

**Table S3**

Genes dysregulated in miR-20a knock-in and knock-down Jurkat transformants

miR-20a (Jurkat DE + predicted target genes of miRNA)	MS DE mRNA + miR-20a Jurkat DE	MS DE mRNA + miR-20a (Jurkat DE + Target)
SEPT2	CASC3	ACTR2
SEPT2	CEBPB	ARHGAP30
SEPT7	CREBBP	BID
MARCH8	DPF2	BMP2K
AASDHPPT	FLI1	CASC3
ABAT	FTL	CEBPB
ABCC10	H3F3A	CREBBP
ABCD3	HIST1H2BD	EIF4EBP2
ABTB1	HIST1H2BK	H3F3A
ACAD11	IDS	IDS
ACADM	IFNA7	IFNA7
ACAT2	LIMS1	KRAS
ACTR10	NUAK2	LPCAT1
ACTR1A	OSBPL2	MAP4K4
ACTR2	PCTP	OSBPL2
ADAM17	PRSS7	PCTP
ADAMTSL2	RASSF2	RASSF2
ADM2	RHOB	RXRA
ADRA2B	RXRA	STK40
AGK	STK40	TRIOBP
AHNAK	TRIOBP	TSC22D1
AIPL1	UBE2D3	ZFP36
AKAP13	WIP1	ACAD11
AKIRIN1	ZFP36	CDKN2C
ALDOC	ACTB	COQ5
ALG9	ACTR2	IL23A
ALKBH1	ARHGAP30	MFHAS1
ALPK2	ARMET	NAPB
AMACR	BID	WDR33
AMPD2	BMP2K	C13orf27
ANGPT1	EIF4EBP2	C20orf20
ANKRD40	ETS2	
ANXA13	HLA-DQB1	
AP2M1	KRAS	
AP3M1	LPCAT1	
ARAP2	MAP4K4	
ARCN1	SLBP	
ARHGAP30	SNX15	
ARHGEF9	TSC22D1	
ARIH2	ACAD11	
ARL4A	BOLA3	
ARL6IP5	BXDC1	

ARL6IP6	C6orf48
ARMC10	CCDC53
ARMC2	CCDC59
ARMCX1	CCNB1IP1
ARPP-21	CDKN2C
ARRB2	COQ5
ARRDC1	DRG1
ARSD	EIF2B4
ASL	ERP27
ASPH	HEMGN
ASS1	HSPE1
ATAD3B	IL23A
ATF5	LGALS1
ATG12	MCART1
ATP1B4	MFHAS1
BAGE	MRPS21
BBS7	NAPB
BCL2L11	NAT5
BECN1	NUCKS1
BID	NUP37
BMF	PIGF
BMP2K	RIOK2
BMPR1A	RPL12
BRP44L	RPL24
BTBD7	RPL36AL
C10orf46	RPL39
C10orf47	SFRS16
C11orf63	STK16
C12orf44	TIMM23
C12orf48	TMEM126A
C12orf66	WDR33
C12orf67	ANXA1
C12orf68	C13orf27
C13orf27	C20orf20
C14orf102	C21orf33
C14orf147	C22orf28
C15orf44	EIF3E
C15orf54	HIST1H4C
C16orf58	KLRB1
C17orf37	MRPL55
C1orf161	NAE1
C1orf21	NME1
C1orf52	RPL11
C1orf95	RPL13A
C20orf111	RPL41
C20orf117	RPL6

C20orf20	RPS15A
C21orf34	RPS27
C2orf66	RPS27A
C3orf15	RPS29
C4orf3	TAF15
C4orf30	
C4orf32	
C4orf34	
C4orf49	
C5AR1	
C5orf41	
C5orf51	
C6orf162	
C6orf182	
C6orf224	
C7orf41	
C7orf43	
C7orf53	
C8orf33	
C9orf102	
C9orf47	
C9orf97	
CACNA1E	
CACNA2D3	
CADM2	
CAMK2N1	
CAMKK1	
CAPN3	
CASC1	
CASC3	
CASP7	
CBFA2T2	
CBFA2T3	
CBL	
CC2D1A	
CCDC112	
CCDC132	
CCDC3	
CCDC52	
CCDC62	
CCDC86	
CCDC90B	
CCND3	
CCNG1	
CCNL1	
CCRK	

