

MDFI siRNA (m): sc-149334

BACKGROUND

MDFI (MyoD family inhibitor), also known as I-MF or I-mfa, is a 246 amino acid protein that localizes to both the nucleus and the cytoplasm and interacts with Axin and LEF-1. Functioning as a transcription factor, MDFI negatively regulates the transactivation activity of MyoD proteins, thus repressing myogenesis. More specifically, MDFI associates with MyoD proteins and blocks their nuclear localization signals, effectively sequestering MyoD family members in the cytoplasm and preventing them from binding to DNA. The gene encoding MDFI maps to human chromosome 6, which contains 170 million base pairs and comprises nearly 6% of the human genome. Deletion of a portion of the q arm of chromosome 6 is associated with early onset intestinal cancer, suggesting the presence of a cancer susceptibility locus. Additionally, porphyria cutanea tarda, Parkinson's disease, Stickler syndrome and a susceptibility to bipolar disorder are all associated with genes that map to chromosome 6.

REFERENCES

1. Chen, C.M., Kraut, N., Groudine, M. and Weintraub, H. 1996. I-mf, a novel myogenic repressor, interacts with members of the MyoD family. *Cell* 86: 731-741.
2. Kraut, N. 1997. The gene encoding I-mf (Mdfi) maps to human chromosome 6p21 and mouse chromosome 17. *Mamm. Genome* 8: 618-619.
3. Kraut, N., Snider, L., Chen, C.M., Tapscott, S.J. and Groudine, M. 1998. Requirement of the mouse I-mfa gene for placental development and skeletal patterning. *EMBO J.* 17: 6276-6288.
4. Snider, L., Thirlwell, H., Miller, J.R., Moon, R.T., Groudine, M. and Tapscott, S.J. 2001. Inhibition of Tcf3 binding by I-mfa domain proteins. *Mol. Cell. Biol.* 21: 1866-1873.
5. Online Mendelian Inheritance in Man, OMIM[™]. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 604971. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Ma, R., Rundle, D., Jacks, J., Koch, M., Downs, T. and Tsiokas, L. 2003. Inhibitor of myogenic family, a novel suppressor of store-operated currents through an interaction with TRPC1. *J. Biol. Chem.* 278: 52763-52772.
7. Mizugishi, K., Hatayama, M., Tohmonda, T., Ogawa, M., Inoue, T., Mikoshiba, K. and Aruga, J. 2004. Myogenic repressor I-mfa interferes with the function of Zic family proteins. *Biochem. Biophys. Res. Commun.* 320: 233-240.
8. Wang, Q., Young, T.M., Mathews, M.B. and Pe'ery, T. 2007. Developmental regulators containing the I-mfa domain interact with T cyclins and Tat and modulate transcription. *J. Mol. Biol.* 367: 630-646.

CHROMOSOMAL LOCATION

Genetic locus: Mdfi (mouse) mapping to 17 C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

MDFI siRNA (m) is a pool of 2 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MDFI shRNA Plasmid (m): sc-149334-SH and MDFI shRNA (m) Lentiviral Particles: sc-149334-V as alternate gene silencing products.

For independent verification of MDFI (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-149334A and sc-149334B.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MDFI siRNA (m) is recommended for the inhibition of MDFI expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MDFI gene expression knockdown using RT-PCR Primer: MDFI (m)-PR: sc-149334-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.