206.31	251.01	159.51	0.52	3
MTOR	352.12	374.45	253.45	0.52	No Change
DDR2	133.58	128.30	91.39	0.52	No Change
TUSC3	69.00	57.28	44.07	0.52	3
BIRC6	915.20	846.49	615.83	0.52	No Change
PTBP1	1247.93	1066.62	810.16	0.51	1
PPP3CB	457.40	490.40	331.85	0.51	No Change
IKBKE	135.83	178.74	110.33	0.51	No Change
CAMK2G	123.65	108.32	81.51	0.51	No Change
PSEN1	219.25	197.56	146.92	0.50	No Change
PRMT1	1144.53	897.83	720.30	0.50	1
MTAP	85.50	79.25	58.11	0.50	3
SORT1	177.08	174.90	124.30	0.50	No Change
SFPQ	3535.93	3623.07	2529.77	0.50	No Change
GBP2	1257.59	1483.65	969.59	0.50	3
PDCD1LG2	78.34	65.44	50.95	0.50	3
TACC1	250.76	243.91	175.40	0.50	No Change
GOSR1	104.92	89.88	69.14	0.49	3
ARIH2	211.16	201.87	146.70	0.49	No Change
NUP98	659.20	590.66	444.31	0.49	No Change
LYL1	25.41	54.11	28.28	0.49	1
CHMP2B	378.15	287.48	236.74	0.49	3
HOXA10	0.55	47.05	16.95	0.49	1

UFM1	82.46	74.94	56.11	0.49	3
DDX20	143.45	160.60	108.52	0.49	No Change
PDGFA	171.19	117.75	103.18	0.49	1
SPOP	193.38	200.19	140.71	0.48	3
KDM1A	487.31	458.20	338.95	0.48	No Change
TERF2	209.70	224.33	155.62	0.48	No Change
SNX9	474.21	342.29	292.85	0.48	No Change
PPM1D	115.68	123.12	85.78	0.48	No Change
CDC42	1336.21	1232.97	923.84	0.48	No Change
ITK	125.76	153.70	100.50	0.48	3
FIP1L1	542.97	631.34	422.38	0.48	No Change
ABL2	193.61	164.66	128.94	0.47	No Change
NUP107	292.85	312.13	217.89	0.47	No Change
POLR2H	182.34	155.47	121.68	0.47	No Change
POLD1	175.60	175.30	126.46	0.47	1
EWSR1	2366.69	2298.69	1684.64	0.47	No Change
PSD3	102.00	98.34	72.65	0.46	No Change
MNAT1	187.51	208.70	144.18	0.46	3
CLP1	116.89	155.28	99.14	0.46	No Change
DDX10	215.91	241.40	166.81	0.45	3
NUP93	240.43	266.71	185.27	0.45	No Change
PRKAR1A	1352.56	1399.74	1005.69	0.45	No Change
ARFRP1	129.97	148.77	101.86	0.45	1
RANBP2	1233.93	1146.25	871.31	0.45	No Change
HLA-DRA	14554.20	12327.87	9851.65	0.45	3
MAPRE1	519.12	500.11	374.16	0.45	No Change
CD8B	49.54	32.34	30.07	0.45	No Change
SYK	167.35	170.45	124.06	0.45	No Change
PPFIA2	9.10	12.20	7.83	0.45	3
KDM5C	643.10	669.10	482.33	0.44	No Change
NFATC1	264.45	304.47	209.25	0.44	1
H2AC6	5965.71	5333.47	4161.59	0.44	3
SARNP	410.15	452.48	319.07	0.43	No Change
AMER1	48.65	66.04	42.45	0.43	3
CTCF	479.61	514.33	368.65	0.43	No Change
CCNB3	2.61	10.15	4.73	0.43	No Change
TAF15	2242.55	2745.93	1852.06	0.43	No Change
MRE11	210.64	273.14	179.80	0.43	3
NCOA1	511.00	463.66	363.25	0.42	3
USP16	517.91	517.53	386.11	0.42	3
YWHAE	1634.50	1710.03	1248.46	0.42	1

NF1	367.22	312.49	253.77	0.42	3
LMO2	90.61	124.38	80.30	0.42	No Change
DAXX	526.65	599.70	420.96	0.42	No Change
NBR1	597.95	631.15	459.65	0.42	No Change
PDGFD	24.87	33.70	21.90	0.42	3
TTF1	151.53	160.08	116.64	0.42	No Change
SF3B1	2136.01	2260.33	1646.25	0.42	No Change
REEP3	276.67	229.71	190.04	0.41	3
WSB1	752.02	758.28	566.95	0.41	No Change
POMGNT1	233.19	192.86	160.05	0.41	No Change
GNAQ	180.72	174.89	133.64	0.41	No Change
CDC73	428.66	418.52	318.58	0.41	3
BCOR	369.44	437.20	303.75	0.41	No Change
SEC31A	938.56	876.86	683.80	0.41	No Change
PTPN11	702.32	594.87	489.18	0.41	No Change
PHF23	324.97	423.47	283.12	0.40	1
MIPOL1	45.97	41.63	33.25	0.40	3
NONO	1016.16	1080.03	796.70	0.40	No Change
PI4KA	501.00	519.41	388.96	0.39	No Change
CSNK2A1	244.94	241.94	185.63	0.39	3
THRAP3	960.36	1033.11	760.23	0.39	No Change
MSN	1386.27	1549.98	1120.61	0.39	3
NRAS	206.41	199.36	154.89	0.39	3
ZC3H7B	320.30	373.16	265.78	0.38	1
CDK4	307.34	278.48	224.65	0.38	No Change
CDK8	165.90	129.63	113.44	0.38	No Change
KMT2A	553.84	539.53	419.79	0.38	3
JUN	467.19	415.65	339.91	0.38	3
ATRX	531.13	553.88	418.10	0.38	No Change
MSH3	222.16	237.78	177.78	0.37	No Change
GOLGA5	429.38	410.55	324.85	0.37	No Change
CRTC3	109.71	125.27	90.94	0.37	3
MALT1	300.00	314.67	238.12	0.37	3
DPM1	647.65	577.11	474.85	0.37	3
DDX39B	1816.81	1969.83	1468.85	0.37	3
CDK5RAP2	289.61	336.03	242.86	0.37	3
THADA	392.26	407.09	310.75	0.36	3
DOT1L	315.76	297.48	238.73	0.36	1
MUTYH	118.54	136.86	99.48	0.36	No Change
MDC1	414.02	464.08	342.84	0.36	3
TRIP11	418.47	399.87	320.28	0.35	No Change

