Supplementary Table S7. 33 miRNAs associate with 91 essential gene HC_OTEs and 2 rescuer gene HC_OTEs

Class	miRbase ID	mature miRNA	miRNA sequence		Experimentally validated targets		Gene silenced in screen
Essential	MIMAT0004814	hsa-miR-654-3p	UAUGUCUGCUGACCAUCACCUU	1	CDKN1A	4	CDC34, RAMP3, IL4, SEMA6D
Essential	MIMAT0004487	hsa-let-7f-2-3p	CUAUACAGUCUACUGUCUUUCC	21	ASS1, CCND1, CDKN1A, CSN1, CSN6, CSN8, EEF1A2, ESM1, FDPS, IL-13, KIF1A, KLK10, KLK6, MYC, NIS, NTS, PRDM1, TFF1, TG, TITF1, VIM	4	LILRA2, IGSF10, IL1RAP, OR2T27
Essential	MIMAT0000275	hsa-miR-218-5p	UUGUGCUUGAUCUAACCAUGU	63	AC026713.5, ACTN1, AGPAT5, AHI1, AKAP8, ATP6V0E, BIRC6, BLCAP, BTBD7, BTF3L4, C13ORF7, C5ORF5, CAMTA1, CDKN1B, CENPO, CNTNAP2, COL1A1, COL4A1, DUSP18, EBP, EFNA1, EFNB2, ETS2, FOXN2, GLCE, GPM6A, HECTD2, IKBKB, KATNAL1, KIAA0391, KIAA1462, KLF9, KLHL13, LAMB3, LASP1, MAFG, MBNL2, MRPS27, NACC1, NFE2L1, NUP93, OLIG2, PHC3, POGK, POZ, PTPN11, PUM2, RARA, RHBDD1, RIT1, RNF38, SERINC3, SFRS12, SLC11A2, SLC38A1, SP1, SSH1, STAM2, THOC2, TNIP2, TPD52, TTC33, VOPP1	5	SOX30, IL12RB2, IL18BP, MYO18A, CDK10
Essential	MIMAT0000437	hsa-miR-145	GUCCAGUUUUCCCAGGAAUCCCU	88	ACBD3, AKR1B10, ALDH3A1, ALPPL2, AP1G1, APH1A, ARL6IP5, BNIP3, C11ORF58, C11ORF65, C3ORF34, C6ORF115, CBFB, CCDC25, CCDC43, CCNA2, CDKN1A, CIQTNF5, CLINT1, DDR1, DFFA, DTD1, ELK-1, ERLINI, F11R, FAM108C1, FAM3C, FAM45A, FAM79B, FBXO28, FLI1, FLJ21308, FSCN1, GMFB, GOLPH2, HLTF, HOXA9, IFNB1, IGF1R, IGF-IR, IRS1, IRS-1, JAM-A, KLF4, KLF5, KREMEN1, KRT7, LOC203547, LOC340888, LOC342705, LOC400011, LYPLA2, MAP2K6, MEST, MIXL1, MMP1, MMP14, MTMR14, MUC1, MYC, MYO6, NDRG2, NDUFA4, NHEDCI, NIPSNAP1, OCT4, PARP8, PHF17, PIGF, PODXL, POU5F1, PPP3CA, PTP4A2, RASA1, ROBO2, RTKN, S0CS7, SERINC5, SOX2, STAT1, SWAP70, TIRAP, TMEM9BMMP12, TMOD3, TPM3, TSPAN6, USP46, YES1	5	RAB13, KISS1, LCP1, ENC1, KDELR1
Essential	MIMAT0003320	hsa-miR-650	AGGAGGCAGCGCUCUCAGGAC	1	ING4	2	LYRM1, DSCAM
Essential	MIMAT0017989	hsa-miR-3612	AGGAGGCAUCUUGAGAAAUGGA	-	Unknown	2	LYRM1, DSCAM
Essential	MIMAT0004987	hsa-miR-944	AAAUUAUUGUACAUCGGAUGAG	-	Unknown	3	DHX38, CYP2E1, OSMR
Essential	MIMAT0019972	hsa-miR-4797-5p	GACAGAGUGCCACUUACUGAA	-	Unknown	3	LILRA4, CCDC76, LILRP2
Essential	MIMAT0019928	hsa-miR-4773	CAGAACAGGAGCAUAGAAAGGC	-	Unknown	4	ARHGEF1, MS4A1, NEURL, PROM1
Essential	MIMAT0019938	hsa-miR-4779	UAGGAGGGAAUAGUAAAAGCAG	-	Unknown	3	CDC34, CYP2F1, NDUFB2
Essential	MIMAT0004903	hsa-miR-300	UAUACAAGGGCAGACUCUCUCU	-	Unknown	3	UBOX5, INHA, CYP2R1

