

SUPPLEMENTARY MATERIAL

miRNAmotif—A Tool for the Prediction of Pre-miRNA–Protein Interactions

Martyna O. Urbanek-Trzeciak^{†,*}, Edyta Jaworska[†] and Włodzimierz J. Krzyzosiak

Institute of Bioorganic Chemistry, Polish Academy of Sciences, Noskowskiego 12/14, 61-704, Poznan, Poland; e.jaworska@qmul.ac.uk (E.J.); wlodkrzy@ibch.poznan.pl (W.J.K.)

* Correspondence: martyna.urbanek@gmail.com; Tel.: +48-61-852-85-03

[†] These authors contributed equally to this work.

SUPPLEMENTARY RESULTS

1 Human miRNAs containing Lin28 motif - results

miRNA name	miRNA loop sequence (motif in red)
hsa-let-7a-2	UCAAGGGAGA
hsa-mir-107	GCAUGGAGU
hsa-mir-139	GUGGCUCGGAG
hsa-mir-204	CUGAGAAUAUAUGAAGGAG
hsa-mir-152	CUCUGGAG
hsa-mir-9-1	GUGUGGAG
hsa-mir-320a	CGGAGUCG
hsa-mir-200c	GCGGUUGGGAGU
hsa-mir-363	UUGAUGAGUAUCAUAGGAGAAA
hsa-mir-324	GUAAAGCUGGAGAC
hsa-mir-600	AGGCAGUGGAGUUACU
hsa-mir-611	CAGACGGAGAUG
hsa-mir-638	GCGGAGGGC
hsa-mir-920	GUAGGAGCUAAGAC
hsa-mir-1181	CCGGAGCGGG
hsa-mir-1183	AGGAGUUCACU
hsa-mir-1233-1	CUAUGGGAGGGG
hsa-mir-1236	GCAUGGAGC
hsa-mir-1202	UGGGGGAGGCA
hsa-mir-1246	GGAGUGGACACC
hsa-mir-1470	GCAGGAGA
hsa-mir-1471	AGAGGC GGAGCA
hsa-mir-320d-2	UGGAGUCA
hsa-mir-3123	ACAUGGAGAGU
hsa-mir-3127	AGGAGAAGGGACGCU
hsa-mir-3134	AUGGAGUAAAAU
hsa-mir-3185	GGGAGCCAGGCC
hsa-mir-320e	GGAGUCG
hsa-mir-4296	CUGAAGUGGUUGUGGGGAGGG
hsa-mir-4313	GCUGGAGGAUGAGGAGAUGC
hsa-mir-4323	GGAGACGCC
hsa-mir-4263	GGAGUGGCC
hsa-mir-4286	AAGUUAGGAGAUGUU

hsa-mir-4291	GUGGAGGC
hsa-mir-1233-2	CUAUGGGAGGGG
hsa-mir-3622a	AGGGAGCU
hsa-mir-3692	UGGAGCAAUAGAUACA
hsa-mir-4418	UUGUGGGAG
hsa-mir-4430	GGAGAUCGUACC
hsa-mir-4480	ACCCAGGGAGUAAGU
hsa-mir-4481	GGAAGGGAGACC
hsa-mir-4495	AGUGGAGUUAUUUU
hsa-mir-4530	GUCAAGGAGC
hsa-mir-4659a	UUGGAGAAA
hsa-mir-499b	GUGGAGAGGA
hsa-mir-4757	CUGC GGGAGG
hsa-mir-4793	GGGAGGCCAAGAAGACC
hsa-mir-5191	CUGGGAGG
hsa-mir-5195	GGAGACCUGACC
hsa-mir-5689	CAGGAGGGUG
hsa-mir-5690	AGGAUUUGGGAGUUAUACU
hsa-mir-6512	GCUGAGGGAGAUGC
hsa-mir-6769a	GGAGCCC
hsa-mir-6778	UGGAGGAAGCA
hsa-mir-6786	CUCAGGAG
hsa-mir-6801	GCCAGGAGC
hsa-mir-6807	GGGGAGAUGUGAAGGAAAGAACU
hsa-mir-6825	CUAGGAGG
hsa-mir-6846	GGAGAGCC
hsa-mir-6847	GGAGUGGGCC
hsa-mir-6850	CGGGAGGGGAAGGGACG
hsa-mir-6871	CUGGAGG
hsa-mir-6884	UCAAGAAAGGGAGAUAGAUGGU
hsa-mir-6891	GCAGGAGC
hsa-mir-7162	GGAGCCCCC
hsa-mir-8052	CUCAGGAG
hsa-mir-8058	GGAGAACC
hsa-mir-10226	ACUGGAGU
hsa-mir-10394	CCGGGAGG

hsa-mir-12118 GUAG**GGAG**GGUGAC

Supplementary Table S1. miRNAs predicted to be recognized by Lin28 (through GGAG motif in loop sequence) in one direction (5' → 3').

miRNA name	miRNA linking sequence (motif in red)
hsa-let-7a-1	UUAGGGUCACACCCACCACUG GGAG AUAA
hsa-let-7a-2	UAGAAUUACAUCAAG GGAG AUAA
hsa-let-7c	UAGAGUUACACCCUG GGAG UUAA
hsa-let-7d	UUAGGGCAGGGAUUUUGCCCACA GGAG GUAA
hsa-let-7e	G GGAG GACACCCA GGAG AUCA
hsa-let-7f-1	GUGGGGUAGUGAUUUUACCCUGUUC GGAG AUAA
hsa-let-7f-2	UUAGGGUCAUACCCCAUCU GGAG AUAA
hsa-let-7g	UGAGGGUCUAUGAUACCACCCGGUAC GGAG AUAA
hsa-let-7i	GGUCGGGUUGUGACAUGCCCGCUG GGAG AUAA
hsa-mir-10226	U GGAG U
hsa-mir-10394	CAUCAACAGUGGUCCCC GGAG GACUCCACACGCAU
hsa-mir-10525	UG GGAG AAAGUACUCCCGGG
hsa-mir-107	UGGCAU GGAG UUCA
hsa-mir-12118	UUCUAGGGGCUGUA GGAG GGUGACAGUCCUGGA
hsa-mir-1233-1	GGG GGAG CUGCAGGGCUAUG GGAG GGGCCCCAGCGUC
hsa-mir-1233-2	GGG GGAG CUGCAGGGCUAUG GGAG GGGCCCCAGCGUC
hsa-mir-1236	UGGACUGGAAGUGGGCAGCAU GGAG CUGACCUUCAUCAUGGCUU GGCCAACAUAUUG
hsa-mir-1282	CUGCUGCAUGAUCUCCGAGUCCCUGGGGGUAGAGAUGAUGGGGC ACUG GGAG
hsa-mir-132	GUGGGAACU GGAG G
hsa-mir-139	GUGGCUC GGAG GC
hsa-mir-142	AACAGCACU GGAG GG
hsa-mir-143	CAGUUG GGAG UC
hsa-mir-1470	GGGC GGAG ACCC
hsa-mir-1471	AGAGGC GGAG CAC
hsa-mir-149	GUGCUUGUCCG GGAG GG
hsa-mir-152	CGGGCUCU GGAG CAG
hsa-mir-1910	UUGUGCUGUCCU GGAG G
hsa-mir-199a-1	A GGAG GCUCUCAUGUGU
hsa-mir-200b	U GGAG UCAGGUCUC
hsa-mir-200c	GUGCGGUUG GGAG UCUC

