

## The miR-200c/141-ZEB2-TGF $\beta$ axis is aberrant in human T-cell prolymphocytic leukemia

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## **Supplementary Methods**

### **Immunophenotyping and cytomorphologic analysis**

Fresh peripheral blood and BM or cryopreserved PBMC of T-PLL patients and healthy donors were stained using the 8-color EuroFlow T cell Chronic Lympho-Proliferative Disease (T-CLPD) panel (1). Acquisition was performed on a FACSCanto II flowcytometer (BD Biosciences) and the data was analyzed with Infinicyt software (Cytognos), as previously described (1). All six files were merged. Using the backbone markers, T-PLL cells were discriminated from normal T cells. Calculations were performed on T-PLL cells only. The T-PLL phenotype was compared to the phenotype of 6 normal T cell developmental stages (CD4+ and CD8+ naïve, memory and effector T cells) from healthy individuals and visualized as multidimensional principal component plots (so-called Automated Population Separator (APS) views). TGF $\beta$ R1, TGF $\beta$ R2 and TGF $\beta$ R3 expression on human PBMCs and T-PLL cells was evaluated using ab235178 (Abcam) and PE-conjugated Goat F(ab')<sub>2</sub> anti-rabbit (4052-09, Southern Biotech), APC-conjugated FAB241A-100 (R&D Systems) and PE-conjugated FAB242P (R&D Systems) antibodies, respectively. For morphological analysis, blood smears were stained with May-Grünwald-Giemsa as described (2).

### **Fluorescence *in situ* hybridization analysis and cytogenetics**

DNA fluorescence *in situ* hybridization was performed according to the manufacturer's instructions on fresh or thawed mononuclear cells using probes specific for 11q22/ATM, 17p13.1/*TP53* or 14q32 (Vysis LSI p53 / LSI ATM / TCL1, Abbott Laboratories). For karyotyping, bone marrow or peripheral blood specimens were examined for chromosomal abnormalities using standard G- or R-banding techniques. Results were described according to ISCN 2013 guidelines.

## **T cell receptor gene rearrangement analysis**

Genomic DNA (Sigma GenElute Mammalian DNA kit) and/or total RNA was isolated (total RNA kit, Sigma) from PBMC fractions of T-PLL samples. Identification of *TRB* gene rearrangements and complementarity determining region 3 (*CDR3*) regions was performed on genomic DNA according to the multiplex BIOMED-2 protocol (InVivoScribe (3)) followed by Sanger sequencing (ABI 3100 Genetic Analyzer) and analyzed using CLC Main Workbench (Qiagen). The acquired nucleotide sequences were aligned to a current database (IMGT/V-Quest) to assign TRBV, TRBD, and TRBJ genes and reading frames of the gene rearrangements. cDNA synthesis was performed using 10x CA buffer (0.2 M Tris pH8.3, 0.5M KCl), 25 mM MgCl<sub>2</sub> (Applied Biosystems Life Technologies), 100 mM dithiothreitol (Invitrogen Life Technologies), 100 μM random primers (Invitrogen), 10 U/μL recombinant RNAsin (Promega), 200 U/μL reverse transcriptase Superscript II (Invitrogen Life Technologies) and 20mM dNTP (GE Healthcare). cDNA was then amplified using a constant region reverse *Cα* primer and 54 different *Vα* family-specific forward primers, divided over five different multiplex tubes as previously described (4). The acquired nucleotide sequences were aligned to the IMGT/V-Quest database to assign TRAV and TRAJ genes and reading frames of the gene rearrangements. Circoletto software (<http://circos.ca>) was used to analyze the data and to identify any skewing of the TCR rearrangements within the T-PLL patient cohort.

## **Lentiviral miRNA expression vectors and transduction of Jurkat and HeLa cells**

The MIR200C/141 cluster was first amplified with primers miR-200c/141\_FW4: 5'-CCGTGGAATCTGGGGCCTTAAAGC-3' and miR-200c/141\_RV3: 5'-TCTTCCTCATGTTCCCCTTC-3'. Next, a nested PCR was performed with primers miR-200c/141\_FW2: 5'-TGGGTAAATCGGTGTGTGTC-3' and miR-200c/141\_RV2: 5'-

CGGGAAGACAATGGAGGTG-3'. To link the SV40 promoter to the miR-200c/141 sequence, a 30 nucleotide overhang was generated, using pBSV40-miR-200C/141\_FW: 5'-GGCTTTTGC AAAAAGCTTACCATGACCGAGTGGGTAAATCGGTGTGTGTC-3' and miR-200c/141\_RV2. Adding AgeI and NheI restriction sites to the insert was done with primers MSCV-SV40-NheI-FW: 5'-GCTAGCTGTGGAATGTGTGTCAGTTAG-3' and miR-200c/141\_AgeI\_RV2: 5'-ACCGGTACAACAGTAGGAAGGTGAG-3'. The fragment was cloned in pJET1.2/blunt and analyzed by Sanger sequencing. This vector was digested with NheI-HF and AgeI-HF (NEB) and the insert was gel purified and ligated into the NheI-AgeI sites of pLX301 (Addgene plasmid #25895) (5), resulting in pLX301-miR-200c/141. Lentiviral particles were generated as described (5). Jurkat cells were plated in a 24-well plate in RPMI, FCS (10%), P/S and HeLa cells were plated in 6-wells plates in DMEM supplemented with FCS (10%) and P/S. The pLX301 viruses were added to the medium with Polybrene (8 µg/mL) (Sigma-Aldrich, Cat #H9268). Cells were spun at 800xg for 2 hours at 37 °C. Transduced cells were selected on Puromycin (1 µg/mL).

### **Gene expression profiling**

Gene expression analysis was performed on peripheral blood/bone marrow mononuclear cells of 23 T-PLL cases and 6 normal T-cell subsets (naïve, memory and effector of CD4+ and CD8+ cells) of 3 healthy donors. When the tumor load of a patient was below 85%, cells were purified using cell sorting on a FACSAria III (BD Biosciences) based on the CD4 and CD8 expression on T-PLL cells. RNA was isolated from mononuclear cells using the Qiagen RNeasy mini kit and RNA integrity was checked according to the Agilent RNA 6000 Nano Assay Protocol. RNA was reverse transcribed into cDNA, purified, fragmented and biotinylated as described previously (6). All cDNA was hybridized to Affymetrix HG-U133 Plus 2.0 GeneChip arrays (containing 54,675 probe sets) according to the Affymetrix GeneChip 3' IVT Express Kit user

manual (Affymetrix). Quality of the data was checked with the R package “affyQCReport”. In short, probe intensity background was removed using robust multichip analysis (7). The intensity levels were quantile normalized (8). Array groups (two biologically independent arrays per group) that corresponded to the development stages were compared based on the perfect match probe intensity levels only (7), by performing a per-probe set two-way analysis of variance (ANOVA, with factors “probe” and “stage”)(9). The p-values were adjusted for multiple testing using Šidák step-down adjustment (<https://statistics.berkeley.edu/tech-reports/633>) and all differences with adjusted p-values <0.05 were considered to be significant.

### **RNA sequencing**

T-PLL cells were lysed in TRIzol (Invitrogen) and total RNA was isolated according to manufacturer’s protocol. Quality and concentration of total RNA of the samples was determined with the RNA 6000 Nano assay on an Agilent 2100 Bioanalyzer (Agilent Technologies). Only samples with RNA integrity number (RIN) > 7 were used for analyses. The small non-coding RNA cDNA libraries were generated with 100 ng total RNA using CleanTag Small RNA Library Preparation Kit (Trilink Biotechnologies) according to the manufacturer’s protocol. For genome wide gene expression profiling, cDNA libraries were generated with 1 ng total RNA using the Smart-Seq V4 Ultra low input RNA kit (Takara-bio) in combination with the Truseq nano DNA library prep kit (Illumina). Quality and concentration of cDNA libraries were determined with the Agilent High Sensitivity DNA Kit on an Agilent 2100 Bioanalyzer. All cDNA libraries were run on the Illumina HiSeq2500 or Illumina MiSeq sequencing platform according to manufacturer’s protocols.

## **mRNA and miRNAs data analyses**

After sequencing and de-multiplexing the quality of the data was assessed with fastQC (v 0.11.8). When the RNA sequence data passed the quality check, fastq files were aligned using STAR aligner (v.2.5.3e) with GRCh38 as reference. The small non-coding RNA reads were trimmed and aligned with Noalign, using novoalign indexes. Read counts were obtained using FeatureCounts (v1.6.0) and Homo\_sapiens GRCh38.92 as reference for the RNA sequencing data and miRBase.annotation20 for miRNA sequence data. The quality of the alignment and assigned reads were determined with MultiQC. Noise reduction was applied to the count data by removing the very low read counts (RNA sequence data) and increasing the miRNA counts by 50. The rlog transformation from the DESeq2 R package (v1.22.2) was used for data processing, clustering, heatmap and PCA plots. This command transforms the raw count data to the  $\log_2$  scale in a way which minimizes differences between samples for rows with small counts, and which normalizes with respect to library size (10). DESeq2 was used for normalization of the data (median of ratios) and to determine differentially expressed genes (10, 11). Differentially expressed genes were statistically analyzed by the Wald test with Benjamin-Hochberg's correction for multiple testing. For miRNA target analyses we extracted lists of predicted targets from TargetScan ([www.targetscan.org](http://www.targetscan.org)) (Supplementary Table 2-4). The significantly differentiated genes were used for enrichment analyses (GSEA, GSEA Desktop Application (v2.2.1). Kaplan-Meier plots were generated using IBM SPSS Statistics version 25 and the statistical difference in survival was calculated using the Mantel-Cox Log Rank test. A multiple regression analysis was run to determine confounding factors for survival, including age, gender, white blood cell count and immunophenotype.

### **Quantitative PCR of miRNAs and mRNAs**

Single small RNA qPCRs for U6, miR-141-3p, miR-200c-3p, miR-181a-5p and miR-181b-5p were performed with Taqman single real-time assays with kit ID 001973, ID 000463, ID 002300, ID 000480, ID 001098 (Applied Biosystems) respectively, according to the manufacturer's protocol. For total cDNA preparation, the High-Capacity reverse transcription kit (Thermo Fisher Scientific) was used. GAPDH, ZEB2, TGF $\beta$ 1, TGF $\beta$ R3 mRNA was determined with Taqman gene expression assays Hs02786624\_g1, Hs00207691\_m1, Hs00998133\_m1 and Hs00234257\_m1 (Thermo Fisher Scientific) respectively, according to manufacturer's protocol. Relative expression was calculated with the  $\Delta\Delta$ Ct calculation method using GAPDH as loading control.

### **Western blotting**

HeLa cells transduced with either EV or miR200c/141, or T-PLL and PBMC samples were incubated in complete medium either in the presence or absence of 10 ng/mL huTGF- $\beta$ 1 (Peprotech) for 1h at 37°C. After incubation, cells were cooled on ice and washed three times in phosphate-buffered saline (PBS). Cells were lysed in NP-40 lysis buffer supplemented with phosphatase and protease inhibitors on ice. Protein-extract concentrations were measured using BCA protein assay kit according to manufactures protocols (Thermo Scientific). Equal amount of protein was loaded on Mini-Proaten TGX precast gels (Bio-Rad). Blots were labeled with either anti-phospho-(Ser465/467)-SMAD2 (138D4, Cell Signaling, dilution 1:1000), anti-SMAD2/3 (D7G7, Cell Signaling, dilution 1:1000), anti-phospho-(Ser423/Ser425)-SMAD3 (ab52903, Abcam, dilution 1:1000), anti-TGF $\beta$ RI (ab235178, Abcam, dilution 1:2000), and anti- $\beta$ -actin (Sigma, dilution 1:3000) at 4°C overnight. Next, the membranes were incubated with IRDye 680RD Goat anti-Rabbit IgG Secondary Antibody (Li-COR, dilution range 1:5000

– 1:10000) at room temperature for 1 hour. Images were taken with Odyssey Imaging System (Li-COR) and analyzed using ImageStudio Lite.

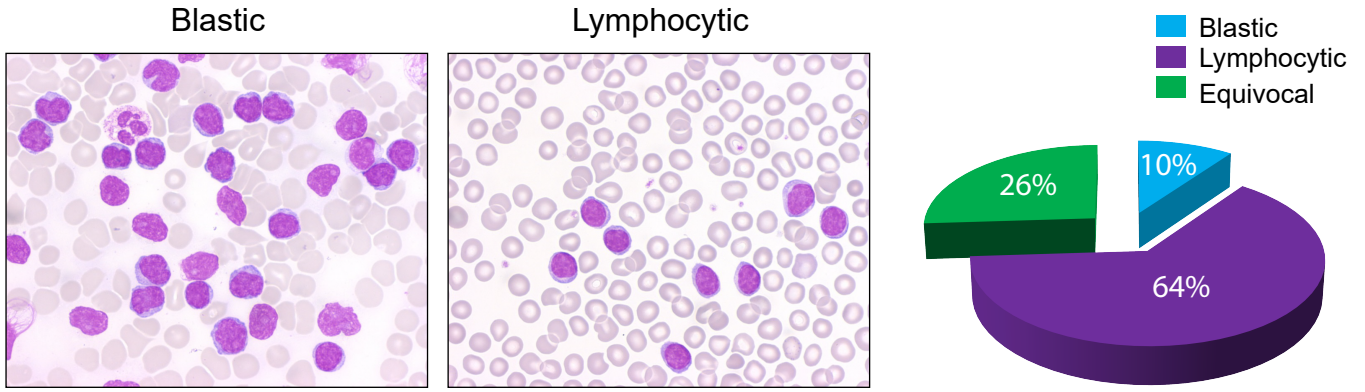


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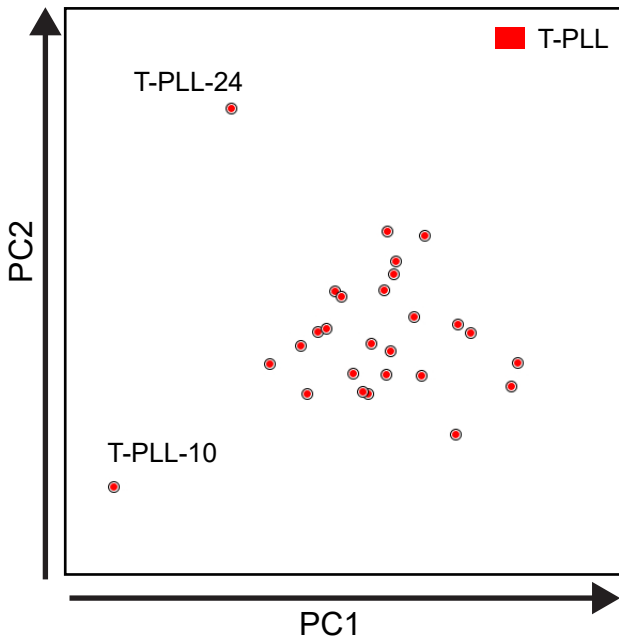
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# Supplementary Figure 1

A)

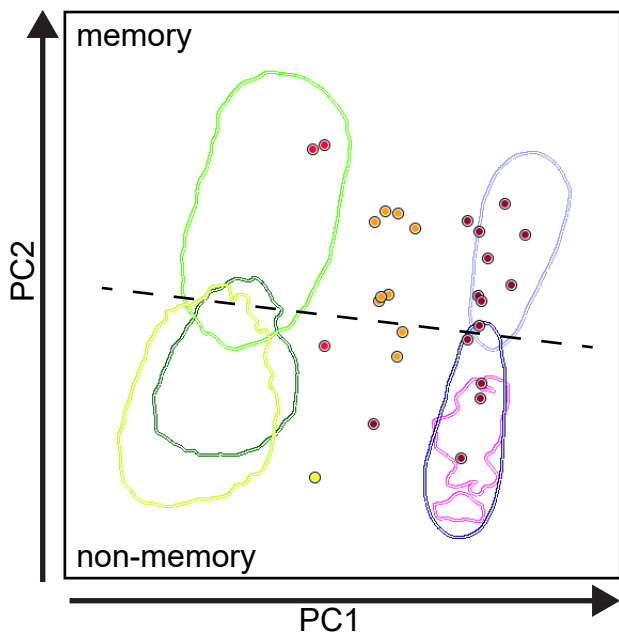


B)



PC1		PC2	
parameter	contribution	parameter	contribution
CD8	14.91	cyTCL1	13.21
CD45RA	14.01	CD28	11.87
CD45RO	11.04	CD26	7.17
CD11c	8.34	CD7	6.92
CD94	7.64	CD4	6.92

C)

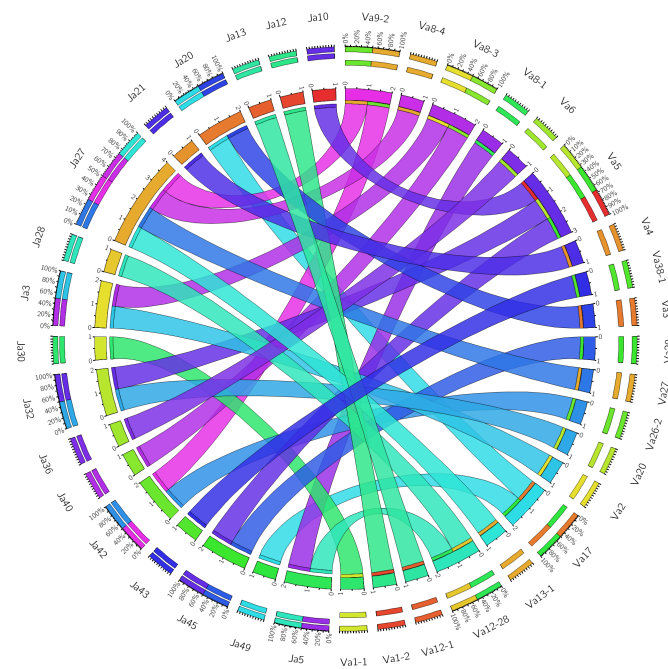


- T-PLL CD4+/CD8-
- T-PLL CD4-/CD8+
- T-PLL CD4+/CD8+
- T-PLL CD4-/CD8-
- CD4+ Naive
- CD4+ Memory
- CD4+ Effector
- CD8+ Naive
- CD8+ Memory
- CD8+ Effector

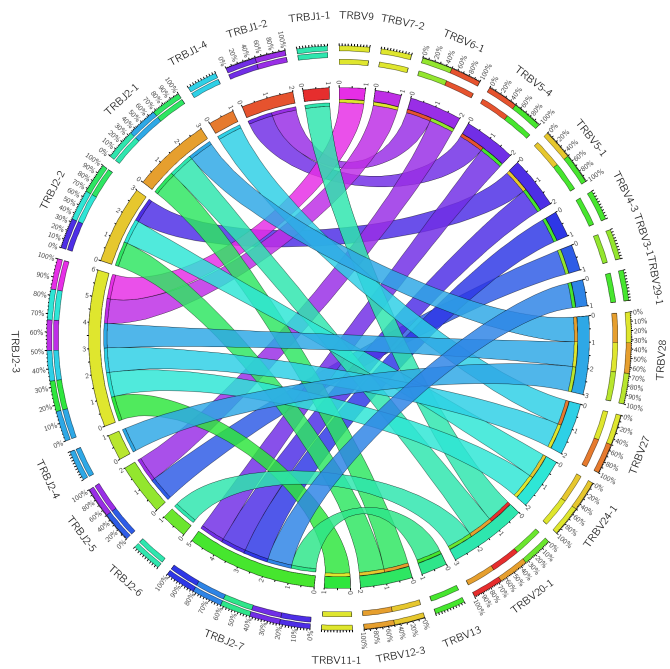
PC1		PC2	
parameter	contribution	parameter	contribution
CD8	21.99	CD45RA	28.94
CD4	21.26	CD45RO	27.28
CD45RA	8.15	CD27	9.54
CD26	7.18	CD4	8.48
CD57	6.25	CD8	8.04

## Supplementary Figure 1

D)



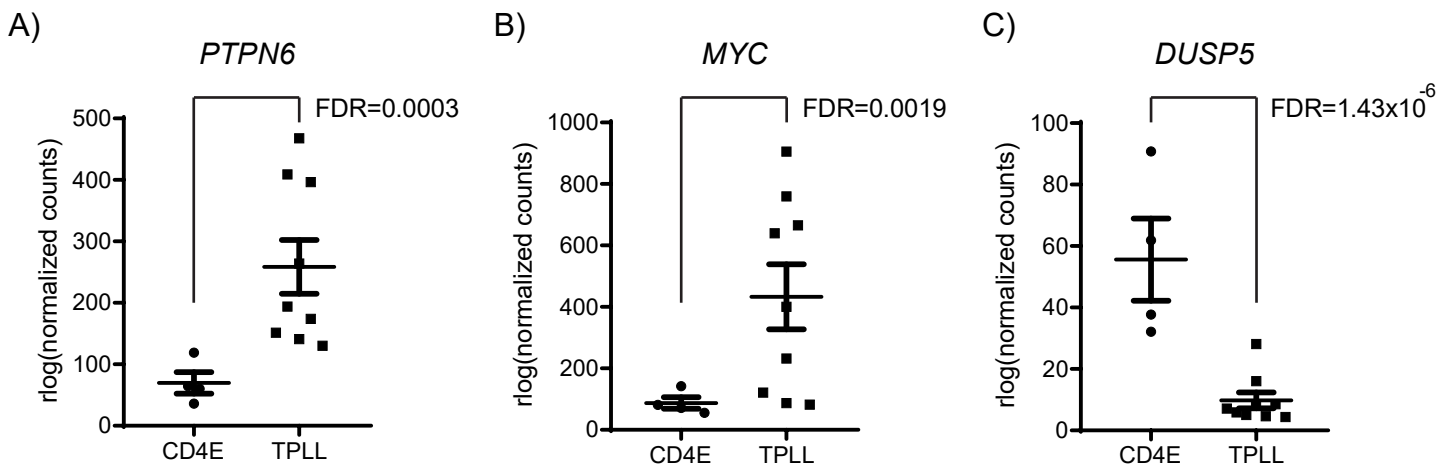
E)



### Morphological and immuno-phenotypic characterization of T-PLL

**A)** Blood smears showing examples of blast-like and lymphocytic morphology of T-PLL cases. Pie chart shows the percentages of the different morphologies in our T-PLL cohort. **B)** Multidimensional APS analysis (Automated Population Separation; Infinicyt software) of T-PLL cases, based on all parameters of all tumor cells of each T-PLL case, resulting in clustering of most T-PLL cases, except for two outliers (T-PLL 10 and 24). Graphs highlight the markers in descending order and their relative contribution to separation in the first and second principal component (PC). **C)** APS plots of six different CD4+ or CD8+ normal T cell subsets were generated and then fixed. Contours lines represents 2x standard deviation (2 s.d.). Next, T-PLL cases were added to the APS analysis to evaluate their relatedness to normal T cell subsets. The majority of T-PLL cases appeared to cluster closer to the CD4+ and CD8+ memory T cell subsets above the dashed line, whereas some cases clustered more with the non-memory subsets. **D, E)** Circoletto plots showing diversity of V and J gene usage of TRA and TRB gene rearrangements in T-PLL samples.

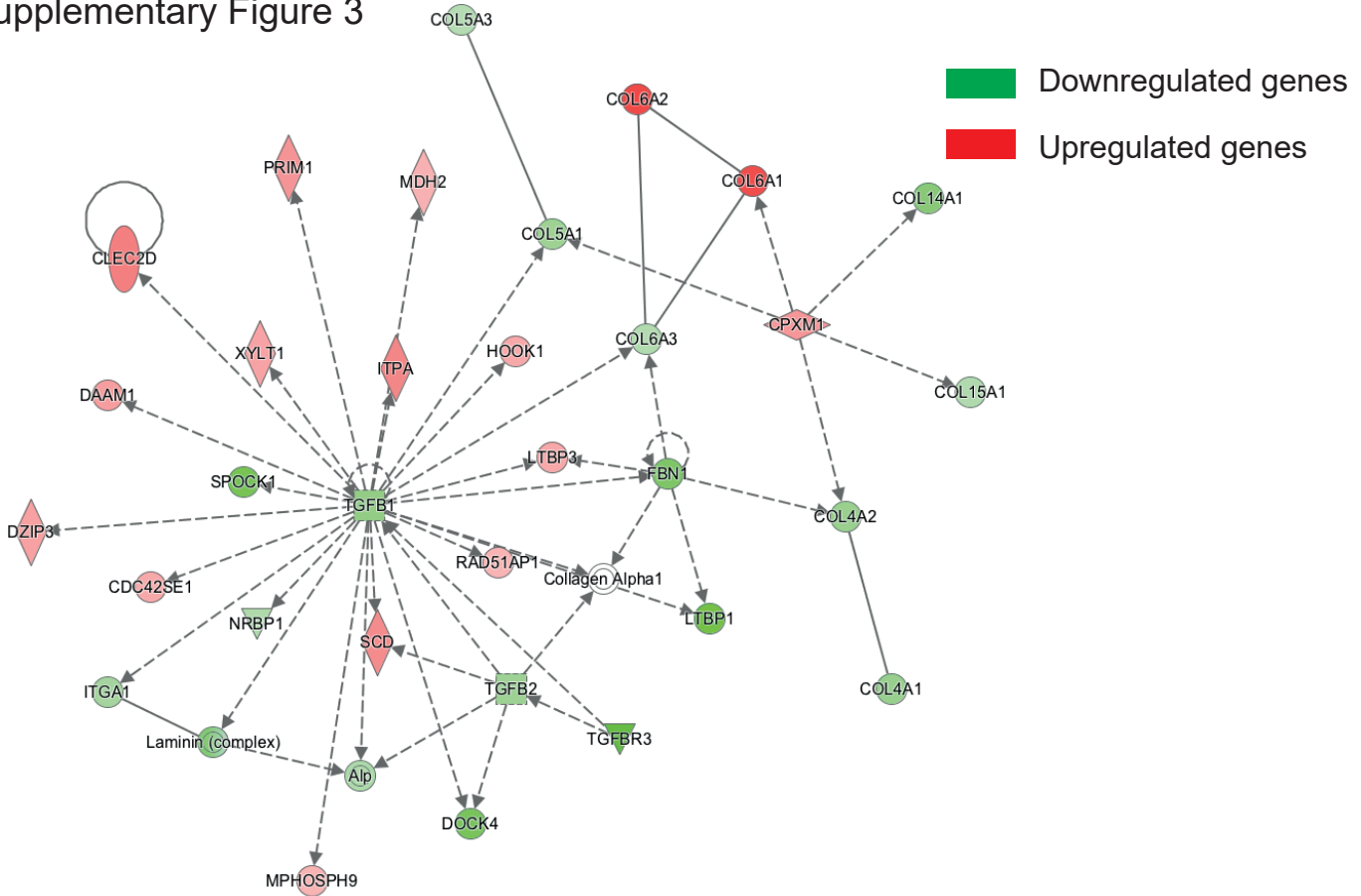
Supplementary Figure 2



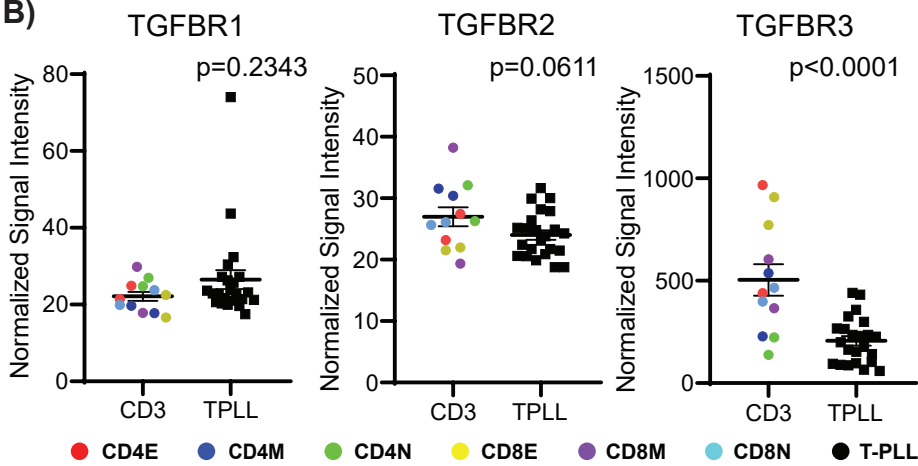
A,B,C) Expression of indicated genes in CD4+ effector cells (CD4E) and T-PLL. Differentially expressed genes were statistically analyzed by the Wald test with Benjamin-Hochberg's correction for multiple testing. The differences in expression is indicated by the FDR values.

# Supplementary Figure 3

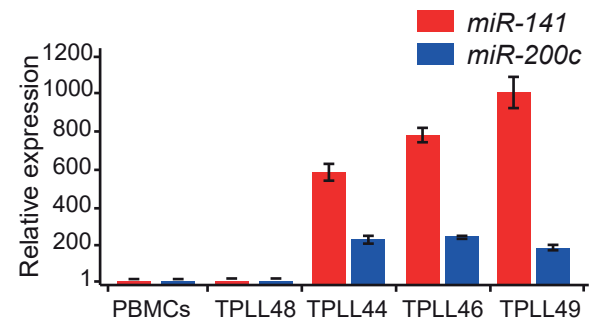
**A)**



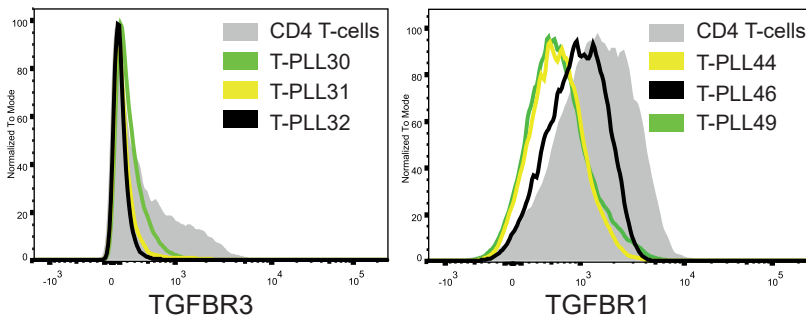
**B)**



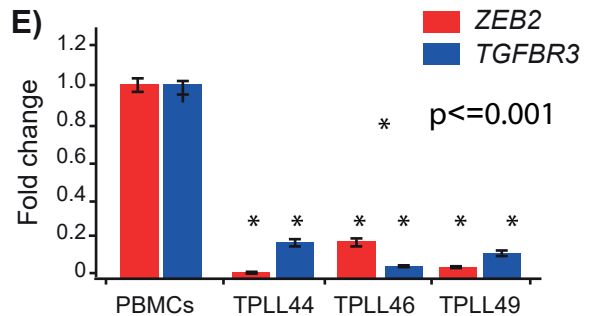
**C)**



**D)**



**E)**



**TGFB pathway is aberrant in T-PLL. A)** Significantly deregulated genes in T-PLL were analyzed by Ingenuity Pathway Analysis. The affected genes in T-PLL and how they are connected in the TGFB network are depicted. **B)** Expression of TGFBRs in different T-cell subsets and T-PLL as determined by gene expression arrays is shown. P-values are calculated by a Mann Whitney test. **C)** Expression levels of miR-141 and miR-200c relative to U6 and PBMCs are plotted. **D)** FACS plots showing membrane expression of TGFBR3 and TGFBR1 in T-PLL compared to normal CD4 T-cells. **E)** The expression levels *ZEB2* and *TGFBR3* relative to *GAPDH* and PBMCs are plotted. P-values are calculated by a Mann Whitney test.