Essential	MIMAT0000736	hsa-miR-381	UAUACAAGGGCAAGCUCUCUGU	-	Unknown	3	UBOX5, INHA, CYP2R1
Essential	MIMAT0019850	hsa-miR-4728-3p	CAUGCUGACCUCCCUCCUGCCCCAG	-	Unknown	4	HYLS1, NGF, PNRC1, RARRES1
Essential	MIMAT0015378	hsa-miR-3065-3p	UCAGCACCAGGAUAUUGUUGGAG	-	Unknown	3	IFITM1, TUBA4A, CTHRC1
Essential	MIMAT0007892	hsa-miR-1915	CCCCAGGGCGACGCGGCGGG	-	Unknown	2	KISS1, DERL1
Essential	MIMAT0005920	hsa-miR-1266	CCUCAGGGCUGUAGAACAGGGCU	-	Unknown	2	CYBB, IL1R2
Essential	MIMAT0019055	hsa-miR-4518	GCUCAGGGAUGAUAACUGUGCUGAGA	-	Unknown	2	CYBB, IL1R2
Essential	MIMAT0016851	hsa-miR-4299	GCUGGUGACAUGAGAGGC	-	Unknown	4	OLR1, ABCB8, MS4A3, VPS26A
Essential	MIMAT0003292	hsa-miR-623	AUCCCUUGCAGGGGCUGUUGGGU	-	Unknown	3	CD2BP2, FCRLA, RBP5
Essential	MIMAT0018114	hsa-miR-3686	AUCUGUAAGAGAAAGUAAAUGA	-	Unknown	7	CD300LF, DOCK5, EIF4B, ARL9, KLHL2, OR10X1, SORL1
Essential	MIMAT0005458	hsa-miR-1224-5p	GUGAGGACUCGGGAGGUGG	-	Unknown	4	PRSS12, DNAJC16, CDCA4, OR13A1
Essential	MIMAT0019903	hsa-miR-4758-5p	GUGAGUGGGAGCCGGUGGGGCUG	-	Unknown	2	ANTXR1, EIF4A3
Essential	MIMAT0019798	hsa-miR-4701-5p	UUGGCCACCACACCUACCCCUU	-	Unknown	2	FGF22, TXN2
Essential	MIMAT0003255	hsa-miR-588	UUGGCCACAAUGGGUUAGAAC	-	Unknown	2	FGF22, TXN2
Essential	MIMAT0004589	hsa-miR-30b-3p	CUGGGAGGUGGAUGUUUACUUC	-	Unknown	3	CD300C, LSAMP, PSMD3
Essential	MIMAT0018118	hsa-miR-3689a-3p	CUGGGAGGUGUGAUAUCGUGGU	-	Unknown	3	CD300C, LSAMP, PSMD3
Essential	MIMAT0018181	hsa-miR-3689b-3p	CUGGGAGGUGUGAUAUUGUGGU	-	Unknown	3	CD300C, LSAMP, PSMD3
Essential	MIMAT0019007	hsa-miR-3689c	CUGGGAGGUGUGAUAUUGUGGU	-	Unknown	3	CD300C, LSAMP, PSMD3
Essential	MIMAT0003328	hsa-miR-653	GUGUUGAAACAAUCUCUACUG	-	Unknown	7	HS3ST3B1, XAB2, ACYP1, GDF2, GFOD2, LENG8, OR51D1
Essential	MIMAT0003164	hsa-mir-544a	AUUCUGCAUUUUUAGCAAGUUC	-	Unknown	7	TGS1, DYNLT1, FKBP3, C19ORF61, IFT57, PDE5A, PNN
Essential	MIMAT0003243	hsa-miR-578	CUUCUUGUGCUCUAGGAUUGU	-	Unknown	5	PAFAH1B1, TNFRSF25, ANKH, CYP11A1, VPS26B
Rescuer	MIMAT0014983	hsa-miR-3121-3p	UAAAUAGAGUAGGCAAAGGACA	-	Unknown	1	FETUB

| Rescuer | MIMAT0019361 | hsa-miR-3976 | UAUAGAGAGCAGGAAGAU UAAUGU | - | Unknown | 1 | FETUB |