hsa-mir-204	GAGAAUAUAUGAAGGAG
hsa-mir-30e	CUGUAAGGUGUUCAGAGGAG
hsa-mir-3123	AUUUCCACAUGGAGAGUGGAGCC
hsa-mir-3134	UGGAGUAAAAUA
hsa-mir-3154	ACGUCAAAGGAGG
hsa-mir-3155b	AGGGAGCUGUCCGGCUCC
hsa-mir-3160-2	UGACCAGCUGAGCUGGAGG
hsa-mir-3168	AGCCUGAGUU GGAG GCUCAUCUUCACUUCUUGCUGU
hsa-mir-3180-4	GCCCCGCUCUGCUGCCGACCCUGU GGAGCGGAG GGUGAAGCCU
hsa-mir-3180-5	GCCCCGCCUCUGCUGCCGACCCUGU GGAGCGGAG GGUGAAGCCU
hsa-mir-3202-1	GAUU GGAG UCAUUUCAGAGCA
hsa-mir-320a	CGGAG UCGGG
hsa-mir-320d-2	UGGAG UCAGG
hsa-mir-320e	CU GGAG UCGGGGA
hsa-mir-324	UAAAGCU GGAGA
hsa-mir-3622a	GCAG GGAG CUGAGC
hsa-mir-363	UGAUGAGUAUCAU GGAG AAA
hsa-mir-3652	UCCGAACCCAGGGGUGGGGGGU GGAG GCGGCUCCUGCGAUCGAA GGGGACUUGAGACUCACCGGCCGCACGCCAUGAGGGCCCUGUGGG UGCUGGG
hsa-mir-3655	GUU GGAG ACUCGAUUGUUGGUGACAGCGAAAGAACGAUAAC
hsa-mir-3689d-1	CUG GGAG GUGUGCUAUCGUCUCCCCGGG
hsa-mir-3689d-2	CUG GGAG GUGUGCUAUCGUCUCCCCUGGG
hsa-mir-378i	UGGAG UUCUGGGUGCUGUUUCCCCACUC
hsa-mir-3976	CAUAUU GGAG UUGGACUGCAGGGCUUCCUUUACACAAUAAAUAU UGUAUGAAGUGCUGAUGUAACCUUUACUGCAGCAUG
hsa-mir-3978	GGAG CCAAAAUUAGAAGGGCCAAAAUUCUACCUGGCCACUACC
hsa-mir-4257	A GGAG CUAAGAAGCCCCUACAGGGC
hsa-mir-4259	GGCUCUGAGUGGGGAAAGUGGGGGCCUAGG GGAG GUCA
hsa-mir-4263	GAGAUU GGAG UGGCCAGUGUCCUAAACA
hsa-mir-4286	AUAGUCAUAAGUU GGAG AUGUUAGAGCUGU
hsa-mir-4291	GGGU GGAG GCAGAG
hsa-mir-4296	GAGGGCUGAAGUGGUUGUGG GGAG GGGCUUCUG
hsa-mir-4311	ACCUG GGAG CAGCUCAG GGAG GGCUUCCUGGGUGAGGUGGCAGGU
hsa-mir-4312	CCCCAGAG GGAG UCA
hsa-mir-4313	UGCAGCCCCAGCU GGAG GAUGA GGAG AUGCUGGGCUUGG
hsa-mir-4323	UGGAG ACGCCAGG

hsa-mir-4325	GAGAUGCUCUAGA UCCA GGAG GCAGACCUCAAGGAU GGAG AGA AGGCAGAUCC
hsa-mir-4330	GCA GGAG AGGAAGGGGGCUUCUUUUUGACGCCUACUUCAUCAGC UGCU
hsa-mir-4418	UGUG GGAGU
hsa-mir-4436b-1	CAA AUGGU GGAG CAGAUUCGAGGGG
hsa-mir-4436b-2	CAA AUGGU GGAG CAGAUUCGAGGGG
hsa-mir-4437	AGGAG GGGAUGACCCUUG
hsa-mir-4441	AG GGAG GAGACUGUACGUGAGAGAUAGUCAGA UCCGCAUGUUAG AGCAGAGUCUCCUUCGUGU
hsa-mir-4453	UCCUUCGGGGCAGGUGGGGACUGCUCCUUUG GGAG GA GGAG GA
hsa-mir-4480	CCCAG GGAG UAAGU
hsa-mir-4481	UUUUAAGAGGAAG GGAG ACCUAAGCUAG
hsa-mir-4489	CUGGGGACU GGAG AAGU
hsa-mir-4495	CAGU GGAG UUAUUUUGAG
hsa-mir-4497	GCCGCGCGCCG GGAG AUCCGCGCUUCCUGAAUCCCGGCCGGCCCG CCCGC
hsa-mir-4502	UUUGCUGAU GGAG GGUCUUGCCUCAUGGGGAUG
hsa-mir-4516	AG GGAG GGCAGGGCAGGCUCUGGGGUGGGGGGUCUGUGAGUCAG CCACG
hsa-mir-4530	AAGGAG
hsa-mir-4636	CCCAGCAAUG GGAG AGUGCU
hsa-mir-4646	CAUUGC GGAG AGGGUCUCAC
hsa-mir-4659a	UUU GGAG AAAAAU
hsa-mir-4667	CAAGAAAAGCUGACU GGAG G
hsa-mir-4674	GCGCCGCCGGGUCCCUCCUCCCG GGAG AGG
hsa-mir-4687	CUU GGAG CACUUGACCUU
hsa-mir-4690	CCCGUGGGUGA GGAGU
hsa-mir-4708	GAACA GGAG G
hsa-mir-4716	GUAUACAUGUAUACAG GGAG G
hsa-mir-4721	AAGCCCCACCAGAAGGU GGAG GCCCAGG
hsa-mir-4725	CACCAG GGAG CUUCCAUGGGCUG
hsa-mir-4757	CUGCG GGAG GAGAC
hsa-mir-4776-2	CUACUGUCCUUUCA GGAG AGCC
hsa-mir-4784	GAGUGUCAUGGUG GGAG CCUC
hsa-mir-499b	CGU GGAG AGGAGUUA
hsa-mir-5006	GGGAG CCCCAUUUACAGUGGUAACUCC
hsa-mir-5093	UGAGCUA GGAG GAUU
hsa-mir-5191	CCUGGUCUG GGAG GAUAGAAGAG