**Supplementary Table 1: FACS sorting scheme.**

<b>T-cell type</b>	<b>CD3</b>	<b>CD4</b>	<b>CD8</b>	<b>TCR<math>\gamma\delta</math></b>	<b>CD27</b>	<b>CD45RA</b>	<b>CD45RO</b>
CD4 Naive	+	+	-	-	+	+	-
CD4 Effector	+	+	-	-	-	+	-
CD4 Memory	+	+	-	-	+	-	+
CD8 Naive	+	-	+	-	+	+	-
CD8 Effector	+	-	+	-	-	+	-
CD8 Memory	+	-	+	-	+	-	+

Supplementary Table 2: Human miR181-5p targets predicted by TargetScan

Target gene	Representative transcript	Gene name
ZNF780B	ENST00000434248.1	zinc finger protein 780B
ZNF594	ENST00000399604.4	zinc finger protein 594
ZNF788	ENST00000430298.2	zinc finger family member 788
ZNF781	ENST00000358582.4	zinc finger protein 781
ZNF471	ENST00000591537.1	zinc finger protein 471
ZNF470	ENST00000330619.8	zinc finger protein 470
ZFP14	ENST00000270001.7	ZFP14 zinc finger protein
ZNF699	ENST00000591998.1	zinc finger protein 699
ZNF283	ENST00000324461.7	zinc finger protein 283
ZNF487	ENST00000437590.2	zinc finger protein 487
ZNF791	ENST00000446165.1	zinc finger protein 791
ZNF266	ENST00000361451.2	zinc finger protein 266
ZFP82	ENST00000392161.3	ZFP82 zinc finger protein
ZNF286B	ENST00000285274.5	zinc finger protein 286B
POC1B-GALNT4	ENST00000547474.1	POC1B-GALNT4 readthrough
RBAK	ENST00000396912.1	RB-associated KRAB zinc finger
ZNF655	ENST00000425063.1	zinc finger protein 655
ZNF23	ENST00000497160.1	zinc finger protein 23
ZNF268	ENST00000542986.2	zinc finger protein 268
ZNF302	ENST00000505365.2	zinc finger protein 302
OSBPL3	ENST00000313367.2	oxysterol binding protein-like 3
ZFP30	ENST00000392144.1	ZFP30 zinc finger protein
ZFP62	ENST00000512132.1	ZFP62 zinc finger protein
ZNF256	ENST00000598928.1	zinc finger protein 256
KRBOX4	ENST00000360017.5	KRAB box domain containing 4
ZNF397	ENST00000330501.7	zinc finger protein 397
CTD-2140B24.4	ENST00000540096.2	Zinc finger protein 268
ZNF136	ENST00000343979.4	zinc finger protein 136
GALNT4	ENST00000529983.2	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 4 (GalNAc-T4)
ZNF667	ENST00000591790.1	zinc finger protein 667
GSKIP	ENST00000555181.1	GSK3B interacting protein
ARSJ	ENST00000315366.7	arylsulfatase family, member J
ZNF300	ENST00000427179.1	zinc finger protein 300
ZKSCAN1	ENST00000324306.6	zinc finger with KRAB and SCAN domains 1
CREBRF	ENST00000540014.1	CREB3 regulatory factor
SRSF7	ENST00000313117.6	serine/arginine-rich splicing factor 7
KLF6	ENST00000542957.1	Kruppel-like factor 6
RORB	ENST00000376896.3	RAR-related orphan receptor B
HMBS	ENST00000392841.1	hydroxymethylbilane synthase
FBXO34	ENST00000313833.4	F-box protein 34
RNF34	ENST00000361234.5	ring finger protein 34, E3 ubiquitin protein ligase
GABRA1	ENST00000428797.2	gamma-aminobutyric acid (GABA) A receptor, alpha 1
NCALD	ENST00000395923.1	neurocalcin delta
CLVS1	ENST00000518592.1	clavesin 1
APOO	ENST00000379226.4	apolipoprotein O
RLF	ENST00000372771.4	rearranged L-myc fusion
CTD-2228K2.5	ENST00000342584.3	Uncharacterized protein
C16orf87	ENST00000394806.2	chromosome 16 open reading frame 87
C2CD5	ENST00000333957.4	C2 calcium-dependent domain containing 5
ESM1	ENST00000381405.4	endothelial cell-specific molecule 1
E2F5	ENST00000418930.2	E2F transcription factor 5, p130-binding
RBBP7	ENST00000380087.2	retinoblastoma binding protein 7
ZNF426	ENST00000253115.2	zinc finger protein 426
ZNF33B	ENST00000359467.3	zinc finger protein 33B
CTDSPL	ENST00000443503.2	CTD (carboxy-terminal domain, RNA polymerase II, polypeptide A) small phosphatase-like
LYRM1	ENST00000396052.2	LYR motif containing 1
DERL1	ENST00000259512.4	derlin 1
PARK2	ENST00000366898.1	parkin RBR E3 ubiquitin protein ligase
ASAH2B	ENST00000374007.1	N-acylsphingosine amidohydrolase (non-lysosomal ceramidase) 2B
PNRC2	ENST00000334351.7	proline-rich nuclear receptor coactivator 2
DCUN1D1	ENST00000292782.4	DCN1, defective in cullin neddylation 1, domain containing 1
TNFRSF11B	ENST00000297350.4	tumor necrosis factor receptor superfamily, member 11b
C7orf41	ENST00000324453.8	chromosome 7 open reading frame 41
SCD	ENST00000370355.2	stearoyl-CoA desaturase (delta-9-desaturase)
PRKCD	ENST00000394729.2	protein kinase C, delta
PAPD5	ENST00000357464.3	PAP associated domain containing 5
PET117	ENST00000432901.3	PET117 homolog (S. cerevisiae)
CDON	ENST00000392693.3	cell adhesion associated, oncogene regulated
BEND3	ENST00000369042.1	BEN domain containing 3
NPEPPS	ENST00000322157.4	aminopeptidase puromycin sensitive
SALL4	ENST00000217086.4	sal-like 4 (Drosophila)
LRRC8D	ENST00000337338.5	leucine rich repeat containing 8 family, member D

ADAMTSS	ENST00000284987.5	ADAM metallopeptidase with thrombospondin type 1 motif, 5
SIM1	ENST00000369208.3	single-minded homolog 1 ( <i>Drosophila</i> )
MED8	ENST00000372457.4	mediator complex subunit 8
EXOSC3	ENST00000396521.3	exosome component 3
NUS1	ENST00000368494.3	nuclear undecaprenyl pyrophosphate synthase 1 homolog ( <i>S. cerevisiae</i> )
ZFP36L1	ENST00000555997.1	ZFP36 ring finger protein-like 1
CPOX	ENST00000264193.2	coproporphyrinogen oxidase
RAB31P	ENST00000483530.2	RAB3A interacting protein
ITSN1	ENST00000379960.5	intersectin 1 (SH3 domain protein)
C2orf69	ENST00000319974.5	chromosome 2 open reading frame 69
ARHGEF3	ENST00000296315.3	Rho guanine nucleotide exchange factor (GEF) 3
KIAA0195	ENST00000314256.7	KIAA0195
HOXA11	ENST00000006015.3	homeobox A11
HOXD1	ENST00000331462.4	homeobox D1
CCL8	ENST00000394620.1	chemokine (C-C motif) ligand 8
NLN	ENST00000380985.5	neurolysin (metallopeptidase M3 family)
RAB30	ENST00000533486.1	RAB30, member RAS oncogene family
OTOGL	ENST00000458043.2	otogelin-like
ST8SIA4	ENST00000231461.5	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 4
TXNDC12	ENST00000371626.4	thioredoxin domain containing 12 (endoplasmic reticulum)
MLF1	ENST00000355893.5	myeloid leukemia factor 1
SPRY4	ENST00000344120.4	sprouty homolog 4 ( <i>Drosophila</i> )
TOR1AIP2	ENST00000367612.3	torsin A interacting protein 2
HOXA1	ENST00000355633.5	homeobox A1
PLCL2	ENST00000418129.2	phospholipase C-like 2
KLF15	ENST00000296233.3	Kruppel-like factor 15
CBX7	ENST00000216133.5	chromobox homolog 7
AP1S3	ENST00000396654.2	adaptor-related protein complex 1, sigma 3 subunit
NOVA1	ENST00000465357.2	neuro-oncological ventral antigen 1
ZNF536	ENST00000355537.3	zinc finger protein 536
MELK	ENST00000536987.1	maternal embryonic leucine zipper kinase
TMF1	ENST00000398559.2	TATA element modulatory factor 1
LIN28A	ENST00000326279.6	lin-28 homolog A ( <i>C. elegans</i> )
HMG2	ENST00000296503.5	high mobility group box 2
BCL2	ENST00000398117.1	B-cell CLL/lymphoma 2
MB21D2	ENST00000392452.2	Mab-21 domain containing 2
SOWAHA	ENST00000378693.2	sosondowah ankyrin repeat domain family member A
TMEM165	ENST00000381334.5	transmembrane protein 165
PHLDA1	ENST00000602540.1	pleckstrin homology-like domain, family A, member 1
PROX1	ENST00000366958.4	prospero homeobox 1
TNF	ENST00000449264.2	tumor necrosis factor
FLT1	ENST00000282397.4	fms-related tyrosine kinase 1
LARP4	ENST00000398473.2	La ribonucleoprotein domain family, member 4
KLF7	ENST00000423015.1	Kruppel-like factor 7 (ubiquitous)
IL1A	ENST00000263339.3	interleukin 1, alpha
LRIG2	ENST00000361127.5	leucine-rich repeats and immunoglobulin-like domains 2
PAM	ENST00000438793.3	peptidylglycine alpha-amidating monooxygenase
IPO8	ENST00000256079.4	importin 8
DNAJA4	ENST00000394855.3	DnaJ (Hsp40) homolog, subfamily A, member 4
SELK	ENST00000541726.1	Selenoprotein K
NR6A1	ENST00000487099.2	nuclear receptor subfamily 6, group A, member 1
ZFP36L2	ENST00000282388.3	ZFP36 ring finger protein-like 2
SRPK2	ENST00000393651.3	SRSF protein kinase 2
KLHL2	ENST00000538127.1	kelch-like family member 2
LIN28B	ENST00000345080.4	lin-28 homolog B ( <i>C. elegans</i> )
PHP	ENST00000275034.4	pleckstrin homology domain interacting protein
LMO1	ENST00000335790.3	LIM domain only 1 (rhombotin 1)
SLC2A3	ENST00000075120.7	solute carrier family 2 (facilitated glucose transporter), member 3
BCLAF1	ENST00000531224.1	BCL2-associated transcription factor 1
SSX2IP	ENST00000342203.3	synovial sarcoma, X breakpoint 2 interacting protein
FKBP1A	ENST00000400137.4	FK506 binding protein 1A, 12kDa
FAM3C	ENST00000359943.3	family with sequence similarity 3, member C
MAMDC2	ENST00000377182.4	MAM domain containing 2
DEK	ENST00000397239.3	DEK oncogene
FIGN	ENST00000333129.3	fidgetin
IGF2BP2	ENST00000382199.2	insulin-like growth factor 2 mRNA binding protein 2
ADO	ENST00000373783.1	2-aminoethanethiol (cysteamine) dioxygenase
GPBP1	ENST00000424459.3	GC-rich promoter binding protein 1
KANK1	ENST00000382303.1	KN motif and ankyrin repeat domains 1
ARL5A	ENST00000295087.8	ADP-ribosylation factor-like 5A
ZNF562	ENST00000293648.4	zinc finger protein 562
MARK1	ENST00000366918.4	MAP/microtubule affinity-regulating kinase 1
MOB3B	ENST00000262244.5	MOB kinase activator 3B
PLAG1	ENST00000316981.3	pleiomorphic adenoma gene 1
IPPK	ENST00000287996.3	inositol 1,3,4,5,6-pentakisphosphate 2-kinase



ACAP2	ENST00000326793.6	ArfGAP with coiled-coil, ankyrin repeat and PH domains 2
FAM160A2	ENST00000449352.2	family with sequence similarity 160, member A2
FAM19A2	ENST00000416284.3	family with sequence similarity 19 (chemokine (C-C motif)-like), member A2
FBXO33	ENST00000298097.7	F-box protein 33
SIPA1L2	ENST00000366630.1	signal-induced proliferation-associated 1 like 2
FOXP1	ENST00000318789.4	forkhead box P1
FMNL2	ENST00000475377.2	formin-like 2
MPP7	ENST00000375732.1	membrane protein, palmitoylated 7 (MAGUK p55 subfamily member 7)
CLASP1	ENST00000409078.3	cytoplasmic linker associated protein 1
SLC25A37	ENST00000519973.1	solute carrier family 25 (mitochondrial iron transporter), member 37
SYNPR	ENST00000479198.1	synaptoporin
ACVR1C	ENST00000243349.8	activin A receptor, type IC
TMEM178B	ENST00000565468.1	transmembrane protein 178B
DDX3Y	ENST00000336079.3	DEAD (Asp-Glu-Ala-Asp) box helicase 3, Y-linked
KIAA2022	ENST00000055682.6	KIAA2022
NKAIN2	ENST00000368417.1	Na <sup>+</sup> /K <sup>+</sup> transporting ATPase interacting 2
SLA	ENST00000338087.5	Src-like-adaptor
HS3ST3A1	ENST00000284110.1	heparan sulfate (glucosamine) 3-O-sulfotransferase 3A1
UBP1	ENST00000283629.3	upstream binding protein 1 (LBP-1a)
CD163	ENST00000541972.1	CD163 molecule
SERTAD4	ENST00000367012.3	SERTA domain containing 4
ANKRD13C	ENST00000370944.4	ankyrin repeat domain 13C
PCDHA7	ENST00000525929.1	protocadherin alpha 7
PCDHA5	ENST00000529859.1	protocadherin alpha 5
PCDHA12	ENST00000398631.2	protocadherin alpha 12
DMXL2	ENST00000251076.5	Dmx-like 2
PCDHA2	ENST00000526136.1	protocadherin alpha 2
PCDHA4	ENST00000530339.1	protocadherin alpha 4
KRAS	ENST00000256078.4	Kirsten rat sarcoma viral oncogene homolog
PCDHA6	ENST00000529310.1	protocadherin alpha 6
PCDHA8	ENST00000531613.1	protocadherin alpha 8
PCDHA11	ENST00000398640.2	protocadherin alpha 11
PCDHA1	ENST00000504120.2	protocadherin alpha 1
PCDHA3	ENST00000522353.2	protocadherin alpha 3
PCDHA9	ENST00000532602.1	protocadherin alpha 9
EVI2A	ENST00000461237.1	ecotropic viral integration site 2A
TGFBR1	ENST00000374994.4	transforming growth factor, beta receptor 1
ZNF449	ENST00000339249.4	zinc finger protein 449
PPP4R2	ENST00000356692.5	protein phosphatase 4, regulatory subunit 2
CD69	ENST00000228434.3	CD69 molecule
GPR137C	ENST00000321662.6	G protein-coupled receptor 137C
ZNF800	ENST00000393313.1	zinc finger protein 800
GOT2	ENST00000245206.5	glutamic-oxaloacetic transaminase 2, mitochondrial
ANKFY1	ENST00000341657.4	ankyrin repeat and FYVE domain containing 1
ATP1B1	ENST00000367816.1	ATPase, Na <sup>+</sup> /K <sup>+</sup> transporting, beta 1 polypeptide
SLC10A7	ENST00000264986.3	solute carrier family 10, member 7
PRDM4	ENST00000228437.5	PR domain containing 4
KPNA4	ENST00000334256.4	karyopherin alpha 4 (importin alpha 3)
PTBP2	ENST00000609116.1	polypyrimidine tract binding protein 2
LMO3	ENST00000354662.1	LIM domain only 3 (rhombotin-like 2)
GPD2	ENST00000540309.1	glycerol-3-phosphate dehydrogenase 2 (mitochondrial)
SCOC	ENST00000608372.1	short coiled-coil protein
KIF3B	ENST00000375712.3	kinesin family member 3B
PAWR	ENST00000328827.4	PRKC, apoptosis, WT1, regulator
GHITM	ENST00000372134.3	growth hormone inducible transmembrane protein
SERTAD2	ENST00000313349.3	SERTA domain containing 2
RSPO2	ENST00000517939.1	R-spondin 2
MBTPS2	ENST00000379484.5	membrane-bound transcription factor peptidase, site 2
SLITRK1	ENST00000377084.2	SLIT and NTRK-like family, member 1
ZIC2	ENST00000376335.3	Zic family member 2
PLAU	ENST00000372764.3	plasminogen activator, urokinase
TCF7L2	ENST00000369386.1	transcription factor 7-like 2 (T-cell specific, HMG-box)
NEK7	ENST00000367385.4	NIMA-related kinase 7
TMEM132D	ENST00000389441.4	transmembrane protein 132D
ZNF597	ENST00000301744.4	zinc finger protein 597
SMCO1	ENST00000397537.2	single-pass membrane protein with coiled-coil domains 1
TRNP1	ENST00000522111.2	TMF1-regulated nuclear protein 1
RASSF1	ENST00000327761.3	Ras association (RalGDS/AF-6) domain family member 1
ETS1	ENST00000531611.1	v-ets avian erythroblastosis virus E26 oncogene homolog 1
DYNC1L1I2	ENST00000258198.2	dynein, cytoplasmic 1, light intermediate chain 2
HEXIM1	ENST00000332499.2	hexamethylene bis-acetamide inducible 1
RAN	ENST00000543796.1	RAN, member RAS oncogene family
TRIM2	ENST00000338700.5	tripartite motif containing 2
MSANTD3-TMEFF	ENST00000502978.1	MSANTD3-TMEFF1 readthrough
FAM222B	ENST00000582266.1	family with sequence similarity 222, member B

BCL2L11	ENST00000393256.3	BCL2-like 11 (apoptosis facilitator)
PARM1	ENST00000513238.1	prostate androgen-regulated mucin-like protein 1
KIF3A	ENST00000378746.4	kinesin family member 3A
LHX9	ENST00000367390.3	LIM homeobox 9
SNAI2	ENST0000020945.1	snail family zinc finger 2
BAI3	ENST00000370598.1	brain-specific angiogenesis inhibitor 3
TMEFF1	ENST00000374879.4	transmembrane protein with EGF-like and two follistatin-like domains 1
TMEM131	ENST00000186436.5	transmembrane protein 131
SLC19A2	ENST00000236137.5	solute carrier family 19 (thiamine transporter), member 2
KATNBL1	ENST00000256544.3	katanin p80 subunit B-like 1
TMED4	ENST00000457408.2	transmembrane emp24 protein transport domain containing 4
DDX52	ENST00000349699.2	DEAD (Asp-Glu-Ala-Asp) box polypeptide 52
C11orf30	ENST00000529032.1	chromosome 11 open reading frame 30
SPECC1L	ENST00000314328.9	sperm antigen with calponin homology and coiled-coil domains 1-like
PDAP1	ENST00000350498.3	PDGFA associated protein 1
CALM1	ENST00000356978.4	calmodulin 1 (phosphorylase kinase, delta)
LRRC32	ENST00000260061.5	leucine rich repeat containing 32
FBXL17	ENST00000359660.5	F-box and leucine-rich repeat protein 17
SCHIP1	ENST00000445224.2	schwannomin interacting protein 1
ASAH2	ENST00000395526.4	N-acylsphingosine amidohydrolase (non-lysosomal ceramidase) 2
CBX4	ENST00000269397.4	chromobox homolog 4
NMT2	ENST00000378165.4	N-myristoyltransferase 2
CALR	ENST00000316448.5	calreticulin
B3GALT1	ENST00000392690.3	UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 1
RNF182	ENST00000488300.1	ring finger protein 182
PIK3R3	ENST00000262741.5	phosphoinositide-3-kinase, regulatory subunit 3 (gamma)
SNN	ENST00000329565.5	stannin
SEC24C	ENST00000345254.4	SEC24 family, member C ( <i>S. cerevisiae</i> )
ASAH2C	ENST00000426610.2	N-acylsphingosine amidohydrolase (non-lysosomal ceramidase) 2C
ZDHHC3	ENST00000296127.3	zinc finger, DHHC-type containing 3
METAP2	ENST00000323666.5	methionyl aminopeptidase 2
PPP5K2	ENST00000321521.9	diphosphoinositol pentakisphosphate kinase 2
POLA1	ENST00000379068.3	polymerase (DNA directed), alpha 1, catalytic subunit
WDR82	ENST00000296490.3	WD repeat domain 82
TSC22D2	ENST00000361875.3	TSC22 domain family, member 2
NPTN	ENST00000345330.4	neuroplastin
WASF1	ENST00000392587.2	WAS protein family, member 1
TBC1D4	ENST00000377636.3	TBC1 domain family, member 4
ZNF200	ENST00000396868.3	zinc finger protein 200
HEY2	ENST00000368365.1	hairly/enhancer-of-split related with YRPW motif 2
NAAS0	ENST00000240922.3	N(alpha)-acetyltransferase 50, NatE catalytic subunit
RNF145	ENST00000274542.2	ring finger protein 145
EIF4A2	ENST00000323963.5	eukaryotic translation initiation factor 4A2
SIN3B	ENST00000379803.1	SIN3 transcription regulator family member B
MAP3K3	ENST00000361357.3	mitogen-activated protein kinase kinase kinase 3
ACTA2	ENST00000224784.6	actin, alpha 2, smooth muscle, aorta
RASSF6	ENST00000307439.5	Ras association (RalGDS/AF-6) domain family member 6
WNK1	ENST00000315939.6	WNK lysine deficient protein kinase 1
CBLB	ENST00000264122.4	Cbl proto-oncogene B, E3 ubiquitin protein ligase
GREB1L	ENST00000580732.2	growth regulation by estrogen in breast cancer-like
PITPNB	ENST00000335272.5	phosphatidylinositol transfer protein, beta
ZCCHC14	ENST00000268616.4	zinc finger, CCHC domain containing 14
ARFGAP1	ENST00000310078.8	ArfGAP with FG repeats 1
ARL1	ENST00000261636.8	ADP-ribosylation factor-like 1
AC012215.1	ENST00000437887.1	Uncharacterized protein
PDXDC1	ENST00000396410.4	pyridoxal-dependent decarboxylase domain containing 1
CARD11	ENST00000396946.4	caspase recruitment domain family, member 11
MBOAT2	ENST00000305997.3	membrane bound O-acyltransferase domain containing 2
PAX9	ENST00000361487.6	paired box 9
RCAN3	ENST00000374395.4	RCAN family member 3
MAGOHB	ENST00000539554.1	mago-nashi homolog B ( <i>Drosophila</i> )
MTPN	ENST00000393085.3	myotrophin
CREBZF	ENST00000398294.2	CREB/ATF bZIP transcription factor
TMEM106B	ENST00000396667.3	transmembrane protein 106B
COL16A1	ENST00000373672.3	collagen, type XVI, alpha 1
SS18L1	ENST00000331758.3	synovial sarcoma translocation gene on chromosome 18-like 1
LIF	ENST00000403987.3	leukemia inhibitory factor
SHE	ENST00000304760.2	Src homology 2 domain containing E
PAX5	ENST00000358127.4	paired box 5
GPCPD1	ENST00000379019.4	glycerophosphocholine phosphodiesterase GDE1 homolog ( <i>S. cerevisiae</i> )
NR4A3	ENST00000330847.1	nuclear receptor subfamily 4, group A, member 3
DUSP10	ENST00000366899.3	dual specificity phosphatase 10
AKIRIN1	ENST00000432648.3	akirin 1
SH2B3	ENST00000341259.2	SH2B adaptor protein 3
TTC39A	ENST00000530004.1	tetratricopeptide repeat domain 39A

ENAH	ENST00000366844.3	enabled homolog ( <i>Drosophila</i> )
IGSF11	ENST00000425327.2	immunoglobulin superfamily, member 11
UBE2W	ENST00000517608.1	ubiquitin-conjugating enzyme E2W (putative)
PNISR	ENST00000369239.5	PNN-interacting serine/arginine-rich protein
BRD1	ENST00000457780.2	bromodomain containing 1
THBS4	ENST00000350881.2	thrombospondin 4
ZNF514	ENST00000295208.2	zinc finger protein 514
GLB1L	ENST00000295759.7	galactosidase, beta 1-like
MBOAT1	ENST00000541730.1	membrane bound O-acyltransferase domain containing 1
NFATC2IP	ENST00000320805.4	nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2 interacting protein
QKI	ENST00000392127.2	QKI, KH domain containing, RNA binding
C6orf89	ENST00000480824.2	chromosome 6 open reading frame 89
PSPC1	ENST00000338910.4	paraspeckle component 1
PROX2	ENST00000556084.2	prospero homeobox 2
ZFP69B	ENST00000484445.1	ZFP69 zinc finger protein B
IQCJ-SCHIP1	ENST00000337808.6	IQCJ-SCHIP1 readthrough
LBR	ENST00000272163.4	lamin B receptor
SLC35E1	ENST00000595753.1	solute carrier family 35, member E1
DUSP6	ENST00000279488.7	dual specificity phosphatase 6
PHTF2	ENST00000416283.2	putative homeodomain transcription factor 2
PPP3R1	ENST00000234310.3	protein phosphatase 3, regulatory subunit B, alpha
PPAP2B	ENST00000371250.3	phosphatidic acid phosphatase type 2B
CAPRIN2	ENST00000395805.2	caprin family member 2
QDPR	ENST00000508623.1	quinoid dihydropteridine reductase
HS6ST1	ENST00000259241.6	heparan sulfate 6-O-sulfotransferase 1
KMT2E	ENST00000334877.4	lysine (K)-specific methyltransferase 2E
CAMKK1	ENST00000381769.2	calcium/calmodulin-dependent protein kinase kinase 1, alpha
NIPAL4	ENST00000311946.7	NIPA-like domain containing 4
SLC25A24	ENST00000565488.1	solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 24
AK3	ENST00000381809.3	adenylate kinase 3
HOXB8	ENST00000239144.4	homeobox B8
B4GALT1	ENST00000379731.4	UDP-Gal:betaGlcNAc beta 1,4-galactosyltransferase, polypeptide 1
ZDHHC7	ENST00000313732.4	zinc finger, DHHC-type containing 7
ST8SIA3	ENST00000324000.3	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 3
SMAP1	ENST00000370452.3	small ArfGAP 1
LRBA	ENST00000535741.1	LPS-responsive vesicle trafficking, beach and anchor containing
PBX3	ENST00000342287.5	pre-B-cell leukemia homeobox 3
DOCK7	ENST00000251157.5	dedicator of cytokinesis 7
PDHX	ENST00000448838.3	pyruvate dehydrogenase complex, component X
CUL4A	ENST00000326335.4	cullin 4A
TAF13	ENST00000338366.5	TAF13 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 18kDa
NKRF	ENST00000371527.1	NFKB repressing factor
YOD1	ENST00000315927.4	YOD1 deubiquitinase
WSB2	ENST00000315436.3	WD repeat and SOCS box containing 2
ELAVL4	ENST00000371824.1	ELAV like neuron-specific RNA binding protein 4
FAM160A1	ENST00000435205.1	family with sequence similarity 160, member A1
RAB11A	ENST00000569896.1	RAB11A, member RAS oncogene family
UBN2	ENST00000473989.3	ubiquitin 2
RBM47	ENST00000319592.4	RNA binding motif protein 47
SIX2	ENST00000303077.6	SIX homeobox 2
WNT9A	ENST00000272164.5	wingless-type MMTV integration site family, member 9A
CALCR	ENST00000359558.2	calcitonin receptor
TGFBR2	ENST00000359013.4	transforming growth factor, beta receptor II (70/80kDa)
SSBP2	ENST00000320672.4	single-stranded DNA binding protein 2
ZSWIM1	ENST00000372523.1	zinc finger, SWIM-type containing 1
IMP2	ENST00000193391.7	interphotoreceptor matrix proteoglycan 2
ONECUT2	ENST00000491143.2	one cut homeobox 2
AAK1	ENST00000409085.4	AP2 associated kinase 1
PHOX2B	ENST00000226382.2	paired-like homeobox 2b
USP9Y	ENST00000338981.3	ubiquitin specific peptidase 9, Y-linked
RAB8B	ENST00000321437.4	RAB8B, member RAS oncogene family
ZADH2	ENST00000322342.3	zinc binding alcohol dehydrogenase domain containing 2
CNTN4	ENST00000427331.1	contactin 4
DCAF16	ENST00000382247.1	DDB1 and CUL4 associated factor 16
PDIA6	ENST00000272227.3	protein disulfide isomerase family A, member 6
DCBLD2	ENST00000326840.6	discoidin, CUB and LCCL domain containing 2
RORA	ENST00000335670.6	RAR-related orphan receptor A
HOXB4	ENST00000332503.5	homeobox B4
MIER3	ENST00000381226.3	mesoderm induction early response 1, family member 3
BIRC6	ENST00000421745.2	baculoviral IAP repeat containing 6
TRIM71	ENST00000383763.5	tripartite motif containing 71, E3 ubiquitin protein ligase
TOX	ENST00000361421.1	thymocyte selection-associated high mobility group box
FAM135A	ENST00000418814.2	family with sequence similarity 135, member A
CNNM2	ENST00000369878.4	cyclin M2
GABRA4	ENST00000264318.3	gamma-aminobutyric acid (GABA) A receptor, alpha 4

ZBTB43	ENST00000449886.1	zinc finger and BTB domain containing 43
YWHAG	ENST00000307630.3	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, gamma polypeptide
ATP2B2	ENST00000352432.4	ATPase, Ca <sup>++</sup> transporting, plasma membrane 2
E2F7	ENST00000416496.2	E2F transcription factor 7
PAK7	ENST00000378423.1	p21 protein (Cdc42/Rac)-activated kinase 7
SAMD12	ENST00000409003.4	sterile alpha motif domain containing 12
TUSC3	ENST00000503731.1	tumor suppressor candidate 3
GRB10	ENST00000398812.2	growth factor receptor-bound protein 10
MOSPD1	ENST00000370783.3	motile sperm domain containing 1
CYLD	ENST00000540145.1	cylindromatosis (turban tumor syndrome)
MED26	ENST00000263390.3	mediator complex subunit 26
FAM58A	ENST00000406277.2	family with sequence similarity 58, member A
KITLG	ENST00000228280.5	KIT ligand
GNAQ	ENST00000286548.4	guanine nucleotide binding protein (G protein), q polypeptide
AHNAK	ENST00000378024.4	AHNAK nucleoprotein
RAD21	ENST00000297338.2	RAD21 homolog (S. pombe)
TMCC1	ENST00000432054.2	transmembrane and coiled-coil domain family 1
AKT3	ENST00000366539.1	v-akt murine thymoma viral oncogene homolog 3
ANKRD44	ENST00000282272.8	ankyrin repeat domain 44
EMC1	ENST00000477853.1	ER membrane protein complex subunit 1
PRKAR2A	ENST00000265563.8	protein kinase, cAMP-dependent, regulatory, type II, alpha
NREP	ENST00000379671.3	neuronal regeneration related protein
MFAP3L	ENST00000393704.3	microfibrillar-associated protein 3-like
CYP26B1	ENST00000001146.2	cytochrome P450, family 26, subfamily B, polypeptide 1
CCNG1	ENST00000340828.2	cyclin G1
HEPHL1	ENST00000315765.9	hephaestin-like 1
BAZ2B	ENST00000392782.1	bromodomain adjacent to zinc finger domain, 2B
MITF	ENST00000328528.6	microphthalmia-associated transcription factor
DNAJB1	ENST00000254322.2	DnaJ (Hsp40) homolog, subfamily B, member 1
LMBRD2	ENST00000296603.4	LMBRD1 domain containing 2
CCNK	ENST00000389879.5	cyclin K
CYR61	ENST00000451137.2	cysteine-rich, angiogenic inducer, 61
CAMSAP2	ENST00000358823.2	calmodulin regulated spectrin-associated protein family, member 2
TBL1XR1	ENST00000430069.1	transducin (beta)-like 1 X-linked receptor 1
NOG	ENST00000332822.4	noggin
PHACTR4	ENST00000373839.3	phosphatase and actin regulator 4
CARM1	ENST00000327064.4	coactivator-associated arginine methyltransferase 1
TNPO1	ENST00000337273.5	transportin 1
KLHL42	ENST00000381271.2	kelch-like family member 42
HECA	ENST00000367658.2	headcase homolog (Drosophila)
ANP32A	ENST00000465139.2	acidic (leucine-rich) nuclear phosphoprotein 32 family, member A
PRIMA1	ENST00000393140.1	proline rich membrane anchor 1
EMX2	ENST00000442245.4	empty spiracles homeobox 2
ERG	ENST00000398905.1	v-ets avian erythroblastosis virus E26 oncogene homolog
ZDHHC21	ENST00000380916.4	zinc finger, DHHC-type containing 21
DNAJB14	ENST00000442697.2	DnaJ (Hsp40) homolog, subfamily B, member 14
ZFAND5	ENST00000237937.3	zinc finger, AN1-type domain 5
SAMHD1	ENST00000262878.4	SAM domain and HD domain 1
NAB1	ENST00000337386.5	NGFI-A binding protein 1 (EGR1 binding protein 1)
CXADR	ENST00000356275.6	coxsackie virus and adenovirus receptor
TRPM7	ENST00000560955.1	transient receptor potential cation channel, subfamily M, member 7
YWHAZ	ENST00000395957.2	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide
ATP2B1	ENST00000261173.2	ATPase, Ca <sup>++</sup> transporting, plasma membrane 1
GPSM1	ENST00000440944.1	G-protein signaling modulator 1
USP33	ENST00000370794.3	ubiquitin specific peptidase 33
TMEM64	ENST00000458549.2	transmembrane protein 64
MYCBP	ENST00000397572.2	MYC binding protein
C6orf62	ENST00000378119.4	chromosome 6 open reading frame 62
ADAT2	ENST00000606514.1	adenosine deaminase, tRNA-specific 2
ZFP1	ENST00000464850.1	ZFP1 zinc finger protein
USP15	ENST00000353364.3	ubiquitin specific peptidase 15
MTMR10	ENST00000435680.1	myotubularin related protein 10
TM9SF3	ENST00000371142.4	transmembrane 9 superfamily member 3
PRICKLE2	ENST00000295902.6	prickle homolog 2 (Drosophila)
ELMSAN1	ENST00000394071.2	ELM2 and Myb/SANT-like domain containing 1
ATP8B2	ENST00000368489.3	ATPase, aminophospholipid transporter, class I, type 8B, member 2
IGF2BP3	ENST00000258729.3	insulin-like growth factor 2 mRNA binding protein 3
WIF1	ENST00000286574.4	WNT inhibitory factor 1
ARID2	ENST00000457135.1	AT rich interactive domain 2 (ARID, RFX-like)
EED	ENST00000327320.4	embryonic ectoderm development
TPST2	ENST00000338754.4	tyrosylprotein sulfotransferase 2
CRYBG3	ENST00000389622.2	beta-gamma crystallin domain containing 3
CUL3	ENST00000264414.4	cullin 3
WASL	ENST00000223023.4	Wiskott-Aldrich syndrome-like
DLGAP2	ENST00000421627.2	discs, large (Drosophila) homolog-associated protein 2

ZNF697	ENST00000421812.2	zinc finger protein 697
SF1	ENST00000377390.3	splicing factor 1
CHIC1	ENST00000373504.6	cysteine-rich hydrophobic domain 1
FAM89A	ENST00000366654.4	family with sequence similarity 89, member A
NPTXR	ENST00000333039.2	neuronal pentraxin receptor
POM121C	ENST00000257665.5	POM121 transmembrane nucleoporin C
CEP97	ENST00000341893.3	centrosomal protein 97kDa
SPIRE1	ENST00000409402.4	spire-type actin nucleation factor 1
RIMKLB	ENST00000357529.3	ribosomal modification protein rimK-like family member B
FBXL3	ENST00000355619.5	F-box and leucine-rich repeat protein 3
STK10	ENST00000176763.5	serine/threonine kinase 10
MYBL1	ENST00000522677.3	v-myb avian myeloblastosis viral oncogene homolog-like 1
OTUD4	ENST00000454497.2	OTU domain containing 4
EYA3	ENST00000373871.3	eyes absent homolog 3 (Drosophila)
CDK8	ENST00000536792.1	cyclin-dependent kinase 8
TTL7	ENST00000260505.8	tubulin tyrosine ligase-like family, member 7
CREB1	ENST00000432329.2	cAMP responsive element binding protein 1
DUSP5	ENST00000369583.3	dual specificity phosphatase 5
VCAM1	ENST00000347652.2	vascular cell adhesion molecule 1
DCLK3	ENST00000416516.2	doublecortin-like kinase 3
EPN2	ENST00000314728.5	epsin 2
YTHDC1	ENST00000344157.4	YTH domain containing 1
RPS6KA6	ENST00000262752.2	ribosomal protein S6 kinase, 90kDa, polypeptide 6
HNRNPK	ENST00000376281.4	heterogeneous nuclear ribonucleoprotein K
MARCKS	ENST00000368635.4	myristoylated alanine-rich protein kinase C substrate
MYO1E	ENST00000288235.4	myosin IE
ABI1	ENST00000376170.4	abl-interactor 1
BCL6	ENST00000406870.2	B-cell CLL/lymphoma 6
RFTN2	ENST00000295049.4	raftlin family member 2
GNB4	ENST00000232564.3	guanine nucleotide binding protein (G protein), beta polypeptide 4
LRRN1	ENST00000319331.3	leucine rich repeat neuronal 1
PGRMC2	ENST00000296425.5	progesterone receptor membrane component 2
ENTPD6	ENST00000433259.2	ectonucleoside triphosphate diphosphohydrolase 6 (putative)
NRXN1	ENST00000342183.5	neurexin 1
SIAE	ENST00000263593.3	sialic acid acetyltransferase
MAP3K8	ENST00000375321.1	mitogen-activated protein kinase kinase kinase 8
ELAVL2	ENST00000380110.4	ELAV like neuron-specific RNA binding protein 2
TGIF2	ENST00000373874.2	TGFB-induced factor homeobox 2
SACM1L	ENST00000389061.5	SAC1 suppressor of actin mutations 1-like (yeast)
CDH8	ENST00000584337.1	cadherin 8, type 2
HSPA5	ENST00000324460.6	heat shock 70kDa protein 5 (glucose-regulated protein, 78kDa)
PPP1R2	ENST00000328432.3	protein phosphatase 1, regulatory (inhibitor) subunit 2
HOXB5	ENST00000239151.5	homeobox B5
XRN1	ENST00000264951.4	5'-3' exoribonuclease 1
THRB	ENST00000396671.2	thyroid hormone receptor, beta
CNR1	ENST00000362094.5	cannabinoid receptor 1 (brain)
NIPBL	ENST00000448238.2	Nipped-B homolog (Drosophila)
ATXN3	ENST00000545170.1	ataxin 3
SOS1	ENST00000426016.1	son of sevenless homolog 1 (Drosophila)
CSTF3	ENST00000323959.4	cleavage stimulation factor, 3' pre-RNA, subunit 3, 77kDa
PODXL	ENST00000541194.1	podocalyxin-like
ERF	ENST00000222329.4	Ets2 repressor factor
GMPS	ENST00000496455.2	guanine monophosphate synthase
HCN1	ENST00000303230.4	hyperpolarization activated cyclic nucleotide-gated potassium channel 1
SLC26A9	ENST00000367135.3	solute carrier family 26 (anion exchanger), member 9
SOCS3	ENST00000330871.2	suppressor of cytokine signaling 3
RNF38	ENST00000259605.6	ring finger protein 38
NEGR1	ENST00000357731.5	neuronal growth regulator 1
DERL2	ENST00000572834.1	derlin 2
CDC5L	ENST00000371477.3	cell division cycle 5-like
PANK3	ENST00000239231.6	pantothenate kinase 3
RNF141	ENST00000265981.2	ring finger protein 141
EPHA4	ENST00000281821.2	EPH receptor A4
PAK4	ENST00000599386.1	p21 protein (Cdc42/Rac)-activated kinase 4
KCNA4	ENST00000328224.6	potassium voltage-gated channel, shaker-related subfamily, member 4
DPYSL2	ENST00000311151.5	dihydropyrimidinase-like 2
RAD23B	ENST00000358015.3	RAD23 homolog B (S. cerevisiae)
MAPK1	ENST00000215832.6	mitogen-activated protein kinase 1
CDC73	ENST00000367435.3	cell division cycle 73
ZNF704	ENST00000327835.3	zinc finger protein 704
CCDC64	ENST00000397558.2	coiled-coil domain containing 64
F2R	ENST00000319211.4	coagulation factor II (thrombin) receptor
FAM13B	ENST0000033079.3	family with sequence similarity 13, member B
LLPH	ENST00000266604.2	LLP homolog, long-term synaptic facilitation (Aplysia)
AMER2	ENST00000357816.2	APC membrane recruitment protein 2