JAK1	1020.20	1043.43	807.80	0.35	No Change
MSH2	314.53	265.33	227.28	0.35	No Change
EPS15	689.99	743.81	562.27	0.35	No Change
PPP4C	696.42	632.01	521.32	0.35	1
ERCC4	46.68	57.04	40.75	0.35	No Change
SLC66A3	78.07	78.17	61.52	0.34	No Change
UTP4	333.05	279.61	241.68	0.34	No Change
DDX5	4492.52	4668.31	3613.92	0.34	No Change
UFC1	538.73	550.74	430.24	0.34	No Change
AXIN1	274.30	303.91	228.76	0.34	1
LMBRD1	538.53	400.55	372.39	0.33	3
TP53BP1	268.89	277.99	216.91	0.33	No Change
CDC14A	172.40	185.92	142.15	0.33	3
ERLIN2	90.34	97.87	74.73	0.33	No Change
ERCC5	623.49	776.30	555.85	0.33	3
EMSY	256.05	231.03	193.49	0.33	3
KIAA0232	279.44	257.13	213.59	0.33	No Change
MADD	427.78	370.74	318.04	0.33	No Change
PDGFB	27.60	50.67	31.20	0.33	1
SETBP1	150.34	193.13	136.95	0.33	3
KSR1	160.80	200.29	144.03	0.33	No Change
CSF1R	545.91	464.06	403.44	0.32	No Change
SMC3	586.28	519.81	442.01	0.32	3
FOXO1	175.67	245.42	168.85	0.32	3
TPD52L2	259.79	252.69	205.61	0.32	1
ETS2	1637.05	1313.13	1183.78	0.32	No Change
ASXL1	361.09	376.67	296.26	0.32	No Change
PBX1	117.03	92.69	84.36	0.31	No Change
MED12	331.31	340.79	270.87	0.31	No Change
CCAR2	464.75	513.10	394.34	0.31	No Change
IL3RA	41.77	76.05	47.54	0.31	No Change
RRM1	334.90	304.69	258.78	0.31	No Change
SUGP2	581.76	600.73	480.49	0.30	1
COG5	231.42	194.85	173.29	0.30	No Change
PDCD11	344.20	359.13	286.00	0.30	No Change
RHBDF2	273.18	300.21	233.48	0.30	No Change
SEPTIN9	1123.74	1031.84	878.41	0.30	No Change
TCEA1	488.52	510.49	407.36	0.29	No Change
NR6A1	12.19	13.23	10.38	0.29	No Change
DNMT3A	147.51	189.99	137.88	0.29	No Change
SNW1	480.49	501.22	402.00	0.29	No Change

TFDP1	693.12	583.60	523.00	0.29	1
RAC1	1151.42	1281.47	996.63	0.29	1
EXOSC6	60.65	122.20	74.94	0.29	No Change
PPP2R1A	1032.51	943.66	810.34	0.29	No Change
ARAF	397.49	402.89	328.63	0.28	No Change
PAPPA	31.89	64.95	39.90	0.28	3
CDK12	531.04	566.95	452.87	0.28	No Change
FOXP1	312.00	277.21	243.38	0.28	3
FGFR1OP2	275.22	259.71	221.12	0.27	3
EEFSEC	147.78	171.11	132.08	0.27	No Change
MEF2B	61.65	124.59	77.29	0.27	1
PBRM1	401.92	384.66	326.55	0.27	No Change
SPTAN1	1465.81	1278.17	1139.60	0.27	1
GOPC	149.03	169.46	132.44	0.27	3
PTEN	453.66	397.61	354.05	0.27	3
PML	610.25	867.96	615.00	0.27	No Change
LOX	49.82	62.28	46.76	0.26	3
ZFYVE19	113.97	125.40	100.07	0.26	No Change
TIRAP	113.06	141.05	106.55	0.25	No Change
CD81	1463.27	1258.97	1141.84	0.25	No Change
PICALM	1091.54	894.96	834.80	0.25	3
SGK1	706.33	644.72	568.36	0.25	3
FUS	652.37	733.58	583.71	0.25	1
PRKCD	507.18	562.62	450.78	0.25	No Change
BCR	378.63	375.33	318.11	0.24	No Change
USP7	711.03	680.56	587.46	0.24	No Change
CYLD	329.69	381.61	301.68	0.24	3
MAP2K5	107.45	112.71	93.38	0.24	3
CHD2	904.99	1098.45	849.90	0.24	3
CDKN2D	67.22	95.29	69.05	0.23	1
RAD50	360.65	352.70	303.23	0.23	3
PRSS8	671.38	595.71	539.26	0.23	1
PRDM1	391.88	393.18	334.19	0.23	3
NSD1	397.94	382.01	332.69	0.23	No Change
MATK	47.40	67.71	49.13	0.23	1
ITGB4	1992.40	1429.60	1460.68	0.23	No Change
PRICKLE1	26.89	37.80	27.64	0.23	No Change
TBL1XR1	450.41	423.33	373.55	0.23	3
NOTCH4	39.46	109.12	63.52	0.23	3
IRS1	138.73	186.77	139.17	0.23	3
PALB2	162.82	145.45	131.84	0.23	No Change