hsa-mir-557	UGCUGGAGAAGU
hsa-mir-5680	CCUGGACACACAGGAG
hsa-mir-5689	UACUCAGGAGGGUGAGUA
hsa-mir-5690	AUUUGGAGUUAUAC
hsa-mir-593	CCGUUCCUCUGGGGAGCAAGGAGUGGUGCUGGGUU
hsa-mir-600	AGUGGAGUU
hsa-mir-607	AGGGAGCCAGACUGCCUGG
hsa-mir-6076	AGGUAGGCGAGAGUAAUAAUUAUUCUCCAAGGAGAACAUUCUGAGA GGGGAAGUUGCUUUCUGCCUGGCCUU
hsa-mir-6083	GAAAGGAGCAGGAGCAUCGUCUUAAAGAGGGUCAGGUACCUU GCU
hsa-mir-611	ACGGAGAU
hsa-mir-623	UGCAUCCUAAGCUGUGCUGGAGCU
hsa-mir-629	UUUACGGUGAACCAGGAG
hsa-mir-638	AGGGCGCGGAGGGCGGACCG
hsa-mir-646	CACCUGUGAUCCAGGAGAGG
hsa-mir-6505	AUGUUGAGCCCUGUCUCUGGGGAGC
hsa-mir-6512	AGGCUGAGGGAGAUGCCUUC
hsa-mir-6740	AACUUGAGGUCUCUGGAGUUGCUUAAACCAGUUGACCGUAACC UGGCCAGAGAAUUCUGAUAG
hsa-mir-6745	ACUGAUUGCCCUAGUGGCUAGCCCUGGGUCUAGCAGCCUAUGGC AGUGUCUGGUAACACUGGUAGGAGUCC
hsa-mir-6753	UCAUCUCACGUCAGAGAGAGGGGAAGGGGCUGCCCAGUGAGCCCC CACAGGGCUCUACAUCUCCAGCUGGGCCUGGCUGGAGAUCCAGG GUCCUGAAGGCCCCCGCCACCGUUC
hsa-mir-6775	ACAAGGAGAGGGCUCACCC
hsa-mir-6777	GAUGGAGAGCCCUGAGCC
hsa-mir-6778	GUGGUUGGAGGAAGCAGCCUGAACC
hsa-mir-6784	ACCCCCGGAGUCUGUCACGG
hsa-mir-6785	GGAGAGGAGCCCCACUGUGGAAGUCUGACCCCC
hsa-mir-6789	CGGGUCCAGGCUGGGCCCCUCGGAGGCCGGGUGCUCACUGCCCC GUCC
hsa-mir-6792	UGUGAGGAGCAACAGGCACC
hsa-mir-6801	GAGUUAGCCAAGGAGCUUUGCAUACUC
hsa-mir-6807	CUGUGGGCAGGGGAGAUUGUGAAGGAAAGAACUAGGACCCAUUC AUC
hsa-mir-6825	GGGGCUAGGAGGCCCC
hsa-mir-6834	GGCGAGGAGGGACCUGUACUAGCCAUGGUUCUGAUCACA
hsa-mir-6843	GAGGGCAGUGAGGCCUGGGGAGCUGCUGCAGGCAGCAGGUGGG CGGGACGCCAGCAGGCUGUCUAGCUGUCCCAUG
hsa-mir-6846	AGGAGAGCCAC

hsa-mir-6847	UGGAAGGAGUGGGCCU
hsa-mir-6850	GGAGGGGAAGGGACG
hsa-mir-6860	GGAGUCGGUGGGUGGAGCCAA
hsa-mir-6869	UCGGAGUACCUCUGC
hsa-mir-6871	UGGAGGU
hsa-mir-6876	GGAGGUGGCACUGCUGUGUG
hsa-mir-6884	GCUCAAGAAAGGGAGAUAGAUGGUAG
hsa-mir-6891	UCAUAUCUCUUCUCAGGGAAAGCAGGAGCCCUUCAGCAGGGUCAG GGC
hsa-mir-6892	AAAGCAGGGCUCAGGGCCAGAGACUGGGCAUAGAACUAAGGA GGAUGGUGUCCUCCUGACUGCAUCUCUCU
hsa-mir-7154	AGCCUUGGUAGGGAAGCAAGCUGAGGAGAU
hsa-mir-7161	GUUCUCACGCAAAGUGGCCAGGGUGUGGGAGAC
hsa-mir-7162	AACCCUGCCCUGGAGCCCCCAGCAGGGCCC
hsa-mir-7847	CACUGCUCAGUGGAG
hsa-mir-7975	ACAGGGGAUUUAUCUCCAAGGGAGGUCCCCUG
hsa-mir-8052	UCAGGAG
hsa-mir-8055	AAAGAUGGAGUCGUUUGACGUCUUUUAACACC
hsa-mir-8058	CCCACGGAGAACCAGGGCAC
hsa-mir-8080	GAGCCCUUUGAUAAGGGGGAGG
hsa-mir-8082	GGGAGAGAGUCCUCUUUU
hsa-mir-8086	UAGCUUUUUUUUUUUUGAGAUGGAGUCUGGC
hsa-mir-9-1	GUGGUGUGGAGUCUUC
hsa-mir-920	GAUGUGUAAGGAGCUAAGACACACUCCA
hsa-mir-922	UGGACUGGGGUCAGACUGUGCCCCGAGGAGAA
hsa-mir-936	AAAUCACUCCAAGGAGCAACU
hsa-mir-9500	AUAGGAGGGACAGCGGCCUUCCAACAGG

Supplementary Table S2. miRNAs predicted to be recognized by Lin28 (through GGAG motif in linking sequence) in one direction (5' → 3').

2 Human miRNAs containing MCPIP1 or DGCR8 motif - results

miRNA name	miRNA loop sequence (motif in red)
hsa-let-7a-3	GCUCUGC
hsa-mir-25	GGACGCUGCCCU
hsa-mir-95	GAAAUGCGUU
hsa-mir-105-1	UGGCUGCUC AUGCA
hsa-mir-105-2	UGGCUGC UUAUGCA

hsa-mir-192	AGUGCUCUCGUCUCCCCUCU
hsa-mir-208a	GAUGCUC
hsa-mir-187	GCUGCUCUGA
hsa-mir-199a-2	GGACAAUGCC
hsa-mir-210	UGCCCA
hsa-mir-135a-1	GAUUCUACUGCUCACUC
hsa-mir-140	GUCAUGC
hsa-mir-144	UUGCGAUGAG
hsa-mir-145	CUUAGAUGCUAAGAUGG
hsa-mir-136	GAUUCUUAUGCUC
hsa-mir-1-1	GGACCUGCU
hsa-mir-155	UGCCUCCA
hsa-mir-219a-2	UCUGCGG
hsa-mir-330	UCUGCAAGAUCAACCGA
hsa-mir-337	UGCACAGUUA
hsa-mir-326	UGGUGCUC
hsa-mir-339	GUGCCUGC
hsa-mir-422a	UCUCUGCUGC
hsa-mir-450a-1	UGCACUAUAAAUA
hsa-mir-486-1	AGGCCCUUCAUGCUGCCAGCU
hsa-mir-492	UGCCACCAUUGAGAACG
hsa-mir-493	UUCAUUCGUUUGCACAUUCGG
hsa-mir-512-1	UCUGGUGCCAGAAUGA
hsa-mir-512-2	UCUGGUGCCAGAAUGA
hsa-mir-501	GCUUUCUGAAUGC
hsa-mir-502	GCUGGCUCAAUGC
hsa-mir-505	UUUCUGCCAGUUUAG
hsa-mir-551a	GGGGACUGCC
hsa-mir-552	AGAUGCCU
hsa-mir-551b	UGGUGCAGAACG
hsa-mir-584	UUGCUGGG
hsa-mir-589	GGGUACUGCC
hsa-mir-596	GAACCUGCCUC
hsa-mir-614	AGCCCUGCACU
hsa-mir-615	GGUGC UUAUUG
hsa-mir-618	ACGUACAUGCAGU