KIAA1644	ENST00000381176.4	KIAA1644
RLIM	ENST00000332687.6	ring finger protein, LIM domain interacting
TRPM3	ENST00000377110.3	transient receptor potential cation channel, subfamily M, member 3
PRKG1	ENST00000373985.1	protein kinase, cGMP-dependent, type I
TOPBP1	ENST00000260810.5	topoisomerase (DNA) II binding protein 1
FGFR3	ENST00000340107.4	fibroblast growth factor receptor 3
PURB	ENST00000395699.2	purine-rich element binding protein B
PRLR	ENST00000342362.5	prolactin receptor
DRD1	ENST00000393752.2	dopamine receptor D1
PTBP3	ENST00000374257.1	polypyrimidine tract binding protein 3
CNKSR3	ENST00000607772.1	CNKSR family member 3
STIM2	ENST00000467011.1	stromal interaction molecule 2
CACNA2D1	ENST00000356860.3	calcium channel, voltage-dependent, alpha 2/delta subunit 1
ING5	ENST00000313552.6	inhibitor of growth family, member 5
CHMP1B	ENST00000526991.2	charged multivesicular body protein 1B
TBCEL	ENST00000422003.2	tubulin folding cofactor E-like
SENP1	ENST00000004980.5	SUMO1/sentrin specific peptidase 1
SOCS2	ENST00000548537.1	suppressor of cytokine signaling 2
UGCG	ENST00000374279.3	UDP-glucose ceramide glucosyltransferase
GRIK3	ENST00000373091.3	glutamate receptor, ionotropic, kainate 3
KIAA0247	ENST00000342745.4	KIAA0247
SHOC2	ENST00000369452.4	soc-2 suppressor of clear homolog (C. elegans)
ENOX2	ENST00000370935.1	ecto-NOX disulfide-thiol exchanger 2
PICALM	ENST00000532317.1	phosphatidylinositol binding clathrin assembly protein
TXK	ENST00000264316.4	TXK tyrosine kinase
TRAK2	ENST00000332624.3	trafficking protein, kinesin binding 2
SEMA3C	ENST00000265361.3	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3C
EVX2	ENST00000308618.4	even-skipped homeobox 2
TNS3	ENST00000311160.9	tensin 3
TMEM151B	ENST00000451188.2	transmembrane protein 151B
ZNF772	ENST00000425074.3	zinc finger protein 772
TM9SF4	ENST00000398022.2	transmembrane 9 superfamily protein member 4
MYCBP2	ENST00000544440.2	MYC binding protein 2, E3 ubiquitin protein ligase
NUP155	ENST00000231498.3	nucleoporin 155kDa
RBM22	ENST00000199814.4	RNA binding motif protein 22
ATXN1	ENST00000244769.4	ataxin 1
SLC4A10	ENST00000415876.2	solute carrier family 4, sodium bicarbonate transporter, member 10
MAPK1IP1L	ENST00000395468.4	mitogen-activated protein kinase 1 interacting protein 1-like
ERO1L	ENST00000395686.3	ERO1-like (S. cerevisiae)
ZNF207	ENST00000394670.4	zinc finger protein 207
NFIB	ENST00000397575.3	nuclear factor I/B
PIK3CB	ENST00000477593.1	phosphatidylinositol-4,5-bisphosphate 3-kinase, catalytic subunit beta
MADD	ENST00000406482.1	MAP-kinase activating death domain
HAND2	ENST00000359562.4	heart and neural crest derivatives expressed 2
RNF146	ENST00000356799.2	ring finger protein 146
DAZAP2	ENST00000412716.3	DAZ associated protein 2
FAM171A1	ENST00000378116.4	family with sequence similarity 171, member A1
LNX2	ENST00000316334.3	ligand of numb-protein X 2
NMT1	ENST00000592782.1	N-myristoyltransferase 1
IFRG15	ENST00000553856.1	Homo sapiens torsin A interacting protein 2 (TOR1AIP2), transcript variant 1, mRNA.
CDK17	ENST00000543119.2	cyclin-dependent kinase 17
STC1	ENST00000290271.2	stanniocalcin 1
FLJ00104	ENST00000446344.1	HCG1980662; Uncharacterized protein
ECT2L	ENST00000423192.1	epithelial cell transforming sequence 2 oncogene-like
SEL1L	ENST00000336735.4	sel-1 suppressor of lin-12-like (C. elegans)
ZEB2	ENST00000558170.2	zinc finger E-box binding homeobox 2
G3BP2	ENST00000395719.3	GTPase activating protein (SH3 domain) binding protein 2
AL590483.1	ENST00000598000.1	Uncharacterized protein; cDNA FLJ42623 fis, clone BRACE3015894
HMGB1	ENST00000399489.1	high mobility group box 1
PPP1CB	ENST00000395366.2	protein phosphatase 1, catalytic subunit, beta isozyme
PHF2	ENST00000375376.4	PHD finger protein 2
INHBA	ENST00000242208.4	inhibin, beta A
CDYL	ENST00000343762.5	chromodomain protein, Y-like
GDI1	ENST00000447750.2	GDP dissociation inhibitor 1
POLQ	ENST00000264233.5	polymerase (DNA directed), theta
PUM1	ENST00000424085.2	pumilio RNA-binding family member 1
POU2F1	ENST00000367866.2	POU class 2 homeobox 1
CHURC1	ENST00000548752.2	churchill domain containing 1
ZBTB7A	ENST00000322357.4	zinc finger and BTB domain containing 7A
PKN2	ENST00000370521.3	protein kinase N2
SGK3	ENST00000345714.4	serum/glucocorticoid regulated kinase family, member 3
LPP	ENST00000312675.1	LIM domain containing preferred translocation partner in lipoma
KLHL3	ENST00000541417.1	kelch-like family member 3
DIP2A	ENST00000318711.7	DIP2 disco-interacting protein 2 homolog A (Drosophila)
PDPK1	ENST00000441549.3	3-phosphoinositide dependent protein kinase-1

MEX3A	ENST00000532414.2	mex-3 RNA binding family member A
TRANK1	ENST00000428977.2	tetratricopeptide repeat and ankyrin repeat containing 1
ZNF664	ENST00000538932.2	zinc finger protein 664
WWC2	ENST00000403733.3	WW and C2 domain containing 2
LGALS1	ENST00000409537.2	lectin, galactoside-binding-like
SLC38A2	ENST00000256689.5	solute carrier family 38, member 2
USP8	ENST00000396444.3	ubiquitin specific peptidase 8
INO80D	ENST00000403263.1	INO80 complex subunit D
INPP5E	ENST00000371712.3	inositol polyphosphate-5-phosphatase, 72 kDa
LRP12	ENST00000424843.2	low density lipoprotein receptor-related protein 12
DOCK4	ENST00000428084.1	dedicator of cytokinesis 4
ZZZ3	ENST00000370801.3	zinc finger, ZZ-type containing 3
NR3C1	ENST00000394464.2	nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor)
NFATC2	ENST00000371564.3	nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2
XIAP	ENST00000371199.3	X-linked inhibitor of apoptosis
IRS2	ENST00000375856.3	insulin receptor substrate 2
SFRP4	ENST00000436072.2	secreted frizzled-related protein 4
TBL1X	ENST00000407597.2	transducin (beta)-like 1X-linked
LGI2	ENST00000382114.4	leucine-rich repeat LGI family, member 2
KSR1	ENST00000398988.3	kinase suppressor of ras 1
NAALADL2	ENST00000454872.1	N-acetylated alpha-linked acidic dipeptidase-like 2
ARHGEF37	ENST00000333677.6	Rho guanine nucleotide exchange factor (GEF) 37
ZBTB8B	ENST00000609129.1	zinc finger and BTB domain containing 8B
ZNF24	ENST00000589881.1	zinc finger protein 24
PTEN	ENST00000371953.3	phosphatase and tensin homolog
GRIK2	ENST00000413795.1	glutamate receptor, ionotropic, kainate 2
ZBTB34	ENST00000319119.4	zinc finger and BTB domain containing 34
FHAD1	ENST00000358897.4	forkhead-associated (FHA) phosphopeptide binding domain 1
MBLAC2	ENST00000316610.6	metallo-beta-lactamase domain containing 2
YTHDF2	ENST00000373812.3	YTH domain family, member 2
SLC16A6	ENST00000327268.4	solute carrier family 16, member 6
COLQ	ENST00000383785.2	collagen-like tail subunit (single strand of homotrimer) of asymmetric acetylcholinesterase
RNF32	ENST00000311822.8	ring finger protein 32
DNAJC21	ENST00000382021.2	DnaJ (Hsp40) homolog, subfamily C, member 21
CLIP1	ENST00000361654.4	CAP-GLY domain containing linker protein 1
AGO4	ENST00000373210.3	argonaute RISC catalytic component 4
PDE10A	ENST00000366882.1	phosphodiesterase 10A
ACER3	ENST00000532485.1	alkaline ceramidase 3
KLHL14	ENST00000359358.4	kelch-like family member 14
TBC1D2B	ENST00000409931.3	TBC1 domain family, member 2B
ATP8B1	ENST00000283684.4	ATPase, aminophospholipid transporter, class I, type 8B, member 1
DYNLL2	ENST00000579991.2	dynein, light chain, LC8-type 2
SOGA2	ENST00000359865.3	SOGA family member 2
TAB3	ENST00000378933.1	TGF-beta activated kinase 1/MAP3K7 binding protein 3
PAFAH1B2	ENST00000527958.1	platelet-activating factor acetylhydrolase 1b, catalytic subunit 2 (30kDa)
RSF1	ENST00000308488.6	remodeling and spacing factor 1
ABHD13	ENST00000375898.3	abhydrolase domain containing 13
HGF	ENST00000222390.5	hepatocyte growth factor (hepapoietin A; scatter factor)
RASSF2	ENST00000379400.3	Ras association (RalGDS/AF-6) domain family member 2
ACVR2B	ENST00000352511.4	activin A receptor, type IIB
PKP2	ENST00000340811.4	plakophilin 2
C8orf44-SGK3	ENST00000519289.1	C8orf44-SGK3 readthrough
GRM7	ENST00000486284.1	glutamate receptor, metabotropic 7
CAMK2G	ENST00000351293.3	calcium/calmodulin-dependent protein kinase II gamma
MNX1	ENST00000252971.6	motor neuron and pancreas homeobox 1
MBNL2	ENST00000345429.6	muscleblind-like splicing regulator 2
BMF	ENST00000220446.4	Bcl2 modifying factor
DR1	ENST00000370272.4	down-regulator of transcription 1, TBP-binding (negative cofactor 2)
KMT2C	ENST00000262189.6	lysine (K)-specific methyltransferase 2C
SLC35F1	ENST00000360388.4	solute carrier family 35, member F1
PLA2G4A	ENST00000367466.3	phospholipase A2, group IVA (cytosolic, calcium-dependent)
AKAP5	ENST00000394718.4	A kinase (PRKA) anchor protein 5
RNF150	ENST00000515673.2	ring finger protein 150
PALM2	ENST00000448454.2	paralemmin 2
MTF2	ENST00000370298.4	metal response element binding transcription factor 2
CBFA2T3	ENST00000327483.5	core-binding factor, runt domain, alpha subunit 2; translocated to, 3
MIP	ENST00000257979.4	major intrinsic protein of lens fiber
SLC35A3	ENST00000465289.1	solute carrier family 35 (UDP-N-acetylglucosamine (UDP-GlcNAc) transporter), member A3
KCNQ5	ENST00000370398.1	potassium voltage-gated channel, KQT-like subfamily, member 5
TEAD1	ENST00000361905.4	TEA domain family member 1 (SV40 transcriptional enhancer factor)
HIPK2	ENST00000406875.3	homeodomain interacting protein kinase 2
GCNT2	ENST00000316170.3	glucosaminyl (N-acetyl) transferase 2, I-branching enzyme (I blood group)
DSC1	ENST00000257197.3	desmocollin 1
PTGR2	ENST00000555661.1	prostaglandin reductase 2
KLHL29	ENST00000486442.1	kelch-like family member 29

PLCXD3	ENST00000377801.3	phosphatidylinositol-specific phospholipase C, X domain containing 3
PDE5A	ENST00000354960.3	phosphodiesterase 5A, cGMP-specific
ADCY9	ENST00000294016.3	adenylate cyclase 9
RFX2	ENST00000303657.5	regulatory factor X, 2 (influences HLA class II expression)
RASSF8	ENST00000541490.1	Ras association (RalGDS/AF-6) domain family (N-terminal) member 8
UNC80	ENST00000439458.1	unc-80 homolog (C. elegans)
GOLGA1	ENST00000373555.4	golgin A1
BNC2	ENST00000380672.4	basonuclin 2
GJA9	ENST00000454994.2	gap junction protein, alpha 9, 59kDa
CPT1A	ENST00000265641.5	carnitine palmitoyltransferase 1A (liver)
NRAS	ENST00000369535.4	neuroblastoma RAS viral (v-ras) oncogene homolog
ABI3BP	ENST00000471714.1	ABI family, member 3 (NESH) binding protein
SLC2A14	ENST00000340749.5	solute carrier family 2 (facilitated glucose transporter), member 14
ATP11C	ENST00000327569.3	ATPase, class VI, type 11C
MEF2A	ENST00000354410.5	myocyte enhancer factor 2A
CARD10	ENST00000403299.1	caspase recruitment domain family, member 10
RFX3	ENST00000382004.3	regulatory factor X, 3 (influences HLA class II expression)
SLC35F3	ENST00000366618.3	solute carrier family 35, member F3
ATP2A2	ENST00000395494.2	ATPase, Ca <sup>++</sup> transporting, cardiac muscle, slow twitch 2
PACS2	ENST00000447393.1	phosphofurin acidic cluster sorting protein 2
TADA2B	ENST00000310074.7	transcriptional adaptor 2B
SPAG9	ENST00000262013.7	sperm associated antigen 9
FGD4	ENST00000427716.2	FYVE, RhoGEF and PH domain containing 4
NOL4	ENST00000261592.5	nucleolar protein 4
MEX3B	ENST00000558133.1	mex-3 RNA binding family member B
AFG3L2	ENST00000269143.3	AFG3 ATPase family member 3-like 2 (S. cerevisiae)
SLC25A53	ENST00000357421.4	solute carrier family 25, member 53
PDIK1L	ENST00000374271.4	PDLIM1 interacting kinase 1 like
NRP1	ENST00000374875.1	neuropilin 1
BAZ1A	ENST00000358716.4	bromodomain adjacent to zinc finger domain, 1A
KCNJ10	ENST00000368089.3	potassium inwardly-rectifying channel, subfamily J, member 10
KREMEN1	ENST00000400335.4	kringle containing transmembrane protein 1
SOCS4	ENST00000395472.2	suppressor of cytokine signaling 4
STAU1	ENST00000371828.3	staufen double-stranded RNA binding protein 1
TLK2	ENST00000582809.1	tousled-like kinase 2
PHF15	ENST00000402835.1	PHD finger protein 15
EPHA7	ENST00000369303.4	EPH receptor A7
CDC27	ENST00000066544.3	cell division cycle 27
MTX3	ENST00000509852.1	metaxin 3
CCDC92	ENST00000238156.3	coiled-coil domain containing 92
ACSL6	ENST00000379264.2	acyl-CoA synthetase long-chain family member 6
SPTY2D1	ENST00000336349.5	SPT2, Suppressor of Ty, domain containing 1 (S. cerevisiae)
SCAI	ENST00000336505.6	suppressor of cancer cell invasion
sep-03	ENST00000396425.3	septin 3
MAB21L2	ENST00000317605.4	mab-21-like 2 (C. elegans)
RECK	ENST00000377966.3	reversion-inducing-cysteine-rich protein with kazal motifs
SYNE1	ENST00000367255.5	spectrin repeat containing, nuclear envelope 1
ESR1	ENST00000440973.1	estrogen receptor 1
ZEB1	ENST00000361642.5	zinc finger E-box binding homeobox 1
PEAK1	ENST00000312493.4	pseudopodium-enriched atypical kinase 1
NR2C2	ENST00000425241.1	nuclear receptor subfamily 2, group C, member 2
SUDS3	ENST00000397564.2	suppressor of defective silencing 3 homolog (S. cerevisiae)
CD2AP	ENST00000359314.5	CD2-associated protein
MME	ENST00000460393.1	membrane metallo-endopeptidase
GRM5	ENST00000418177.2	glutamate receptor, metabotropic 5
HMX1	ENST00000400677.3	H6 family homeobox 1
EGR3	ENST00000519492.1	early growth response 3
SLC25A25	ENST00000373069.5	solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 25
AFAP1	ENST00000360265.4	actin filament associated protein 1
SMG7	ENST00000367537.3	SMG7 nonsense mediated mRNA decay factor
FSD1L	ENST00000374710.3	fibronectin type III and SPRY domain containing 1-like
FOXB1	ENST00000396057.4	forkhead box B1
PARP2	ENST00000527915.1	poly (ADP-ribose) polymerase 2
EPB41L3	ENST00000341928.2	erythrocyte membrane protein band 4.1-like 3
SLC9A6	ENST00000370698.3	solute carrier family 9, subfamily A (NHE6, cation proton antiporter 6), member 6
FNBP4	ENST00000263773.5	formin binding protein 4
ELP4	ENST00000395934.2	elongator acetyltransferase complex subunit 4
SMAD7	ENST00000262158.2	SMAD family member 7
RANBP3	ENST00000439268.2	RAN binding protein 3
ADAMTS18	ENST00000282849.5	ADAM metallopeptidase with thrombospondin type 1 motif, 18
PKD4	ENST00000005178.5	pyruvate dehydrogenase kinase, isozyme 4
PJA2	ENST00000361189.2	praja ring finger 2, E3 ubiquitin protein ligase
SLC8A1	ENST00000406785.2	solute carrier family 8 (sodium/calcium exchanger), member 1
LIN7C	ENST00000278193.2	lin-7 homolog C (C. elegans)
ZC3H6	ENST00000343936.4	zinc finger CCCH-type containing 6



ZMYND11	ENST00000381591.1	zinc finger, MYND-type containing 11
DOCK10	ENST00000409592.3	dedicator of cytokinesis 10
KMT2A	ENST00000534358.1	lysine (K)-specific methyltransferase 2A
ATP8A1	ENST00000381668.5	ATPase, aminophospholipid transporter (APLT), class I, type 8A, member 1
PCSK1	ENST00000311106.3	proprotein convertase subtilisin/kexin type 1
MBNL1	ENST00000357472.3	muscleblind-like splicing regulator 1
FRYL	ENST00000503238.1	FRY-like
CDX2	ENST00000381020.7	caudal type homeobox 2
MED12L	ENST00000474524.1	mediator complex subunit 12-like
GAD2	ENST00000376261.3	glutamate decarboxylase 2 (pancreatic islets and brain, 65kDa)
HNRNPH1	ENST00000393432.4	heterogeneous nuclear ribonucleoprotein H1 (H)
RAB3IL1	ENST00000394836.2	RAB3A interacting protein (rabin3)-like 1
GRM1	ENST00000392299.2	glutamate receptor, metabotropic 1
PGM2L1	ENST00000298198.4	phosphoglucomutase 2-like 1
JAZF1	ENST00000283928.5	JAZF zinc finger 1
AVL9	ENST00000318709.4	AVL9 homolog (S. cerevisiae)
JARID2	ENST00000341776.2	jumonji, AT rich interactive domain 2
NCOA2	ENST00000452400.2	nuclear receptor coactivator 2
HAPLN1	ENST00000274341.4	hyaluronan and proteoglycan link protein 1
THAP1	ENST00000345117.2	THAP domain containing, apoptosis associated protein 1
NFAT5	ENST00000354436.2	nuclear factor of activated T-cells 5, tonicity-responsive
ADAMTSL1	ENST00000380548.4	ADAMTS-like 1
NSMAF	ENST0000038176.3	neutral sphingomyelinase (N-SMase) activation associated factor
TMEM181	ENST00000367090.3	transmembrane protein 181
CDKL2	ENST00000429927.2	cyclin-dependent kinase-like 2 (CDC2-related kinase)
ATF2	ENST00000487334.2	activating transcription factor 2
TMEM47	ENST00000275954.3	transmembrane protein 47
CTC-432M15.3	ENST00000514667.1	Folliculin-interacting protein 1
PLXDC2	ENST00000377252.4	plexin domain containing 2
TMX3	ENST00000299608.2	thioredoxin-related transmembrane protein 3
GIGYF1	ENST00000275732.5	GRB10 interacting GYF protein 1
BACH2	ENST00000257749.4	BTB and CNC homology 1, basic leucine zipper transcription factor 2
GNG2	ENST00000556752.1	guanine nucleotide binding protein (G protein), gamma 2
CCP110	ENST00000381396.5	centriolar coiled coil protein 110kDa
ESD	ENST00000378720.3	esterase D
RGMA	ENST00000557420.1	RGM domain family, member A
TGFBR3	ENST00000212355.4	transforming growth factor, beta receptor III
LRP4	ENST00000378623.1	low density lipoprotein receptor-related protein 4
RALBP1	ENST00000383432.3	ralA binding protein 1
ABTB2	ENST00000435224.2	ankyrin repeat and BTB (POZ) domain containing 2
HTR2C	ENST00000371950.3	5-hydroxytryptamine (serotonin) receptor 2C, G protein-coupled
RBM26	ENST00000267229.7	RNA binding motif protein 26
DIP2C	ENST00000280886.6	DIP2 disco-interacting protein 2 homolog C (Drosophila)
HIPK1	ENST00000369558.1	homeodomain interacting protein kinase 1
DLG2	ENST00000398309.2	discs, large homolog 2 (Drosophila)
PHACTR2	ENST00000427704.2	phosphatase and actin regulator 2
TMEM71	ENST00000356838.3	transmembrane protein 71
ANKRD50	ENST00000504087.1	ankyrin repeat domain 50
PGR	ENST00000325455.5	progesterone receptor
BRAP	ENST00000419234.4	BRCA1 associated protein
SNX30	ENST00000374232.3	sorting nexin family member 30
ENPP1	ENST00000360971.2	ectonucleotide pyrophosphatase/phosphodiesterase 1
NDRG2	ENST00000298687.5	NDRG family member 2
TSFM	ENST00000540550.1	Ts translation elongation factor, mitochondrial
PAFAH1B1	ENST00000397195.5	platelet-activating factor acetylhydrolase 1b, regulatory subunit 1 (45kDa)
UBE2J1	ENST00000435041.2	ubiquitin-conjugating enzyme E2, J1
FMR1	ENST00000370471.3	fragile X mental retardation 1
SLC30A1	ENST00000367001.4	solute carrier family 30 (zinc transporter), member 1
CHMP3	ENST00000263856.4	charged multivesicular body protein 3
HOMER1	ENST00000508576.1	homer homolog 1 (Drosophila)
FBXO45	ENST00000311630.6	F-box protein 45
INO80	ENST00000361937.3	INO80 complex subunit
SLC9A8	ENST00000361573.2	solute carrier family 9, subfamily A (NHE8, cation proton antiporter 8), member 8
ARRDC3	ENST00000265138.3	arrestin domain containing 3
INPP5A	ENST00000368594.3	inositol polyphosphate-5-phosphatase, 40kDa
SFMBT1	ENST00000394752.3	Scm-like with four mbt domains 1
KIAA1324L	ENST00000450689.2	KIAA1324-like
CHD7	ENST00000423902.2	chromodomain helicase DNA binding protein 7
DCLK1	ENST00000379892.4	doublecortin-like kinase 1
FAM216B	ENST00000537894.1	family with sequence similarity 216, member B
TMEM127	ENST00000258439.3	transmembrane protein 127
RNF103-CHMP3	ENST00000604011.1	RNF103-CHMP3 readthrough
GMFB	ENST00000554908.1	glia maturation factor, beta
TIAL1	ENST00000369093.2	TIA1 cytotoxic granule-associated RNA binding protein-like 1
SGTB	ENST00000381007.4	small glutamine-rich tetratricopeptide repeat (TPR)-containing, beta

HIC2	ENST00000407464.2	hypermethylated in cancer 2
PPP1R3B	ENST00000310455.3	protein phosphatase 1, regulatory subunit 3B
CLCC1	ENST00000356970.2	chloride channel CLIC-like 1
SIX4	ENST00000216513.4	SIX homeobox 4
RTKN2	ENST00000373789.3	rhotekin 2
FAM102A	ENST00000373095.1	family with sequence similarity 102, member A
LPPR4	ENST00000370185.3	Lipid phosphate phosphatase-related protein type 4
HS2ST1	ENST00000370550.5	heparan sulfate 2-O-sulfotransferase 1
SRGAP1	ENST00000355086.3	SLIT-ROBO Rho GTPase activating protein 1
RPS6KA3	ENST00000379565.3	ribosomal protein S6 kinase, 90kDa, polypeptide 3
DDX3X	ENST00000399959.2	DEAD (Asp-Glu-Ala-Asp) box helicase 3, X-linked
KDM5A	ENST00000399788.2	lysine (K)-specific demethylase 5A
MSI1	ENST00000257552.2	musashi RNA-binding protein 1
FAM49A	ENST00000381323.3	family with sequence similarity 49, member A
PPP2R2C	ENST00000335585.5	protein phosphatase 2, regulatory subunit B, gamma
CNOT6L	ENST00000504123.1	CCR4-NOT transcription complex, subunit 6-like
AP1G1	ENST00000299980.4	adaptor-related protein complex 1, gamma 1 subunit
ILF3	ENST00000449870.1	interleukin enhancer binding factor 3, 90kDa
DNAJC3	ENST00000602402.1	DnaJ (Hsp40) homolog, subfamily C, member 3
MFSD6	ENST00000392328.1	major facilitator superfamily domain containing 6
CDC42BPA	ENST00000366767.3	CDC42 binding protein kinase alpha (DMPK-like)
TBC1D9	ENST00000442267.2	TBC1 domain family, member 9 (with GRAM domain)
FSTL1	ENST00000295633.3	folliculin-like 1
KCNK12	ENST00000327876.4	potassium channel, subfamily K, member 12
FAM179B	ENST00000382233.2	family with sequence similarity 179, member B
LCOR	ENST00000371103.3	ligand dependent nuclear receptor corepressor
FBXO48	ENST00000377957.3	F-box protein 48
TBC1D14	ENST00000448507.1	TBC1 domain family, member 14
NSG1	ENST00000421177.2	Neuron-specific protein family member 1
MSL2	ENST00000309993.2	male-specific lethal 2 homolog (Drosophila)
SRSF10	ENST00000343255.5	serine/arginine-rich splicing factor 10
DGCR2	ENST00000545799.1	DiGeorge syndrome critical region gene 2
ANXA11	ENST00000372231.3	annexin A11
CNOT1	ENST00000317147.5	CCR4-NOT transcription complex, subunit 1
TBX18	ENST00000369663.5	T-box 18
NR1D2	ENST00000312521.4	nuclear receptor subfamily 1, group D, member 2
IPMK	ENST00000373935.3	inositol polyphosphate multikinase
MAPT	ENST00000344290.5	microtubule-associated protein tau
LUZP1	ENST00000418342.1	leucine zipper protein 1
STRN	ENST00000263918.4	striatin, calmodulin binding protein
MEGF9	ENST00000373930.3	multiple EGF-like-domains 9
FRS2	ENST00000550389.1	fibroblast growth factor receptor substrate 2
ZSCAN12	ENST00000361028.1	zinc finger and SCAN domain containing 12
ZNRF2	ENST00000323037.4	zinc and ring finger 2
ZBTB4	ENST00000380599.4	zinc finger and BTB domain containing 4
MTMR12	ENST00000280285.5	myotubularin related protein 12
RNF43	ENST00000407977.2	ring finger protein 43
PHLPP2	ENST00000568954.1	PH domain and leucine rich repeat protein phosphatase 2
KRT222	ENST00000394052.3	keratin 222
NKX3-2	ENST00000382438.5	NK3 homeobox 2
TNRC6B	ENST00000335727.9	trinucleotide repeat containing 6B
MCC	ENST00000302475.4	mutated in colorectal cancers
GCC2	ENST00000309863.6	GRIP and coiled-coil domain containing 2
VKORC1L1	ENST00000360768.3	vitamin K epoxide reductase complex, subunit 1-like 1
SRSF5	ENST00000553521.1	serine/arginine-rich splicing factor 5
USP6NL	ENST00000609104.1	USP6 N-terminal like
L1CAM	ENST00000370060.1	L1 cell adhesion molecule
LPCAT1	ENST00000283415.3	lysophosphatidylcholine acyltransferase 1
CUL5	ENST00000393094.2	cullin 5
ZNF394	ENST00000426306.2	zinc finger protein 394
SVIP	ENST00000354193.4	small VCP/p97-interacting protein
YIPF6	ENST00000462683.1	Yip1 domain family, member 6
PPP6C	ENST00000373547.4	protein phosphatase 6, catalytic subunit
RASAL2	ENST00000448150.3	RAS protein activator like 2
ACTRT3	ENST00000330368.2	actin-related protein T3
UBR2	ENST00000372883.3	ubiquitin protein ligase E3 component n-recognin 2
TRIM3	ENST00000525074.1	tripartite motif containing 3
CELSR3	ENST00000164024.4	cadherin, EGF LAG seven-pass G-type receptor 3
RNF152	ENST00000312828.3	ring finger protein 152
SEMA4C	ENST00000305476.5	sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4C
CORO1C	ENST00000261401.3	coronin, actin binding protein, 1C
PRDM1	ENST00000369089.3	PR domain containing 1, with ZNF domain
STXBP6	ENST00000396700.1	syntaxin binding protein 6 (amisyn)
ADARB2	ENST00000381312.1	adenosine deaminase, RNA-specific, B2 (non-functional)
TAF9B	ENST00000341864.5	TAF9B RNA polymerase II, TATA box binding protein (TBP)-associated factor, 31kDa