PTK2B	440.34	471.86	390.49	0.22	No Change
RTEL1	150.16	171.70	137.81	0.22	1
NSD3	547.97	494.46	446.36	0.22	No Change
ELK4	788.77	724.72	650.03	0.22	No Change
GRHPR	519.39	528.70	450.65	0.22	No Change
ENTPD1	171.43	179.29	151.11	0.21	No Change
CDKN2C	77.66	100.07	76.63	0.21	No Change
NFKB1	431.74	504.00	403.99	0.21	3
EPC1	278.16	283.64	242.70	0.21	No Change
PSMD2	992.90	961.39	847.64	0.21	No Change
DNM2	1615.26	1583.43	1389.35	0.20	1
SIK3	266.50	254.81	227.35	0.20	3
TAFA5	6.28	12.84	8.37	0.19	1
ZNF687	167.62	202.26	162.03	0.19	No Change
CPNE1	430.39	402.37	365.01	0.19	No Change
USP42	176.26	199.19	164.80	0.19	1
CTSA	1049.44	949.87	878.52	0.19	1
TOP2B	999.36	975.58	869.11	0.18	3
FANCM	82.35	89.37	75.66	0.18	3
STYK1	22.93	29.50	23.14	0.18	No Change
ETV6	184.13	220.85	178.82	0.18	No Change
MTCP1	3.82	7.09	4.82	0.18	3
CPSF6	765.97	832.37	707.18	0.18	No Change
PCM1	705.77	702.52	623.25	0.18	No Change
KEAP1	351.01	403.51	334.24	0.17	1
CDK6	67.55	81.84	66.31	0.17	3
ATG13	82.22	77.31	70.90	0.17	No Change
TMEM127	113.33	134.96	110.47	0.17	No Change
EYA2	10.41	16.05	11.78	0.17	No Change
ERCC2	86.79	104.35	85.17	0.17	1
LTBP1	286.57	195.57	214.91	0.17	No Change
TCF12	335.71	300.88	283.78	0.17	3
RELA	397.88	429.95	369.20	0.16	1
CBL	139.99	133.69	122.13	0.16	No Change
ASPSCR1	169.46	195.01	162.69	0.16	1
MN1	9.54	57.52	30.01	0.16	No Change
APC	317.28	279.65	267.19	0.16	No Change
ZNF217	588.72	636.79	548.58	0.16	No Change
SMARCA4	848.70	889.75	778.46	0.16	1
CD40	191.65	233.15	190.26	0.16	1
PPP1CB	1036.43	983.74	905.44	0.16	No Change

GPR34	141.48	152.13	131.75	0.16	3
NOD1	70.16	94.07	73.71	0.16	No Change
KDM5A	355.36	397.71	338.16	0.16	No Change
DICER1	477.03	418.67	402.25	0.15	No Change
FNBP1	389.69	408.67	359.50	0.15	No Change
EPHA2	580.27	301.84	397.58	0.15	No Change
RPS6KA2	76.71	73.94	67.94	0.15	No Change
CNBP	740.56	787.53	689.61	0.15	No Change
NUP214	346.42	359.26	319.07	0.15	No Change
EZR	2874.26	2590.86	2473.57	0.14	No Change
AXL	272.64	226.92	226.12	0.14	No Change
NIPBL	756.65	675.15	648.34	0.14	No Change
SMAD3	107.90	132.94	109.22	0.14	3
OGA	727.92	889.19	733.69	0.14	No Change
TAF1	360.49	428.15	357.90	0.14	No Change
MLLT6	362.46	457.22	372.22	0.14	No Change
RPTOR	144.18	159.15	137.79	0.14	1
SIRT1	258.56	281.51	245.78	0.14	3
STAG2	680.82	630.60	597.00	0.14	3
PRKACA	333.24	299.10	288.02	0.13	1
RBM6	886.11	951.00	838.16	0.13	No Change
KDM4C	310.96	345.20	299.54	0.13	3
CRKL	189.04	192.87	174.70	0.13	No Change
ZNF384	309.84	328.67	292.52	0.13	No Change
GADD45B	119.04	149.09	122.86	0.13	1
PPP3R1	349.85	307.12	301.20	0.13	3
DIRAS3	23.41	54.13	35.55	0.12	3
PLAG1	10.15	13.12	10.74	0.12	No Change
HDAC6	239.45	245.64	224.18	0.11	No Change
MAPK8IP2	7.81	55.64	29.33	0.11	1
SETD2	674.88	645.11	610.35	0.11	No Change
CDH1	1747.55	1753.09	1619.41	0.11	No Change
APH1A	380.86	315.44	322.43	0.11	No Change
ERG	58.59	71.14	60.11	0.11	No Change
PHF1	220.83	246.63	216.87	0.11	No Change
ZNF585B	46.95	48.62	44.39	0.11	No Change
MBNL1	835.76	877.92	796.23	0.11	3
ZNF207	1601.42	1412.84	1401.41	0.10	No Change
YTHDF2	649.63	617.77	589.41	0.10	No Change
FZD7	43.47	95.48	64.74	0.10	No Change
RCOR1	111.96	118.57	107.59	0.10	No Change