hsa-mir-634	UGCCCA
hsa-mir-651	GUUCAAAUAAAAUGC
hsa-mir-661	GUUUCGGGCUGC
hsa-mir-654	GCUGAGUUCGUGC
hsa-mir-550a-3	CUUUGCUGG
hsa-mir-767	AGCAUGC UU
hsa-mir-1224	UGGUGCCG
hsa-mir-1468	UGCAUUCAACUCA
hsa-mir-762	GCCAUGC
hsa-mir-670	GAAUUUGCCUU
hsa-mir-764	GCUUGGAAAAUGC
hsa-mir-300	GCUUUACUUGC
hsa-mir-708	UGACUUGCACA
hsa-mir-924	UUGCUUAAG
hsa-mir-935	GCCAUCCUCCGUCUGC
hsa-mir-937	GCUUCGUGC
hsa-mir-943	CUGCUGG
hsa-mir-1200	UUGCCAGA
hsa-mir-1302-2	GGAUGCCC
hsa-mir-1302-3	GGAUGCCC
hsa-mir-1302-4	CAUGCAACA UUUG
hsa-mir-1302-7	GGUGCAAUAAUUG
hsa-mir-1302-8	CAUGCAGUA UUUG
hsa-mir-1304	UGAUCCUGCCA
hsa-mir-1243	GUCCAUCUCCUGC
hsa-mir-1247	GUUGCUCUCUAC
hsa-mir-1250	UUUUGCCUUUCUAA
hsa-mir-1253	GGACUGCU
hsa-mir-1258	CCUGCGAGUCCUGG
hsa-mir-1279	CUAAUGCCAAG
hsa-mir-1292	UUGCGUUGA
hsa-mir-1255b-2	UUGCGCCUCAAGAA
hsa-mir-1306	GUGCAGAGG
hsa-mir-1538	CUUCCUGCCGG
hsa-mir-103b-1	UUGAUCCAUAUGCAACAAG
hsa-mir-103b-2	UUGACCUGAAUGC UACAAG

hsa-mir-2116	UCCCAUGCUAAGA
hsa-mir-2681	UGCCCAAAGACUCUUCA
hsa-mir-3125	GGUGCCU
hsa-mir-3132	GGUGCGCC
hsa-mir-3136	UGACUGCA
hsa-mir-3138	GGGUGCCCACAAGACU
hsa-mir-548v	GCCAUCAUGC
hsa-mir-3157	UGCCAACA
hsa-mir-1260b	AGGUGCU
hsa-mir-3175	UGGCCGCGUGCG
hsa-mir-3179-1	GUGCCUUACAGC
hsa-mir-3179-2	GUGCCUUACAGC
hsa-mir-3179-3	GUGCCUUACAGC
hsa-mir-3181	CGUUAGUUGCCCG
hsa-mir-3194	UGCCACCCG
hsa-mir-3196	CUCCCCAGUGCCAG
hsa-mir-3201	GCUAGGAUUGC
hsa-mir-4293	UGC UAAUUCA
hsa-mir-4303	GCUUGCUCUGC
hsa-mir-4313	GCUGGAGGAUGAGGAGAUGC
hsa-mir-4315-1	GCUUUGC
hsa-mir-4277	GCUGCCCCACUGC
hsa-mir-4282	UGCCACA
hsa-mir-500b	GCUUUCUGAAUGC
hsa-mir-1302-9	GGAUGCCC
hsa-mir-1302-10	GGAUGCCC
hsa-mir-1302-11	GGAUGCCC
hsa-mir-4315-2	GCUUUGC
hsa-mir-3613	GUUGCAUUUUUAG
hsa-mir-3616	UUUGCCCAUCAG
hsa-mir-3621	GUGCGGCAGC
hsa-mir-3650	CUGACUGCGUGCCAGG
hsa-mir-3667	CUGCUGGCUGAG
hsa-mir-3670-1	CACCUGCUG
hsa-mir-3686	UCUGCACUGG
hsa-mir-3691	CUGCUGAGGG

hsa-mir-3714	UGC <u>U</u> CCAUCA
hsa-mir-3914-1	GUA <u>U</u> GC <u>U</u> UAAC
hsa-mir-3910-2	G <u>U</u> GC <u>C</u> UUGAU
hsa-mir-3942	<u>U</u> GC <u>G</u> AAGAUAACA
hsa-mir-3944	CGCC <u>U</u> GC <u>G</u>
hsa-mir-3945	UAUAAAA <u>U</u> GC <u>A</u> AUUA
hsa-mir-374c	<u>U</u> GC <u>U</u> AGGACA
hsa-mir-1268b	GUGGG <u>U</u> GC
hsa-mir-378f	<u>C</u> U <u>G</u> C <u>U</u> AAACAACAGAACGAG
hsa-mir-4435-1	AG <u>U</u> GC <u>A</u> CUU
hsa-mir-4436a	UC <u>U</u> GC <u>U</u> CCACGA
hsa-mir-4435-2	AG <u>U</u> GC <u>A</u> CUU
hsa-mir-4438	CCU <u>U</u> GC <u>C</u> UUUCCUUUGG
hsa-mir-4460	UCUU <u>U</u> GC <u>A</u> GUGA
hsa-mir-4473	GGAC <u>U</u> GC <u>U</u>
hsa-mir-4485	ACA <u>U</u> GC <u>G</u> U
hsa-mir-4489	UGA <u>U</u> GC <u>A</u> GGACG
hsa-mir-4493	GAUUAUCACAGCCA <u>U</u> GC <u>C</u> UUU
hsa-mir-4496	<u>U</u> GC <u>C</u> UUUA
hsa-mir-4502	GGGUCU <u>U</u> GC <u>C</u>
hsa-mir-4509-1	UUCCCUUUCUCU <u>U</u> GC <u>C</u> CUGA
hsa-mir-4509-2	UUCCCUUUCUCU <u>U</u> GC <u>C</u> CUGA
hsa-mir-4509-3	UUCCCUUUCUCU <u>U</u> GC <u>C</u> CUGA
hsa-mir-4511	ACUCAGUU <u>U</u> GC
hsa-mir-4524a	CAC <u>U</u> GC <u>A</u> GAUUAUUUUG
hsa-mir-4525	GGGC <u>U</u> GC <u>C</u>
hsa-mir-4526	AGGUGACG <u>U</u> GC <u>U</u>
hsa-mir-4533	GGC <u>U</u> GC <u>C</u>
hsa-mir-378i	GUUCUGGG <u>U</u> GC
hsa-mir-4536-1	UAUAUAC <u>U</u> GC <u>C</u> C <u>U</u> GC <u>U</u> UUUAUCAUACAUACAUACCUA
hsa-mir-3973	<u>U</u> GC <u>U</u> CCA
hsa-mir-4633	CAAA <u>U</u> GC <u>G</u> UG
hsa-mir-4645	UCAAGU <u>U</u> GC <u>G</u> A
hsa-mir-4647	GGGA <u>U</u> GC <u>A</u> GAGCC
hsa-mir-4648	<u>U</u> GC <u>C</u> ACCCA
hsa-mir-4653	GUUAAGGGUU <u>U</u> GC