GUCY1A2	ENST00000526355.2	guanylate cyclase 1, soluble, alpha 2
FNDC3A	ENST00000492622.2	fibronectin type III domain containing 3A
GCNT4	ENST00000322348.4	glucosaminyl (N-acetyl) transferase 4, core 2
GATC	ENST00000551765.1	glutamyl-tRNA(Gln) amidotransferase, subunit C
ZFX	ENST00000539115.1	zinc finger protein, X-linked
ITGA6	ENST00000375221.2	integrin, alpha 6
GALNT16	ENST00000337827.4	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 16
KIAA1551	ENST00000312561.4	KIAA1551
DIXDC1	ENST00000440460.2	DIX domain containing 1
NUCKS1	ENST00000367142.4	nuclear casein kinase and cyclin-dependent kinase substrate 1
EXO1	ENST00000518483.1	exonuclease 1
KIAA1549L	ENST00000321505.4	KIAA1549-like
MAP4K4	ENST00000413150.2	mitogen-activated protein kinase kinase kinase 4
TTC39B	ENST00000512701.2	tetratricopeptide repeat domain 39B
ALO21546.6	ENST00000551806.1	Glutamyl-tRNA(Gln) amidotransferase subunit C, mitochondrial
FNDC3B	ENST00000336824.4	fibronectin type III domain containing 3B
SUGT1	ENST00000310528.8	SGT1, suppressor of G2 allele of SKP1 (S. cerevisiae)
CSNK1A1	ENST00000261798.5	casein kinase 1, alpha 1
ARF3	ENST00000256682.4	ADP-ribosylation factor 3
PSAP	ENST00000394936.3	prosaposin
YTHDF3	ENST00000539294.1	YTH domain family, member 3
CTNND1	ENST00000524630.1	catenin (cadherin-associated protein), delta 1
RALGAPA2	ENST00000202677.7	Ral GTPase activating protein, alpha subunit 2 (catalytic)
ATG2B	ENST00000359933.4	autophagy related 2B
NBEA	ENST00000379939.2	neurobeachin
ZNF292	ENST00000369577.3	zinc finger protein 292
GFPT1	ENST00000357308.4	glutamine--fructose-6-phosphate transaminase 1
SLC25A12	ENST00000422440.2	solute carrier family 25 (aspartate/glutamate carrier), member 12
CDS2	ENST00000460006.1	CDP-diacylglycerol synthase (phosphatidate cytidyltransferase) 2
IGDCC3	ENST00000327987.4	immunoglobulin superfamily, DCC subclass, member 3
THRA	ENST00000450525.2	thyroid hormone receptor, alpha
FAM46C	ENST00000369448.3	family with sequence similarity 46, member C
RP11-644F5.10	ENST00000550412.1	Uncharacterized protein
NOTCH2	ENST00000256646.2	notch 2
CHCHD4	ENST00000295767.5	coiled-coil-helix-coiled-coil-helix domain containing 4
LPGAT1	ENST00000366997.4	lysophosphatidylglycerol acyltransferase 1
BRWD1	ENST00000342449.3	bromodomain and WD repeat domain containing 1
CSNK1G1	ENST00000303052.7	casein kinase 1, gamma 1
PPP1R12B	ENST00000608999.1	protein phosphatase 1, regulatory subunit 12B
CAMSAP1	ENST00000389532.4	calmodulin regulated spectrin-associated protein 1
KCNN3	ENST00000271915.4	potassium intermediate/small conductance calcium-activated channel, subfamily N, member 3
ASTN1	ENST00000361833.2	astrotactin 1
NME1	ENST00000511355.1	NME/NM23 nucleoside diphosphate kinase 1
ANKRD52	ENST00000267116.7	ankyrin repeat domain 52
SYT3	ENST00000338916.4	synaptotagmin III
BEND4	ENST00000504360.1	BEN domain containing 4
MCUR1	ENST00000379170.4	mitochondrial calcium uniporter regulator 1
FAXC	ENST00000389677.5	failed axon connections homolog (Drosophila)
SALL3	ENST00000575389.2	sal-like 3 (Drosophila)
KCTD16	ENST00000507359.3	potassium channel tetramerization domain containing 16
EXOSC2	ENST00000372358.5	exosome component 2
ASXL2	ENST00000435504.4	additional sex combs like 2 (Drosophila)
ZFHX4	ENST00000521891.2	zinc finger homeobox 4
SAMD4A	ENST00000392067.3	sterile alpha motif domain containing 4A
CSRNP3	ENST00000314499.7	cysteine-serine-rich nuclear protein 3
ATM	ENST00000452508.2	ataxia telangiectasia mutated
CECR2	ENST00000400573.5	cat eye syndrome chromosome region, candidate 2
KPNA1	ENST00000344337.6	karyopherin alpha 1 (importin alpha 5)
SOX6	ENST00000316399.6	SRY (sex determining region Y)-box 6
RUNX1	ENST00000344691.4	runt-related transcription factor 1
CNTNAP2	ENST00000361727.3	contactin associated protein-like 2
ROBO2	ENST00000461745.1	roundabout, axon guidance receptor, homolog 2 (Drosophila)
NKAP	ENST00000371410.3	NFKB activating protein
GAPVD1	ENST00000470056.1	GTPase activating protein and VPS9 domains 1
ATRN1	ENST00000355044.3	attractin-like 1
CHD9	ENST00000566029.1	chromodomain helicase DNA binding protein 9
SLC25A36	ENST00000446041.2	solute carrier family 25 (pyrimidine nucleotide carrier ), member 36
ATP11A	ENST00000487903.1	ATPase, class VI, type 11A
THBS2	ENST00000366787.3	thrombospondin 2
ISPD	ENST00000407010.2	isoprenoid synthase domain containing
MTF1	ENST00000373036.4	metal-regulatory transcription factor 1
KIAA0226	ENST00000273582.5	KIAA0226
RNF217	ENST00000521654.2	ring finger protein 217
FOXK1	ENST00000328914.4	forkhead box K1
UBA6	ENST00000322244.5	ubiquitin-like modifier activating enzyme 6

C1orf50	ENST00000372525.5	chromosome 1 open reading frame 50
TBC1D24	ENST00000567020.1	TBC1 domain family, member 24
PROSER1	ENST00000352251.3	proline and serine rich 1
SCML2	ENST00000398048.3	sex comb on midleg-like 2 (Drosophila)
NEURL1B	ENST00000369800.5	neutralized homolog 1B (Drosophila)
PPP1R3E	ENST00000452015.4	protein phosphatase 1, regulatory subunit 3E
PHC3	ENST00000495893.2	polyhomeotic homolog 3 (Drosophila)
ADAMTS1	ENST00000284984.3	ADAM metalloproteinase with thrombospondin type 1 motif, 1
CCDC85A	ENST00000407595.2	coiled-coil domain containing 85A
SYPL2	ENST00000369872.3	synaptophysin-like 2
GPR180	ENST00000376958.4	G protein-coupled receptor 180
NACC2	ENST00000371753.1	NACC family member 2, BEN and BTB (POZ) domain containing
FAM126B	ENST00000418596.3	family with sequence similarity 126, member B
CAMTA2	ENST00000358183.4	calmodulin binding transcription activator 2
SP1	ENST00000426431.2	Sp1 transcription factor
ARIH1	ENST00000379887.4	ariadne RBR E3 ubiquitin protein ligase 1
CCDC6	ENST00000263102.6	coiled-coil domain containing 6
PRRC2C	ENST00000367742.3	proline-rich coiled-coil 2C
NUFIP2	ENST00000225388.4	nuclear fragile X mental retardation protein interacting protein 2
TNIK	ENST00000436636.2	TRAF2 and NCK interacting kinase
PIK3C2A	ENST00000265970.7	phosphatidylinositol-4-phosphate 3-kinase, catalytic subunit type 2 alpha
FBXO11	ENST00000402508.1	F-box protein 11
PTPN9	ENST00000306726.2	protein tyrosine phosphatase, non-receptor type 9
CLMN	ENST00000298912.4	calmin (calponin-like, transmembrane)
CSNK1G3	ENST00000360683.2	casein kinase 1, gamma 3
ETV6	ENST00000396373.4	ets variant 6
PPARA	ENST00000396000.2	peroxisome proliferator-activated receptor alpha
CBX5	ENST00000209875.4	chromobox homolog 5
APBA1	ENST00000265381.4	amyloid beta (A4) precursor protein-binding, family A, member 1
XYLT1	ENST00000261381.6	xylosyltransferase I
HECW2	ENST00000260983.3	HECT, C2 and WW domain containing E3 ubiquitin protein ligase 2
WSCD2	ENST00000332082.4	WSC domain containing 2
TNS1	ENST00000171887.4	tenascin 1
EPB41	ENST00000373798.1	erythrocyte membrane protein band 4.1 (elliptocytosis 1, RH-linked)
CLOCK	ENST00000309964.4	clock circadian regulator
NMNAT2	ENST00000294868.4	nicotinamide nucleotide adenyltransferase 2
TRERF1	ENST00000541110.1	transcriptional regulating factor 1
ERMN	ENST00000410096.1	ermin, ERM-like protein
HYOU1	ENST00000404233.3	hypoxia up-regulated 1
HLTF	ENST00000465259.1	helicase-like transcription factor
TRRAP	ENST00000359863.4	transformation/transcription domain-associated protein
KIAA2018	ENST00000316407.4	KIAA2018
MINK1	ENST00000347992.7	misshapen-like kinase 1
ANK1	ENST00000289734.7	ankyrin 1, erythrocytic
SLITRK4	ENST00000381779.4	SLIT and NTRK-like family, member 4
CMPK2	ENST00000256722.5	cytidine monophosphate (UMP-CMP) kinase 2, mitochondrial
FBXO41	ENST00000295133.5	F-box protein 41
SLX4	ENST00000294008.3	SLX4 structure-specific endonuclease subunit
PSD3	ENST00000327040.8	pleckstrin and Sec7 domain containing 3
TMEM135	ENST00000340353.7	transmembrane protein 135
RAB11FIP2	ENST00000355624.3	RAB11 family interacting protein 2 (class I)
ZBTB41	ENST00000367405.4	zinc finger and BTB domain containing 41
PDE3A	ENST00000359062.3	phosphodiesterase 3A, cGMP-inhibited
QSER1	ENST00000399302.2	glutamine and serine rich 1
RAB3GAP2	ENST00000358951.2	RAB3 GTPase activating protein subunit 2 (non-catalytic)
PPP2R5E	ENST00000337537.3	protein phosphatase 2, regulatory subunit B', epsilon isoform
HDAC9	ENST00000405010.3	histone deacetylase 9
SRGAP2	ENST00000414007.1	SLIT-ROBO Rho GTPase activating protein 2
CAND1	ENST00000545606.1	cullin-associated and neddylation-dissociated 1
CNKSR2	ENST00000379510.3	connector enhancer of kinase suppressor of Ras 2
TULP4	ENST00000367094.2	tubby like protein 4
TANC2	ENST00000424789.2	tetratricopeptide repeat, ankyrin repeat and coiled-coil containing 2
IL6ST	ENST00000381287.4	interleukin 6 signal transducer (gp130, oncostatin M receptor)
CEP350	ENST00000367607.3	centrosomal protein 350kDa
BMPR2	ENST00000374574.2	bone morphogenetic protein receptor, type II (serine/threonine kinase)
ACAN	ENST00000439576.2	aggrecan
MAP1A	ENST00000382031.1	microtubule-associated protein 1A
WDFY3	ENST00000322366.6	WD repeat and FYVE domain containing 3
CLUH	ENST00000570628.2	clustered mitochondria (cluA/CLU1) homolog
STXBP5	ENST00000367481.3	syntaxis binding protein 5 (tomosyn)
KCTD10	ENST00000228495.6	potassium channel tetramerization domain containing 10
SLC7A11	ENST00000280612.5	solute carrier family 7 (anionic amino acid transporter light chain, xc- system), member 11
ZNF280B	ENST00000360412.2	zinc finger protein 280B
OSBPL8	ENST00000393249.2	oxysterol binding protein-like 8
WDR37	ENST00000358220.1	WD repeat domain 37

PI4K2A	ENST00000370649.3	Phosphatidylinositol 4-kinase type 2-alpha; Uncharacterized protein
MAP3K9	ENST00000554752.2	mitogen-activated protein kinase kinase kinase 9
EPC1	ENST00000319778.6	enhancer of polycomb homolog 1 (Drosophila)
CBFA2T2	ENST00000375279.2	core-binding factor, runt domain, alpha subunit 2; translocated to, 2
GLIS3	ENST00000324333.10	GLIS family zinc finger 3
LRP6	ENST00000261349.4	low density lipoprotein receptor-related protein 6
CACNA2D2	ENST00000423994.2	calcium channel, voltage-dependent, alpha 2/delta subunit 2
LOX	ENST00000231004.4	lysyl oxidase
KCNJ15	ENST00000328656.4	potassium inwardly-rectifying channel, subfamily J, member 15
CHD1	ENST00000284049.3	chromodomain helicase DNA binding protein 1
SBNO1	ENST00000420886.2	strawberry notch homolog 1 (Drosophila)
TMEM242	ENST00000400788.4	transmembrane protein 242
ONECUT3	ENST00000382349.4	one cut homeobox 3
BPTF	ENST00000321892.4	bromodomain PHD finger transcription factor
DPP6	ENST00000404039.1	dipeptidyl-peptidase 6
MKNK2	ENST00000591601.1	MAP kinase interacting serine/threonine kinase 2
MMP14	ENST00000311852.6	matrix metalloproteinase 14 (membrane-inserted)
BAAT	ENST00000259407.2	bile acid CoA: amino acid N-acyltransferase (glycine N-choloyltransferase)
KCNK10	ENST00000340700.5	potassium channel, subfamily K, member 10
SRCIN1	ENST00000264659.7	SRC kinase signaling inhibitor 1
CKAP4	ENST00000378026.4	cytoskeleton-associated protein 4
AFF1	ENST00000395146.4	AF4/FMR2 family, member 1
SESN3	ENST00000536441.1	sestrin 3
TAF4	ENST00000252996.4	TAF4 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 135kDa
BAZ2A	ENST00000379441.3	bromodomain adjacent to zinc finger domain, 2A
STAT3	ENST00000585517.1	signal transducer and activator of transcription 3 (acute-phase response factor)
UNKL	ENST00000389221.4	unkempt homolog (Drosophila)-like
LIMCH1	ENST00000313860.7	LIM and calponin homology domains 1
FAF1	ENST00000396153.2	Fas (TNFRSF6) associated factor 1
MCL1	ENST00000369026.2	myeloid cell leukemia sequence 1 (BCL2-related)
RNF8	ENST00000373479.4	ring finger protein 8, E3 ubiquitin protein ligase
KLHL15	ENST00000328046.8	kelch-like family member 15
NLK	ENST00000407008.3	nemo-like kinase
GRID1	ENST00000327946.7	glutamate receptor, ionotropic, delta 1
ZFX3	ENST00000268489.5	zinc finger homeobox 3
WNK3	ENST00000375169.3	WNK lysine deficient protein kinase 3
PRPF40A	ENST00000410080.1	PRP40 pre-mRNA processing factor 40 homolog A (S. cerevisiae)
B3GNT4	ENST00000546192.1	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 4
CPSF6	ENST00000435070.2	cleavage and polyadenylation specific factor 6, 68kDa
sep-08	ENST00000378706.1	septin 8
UBE3C	ENST00000348165.5	ubiquitin protein ligase E3C
SECISBP2	ENST00000375807.3	SECIS binding protein 2
TUBB	ENST00000327892.8	tubulin, beta class I
OGT	ENST00000373719.3	O-linked N-acetylglucosamine (GlcNAc) transferase
SOX5	ENST00000546136.1	SRY (sex determining region Y)-box 5
SLIT1	ENST00000371070.4	slit homolog 1 (Drosophila)
ATL3	ENST00000398868.3	atlastin GTPase 3
C14orf28	ENST00000325192.3	chromosome 14 open reading frame 28
ADARB1	ENST00000539173.1	adenosine deaminase, RNA-specific, B1
TRPV3	ENST00000301365.4	transient receptor potential cation channel, subfamily V, member 3
USP47	ENST00000339865.5	ubiquitin specific peptidase 47
DNAL1	ENST00000553645.2	dynein, axonemal, light chain 1
KCMF1	ENST00000409785.4	potassium channel modulatory factor 1
UBE2D3	ENST00000453744.2	ubiquitin-conjugating enzyme E2D 3
GABRQ	ENST00000370306.2	gamma-aminobutyric acid (GABA) A receptor, theta
DYRK2	ENST00000344096.3	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 2
SEMA4F	ENST00000357877.2	sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4F
COL5A1	ENST00000371817.3	collagen, type V, alpha 1
VGLL4	ENST00000273038.3	vestigial like 4 (Drosophila)
CBX8	ENST00000269385.4	chromobox homolog 8
SIK3	ENST00000375300.1	SIK family kinase 3
COPS2	ENST00000388901.5	COP9 signalosome subunit 2
PNRC1	ENST00000336032.3	proline-rich nuclear receptor coactivator 1
FOXP2	ENST00000408937.3	forkhead box P2
UBE2N	ENST00000550657.1	ubiquitin-conjugating enzyme E2N
CASP10	ENST00000360132.3	caspase 10, apoptosis-related cysteine peptidase
CENPO	ENST00000380834.2	centromere protein O
MLXIP	ENST00000319080.7	MLX interacting protein
USP9X	ENST00000324545.8	ubiquitin specific peptidase 9, X-linked
SIPA1L1	ENST00000555818.1	signal-induced proliferation-associated 1 like 1
HAUS3	ENST00000243706.4	HAUS augmin-like complex, subunit 3
RALGAPB	ENST00000397038.1	Ral GTPase activating protein, beta subunit (non-catalytic)
GAS7	ENST00000437099.2	growth arrest-specific 7
PAQR3	ENST00000512733.1	progesterone and adipoQ receptor family member III
MECP2	ENST00000303391.6	methyl CpG binding protein 2 (Rett syndrome)

UBE2T	ENST00000367274.4	ubiquitin-conjugating enzyme E2T (putative)
TDRD6	ENST00000544460.1	tudor domain containing 6
MAPRE2	ENST00000436190.2	microtubule-associated protein, RP/EB family, member 2
SLC35G1	ENST00000371408.3	solute carrier family 35, member G1
DNAJC5	ENST00000360864.4	DnaJ (Hsp40) homolog, subfamily C, member 5
SMAD2	ENST00000262160.6	SMAD family member 2
TFAM	ENST00000487519.1	transcription factor A, mitochondrial
SRSF11	ENST00000370950.3	serine/arginine-rich splicing factor 11
NUDT21	ENST00000300291.5	nudix (nucleoside diphosphate linked moiety X)-type motif 21
NAA20	ENST00000310450.4	N(alpha)-acetyltransferase 20, NatB catalytic subunit
VANGL1	ENST00000355485.2	VANGL planar cell polarity protein 1
ZNF652	ENST00000362063.2	zinc finger protein 652
RCN2	ENST00000394885.3	reticulocalbin 2, EF-hand calcium binding domain
ARL3	ENST00000260746.5	ADP-ribosylation factor-like 3
TRIM13	ENST00000378182.3	tripartite motif containing 13
HTT	ENST00000355072.5	huntingtin
HNRNPA0	ENST00000314940.4	heterogeneous nuclear ribonucleoprotein A0
IARS2	ENST00000366922.1	isoleucyl-tRNA synthetase 2, mitochondrial
PIP4K2B	ENST00000269554.3	phosphatidylinositol-5-phosphate 4-kinase, type II, beta
MAPK8	ENST00000374182.3	mitogen-activated protein kinase 8
TUBD1	ENST00000346141.6	tubulin, delta 1
YLPM1	ENST00000552421.1	YLP motif containing 1
YWHAB	ENST00000353703.4	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, beta polypeptide
ATG7	ENST00000354449.3	autophagy related 7
HNRNPR	ENST00000478691.1	heterogeneous nuclear ribonucleoprotein R
SLC44A1	ENST00000374720.3	solute carrier family 44 (choline transporter), member 1
MBD2	ENST00000256429.3	methyl-CpG binding domain protein 2
KARS	ENST00000568378.1	lysyl-tRNA synthetase
KIAA1462	ENST00000375377.1	KIAA1462
FTO	ENST00000471389.1	fat mass and obesity associated
MAP3K2	ENST00000409947.1	mitogen-activated protein kinase kinase kinase 2
EXT1	ENST00000378204.2	exostosin glycosyltransferase 1
IQSEC2	ENST00000375365.2	IQ motif and Sec7 domain 2
IL1RAPL1	ENST00000378993.1	interleukin 1 receptor accessory protein-like 1
KCNH1	ENST00000271751.4	potassium voltage-gated channel, subfamily H (eag-related), member 1
SLITRK3	ENST00000475390.1	SLIT and NTRK-like family, member 3
KCNC2	ENST00000393288.2	potassium voltage-gated channel, Shaw-related subfamily, member 2
ZBTB20	ENST00000462705.1	zinc finger and BTB domain containing 20
KLHL36	ENST00000564996.1	kelch-like family member 36
SHC3	ENST00000375835.4	SHC (Src homology 2 domain containing) transforming protein 3
PBX1	ENST00000367897.1	pre-B-cell leukemia homeobox 1
DDX5	ENST00000225792.5	DEAD (Asp-Glu-Ala-Asp) box helicase 5
TMEM134	ENST00000393877.3	transmembrane protein 134

Supplementary Table 3: Human miR-141-3p targets predicted by TargetScan

Target gene	Representative transcript	Gene name
ZNF385D	ENST00000281523.2	zinc finger protein 385D
ZEB1	ENST00000361642.5	zinc finger E-box binding homeobox 1
ZFR	ENST00000265069.8	zinc finger RNA binding protein
ACOT7	ENST00000608083.1	acyl-CoA thioesterase 7
TMEM170B	ENST00000379426.1	transmembrane protein 170B
ZNHIT3	ENST00000490126.2	zinc finger, HIT-type containing 3
ZEB2	ENST00000558170.2	zinc finger E-box binding homeobox 2
ANP32E	ENST00000533654.1	acidic (leucine-rich) nuclear phosphoprotein 32 family, member E
TADA1	ENST00000367874.4	transcriptional adaptor 1
RNF145	ENST00000274542.2	ring finger protein 145
YWHAG	ENST00000307630.3	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, gamma polypeptide
UGT1A1	ENST00000373450.4	UDP glucuronosyltransferase 1 family, polypeptide A1
SCHIP1	ENST00000445224.2	schwannomin interacting protein 1
MAGED4	ENST00000375626.3	melanoma antigen family D, 4
DR1	ENST00000370272.4	down-regulator of transcription 1, TBP-binding (negative cofactor 2)
MAGED4B	ENST00000360134.6	melanoma antigen family D, 4B
TGFB2	ENST00000366930.4	transforming growth factor, beta 2
STAT4	ENST00000358470.4	signal transducer and activator of transcription 4
NME1	ENST00000511355.1	NME/NM23 nucleoside diphosphate kinase 1
DMWD	ENST00000377735.3	dystrophia myotonica, WD repeat containing
SCD5	ENST00000319540.4	stearoyl-CoA desaturase 5
ZCCHC24	ENST00000372336.3	zinc finger, CCHC domain containing 24
LPAR3	ENST00000440886.1	lysophosphatidic acid receptor 3
RANBP6	ENST00000259569.5	RAN binding protein 6
RFX7	ENST00000423270.1	regulatory factor X, 7
DEK	ENST00000397239.3	DEK oncogene
GSG1	ENST00000396302.3	germ cell associated 1
BRI3BP	ENST00000341446.8	BRI3 binding protein
IQCI-SCHIP1	ENST00000337808.6	IQCI-SCHIP1 readthrough
KLHDC2	ENST00000557247.1	kelch domain containing 2
CDK8	ENST00000536792.1	cyclin-dependent kinase 8
WTAP	ENST00000358372.4	Wilms tumor 1 associated protein
ELAVL2	ENST00000380110.4	ELAV like neuron-specific RNA binding protein 2
HMG20A	ENST00000336216.4	high mobility group 20A
STX2	ENST00000392373.2	syntaxin 2
EPHA7	ENST00000369303.4	EPH receptor A7
SLC35C1	ENST00000314134.3	solute carrier family 35 (GDP-fucose transporter), member C1
KLF12	ENST00000377669.2	Kruppel-like factor 12
HECTD1	ENST00000553700.1	HECT domain containing E3 ubiquitin protein ligase 1
PHYHIPL	ENST00000373880.4	phytanoyl-CoA 2-hydroxylase interacting protein-like
LMO3	ENST00000354662.1	LIM domain only 3 (rhombotin-like 2)
RALGPS2	ENST00000367635.3	Ral GEF with PH domain and SH3 binding motif 2
MSANTD4	ENST00000301919.4	Myb/SANT-like DNA-binding domain containing 4 with coiled-coils
PGRMC2	ENST00000296425.5	progesterone receptor membrane component 2
SOBP	ENST00000317357.5	sine oculis binding protein homolog (Drosophila)
UGT1A4	ENST00000373409.3	UDP glucuronosyltransferase 1 family, polypeptide A4
UGT1A7	ENST00000373426.3	UDP glucuronosyltransferase 1 family, polypeptide A7
UGT1A3	ENST00000482026.1	UDP glucuronosyltransferase 1 family, polypeptide A3
UGT1A9	ENST00000354728.4	UDP glucuronosyltransferase 1 family, polypeptide A9
UGT1A5	ENST00000373414.3	UDP glucuronosyltransferase 1 family, polypeptide A5
UGT1A10	ENST00000344644.5	UDP glucuronosyltransferase 1 family, polypeptide A10
YAF2	ENST00000327791.4	YY1 associated factor 2
PRKACB	ENST00000370689.2	protein kinase, cAMP-dependent, catalytic, beta
CCDC6	ENST00000263102.6	coiled-coil domain containing 6
FAM188A	ENST00000378036.1	family with sequence similarity 188, member A
IGSF6	ENST00000268389.4	immunoglobulin superfamily, member 6
RWDD4	ENST00000326397.5	RWD domain containing 4
EPHA2	ENST00000358432.5	EPH receptor A2
TFRC	ENST00000540528.1	transferrin receptor
CDC42EP3	ENST00000295324.3	CDC42 effector protein (Rho GTPase binding) 3
CTNND2	ENST00000304623.8	catenin (cadherin-associated protein), delta 2
B3GNT5	ENST00000326505.3	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 5
RARB	ENST00000437042.2	retinoic acid receptor, beta

MDM1	ENST00000540418.1	Mdm1 nuclear protein homolog (mouse)
FOXJ3	ENST00000372571.1	forkhead box J3
LYPLA1	ENST00000316963.3	lysophospholipase I
C4orf29	ENST00000388795.5	chromosome 4 open reading frame 29
KIAA1430	ENST00000458385.2	KIAA1430
EXOC5	ENST00000413566.2	exocyst complex component 5
MYBL1	ENST00000522677.3	v-myb avian myeloblastosis viral oncogene homolog-like 1
LYSMD3	ENST00000509384.1	LysM, putative peptidoglycan-binding, domain containing 3
ST3GAL3	ENST00000372377.4	ST3 beta-galactoside alpha-2,3-sialyltransferase 3
TMED9	ENST00000332598.6	transmembrane emp24 protein transport domain containing 9
PIGW	ENST00000328396.2	phosphatidylinositol glycan anchor biosynthesis, class W
MAP2K4	ENST00000415385.3	mitogen-activated protein kinase kinase 4
C16orf87	ENST00000394806.2	chromosome 16 open reading frame 87
GRB2	ENST00000392563.1	growth factor receptor-bound protein 2
PPT2	ENST00000361568.2	palmitoyl-protein thioesterase 2
TSHZ3	ENST00000240587.4	teashirt zinc finger homeobox 3
DLC1	ENST00000276297.4	deleted in liver cancer 1
CREBRF	ENST00000540014.1	CREB3 regulatory factor
MBNL1	ENST00000357472.3	muscleblind-like splicing regulator 1
TMEM135	ENST00000340353.7	transmembrane protein 135
ST3GAL5	ENST00000393808.3	ST3 beta-galactoside alpha-2,3-sialyltransferase 5
TMEM192	ENST00000306480.6	transmembrane protein 192
GPRC5C	ENST00000481232.1	G protein-coupled receptor, family C, group 5, member C
MNX1	ENST00000252971.6	motor neuron and pancreas homeobox 1
DSTYK	ENST00000367160.4	dual serine/threonine and tyrosine protein kinase
LAMTOR3	ENST00000499666.2	late endosomal/lysosomal adaptor, MAPK and MTOR activator 3
ZBTB34	ENST00000319119.4	zinc finger and BTB domain containing 34
ZCCHC3	ENST00000382352.3	zinc finger, CCHC domain containing 3
H2AFZ	ENST00000296417.5	H2A histone family, member Z
ACO1	ENST00000309951.6	aconitase 1, soluble
STX16	ENST00000355957.5	syntaxin 16
FOXC1	ENST00000380874.2	forkhead box C1
GPR137C	ENST00000321662.6	G protein-coupled receptor 137C
GLRX	ENST00000379979.4	glutaredoxin (thioltransferase)
PTP4A1	ENST00000370651.3	protein tyrosine phosphatase type IVA, member 1
CCNE2	ENST00000520509.1	cyclin E2
KCTD20	ENST00000373731.2	potassium channel tetramerization domain containing 20
ATXN7L1	ENST00000419735.3	ataxin 7-like 1
NUDCD1	ENST00000239690.4	NudC domain containing 1
SLC30A1	ENST00000367001.4	solute carrier family 30 (zinc transporter), member 1
PTEN	ENST00000371953.3	phosphatase and tensin homolog
E2F3	ENST00000346618.3	E2F transcription factor 3
CRIP2	ENST00000329146.4	cysteine-rich protein 2
BRD3	ENST00000303407.7	bromodomain containing 3
NDNF	ENST00000379692.4	neuron-derived neurotrophic factor
RHEB	ENST00000262187.5	Ras homolog enriched in brain
RBM33	ENST00000341148.3	RNA binding motif protein 33
LUZP6	ENST00000589735.1	leucine zipper protein 6
HSPA13	ENST00000285667.3	heat shock protein 70kDa family, member 13
HS2ST1	ENST00000370550.5	heparan sulfate 2-O-sulfotransferase 1
ERG	ENST00000398905.1	v-ets avian erythroblastosis virus E26 oncogene homolog
SYT4	ENST00000255224.3	synaptotagmin IV
CDC14A	ENST00000370125.2	cell division cycle 14A
DCP2	ENST00000389063.2	decapping mRNA 2
SYT6	ENST00000607941.1	synaptotagmin VI
PPM1L	ENST00000498165.1	protein phosphatase, Mg <sup>2+</sup> /Mn <sup>2+</sup> dependent, 1L
ALG2	ENST00000476832.1	ALG2, alpha-1,3/1,6-mannosyltransferase
TENM3	ENST00000511685.1	teneurin transmembrane protein 3
TMEM110	ENST00000355083.5	transmembrane protein 110
RAB38	ENST00000243662.6	RAB38, member RAS oncogene family
PANK3	ENST00000239231.6	pantothenate kinase 3
FAM220A	ENST00000313324.4	family with sequence similarity 220, member A
C21orf91	ENST00000400558.3	chromosome 21 open reading frame 91
MAP7D1	ENST00000316156.4	MAP7 domain containing 1
FAM91A1	ENST00000334705.7	family with sequence similarity 91, member A1
KHDRBS3	ENST00000355849.5	KH domain containing, RNA binding, signal transduction associated 3



RAP2C	ENST00000342983.2	RAP2C, member of RAS oncogene family
ENPP5	ENST00000371383.2	ectonucleotide pyrophosphatase/phosphodiesterase 5 (putative)
SLC6A9	ENST00000372310.3	solute carrier family 6 (neurotransmitter transporter, glycine), member 9
NUP98	ENST00000359171.4	nucleoporin 98kDa
FGFR1OP	ENST00000366847.4	FGFR1 oncogene partner
OLIG3	ENST00000367734.2	oligodendrocyte transcription factor 3
MN1	ENST00000302326.4	meningioma (disrupted in balanced translocation) 1
HMGCS1	ENST00000325110.6	3-hydroxy-3-methylglutaryl-CoA synthase 1 (soluble)
ARL4A	ENST00000396663.1	ADP-ribosylation factor-like 4A
FAM118B	ENST00000533050.1	family with sequence similarity 118, member B
TTBK2	ENST00000267890.6	tau tubulin kinase 2
KIAA0408	ENST00000483725.3	KIAA0408
PTPRG	ENST00000474889.1	protein tyrosine phosphatase, receptor type, G
MMP16	ENST00000286614.6	matrix metalloproteinase 16 (membrane-inserted)
C6orf120	ENST00000332290.2	chromosome 6 open reading frame 120
RBM7	ENST00000541475.1	RNA binding motif protein 7
SLMO2	ENST00000355937.4	slowmo homolog 2 (Drosophila)
TP53INP1	ENST00000448464.2	tumor protein p53 inducible nuclear protein 1
GNA13	ENST00000439174.2	guanine nucleotide binding protein (G protein), alpha 13
MBTPS2	ENST00000379484.5	membrane-bound transcription factor peptidase, site 2
HCAR3	ENST00000528880.2	hydroxycarboxylic acid receptor 3
CRLF3	ENST00000324238.6	cytokine receptor-like factor 3
RBM20	ENST00000369519.3	RNA binding motif protein 20
RP5-105215.2	ENST00000370548.2	Heparan sulfate 2-O-sulfotransferase 1
DAPK1	ENST00000469640.2	death-associated protein kinase 1
YTHDF2	ENST00000373812.3	YTH domain family, member 2
ATP8A1	ENST00000381668.5	ATPase, aminophospholipid transporter (APLT), class I, type 8A, member 1
FBXL2	ENST00000484457.1	F-box and leucine-rich repeat protein 2
YPEL5	ENST00000379520.3	yippee-like 5 (Drosophila)
HCAR2	ENST00000328880.5	hydroxycarboxylic acid receptor 2
PITX2	ENST00000394595.3	paired-like homeodomain 2
SFPQ	ENST00000357214.5	splicing factor proline/glutamine-rich
CCNL2	ENST00000408952.5	cyclin L2
TSC1	ENST00000298552.3	tuberous sclerosis 1
CFL2	ENST00000341223.3	cofilin 2 (muscle)
PLEKHA8	ENST00000449726.1	pleckstrin homology domain containing, family A (phosphoinositide binding specific) member 8
ABL2	ENST00000502732.1	c-abl oncogene 2, non-receptor tyrosine kinase
DZIP1	ENST00000347108.3	DAZ interacting zinc finger protein 1
TNRC6B	ENST00000335727.9	trinucleotide repeat containing 6B
CDK6	ENST00000265734.4	cyclin-dependent kinase 6
IRS2	ENST00000375856.3	insulin receptor substrate 2
KEAP1	ENST00000171111.5	kelch-like ECH-associated protein 1
ATF5	ENST00000423777.2	activating transcription factor 5
TNKS2	ENST00000371627.4	tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase 2
ANKFY1	ENST00000341657.4	ankyrin repeat and FYVE domain containing 1
SLC35D1	ENST00000235345.5	solute carrier family 35 (UDP-GlcA/UDP-GalNAc transporter), member D1
PFKM	ENST00000312352.7	phosphofructokinase, muscle
EXOC7	ENST00000607838.1	exocyst complex component 7
STRN	ENST00000263918.4	striatin, calmodulin binding protein
GMPS	ENST00000496455.2	guanine monphosphate synthase
MYT1L	ENST00000399161.2	myelin transcription factor 1-like
STAG1	ENST00000383202.2	stromal antigen 1
PLCL1	ENST00000428675.1	phospholipase C-like 1
CCDC80	ENST00000206423.3	coiled-coil domain containing 80
ATXN1	ENST00000244769.4	ataxin 1
ADRB1	ENST00000369295.2	adrenoceptor beta 1
TMEM56	ENST00000370203.4	transmembrane protein 56
HCN1	ENST00000303230.4	hyperpolarization activated cyclic nucleotide-gated potassium channel 1
FOXA1	ENST00000250448.2	forkhead box A1
HGF	ENST00000222390.5	hepatocyte growth factor (hepapoietin A; scatter factor)
CHP1	ENST00000334660.5	calcineurin-like EF-hand protein 1
VSIG8	ENST00000368100.1	V-set and immunoglobulin domain containing 8
PLAG1	ENST00000316981.3	pleiomorphic adenoma gene 1
SIAH1	ENST00000380006.2	siah E3 ubiquitin protein ligase 1
KIF17	ENST00000375044.1	kinesin family member 17
FAM168B	ENST00000409185.1	family with sequence similarity 168, member B