AHI1	290.67	228.84	242.98	0.10	3
BCL11B	329.03	395.37	340.16	0.09	No Change
MEF2D	219.91	204.23	199.35	0.09	No Change
TYK2	433.79	486.31	432.66	0.09	1
IRS2	131.37	183.80	148.30	0.09	No Change
TPR	827.63	804.28	768.69	0.09	3
ZMYM3	143.97	166.52	146.28	0.09	No Change
STAT3	827.70	881.44	805.97	0.08	No Change
STK11	308.51	296.72	285.66	0.08	1
BAZ2A	610.03	620.76	583.47	0.08	No Change
PLCG1	403.13	488.41	422.81	0.08	No Change
ATF3	73.34	66.28	66.22	0.08	No Change
FBXO31	47.16	62.36	51.99	0.07	1
CUX1	304.60	266.65	271.91	0.07	1
SMAD4	191.91	173.77	174.13	0.07	3
SMAD2	256.37	235.76	234.55	0.07	4
CARS1	277.56	292.79	272.30	0.07	No Change
ARID1A	878.61	828.49	815.22	0.07	No Change
PRCC	460.66	493.01	455.81	0.07	No Change
CDK7	218.27	168.99	185.10	0.06	No Change
TGFB2	7.80	10.99	9.04	0.06	3
GSK3B	165.61	162.82	158.11	0.05	3
SOS1	403.95	381.40	378.26	0.05	3
CEBPD	1257.74	774.96	980.16	0.05	No Change
TCF3	192.55	185.01	182.08	0.05	1
SMARCA1	105.57	98.45	98.50	0.05	3
MEN1	165.50	193.38	173.35	0.05	1
SRSF2	767.49	707.87	714.26	0.05	No Change
EP400	320.40	345.01	323.67	0.04	1
WDR90	137.91	147.88	139.10	0.04	1
CIITA	418.63	643.34	516.97	0.04	No Change
CILK1	147.61	149.60	144.72	0.04	3
AKAP9	738.71	687.15	694.67	0.04	3
ABL1	305.01	269.66	280.41	0.04	1
NCOA2	378.80	373.10	367.46	0.03	3
DLL1	120.51	172.31	143.67	0.03	1
NOTCH1	542.89	656.20	588.41	0.03	1
NCKIPSD	104.44	114.81	107.84	0.02	No Change
ELP2	240.33	246.40	240.27	0.02	No Change
TRAF2	0.19	0.76	0.47	0.02	1
ENPP2	330.72	246.15	285.66	0.01	3

CSNK1G2	371.50	353.02	358.99	0.01	1
MAP3K7	210.98	223.81	216.02	0.01	3
LAMP1	1309.99	1163.80	1230.77	0.01	1
EVI2A	0.01	0.01	0.01	0.00	1
MDS2	0.01	0.01	0.01	0.00	3
OPN1LW	0.01	0.01	0.01	0.00	No Change
PITX2	0.01	0.01	0.01	0.00	No Change
PRPF40B	0.01	0.01	0.01	0.00	No Change
RPL21	0.01	0.01	0.01	0.00	No Change
SSX2	0.01	0.01	0.01	0.00	No Change
SSX4B	0.01	0.01	0.01	0.00	No Change
TBX21	0.01	0.01	0.01	0.00	No Change
TCL1B	0.01	0.01	0.01	0.00	No Change
TCL6	0.01	0.01	0.01	0.00	No Change
TRAF5	0.01	0.01	0.01	0.00	No Change
TP53	271.45	299.71	286.20	0.00	1
UBE2B	292.72	196.46	245.73	-0.01	No Change
MLLT1	205.09	201.73	204.38	-0.01	1
PFDN5	1967.88	1782.59	1885.38	-0.01	No Change
FBXO11	521.71	460.84	494.42	-0.01	No Change
MDM4	144.83	157.47	152.18	-0.01	No Change
FZD3	21.05	16.39	18.97	-0.02	No Change
WDR70	236.43	256.89	250.51	-0.02	No Change
KAT6A	486.79	543.80	523.37	-0.02	3
CDK9	293.10	354.90	329.53	-0.02	1
WNT5B	8.68	47.95	28.90	-0.03	No Change
FLNA	3593.65	2771.09	3265.47	-0.04	1
RPL22	1241.79	1308.94	1310.62	-0.04	No Change
CD33	78.81	109.56	96.89	-0.04	No Change
COMMD1	215.42	226.75	227.63	-0.04	No Change
STX5	226.84	213.67	227.16	-0.04	No Change
RRM2B	53.73	58.06	57.65	-0.04	3
BCORL1	59.19	86.47	75.23	-0.05	No Change
TEAD1	53.62	46.40	51.70	-0.05	No Change
ID3	197.96	203.19	207.40	-0.05	No Change
BRWD3	189.08	184.79	193.31	-0.05	3
COL9A3	13.95	26.05	20.70	-0.05	1
ZMYND11	471.10	457.97	481.17	-0.05	3
EP300	906.94	840.40	905.12	-0.05	1
IL1R1	339.86	153.29	256.07	-0.05	No Change
YY1AP1	644.87	628.82	663.25	-0.06	No Change

FAS	247.30	292.59	281.59	-0.06	3
DIS3L2	251.27	279.69	278.04	-0.07	No Change
FAF1	312.33	280.30	310.84	-0.07	No Change
SH3BP1	390.29	392.77	410.83	-0.07	1
PPP3CA	299.67	256.89	293.30	-0.08	3
PASK	126.42	155.89	149.15	-0.08	1
INPP5A	112.17	89.90	106.90	-0.08	1
HUWE1	919.20	910.57	973.60	-0.09	No Change
TTL	75.66	59.59	72.09	-0.09	3
S1PR2	21.17	39.98	32.64	-0.09	1
NR3C1	414.62	434.26	453.67	-0.10	3
SIN3A	339.41	377.84	383.61	-0.10	No Change
XPA	173.19	189.48	194.32	-0.10	No Change
CREB1	123.12	120.10	130.55	-0.10	No Change
ACACA	176.24	168.71	185.45	-0.10	No Change
SP3	818.80	647.37	790.95	-0.11	No Change
MAP2K4	107.08	90.53	106.64	-0.11	3
GTF2I	783.00	681.39	790.41	-0.11	1
PTPN6	395.27	447.15	455.08	-0.11	No Change
PIK3CB	283.78	249.06	288.04	-0.11	No Change
DDX41	335.71	370.73	383.42	-0.12	No Change
PIK3CA	253.40	204.00	248.38	-0.12	No Change
TAFA2	3.75	2.09	3.18	-0.12	3
IL7R	121.19	102.43	121.90	-0.12	No Change
MEAF6	109.00	100.28	114.10	-0.12	No Change
BCL9	86.47	101.72	102.84	-0.13	No Change
MRTFA	227.86	251.59	262.04	-0.13	No Change
GATA2	32.19	52.92	46.53	-0.13	No Change
ARID2	467.21	407.57	478.84	-0.13	3
CD79B	10.64	36.95	26.09	-0.13	1
ZFP64	163.75	240.59	221.67	-0.13	No Change
LAMP2	585.94	476.31	583.72	-0.14	No Change
YPEL5	262.18	272.24	294.44	-0.14	No Change
AFF4	520.35	443.00	533.10	-0.15	No Change
TFEB	58.03	79.54	76.39	-0.15	No Change
NFKB2	425.93	586.18	562.08	-0.15	No Change
KMT2D	625.01	641.86	704.13	-0.15	No Change
ERCC3	326.31	348.41	376.68	-0.16	No Change
NAPA	499.77	460.77	537.00	-0.16	1
TSC2	334.48	365.74	391.78	-0.16	1
RAF1	368.29	330.17	390.82	-0.16	1