CCRL1  
CD163  
CD164  
CD24  
CD36  
CD5  
CD83  
CDC2L5  
CDC42SE2  
CDH26  
CDK2  
CDK8  
CDKN2C  
CDT1  
CEBPB  
CEBPD  
CES3  
CHCHD7  
CHD6  
CHIC1  
CHIC2  
CHM  
CHN2  
CHRDL1  
CHRN1  
CLCC1  
CLDN16  
CLDN18  
CLDND1  
CLEC2B  
CLEC4A  
CMKLR1  
CMTM3  
CMTM4  
CNOT6  
COBL  
COG3  
COL11A1  
COL13A1  
COL17A1  
COL2A1  
COMMD5  
COPA  
COPS2  
COPS7A  
COPS8

COQ10B  
COQ5  
CORO2B  
CPA4  
CPEB3  
CR1  
CREBBP  
CRISPLD2  
CRK  
CRMP1  
CSNK1E  
CSNK2A2  
CST9L  
CSTF1  
CTDSPL  
CTSL1  
CUGBP2  
CUL4A  
CXorf38  
CYP19A1  
CYP26B1  
CYP4F3  
CYP4X1  
DACH1  
DAG1  
DAND5  
DAZL  
DBN1  
DCDC2  
DCHS1  
DCLRE1C  
DDR2  
DDX47  
DECR2  
DEDD  
DENND5A  
DGUOK  
DHCR24  
DHRS2  
DHX35  
DHX9  
DIAPH2  
DICER1  
DIP2B  
DKK2  
DLEC1

DNA2  
DNAJB5  
DNAJB7  
DNAJB9  
DNAJC27  
DNAJC30  
DNALI1  
DNASE2  
DOCK3  
DPP3  
DPY19L4  
DPYD  
DPYSL5  
DSEL  
DTNA  
DTX4  
DUOX1  
DUSP10  
DUSP10  
DUSP4  
DUSP6  
DYNC111  
DZIP3  
ECHDC1  
ECOP  
EDA  
EDNRB  
EEF1A1  
EFHC2  
EFNA4  
EFTUD1  
EIF1AX  
EIF2B2  
EIF4A2  
EIF4B  
EIF4EBP2  
EIF4H  
EMR2  
ENDOD1  
ENPP6  
ENTPD1  
EPB41L2  
ERBB2  
ERO1L  
ERO1LB  
ERP29

ERP44  
ESR1  
ETS1  
ETV5  
EVI1  
EXD1  
EZH2  
FADS1  
FAM110A  
FAM129A  
FAM12B  
FAM175A  
FAM177A1  
FAM38B2  
FAM62A  
FAM65A  
FAM81A  
FAM83C  
FBXO11  
FBXO41  
FBXW7  
FCGR3B  
FEN1  
FGF2  
FGFR1  
FKBP14  
FLJ20184  
FMNL3  
FNTB  
FOXK1  
FOXP4  
FOXRED2  
FRMD6  
FUT2  
FUT4  
FXN  
FXR1  
G3BP2  
GABPA  
GALK2  
GALNT12  
GALR2  
GAS8  
GATA3  
GATAD2A  
GBF1

GCOM1  
GDA  
GDF6  
GFPT1  
GGA1  
GHRH  
GIMAP4  
GIPC1  
GLIPR2  
GM2A  
GNE  
GORAB  
GPC3  
GPM6A  
GPR135  
GPR81  
GPR83  
GRLF1  
GRM7  
GTF2H1  
GTPBP1  
H1F0  
H3F3A  
HADH  
HARS  
HBEGF  
HDAC9  
HEMK1  
HERC6  
HERPUD1  
HERPUD2  
HIAT1  
HIST1H2AG  
HLA-A  
HLA-DRA  
HMGB1  
HMGCS1  
HMGXB4  
HNRNPC  
HNRNPF  
HNRNPR  
HORMAD2  
HOXC6  
HOXD13  
HP1BP3  
HPRT1



HSD17B1  
HSD17B6  
HSPA8  
HSPB3  
HSPD1  
HTN1  
HVCN1  
HYOU1  
HYPK  
ICA1L  
IDH1  
IDI2  
IDS  
IFNA17  
IFNA7  
IFT81  
IGF2BP1  
IL23A  
IL8  
ILF3  
IMPA1  
IMPDH1  
INCENP  
ING2  
INPP5F  
INSIG1  
INSM2  
IP6K1  
IQGAP2  
IRF8  
IRF9  
ISOC1  
ITGA2  
ITIH2  
ITIH5  
ITM2C  
JTB  
KANK1  
KBTBD3  
KCMF1  
KCNH4  
KCNH5  
KCNMB2  
KCNMB2  
KCNQ1  
KIAA0232