hsa-mir-1343	CCUCUGCUCUGG
hsa-mir-4731	UGCAGUCAUCCA
hsa-mir-4756	GCCGAUUCUGC
hsa-mir-4757	CUGC GGGAGG
hsa-mir-4783	UGC GCUAACA
hsa-mir-4785	GCUGCCGC
hsa-mir-2467	GGUCCUGC UCCU
hsa-mir-4799	CUGAGAUGCAGG
hsa-mir-5001	CUGCUGG
hsa-mir-5004	GCACUUGC
hsa-mir-5008	GGUGCCAUCUCC
hsa-mir-5009	UAUUUGCAUUAUACUUA
hsa-mir-5010	GCUGCCUCUUGC
hsa-mir-5089	GAAUCUGCACUC
hsa-mir-5090	GCAAAGCCUGCCCGC
hsa-mir-5093	ACAUGC CAGAGU
hsa-mir-5094	CACUGCCUUUAUG
hsa-mir-5187	GAAUGC GCUU
hsa-mir-5197	UUUUUGCCAG
hsa-mir-3670-2	CACCUGCUG
hsa-mir-4524b	CAAAAUA AUUCUGCAGUG
hsa-mir-548as	UGC UUUUA
hsa-mir-5580	UGCUGAGAAAAUUCA
hsa-mir-548at	CUGCCAAAAGAAAUGG
hsa-mir-5683	UGCACCA
hsa-mir-5695	AGCAUGC AUU
hsa-mir-5698	AUGCAAAGU
hsa-mir-5705	AGGAUUGC U
hsa-mir-5706	GCUUCUACGUCAUUCAGCACUUGC
hsa-mir-5787	GUGC UAGGUCGGC
hsa-mir-6069	GCCCAGUGC
hsa-mir-6072	GCUACUGC
hsa-mir-6085	UCAUGCAGA
hsa-mir-6088	GUCUUGC
hsa-mir-6089-1	UGC GCCA
hsa-mir-6504	UCUGCACCCUGC

hsa-mir-6511a-1	GCAGAGGGUUGCGC
hsa-mir-6512	GCUGAGGGAGAUGC
hsa-mir-6511b-1	GCAGAGGGUUGCGC
hsa-mir-6730	GCUGCAGCUGC
hsa-mir-6731	UGCCAACCA
hsa-mir-6736	GUUUGCUGGCUGC
hsa-mir-6762	CCUGCAUGG
hsa-mir-6766	GUUCCUUCUCCUGC
hsa-mir-6768	CGGCUGCU
hsa-mir-6773	UAUGCUA
hsa-mir-6799	GGUCACUGACUCUGCUUCC
hsa-mir-6802	AGAUGCCU
hsa-mir-6808	GGGGGCCUUGCU
hsa-mir-6809	GCUCCUCCUGC
hsa-mir-6811	GCAGUGC
hsa-mir-6814	GCCACCCAGCCCUGC
hsa-mir-6817	UGACCUGCCCC
hsa-mir-6819	GUGGGGUGC
hsa-mir-6821	GCCCUGC
hsa-mir-6822	GCUCUGC
hsa-mir-6780b	UGCCUCCA
hsa-mir-6844	GCUAUUUGC
hsa-mir-6845	UGCACACCACCA
hsa-mir-6852	AUGCUCUGACUCCCCUGAU
hsa-mir-6865	GAUGCUUC
hsa-mir-6870	ACUUCAUUUCUCAUGC
hsa-mir-6876	GCACUGC
hsa-mir-6877	GUGCUCAU
hsa-mir-6894	GACAUGCUC
hsa-mir-7111	UCUGCUAUUCGUCCACCAACCUGACUUGA
hsa-mir-7113	CCUCUUGCCAUGG
hsa-mir-7114	CCUGCCACUGG
hsa-mir-6511b-2	GCAGAGGGUUGCGC
hsa-mir-6089-2	UGCGCCA
hsa-mir-6511a-2	GCAGAGGGUUGCGC
hsa-mir-6511a-3	GCAGAGGGUUGCGC

hsa-mir-6511a-4	GCAGAGGGU UGC GC
hsa-mir-7151	UUGGAUUC UGC AAA
hsa-mir-7152	UGC CACA
hsa-mir-7159	GGAAGUA UGC CGGGCC
hsa-mir-7702	ACA UGC AGU
hsa-mir-7847	CUGC UCAG
hsa-mir-7853	UGG UGC A
hsa-mir-8057	CU UGC GG
hsa-mir-8066	GCCUC UGC
hsa-mir-8075	GCUUAUACG UGCCCUUGC
hsa-mir-8078	GAU UCCUGC CUU
hsa-mir-8089	GGC UGC CACC
hsa-mir-548bb	UGC CCAA
hsa-mir-9718	UCUAAAACCAGU UGC UGA
hsa-mir-3179-4	GUGCCU UACAGC
hsa-mir-3670-3	CACC UGC UG
hsa-mir-3670-4	CACC UGC UG
hsa-mir-548bc	AUUAC UGC UCAU
hsa-mir-9986	CUAUUACUACAGCUA UGCC AG
hsa-mir-11401	CUGC UAGG
hsa-mir-12113	GUUCAU UGC
hsa-mir-12116	UGC U GCC UCCA
hsa-mir-12130	GUGC UAC

Supplementary Table S3a. miRNAs predicted to be recognized by MCP1P1 (through UGC motif in the loop sequence) in one direction (5' → 3').

miRNA name	miRNA loop sequence (motif in red)
hsa-let-7b	AGUGA UGU U
hsa-mir-19b-2	UAUA UGU A
hsa-mir-20a	AG UGU UUAGUUAUCU
hsa-mir-92a-1	UGU UUC UGU A
hsa-mir-96	UGU CUCUCCG
hsa-mir-101-1	CUGU CUAUUCUAAAGG
hsa-mir-29b-1	AUUUAAAUAGUGAU UGU
hsa-mir-29b-2	AUUUUCCAUCUU UGU AU
hsa-mir-198	GGU UCCUGU GAUUUUUCC

hsa-mir-30c-2	CUGUGGAAAGUAAGAAAG
hsa-mir-30d	CUGUAAGACACAGCUAAG
hsa-mir-7-3	UGAUGUACUA
hsa-mir-10a	UGUAAGGAAUUUUGUGGUCA
hsa-mir-181b-1	GUGUGGAC
hsa-mir-203a	UCUGUAGCGC
hsa-mir-205	UGUCUCAUACCCAACCA
hsa-mir-222	UGUCUUUCGUAAUCA
hsa-mir-223	UCCAUGUGGUAGA
hsa-mir-23b	UUGUGACUUAAGAUUAAA
hsa-mir-30b	UGUAAUACAUGGAUUG
hsa-mir-122	UGUGUCUAAACUAUCA
hsa-mir-124-1	UUUAAAUGUCCAUAACA
hsa-mir-124-2	UUUAAUGUCAUAACA
hsa-mir-124-3	UUUAAUGUCUAUAACA
hsa-mir-130a	GCACCUGU
hsa-mir-133a-2	GACUGUCCAAUG
hsa-mir-141	UCUAAUUGUGA
hsa-mir-9-1	GUGUGGAG
hsa-mir-9-2	UGUAUUGGUCU
hsa-mir-146a	UGUCAGUGUCA
hsa-mir-149	UUGUCCGA
hsa-mir-154	GCUUUAUUUGU
hsa-mir-184	UGUGACUGUA
hsa-mir-190a	UGUUAUUUAAUCCA
hsa-mir-193a	GAGGGUGUCGGAUC
hsa-mir-194-1	GUGUACCAAU
hsa-mir-29c	GAGUCUGUUUUUGUC
hsa-mir-101-2	CUGUAUAUCUGAAAGG
hsa-mir-34b	CUGUGGUGG
hsa-mir-30e	GGUGUUCA
hsa-mir-26a-2	CUGUUCCAUCUGUGAGG
hsa-mir-365a	UGUUCCAUAUCCA
hsa-mir-302b	CUGUGACUUUAAAAG
hsa-mir-376c	UAUGUUAUUUAUGGUUA
hsa-mir-372	AUGUCCAAG