SRC	ENST00000373578.2	v-src avian sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog
RNF185	ENST00000326132.6	ring finger protein 185
TTL7	ENST00000260505.8	tubulin tyrosine ligase-like family, member 7
PHB2	ENST00000546111.1	prohibitin 2
EPGN	ENST00000413830.1	epithelial mitogen
ARHGEF18	ENST00000319670.9	Rho/Rac guanine nucleotide exchange factor (GEF) 18
PCNXL4	ENST00000535349.1	pecanex-like 4 (Drosophila)
UBE2G1	ENST00000396981.2	ubiquitin-conjugating enzyme E2G 1
SIK1	ENST00000270162.6	salt-inducible kinase 1
NAP1L4	ENST00000380542.4	nucleosome assembly protein 1-like 4
LPGAT1	ENST00000366997.4	lysophosphatidylglycerol acyltransferase 1
NR6A1	ENST00000487099.2	nuclear receptor subfamily 6, group A, member 1
TMEM70	ENST00000517439.1	transmembrane protein 70
CLOCK	ENST00000309964.4	clock circadian regulator
NCOA2	ENST00000452400.2	nuclear receptor coactivator 2
MAP2K7	ENST00000397981.3	mitogen-activated protein kinase kinase 7
SNX18	ENST00000343017.6	sorting nexin 18
DDX5	ENST00000225792.5	DEAD (Asp-Glu-Ala-Asp) box helicase 5
ULK2	ENST00000395544.4	unc-51 like autophagy activating kinase 2
LDLRAD4	ENST00000399848.3	low density lipoprotein receptor class A domain containing 4
REEP3	ENST00000373758.4	receptor accessory protein 3
CRMP1	ENST00000324989.7	collapsin response mediator protein 1
GPC2	ENST00000292377.2	glypican 2
ERC2	ENST00000288221.6	ELKS/RAB6-interacting/CAST family member 2
KDM3A	ENST00000409556.1	lysine (K)-specific demethylase 3A
PAQR9	ENST00000340634.3	progesterone and adiponectin receptor family member IX
CHD2	ENST00000394196.4	chromodomain helicase DNA binding protein 2
TFAP2A	ENST00000379613.3	transcription factor AP-2 alpha (activating enhancer binding protein 2 alpha)
KHDRBS2	ENST00000281156.4	KH domain containing, RNA binding, signal transduction associated 2
HIAT1	ENST00000370152.3	hippocampus abundant transcript 1
DUSP3	ENST00000226004.3	dual specificity phosphatase 3
FKBP5	ENST00000536438.1	FK506 binding protein 5
TRIM23	ENST00000231524.9	tripartite motif containing 23
CSF3	ENST00000394149.3	colony stimulating factor 3 (granulocyte)
SLC6A5	ENST00000525748.1	solute carrier family 6 (neurotransmitter transporter), member 5
HNRNPF	ENST00000357065.4	heterogeneous nuclear ribonucleoprotein F
PEG3	ENST00000423103.2	paternally expressed 3
LMBR1	ENST00000353442.5	limb development membrane protein 1
MTPN	ENST00000393085.3	myotrophin
ZNF281	ENST00000294740.3	zinc finger protein 281
SRSF10	ENST00000343255.5	serine/arginine-rich splicing factor 10
FOXA2	ENST00000419308.2	forkhead box A2
CIAO1	ENST00000488633.1	cytosolic iron-sulfur protein assembly 1
HOXA11	ENST00000006015.3	homeobox A11
TSPAN4	ENST00000397396.1	tetraspanin 4
GNAI1	ENST00000351004.3	guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 1
STAT5A	ENST00000345506.4	signal transducer and activator of transcription 5A
ZFAND5	ENST00000237937.3	zinc finger, AN1-type domain 5
FBXW2	ENST00000608872.1	F-box and WD repeat domain containing 2
DOCK4	ENST00000428084.1	dedicator of cytokinesis 4
IKZF2	ENST00000457361.1	IKAROS family zinc finger 2 (Helios)
SRM	ENST00000376957.2	spermidine synthase
MBNL3	ENST00000370839.3	muscleblind-like splicing regulator 3
SREK1IP1	ENST00000513458.4	SREK1-interacting protein 1
TMEM216	ENST00000334888.5	transmembrane protein 216
MYH10	ENST00000360416.3	myosin, heavy chain 10, non-muscle
FAM160B1	ENST00000369248.4	family with sequence similarity 160, member B1
FAM184B	ENST00000265018.3	family with sequence similarity 184, member B
RYBP	ENST00000477973.2	RING1 and YY1 binding protein
FNBP1L	ENST00000370253.2	formin binding protein 1-like
CALCR	ENST00000359558.2	calcitonin receptor
QSER1	ENST00000399302.2	glutamine and serine rich 1
OSBPL11	ENST00000296220.5	oxysterol binding protein-like 11
C18orf21	ENST00000592875.1	chromosome 18 open reading frame 21
KLHDC10	ENST00000335420.5	kelch domain containing 10
BAHD1	ENST00000416165.1	bromo adjacent homology domain containing 1

ZMPSTE24	ENST00000372759.3	zinc metallopeptidase STE24
SPAG9	ENST00000262013.7	sperm associated antigen 9
NRIP3	ENST00000309166.3	nuclear receptor interacting protein 3
GPR12	ENST00000405846.3	G protein-coupled receptor 12
ZBTB16	ENST00000335953.4	zinc finger and BTB domain containing 16
SPRYD3	ENST00000301463.4	SPRY domain containing 3
URGCP	ENST00000223341.7	upregulator of cell proliferation
AKIRIN1	ENST00000432648.3	akirin 1
UBE3A	ENST00000232165.3	ubiquitin protein ligase E3A
LYPD6	ENST00000334166.4	LY6/PLAUR domain containing 6
NRP1	ENST00000374875.1	neuropilin 1
WAPAL	ENST00000298767.5	wings apart-like homolog (Drosophila)
APBB2	ENST00000295974.8	amyloid beta (A4) precursor protein-binding, family B, member 2
ELMOD2	ENST00000323570.3	ELMO/CED-12 domain containing 2
STXBP5	ENST00000367481.3	syntaxin binding protein 5 (tomosyn)
LUC7L3	ENST00000505658.1	LUC7-like 3 (S. cerevisiae)
PCGF3	ENST00000362003.5	polycomb group ring finger 3
THRB	ENST00000396671.2	thyroid hormone receptor, beta
FNDC3B	ENST00000336824.4	fibronectin type III domain containing 3B
RNFT1	ENST00000442346.2	ring finger protein, transmembrane 1
KATNAL1	ENST00000380615.3	katanin p60 subunit A-like 1
RFX1	ENST00000254325.4	regulatory factor X, 1 (influences HLA class II expression)
SLC38A9	ENST00000396865.2	solute carrier family 38, member 9
PPP1R15B	ENST00000367188.4	protein phosphatase 1, regulatory subunit 15B
FOXJ1	ENST00000322957.6	forkhead box J1
EGLN1	ENST00000366641.3	egl-9 family hypoxia-inducible factor 1
MEGF9	ENST00000373930.3	multiple EGF-like-domains 9
POU3F3	ENST00000361360.2	POU class 3 homeobox 3
NRXN1	ENST00000342183.5	neurexin 1
LPIN2	ENST00000261596.4	lipin 2
PPP2CA	ENST00000481195.1	protein phosphatase 2, catalytic subunit, alpha isozyme
PRELID2	ENST00000334744.4	PRELI domain containing 2
GOLM1	ENST00000388712.3	golgi membrane protein 1
CADM2	ENST00000383699.3	cell adhesion molecule 2
HOXB5	ENST00000239151.5	homeobox B5
SUGT1	ENST00000310528.8	SGT1, suppressor of G2 allele of SKP1 (S. cerevisiae)
BNC2	ENST00000380672.4	basonuclin 2
DCUN1D3	ENST00000324344.4	DCN1, defective in cullin neddylation 1, domain containing 3
DUSP7	ENST00000495880.1	dual specificity phosphatase 7
CDK17	ENST00000543119.2	cyclin-dependent kinase 17
FLJ20373	ENST00000414004.2	
MOB3B	ENST00000262244.5	MOB kinase activator 3B
STAT5B	ENST00000293328.3	signal transducer and activator of transcription 5B
MIER1	ENST00000357692.2	mesoderm induction early response 1, transcriptional regulator
KLF6	ENST00000542957.1	Kruppel-like factor 6
GCNT2	ENST00000316170.3	glucosaminyl (N-acetyl) transferase 2, l-branching enzyme (I blood group)
CEP170	ENST00000366542.1	centrosomal protein 170kDa
RBM47	ENST00000319592.4	RNA binding motif protein 47
KCTD12	ENST00000377474.2	potassium channel tetramerization domain containing 12
FGF13	ENST00000315930.6	fibroblast growth factor 13
CBX1	ENST00000393408.3	chromobox homolog 1
SUV39H2	ENST00000313519.5	suppressor of variegation 3-9 homolog 2 (Drosophila)
NAP1L1	ENST00000261182.8	nucleosome assembly protein 1-like 1
QKI	ENST00000392127.2	QKI, KH domain containing, RNA binding
WDR81	ENST00000437219.2	WD repeat domain 81
PTCH1	ENST00000430669.2	patched 1
PPP4R2	ENST00000356692.5	protein phosphatase 4, regulatory subunit 2
SOGA3	ENST00000556132.1	SOGA family member 3
MOCS2	ENST00000450852.3	molybdenum cofactor synthesis 2
CORO1C	ENST00000261401.3	coronin, actin binding protein, 1C
MPPED2	ENST00000358117.5	metallophosphoesterase domain containing 2
AGPAT6	ENST00000396987.3	1-acylglycerol-3-phosphate O-acyltransferase 6
sep-07	ENST00000435235.1	septin 7
OLFM1	ENST00000371796.3	olfactomedin 1
MSL1	ENST00000398532.4	male-specific lethal 1 homolog (Drosophila)
TAF12	ENST00000373824.4	TAF12 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 20kDa

MEMO1	ENST00000295065.5	mediator of cell motility 1
SOGA2	ENST00000359865.3	SOGA family member 2
MTF2	ENST00000370298.4	metal response element binding transcription factor 2
CYP26B1	ENST00000001146.2	cytochrome P450, family 26, subfamily B, polypeptide 1
PAX3	ENST00000350526.4	paired box 3
MBTD1	ENST00000586178.1	mbt domain containing 1
ZNF804B	ENST00000333190.4	zinc finger protein 804B
ZBTB18	ENST00000358704.4	zinc finger and BTB domain containing 18
GATA3	ENST00000379328.3	GATA binding protein 3
NXPB2	ENST00000272641.3	neurexophilin 2
PSEN1	ENST00000344094.3	presenilin 1
ARHGAP24	ENST00000395184.1	Rho GTPase activating protein 24
PCDH8	ENST00000377942.3	protocadherin 8
PEAK1	ENST00000312493.4	pseudopodium-enriched atypical kinase 1
PRDM10	ENST00000358825.5	PR domain containing 10
CCDC85C	ENST00000380243.4	coiled-coil domain containing 85C
FOXP1	ENST00000318789.4	forkhead box P1
PITPNB	ENST00000335272.5	phosphatidylinositol transfer protein, beta
sep-08	ENST00000378706.1	septin 8
TMEM57	ENST00000399766.3	transmembrane protein 57
SHISA5	ENST00000296444.2	shisa family member 5
CALU	ENST00000535011.2	calumenin
OTUD3	ENST00000375120.3	OTU domain containing 3
RGS17	ENST00000367225.2	regulator of G-protein signaling 17
PPP2R5E	ENST00000337537.3	protein phosphatase 2, regulatory subunit B', epsilon isoform
HNRNPAB	ENST00000358344.3	heterogeneous nuclear ribonucleoprotein A/B
CSNK1A1	ENST00000261798.5	casein kinase 1, alpha 1
PPP2R2B	ENST00000394413.3	protein phosphatase 2, regulatory subunit B, beta
CLASP2	ENST00000539981.1	cytoplasmic linker associated protein 2
STXBP1	ENST00000373302.3	syntaxin binding protein 1
CELF1	ENST00000395290.2	CUGBP, Elav-like family member 1
S100BBP	ENST00000373475.5	S100P binding protein
CDH10	ENST00000264463.4	cadherin 10, type 2 (T2-cadherin)
ATP1B1	ENST00000367816.1	ATPase, Na <sup>+</sup> /K <sup>+</sup> transporting, beta 1 polypeptide
PTPRD	ENST00000381196.4	protein tyrosine phosphatase, receptor type, D
SAMD8	ENST00000372687.4	sterile alpha motif domain containing 8
PRKAR1A	ENST00000589228.1	protein kinase, cAMP-dependent, regulatory, type I, alpha
OXS1	ENST00000311806.3	oxidative stress responsive 1
PPP3R1	ENST00000234310.3	protein phosphatase 3, regulatory subunit B, alpha
PAPD4	ENST00000453514.1	PAP associated domain containing 4
CD47	ENST00000361309.5	CD47 molecule
ITPR1L2	ENST00000381440.3	inositol 1,4,5-trisphosphate receptor interacting protein-like 2
XIAP	ENST00000371199.3	X-linked inhibitor of apoptosis
GSKIP	ENST00000555181.1	GSK3B interacting protein
CDV3	ENST00000420115.2	CDV3 homolog (mouse)
PRICKLE1	ENST00000455697.1	prickle homolog 1 (Drosophila)
SUPT6H	ENST00000314616.6	suppressor of Ty 6 homolog (S. cerevisiae)
ANKRD44	ENST00000282272.8	ankyrin repeat domain 44
AKAP2	ENST00000374525.1	A kinase (PRKA) anchor protein 2
RIMS1	ENST00000348717.5	regulating synaptic membrane exocytosis 1
HMGB1	ENST00000399489.1	high mobility group box 1
PXK	ENST00000463280.1	PX domain containing serine/threonine kinase
IDS	ENST00000422081.2	Iduronate 2-sulfatase (Hunter syndrome), isoform CRA_e; Iduronate 2-sulfatase 14 kDa chain
SIX1	ENST00000247182.6	SIX homeobox 1
SERINC1	ENST00000339697.4	serine incorporator 1
C3orf14	ENST00000494481.1	chromosome 3 open reading frame 14
TNPO3	ENST00000393245.1	transportin 3
BACH2	ENST00000257749.4	BTB and CNC homology 1, basic leucine zipper transcription factor 2
C21orf62	ENST00000536776.1	chromosome 21 open reading frame 62
HTR2A	ENST00000378688.4	5-hydroxytryptamine (serotonin) receptor 2A, G protein-coupled
TANC2	ENST00000424789.2	tetratricopeptide repeat, ankyrin repeat and coiled-coil containing 2
ELF2	ENST00000394235.2	E74-like factor 2 (ets domain transcription factor)
PDS5B	ENST00000315596.10	PDS5, regulator of cohesion maintenance, homolog B (S. cerevisiae)
NXPB1	ENST00000405863.1	neurexophilin 1
RANBP9	ENST00000011619.3	RAN binding protein 9
TAB2	ENST00000367456.1	TGF-beta activated kinase 1/MAP3K7 binding protein 2

SREK1	ENST00000334121.6	splicing regulatory glutamine/lysine-rich protein 1
ZBTB20	ENST00000462705.1	zinc finger and BTB domain containing 20
DOLPP1	ENST00000540102.1	dolichyldiphosphatase 1
LHX6	ENST00000373755.2	LIM homeobox 6
IGF2BP2	ENST00000382199.2	insulin-like growth factor 2 mRNA binding protein 2
OSBPL1A	ENST00000319481.3	oxysterol binding protein-like 1A
MEIS2	ENST00000397624.3	Meis homeobox 2
PALM2-AKAP2	ENST00000374530.3	PALM2-AKAP2 readthrough
CHD9	ENST00000566029.1	chromodomain helicase DNA binding protein 9
TMEM237	ENST00000409444.2	transmembrane protein 237
LONRF2	ENST00000393437.3	LON peptidase N-terminal domain and ring finger 2
H1FO	ENST00000340857.2	H1 histone family, member 0
DIS3	ENST00000377767.4	DIS3 mitotic control homolog (S. cerevisiae)
WDR31	ENST00000341761.4	WD repeat domain 31
MAP3K2	ENST00000409947.1	mitogen-activated protein kinase kinase kinase 2
AMPD2	ENST00000342115.4	adenosine monophosphate deaminase 2
MIER3	ENST00000381226.3	mesoderm induction early response 1, family member 3
RNF44	ENST00000274811.4	ring finger protein 44
SEC11A	ENST00000560266.1	SEC11 homolog A (S. cerevisiae)
ZNF660	ENST00000322734.2	zinc finger protein 660
AMOTL1	ENST00000317837.9	angiomin like 1
ATF6	ENST00000367942.3	activating transcription factor 6
PRKD1	ENST00000331968.5	protein kinase D1
CDC42	ENST00000344548.3	cell division cycle 42
GJC1	ENST00000426548.1	gap junction protein, gamma 1, 45kDa
RAB30	ENST00000533486.1	RAB30, member RAS oncogene family
CDC25A	ENST00000302506.3	cell division cycle 25A
NAA60	ENST00000610180.1	N-alpha-acetyltransferase 60
SMC5	ENST00000361138.5	structural maintenance of chromosomes 5
TRAM2	ENST00000182527.3	translocation associated membrane protein 2
SIPA1L2	ENST00000366630.1	signal-induced proliferation-associated 1 like 2
FLI1	ENST00000527786.2	Fli-1 proto-oncogene, ETS transcription factor
PPP2R2A	ENST00000380737.3	protein phosphatase 2, regulatory subunit B, alpha
FSD1L	ENST00000374710.3	fibronectin type III and SPRY domain containing 1-like
SLC23A2	ENST00000338244.1	solute carrier family 23 (ascorbic acid transporter), member 2
NCAM1	ENST00000316851.7	neural cell adhesion molecule 1
RNF38	ENST00000259605.6	ring finger protein 38
BCL2L13	ENST00000418951.2	BCL2-like 13 (apoptosis facilitator)
PLAGL2	ENST00000246229.4	pleiomorphic adenoma gene-like 2
TMEM130	ENST00000416379.2	transmembrane protein 130
FRMD6	ENST00000395718.2	FERM domain containing 6
PLXDC1	ENST00000315392.4	plexin domain containing 1
NPAS3	ENST00000346562.2	neuronal PAS domain protein 3
SYNPO2	ENST00000429713.2	synaptopodin 2
SLC29A2	ENST00000311161.7	solute carrier family 29 (equilibrative nucleoside transporter), member 2
MATR3	ENST00000510056.1	matrin 3
WDR52	ENST00000393845.2	WD repeat domain 52
ITSN1	ENST00000379960.5	intersectin 1 (SH3 domain protein)
NFIA	ENST00000403491.3	nuclear factor I/A
SNAP91	ENST00000521485.1	synaptosomal-associated protein, 91kDa
RSPO3	ENST00000356698.4	R-spondin 3
ATAD2B	ENST00000238789.5	ATPase family, AAA domain containing 2B
IRF2BP1	ENST00000238647.3	interferon regulatory factor 2 binding protein-like
RASSF8	ENST00000541490.1	Ras association (RalGDS/AF-6) domain family (N-terminal) member 8
SEMA6A	ENST00000343348.6	sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6A
PAPLN	ENST00000381166.3	papilin, proteoglycan-like sulfated glycoprotein
CNTN1	ENST00000551295.2	contactin 1
MFN1	ENST00000471841.1	mitofusin 1
NRP2	ENST00000360409.3	neuropilin 2
ZNF638	ENST00000355812.3	zinc finger protein 638
TNS3	ENST00000311160.9	tensin 3
RBM24	ENST00000379052.5	RNA binding motif protein 24
PHF21A	ENST00000257821.4	PHD finger protein 21A
GPHN	ENST00000478722.1	gephyrin
AGFG1	ENST00000310078.8	ArfGAP with FG repeats 1
NECAB1	ENST00000417640.2	N-terminal EF-hand calcium binding protein 1

DUSP1	ENST00000239223.3	dual specificity phosphatase 1
MACF1	ENST00000567887.1	microtubule-actin crosslinking factor 1
NRCAM	ENST00000379028.3	neuronal cell adhesion molecule
TET3	ENST00000409262.3	tet methylcytosine dioxygenase 3
CTBP2	ENST00000337195.5	C-terminal binding protein 2
TIAL1	ENST00000369093.2	TIA1 cytotoxic granule-associated RNA binding protein-like 1
NCKAP5	ENST00000409261.1	NCK-associated protein 5
WDR43	ENST00000407426.3	WD repeat domain 43
GPR137B	ENST00000366592.3	G protein-coupled receptor 137B
GPR75	ENST00000394705.2	G protein-coupled receptor 75
KPNA3	ENST00000261667.3	karyopherin alpha 3 (importin alpha 4)
HECW1	ENST00000395891.2	HECT, C2 and WW domain containing E3 ubiquitin protein ligase 1
KIAA2022	ENST00000055682.6	KIAA2022
GPC6	ENST00000377047.4	glypican 6
KIAA1549L	ENST00000321505.4	KIAA1549-like
MARK1	ENST00000366918.4	MAP/microtubule affinity-regulating kinase 1
BEND4	ENST00000504360.1	BEN domain containing 4
CGGBP1	ENST00000309534.6	CGG triplet repeat binding protein 1
ZDHHC7	ENST00000313732.4	zinc finger, DHHC-type containing 7
LENG8	ENST00000326764.5	leukocyte receptor cluster (LRC) member 8
PHLPP1	ENST00000400316.4	PH domain and leucine rich repeat protein phosphatase 1
ATP2A2	ENST00000395494.2	ATPase, Ca <sup>++</sup> transporting, cardiac muscle, slow twitch 2
GREB1L	ENST00000580732.2	growth regulation by estrogen in breast cancer-like
TNPO1	ENST00000337273.5	transportin 1
TAPT1	ENST00000405303.2	transmembrane anterior posterior transformation 1
BRWD1	ENST00000342449.3	bromodomain and WD repeat domain containing 1
DSEL	ENST00000310045.7	dermatan sulfate epimerase-like
GRIN3A	ENST00000361820.3	glutamate receptor, ionotropic, N-methyl-D-aspartate 3A
EIF4EBP2	ENST00000373218.4	eukaryotic translation initiation factor 4E binding protein 2
ATP6V1C2	ENST00000381661.3	ATPase, H <sup>+</sup> transporting, lysosomal 42kDa, V1 subunit C2
SORBS2	ENST00000284776.7	sorbin and SH3 domain containing 2
IGF2	ENST00000381395.1	insulin-like growth factor 2 (somatomedin A)
KPNA4	ENST00000334256.4	karyopherin alpha 4 (importin alpha 3)
BAZ2B	ENST00000392782.1	bromodomain adjacent to zinc finger domain, 2B
PLCXD3	ENST00000377801.3	phosphatidylinositol-specific phospholipase C, X domain containing 3
KIF1C	ENST00000320785.5	kinesin family member 1C
ARHGAP23	ENST00000431231.2	Rho GTPase activating protein 23
CSNK2A1	ENST00000349736.5	casein kinase 2, alpha 1 polypeptide
ZNF641	ENST00000301042.3	zinc finger protein 641
IRAK1BP1	ENST00000369940.2	interleukin-1 receptor-associated kinase 1 binding protein 1
G3BP2	ENST00000395719.3	GTPase activating protein (SH3 domain) binding protein 2
LPP	ENST00000312675.4	LIM domain containing preferred translocation partner in lipoma
RHOBTB1	ENST00000337910.5	Rho-related BTB domain containing 1
KIF3A	ENST00000378746.4	kinesin family member 3A
CHRD1	ENST00000372045.1	chordin-like 1
EGR2	ENST00000242480.3	early growth response 2
TRAPPC8	ENST00000283351.4	trafficking protein particle complex 8
MBD5	ENST00000407073.1	methyl-CpG binding domain protein 5
ZNF704	ENST00000327835.3	zinc finger protein 704
JAG1	ENST00000254958.5	jagged 1
PDZD2	ENST00000438447.1	PDZ domain containing 2
NR2C2	ENST00000425241.1	nuclear receptor subfamily 2, group C, member 2
FAM126B	ENST00000418596.3	family with sequence similarity 126, member B
PLEKHB1	ENST00000354190.5	pleckstrin homology domain containing, family B (evectins) member 1
CACNA2D1	ENST00000356860.3	calcium channel, voltage-dependent, alpha 2/delta subunit 1
UNC5C	ENST00000453304.1	unc-5 homolog C (C. elegans)
ENAH	ENST00000366844.3	enabled homolog (Drosophila)
ZNF516	ENST00000443185.2	zinc finger protein 516
OGT	ENST00000373719.3	O-linked N-acetylglucosamine (GlcNAc) transferase
MDGA1	ENST00000297153.7	MAM domain containing glycosylphosphatidylinositol anchor 1
RCOR3	ENST00000367006.4	REST corepressor 3
PPP1R3G	ENST00000405617.2	protein phosphatase 1, regulatory subunit 3G
FAM168A	ENST00000064778.4	family with sequence similarity 168, member A
CAMSAP2	ENST00000358823.2	calmodulin regulated spectrin-associated protein family, member 2
RUNX1	ENST00000344691.4	runt-related transcription factor 1
C11orf30	ENST00000529032.1	chromosome 11 open reading frame 30

NEK6	ENST00000373603.1	NIMA-related kinase 6
LSAMP	ENST00000490035.2	limbic system-associated membrane protein
CACNA1E	ENST00000526775.1	calcium channel, voltage-dependent, R type, alpha 1E subunit
GEMIN5	ENST00000285873.7	gem (nuclear organelle) associated protein 5
FAXC	ENST00000389677.5	failed axon connections homolog (Drosophila)
UBA6	ENST00000322244.5	ubiquitin-like modifier activating enzyme 6
ZNF629	ENST00000262525.4	zinc finger protein 629
FBRS	ENST00000356166.6	fibrosin
WDFY3	ENST00000322366.6	WD repeat and FYVE domain containing 3
KDM2B	ENST00000536437.1	lysine (K)-specific demethylase 2B
SMARCE1	ENST00000377808.4	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily e, member 1
ARNTL	ENST00000389708.3	aryl hydrocarbon receptor nuclear translocator-like
NIPBL	ENST00000448238.2	Nipped-B homolog (Drosophila)
SLC38A2	ENST00000256689.5	solute carrier family 38, member 2
SIDT2	ENST00000324225.4	SID1 transmembrane family, member 2
WNT5A	ENST00000474267.1	wingless-type MMTV integration site family, member 5A
ZBTB46	ENST00000245663.4	zinc finger and BTB domain containing 46
RORA	ENST00000335670.6	RAR-related orphan receptor A
CAMSAP1	ENST00000389532.4	calmodulin regulated spectrin-associated protein 1
RBMS1	ENST00000348849.3	RNA binding motif, single stranded interacting protein 1
UBE2Z	ENST00000360943.5	ubiquitin-conjugating enzyme E2Z
NAA50	ENST00000240922.3	N(alpha)-acetyltransferase 50, NatE catalytic subunit
FAM46C	ENST00000369448.3	family with sequence similarity 46, member C
PGM2L1	ENST00000298198.4	phosphoglucomutase 2-like 1
SPATS2	ENST00000553127.1	spermatogenesis associated, serine-rich 2
SLC5A3	ENST00000608209.1	sodium/myo-inositol cotransporter
HDAC4	ENST00000345617.3	histone deacetylase 4
RGAG1	ENST00000465301.2	retrotransposon gag domain containing 1
ZNF644	ENST00000370440.1	zinc finger protein 644
ELL2	ENST00000237853.4	elongation factor, RNA polymerase II, 2
CELF6	ENST00000287202.5	CUGBP, Elav-like family member 6
ARFGEF2	ENST00000371917.4	ADP-ribosylation factor guanine nucleotide-exchange factor 2 (brefeldin A-inhibited)
RAD23B	ENST00000358015.3	RAD23 homolog B (S. cerevisiae)
GDF6	ENST00000287020.5	growth differentiation factor 6
ATP8A2	ENST00000381655.2	ATPase, aminophospholipid transporter, class I, type 8A, member 2
NFASC	ENST00000401399.1	neurofascin
UBE2V2	ENST00000523111.2	ubiquitin-conjugating enzyme E2 variant 2
HIPK1	ENST00000369558.1	homeodomain interacting protein kinase 1
LRP1B	ENST00000389484.3	low density lipoprotein receptor-related protein 1B
USP9X	ENST00000324545.8	ubiquitin specific peptidase 9, X-linked
FBXL19	ENST00000338343.4	F-box and leucine-rich repeat protein 19
RGS7BP	ENST00000334025.2	regulator of G-protein signaling 7 binding protein
TTC28	ENST00000397906.2	tetratricopeptide repeat domain 28
FBXL20	ENST00000394294.3	F-box and leucine-rich repeat protein 20
ZNF436	ENST00000314011.4	zinc finger protein 436
GCNT4	ENST00000322348.4	glucosaminyl (N-acetyl) transferase 4, core 2
RHPN2	ENST00000254260.3	rhopilin, Rho GTPase binding protein 2
WWTR1	ENST00000465804.1	WW domain containing transcription regulator 1
GMEB1	ENST00000373816.1	glucocorticoid modulatory element binding protein 1
NUCKS1	ENST00000367142.4	nuclear casein kinase and cyclin-dependent kinase substrate 1
FOXP2	ENST00000408937.3	forkhead box P2
MTA3	ENST00000405592.1	metastasis associated 1 family, member 3
RPH3AL	ENST00000331302.7	rabphilin 3A-like (without C2 domains)
IGDCC4	ENST00000352385.2	immunoglobulin superfamily, DCC subclass, member 4
TTPAL	ENST00000372906.2	tocopherol (alpha) transfer protein-like
LRRC1	ENST00000370888.1	leucine rich repeat containing 1
LRRC8A	ENST00000372600.4	leucine rich repeat containing 8 family, member A
MVB12B	ENST00000361171.3	multivesicular body subunit 12B
ANKRD50	ENST00000504087.1	ankyrin repeat domain 50
STK35	ENST00000381482.3	serine/threonine kinase 35
SNRK	ENST00000429705.2	SNF related kinase
VPS13B	ENST00000395996.1	vacuolar protein sorting 13 homolog B (yeast)
GPM6B	ENST00000454189.2	glycoprotein M6B
TNS1	ENST00000171887.4	tensin 1
ZKSCAN1	ENST00000324306.6	zinc finger with KRAB and SCAN domains 1
EVX2	ENST00000308618.4	even-skipped homeobox 2

BAP1	ENST00000460680.1	BRCA1 associated protein-1 (ubiquitin carboxy-terminal hydrolase)
SNX27	ENST00000368843.3	sorting nexin family member 27
LPHN2	ENST00000370715.1	latrophilin 2
SPRY4	ENST00000344120.4	sprouty homolog 4 (Drosophila)
SMG7	ENST00000367537.3	SMG7 nonsense mediated mRNA decay factor
GIGYF1	ENST00000275732.5	GRB10 interacting GYF protein 1
PAN2	ENST00000425394.2	PAN2 poly(A) specific ribonuclease subunit homolog (S. cerevisiae)
CDON	ENST00000392693.3	cell adhesion associated, oncogene regulated
PAQR5	ENST00000395407.2	progesterin and adipoQ receptor family member V
TMEM129	ENST00000303277.2	transmembrane protein 129
BRD4	ENST00000263377.2	bromodomain containing 4
APOLD1	ENST00000356591.4	apolipoprotein L domain containing 1
NUMBL	ENST00000252891.4	numb homolog (Drosophila)-like
PLXNA4	ENST00000321063.4	plexin A4
GNL1	ENST00000376621.3	guanine nucleotide binding protein-like 1
SOX6	ENST00000316399.6	SRY (sex determining region Y)-box 6
USP53	ENST00000450251.1	ubiquitin specific peptidase 53
NPTX1	ENST00000306773.4	neuronal pentraxin I
KRT222	ENST00000394052.3	keratin 222
POU3F2	ENST00000328345.5	POU class 3 homeobox 2
PAPPA	ENST00000328252.3	pregnancy-associated plasma protein A, pappalysin 1
CSNK1G3	ENST00000360683.2	casein kinase 1, gamma 3
ANO6	ENST00000320560.8	anoctamin 6
ONECUT1	ENST00000560699.2	one cut homeobox 1
SYNCRIP	ENST00000355238.6	synaptotagmin binding, cytoplasmic RNA interacting protein
TREH	ENST00000529101.1	trehalase (brush-border membrane glycoprotein)
C20orf194	ENST00000453730.2	chromosome 20 open reading frame 194
MGAT5	ENST00000409645.1	mannosyl (alpha-1,6-) glycoprotein beta-1,6-N-acetyl-glucosaminyltransferase
MBOAT2	ENST00000305997.3	membrane bound O-acyltransferase domain containing 2
DONSON	ENST00000453626.1	downstream neighbor of SON
CACNA1I	ENST00000402142.3	calcium channel, voltage-dependent, T type, alpha 1I subunit
MCOLN3	ENST00000370589.2	mucopolip 3
APPBP2	ENST00000083182.3	amyloid beta precursor protein (cytoplasmic tail) binding protein 2
MAPK1	ENST00000215832.6	mitogen-activated protein kinase 1
IFFO2	ENST00000455833.2	intermediate filament family orphan 2
FRMD4A	ENST00000358621.4	FERM domain containing 4A
KMT2A	ENST00000534358.1	lysine (K)-specific methyltransferase 2A
DAB1	ENST00000371236.2	Dab, reelin signal transducer, homolog 1 (Drosophila)
TET1	ENST00000373644.4	tet methylcytosine dioxygenase 1
HIPK2	ENST00000406875.3	homeodomain interacting protein kinase 2
TCF4	ENST00000354452.3	transcription factor 4
DMXL1	ENST00000311085.8	Dmx-like 1
AFF1	ENST00000395146.4	AF4/FMR2 family, member 1
YTHDC1	ENST00000344157.4	YTH domain containing 1
MAPRE2	ENST00000436190.2	microtubule-associated protein, RP/EB family, member 2
NFYB	ENST00000240055.3	nuclear transcription factor Y, beta
MPRIP	ENST00000341712.4	myosin phosphatase Rho interacting protein
UACA	ENST00000322954.6	uveal autoantigen with coiled-coil domains and ankyrin repeats
CBX5	ENST00000209875.4	chromobox homolog 5
RRP15	ENST00000366932.3	ribosomal RNA processing 15 homolog (S. cerevisiae)
MAGI2	ENST00000419488.1	membrane associated guanylate kinase, WW and PDZ domain containing 2
MTSS1	ENST00000378017.3	metastasis suppressor 1
CXXC4	ENST00000394767.2	CXXC finger protein 4
ESRRG	ENST00000361525.3	estrogen-related receptor gamma
MED13L	ENST00000281928.3	mediator complex subunit 13-like
CXADR	ENST00000356275.6	coxsackie virus and adenovirus receptor
PLCB4	ENST00000378493.1	phospholipase C, beta 4
IDE	ENST00000265986.6	insulin-degrading enzyme
PBX1	ENST00000367897.1	pre-B-cell leukemia homeobox 1
CHKA	ENST00000265689.4	choline kinase alpha
PLEKHA7	ENST00000531066.1	pleckstrin homology domain containing, family A member 7
RP11-343C2.12	ENST00000562949.1	Conserved oligomeric Golgi complex subunit 8
WHSC1L1	ENST00000317025.8	Wolf-Hirschhorn syndrome candidate 1-like 1
SAR1A	ENST00000373242.2	SAR1 homolog A (S. cerevisiae)
BACE1	ENST00000313005.6	beta-site APP-cleaving enzyme 1
CLCN5	ENST00000376088.3	chloride channel, voltage-sensitive 5



