

Supplementary Materials

Table S1. List of miRNAs used in current study with their sequences, used prediction tools and conservation status.

Target gene	microRNA	Sequence	Tools	Conservation (based on TargetScan)
hMANF	hsa-miR-141-5p	CAUCUCCAGUACAGUGUUGGA	D	N/A
	hsa-miR-144-3p	UACAGUAUAGAUGAUGUACU	M	N/A
	hsa-miR-544a	AUUCUGCAUUUUUAGCAAGUUC	M	N/A
	hsa-miR-338-3p	UCCAGCAUCAGUGAUUUUGUUG	M, T	Conserved
hCDNF	hsa-miR-134-5p	UGUGACUGGUUGACCAGAGGGG	M, T, D	Poorly conserved
	hsa-miR-141-5p	CAUCUCCAGUACAGUGUUGGA	D, T	Poorly conserved
	hsa-miR-190a-5p	UGAUAUGUUUGAUAAUAAUAGGU	M, T	Poorly conserved
	hsa-miR-382-5p	GAAGUUGUUCGUGGUGGAUUCG	M, T, D	Poorly conserved
	hsa-miR-539	GGAGAAAUAUCCUUGGUGUGU	M, T, D	Poorly conserved
	hsa-miR-599	GUUGUGUCAGUUUAUCAAAC	M, T, D	Poorly conserved

M – miRanda; T – TargetScan; D – Diana Tools microT-CDS

Table S2. List of miRNA mimics used in this study

miRNA mimic	miRDIAN catalog number
hsa-miR-134-5p	C-300628-05-0002
hsa-miR-141-5p	C-301056-01-0002
hsa-miR-144-3p	C-300612-05-0002
hsa-miR-190a-5p	C-300639-03-0002
hsa-miR-338-3p	C-300706-05-0002
hsa-miR-382-5p	C-300691-03-0002
hsa-miR-539-5p	C-300859-01-0002
hsa-miR-544	C-300860-03-0002
hsa-miR-599	C-300923-01-0002
NC (Scrb) mimic	CN-001000-01-05

Table S3. List of PCR primers used for amplification of 3'UTRs of MANF and CDNF (both human and mouse).

PCR primers		Primer sequences (F: forward; R: reverse)
Human MANF 3'UTR	F: 5' TCGCTCGAGTCTGCTCAATCTCTGTTGCAC R: 5' AGAGCGGCCGCAGGAGCCTCTGGGGCA	
Human CDNF 3'UTR	F: 5' TCGCTCGAGTCTCCAATGCCAGCACATTGT R: 5' AGAGCGGCCGCCAAGTTGCCTATGAGTGTGTTTA	
Mouse MANF fragment	F: 5' TGCCTAAATAACGCCCCAAG R: 5' GTTCGCTCGCTGCCTATCA	
Mouse MANF 3'UTR	F: 5' TAGGCGATCGCTCGAGTCTGCCAATTCTGCTGCACCTG R: 5' TTGCGGCCAGCGGCCCTGGGGCACGCC	
Mouse CDNF 3'UTR	F: 5' TAGGCGATCGCTCGAGCCCCGTGGCTGTCAG R: 5' TTGCGGCCAGCGGCCCAATGTATATTATTCTGAATTAAAGTTATTC TCTTGCGGCCAGCGGCC	

Table S4. List of PCR primers used for site-directed mutagenesis.

	miRNA, which binding site to be mutated	Primer sequences (F: forward; R: reverse)
hCDNF	miR-134	F: 5'-TTCATTCCCTTACAacCACATATCAGACAAG R: 5'-AAAGACCTTGAGCTTGGTTCAATTAACAAT
	miR-141	F: 5'-AAGTTTTGATGGggGATTAAAGCATAT R: 5'-GTCTGATATGTGACTGTAAGGAATGAAAAAA
	miR-190a	F: 5'-CCTTACAGTCACAcgTCAGACAAGTT R: 5'-AATGAAAAAGACCTTGAGCTTGGTTC
	miR-382	F: 5'-TATCTAATGCCACggCTTCAATCCCAAATAC R: 5'-AGCTGACTGTTGTGTCTTTGTTAGTCC
hMANF	miR-144	F: 5'-TCCTGACAATAagGTATCAGATGTGA R: 5'-GCCCACTAAAAAAATAATTACAAAAAGG
	miR-544	F: 5'-TAGCTGTCCTTGCTcAATTATAAGTGA R: 5'-GAAATTTTTTCTTAATAAAAAAAATCCC

Table S5. List of PCR primers used for RT-qPCR analysis of ER stress markers expression.