hsa-mir-373	CCUUUUUGUCUGUACUGG
hsa-mir-377	GCUUUAUUUAUGU
hsa-mir-380	AUCUCUGU
hsa-mir-340	UAUGUCGUUUG
hsa-mir-151a	UGUCUCAUCCCC
hsa-mir-148b	CUGUGGCUCUCUGAAAG
hsa-mir-335	UUGUCAUAAA
hsa-mir-325	UUUGUGA
hsa-mir-384	UGUAUAAUGUUCA
hsa-mir-429	ACCUGGCCUCUGU
hsa-mir-449a	AUGUGAAU
hsa-mir-452	ACUUUGUAACUAUGU
hsa-mir-412	UGUUUCUA
hsa-mir-495	GCUUUAUAUGUGA
hsa-mir-193b	GUUUAUGUUUUAU
hsa-mir-497	GCACUGUGGC
hsa-mir-515-1	UUGUCUGAAAG
hsa-mir-520f	UGUGGUCA
hsa-mir-515-2	UUGUCUGAAAG
hsa-mir-525	CUCUUAUGUGAAAAAAAAG
hsa-mir-518f	UUGUCUAAAA
hsa-mir-517a	CUGUUGUAUAAAAGAAAAG
hsa-mir-519d	UGUUUCUCUUA
hsa-mir-521-2	UUGUCUAAAA
hsa-mir-517b	CUGUUGUCUAAGAAAAG
hsa-mir-520g	UUGUUGUCUGAGAAAAA
hsa-mir-516b-2	GUGUUUUGUGAAAG
hsa-mir-526a-2	CUGUUGAAAGAAAAG
hsa-mir-518e	CUGUUGGCUAAAAGAAAAG
hsa-mir-516b-1	UUGUGAAAG
hsa-mir-517c	CUGUUGUCUAAGAAAAG
hsa-mir-520h	UUGUUGUCUGAGAAAAA
hsa-mir-507	GUGUCUAGAAAU
hsa-mir-509-1	AUGUAUAAUUAAAAAU
hsa-mir-510	AUGUAAUUAGGU
hsa-mir-376a-2	GUGUUUGAU

hsa-mir-553	UUUUGUCUGA
hsa-mir-92b	UGUUUUUCCCCGCCA
hsa-mir-563	AUGUAAU
hsa-mir-571	AGCCAUGUCU
hsa-mir-573	ACUCAUGU
hsa-mir-581	GCUUUUAGAAAAUUUGU
hsa-mir-582	ACUAAUCUAACUAAUUGU
hsa-mir-586	CAAUACAUGUG
hsa-mir-587	GGGAAUGUGUC
hsa-mir-588	ACUAUCCAUGU
hsa-mir-550a-1	UUGUUGUAAGA
hsa-mir-550a-2	UUGUUGUCAGA
hsa-mir-591	UAGUGUAGAAUG
hsa-mir-595	UUGUAAG
hsa-mir-602	GUGUUCAC
hsa-mir-625	UGUAAUUAGAUCUCA
hsa-mir-627	GGUUGUUU
hsa-mir-33b	GUGUGAGGC
hsa-mir-641	UGUCCUCU
hsa-mir-646	UGUGAUCCCA
hsa-mir-649	AUCUAUGU
hsa-mir-548d-1	CCUGUAAAAGUAAUGG
hsa-mir-663a	CCUCGUGUCUGU
hsa-mir-411	GCUUUAUCUGUGA
hsa-mir-549a	UGUCUCAAUA
hsa-mir-542	ACCAGUGU
hsa-mir-671	GAUGGAUGUUU
hsa-mir-668	UAAUGUG
hsa-mir-1323	CUGUGGUUUGAAAGG
hsa-mir-454	GUGUAAAU
hsa-mir-1298	UACCCUGUGUA
hsa-mir-892a	ACUACACUACAUGU
hsa-mir-509-2	AUGUAUAAUUAAAAU
hsa-mir-450b	AUGUAAUAUAAGU
hsa-mir-890	GCUUAGAUUACAUGU
hsa-mir-888	ACUAGAUUACAUGU

hsa-mir-875	UGUUCUUA AAAUCA
hsa-mir-876	UCUAAGCUAAUGU
hsa-mir-543	GCUUUAUUUGUGA
hsa-mir-922	CAGACUGUG
hsa-mir-509-3	AUGUA AAUUA AAAAU
hsa-mir-940	CCGUGUGUUGAGG
hsa-mir-942	UGUACUCACAGCCCCUCA
hsa-mir-944	UUAAAUUGUAUAAAAGA
hsa-mir-1231	UGUCUGUCCA
hsa-mir-663b	UCUGUGG
hsa-mir-1291	UUGUACUGUGG
hsa-mir-1293	AGCUUGUACCU
hsa-mir-1294	CAUUGUCUG
hsa-mir-1295a	GAAAUGUGGCCUG
hsa-mir-1302-5	CAUGUAAUCUUUG
hsa-mir-1305	UUGUAAAGA
hsa-mir-548f-5	UGUAAGUA
hsa-mir-1244-1	ACUUAGCUGU
hsa-mir-1245a	GAUGUUGAAUACUCUUU
hsa-mir-1248	ACCAUGU
hsa-mir-1257	CCCUGUGG
hsa-mir-1265	GGCAUGUUCA
hsa-mir-1268a	CCUGUGG
hsa-mir-1275	UGUGUCUGUA
hsa-mir-1281	GAGUGUCUCUUGUC
hsa-mir-1197	GCUUUAUUUGUGA
hsa-mir-1537	GUCCUGUCCACAC
hsa-mir-1908	AUGUGUGGU
hsa-mir-1972-1	AUGUGUCAUUUAAAAAU
hsa-mir-1976	CCUAAGGUGU
hsa-mir-2052	AUGUCCCUUAGUCAAAGU
hsa-mir-2053	CUGUGAAG
hsa-mir-2278	GUGUGGAC
hsa-mir-2909	CUUCCCCUGUGG
hsa-mir-3119-2	AGAUGUUUAGCU
hsa-mir-3120	GGUGAGCGGAUGUUC