KIAA1024  
KIAA1370  
KIAA1715  
KIAA1804  
KIF20B  
KIF21B  
KIF5B  
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KLHL24  
KLHL25  
KLHL28  
KRAS  
KRIT1  
KRIT1  
KRT10  
LAIR1  
LBR  
LCORL  
LDLR  
LDLRAP1  
LEPROTL1  
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LIPH  
LLGL1  
LMNB1  
LOC153328  
LOC643684  
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LPIN1  
LRR1  
LRR31  
LRR40  
LRR47  
LRRN2  
LSS  
LY6H  
LYST  
LYZ  
MAEA  
MAN1C1  
MANBA  
MAP4K4  
MAPT  
MAPT  
MASP1  
MCM4

MCM7  
MDH1B  
MED23  
MEF2D  
MEST  
MFGE8  
MFHAS1  
MFN1  
MFSD11  
MGLL  
MIER1  
MLF2  
MMAB  
MMGT1  
MORF4L2  
MPP7  
MRE11A  
MRPL15  
MRPL47  
MST150  
MSTO1  
MTFR1  
MUC17  
MUDENG  
MUT  
MVD  
MXRA7  
MYH9  
MYO18A  
MYOM1  
MYOM2  
MYPN  
NAP5  
NAPB  
NAT12  
NBPF14  
NCBP2  
NDFIP2  
NELF  
NFAT5  
NFATC1  
NFATC2IP  
NFYA  
NHLRC3  
NIP30  
NMNAT2

NMT1  
NONO  
NOP2  
NOTCH1  
NOVA2  
NP  
NPY5R  
NQO1  
NTM  
NUDT21  
NUDT9  
NUFIP1  
NUP153  
NUP54  
NUPL1  
OAZ1  
OGN  
OPN3  
OPTN  
ORC5L  
OSBPL2  
OSBPL6  
OSTCL  
OTUD6B  
OTUD7A  
PANK1  
PAPD5  
PAPPA  
PAX2  
PBOV1  
PCDH11X  
PCDHA6  
PCDHA6  
PCF11  
PCGF6  
PCTP  
PDCD6  
PDE1A  
PDS5B  
PDZD11  
PEG3  
PFN2  
PGM2L1  
PHACTR4  
PHF17  
PHF21A

PHKA1  
PHYHIP  
PI4K2B  
PIF1  
PIGA  
PIGH  
PIGY  
PIK3IP1  
PIK3R1  
PIP4K2A  
PIP4K2C  
PISD  
PITPNB  
PLA2G12B  
PLK4  
PNMAL1  
PODXL  
POLDIP2  
POLE  
POLR3H  
POU3F2  
PPAP2B  
PPM1B  
PPM1K  
PPP1R3B  
PPP1R3F  
PPP1R9B  
PPP2R2C  
PPP2R3A  
PPP4R4  
PPTC7  
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PRDM16  
PRDM2  
PRDM8  
PRDM9  
PRDX3  
PRKAR1A  
PRKAR1A  
PRKCB  
PRKDC  
PRNP  
PROK2  
PRR15  
PRR16  
PRRG4

PRX  
PSAT1  
PSD3  
PSD3  
PSMD5  
PTGER3  
PTN  
PTPRO  
PUM1  
PUS7L  
PVRL2  
RAB11A  
RAB11FIP4  
RAB27A  
RAB35  
RAB37  
RAB3IP  
RAB43  
RABGEF1  
RAD21  
RAD23B  
RAD54B  
RALB  
RAN  
RANBP17  
RAPGEF1  
RARA  
RARRES1  
RASSF2  
RB1  
RBBP7  
RBM12  
RBM16  
RCBTB1  
RCOR2  
RDBP  
REM2  
RFC2  
RFFL  
RFFL  
RFXAP  
RG9MTD3  
RGS17  
RHOBTB3  
RHOT1  
RIMS3

RNASE6  
RNASEL  
RNF19A  
RNF215  
RNF8  
RNMTL1  
ROBO1  
RP2  
RP6-213H19.1  
RPA1  
RPL18  
RPP30  
RPS6KA1  
RPS6KA2  
RRAS2  
RTN1  
RUFY1  
RUNDC3A  
RXRA  
RYK  
SAFB2  
SAMD7  
SAR1A  
SC4MOL  
SC5DL  
SC65  
SCAMP1  
SCARB2  
SCD  
SCGB2A1  
SCN9A  
SCRIB  
SCRN3  
SCYL2  
SDAD1  
SDC4  
SDSL  
SEC23A  
SEC61A2  
SEL1L  
SELI  
SELL  
SELM  
SELT  
SEMA4G  
SEPHS1