PCR primers	Primer sequences (F: forward; R: reverse)
Human BiP	F 5' ACCCTGACTCGGGCCAAAT R: 5' AGACCGGAACAGATCCATGTTG
Human ATF6	F: 5' GGATGAAGTTGTGTCAGAGAACCC R: 5' GACAACCTTCGCTTGGACTAG
Human CHOP	F: 5' CCAGCAGAGGTCAACAAGCA R: 5' TGACTGGAATCTGGAGAGTGAG
Human XBP1s	F: 5' GAGTCCGCAGCAGGTG R: 5' CCGCCAGAATCCATGGG
Human GAPDH	F: 5' TTGAGGTCAATGAAGGGGTC R: 5' GAAGGTGAAGGTGGAGTCA

Supplementary Figure S1. miRNAs predicted to target 3'UTRs of mouse **A)** CDNF and **B)** MANF. Only miRNAs, included in the current study, are shown. Alignment is adapted from TargetScan and miRanda.

A

miR-539

mCDNF 3'UTR

CCCCGUCGGCUGUCAGGAAGCAUGGCACUGCGAUAGAAGAAAAAGACUGCUAAGAUGAGAGUGUGCUGGUUAGGGCUAAC
AGGGACUGCCCAGUUGGCCGUCAGUUUUGCUGUUGUAUUGUGGAGUUGGUUAGGCAUAUGAUCAACCGUGCUUC
UGUGUGGUUCCUAUUAAAGAGG
|||||
CUCAUGGUUCGUAAAUGCAGGCACAGAGACCU**CAAGG**UGCU**UUUCUC**AUCCUUUCUUGGAGGAUGCGAGGGUUGCCUUUG
CAUUGCUCUAGACAUAUUAUGCUUUAUGAGAGAGGGCUGGCCAUGGCCAUGAGAGAGGGGGAGGGAGAGAAAGAGGG
CUAGAGAUGAGAGUAAGAAAGGUGAGGGCUUAAGAGAGAGAGAGGGCAAGCAGCCCCCUUUAUGUGGGCUGGCCUAC
CUUGCUGUUGCCAGGUACUGAACAGUGUGGGGAGGGAGAGUCACUUGGGCUCAGGGAUUUGGUCCAUCACAGCAGGG
AGCUAAGGCAGCACAGCUCAGAGCAGGGCAGAACAGAGCUUGCUAUAGAGGCUGUUGUAGUUAUAGAGAGGCAGAAAGUGAU
GUCCAAAUAUAGUAUAGGCUGUAAGGUUAACCUUUAAGGGUAUGCCCUAUUCUGCAGACAGACACCCACCUCACAGUU
CCCCAAUUAUACCACUAGCUAGGGAAACAAUCCUUAACUACCCAGGCAUGCCAGGGUGGGUGUAGGCCUUUAUAGGGCAG
UCUGUCUGGAGGCAGAUCUCUGUGAGUGCUGAGGGCAGCCUGGUUCACAAAGUGAGUCUAGGACAGCCAGGGUCACACAGAGA
AACACUGUUUUGAAAAACAAACAAACAACAAACAGACAAACACUAAAUAUCCACAAUAGAACCAACCAACAAACCA
AACAAACCAACCAAACAAAAACUGAGCUGGAGGAGCAGUUCAGAUCCAAGGCACAGCAGAAGGACAUGUAGUUUAUCAC
UACUGACUAGUGUGCUGUAUGGUUAUAGGUUAUACUACUAGGUUAUAGGUUAUACUACUAGGUUAUACUAGGUAG
UUUUUUAAAAGAGGCAUAACAAACUAGCUUACUAGGUUAUACUACUAGGUUAUACUACUAGGUUAUACUAGGUAG
GUUCUUGUUUCAUUUUCUUUUUAAAAGGUUUUUAAAAGGUUUUAAAACUUCUACUUCUAAAUAUUUUUCUUCUUUUGCACAGCA
GGAGGGAAAGCAUUCUJACUUUAUAGGCUCUUGAGACAAAUAUCCUAAAACAAUACUAGGAGAAAGGUUAUUAUAGGU
UUUGAGAUUACAGUUCUACUGCCAGCAGGAGUGUGAGGGCCAUUGGUCAACUACUAGGUUAGAAGCAGAGAUGGAAGU
AGAUGCUCUGCUAGCUGUCAGUCUGACCCAGCAGGGAAUAGCCACUGCUCACAUUCAGGAUGGGGUUCUCCUUCACAGUU
AAACUCUCUAGCAAGCCCCUCCACUCUGCCAGAGGUAGUGUCACUAGGCAAUUCUAAUCCACCAAGUUAACAA
UGUGUGGUUCCUAUUAAAGAGG
|||||
UGGCAGUAAAAGCAUUGCACAGCACGAU**AGGUUUCCG****UUUCUC**UAUAAAAGAAAACUGAUCGGAAGAUACAAUCAGCAAU
CCAUAAAAGCUGUGCUUGGCCUAUUUUAACUACCUUUUUUUUGUUGUUUUUUUGUUUUUUUGUUUUUUUGUUUUUUUGUU
UGUGUGGUUCCUAUUAAAGAGG
|||||
UUCUUGAAGCAGGA**UUUCUC**GUUAUAGUUCUGGUCCUGGAACUCACUCUGUAGACCAGGCUGGCCUCAAACUCAGAAAUC
CGCCUGCCUCUGCUGGGAUUUAGGCUGGCCACACGCCGGCUUJGAACCACCUUJGAUJGCCCACGUGACCAAGCUCA
GAGUCUUCUUCACUGCCCCUGUCAGGCAGGAUGAAAGCAUGCUCCCCACGGCAGGGCGCUUGGGUUUUCUAA
UGCUAGCCUAUCAGCUUAAGAAGCAGGCAAUUGUUUACGUCCAUAGAUAUACAUAAAGAAGCACAUGGUUAAA
GGUUGCCUUUGGGAAAAGGUAGCAGGGUGUGGUACUCAAGAAAGCAUUCUAAAAGGUUUCUGGGGUAGUGGGACUGUACU
UUUAUCAAGCAGGAGGAGAGAUAUGAUCAUCAUUAUAGGUUAUAGGUUAUACUAGGUUAUACUAA
UUCUAAUUCUAAAAGGUAGGAGCJAUJUJUAAAACCAAAUUAUJGUAAAAGCAUCGUUCUAAAUAUACUAA
AUGUACUCAUAGCCAUCUUUUUGUAGAGAGAAUACUAAAUCAGUAUAAAUAUACAUUG