hsa-mir-3129	CUGU ^U AAUGAAU
hsa-mir-3130-1	CUGU ^U GUCAAG
hsa-mir-466	UGUA ^U AUAUGUA
hsa-mir-3148	UGA ^U GUAGCCA
hsa-mir-3074	GUGUG ^U AAAAUGAGAAC
hsa-mir-3158-2	UCCAAUACCU ^U GUAAAGCAGA
hsa-mir-3162	AACAA ^U GUUU
hsa-mir-3163	ACCUUCCU ^U CCUUGU
hsa-mir-3166	GAUUUC ^U GUUCAUCCUC
hsa-mir-3187	GGUCACCA ^U GUUCUCC
hsa-mir-3190	GCCCU ^U GU
hsa-mir-514b	GUG ^U AAUUAGAU
hsa-mir-4296	CUGAAGUGGU ^U GU ^U GGGGAGGG
hsa-mir-4294	CCA ^U GU ^U CUGUGAGGG
hsa-mir-4307	GUU ^U GU ^U CAU
hsa-mir-4317	UUUAUUU ^U GUAG
hsa-mir-4253	ACUUACU ^U GU
hsa-mir-4269	GCCUCUUUCUU ^U GU
hsa-mir-4283-1	GGUG ^U UUUCUGUC
hsa-mir-4286	AAGUUAGGAGA ^U GUU
hsa-mir-1244-2	ACUUAGC ^U GU
hsa-mir-1244-3	ACUUAGC ^U GU
hsa-mir-1972-2	A ^U GU ^U GUCAUUUAAAAAU
hsa-mir-4283-2	GGUG ^U UUUCUGUC
hsa-mir-3609	ACCU ^U GU
hsa-mir-3614	UC ^U GU ^U CUUGG
hsa-mir-3615	GGUC ^U GU ^U GGUCC
hsa-mir-3617	AUUAGAAACCAUA ^U GU
hsa-mir-3649	AG ^U GU ^U UCU
hsa-mir-3654	GAA ^U GU ^U C
hsa-mir-3671	^U GUAAAUA
hsa-mir-3684	^U GUUGAGCAUUACUCA
hsa-mir-3688-1	UA ^U GU ^U A ^U GU ^U CUGUUA
hsa-mir-3689a	^U GU ^U GAUCCUGUG
hsa-mir-3690-1	AGG ^U GU ^U UUCUACU
hsa-mir-3180-4	ACCC ^U GU

hsa-mir-3180-5	ACCCUGU
hsa-mir-3908	UAACGUGUA
hsa-mir-3916	GGUGAAUGUGUC
hsa-mir-3919	UAGUUUGUAGUAGUUCGUA
hsa-mir-3925	UGUCACAUCUCCA
hsa-mir-3939	GUACCGUCACAU
hsa-mir-378d-1	GUUGUUAUUAC
hsa-mir-548ab	ACUUGUAUUUAUUUGU
hsa-mir-4418	UUGUGGGAG
hsa-mir-4421	ACACUUGUUGGG
hsa-mir-4422	ACCAUGUACCAGU
hsa-mir-4423	UGUUUAAGCCUA
hsa-mir-4426	UUGUCUGACUACAAUAUUCAAA
hsa-mir-4429	GUGUCUAAU
hsa-mir-4432	UGUCAUCC
hsa-mir-4451	ACCACUCCACAUGU
hsa-mir-4463	UCUGAAUUUGUGA
hsa-mir-3155b	CUGUCCGG
hsa-mir-4482	GUGUGGAAGAUGGC
hsa-mir-4498	AUCUUUGU
hsa-mir-4501	AAAUAUGUCUGAGCUU
hsa-mir-4505	ACUUUCUGU
hsa-mir-4513	CUGUCUAAAA
hsa-mir-4521	UGUAGCAUCA
hsa-mir-4528	AUAUGUAU
hsa-mir-4637	UGUAUUUA
hsa-mir-4652	ACUAACUAACCAGAACUAUUUUGU
hsa-mir-4654	UGGAAUGUG
hsa-mir-4655	CGUGGGAAAGUGUUG
hsa-mir-4663	GCAUCUGU
hsa-mir-4669	CAUCUGUG
hsa-mir-4679-1	UUGUUAGAAACAAAA
hsa-mir-4681	CAUUGUG
hsa-mir-4684	ACAUUUGUCUUGGU
hsa-mir-4691	GAUGUCUC
hsa-mir-4701	GUGAAUGUCGGGC

hsa-mir-4703	UGUUUGAUUUG
hsa-mir-4704	UGUCUCCUCACUCA
hsa-mir-4716	UACAUGUA
hsa-mir-4718	ACCUGUUUGU
hsa-mir-4723	AGAGAAUGUUGAACU
hsa-mir-4724	GUGUACAUAUCUAUUAGAAAAU
hsa-mir-4729	AACUGUGACCUU
hsa-mir-4732	UGUGUGUGUCCA
hsa-mir-4739	UGUCUCC
hsa-mir-4768	GGGAACUGUG
hsa-mir-4776-2	UGUCCUUUCA
hsa-mir-4777	ACCUCAUAUGU
hsa-mir-4782	AAAAGAUUUGGUGUU
hsa-mir-4786	UCUCCCUGUGA
hsa-mir-4787	ACGGCCUGU
hsa-mir-4802	AGUGUUCAAGUCU
hsa-mir-5087	GUUAAGUGUUGUCCUAC
hsa-mir-5091	GCGGGUUGUGGGGUUUAGGU
hsa-mir-5188	UGUAAGCAGGAUCCAUUCA
hsa-mir-5190	UUAAUGUCCACAG
hsa-mir-5581	ACCCUAUACAUACCUGU
hsa-mir-5588	UUUUUUUUUUUUUUUUUUAAUGUUA
hsa-mir-4536-2	AUGUAUAAAA
hsa-mir-5590	GUGUUGAUCAAC
hsa-mir-5692a-1	CCUCAUGUGU
hsa-mir-5692a-2	CCUCAUGUGU
hsa-mir-5694	CAUAUGUAUCUG
hsa-mir-5696	ACAAUGU
hsa-mir-5701-1	CCUAAGACUUGU
hsa-mir-5702	UGAAAUCCUUCUGUA
hsa-mir-5692b	UGUGUACA
hsa-mir-5707	UGUGAACA
hsa-mir-5701-2	CCUAAGACUUGU
hsa-mir-6068	GCUGAGUGU
hsa-mir-6075	AUGUCCAGU
hsa-mir-6077	GCUAGUUUGUUUGU

hsa-mir-6080	GGGCUGGUUGUC
hsa-mir-6090	GCGAUGU
hsa-mir-6124	CAAUGUCCUG
hsa-mir-6132	UAUCCGCUGUUG
hsa-mir-6134	UGAUGUCAGUA
hsa-mir-6165	AUCCACCUGU
hsa-mir-6499	UGUUGGG
hsa-mir-6505	UGUCUCUGG
hsa-mir-892c	ACUUAGAUUACAUGU
hsa-mir-6732	CCAUCAGUGUGGG
hsa-mir-6733	CCUUCUUGU
hsa-mir-6749	UGUCCUGUCUCACUCA
hsa-mir-6781	GCUUCUCCCAAUGU
hsa-mir-6784	GAGUCUGUC
hsa-mir-6785	CACUGUG
hsa-mir-6788	AUUGAUUGU
hsa-mir-6806	UCCAUGUGA
hsa-mir-6807	GGGGAGAUGUGAAGGAAAGAACU
hsa-mir-6812	AGUCCUGUCU
hsa-mir-6816	GGGACUGUGACA
hsa-mir-6820	CCUCAUGU
hsa-mir-6823	UGUGAAAG
hsa-mir-6824	CCUUCACUGU
hsa-mir-6827	UGUCUCUGAG
hsa-mir-6830	UCCCUCAUCUGUUUCUCACUGG
hsa-mir-6833	AAAAUCCCUGUUAACUU
hsa-mir-6834	CCUGUACUAGCCAUGG
hsa-mir-6835	AUGUUUGU
hsa-mir-6841	GUGUUUUUAAC
hsa-mir-6859-1	GCGGGUGUCAGC
hsa-mir-6862-1	GAUUUGUCUC
hsa-mir-6864	UGUGGGUCA
hsa-mir-6874	GCUUUAAUGU
hsa-mir-6888	UGUCUCUGAUUGUUCCAAG
hsa-mir-6893	CCCACUGUGG
hsa-mir-3690-2	AGGUGUUUCUACU