USP5	320.75	332.47	365.74	-0.16	No Change
RAD51B	65.07	62.83	71.73	-0.17	3
BRD4	793.83	768.54	876.30	-0.17	No Change
KMT2B	387.42	441.98	465.32	-0.17	1
PEG3	13.31	20.79	19.13	-0.17	No Change
TRPS1	204.35	214.28	235.09	-0.17	3
TRIM33	419.18	410.32	467.21	-0.17	3
FOXO3	209.31	220.90	242.71	-0.17	No Change
ELL	115.19	132.59	140.13	-0.18	1
BMPR1A	134.89	117.61	142.81	-0.18	No Change
MAP2K7	113.78	112.30	128.28	-0.18	1
ITGAV	438.35	428.47	492.66	-0.18	3
TFE3	166.29	188.45	201.91	-0.19	No Change
IKBKB	322.59	393.57	407.77	-0.19	No Change
MAPK1	659.73	553.54	691.32	-0.19	1
ZNF703	522.35	409.76	531.63	-0.19	No Change
PMS2	128.16	146.00	156.38	-0.19	1
FOS	783.49	287.06	610.71	-0.19	No Change
ABI1	724.32	692.26	811.45	-0.20	No Change
SRF	197.85	193.88	224.54	-0.20	No Change
CHIC2	186.87	150.16	193.44	-0.20	No Change
SATB2	36.88	38.35	43.22	-0.20	No Change
FBXW7	940.15	985.79	1113.85	-0.21	4
ZNF331	91.60	68.10	92.41	-0.21	1
RTN3	373.80	249.64	361.24	-0.21	1
MIB1	232.98	245.36	277.34	-0.21	3
KAT6B	200.37	214.31	240.56	-0.21	No Change
IQCG	62.53	66.56	74.90	-0.21	No Change
CNOT2	359.09	323.18	396.41	-0.22	3
RPS21	9272.15	6624.27	9265.60	-0.22	1
KMT2C	639.49	582.74	712.91	-0.22	1
STAT6	742.16	720.37	854.63	-0.22	No Change
WASF2	380.78	385.13	447.94	-0.23	No Change
SP1	498.73	484.14	575.78	-0.23	No Change
FOXO4	90.87	103.59	114.28	-0.23	No Change
LEF1	71.87	97.47	99.56	-0.23	3
WWOX	186.01	192.48	222.64	-0.23	No Change
BTG1	1054.20	780.39	1083.46	-0.24	3
CREBBP	632.40	625.30	744.55	-0.24	1
HIPK1	700.40	642.90	797.21	-0.25	3
MAML1	269.76	259.93	314.42	-0.25	No Change

POM121	278.53	270.59	326.12	-0.25	No Change
NCR1	14.95	61.82	45.71	-0.25	1
ITGAM	58.37	58.26	69.51	-0.25	1
CBFA2T3	30.92	61.70	55.29	-0.26	1
DCLK2	20.15	24.76	26.99	-0.27	3
ZMYM2	435.75	359.15	478.09	-0.27	3
AKT3	228.23	186.50	249.92	-0.27	No Change
ERBB4	1.50	6.22	4.65	-0.27	3
FRS2	124.74	109.18	141.13	-0.27	No Change
EXT1	661.13	495.88	699.48	-0.27	3
RREB1	405.31	386.14	478.54	-0.27	No Change
PTPRA	477.44	432.87	550.86	-0.28	1
TGFBI	1189.41	831.07	1228.07	-0.28	No Change
BACH1	453.22	423.46	533.64	-0.28	3
BTK	51.69	50.73	62.38	-0.28	No Change
MGMT	166.25	215.53	232.95	-0.29	No Change
SPEN	568.54	530.02	671.57	-0.29	No Change
TAOK1	244.40	212.27	279.23	-0.29	No Change
LRIG3	322.11	354.23	413.60	-0.29	3
SDC4	289.16	308.12	369.50	-0.31	No Change
CDKN1A	154.61	145.15	185.69	-0.31	No Change
CDK2	127.75	104.61	145.28	-0.32	No Change
AFDN	485.84	510.23	622.98	-0.32	1
AHR	858.95	499.58	852.38	-0.33	3
FOSL1	181.48	101.37	178.46	-0.34	1
ARHGEF7	162.14	210.78	235.39	-0.34	No Change
ELOVL2	0.60	2.56	2.01	-0.35	No Change
ANKRD28	145.51	126.03	173.27	-0.35	3
FGFR1	133.71	107.97	154.48	-0.35	No Change
PDGFRB	130.73	208.71	217.67	-0.36	No Change
MUC16	26.15	32.09	37.37	-0.36	No Change
C11orf1	90.85	81.36	110.64	-0.36	No Change
CCNB1IP1	162.02	126.42	185.92	-0.37	No Change
BAG4	148.85	140.13	186.39	-0.37	No Change
CCT6B	10.68	19.57	19.53	-0.37	No Change
NDE1	168.35	177.45	223.55	-0.37	No Change
HDAC4	79.37	113.31	125.41	-0.38	1
ERBB3	561.11	509.21	705.15	-0.40	No Change
CHN1	28.32	34.66	41.53	-0.40	No Change
NR4A3	115.99	64.17	119.05	-0.40	3
BRAF	207.60	193.07	264.77	-0.40	No Change