ZNF207	ENST00000394670.4	zinc finger protein 207
DCX	ENST00000356915.2	doublecortin
ELAVL4	ENST00000371824.1	ELAV like neuron-specific RNA binding protein 4
PDF	ENST00000288022.1	peptide deformylase (mitochondrial)
SOX5	ENST00000546136.1	SRY (sex determining region Y)-box 5
FOXN3	ENST00000345097.4	forkhead box N3
PLXNA3	ENST00000369682.3	plexin A3
CDS2	ENST00000460006.1	CDP-diacylglycerol synthase (phosphatidate cytidyltransferase) 2
B3GALT1	ENST00000392690.3	UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 1
CUL3	ENST00000264414.4	cullin 3
PHLPP2	ENST00000568954.1	PH domain and leucine rich repeat protein phosphatase 2
THSD7A	ENST00000423059.4	thrombospondin, type I, domain containing 7A
SCN7A	ENST00000409855.1	sodium channel, voltage-gated, type VII, alpha subunit
BEND3	ENST00000369042.1	BEN domain containing 3
GPR63	ENST00000229955.3	G protein-coupled receptor 63
TNKS	ENST00000310430.6	tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase
FZD4	ENST00000531380.1	frizzled family receptor 4
WDR26	ENST00000414423.2	WD repeat domain 26
NR3C1	ENST00000394464.2	nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor)
COG8	ENST00000306875.4	component of oligomeric golgi complex 8
TIAM1	ENST00000286827.3	T-cell lymphoma invasion and metastasis 1
METTL9	ENST00000358154.3	methyltransferase like 9
DYNLL2	ENST00000579991.2	dynein, light chain, LC8-type 2
MYO9A	ENST00000564571.1	myosin IXA
FAM84B	ENST00000304916.3	family with sequence similarity 84, member B
CDC42BPB	ENST00000361246.2	CDC42 binding protein kinase beta (DMPK-like)
OGFRL1	ENST00000370435.4	opioid growth factor receptor-like 1
MAP4K4	ENST00000413150.2	mitogen-activated protein kinase kinase kinase 4
NCOA3	ENST00000341724.6	nuclear receptor coactivator 3
WIPF1	ENST00000392547.2	WAS/WASL interacting protein family, member 1
GNG7	ENST00000382159.3	guanine nucleotide binding protein (G protein), gamma 7
KIAA1958	ENST00000337530.6	KIAA1958
TNIK	ENST00000436636.2	TRAF2 and NCK interacting kinase
NPC1	ENST00000269228.5	Niemann-Pick disease, type C1
GAD2	ENST00000376261.3	glutamate decarboxylase 2 (pancreatic islets and brain, 65kDa)
DPYSL3	ENST00000398514.3	dihydropyrimidinase-like 3
ARL5A	ENST00000295087.8	ADP-ribosylation factor-like 5A
RTN4RL1	ENST00000331238.6	reticulon 4 receptor-like 1
SPOCK2	ENST00000373109.2	sparc/osteonectin, cwcv and kazal-like domains proteoglycan (testican) 2
RAD54L2	ENST00000409535.2	RAD54-like 2 ( <i>S. cerevisiae</i> )
LGALS1	ENST00000409537.2	lectin, galactoside-binding-like
ATG7	ENST00000354449.3	autophagy related 7
XKR7	ENST00000562532.2	XK, Kell blood group complex subunit-related family, member 7
ZNF609	ENST00000326648.3	zinc finger protein 609
LMLN	ENST00000330198.4	leishmanolysin-like (metallopeptidase M8 family)
MARCH1	ENST00000274056.7	membrane-associated ring finger (C3HC4) 1, E3 ubiquitin protein ligase
SHROOM4	ENST00000376020.2	shroom family member 4
TNR	ENST00000367674.2	tenascin R
TLN2	ENST00000561311.1	talin 2
DRD2	ENST00000355319.2	dopamine receptor D2
POU4F1	ENST00000377208.5	POU class 4 homeobox 1
MED20	ENST00000409312.1	mediator complex subunit 20
VWC2L	ENST00000427124.1	von Willebrand factor C domain containing protein 2-like
MYO5A	ENST00000399231.3	myosin VA (heavy chain 12, myosin)
TOM1L2	ENST00000581396.1	target of myb1-like 2 (chicken)
NUFIP2	ENST00000225388.4	nuclear fragile X mental retardation protein interacting protein 2
TNRC6C	ENST00000335749.4	trinucleotide repeat containing 6C
TM9SF4	ENST00000398022.2	transmembrane 9 superfamily protein member 4
MTMR12	ENST00000280285.5	myotubularin related protein 12
HARBI1	ENST00000326737.3	harbinger transposase derived 1
HIC2	ENST00000407464.2	hypermethylated in cancer 2
STX7	ENST00000367941.2	syntaxin 7
KMT2C	ENST00000262189.6	lysine (K)-specific methyltransferase 2C
SEC24A	ENST00000398844.2	SEC24 family, member A ( <i>S. cerevisiae</i> )
SCAF8	ENST00000367178.3	SR-related CTD-associated factor 8
ZNRF2	ENST00000323037.4	zinc and ring finger 2

BBX	ENST00000415149.2	bobby sox homolog (Drosophila)
TXLNG	ENST00000380122.5	taxilin gamma
RNF115	ENST00000369291.5	ring finger protein 115
SLC14A1	ENST00000321925.4	solute carrier family 14 (urea transporter), member 1
NABP1	ENST00000410026.2	nucleic acid binding protein 1
SOX11	ENST00000322002.3	SRY (sex determining region Y)-box 11
JMJD1C	ENST00000399251.1	jumonji domain containing 1C
TCF21	ENST00000367882.4	transcription factor 21
CUL4B	ENST00000371322.5	cullin 4B
FBRSL1	ENST00000434748.2	fibrosin-like 1
ANKLE2	ENST00000539605.1	ankyrin repeat and LEM domain containing 2
PSMF1	ENST00000335877.6	proteasome (prosome, macropain) inhibitor subunit 1 (PI31)
THOC2	ENST00000245838.8	THO complex 2
ANK2	ENST00000357077.4	ankyrin 2, neuronal
SOCS7	ENST00000577233.1	suppressor of cytokine signaling 7
ESCO1	ENST00000269214.5	establishment of sister chromatid cohesion N-acetyltransferase 1
DYRK2	ENST00000344096.3	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 2
SCEL	ENST00000377246.3	sciellin
SFXN1	ENST00000321442.5	sideroflexin 1
VAMP4	ENST00000236192.7	vesicle-associated membrane protein 4
HNRNPR	ENST00000478691.1	heterogeneous nuclear ribonucleoprotein R
ASXL1	ENST00000375687.4	additional sex combs like 1 (Drosophila)
C1orf35	ENST00000272139.4	chromosome 1 open reading frame 35
TTC37	ENST00000358746.2	tetratricopeptide repeat domain 37
PCM1	ENST00000524226.1	pericentriolar material 1
TRMU	ENST00000381019.3	tRNA 5-methylaminomethyl-2-thiouridylate methyltransferase
TRIM13	ENST00000378182.3	tripartite motif containing 13
GTPBP8	ENST00000383677.3	GTP-binding protein 8 (putative)
POLR3A	ENST00000372371.3	polymerase (RNA) III (DNA directed) polypeptide A, 155kDa
HAUS3	ENST00000243706.4	HAUS augmin-like complex, subunit 3
KIAA1211	ENST00000504228.1	KIAA1211
CNP	ENST00000393892.3	2',3'-cyclic nucleotide 3' phosphodiesterase
SCN9A	ENST00000409672.1	sodium channel, voltage-gated, type IX, alpha subunit
CADM1	ENST00000452722.3	cell adhesion molecule 1
KCNC2	ENST00000393288.2	potassium voltage-gated channel, Shaw-related subfamily, member 2
GATSL2	ENST00000426327.3	GATS protein-like 2
METTL24	ENST00000338882.4	methyltransferase like 24
PTCHD3	ENST00000438700.3	patched domain containing 3
APOH	ENST00000205948.6	apolipoprotein H (beta-2-glycoprotein I)
SERPINC1	ENST00000367698.3	serpin peptidase inhibitor, clade C (antithrombin), member 1
SPPL2A	ENST00000261854.5	signal peptide peptidase like 2A
PDHB	ENST00000474765.1	pyruvate dehydrogenase (lipoamide) beta
DNAH17	ENST00000585328.1	dynein, axonemal, heavy chain 17

Supplementary Table 4: Human miR-200c-3p targets predicted by TargetScan

Target gene	Representative transcript	Gene name
ZEB1	ENST00000361642.5	zinc finger E-box binding homeobox 1
GMBF	ENST00000554908.1	glia maturation factor, beta
TCEB1	ENST00000518127.1	transcription elongation factor B (SIII), polypeptide 1 (15kDa, elongin C)
FEZ2	ENST00000379245.4	fasciculation and elongation protein zeta 2 (zygin II)
CFL2	ENST00000341223.3	cofilin 2 (muscle)
LHFP	ENST00000379589.3	lipoma HMGIC fusion partner
PMAP1	ENST00000316660.6	phorbol-12-myristate-13-acetate-induced protein 1
INTS8	ENST00000523731.1	integrator complex subunit 8
DZIP1	ENST00000347108.3	DAZ interacting zinc finger protein 1
GPM6A	ENST00000280187.7	glycoprotein M6A
AP1S2	ENST00000329235.2	adaptor-related protein complex 1, sigma 2 subunit
KIAA0101	ENST00000558008.1	KIAA0101
ZFPM2	ENST00000407775.2	zinc finger protein, FOG family member 2
CNPF1R1	ENST00000562576.1	CTD nuclear envelope phosphatase 1 regulatory subunit 1
SEC23A	ENST00000537403.1	Sec23 homolog A (S. cerevisiae)
PPP4R2	ENST00000356692.5	protein phosphatase 4, regulatory subunit 2
HMGGB3	ENST00000325307.7	high mobility group box 3
NRS2A2	ENST00000367362.3	nuclear receptor subfamily 5, group A, member 2
ERRF1	ENST00000377482.5	ERBB receptor feedback inhibitor 1
APOO	ENST00000379226.4	apolipoprotein O
VASH2	ENST00000366968.4	vasohibin 2
SERPIN11	ENST00000446050.2	serpin peptidase inhibitor, clade I (neuroserpin), member 1
PAPD5	ENST00000357464.3	PAP associated domain containing 5
PTH1H	ENST00000395872.1	parathyroid hormone-like hormone
RECK	ENST00000377966.3	reversion-inducing-cysteine-rich protein with kazal motifs
TMEFF2	ENST00000392314.1	transmembrane protein with EGF-like and two follistatin-like domains 2
YWHAH	ENST00000307630.3	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, gamma polypeptide
RASSF8	ENST00000541490.1	Ras association (RalGDS/AF-6) domain family (N-terminal) member 8
RAP2C	ENST00000342983.2	RAP2C, member of RAS oncogene family
PRKACB	ENST00000370689.2	protein kinase, cAMP-dependent, catalytic, beta
PTPN21	ENST00000328736.3	protein tyrosine phosphatase, non-receptor type 21
C16orf52	ENST00000542527.2	chromosome 16 open reading frame 52
NOG	ENST00000332822.4	noggin
MMD	ENST00000262065.3	monocyte to macrophage differentiation-associated
CNN3	ENST00000370206.4	calponin 3, acidic
IMMP2L	ENST00000405709.2	IMP2 inner mitochondrial membrane peptidase-like (S. cerevisiae)
FLI1	ENST00000527786.2	Fli-1 proto-oncogene, ETS transcription factor
MCFD2	ENST00000444761.2	multiple coagulation factor deficiency 2
CRKL	ENST00000354336.3	v-crk avian sarcoma virus CT10 oncogene homolog-like
LBR	ENST00000272163.4	lamin B receptor
ELAVL2	ENST00000380110.4	ELAV like neuron-specific RNA binding protein 2
SESN1	ENST00000436639.2	sestrin 1
ZEB2	ENST00000558170.2	zinc finger E-box binding homeobox 2
YPPEL2	ENST00000312655.4	yippee-like 2 (Drosophila)
SMIM5	ENST00000375215.3	small integral membrane protein 5
MSN	ENST00000360270.5	moesin
KDEL1	ENST00000376004.4	KDEL (Lys-Asp-Glu-Leu) containing 1
RP6-24A23.6	ENST00000563887.1	Uncharacterized protein
SLC14A1	ENST00000321925.4	solute carrier family 14 (urea transporter), member 1
PSAT1	ENST00000376588.3	phosphoserine aminotransferase 1
RBF3X3	ENST00000583458.1	RNA binding protein, fox-1 homolog (C. elegans) 3
EPS8	ENST00000543523.1	epidermal growth factor receptor pathway substrate 8
CEP41	ENST00000223208.5	centrosomal protein 41kDa
MARCKS	ENST00000368635.4	myristoylated alanine-rich protein kinase C substrate
DNAJB5	ENST00000545841.1	DnaJ (Hsp40) homolog, subfamily B, member 5
XKR8	ENST00000373884.5	XK, Kell blood group complex subunit-related family, member 8
RANBP10	ENST00000317506.3	RAN binding protein 10
PRDM16	ENST00000511072.1	PR domain containing 16
ZNF532	ENST00000336078.4	zinc finger protein 532
C6orf120	ENST00000332290.2	chromosome 6 open reading frame 120
NOVA1	ENST00000465357.2	neuro-oncological ventral antigen 1
LPAR1	ENST00000374431.3	lysophosphatidic acid receptor 1
USP27X	ENST00000508866.2	ubiquitin specific peptidase 27, X-linked
LIN7B	ENST00000391864.3	lin-7 homolog B (C. elegans)
B3GNT1	ENST00000311181.4	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 1
LCA5	ENST00000369846.4	Leber congenital amaurosis 5
OSTM1	ENST00000193322.3	osteopetrosis associated transmembrane protein 1
WAPAL	ENST00000298767.5	wings apart-like homolog (Drosophila)
PAIP2	ENST00000394795.2	poly(A) binding protein interacting protein 2
ZNF131	ENST00000505606.2	zinc finger protein 131
NTF3	ENST00000423158.3	neurotrophin 3
CRTAP	ENST00000320954.6	cartilage associated protein
CDK17	ENST00000543119.2	cyclin-dependent kinase 17
BNC2	ENST00000380672.4	basonuclin 2
SLC35F4	ENST00000556826.1	solute carrier family 35, member F4
GIT2	ENST00000355312.3	G protein-coupled receptor kinase interacting ArfGAP 2
CCDC82	ENST00000278520.5	coiled-coil domain containing 82
TCAIM	ENST00000342649.4	T cell activation inhibitor, mitochondrial
NRG1	ENST00000341377.5	neuregulin 1
ADIPOR2	ENST00000357103.4	adiponectin receptor 2
PPAPDC2	ENST00000381883.2	phosphatidic acid phosphatase type 2 domain containing 2
ETS1	ENST00000531611.1	v-ets avian erythroblastosis virus E26 oncogene homolog 1
JHDM1D	ENST00000397560.2	jumonji C domain containing histone demethylase 1 homolog D (S. cerevisiae)
FLII	ENST00000327031.4	flightless I homolog (Drosophila)
SLIT2	ENST00000504154.1	slit homolog 2 (Drosophila)
DUSP1	ENST00000239223.3	dual specificity phosphatase 1
CLIC4	ENST00000374379.4	chloride intracellular channel 4
TRAPPC8	ENST00000283351.4	trafficking protein particle complex 8
FAM118B	ENST00000533050.1	family with sequence similarity 118, member B
TMEM17	ENST00000335390.5	transmembrane protein 17
SCOC	ENST00000608372.1	short coiled-coil protein
CACUL1	ENST00000369151.3	CDK2-associated, cullin domain 1
JUN	ENST00000371222.2	jun proto-oncogene
BAG6	ENST00000375976.4	BCL2-associated athanogene 6
C16orf72	ENST00000327827.7	chromosome 16 open reading frame 72

KIAA0087	ENST00000242109.3	KIAA0087
SGCE	ENST00000265735.7	sarcoglycan, epsilon
H53ST3A1	ENST00000284110.1	heparan sulfate (glucosamine) 3-O-sulfotransferase 3A1
GIC1	ENST00000426548.1	gap junction protein, gamma 1, 45kDa
SLK	ENST00000335753.4	STE20-like kinase
SULF1	ENST00000458141.2	sulfatase 1
KIAA1432	ENST00000414202.2	KIAA1432
TFAP2A	ENST00000379613.3	transcription factor AP-2 alpha (activating enhancer binding protein 2 alpha)
RANBP9	ENST0000011619.3	RAN binding protein 9
CTD-2510F5.6	ENST00000577660.1	Uncharacterized protein
RIMKLB	ENST00000357529.3	ribosomal modification protein rimK-like family member B
GATSL2	ENST00000426327.3	GATS protein-like 2
BDP1	ENST00000380675.2	B double prime 1, subunit of RNA polymerase III transcription initiation factor IIIB
STRN	ENST00000263918.4	striatin, calmodulin binding protein
WASF3	ENST00000335327.5	WAS protein family, member 3
FUBP1	ENST00000370767.1	far upstream element (FUSE) binding protein 1
IER5	ENST00000367577.4	immediate early response 5
EFNA1	ENST00000368407.3	ephrin-A1
KLHL14	ENST00000359358.4	kelch-like family member 14
LPPR1	ENST00000374874.3	Lipid phosphate phosphatase-related protein type 1
ZBTB7C	ENST00000535628.2	zinc finger and BTB domain containing 7C
PPM1F	ENST00000263212.5	protein phosphatase, Mg2+/Mn2+ dependent, 1F
UBE2V1	ENST00000371657.5	ubiquitin-conjugating enzyme E2 variant 1
FBXO30	ENST00000237281.4	F-box protein 30
MMD2	ENST00000406755.1	monocyte to macrophage differentiation-associated 2
SRSF10	ENST00000343255.5	serine/arginine-rich splicing factor 10
AGFG1	ENST00000310078.8	ArfGAP with FG repeats 1
PPP2CA	ENST00000481195.1	protein phosphatase 2, catalytic subunit, alpha isozyme
IAH1	ENST00000470914.1	isoamyl acetate-hydrolyzing esterase 1 homolog (S. cerevisiae)
GAL3ST1	ENST00000406955.1	galactose-3-O-sulfotransferase 1
FUBP3	ENST00000319725.9	far upstream element (FUSE) binding protein 3
ARLSA	ENST00000295087.8	ADP-ribosylation factor-like 5A
ANP32B	ENST00000339399.4	acidic (leucine-rich) nuclear phosphoprotein 32 family, member B
EGLN1	ENST00000366641.3	egl-9 family hypoxia-inducible factor 1
TWISTNB	ENST00000222567.5	TWIST neighbor
CEBPD	ENST00000408965.3	CCAAT/enhancer binding protein (C/EBP), delta
HSPA13	ENST00000285667.3	heat shock protein 70kDa family, member 13
PCMTD1	ENST00000360540.5	protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 1
DNMT3B	ENST00000344505.4	DNA (cytosine-5)-methyltransferase 3 beta
PIGM	ENST00000368090.2	phosphatidylinositol glycan anchor biosynthesis, class M
GNAQ	ENST00000286548.4	guanine nucleotide binding protein (G protein), q polypeptide
MYB	ENST00000367814.4	v-myb avian myeloblastosis viral oncogene homolog
CKAP4	ENST00000378026.4	cytoskeleton-associated protein 4
RNF2	ENST00000367510.3	ring finger protein 2
UBE2I	ENST00000355803.4	ubiquitin-conjugating enzyme E2I
ARHGAP6	ENST00000380736.1	Rho GTPase activating protein 6
RHOA	ENST00000454011.2	ras homolog family member A
NANOS1	ENST00000425699.1	nanos homolog 1 (Drosophila)
MFAP5	ENST00000359478.2	microfibrillar associated protein 5
PPAP2B	ENST00000371250.3	phosphatidic acid phosphatase type 2B
BAG5	ENST00000299204.4	BCL2-associated athanogene 5
RAB37	ENST00000392610.1	RAB37, member RAS oncogene family
CHST9	ENST00000580774.1	carbohydrate (N-acetylglucosamine 4-O) sulfotransferase 9
KDR	ENST00000263923.4	kinase insert domain receptor (a type III receptor tyrosine kinase)
FXR2	ENST00000250113.7	fragile X mental retardation, autosomal homolog 2
H53ST1	ENST00000002596.5	heparan sulfate (glucosamine) 3-O-sulfotransferase 1
SPTSSA	ENST00000298130.4	serine palmitoyltransferase, small subunit A
KLFI10	ENST00000285407.6	Kruppel-like factor 10
MIEF1	ENST00000325301.2	mitochondrial elongation factor 1
FXR1	ENST00000357559.4	fragile X mental retardation, autosomal homolog 1
COP58	ENST00000354371.2	COP9 signalosome subunit 8
ITMB2	ENST00000378565.5	integral membrane protein 2B
FBXW7	ENST00000281708.4	F-box and WD repeat domain containing 7, E3 ubiquitin protein ligase
PALM2	ENST00000448454.2	paralemmin 2
RND3	ENST00000375734.2	Rho family GTPase 3
REV1	ENST00000393445.3	REV1, polymerase (DNA directed)
TOB1	ENST00000499247.2	transducer of ERBB2, 1
FBXO33	ENST00000298097.7	F-box protein 33
HDHD2	ENST00000300605.6	haloacid dehalogenase-like hydrolase domain containing 2
THAP1	ENST00000345117.2	THAP domain containing, apoptosis associated protein 1
SLC30A5	ENST00000396591.3	solute carrier family 30 (zinc transporter), member 5
HNRNPD	ENST00000313899.7	heterogeneous nuclear ribonucleoprotein D (AU-rich element RNA binding protein 1, 37kDa)
MXD3	ENST00000439742.2	MAX dimerization protein 3
ZDHC17	ENST00000426126.2	zinc finger, DHHC-type containing 17
Cxorf23	ENST00000379687.3	chromosome X open reading frame 23
ELL2	ENST00000237853.4	elongation factor, RNA polymerase II, 2
PUM2	ENST00000338086.5	pumilio RNA-binding family member 2
UBE2W	ENST00000517608.1	ubiquitin-conjugating enzyme E2W (putative)
CASC4	ENST00000360824.3	cancer susceptibility candidate 4
FSCN1	ENST00000382361.3	fascin homolog 1, actin-bundling protein (Strongylocentrotus purpuratus)
NFIB	ENST00000397575.3	nuclear factor I/B
NDN	ENST00000331837.4	neccdin, melanoma antigen (MAGE) family member
ARGL11	ENST00000400198.3	arginine and glutamate rich 1
SNX30	ENST00000374232.3	sorting nexin family member 30
GNPDA1	ENST00000311337.6	glucosamine-6-phosphate deaminase 1
PPP1R18	ENST00000399199.3	protein phosphatase 1, regulatory subunit 18
MAPRE1	ENST00000375571.5	microtubule-associated protein, RP/EB family, member 1
CNTRF	ENST00000351266.4	ciliary neurotrophic factor receptor
BTF3L4	ENST00000489308.2	basic transcription factor 3-like 4
FLJ20373	ENST00000414004.2	
PSPH	ENST00000275605.3	phosphoserine phosphatase
WDR91	ENST00000344400.5	WD repeat domain 91
HSPA9	ENST00000297185.3	heat shock 70kDa protein 9 (mortalin)
ZCCHC24	ENST00000372336.3	zinc finger, CCHC domain containing 24
BAP1	ENST00000460680.1	BRCA1 associated protein-1 (ubiquitin carboxy-terminal hydrolase)
CLASP1	ENST00000409078.3	cytoplasmic linker associated protein 1
DGKA	ENST00000551156.1	diacylglycerol kinase, alpha 80kDa
NFIA	ENST00000403491.3	nuclear factor I/A

SIX1	ENST00000247182.6	SIX homeobox 1
NLGN4X	ENST00000381095.3	neuroligin 4, X-linked
TSC22D1	ENST00000458659.2	TSC22 domain family, member 1
DCBLD2	ENST00000326840.6	discoidin, CUB and LCLL domain containing 2
PFDN4	ENST00000371419.2	prefoldin subunit 4
CNOT7	ENST00000361272.4	CCR4-NOT transcription complex, subunit 7
PSIP1	ENST00000380738.4	PC4 and SFRS1 interacting protein 1
SEMA6D	ENST00000355997.3	sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6D
HMBOX1	ENST00000397358.3	homeobox containing 1
FOXG1	ENST00000382535.3	forkhead box G1
TMCC1	ENST00000432054.2	transmembrane and coiled-coil domain family 1
TMEM189-UBE2V1	ENST00000341698.2	TMEM189-UBE2V1 readthrough
RSPRY1	ENST00000394420.4	ring finger and SPRY domain containing 1
SPATS2L	ENST00000358677.5	spermatogenesis associated, serine-rich 2-like
SCHIP1	ENST00000445224.2	schwannomin interacting protein 1
TMEM189	ENST00000557021.1	transmembrane protein 189
SOX2	ENST00000325404.1	SRY (sex determining region Y)-box 2
KIAA1430	ENST00000458385.2	KIAA1430
SGIP1	ENST00000371036.3	SH3-domain GRB2-like (endophilin) interacting protein 1
LOX	ENST00000231004.4	lysyl oxidase
TMEM33	ENST00000504986.1	transmembrane protein 33
DNAJC3	ENST00000602402.1	DnaJ (Hsp40) homolog, subfamily C, member 3
TSC22D2	ENST00000361875.3	TSC22 domain family, member 2
FAM49B	ENST00000519824.2	family with sequence similarity 49, member B
ARID4B	ENST00000349213.3	AT rich interactive domain 4B (RBP1-like)
PCDH8	ENST00000377942.3	protocadherin 8
SMARCAD1	ENST00000354268.4	SWI/SNF-related, matrix-associated actin-dependent regulator of chromatin, subfamily a, containing DEAD/H box 1
GATA4	ENST00000335135.4	GATA binding protein 4
BASP1	ENST00000322611.3	brain abundant, membrane attached signal protein 1
SURF4	ENST00000545297.1	surfeit 4
NC51	ENST00000372398.3	neuronal calcium sensor 1
MAP3K5	ENST00000359015.4	mitogen-activated protein kinase kinase 5
NXPH1	ENST00000405863.1	neurexophilin 1
SPG20	ENST00000438666.2	spastic paraplegia 20 (Troyer syndrome)
GOLGA7	ENST00000405786.2	golgin A7
PKIA	ENST00000396418.2	protein kinase (cAMP-dependent, catalytic) inhibitor alpha
SCD	ENST00000370355.2	stearoyl-CoA desaturase (delta-9-desaturase)
SOX1	ENST00000330949.1	SRY (sex determining region Y)-box 1
VTI1B	ENST00000554659.1	vesicle transport through interaction with t-SNAREs 1B
IDS	ENST00000422081.2	Iduronate 2-sulfatase (Hunter syndrome), isoform CRA_e; Iduronate 2-sulfatase 14 kDa chain; cDNA FLI42669 fis, clone BRAMY2022168, highly similar to IDURONATE 2-SULFATASE
MYLK	ENST00000360772.3	myosin light chain kinase
KLF6	ENST00000542957.1	Kruppel-like factor 6
FSTL1	ENST00000295633.3	folliculin-like 1
MBNL3	ENST00000370839.3	muscleblind-like splicing regulator 3
SLC35E2B	ENST00000378662.1	solute carrier family 35, member E2B
ZBTB8A	ENST00000316459.4	zinc finger and BTB domain containing 8A
ENSA	ENST00000369014.5	endosulfine alpha
MTRF1	ENST00000458689.2	mitochondrial fission regulator 1
ARHGEF3	ENST00000296315.3	Rho guanine nucleotide exchange factor (GEF) 3
MEX3B	ENST00000558133.1	mex-3 RNA binding family member B
XKR6	ENST00000304437.2	XK, Kell blood group complex subunit-related family, member 6
COL4A3BP	ENST00000380494.5	collagen, type IV, alpha 3 (Goodpasture antigen) binding protein
NUDT4	ENST00000337179.5	nudix (nucleoside diphosphate linked moiety X)-type motif 4
SERINC1	ENST00000339697.4	serine incorporator 1
SSR3	ENST00000476217.1	signal sequence receptor, gamma (translocon-associated protein gamma)
EVI5	ENST00000370331.1	ecotropic viral integration site 5
IKBK	ENST00000379708.3	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta
E2F3	ENST00000346618.3	E2F transcription factor 3
GRAP2	ENST00000344138.4	GRB2-related adaptor protein 2
NEGR1	ENST00000357731.5	neuronal growth regulator 1
ADAMTS3	ENST00000286657.4	ADAM metalloproteinase with thrombospondin type 1 motif, 3
LMO7	ENST00000341547.4	LIM domain 7
IQCJ-SCHIP1	ENST00000337808.6	IQCJ-SCHIP1 readthrough
KLF4	ENST00000374672.4	Kruppel-like factor 4 (gut)
MBLAC2	ENST00000316610.6	metallo-beta-lactamase domain containing 2
ORMDL3	ENST00000304046.2	ORM1-like 3 (S. cerevisiae)
TMEM170B	ENST00000379426.1	transmembrane protein 170B
NBR1	ENST00000542611.1	neighbor of BRCA1 gene 1
TMEM237	ENST00000409444.2	transmembrane protein 237
KIAA0040	ENST00000423313.1	KIAA0040
AMOTL2	ENST00000249883.5	angiominin like 2
ARIH1	ENST00000379887.4	ariadne RBR E3 ubiquitin protein ligase 1
GXYLT1	ENST00000398675.3	glucoside xylosyltransferase 1
CHRD1L	ENST00000372045.1	chordin-like 1
LRP1B	ENST00000389484.3	low density lipoprotein receptor-related protein 1B
PAM	ENST00000438793.3	peptidylglycine alpha-amidating monooxygenase
TMEM170A	ENST00000357613.4	transmembrane protein 170A
PLS3	ENST00000420625.2	plastin 3
RBM12B	ENST00000399300.2	RNA binding motif protein 12B
LFNG	ENST00000402045.1	LFNG O-fucosylpeptide 3-beta-N-acetylglucosaminyltransferase
CSRNP3	ENST00000314499.7	cysteine-serine-rich nuclear protein 3
SNAI2	ENST0000020945.1	snail family zinc finger 2
CITFD2	ENST00000367651.2	Cbp/p300-interacting transactivator, with Glu/Asp-rich carboxy-terminal domain, 2
SYDE1	ENST00000342784.2	synapse defective 1, Rho GTPase, homolog 1 (C. elegans)
PHACTR3	ENST00000359926.3	phosphatase and actin regulator 3
CCSER1	ENST00000509176.1	coiled-coil serine-rich protein 1
DIRAS2	ENST00000375765.3	DIRAS family, GTP-binding RAS-like 2
UBE2D1	ENST00000373910.4	ubiquitin-conjugating enzyme E2D 1
TRIM33	ENST00000358465.2	tripartite motif containing 33
CALU	ENST00000535011.2	calumenin
BHLHE41	ENST00000242728.4	basic helix-loop-helix family, member e41
LARP1B	ENST00000441387.1	La ribonucleoprotein domain family, member 1B
MTSS1L	ENST00000338779.6	metastasis suppressor 1-like
ACVR1C	ENST00000243349.8	activin A receptor, type IC
ELF2	ENST00000394235.2	E74-like factor 2 (ets domain transcription factor)
KLF12	ENST00000377669.2	Kruppel-like factor 12
TAF12	ENST00000373824.4	TAF12 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 20kDa
RHOT1	ENST00000333942.6	ras homolog family member T1