hsa-mir-7155	GUUGUGACAU
hsa-mir-7852	ACUACUACUUUCAUAUGU
hsa-mir-7855	ACUAUUGU
hsa-mir-7856	CCUUUGUUCUGG
hsa-mir-8073	CGUCAGUGUUUG
hsa-mir-6862-2	GAUUUGUCUC
hsa-mir-6859-2	GCGGGUGUCAGC
hsa-mir-6859-3	GCGGGUGUCAGC
hsa-mir-1244-4	ACUUAGCUGU
hsa-mir-6859-4	GCGGGUGUCAGC
hsa-mir-5701-3	CCUAAGACUUGU
hsa-mir-10395	UGACUGUGACCA
hsa-mir-10527	CUGUUUCCUCUUAUUCAAG
hsa-mir-11399	UGUUUCCCCA
hsa-mir-3085	AUUAUGUGU
hsa-mir-6529	CAGUGUCA AUG
hsa-mir-12129	CCACAAAAUGUUACUAGGG
hsa-mir-12131	ACUGAUGU

Supplementary Table S3b. miRNAs predicted to be recognized by DGCR8 (through UGU motif in the loop sequence) in one direction (5' → 3').

miRNA name	miRNA loop sequence (motif in red)
hsa-mir-17	UGAUAUGUGCA
hsa-mir-19b-1	GCUGUGUGAUAUUCUGC
hsa-mir-23a	UGC UCCUGUCACA
hsa-mir-26a-1	CUGUGCAGGUCCCAAUGGG
hsa-mir-26b	UGUGCUGUCC
hsa-mir-224	AUUGUGCAU
hsa-let-7i	GUUGUGACAUUGC
hsa-mir-134	AUGCACUGU
hsa-mir-296	UGUGCCUAAUUCA
hsa-mir-135b	UGCUGUCCCA
hsa-mir-346	CUGUUGCUCUGAAG
hsa-mir-500a	GCUGUCUGAAUGC
hsa-mir-487b	CGUUUUGCUC AUGUCG
hsa-mir-572	GCGCCUGUGC

hsa-mir-606	UGUGCCA <u>UCCA</u>
hsa-mir-623	GCUG <u>UGC</u>
hsa-mir-758	GCUUUAAUU <u>UGUGC</u>
hsa-mir-1301	<u>CUGUGC</u> UGGGG
hsa-mir-769	GAUGU <u>UGC</u> UCUC
hsa-mir-802	GUGUCCAUCA <u>UGCAAC</u>
hsa-mir-301b	<u>CUGUGC</u> UCUGAGAAG
hsa-mir-1179	<u>UGUAU</u> UGCCU
hsa-mir-1307	<u>UGUGU</u> UGCCA
hsa-mir-1910	U <u>UGUGC</u> GUCCUUGGA
hsa-mir-3659	<u>UGC</u> U <u>GU</u> AUA
hsa-mir-3678	GUU <u>UGU</u> UGC
hsa-mir-4420	<u>UGUGC</u> ACA
hsa-mir-4425	GCUU <u>UGC</u> GAAG <u>UGU</u>
hsa-mir-4442	G <u>UGUG</u> UG <u>UGC</u>
hsa-mir-4452	GUAG <u>UGGC</u> AC
hsa-mir-3689d-1	<u>UGUGC</u> UAUCG
hsa-mir-3689d-2	<u>UGUGC</u> UAUCG
hsa-mir-3689f	<u>UGUGA</u> UGCUGUG
hsa-mir-4499	GU <u>UGU</u> ACAUAAGAAA <u>UGC</u>
hsa-mir-4539	GC <u>UGUGC</u>
hsa-mir-4749	<u>UGUGC</u> ACA
hsa-mir-5000	GUAACU <u>UGUGC</u> UUAUAAC
hsa-mir-5587	GCCC <u>UGUGC</u>
hsa-mir-5591	GCUUA <u>UGUA</u> UGC
hsa-mir-6728	AC <u>UGCCC</u> UGU
hsa-mir-6737	GGUU <u>UGU</u> UGCUUAUUC
hsa-mir-6746	GAGC <u>UGC</u> UGUC
hsa-mir-6761	G <u>UGU</u> UGC
hsa-mir-6797	<u>CUGUGC</u> UCACUGGG
hsa-mir-6848	GG <u>UGUGC</u> UCUGAUCCCCU
hsa-mir-7850	<u>CUGUGC</u> AG
hsa-mir-7851	<u>UGUGC</u> CACCA

Supplementary Table S3c. miRNAs predicted to be recognized by both MCP1P1 and DGCR8 proteins (through UGC and UGU, respectively, in the loop sequence) in one direction (5' → 3') with overlap option.

3 Common motifs in pre-miRNAs interacting with DDX1

Motif sequence	<i>p</i>
CUAAAYACU	1.7e-007
CGYUUU	5.5e-007
CUGKUAA	1.4e-006
CRUCUUAC	1.4e-006
AAUCRU	1.1e-005

Supplementary Table S4. Motifs predicted to be recognized by DDX1 within whole pre-miRNA sequence against all human pre-miRNA sequences in one direction (5' → 3').

miRNA name	miRNA precursor sequence (motif in red)	Included in initial experimental group
hsa-mir-141	CGGCCGGCCCUGGGUCCAUCUCCAGUACAGUG UUGGAUGGUCUAAUUGUGAAGCUCCUAACACUG UCUGGUAAAGAUGGCUCCCGGGUGGGUUC	Yes
hsa-mir-429	CGCCGGCCGAUGGGCGUCUACCAGACAUGGUU AGACCUGGCCUCUGUCUAAUACUGUCUGGUAA AACCGUCCAUCCGCUGC	Yes
hsa-mir-548b	CAGACUAUAUAUUUAGGUUGGCGCAAAGUAA UUGUGUUUUGGCCUUUAUUUCAAUGGCAAG AACCUCAGUUGCUIUUGUGCCAACCUAAUACUU	No
hsa-mir-548h-4	GCUAAUAGGUUGGUGCAAAGUAAUCGCGGUU UUUGUCAUUACUUAAUACUUUACGUUUCU UAAUGACAAAACCGCAAUACUUUUGCACCAA CCUAAUACUUGCUA	No
hsa-mir-200b	CCAGCUCGGGCAGCCGUGGCCAUCUACUGGGC AGCAUUGGAUGGAGUCAGGUCUCUAAUACUGCC UGGUAAUGAUGACGGCGGAGCCCUGCACG	Yes
hsa-mir-200c	CCCUCGUCUACCCAGCAGUGUUUGGGUGCGGU UGGGAGUCUCUAAUACUGCCGGGUAUGAUGG AGG	Yes
hsa-mir-200a	CCGGGCCCCUGUGAGCAUCUACCGGACAGUGC UGGAUUUCCCAGCUUGACUCUAAACACUGUCUGG UAACGAUGUCAAAGGUGACCCGC	Yes

Supplementary Table S5. miRNA precursors predicted to be recognized by DDX1 with most significantly enriched motif (CUAAAYACU) in one direction (5' → 3').