B

miR-338

mMANF 3'UTR

UCUGCCCAAUUCCUGCUGCACCUGAAGGGAAAAGCAGUUUAUCUGUCUUCUCCCCAAUACCAUUUUGUAAUUUUUU
GUUGUUUAGUGACUACGACCU
|||||
UAAGCGGGCUCCUGACA AUGAGAUGUGAACCUAGAGCUUCCUAGUG**AUGCUGG**CUCUGCAGUUCCCUCUUGGCCAUCCCC
AGUGGGACAUUUCCCAUCCCAAGUGGGACAUUUACUUCUUCUUGGUUUACUCUAGGACUUCAAGUUUGUC
UGGGAUUUUUUAUAAAAGGUAGGUUGAGAGGUUGAGCUGGCCACAGGUUAGGUUACUAGGUUACUAGGUU
UCCAGUCUAGAAAAGAUCCUCAGCCUGCCAGUGCUGAGGGCCUGAAACUCCCAUACAGGACUAAAGACCC
UGUCUUGUGGUUGGGGUUCCUGGUUGUGGUAGGUACUACUAGGUUAGGUUAGGUUACUAGGUU
CAGGUCCAGUAGCAGGGCUGAAGGUUCUUGAGCUGCUGGUUAGGUUACUAGGUUAGGUU
GAGAACUGUGAGCUGAGUACAGGUUGGUACAGGUACUACUUCACCCGCCUGGUUACUAAA
UCCAGUCUAGCAUCAGAACAGGACCCUUGCUUACCUUACUACUACUAGGUUAGGUUACUAGGUU
GUGAGCUGGUUGUAGUGGUAGGGCUGAGGGAGGUUGUGUGACUGGUUUCAGUUGUCCUUCUUGCUGG
UGUGCCUCAGUGGGAAACUUCUUGGUCCUGGUUGGUACUACUAGGUUAGGUUACUAGGUU
AAAGGCUCGUUACUAGCUACUUCUJUGUGUUGGUUCCCAAAUUCACUUCUAGGUUACUAGGUU
UUCUCCAAGGUUCUCCUGCACUUUCUCCUGGUUCUGGUUCUUCUAGGUUACUAGGUU
UCGACAUCCUACAGAGCAUAGGUACUCCAGCAACCGUCUGUGGAGAGCAUAGCC
GUACUUCACCUACUUCUCCUGGUAGGUUACUAGGUUACUAGGUU
UGCUCUUCUACCCUUGGUACAGCAGCCCCACCUUCCAGCCUUGGUACUAGGUU
GGCACCAAGGUAGCCUGUAGGUUAGCAGGUUACUAGGUUACUAGGUU
UCAGGACAGUGCCUGAAGGUUAGGUUACUAGGUUACUAGGUU
UAUUUCAAGGGGCAACUCUGGUCCUAUCAGAAA
GAGUGGGACGCGAACACUUGGUUCCGGCAAGCGGCCACACCUGCUCCGGUGGGCGUGGCCAGGCG