SRSF1	ENST00000258962.4	serine/arginine-rich splicing factor 1
CORO1C	ENST00000261401.3	coronin, actin binding protein, 1C
TBK1	ENST00000331710.5	TANK-binding kinase 1
ARHGAP19	ENST00000358531.4	Rho GTPase activating protein 19
SLITRK1	ENST00000377084.2	SLIT and NTRK-like family, member 1
PCSK2	ENST00000377899.1	proprotein convertase subtilisin/kexin type 2
SLC39A14	ENST00000381237.1	solute carrier family 39 (zinc transporter), member 14
MXD4	ENST00000337190.2	MAX dimerization protein 4
TAOK3	ENST00000419821.2	TAO kinase 3
ACE2	ENST00000252519.3	angiotensin I converting enzyme 2
SELK	ENST00000541726.1	Selenoprotein K
PLCL1	ENST00000428675.1	phospholipase C-like 1
RUSC2	ENST00000455600.1	RUN and SH3 domain containing 2
RAB11FIP2	ENST00000355624.3	RAB11 family interacting protein 2 (class I)
PHF6	ENST00000332070.3	PHD finger protein 6
ZNF423	ENST00000561648.1	zinc finger protein 423
VEGFA	ENST00000417285.2	vascular endothelial growth factor A
NREP	ENST00000379671.3	neuronal regeneration related protein
KIF13A	ENST00000378814.5	kinesin family member 13A
TLL2	ENST00000357947.3	tollid-like 2
DNAJC5	ENST00000360864.4	DnaJ (Hsp40) homolog, subfamily C, member 5
GLI3	ENST00000395925.3	GLI family zinc finger 3
FN1	ENST00000357009.2	fibronectin 1
SCR2T	ENST00000246104.6	scratch homolog 2, zinc finger protein (Drosophila)
KBTD6	ENST00000379485.1	kelch repeat and BTB (POZ) domain containing 6
TTC33	ENST00000337702.4	tetratricopeptide repeat domain 33
CDH11	ENST00000394156.3	cadherin 11, type 2, OB-cadherin (osteoblast)
S100BP	ENST00000373475.5	S100P binding protein
CNKS3	ENST00000607772.1	CNKS family member 3
BAZ2B	ENST00000392782.1	bromodomain adjacent to zinc finger domain, 2B
FHOD1	ENST00000258201.4	formin homology 2 domain containing 1
MSL2	ENST00000309993.2	male-specific lethal 2 homolog (Drosophila)
HNRNPH1	ENST00000393432.4	heterogeneous nuclear ribonucleoprotein H1 (H)
HS2ST1	ENST00000370550.5	heparan sulfate 2-O-sulfotransferase 1
MBOAT2	ENST00000305997.3	membrane bound O-acyltransferase domain containing 2
SLC16A2	ENST00000587091.1	solute carrier family 16, member 2 (thyroid hormone transporter)
FBXL17	ENST00000359660.5	F-box and leucine-rich repeat protein 17
FNB4	ENST00000263773.5	formin binding protein 4
SCAMP1	ENST00000538629.1	secretory carrier membrane protein 1
MAP4K3	ENST00000263881.3	mitogen-activated protein kinase kinase kinase kinase 3
HNRNPU	ENST00000444376.2	heterogeneous nuclear ribonucleoprotein U (scaffold attachment factor A)
PRKAR1A	ENST00000589228.1	protein kinase, cAMP-dependent, regulatory, type I, alpha
SECISBP2L	ENST00000559471.1	SECIS binding protein 2-like
TMEM229B	ENST00000557006.1	transmembrane protein 229B
FAM219A	ENST00000379089.1	family with sequence similarity 219, member A
LRP4	ENST00000378623.1	low density lipoprotein receptor-related protein 4
PDIK1L	ENST00000374271.4	PDLIM1 interacting kinase 1 like
RELN	ENST00000428762.1	reelin
KHDRBS1	ENST00000327300.7	KH domain containing, RNA binding, signal transduction associated 1
LMAN1	ENST00000251047.5	lectin, mannose-binding, 1
GPR158	ENST00000376351.3	G protein-coupled receptor 158
PPP6R3	ENST00000393800.2	protein phosphatase 6, regulatory subunit 3
NFYA	ENST00000341376.6	nuclear transcription factor Y, alpha
OCLN	ENST00000355237.2	occludin
PHF21B	ENST00000403565.1	PHD finger protein 21B
KIAA0895	ENST00000297063.6	KIAA0895
KIAA2018	ENST00000316407.4	KIAA2018
MMP16	ENST00000286614.6	matrix metalloproteinase 16 (membrane-inserted)
OSBPL11	ENST00000296220.5	oxysterol binding protein-like 11
FRMD4B	ENST00000398540.3	FERM domain containing 4B
WIPF3	ENST00000409290.1	WAS/WASL interacting protein family, member 3
NCOA2	ENST00000452400.2	nuclear receptor coactivator 2
RAB18	ENST00000356940.6	RAB18, member RAS oncogene family
ARL6IP6	ENST00000326446.5	ADP-ribosylation-like factor 6 interacting protein 6
UGT1	ENST00000310528.8	SGT1, suppressor of G2 allele of SKP1 (S. cerevisiae)
PPP2R5E	ENST00000337537.3	protein phosphatase 2, regulatory subunit B', epsilon isoform
CYTH1	ENST00000585509.1	cytohesin 1
C11orf87	ENST00000327419.6	chromosome 11 open reading frame 87
CUL4A	ENST00000326335.4	cullin 4A
VCP1P1	ENST00000310421.4	valosin containing protein (p97)/p47 complex interacting protein 1
FLT1	ENST00000282397.4	fms-related tyrosine kinase 1
ZBTB12	ENST00000375527.2	zinc finger and BTB domain containing 12
FRS2	ENST00000550389.1	fibroblast growth factor receptor substrate 2
ZC3H6	ENST00000343936.4	zinc finger CCH-type containing 6
ARIH2	ENST00000356401.4	ariadne RBR E3 ubiquitin protein ligase 2
PTPN11	ENST00000351677.2	protein tyrosine phosphatase, non-receptor type 11
CDYL	ENST00000343762.5	chromodomain protein, Y-like
KANK1	ENST00000382303.1	KN motif and ankyrin repeat domains 1
USP6NL	ENST00000609104.1	USP6 N-terminal like
PLCXD3	ENST00000377801.3	phosphatidylinositol-specific phospholipase C, X domain containing 3
TIMP2	ENST00000585421.1	TIMP metalloproteinase inhibitor 2
ELMOD2	ENST00000323570.3	ELMO/CE2-12 domain containing 2
DHX36	ENST00000496811.1	DEAH (Asp-Glu-Ala-His) box polypeptide 36
UBA6	ENST00000322244.5	ubiquitin-like modifier activating enzyme 6
ZNF771	ENST00000319296.5	zinc finger protein 771
VTI1A	ENST00000393077.2	vesicle transport through interaction with t-SNAREs 1A
DDX26B	ENST00000370752.4	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 26B
AMFR	ENST00000290649.5	autocrine motility factor receptor, E3 ubiquitin protein ligase
PTGDR	ENST00000553372.1	prostaglandin D2 receptor (DP)
ETS2	ENST00000360214.3	v-ets avian erythroblastosis virus E26 oncogene homolog 2
GNAI3	ENST00000369851.4	guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 3
ZNF292	ENST00000369577.3	zinc finger protein 292
PTPN13	ENST00000436978.1	protein tyrosine phosphatase, non-receptor type 13 (APO-1/CD95 (Fas)-associated phosphatase)
MTF2	ENST00000370298.4	metal response element binding transcription factor 2
PBX3	ENST00000342287.5	pre-B-cell leukemia homeobox 3
RIMS2	ENST00000507740.1	regulating synaptic membrane exocytosis 2
TAF1D	ENST00000448108.2	TATA box binding protein (TBP)-associated factor, RNA polymerase I, D, 41kDa
EFNB2	ENST00000245323.4	eprhin-B2

ZBTB38	ENST00000514251.1	zinc finger and BTB domain containing 38
SYT1	ENST00000457153.2	synaptotagmin I
DCAF17	ENST00000375255.3	DDB1 and CUL4 associated factor 17
PTPN14	ENST00000366956.5	protein tyrosine phosphatase, non-receptor type 14
R3HDM2	ENST00000347140.3	R3H domain containing 2
CPE1D	ENST00000310396.5	cadherin-like and PC-esterase domain containing 1
KRAS	ENST00000256078.4	Kirsten rat sarcoma viral oncogene homolog
DUSP7	ENST00000495880.1	dual specificity phosphatase 7
BMI1	ENST00000376663.3	BMI1 polycomb ring finger oncogene
CNTN4	ENST00000427331.1	contactin 4
FIGN	ENST00000333129.3	fidgetin
RTF1	ENST00000389629.4	Rtf1, Paf1/RNA polymerase II complex component, homolog (S. cerevisiae)
ZNF711	ENST00000360700.4	zinc finger protein 711
ATL2	ENST00000406122.1	atlastin GTPase 2
RSRC2	ENST00000331738.7	arginine/serine-rich coiled-coil 2
DIXDC1	ENST00000440460.2	DIX domain containing 1
AC068987.1	ENST00000599343.1	HCG1997999; cDNA FLJ33996 fis, clone DFNES2008881
RAC1	ENST00000348035.4	ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1)
PPP1R10	ENST00000376511.2	protein phosphatase 1, regulatory subunit 10
DACH1	ENST00000305425.4	dachshund homolog 1 (Drosophila)
BICC1	ENST00000373886.3	bicaudal C homolog 1 (Drosophila)
PTBP1	ENST00000350092.4	polypyrimidine tract binding protein 1
ZMAT3	ENST00000311417.2	zinc finger, matrin-type 3
VLDLR	ENST00000382100.3	very low density lipoprotein receptor
SLC1A2	ENST00000278379.3	solute carrier family 1 (glial high affinity glutamate transporter), member 2
CBX4	ENST00000269397.4	chromobox homolog 4
SMAD2	ENST00000262160.6	SMAD family member 2
KLF9	ENST00000377126.2	Kruppel-like factor 9
HOXA5	ENST00000227276.3	homeobox A5
KMT2E	ENST00000334877.4	lysine (K)-specific methyltransferase 2E
CHD2	ENST00000394196.4	chromodomain helicase DNA binding protein 2
CSNK1G3	ENST00000360683.2	casein kinase 1, gamma 3
PDS5B	ENST00000315596.10	PDS5, regulator of cohesion maintenance, homolog B (S. cerevisiae)
QKI	ENST00000392127.2	QKI, KH domain containing, RNA binding
ADCY2	ENST00000338316.4	adenylate cyclase 2 (brain)
DR1	ENST00000370272.4	down-regulator of transcription 1, TBP-binding (negative cofactor 2)
CDR2	ENST00000268383.2	cerebellar degeneration-related protein 2, 62kDa
CDC73	ENST00000367435.3	cell division cycle 73
GPR107	ENST00000372410.3	G protein-coupled receptor 107
NPTX1	ENST00000306773.4	neuronal pentraxin I
GATA2	ENST00000341105.2	GATA binding protein 2
CNOT4	ENST00000541284.1	CCR4-NOT transcription complex, subunit 4
ETV5	ENST00000306376.5	ets variant 5
GBX2	ENST00000551105.1	gastrulation brain homeobox 2
SLC24A4	ENST00000393265.2	solute carrier family 24 (sodium/potassium/calcium exchanger), member 4
DNMT3A	ENST00000380746.4	DNA (cytosine-5--methyltransferase 3 alpha
DLGAP2	ENST00000421627.2	discs, large (Drosophila) homolog-associated protein 2
ATXN1	ENST00000244769.4	ataxin 1
MED13	ENST00000397786.2	mediator complex subunit 13
PHTF2	ENST00000416283.2	putative homeodomain transcription factor 2
ZNF217	ENST00000371471.2	zinc finger protein 217
ZNF280C	ENST00000370978.4	zinc finger protein 280C
RPE	ENST00000429907.1	ribulose-5-phosphate-3-epimerase
CCNA2	ENST00000274026.5	cyclin A2
NOVA2	ENST00000263257.5	neuro-oncological ventral antigen 2
ANKH	ENST00000284268.6	ANKH inorganic pyrophosphate transport regulator
PAR6B	ENST00000371610.2	par-6 family cell polarity regulator beta
NPC1	ENST00000269228.5	Niemann-Pick disease, type C1
FAM60A	ENST00000539409.1	family with sequence similarity 60, member A
THRA	ENST00000450525.2	thyroid hormone receptor, alpha
COMMD3-BMI1	ENST00000602390.1	COMMD3-BMI1 readthrough
KIAA1456	ENST00000524591.2	KIAA1456
DOT1L	ENST00000398665.3	DOT1-like histone H3K79 methyltransferase
ZBTB5	ENST00000307750.4	zinc finger and BTB domain containing 5
FUT4	ENST00000358752.2	fucosyltransferase 4 (alpha (1,3) fucosyltransferase, myeloid-specific)
CCDC177	ENST00000599174.1	Homo sapiens coiled-coil domain containing 177 (CCDC177), mRNA.
NCOA7	ENST00000392477.2	nuclear receptor coactivator 7
MATR3	ENST00000510056.1	matrin 3
FOXN2	ENST00000340553.3	forkhead box N2
PIP4K2B	ENST00000269554.3	phosphatidylinositol-5-phosphate 4-kinase, type II, beta
LRRTM3	ENST00000361320.4	leucine rich repeat transmembrane neuronal 3
SYVN1	ENST00000294256.8	synovial apoptosis inhibitor 1, synoviolin
GALNT2	ENST00000366672.4	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 2 (GalNAc-T2)
PIK3CB	ENST00000477593.1	phosphatidylinositol-4,5-bisphosphate 3-kinase, catalytic subunit beta
CYP1B1	ENST00000260630.3	cytochrome P450, family 1, subfamily B, polypeptide 1
WDR45B	ENST00000392325.4	WD repeat domain 45B
DCUN1D1	ENST00000292782.4	DCN1, defective in cullin neddylation 1, domain containing 1
ZNF697	ENST00000421812.2	zinc finger protein 697
KCND2	ENST00000331113.4	potassium voltage-gated channel, Shal-related subfamily, member 2
WWC3	ENST00000380861.4	WWC family member 3
CDYL2	ENST00000570137.2	chromodomain protein, Y-like 2
GLIPR2	ENST00000396613.3	GLI pathogenesis-related 2
PHF21A	ENST00000257821.4	PHD finger protein 21A
PAG1	ENST00000220597.4	phosphoprotein associated with glycosphingolipid microdomains 1
PVRL4	ENST00000368012.3	poliovirus receptor-related 4
ZC3H15	ENST00000337859.6	zinc finger CCHC-type containing 15
UNC119B	ENST00000344651.4	unc-119 homolog B (C. elegans)
CDR2L	ENST00000337231.5	cerebellar degeneration-related protein 2-like
NEK9	ENST00000238616.5	NIMA-related kinase 9
CAMSAP2	ENST00000358823.2	calmodulin regulated spectrin-associated protein family, member 2
TRIM62	ENST00000291416.5	tripartite motif containing 62
UGCG	ENST00000374279.3	UDP-glucose ceramide glucosyltransferase
INHBA	ENST00000242208.4	inhibin, beta A
SPAST	ENST00000315285.3	spastin
ST6GALNAC5	ENST00000477717.1	ST6 (alpha-N-acetyl-neuraminyl-2,3-beta-galactosyl-1,3)-N-acetylgalactosaminide alpha-2,6-sialyltransferase 5
PHLDB1	ENST00000361417.2	pleckstrin homology-like domain, family B, member 1
TUBB3	ENST00000315491.7	Tubulin beta-3 chain
CECR2	ENST00000400573.5	cat eye syndrome chromosome region, candidate 2

PPP2R2C	ENST00000335585.5	protein phosphatase 2, regulatory subunit B, gamma
ARRDC3	ENST00000265138.3	arrestin domain containing 3
PTP4A1	ENST00000370651.3	protein tyrosine phosphatase type IVA, member 1
GABPA	ENST00000354828.3	GA binding protein transcription factor, alpha subunit 60kDa
TBC1D22B	ENST00000373491.3	TBC1 domain family, member 22B
CTNND2	ENST00000304623.8	catenin (cadherin-associated protein), delta 2
YWHAQ	ENST00000381844.4	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide
TLN2	ENST00000561311.1	talin 2
WBP1L	ENST00000369889.4	WW domain binding protein 1-like
TTC5	ENST00000258821.3	tetratricopeptide repeat domain 5
PRDM1	ENST00000369089.3	PR domain containing 1, with ZNF domain
NCOA3	ENST00000341724.6	nuclear receptor coactivator 3
THSD7A	ENST00000423059.4	thrombospondin, type I, domain containing 7A
GABBR2	ENST00000259455.2	gamma-aminobutyric acid (GABA) B receptor, 2
PIP4K2A	ENST00000376573.4	phosphatidylinositol-5-phosphate 4-kinase, type II, alpha
SPAG9	ENST00000262013.7	sperm associated antigen 9
GPR173	ENST00000332582.4	G protein-coupled receptor 173
ANKRD28	ENST00000399451.2	ankyrin repeat domain 28
ARID4A	ENST00000431317.2	AT rich interactive domain 4A (RBP1-like)
GOLGA1	ENST00000373555.4	golgin A1
AFF3	ENST00000409236.2	AF4/FMR2 family, member 3
PEAK1	ENST00000312493.4	pseudopodium-enriched atypical kinase 1
GPATCH8	ENST00000591680.1	G patch domain containing 8
HOOK1	ENST00000371208.3	hook microtubule-tethering protein 1
REEP1	ENST00000165698.5	receptor accessory protein 1
WDR82	ENST00000296490.3	WD repeat domain 82
NEK10	ENST00000295720.6	NIMA-related kinase 10
ZFAND5	ENST00000237937.3	zinc finger, AN1-type domain 5
CACNA1C	ENST00000399655.1	calcium channel, voltage-dependent, L type, alpha 1C subunit
C10orf118	ENST00000543782.1	chromosome 10 open reading frame 118
PDPK1	ENST00000441549.3	3-phosphoinositide dependent protein kinase-1
SBSPO1	ENST00000297354.6	somatomedin B and thrombospondin, type 1 domain containing
PPP1R9B	ENST00000316878.6	protein phosphatase 1, regulatory subunit 9B
ATP11C	ENST00000327569.3	ATPase, class VI, type 11C
CHST2	ENST00000309575.3	carbohydrate (N-acetylglucosamine-6-O) sulfotransferase 2
CLIP1	ENST00000361654.4	CAP-GLY domain containing linker protein 1
PPFIBP1	ENST00000318304.8	PTPRF interacting protein, binding protein 1 (liprin beta 1)
STARD13	ENST00000336934.5	StAR-related lipid transfer (START) domain containing 13
ZMYM4	ENST00000314607.6	zinc finger, MYM-type 4
XIAP	ENST00000371199.3	X-linked inhibitor of apoptosis
UBQLN1	ENST00000376395.4	ubiquitin 1
FAM19A5	ENST00000358295.5	family with sequence similarity 19 (chemokine (C-C motif)-like), member A5
SDK2	ENST00000392650.3	sidekick cell adhesion molecule 2
PCSK5	ENST00000376752.4	proprotein convertase subtilisin/kexin type 5
FERMT2	ENST00000395631.2	fermitin family member 2
C7orf43	ENST00000394035.2	chromosome 7 open reading frame 43
APAF1	ENST00000333991.1	apoptotic peptidase activating factor 1
SMAD9	ENST00000399275.2	SMAD family member 9
HIPK1	ENST00000369558.1	homeodomain interacting protein kinase 1
KCNDB3	ENST00000369697.1	potassium voltage-gated channel, Shal-related subfamily, member 3
OXR1	ENST00000312046.6	oxidation resistance 1
EGR3	ENST00000519492.1	early growth response 3
DOCK4	ENST00000428084.1	dedicator of cytokinesis 4
MAP3K1	ENST00000399503.3	mitogen-activated protein kinase kinase kinase 1, E3 ubiquitin protein ligase
DLC1	ENST00000276297.4	deleted in liver cancer 1
MARCH8	ENST00000453424.2	membrane-associated ring finger (C3HC4) 8, E3 ubiquitin protein ligase
CASR	ENST00000498619.1	calcium-sensing receptor
WASF1	ENST00000392587.2	WAS protein family, member 1
KIAA1462	ENST00000375377.1	KIAA1462
KANK2	ENST00000586659.1	KN motif and ankyrin repeat domains 2
SOX5	ENST00000546136.1	SRY (sex determining region Y)-box 5
SCN3B	ENST00000392770.2	sodium channel, voltage-gated, type III, beta subunit
CHSY1	ENST00000254190.3	chondroitin sulfate synthase 1
ARL14EPL	ENST00000601302.2	ADP-ribosylation factor-like 14 effector protein-like
SHC1	ENST00000368445.5	SHC (Src homology 2 domain containing) transforming protein 1
CASZ1	ENST00000377022.3	castor zinc finger 1
FGD1	ENST00000375135.3	FYVE, RhoGEF and PH domain containing 1
TBX5	ENST00000349716.5	T-box 5
G6orf62	ENST00000378119.4	chromosome 6 open reading frame 62
SCN1A	ENST00000423058.2	sodium channel, voltage-gated, type I, alpha subunit
DES1	ENST00000263256.6	desumoylating isopeptidase 1
SLC4A7	ENST00000295736.5	solute carrier family 4, sodium bicarbonate cotransporter, member 7
STRN3	ENST00000355683.5	striatin, calmodulin binding protein 3
HSPE1-MOB4	ENST00000604458.1	HSPE1-MOB4 readthrough
CNST	ENST00000366513.4	consortin, connexin sorting protein
RBM26	ENST00000267229.7	RNA binding motif protein 26
GF11	ENST00000370332.1	growth factor independent 1 transcription repressor
FYN	ENST00000368682.3	FYN oncogene related to SRC, FGR, YES
WDFY3	ENST00000322366.6	WD repeat and FYVE domain containing 3
ERG	ENST00000398905.1	v-ets avian erythroblastosis virus E26 oncogene homolog
SH3GL1	ENST00000269886.3	SH3-domain GRB2-like 1
ARHGAP20	ENST00000260283.4	Rho GTPase activating protein 20
CACNA2D1	ENST00000356860.3	calcium channel, voltage-dependent, alpha 2/delta subunit 1
ULK2	ENST00000395544.4	unc-51 like autophagy activating kinase 2
PTCH1	ENST00000430669.2	patched 1
CHD1	ENST00000284049.3	chromodomain helicase DNA binding protein 1
PAK7	ENST00000378423.1	p21 protein (Cdc42/Rac)-activated kinase 7
SMURF2	ENST00000262435.9	SMAD specific E3 ubiquitin protein ligase 2
CNOT6	ENST00000393356.1	CCR4-NOT transcription complex, subunit 6
TP53INP1	ENST00000448464.2	tumor protein p53 inducible nuclear protein 1
TXLNG	ENST00000380122.5	taxilin gamma
ZNF662	ENST00000541208.1	zinc finger protein 662
TMEM164	ENST00000372073.1	transmembrane protein 164
PPP1R12B	ENST00000608999.1	protein phosphatase 1, regulatory subunit 12B
ZDHHC18	ENST00000374142.4	zinc finger, DHHC-type containing 18
CDX4	ENST00000373514.2	caudal type homeobox 4
CPT1A	ENST00000265641.5	carnitine palmitoyltransferase 1A (liver)
PPP1CB	ENST00000395366.2	protein phosphatase 1, catalytic subunit, beta isozyme



ICK	ENST00000350082.5	intestinal cell (MAK-like) kinase
TENM1	ENST00000371130.3	teneurin transmembrane protein 1
PRKG1	ENST00000373985.1	protein kinase, cGMP-dependent, type I
SRP72	ENST00000342756.5	signal recognition particle 72kDa
JAZF1	ENST00000283928.5	JAZF zinc finger 1
FMR1	ENST00000370471.3	fragile X mental retardation 1
RBM20	ENST00000369519.3	RNA binding motif protein 20
DACT1	ENST00000395153.3	dishevelled-binding antagonist of beta-catenin 1
MAP2	ENST00000360351.4	microtubule-associated protein 2
NR3C1	ENST00000394464.2	nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor)
FOXC1	ENST00000328914.4	forkhead box K1
CALHM1	ENST00000329905.5	calcium homeostasis modulator 1
GOLIM4	ENST00000470487.1	golgi integral membrane protein 4
ZBTB16	ENST00000335953.4	zinc finger and BTB domain containing 16
ACTR1A	ENST00000487599.1	ARP1 actin-related protein 1 homolog A, cactractin alpha (yeast)
NKAP	ENST00000371410.3	NFKB activating protein
FOSL2	ENST00000379619.1	FOS-like antigen 2
SLC38A4	ENST00000447411.1	solute carrier family 38, member 4
ABAT	ENST00000569156.1	4-aminobutyrate aminotransferase
BPTF	ENST00000321892.4	bromodomain PHD finger transcription factor
CLASP2	ENST00000539981.1	cytoplasmic linker associated protein 2
KIAA1468	ENST00000398130.2	KIAA1468
SCN8A	ENST00000354534.6	sodium channel, voltage gated, type VIII, alpha subunit
RNF38	ENST00000259605.6	ring finger protein 38
HAS2	ENST00000303924.4	hyaluronan synthase 2
NCMAP	ENST00000374392.2	noncompact myelin associated protein
PI4KB	ENST00000368874.4	phosphatidylinositol 4-kinase, catalytic, beta
SBF1	ENST00000380817.3	SET binding factor 1
AKT2	ENST00000392038.2	v-akt murine thymoma viral oncogene homolog 2
PFN2	ENST00000239940.7	profilin 2
SMARCD1	ENST00000394963.4	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 1
KATNAL1	ENST00000380615.3	katanin p60 subunit A-like 1
XKR4	ENST00000327381.6	XK, Kell blood group complex subunit-related family, member 4
KPK1	ENST00000367324.3	plakophilin 1 (ectodermal dysplasia/skin fragility syndrome)
KCNJ15	ENST00000328656.4	potassium inwardly-rectifying channel, subfamily J, member 15
RLF	ENST00000372771.4	rearranged L-myc fusion
RFRMD6	ENST00000395718.2	FERM domain containing 6
BCL11B	ENST00000357195.3	B-cell CLL/lymphoma 11B (zinc finger protein)
HNF1B	ENST00000225893.4	HNF1 homeobox B
ZNF362	ENST00000539719.1	zinc finger protein 362
ITSN1	ENST00000379960.5	intersectin 1 (SH3 domain protein)
RLIM	ENST00000332687.6	ring finger protein, LIM domain interacting
PKD1	ENST00000262304.4	polycystic kidney disease 1 (autosomal dominant)
INPP4A	ENST00000409016.4	inositol polyphosphate-4-phosphatase, type I, 107kDa
ESRP1	ENST00000358397.5	epithelial splicing regulatory protein 1
MFHAS1	ENST00000276282.6	malignant fibrous histiocytoma amplified sequence 1
LRR8A	ENST00000372600.4	leucine rich repeat containing 8 family, member A
RP56K2	ENST00000265678.4	ribosomal protein S6 kinase, 90kDa, polypeptide 2
LHX9	ENST00000367390.3	LIM homeobox 9
DENND5B	ENST00000389082.5	DENN/MADD domain containing 5B
OSR1	ENST00000272223.2	odd-skipped related 1 (Drosophila)
MIER3	ENST00000381226.3	mesoderm induction early response 1, family member 3
NUDT3	ENST00000607016.1	nudix (nucleoside diphosphate linked moiety X)-type motif 3
RAB23	ENST00000317483.3	RAB23, member RAS oncogene family
LEPROTL1	ENST00000321250.8	leptin receptor overlapping transcript-like 1
TIAL1	ENST00000369093.2	TIA1 cytototoxic granule-associated RNA binding protein-like 1
HCN1	ENST00000303230.4	hyperpolarization activated cyclic nucleotide-gated potassium channel 1
SRSF2	ENST00000392485.2	serine/arginine-rich splicing factor 2
CDC42EP3	ENST00000295324.3	CDC42 effector protein (Rho GTPase binding) 3
HCCS	ENST00000321143.4	holocytochrome c synthase
RBFOX1	ENST00000355637.4	RNA binding protein, fox-1 homolog (C. elegans) 1
SFXN1	ENST00000321442.5	sideroflexin 1
EXOC6B	ENST00000272427.6	exocyst complex component 6B
GAN	ENST00000568107.2	gigaxonin
RALGPS2	ENST00000367635.3	Ral GEF with PH domain and SH3 binding motif 2
CSMD3	ENST00000343508.3	CUB and Sushi multiple domains 3
YOD1	ENST00000315927.4	YOD1 deubiquitinase
NRIP1	ENST00000400199.1	nuclear receptor interacting protein 1
ANK3	ENST00000280772.2	ankyrin 3, node of Ranvier (ankyrin G)
HNRNPK	ENST00000376281.4	heterogeneous nuclear ribonucleoprotein K
SYNJ1	ENST00000357345.3	synaptojanin 1
TMX4	ENST00000246024.2	thioredoxin-related transmembrane protein 4
IGSF3	ENST00000369486.3	immunoglobulin superfamily, member 3
COL4A3	ENST00000396578.3	collagen, type IV, alpha 3 (Goodpasture antigen)
BACH2	ENST00000257749.4	BTB and CNC homology 1, basic leucine zipper transcription factor 2
CREB5	ENST00000357727.2	cAMP responsive element binding protein 5
UBN2	ENST00000473989.3	ubiquitin 2
SOAT1	ENST00000367619.3	sterol O-acyltransferase 1
EFNA5	ENST00000333274.6	ephrin-A5
IGF2R	ENST00000356956.1	insulin-like growth factor 2 receptor
ESRRG	ENST00000361525.3	estrogen-related receptor gamma
ATP2A2	ENST00000395494.2	ATPase, Ca++ transporting, cardiac muscle, slow twitch 2
FAM168B	ENST00000409185.1	family with sequence similarity 168, member B
DCAF5	ENST00000341516.5	DDB1 and CUL4 associated factor 5
WDR12	ENST00000261015.4	WD repeat domain 12
MYT1	ENST00000328439.1	myelin transcription factor 1
NPNT	ENST00000379987.2	nephronectin
DDX3Y	ENST00000336079.3	DEAD (Asp-Glu-Ala-Asp) box helicase 3, Y-linked
TP73	ENST00000378280.1	tumor protein p73
MOSPD2	ENST00000380492.3	motile sperm domain containing 2
DNAJB14	ENST00000442697.2	DnaJ (Hsp40) homolog, subfamily B, member 14
TRIO	ENST00000344204.4	trio Rho guanine nucleotide exchange factor
SLC38A2	ENST00000256689.5	solute carrier family 38, member 2
TRIM2	ENST00000338700.5	tripartite motif containing 2
GDI2	ENST00000380191.4	GDP dissociation inhibitor 2
DPY19L1	ENST00000310974.4	dpy-19-like 1 (C. elegans)
DCDC2	ENST00000378450.3	doublecortin domain containing 2
PTEN	ENST00000371953.3	phosphatase and tensin homolog

KCNB1	ENST00000371741.4	potassium voltage-gated channel, Shab-related subfamily, member 1
IMPAD1	ENST00000262644.4	inositol monophosphatase domain containing 1
RUNX1T1	ENST00000523629.1	runx-related transcription factor 1; translocated to, 1 (cyclin D-related)
GREM2	ENST00000318160.4	gremlin 2, DAN family BMP antagonist
SLC23A2	ENST00000338244.1	solute carrier family 23 (ascorbic acid transporter), member 2
TMEM245	ENST00000374586.3	transmembrane protein 245
TEC	ENST00000381501.3	tec protein tyrosine kinase
NGEF	ENST00000264051.3	neuronal guanine nucleotide exchange factor
EIF4E3	ENST00000425534.3	eukaryotic translation initiation factor 4E family member 3
CYTH3	ENST00000350796.3	cytohesin 3
LYSM3	ENST00000509384.1	LysM, putative peptidoglycan-binding, domain containing 3
FSTL4	ENST00000265342.7	folliculin-like 4
SHROOM4	ENST00000376020.2	shroom family member 4
MBD5	ENST00000407073.1	methyl-CpG binding domain protein 5
NAPB	ENST00000377026.4	N-ethylmaleimide-sensitive factor attachment protein, beta
SEC61A2	ENST00000379020.4	Sec61 alpha 2 subunit (S. cerevisiae)
SRGAP1	ENST00000355086.3	SLIT-ROBO Rho GTPase activating protein 1
CASK	ENST00000421587.2	calcium/calmodulin-dependent serine protein kinase (MAGUK family)
LCOR	ENST00000371103.3	ligand dependent nuclear receptor corepressor
RAB4A	ENST00000366690.4	RAB4A, member RAS oncogene family
STX1A	ENST00000395156.3	syntaxin 1A (brain)
FAM107B	ENST00000378470.1	family with sequence similarity 107, member B
DAG1	ENST00000515359.2	dystroglycan 1 (dystrophin-associated glycoprotein 1)
OTUD4	ENST00000454497.2	OTU domain containing 4
TOR1AIP1	ENST00000606911.2	torsin A interacting protein 1
KLHL3	ENST00000541417.1	kelch-like family member 3
CGGBP1	ENST00000309534.6	CGG triplet repeat binding protein 1
YME1L1	ENST00000326799.3	YME1-like 1 ATPase
ATP11B	ENST00000323116.5	ATPase, class VI, type 11B
SLC2A3	ENST00000075120.7	solute carrier family 2 (facilitated glucose transporter), member 3
IFIT5	ENST00000371795.4	interferon-induced protein with tetratricopeptide repeats 5
TEAD1	ENST00000361905.4	TEA domain family member 1 (SV40 transcriptional enhancer factor)
PHF16	ENST00000397189.1	PHD finger protein 16
NUMB	ENST00000554546.1	numb homolog (Drosophila)
NAB1	ENST00000337386.5	NGFI-A binding protein 1 (EGR1 binding protein 1)
SPATA2	ENST00000289431.5	spermatogenesis associated 2
ELK4	ENST00000357992.4	ELK4, ETS-domain protein (SRF accessory protein 1)
SEC24A	ENST00000398844.2	SEC24 family, member A (S. cerevisiae)
WNK3	ENST00000375169.3	WNK lysine deficient protein kinase 3
CACHD1	ENST00000371073.2	cache domain containing 1
GDF6	ENST00000287020.5	growth differentiation factor 6
CEP85L	ENST00000368491.3	centrosomal protein 85kDa-like
ASH1L	ENST00000368346.3	ash1 (absent, small, or homeotic)-like (Drosophila)
LPPR4	ENST00000370185.3	Lipid phosphate phosphatase-related protein type 4
WIPF1	ENST00000392547.2	WAS/WASL interacting protein family, member 1
RPS6KA3	ENST00000379565.3	ribosomal protein S6 kinase, 90kDa, polypeptide 3
RAPGEF1	ENST00000372189.3	Rap guanine nucleotide exchange factor (GEF) 1
RAB8B	ENST00000321437.4	RAB8B, member RAS oncogene family
NCAM1	ENST00000316851.7	neural cell adhesion molecule 1
PLEKHM3	ENST00000427836.2	pleckstrin homology domain containing, family M, member 3
ZNF652	ENST00000362063.2	zinc finger protein 652
MAPK1IP1L	ENST00000395468.4	mitogen-activated protein kinase 1 interacting protein 1-like
SNTB2	ENST00000336278.4	syntrophin, beta 2 (dystrophin-associated protein A1, 59kDa, basic component 2)
BRWD1	ENST00000342449.3	bromodomain and WD repeat domain containing 1
MED1	ENST00000300651.6	mediator complex subunit 1
PPP6C	ENST00000373547.4	protein phosphatase 6, catalytic subunit
ERLIN1	ENST00000421367.2	ER lipid raft associated 1
ASAP1	ENST00000357668.1	ArfGAP with SH3 domain, ankyrin repeat and PH domain 1
KRT80	ENST00000313234.5	keratin 80
ZNF365	ENST00000395254.3	zinc finger protein 365
FARP1	ENST00000595437.1	FERM, RhoGEF (ARHGEF) and pleckstrin domain protein 1 (chondrocyte-derived)
ZNF281	ENST00000294740.3	zinc finger protein 281
GPC6	ENST00000377047.4	glypican 6
HEG1	ENST00000311127.4	heart development protein with EGF-like domains 1
LIMK1	ENST00000418310.1	LIM domain kinase 1
GABRB3	ENST00000311550.5	gamma-aminobutyric acid (GABA) A receptor, beta 3
ANGEL2	ENST00000535388.1	angel homolog 2 (Drosophila)
RNF24	ENST00000336095.6	ring finger protein 24
SYNJ2BP	ENST00000256366.4	synaptotagmin 2 binding protein
NFASC	ENST00000401399.1	neurofascin
FBXW11	ENST00000296933.6	F-box and WD repeat domain containing 11
DENND2C	ENST00000393276.3	DENN/MADD domain containing 2C
AKAP2	ENST00000374525.1	A kinase (PRKA) anchor protein 2
KSR1	ENST00000398988.3	kinase suppressor of ras 1
KDM1B	ENST00000388870.2	lysine (K)-specific demethylase 1B
ELAVL4	ENST00000371824.1	ELAV like neuron-specific RNA binding protein 4
ZFX	ENST00000539115.1	zinc finger protein, X-linked
NOTCH1	ENST00000277541.6	notch 1
AAK1	ENST00000409085.4	AP2 associated kinase 1
CENJL	ENST00000393977.3	cyclin J-like
NDNF	ENST00000379692.4	neuron-derived neurotrophic factor
CEP97	ENST00000341893.3	centrosomal protein 97kDa
CHMP5	ENST00000419016.2	charged multivesicular body protein 5
TCF4	ENST00000354452.3	transcription factor 4
AFF4	ENST00000265343.5	AF4/FMR2 family, member 4
GPRIN3	ENST00000609438.1	GPRIN family member 3
BCL2	ENST00000398117.1	B-cell CLL/lymphoma 2
FND3B	ENST00000336824.4	fibronectin type III domain containing 3B
GRIP1	ENST00000398016.3	glutamate receptor interacting protein 1
SLCSA3	ENST00000608209.1	sodium/myo-inositol cotransporter
PLK2	ENST00000274289.3	polo-like kinase 2
CLOCK	ENST00000309964.4	clock circadian regulator
THRB	ENST00000396671.2	thyroid hormone receptor, beta
RFK7	ENST00000423270.1	regulatory factor X, 7
AHNAK	ENST00000378024.4	AHNAK nucleoprotein
RAB3B	ENST00000371655.3	RAB3B, member RAS oncogene family
ANGPTL3	ENST00000371129.3	angiopoietin-like 3
PALM2-AKAP2	ENST00000374530.3	PALM2-AKAP2 readthrough