C2CD2L	160.72	160.68	212.93	-0.41	No Change
SNCG	37.15	36.98	49.16	-0.41	No Change
CHD6	208.67	231.29	292.90	-0.41	1
BRD1	370.94	408.02	518.64	-0.41	1
ALDH2	1521.60	1355.42	1921.06	-0.42	No Change
HOXC11	0.88	37.98	25.99	-0.42	No Change
WRN	100.95	101.82	135.78	-0.42	3
HDAC7	224.58	221.50	299.18	-0.42	No Change
CEBPB	855.90	539.87	938.94	-0.43	No Change
CBLC	392.31	337.74	491.22	-0.43	1
BCAS3	140.67	141.26	191.04	-0.44	3
PIK3R2	158.84	159.43	216.00	-0.44	1
COL3A1	1651.58	3939.31	3799.89	-0.44	3
HDAC3	198.85	167.78	249.31	-0.44	No Change
PAK3	7.57	7.94	10.64	-0.46	3
FANCE	34.07	56.48	62.47	-0.46	No Change
LHFPL6	66.94	116.77	127.25	-0.47	3
LPAR1	214.28	183.71	275.90	-0.47	No Change
NCOA3	267.68	251.17	359.73	-0.47	3
HOXD9	0.60	50.04	35.28	-0.48	1
NUMA1	985.60	1016.08	1396.70	-0.48	No Change
AKT2	188.22	164.14	245.96	-0.48	1
PPP1R13B	172.20	190.25	253.23	-0.48	No Change
CCDC6	286.03	308.49	415.80	-0.48	3
ZFPM2	32.85	28.82	43.14	-0.48	3
HOOK3	73.11	66.63	97.85	-0.49	No Change
NACA	4905.23	3512.29	5899.90	-0.49	No Change
AFF1	399.41	406.44	567.11	-0.49	3
WNT2B	80.04	97.60	125.66	-0.50	No Change
ALDOC	94.72	114.68	148.64	-0.51	No Change
TSC1	72.38	78.10	107.16	-0.51	No Change
ASMTL	157.14	170.18	233.69	-0.51	No Change
YAP1	452.29	316.59	549.50	-0.52	3
MYO18A	512.30	526.08	745.79	-0.52	No Change
NCOR2	798.97	741.84	1112.15	-0.53	No Change
ARNT	229.31	189.37	304.20	-0.54	No Change
GRID1	12.00	35.50	34.60	-0.54	3
HSPA1A	3036.19	1932.78	3633.07	-0.55	3
DNM3	19.12	30.77	36.48	-0.55	3
BRD3	147.27	170.83	232.82	-0.55	1
CTLA4	49.20	47.46	70.96	-0.55	No Change

CACNA2D3	3.14	6.73	7.25	-0.55	No Change
DNAJB1	624.75	403.78	755.29	-0.55	1
LRP1B	1.64	8.00	7.08	-0.55	3
BICC1	68.33	77.22	107.15	-0.56	3
XPC	266.52	326.42	438.37	-0.56	No Change
STRN	99.55	95.57	144.57	-0.57	3
SS18	320.44	277.43	444.27	-0.57	No Change
KDSR	109.20	113.44	166.34	-0.58	3
MBTD1	85.31	86.33	128.37	-0.58	No Change
MACROD1	87.66	104.52	144.02	-0.58	1
MYC	683.92	619.57	976.90	-0.58	3
ERCC6	83.50	94.40	133.62	-0.59	No Change
BTG2	176.00	179.35	267.33	-0.59	No Change
SLC7A5	149.47	109.19	194.97	-0.59	1
NFKBIA	1487.65	1707.06	2412.56	-0.59	No Change
TNF	76.87	119.19	148.39	-0.60	3
GRIN2A	2.24	13.86	12.19	-0.60	No Change
CEP170B	495.40	466.05	732.65	-0.61	1
MEF2C	60.22	67.28	97.30	-0.61	3
CDKL5	35.96	44.53	61.48	-0.61	No Change
RAC3	46.60	65.04	85.71	-0.62	1
TET2	337.65	320.24	505.67	-0.62	3
SOX10	19.67	65.67	65.99	-0.63	1
SH3D19	456.95	464.40	718.21	-0.64	No Change
GID4	15.00	33.48	37.81	-0.64	No Change
CTDSP2	151.56	132.85	222.41	-0.65	No Change
SRGAP3	13.38	23.94	29.24	-0.65	3
CIC	317.27	351.46	524.51	-0.65	1
SETD7	82.98	68.52	119.23	-0.65	No Change
KDM2B	228.39	259.13	384.24	-0.66	No Change
LRRC37B	98.35	106.68	162.20	-0.66	No Change
ABLIM1	220.72	187.50	326.12	-0.68	3
MLLT10	280.52	256.58	429.85	-0.68	3
ERCC1	429.31	337.12	615.94	-0.68	1
BAP1	265.24	269.98	430.40	-0.69	No Change
JARID2	204.95	255.38	371.03	-0.69	3
MAFB	195.15	199.87	318.53	-0.69	No Change
PLEKHM2	277.29	256.52	430.75	-0.69	No Change
SHC2	48.29	64.31	91.05	-0.69	1
PIM1	199.84	247.80	362.57	-0.70	No Change
KTN1	1193.40	1018.47	1796.13	-0.70	3