SERPINB9  
SERPINE2  
SETD2  
SF1  
SFRS3  
SGK269  
SGOL1  
SHISA2  
SIRT5  
SKAP2  
SLC1A3  
SLC22A2  
SLC22A8  
SLC25A10  
SLC25A24  
SLC25A34  
SLC25A38  
SLC26A1  
SLC26A7  
SLC27A6  
SLC2A6  
SLC2A9  
SLC35B1  
SLC37A1  
SLC39A14  
SLC48A1  
SLC4A7  
SLC7A1  
SLC7A11  
SLC7A5  
SLMO2  
SMAD6  
SMCHD1  
SMOC1  
SMOX  
SNAPIN  
SNIP  
SNN  
SNRPD3  
SNTB2  
SNW1  
SORBS2  
SORD  
SOX17  
SOX7  
SP1



SPCS3  
SPINK7  
SPIRE1  
SPNS1  
SPRED2  
SPRN  
SPRY4  
SPSB4  
SPTLC1  
SR140  
SRGAP2  
SRR  
SSR1  
SSTR2  
ST8SIA5  
STAG1  
STAG2  
STAU2  
STBD1  
STIM1  
STK40  
STMN1  
STX16  
STYXL1  
SURF6  
SUV420H1  
SYN1  
SYNPO2L  
SYT13  
SYT15  
SYVN1  
TADA1L  
TAF12  
TAX1BP1  
TBC1D17  
TBC1D19  
TBC1D2  
TCEA1  
TCEAL1  
TCERG1  
TCF20  
TCF7L2  
TCHH  
TCTEX1D1  
TDG  
TDP1

TEC  
TECPR1  
TFG  
TGFB1  
THAP10  
THAP8  
THSD4  
THUMPD1  
TIAM2  
TICAM2  
TIMP2  
TIPIN  
TM4SF19  
TMEM106B  
TMEM128  
TMEM135  
TMEM151A  
TMEM168  
TMEM188  
TMEM20  
TMEM214  
TMEM217  
TMPO  
TMSB4X  
TMTC4  
TMX1  
TNFAIP8  
TNFRSF1A  
TNFSF14  
TNPO3  
TOM1  
TPD52  
TPD52L2  
TPD52L2  
TPK1  
TPM3  
TPRG1  
TRAF7  
TRAPPC2  
TRDMT1  
TRIB3  
TRIM58  
TRIM68  
TRIOBP  
TRIP11  
TRNP1

TRPC1  
TSC22D1  
TSC22D1  
TSEN15  
TSLP  
TSPAN17  
TSPYL4  
TTC39A  
TTN  
TUBGCP4  
TXLNB  
UBC  
UBE2D2  
UBE2E2  
UBE2K  
UBE2L3  
UBQLN1  
UBTF  
UBXN4  
UGT2B15  
UGT2B17  
UNC13A  
UNKL  
UQCR  
USP2  
USP33  
USP35  
USP48  
UTP14A  
VANGL1  
VASH1  
VAT1L  
VAV3  
VEGFA  
VENTX  
VKORC1L1  
VPS13B  
VPS41  
WDR1  
WDR16  
WDR31  
WDR33  
WHSC1L1  
WNK3  
WVOX  
XBP1

XBP1  
XKR4  
XPR1  
XRN2  
YIPF2  
ZBTB7A  
ZC3H13  
ZC3H14  
ZDHHC11  
ZDHHC4  
ZFAND3  
ZFAT  
ZFP36  
ZFYVE9  
ZKSCAN1  
ZMAT3  
ZNF177  
ZNF211  
ZNF292  
ZNF317  
ZNF323  
ZNF329  
ZNF37A  
ZNF468  
ZNF491  
ZNF510  
ZNF530  
ZNF584  
ZNF587  
ZNF607  
ZNF626  
ZNF669  
ZNF672  
ZNF681  
ZNF682  
ZNF691  
ZNF695  
ZNF750  
ZNF761  
ZNF766  
ZNF800  
ZNF823  
ZRANB2  
ZSCAN10

DE - differential expression; MS - Multiple Sclerosis; red – up-regulated in MS; black – down-regulated in MS