ST8SIA3	ENST00000324000.3	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 3
NACC2	ENST00000371753.1	NACC family member 2, BEN and BTB (POZ) domain containing
ANOS	ENST00000324559.8	anoctamin 5
STYX	ENST00000354586.4	serine/threonine/tyrosine interacting protein
DHX9	ENST00000367549.3	DEAH (Asp-Glu-Ala-His) box helicase 9
ROCK2	ENST00000315872.6	Rho-associated, coiled-coil containing protein kinase 2
NR2C2	ENST00000425241.1	nuclear receptor subfamily 2, group C, member 2
MPRIP	ENST00000341712.4	myosin phosphatase Rho interacting protein
CDC27	ENST00000066544.3	cell division cycle 27
AUTS2	ENST00000342771.4	autism susceptibility candidate 2
NUP153	ENST00000262077.2	nucleoporin 153kDa
SLC2A14	ENST00000340749.5	solute carrier family 2 (facilitated glucose transporter), member 14
FBXL16	ENST00000397621.1	F-box and leucine-rich repeat protein 16
RIMS3	ENST00000372684.3	regulating synaptic membrane exocytosis 3
ETF1	ENST00000499810.2	eukaryotic translation termination factor 1
PRPF38B	ENST00000370025.4	pre-mRNA processing factor 38B
ANOG	ENST00000320560.8	anoctamin 6
PITPNM3	ENST00000421306.3	PITPNM family member 3
CAND1	ENST00000545606.1	cullin-associated and neddylation-dissociated 1
ARHGDI4	ENST00000269321.7	Rho GDP dissociation inhibitor (GDI) alpha
FRMD4A	ENST00000358621.4	FERM domain containing 4A
KRR1	ENST00000229214.4	KRR1, small subunit (SSU) processome component, homolog (yeast)
MAFG	ENST00000357736.4	v-maf avian musculoaponeurotic fibrosarcoma oncogene homolog G
ERN1	ENST00000433197.3	endoplasmic reticulum to nucleus signaling 1
CDH7	ENST00000397968.2	cadherin 7, type 2
MYO9A	ENST00000564571.1	myosin IXA
SLC30A10	ENST00000366926.3	solute carrier family 30, member 10
KIF26B	ENST00000366518.4	kinesin family member 26B
MKL2	ENST00000318282.5	MKL/myocardin-like 2
SEPH51	ENST00000545675.1	selenophosphate synthetase 1
AGO2	ENST00000220592.5	argonate RISC catalytic component 2
ZBTB8B	ENST00000609129.1	zinc finger and BTB domain containing 8B
CELF1	ENST00000395290.2	CUGBP, Elav-like family member 1
C1orf131	ENST00000318906.2	chromosome 1 open reading frame 131
ATXN1L	ENST00000427980.2	ataxin 1-like
LATS2	ENST00000382592.4	large tumor suppressor kinase 2
PARD3B	ENST00000406610.2	par-3 family cell polarity regulator beta
FAM63B	ENST00000559228.1	family with sequence similarity 63, member B
SORT1	ENST00000256637.6	sortilin 1
PTAR1	ENST00000377200.5	protein prenyltransferase alpha subunit repeat containing 1
ERGIC2	ENST00000360150.4	ERGIC and golgi 2
CTBP2	ENST00000337195.5	C-terminal binding protein 2
PLXNA2	ENST00000367033.3	plexin A2
GDNF	ENST00000326524.2	glial cell derived neurotrophic factor
PLXNA4	ENST00000321063.4	plexin A4
GNA13	ENST00000439174.2	guanine nucleotide binding protein (G protein), alpha 13
KIAA0430	ENST00000396368.3	KIAA0430
A1CF	ENST00000374001.2	APOBEC1 complementation factor
SLC4A4	ENST00000340595.3	solute carrier family 4 (sodium bicarbonate cotransporter), member 4
MCC	ENST00000302475.4	mutated in colorectal cancers
MAF	ENST00000393350.1	v-maf avian musculoaponeurotic fibrosarcoma oncogene homolog
TAF4	ENST00000252996.4	TAF4 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 135kDa
BRWD3	ENST00000373275.4	bromodomain and WD repeat domain containing 3
CDK12	ENST00000447079.4	cyclin-dependent kinase 12
ZCCHC14	ENST00000268616.4	zinc finger, CCHC domain containing 14
CBX5	ENST00000209875.4	chromobox homolog 5
ZNF516	ENST00000443185.2	zinc finger protein 516
ABCA1	ENST00000374736.3	ATP-binding cassette, sub-family A (ABC1), member 1
ERBB4	ENST00000342788.4	v-erb-b2 avian erythroblastic leukemia viral oncogene homolog 4
ARHGEF1	ENST00000347545.4	Rho guanine nucleotide exchange factor (GEF) 1
EMB	ENST00000303221.5	embigin
ZNF395	ENST00000344423.5	zinc finger protein 395
LIG1	ENST00000273261.3	leucine-rich repeats and immunoglobulin-like domains 1
HIVEP3	ENST00000372583.1	human immunodeficiency virus type I enhancer binding protein 3
SH3PXD2A	ENST00000369774.4	SH3 and PX domains 2A
NCOR2	ENST00000405201.1	nuclear receptor corepressor 2
ATAD2B	ENST00000238789.5	ATPase family, AAA domain containing 2B
PAQR5	ENST00000395407.2	progesterin and adipoQ receptor family member V
FAM179B	ENST00000382233.2	family with sequence similarity 179, member B
BICD2	ENST00000356884.6	bicaudal D homolog 2 (Drosophila)
MEX3D	ENST00000402693.4	mex-3 RNA binding family member D
PCDH19	ENST00000420881.2	protocadherin 19
STXBP6	ENST00000396700.1	syntaxin binding protein 6 (amisyn)
TBL1XR1	ENST00000430069.1	transducin (beta)-like 1 X-linked receptor 1
HIPK2	ENST00000406875.3	homeodomain interacting protein kinase 2
GPR63	ENST00000229955.3	G protein-coupled receptor 63
GIGYF1	ENST00000275732.5	GRB10 interacting GYF protein 1
PVRL1	ENST00000264025.3	poliovirus receptor-related 1 (herpesvirus entry mediator C)
USH1G	ENST00000319642.1	Usher syndrome 1G (autosomal recessive)
ABC9	ENST00000261200.4	ATP-binding cassette, sub-family C (CFTR/MRP), member 9
SLC6A17	ENST00000331565.4	solute carrier family 6 (neutral amino acid transporter), member 17
AMBRA1	ENST00000314845.3	autophagy/beclin-1 regulator 1
PPP2R5C	ENST00000422945.2	protein phosphatase 2, regulatory subunit B', gamma
GREB1L	ENST00000580732.2	growth regulation by estrogen in breast cancer-like
CUL5	ENST00000393094.2	cullin 5
USH2A	ENST00000307340.3	Usher syndrome 2A (autosomal recessive, mild)
DFFA	ENST00000377038.3	DNA fragmentation factor, 45kDa, alpha polypeptide
IPO8	ENST00000256079.4	importin 8
GOSR2	ENST00000576910.2	golgi SNAP receptor complex member 2
ZC3H4	ENST00000253048.5	zinc finger CCCH-type containing 4
EED	ENST00000327320.4	embryonic ectoderm development
FAM46C	ENST00000369448.3	family with sequence similarity 46, member C
ARHGAP26	ENST00000378004.3	Rho GTPase activating protein 26
SUZ12	ENST00000322652.5	SUZ12 polycomb repressive complex 2 subunit
DCUN1D3	ENST00000324344.4	DCN1, defective in cullin neddylation 1, domain containing 3
SIAH1	ENST00000380006.2	siah E3 ubiquitin protein ligase 1
ONECUT2	ENST00000491143.2	one cut homeobox 2
NTPCR	ENST00000366628.5	nucleoside-triphosphatase, cancer-related

FRMD5	ENST00000484674.1	FERM domain containing 5
ACVR2B	ENST00000352511.4	activin A receptor, type IIB
ELL	ENST00000262809.4	elongation factor RNA polymerase II
TRIM71	ENST00000383763.5	tripartite motif containing 71, E3 ubiquitin protein ligase
ANKRD52	ENST00000267116.7	ankyrin repeat domain 52
TPCN1	ENST00000335509.6	two pore segment channel 1
CEP350	ENST00000367607.3	centrosomal protein 350kDa
PSME4	ENST00000404125.1	proteasome (prosome, macropain) activator subunit 4
PAK3	ENST00000372007.5	p21 protein (Cdc42/Rac)-activated kinase 3
JMY	ENST00000396137.4	junction mediating and regulatory protein, p53 cofactor
SYNCRIP	ENST00000355238.6	synaptotagmin binding, cytoplasmic RNA interacting protein
SMURF1	ENST00000361368.2	SMAD specific E3 ubiquitin protein ligase 1
UBE2J1	ENST00000435041.2	ubiquitin-conjugating enzyme E2, J1
SENP5	ENST00000323460.5	SUMO1/sentrin specific peptidase 5
USP31	ENST00000219689.7	ubiquitin specific peptidase 31
NUFIP2	ENST00000225388.4	nuclear fragile X mental retardation protein interacting protein 2
ADCY9	ENST00000294016.3	adenylate cyclase 9
ZNF148	ENST00000360647.4	zinc finger protein 148
KCTD16	ENST00000507359.3	potassium channel tetramerization domain containing 16
MOC51	ENST00000373186.4	molybdenum cofactor synthesis 1
DYRK2	ENST00000344096.3	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 2
RBBP8	ENST00000399722.2	retinoblastoma binding protein 8
JAG2	ENST00000331782.3	jagged 2
TRPM3	ENST00000377110.3	transient receptor potential cation channel, subfamily M, member 3
AVL9	ENST00000318709.4	AVL9 homolog (S. cerevisiae)
CNNM2	ENST00000369878.4	cyclin M2
TMEM136	ENST00000529187.1	transmembrane protein 136
ST3GAL2	ENST00000342907.2	ST3 beta-galactoside alpha-2,3-sialyltransferase 2
NRP2	ENST00000360409.3	neuropilin 2
SCN2A	ENST00000375437.2	sodium channel, voltage-gated, type II, alpha subunit
KDM3B	ENST00000314358.5	lysine (K)-specific demethylase 3B
KCNQ4	ENST00000347132.5	potassium voltage-gated channel, KQT-like subfamily, member 4
SMAD7	ENST00000262158.2	SMAD family member 7
SCN5A	ENST00000414099.2	sodium channel, voltage-gated, type V, alpha subunit
TLN1	ENST00000314888.9	talin 1
IL6ST	ENST00000381287.4	interleukin 6 signal transducer (gp130, oncostatin M receptor)
PHF12	ENST00000577226.1	PHD finger protein 12
IQSEC2	ENST00000375365.2	IQ motif and Sec7 domain 2
DCAF7	ENST00000310827.4	DDB1 and CUL4 associated factor 7
SOC56	ENST00000397942.3	suppressor of cytokine signaling 6
CHD9	ENST00000566029.1	chromodomain helicase DNA binding protein 9
ERC1	ENST00000355446.5	ELKS/RAB6-interacting/CAST family member 1
SLC6A6	ENST00000454876.2	solute carrier family 6 (neurotransmitter transporter), member 6
PROX1	ENST00000366958.4	prospero homeobox 1
TUBB	ENST00000327892.8	tubulin, beta class I
UBXN7	ENST00000296328.4	UBX domain protein 7
USP47	ENST00000339865.5	ubiquitin specific peptidase 47
SP1	ENST00000426431.2	Sp1 transcription factor
DDX3X	ENST00000399959.2	DEAD (Asp-Glu-Ala-Asp) box helicase 3, X-linked
GAD2	ENST00000376261.3	glutamate decarboxylase 2 (pancreatic islets and brain, 65kDa)
RPRD1A	ENST00000399022.4	regulation of nuclear pre-mRNA domain containing 1A
SWAP70	ENST00000318950.6	SWAP switching B-cell complex 70kDa subunit
IRS1	ENST00000305123.5	insulin receptor substrate 1
FBXW2	ENST00000608872.1	F-box and WD repeat domain containing 2
MAP4K4	ENST00000413150.2	mitogen-activated protein kinase kinase kinase kinase 4
USP46	ENST00000441222.3	ubiquitin specific peptidase 46
C4orf32	ENST00000309733.5	chromosome 4 open reading frame 32
POU6F1	ENST00000389243.4	POU class 6 homeobox 1
COL9A3	ENST00000343916.3	collagen, type IX, alpha 3
LPIN2	ENST00000261596.4	lipin 2
GATAD2B	ENST00000368655.4	GATA zinc finger domain containing 2B
LYPLA2	ENST00000374505.2	lysophospholipase II
MYPN	ENST00000358913.5	myopalladin
CDK19	ENST00000368911.3	cyclin-dependent kinase 19
CLF2	ENST00000379261.4	CUGBP, Elav-like family member 2
TJP1	ENST00000346128.6	tight junction protein 1
SUV420H1	ENST00000304363.4	suppressor of variegation 4-20 homolog 1 (Drosophila)
HDAC4	ENST00000345617.3	histone deacetylase 4
AFF1	ENST00000395146.4	AF4/FMR2 family, member 1
KMT2C	ENST00000262189.6	lysine (K)-specific methyltransferase 2C
SLC16A10	ENST00000368850.3	solute carrier family 16 (aromatic amino acid transporter), member 10
MED6	ENST00000440435.2	mediator complex subunit 6
SETD7	ENST00000274031.3	SET domain containing (lysine methyltransferase) 7
FOXP1	ENST00000318789.4	forkhead box P1
RFXOX2	ENST00000449924.2	RNA binding protein, fox-1 homolog (C. elegans) 2
TIGD2	ENST00000317005.2	tigger transposable element derived 2
SESN3	ENST00000536441.1	sestrin 3
CASKIN1	ENST00000343516.6	CASK interacting protein 1
ZFH4	ENST00000521891.2	zinc finger homeobox 4
MBNL1	ENST00000357472.3	muscleblind-like splicing regulator 1
KCNK12	ENST00000327876.4	potassium channel, subfamily K, member 12
PTDSS1	ENST00000517309.1	phosphatidylserine synthase 1
CAMK2D	ENST00000296402.5	calcium/calmodulin-dependent protein kinase II delta
FAM126A	ENST00000409923.1	family with sequence similarity 126, member A
PAPLN	ENST00000381166.3	papilin, proteoglycan-like sulfated glycoprotein
SAMD8	ENST00000372687.4	sterile alpha motif domain containing 8
SIN3A	ENST00000394947.3	SIN3 transcription regulator family member A
BBX	ENST00000415149.2	bobby sox homolog (Drosophila)
MXI1	ENST00000332674.5	MAX interactor 1, dimerization protein
GM2A	ENST00000357164.3	GM2 ganglioside activator
DENND5A	ENST00000530044.1	DENN/MADD domain containing 5A
NFIC	ENST00000346156.5	nuclear factor I/C (CCAAT-binding transcription factor)
TMPPE	ENST00000416695.2	transmembrane protein with metallophosphoesterase domain
CBX8	ENST00000269385.4	chromobox homolog 8
SOX6	ENST00000316399.6	SRY (sex determining region Y)-box 6
HECW2	ENST00000260983.3	HECT, C2 and WW domain containing E3 ubiquitin protein ligase 2
ROBO2	ENST00000461745.1	roundabout, axon guidance receptor, homolog 2 (Drosophila)
COP52	ENST00000388901.5	COP9 signalosome subunit 2

TRPV3	ENST00000301365.4	transient receptor potential cation channel, subfamily V, member 3
PISD	ENST00000397500.1	phosphatidylserine decarboxylase
TBCEL	ENST00000422003.2	tubulin folding cofactor E-like
PAQR3	ENST00000512733.1	progesterin and adipoQ receptor family member III
PRKCA	ENST00000413366.3	protein kinase C, alpha
DNAJC18	ENST00000302060.5	DnaJ (Hsp40) homolog, subfamily C, member 18
CDK16	ENST00000457458.2	cyclin-dependent kinase 16
PHB2	ENST00000546111.1	prohibitin 2
C2orf68	ENST00000306336.5	chromosome 2 open reading frame 68
KCMF1	ENST00000409785.4	potassium channel modulatory factor 1
FGF12	ENST00000445105.2	fibroblast growth factor 12
SHROOM2	ENST00000380913.3	shroom family member 2
CREB1	ENST00000432329.2	cAMP responsive element binding protein 1
HIC2	ENST00000407464.2	hypermethylated in cancer 2
YWHAB	ENST00000353703.4	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, beta polypeptide
SAR1B	ENST00000402673.2	SAR1 homolog B ( <i>S. cerevisiae</i> )
ARL3	ENST00000260746.5	ADP-ribosylation factor-like 3
MLLT3	ENST00000380338.4	myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, <i>Drosophila</i> ); translocated to, 3
SPRYD4	ENST00000338146.5	SPRY domain containing 4
EIF4E	ENST00000450253.2	eukaryotic translation initiation factor 4E
SLC31A1	ENST00000374212.4	solute carrier family 31 (copper transporter), member 1
ATP6V0A2	ENST00000330342.3	ATPase, H+ transporting, lysosomal V0 subunit a2
NIPBL	ENST00000448238.2	Nipped-B homolog ( <i>Drosophila</i> )
PLEKHA6	ENST00000272203.3	pleckstrin homology domain containing, family A member 6
GRK5	ENST00000392870.2	G protein-coupled receptor kinase 5
DMD	ENST00000378677.2	dystrophin
MRPS25	ENST00000253686.2	mitochondrial ribosomal protein S25
SEC31B	ENST00000370345.3	SEC31 homolog B ( <i>S. cerevisiae</i> )
GLG1	ENST00000422840.2	golgi glycoprotein 1
LMO4	ENST00000370544.5	LIM domain only 4
SLC35E2	ENST00000246421.4	solute carrier family 35, member E2
ZBTB20	ENST00000462705.1	zinc finger and BTB domain containing 20
PTCHD3	ENST00000438700.3	patched domain containing 3
FGF10	ENST00000264664.4	fibroblast growth factor 10
PRMT7	ENST00000339507.5	protein arginine methyltransferase 7
MEF2D	ENST00000464356.2	myocyte enhancer factor 2D
GRIN2A	ENST00000562109.1	glutamate receptor, ionotropic, N-methyl D-aspartate 2A
CADM1	ENST00000452722.3	cell adhesion molecule 1
JAKMIP2	ENST00000507386.1	janus kinase and microtubule interacting protein 2
SERPINC1	ENST00000367698.3	serpin peptidase inhibitor, clade C (antithrombin), member 1

Supplementary Table 5: TOP 100 probesets deregulated in T-PLL (CD4+CD8-) compared to normal CD4M cells

CD4N1	CD4N2	CD4M1	CD4M2	CD4E1	CD4E2	CD8N1	CD8N2_b	CD8M1	CD8M2	CD8E1	CD8E2	average T-PLL	average CD4M	FC	Probe set	RefSeq	gene name
30,91131	22,38571	24,45115	28,25191	26,587	21,13323	29,39781	21,39451	24,51685	24,26424	26,10351	21,62807	2624,037815	26,351531	99,57819	39318_t	gb:A1334358	TCL1A
16,68861	18,38645	12,62386	19,00782	12,63261	32,96714	15,56804	14,30533	25,0961	16,83431	17,46738	18,42679	15,27,709517	15,9158365	95,6726	202859_x_at	gb:NM_000767.2	CYP2B6
52,57241	51,53382	46,81095	45,80618	56,75812	43,09021	51,49396	41,13245	50,56726	39,76082	39,88438	37,68471	2898,286828	46,308561	62,58642	209995_s_at	gb:NM_017581.1	CHRNA9
70,3097	64,37862	51,73867	45,37522	70,61042	44,86247	71,87155	49,8856	37,22644	41,93106	51,19708	47,12397	48,5569435	51,17282	2146777_x_at	gb:AL162069.1	IGLL5	
39,93061	75,712	41,93635	106,4082	65,09345	136,2017	37,79561	59,64452	36,16418	63,72835	23,18081	71,733	3129,658282	74,1722795	42,19445	202917_s_at	gb:NM_003837.1	FBP2
154,2951	226,6181	37,89294	46,14465	37,12087	28,6968	199,1179	54,84018	31,53011	16,32489	26,07312	21,95201	1524,106883	42,018798	36,27202	209841_s_at	gb:NM_014128.1	PROO470
11,51	12,29724	9,398453	9,113259	11,94158	10,55464	11,43235	11,76217	10,53027	13,6649	15,0331	13,61679	319,3453038	9,255901	34,50181	201669_s_at	gb:NM_015492.1	DKFZP434H132
443,7699	555,8794	49,46373	94,49685	61,42738	20,36373	394,2994	193,5054	51,05252	29,27296	22,54889	21,1645	2359,545753	71,980287	32,78044	209840_s_at	gb:NM_014127.1	PROO456
30,96957	41,21702	25,90897	29,31953	32,8572	2890,012	2637,196	3496,138	2046,566	2686,546	2330,967	5219,457	828,0615241	27,614252	29,98674	205821_at	gb:AI630178	DKFZP762A227
191,2763	127,2008	108,6875	102,5147	154,245	110,8911	187,1347	199,5073	115,1286	103,9136	126,6919	109,2308	2861,968418	105,6010585	27,1017	224795_x_at	gb:AF277624.1	KR19
27,92947	44,31706	31,55153	30,57725	53,3589	72,17022	33,76594	36,93938	37,30294	54,65273	15,12598	35,37293	817,9693154	31,0643905	26,33141	1555745_a_at	gb:BF516567	SNRPB
50,90386	87,34771	62,87828	121,3473	289,0716	129,9914	36,32883	60,96088	94,99872	88,03249	110,3603	80,41213	2291,637728	92,112803	24,8786	214414_x_at	gb:BE467208	HBA2
31,85596	98,81769	31,16086	132,33	121,4778	184,2274	21,95688	57,0351	45,78163	85,87414	25,69056	69,84079	1794,755816	81,74542	21,95543	213975_s_at	gb:BF590192	KIAA0610
54,71316	91,24636	65,89928	134,8927	74,04084	111,0625	53,91452	56,89401	75,57887	74,70022	62,96416	67,03656	2168,837683	100,194467	21,64628	209116_x_at	gb:NM_020487.1	FLJ13860
22,69716	21,45823	20,40114	18,41817	20,50083	17,39638	17,7589	22,01797	18,53734	18,20293	24,86294	23,48973	385,4583845	19,556578	19,70991	218559_s_at	gb:AI913600	MAFB
140,8065	95,00523	71,21378	81,13664	99,00681	94,67741	123,3307	141,4096	66,52746	67,11533	78,27698	70,68529	1447,430677	76,175208	19,00134	221671_x_at	gb:AI703265	IGKC
149,5015	107,4725	86,855	75,4332	133,6445	82,35663	135,1597	147,7327	94,40863	74,66777	94,27878	75,40155	1497,774483	81,1441	18,45821	221651_s_at	gb:BF466199	IGKC
98,91944	160,9742	21,9786	23,13089	18,39984	15,66408	128,3115	61,28003	17,54276	19,29659	13,03987	15,08622	414,0097486	22,554747	18,35577	207324_s_at	gb:AL157418.1	MINK
8,771764	9,164106	8,831262	8,74272	10,92471	13,97319	8,58029	10,38239	10,2768	10,88318	10,77382	8,156223	153,0078747	8,786991	17,413	1555756_a_at	gb:AI743207	BGR
24,6842	38,10423	22,40839	22,40729	52,35414	48,59613	18,54105	25,19475	21,73321	27,73243	24,54624	23,88788	384,9225094	22,50561	17,1034	221731_s_at	gb:AI688554	VCAN
18,24938	17,04082	13,43671	20,89135	25,22719	20,10402	18,8651	19,25588	21,11085	21,85311	18,92515	17,51557	282,404128	17,1640305	16,45325	204959_x_at	gb:AF077973.1	CLN3
70,76627	56,81661	58,02531	102,2285	58,50958	111,72535	46,41267	73,18951	51,62722	44,081	49,95848	92,67115	1265,184835	80,1269125	15,78976	203535_at	gb:NM_023107.1	FGFR1
26,28331	35,19158	17,82985	30,32819	39,93627	41,03096	30,98329	32,02437	21,7506	41,4386	24,04756	22,63228	366,0528744	24,0790195	15,20215	221841_s_at	gb:AI191905	KLF4
13,3564	11,90697	8,562824	11,1607	12,47036	10,38419	12,4155	14,64875	11,52075	10,71915	9,91757	9,606857	149,4887566	9,861762	15,15842	212592_at	gb:AI631001	NKAP95
127,2144	194,9495	122,183	269,4938	160,6178	232,0614	108,9269	57,5595	134,9048	126,0233	137,5668	119,4175	2901,813114	195,838397	14,81739	211696_x_at	gb:BC132226.1	HBB
78,86305	92,91051	71,48188	109,1963	126,0325	100,5779	56,28823	55,22797	75,32059	58,24695	81,44022	72,49338	1330,790349	90,3397015	14,73106	211745_x_at	gb:AF006276.1	HBA2
13,51631	29,13141	16,85619	18,7922	26,60751	23,23418	17,90161	50,83914	26,86665	29,00074	37,84005	58,86632	242,7301112	17,8241935	13,61801	201218_x_at	gb:AK022075.1	RNF8
377,9242	222,9471	39,8282	42,50436	47,01003	35,83153	585,0116	305,0385	385,5059	206,0934	214,7245	146,272	517,4897504	40,893276	12,65464	208982_at	gb:NM_020422.2	hklp2
50,49117	67,72415	34,87378	43,17903	74,61239	67,1766	60,70454	151,8577	68,12507	81,92634	113,8767	204,3422	485,2702227	39,026406	12,43441	210835_s_at	gb:AA121529	MLL3
98,5578	121,4835	97,12073	156,456	99,31668	136,2749	77,55196	84,83113	97,87708	79,28394	90,9583	92,35842	1567,509188	126,7883835	12,36319	217232_at	gb:AA470049	HBB
35,25371	33,40463	25,47077	30,02085	70,23054	63,56603	135,1597	147,7327	94,40863	74,66777	94,27878	75,40155	339,5964673	27,745806	12,23956	204620_s_at	gb:AA500673.1	SP100
64,13087	69,85218	67,48808	96,30908	77,57339	87,87272	58,48546	43,16246	60,65986	50,96779	71,25554	56,51196	939,6391665	81,8985765	12,13256	211699_x_at	gb:AF139957.1	FKBG2
13,4066	86,69431	61,61725	96,54402	101,8373	104,4504	54,06149	57,54806	75,8321	57,55815	68,19962	61,51938	951,2890461	79,0806345	12,02936	217414_x_at	gb:AI681105	HBA2
39,41629	29,64152	27,25333	32,1049	52,07789	52,06595	27,33278	24,99089	25,91539	33,12989	26,45632	32,36649	356,7456924	29,679114	12,02009	205237_at	gb:AF167107.1	VCKB
60,06541	96,70088	76,77192	118,9407	113,0171	101,1726	58,931	54,38176	71,3039	93,54756	90,38577	75,3539	1173,761606	97,85629	11,99475	209458_x_at	gb:NM_022133.1	NPAS3
11,66791	11,89962	12,8902	10,01661	14,80316	14,98689	12,42863	13,09297	13,59436	15,91734	14,55758	14,51543	145,1379636	12,4534025	11,65448	201670_x_at	gb:NM_011116.1	ADCY9
15,75039	18,11213	28,32328	29,3554	27,79558	22,30845	12,52214	15,01392	18,99006	26,79495	14,84033	16,3897	288,1366632	26,138412	11,0235	234994_at	gb:NM_018287.1	FLJ10971
26,49554	36,05251	55,71674	58,22083	49,66884	24,62142	22,38601	41,05881	34,17301	40,90057	25,75755	19,66445	626,7417616	56,9687855	11,00149	229797_at	gb:AI011597.1	MCOLN3
20,16831	19,16912	384,8726	247,3608	325,4038	23,90871	17,89108	22,47751	178,7509	17,12669	186,9938	21,27279	301,2165921	316,11673	10,095574	206983_at	gb:AF035291.1	CCRG6
35,7592	30,02159	26,73274	30,02515	30,58613	53,35613	28,81659	31,96548	24,97934	36,67761	25,42502	30,57876	294,2812777	28,3789455	10,36974	205863_at	gb:BE504197	S100A12
27,52401	34,04814	36,10256	32,07551	54,67818	70,75414	50,14526	415,2261	271,5366	69,23397	135,398	439,952	349,4071276	34,089031	10,24984	204122_at	gb:AV752215	SRI
69,7576	116,1724	39,80191	70,63216	113,7006	91,8935	75,41618	233,4867	103,198	133,8941	145,0845	208,6721	544,076799	55,217037	9,853423	210220_x_at	gb:NM_004860.2	FXR2
279,3755	220,3529	197,3627	69,31027	251,3072	289,7171	2031,266	1702,515	1770,446	1722,219	1225,747	977,9708	1271,947192	133,336499	9,539377	201160_x_at	gb:NM_000491.2	C1QB
16,02118	16,77881	19,47827	23,15899	36,76951	71,66593	19,96306	17,32687	11,69751	38,94918	22,38404	31,11697	202,0087465	21,318633	9,475689	201560_at	gb:HA40895	NCIB
24,38237	50,63774	15,1783	27,56042	32,69292	19,64	24,76853	40,73388	25,72815	25,38219	19,02375	18,19493	182,1934711	21,3693585	8,525921	242136_x_at	gb:AE566528	NEFL
16,78634	11,77245	14,10486	12,2377	16,39945	14,32352	12,69293	14,95343	14,28403	17,4103	13,69793	15,11405	110,4717224	13,17128	8,387319	226818_x_at	gb:TS5680	MPG1
23,0808	21,06223	24,70707	16,40325	20,31201	19,0358	18,13622	20,83244	15,86648	16,65974	21,01474	22,36589	171,3816196	20,555155	8,337647	201743_at	gb:BF343007	TFAP2A
19,92203	19,2027	16,38246	15,93624	18,2735	20,47141	18,66951	17,132	15,41532	14,51062	12,66846	18,37303	132,0602634	16,159347	8,172376	208146_s_at	gb:AC024945.1	CPVL
34,3311	26,25833	27,31184	27,92667	32,10825	40,15053	24,96952	29,14085	28,39009	27,78846	28,47066	26,40629	223,4446485	27,6192545	8,090177	218454_at	gb:WA4508	PLBD1
44,13685	52,19696	24,79215	32,85607	26,95957	22,30709	62,82934	34,34013	26,1082	21,69913	22,67308	21,33099	233,1780232	28,824113	8,089686	205544_s_at	gb:NM_010845.1	COL4A1
91,9509	103,9926	58,74636	74,87888	50,40164	194,5342	109,4614	146,9341	78,64206	124,7345	121,0806	273,5178	540,274295</					

Supplementary Table 6: Fold Change all T-PLL compared to the average miRNA expression in CD4E control samples (normalized counts)

	logFC	logCPM	LR	PValue	FDR
hsa-miR-141-3p	6,443465	13,65764	16,05753	6,14E-05	0,011436
hsa-miR-200c-3p	5,820736	12,94985	18,03096	2,17E-05	0,011436
hsa-miR-181a-5p	5,222023	16,57649	10,97928	0,000921	0,025436
hsa-miR-181b-5p	4,406398	14,01337	10,99606	0,000913	0,025436
hsa-miR-3168	4,295416	11,33799	10,47232	0,001212	0,030216
hsa-miR-30d-5p	3,493705	13,60408	10,84707	0,00099	0,026376
hsa-miR-363-3p	3,468302	10,64196	15,33879	8,99E-05	0,011576
hsa-miR-29a-3p	3,449486	12,34509	11,32232	0,000766	0,025436
hsa-miR-92a-3p	3,389087	16,77756	11,33769	0,000759	0,025436
hsa-miR-378a-3p	3,221838	11,11407	16,74372	4,28E-05	0,011436
hsa-miR-148a-3p	3,162401	11,31997	11,46648	0,000709	0,025436
hsa-miR-31-5p	3,160657	11,40516	10,51893	0,001182	0,030216
hsa-miR-143-3p	3,147093	10,44461	9,353562	0,002226	0,045272
hsa-miR-151a-3p	3,122831	10,98359	13,06856	0,0003	0,024262
hsa-miR-19b-3p	3,101128	10,98198	13,85355	0,000198	0,020777
hsa-miR-93-5p	3,071375	11,96692	11,68852	0,000629	0,025436
hsa-miR-128-3p	3,04193	10,65322	15,82305	6,96E-05	0,011436
hsa-miR-186-5p	3,02598	11,59933	11,86425	0,000572	0,025436
hsa-miR-17-5p	2,639962	10,14347	15,70641	7,4E-05	0,011436
hsa-miR-4485	2,574388	9,815609	9,57436	0,001973	0,042368
hsa-miR-27b-3p	2,490584	10,34595	11,10173	0,000862	0,025436
hsa-miR-30c-5p	2,413063	11,50974	10,21818	0,001391	0,033264
hsa-miR-20a-5p	2,362222	10,07258	12,42387	0,000424	0,025436
hsa-miR-361-3p	2,35388	10,39195	12,98574	0,000314	0,024262
hsa-miR-3184-5p	2,335314	11,18032	12,15175	0,00049	0,025436
hsa-miR-423-3p	2,335314	11,18032	12,15175	0,00049	0,025436
hsa-miR-148b-3p	2,290246	10,11909	11,6215	0,000652	0,025436
hsa-miR-29c-3p	2,124595	9,834083	10,17957	0,00142	0,033264
hsa-miR-106b-3p	2,120923	10,68941	9,014572	0,002678	0,049294
hsa-miR-20b-5p	2,041628	9,437148	11,23339	0,000803	0,025436
hsa-miR-125a-5p	1,99309	10,06517	9,706759	0,001836	0,04174
hsa-miR-454-3p	1,789646	9,425445	12,18849	0,000481	0,025436
hsa-miR-151a-5p	1,738834	9,295632	13,69503	0,000215	0,020777
hsa-miR-532-5p	1,728213	9,59303	9,586227	0,00196	0,042368
hsa-miR-16-2-3p	1,686172	9,428509	11,04213	0,000891	0,025436