LIFR	69.87	68.25	112.58	-0.71	No Change
NFE2L2	1431.55	1112.80	2086.34	-0.71	3
EPHB1	19.63	47.95	55.90	-0.73	No Change
MAML2	161.02	178.19	280.76	-0.73	3
CD34	80.47	119.15	165.28	-0.73	No Change
NFIB	158.56	131.77	240.51	-0.73	3
MYBL1	29.39	26.95	46.71	-0.73	3
FLT3LG	164.29	207.22	308.26	-0.73	1
BACH2	8.10	25.11	27.68	-0.74	No Change
HES1	391.41	410.46	670.60	-0.74	No Change
ELN	30.76	55.90	72.80	-0.75	1
RUNX1T1	19.80	31.37	43.07	-0.75	3
MAP3K14	162.49	213.55	316.50	-0.75	No Change
BCL7A	17.73	19.51	31.40	-0.75	No Change
LFNG	168.70	160.38	278.20	-0.76	1
ERC1	133.55	128.31	222.00	-0.76	3
ZNF521	58.27	65.17	104.88	-0.76	No Change
IRF2BP2	672.74	613.95	1100.32	-0.77	No Change
WWTR1	142.29	113.36	218.62	-0.77	3
HSPA1B	2964.08	1911.54	4180.57	-0.78	3
CCND1	356.51	393.64	643.67	-0.78	1
CHL1	112.01	108.12	189.78	-0.79	3
SHTN1	230.99	191.49	366.11	-0.79	No Change
RARA	159.16	143.81	262.77	-0.79	No Change
ADGRA2	80.88	154.31	204.46	-0.80	No Change
SNX29	68.16	71.85	122.24	-0.80	No Change
TENM1	6.90	20.39	23.86	-0.81	3
PTK7	137.09	202.44	297.00	-0.81	No Change
BARD1	112.16	107.36	192.35	-0.81	3
SUFU	78.36	88.62	147.25	-0.82	No Change
COL1A2	1260.91	2677.01	3474.62	-0.82	3
SH3GL1	280.64	270.57	486.95	-0.82	1
HIP1	35.73	42.56	69.19	-0.82	1
ARHGEF12	483.44	450.82	827.84	-0.83	3
HOXC13	0.01	33.24	29.58	-0.83	No Change
JAZF1	45.77	51.57	86.77	-0.83	No Change
RALGDS	473.91	454.31	829.81	-0.84	1
TNFRSF8	2.39	21.90	21.83	-0.85	No Change
ACVR1B	84.40	78.36	147.18	-0.85	No Change
ZMIZ1	244.66	232.03	432.13	-0.86	No Change
ECT2L	0.13	3.26	3.16	-0.90	No Change

WDFY3	181.29	154.18	313.03	-0.90	3
MAP3K1	294.62	258.51	526.98	-0.93	No Change
GSN	1893.45	2063.74	3773.58	-0.93	3
BCL2	100.25	231.38	317.30	-0.94	3
FLYWCH1	256.39	357.76	592.22	-0.95	1
CD9	1652.70	856.15	2425.30	-0.95	No Change
CDKN2B	11.71	46.59	56.43	-0.95	3
HTRA1	134.09	220.64	348.11	-0.97	No Change
PPFIBP1	123.43	106.25	225.59	-0.97	3
DUSP22	96.06	91.79	186.17	-0.99	No Change
BTLA	4.21	8.80	12.90	-0.99	3
RTEL1-TNFRSF6B	13.82	5.47	19.20	-0.99	1
TEC	35.72	34.42	70.43	-1.01	3
PLPP3	128.26	121.04	256.02	-1.04	No Change
SERPINF1	594.61	535.83	1184.22	-1.07	1
COL1A1	1016.62	3508.15	4805.96	-1.09	1
NEDD4	80.62	94.46	186.76	-1.09	No Change
MRTFB	138.19	135.55	294.06	-1.10	3
CEBPA	170.94	174.09	376.62	-1.13	1
SS18L1	44.38	45.88	99.81	-1.15	1
FZD10	8.84	61.73	78.60	-1.16	1
EGR2	34.54	66.18	113.83	-1.18	3
DOCK1	286.80	268.40	628.33	-1.18	No Change
PRG2	5.82	43.62	56.06	-1.18	No Change
RTL8B	13.83	35.28	56.13	-1.19	No Change
BCL2L2	52.71	46.45	114.76	-1.21	No Change
HAS2	64.50	94.96	184.59	-1.21	3
PDK1	68.31	71.47	162.09	-1.21	No Change
ERBB2	380.87	370.35	873.75	-1.22	No Change
WEE1	182.73	158.79	397.38	-1.22	No Change
KIT	84.75	57.54	165.95	-1.22	No Change
KLRC1	4.53	3.10	8.91	-1.22	No Change
GAS7	76.19	63.62	167.03	-1.26	No Change
NDRG1	551.63	442.51	1199.71	-1.27	3
TIAM1	155.10	286.26	534.79	-1.28	3
SMO	24.49	66.35	114.30	-1.33	No Change
RERG	16.61	24.05	51.63	-1.34	3
NAB2	96.54	123.19	279.00	-1.34	No Change
KRT17	551.21	313.13	1104.63	-1.35	No Change
TGFBR3	103.40	71.07	223.46	-1.36	3
IGF1R	128.96	82.42	273.84	-1.37	No Change

TP73	13.98	34.39	62.67	-1.37	1
HRAS	236.54	260.15	644.94	-1.38	1
NOTCH2	391.79	374.58	995.97	-1.38	3
EML1	33.22	28.03	79.69	-1.38	1
RHOD	106.47	87.96	254.80	-1.39	1
HSPA2	104.37	158.64	348.20	-1.40	No Change
CD44	2071.63	1711.72	5038.74	-1.41	4
GAB1	107.80	101.97	281.51	-1.42	3
ROBO1	240.73	288.97	720.20	-1.44	3
MITF	66.69	70.74	187.35	-1.45	3
ICOS	20.67	22.01	58.69	-1.46	No Change
FZD6	123.66	140.66	368.89	-1.48	3
MYCL	32.37	63.99	134.65	-1.48	No Change
IRF4	26.52	43.27	98.43	-1.50	No Change
VGLL3	13.32	15.71	41.01	-1.50	3
IL1RAP	53.71	68.79	176.50	-1.53	3
SMAD5	0.05	0.01	0.09	-1.54	No Change
CAV1	175.04	180.01	515.73	-1.54	3
DDB2	123.51	163.79	418.83	-1.54	No Change
CLTCL1	10.15	20.18	44.27	-1.55	1
DCN	962.13	1257.46	3259.29	-1.55	3
NTF4	0.08	59.42	87.44	-1.56	1
ARRDC4	75.39	101.16	259.94	-1.56	3
ATL1	28.66	28.09	83.68	-1.56	3
TACC2	337.33	283.18	920.09	-1.57	No Change
ACVR2A	69.05	57.87	188.48	-1.57	3
ACKR3	79.76	95.83	263.34	-1.58	No Change
PER1	98.02	183.17	427.32	-1.60	No Change
TEAD3	75.13	77.07	233.23	-1.62	No Change
ROBO2	5.68	35.57	63.48	-1.62	3
MAF	342.80	405.55	1157.11	-1.63	No Change
PAX3	0.24	45.26	71.04	-1.64	3
TBX15	1.42	12.65	21.99	-1.64	3
CD40LG	11.43	24.98	58.92	-1.69	No Change
SLC1A2	1.78	4.35	9.93	-1.70	4
CRLF2	6.19	17.70	39.15	-1.71	No Change
EBF1	22.28	32.18	90.22	-1.73	3
RASAL1	29.17	48.81	132.29	-1.76	No Change
DNM1	52.58	76.38	221.76	-1.78	1
BCL6	277.77	324.39	1054.37	-1.81	3
ZBTB16	21.23	119.57	247.97	-1.82	No Change

APOD	190.89	159.92	628.32	-1.84	No Change
MLF1	13.02	11.57	44.69	-1.86	3
PRRX2	11.21	52.58	117.12	-1.88	1
IL2	3.52	5.53	16.75	-1.89	3
SDC1	416.99	335.53	1430.32	-1.93	3
MS4A1	0.10	3.21	6.33	-1.94	3
MCM3AP	0.02	0.01	0.06	-1.97	1
SFRP2	172.94	80.44	519.74	-2.04	No Change
HDAC5	66.51	66.87	273.91	-2.04	No Change
EGR1	760.74	372.01	2371.14	-2.07	No Change
GNAI1	135.00	100.87	497.69	-2.08	3
CKB	219.41	138.08	756.13	-2.08	No Change
GAS1	3.18	46.66	106.38	-2.09	No Change
SSBP2	26.28	23.22	107.75	-2.12	No Change
BCL11A	88.84	131.07	486.52	-2.15	No Change
NAV3	6.22	13.91	45.20	-2.17	3
FCGR2B	63.82	75.18	316.19	-2.19	No Change
OMD	7.69	13.69	50.12	-2.23	No Change
AUTS2	79.00	91.57	407.46	-2.26	No Change
LAMA5	153.60	218.72	909.32	-2.29	1
GHR	9.23	19.11	69.70	-2.30	3
IGFBP3	133.19	98.21	573.10	-2.31	No Change
EGFR	292.21	230.74	1309.95	-2.32	No Change
PRRX1	20.65	26.11	119.45	-2.35	3
DKK2	1.86	17.14	48.75	-2.36	3
MAP3K6	88.19	105.11	529.06	-2.45	No Change
WIF1	0.42	17.94	50.47	-2.46	3
GLI3	33.62	59.59	258.72	-2.47	No Change
WNT10A	3.51	38.56	117.31	-2.48	No Change
FLT3	3.67	11.11	41.40	-2.49	No Change
AR	2.00	12.45	40.76	-2.50	3
PAK6	40.60	88.39	371.87	-2.53	No Change
KLF4	303.50	319.53	1948.02	-2.64	No Change
GATA3	166.81	250.65	1349.35	-2.69	3
FGFR2	81.45	103.50	598.40	-2.69	No Change
JAG2	41.93	75.85	399.34	-2.76	1
FOXP3	9.66	31.94	143.76	-2.79	No Change
DST	627.19	562.66	4167.78	-2.81	3
IL12RB2	5.28	12.41	62.10	-2.81	3
ID4	30.26	43.75	262.79	-2.83	No Change
PPP1R13L	220.76	205.04	1560.21	-2.87	1

IKZF2	25.10	26.90	197.91	-2.93	3
FOSB	15.08	16.40	128.03	-3.02	1
WNT7B	0.43	22.06	92.30	-3.04	1
POSTN	44.24	220.57	1109.13	-3.07	3
KRT6B	5.62	105.18	475.72	-3.10	No Change
NOTCH3	117.71	182.90	1347.22	-3.16	No Change
HOXA9	0.51	37.59	179.40	-3.24	1
MAP2	11.81	21.38	172.02	-3.37	3
WNT16	3.13	32.49	194.14	-3.45	3
WNT4	7.07	36.62	238.67	-3.45	No Change
KLK7	86.22	146.76	1276.70	-3.45	1
LMO1	0.08	18.23	104.57	-3.51	No Change
ACSBG1	4.04	26.57	187.93	-3.62	No Change
EGFR3	35.22	58.27	583.98	-3.64	No Change
NTRK2	2.61	14.27	107.85	-3.68	No Change
HLF	2.63	10.35	101.47	-3.97	No Change
ACP3	15.76	24.12	313.16	-3.97	3
WNT3	4.76	23.54	229.32	-4.02	No Change
ACER1	1.62	21.75	234.97	-4.33	1
CNTN1	7.98	9.27	193.55	-4.49	3
FGFR3	92.32	105.03	2570.29	-4.70	No Change
SEPTIN5	25.58	16.33	585.85	-4.81	1
EPHB6	18.82	58.52	1266.78	-5.03	3
CD1A	0.27	11.61	262.04	-5.46	No Change
KRT16	52.07	58.87	3527.99	-5.99	No Change
ARG1	0.51	5.70	439.22	-7.14	3
TP63	4.36	23.73	2168.98	-7.27	3
IGLL5	0.65	0.01	65.01	-7.62	No Change
KRT6A	1.71	70.56	8752.21	-7.92	No Change
MLANA	0.05	0.79	140.93	-8.39	3
KRT2	2.76	47.74	10596.41	-8.71	No Change
KRT10	56.30	128.91	141799.55	-10.58	3
KRT5	0.29	72.09	55881.45	-10.59	No Change
KRT1	0.90	132.81	112555.25	-10.72	No Change

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