SANTA CRUZ BIOTECHNOLOGY, INC.

MDFIC siRNA (h): sc-89686

BACKGROUND

MDFIC (Myo D family inhibitor domain-containing protein), also known as HIC, is a 355 amino acid protein that exists as two alternatively spliced isoforms, known as p40 and p32, which localize predominately to the nucleolus and cytoplasm, respectively. Expressed in prostate, thymus, spleen and small intestine, MDFIC functions to modulate the expression of viral genomes, specifically down-regulating the transcription of HIV-1 and up-regulating the expression of HTLV-1 (T-cell leukemia virus type I). Additionally, MDFIC is able to adjust the amount of β-catenin within the cell and may also function to regulate the Wnt and JNK signaling pathways. The gene encoding MDFIC maps to human chromosome 7, which houses over 1,000 genes and comprises nearly 5% of the human genome. Defects in some of the genes localized to chromosome 7 have been linked to osteogenesis imperfecta, Williams-Beuren syndrome, Pendred syndrome, lissencephaly, citrullinemia and Shwachman-Diamond syndrome.

REFERENCES

1. Thebault, S., et al. 2000. Sequence requirement for the nucleolar localization of human I-mfa domain-containing protein (HIC p40). Eur. J. Cell Biol. 79: 834-838.
2. Thebault, S., et al. 2000. Molecular cloning of a novel human I-mfa domain-containing protein that differently regulates human T-cell leukemia virus type I and HIV-1 expression. J. Biol. Chem. 275: 4848-4857.
3. Kusano, S. and Raab-Traub, N. 2002. I-mfa domain proteins interact with Axin and affect its regulation of the Wnt and c-Jun N-terminal kinase signaling pathways. Mol. Cell. Biol. 22: 6393-6405.
4. Young, T.M., et al. 2003. The human I-mfa domain-containing protein, HIC, interacts with cyclin T1 and modulates P-TEFβ-dependent transcription. Mol. Cell. Biol. 23: 6373-6384.
5. Gautier, V.W., et al. 2005. Direct interaction of the human I-mfa domain-containing protein, HIC, with HIV-1 Tat results in cytoplasmic sequestration and control of Tat activity. Proc. Natl. Acad. Sci. USA 102: 16362-16367.
6. Wang, Q., et al. 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: MDFIC (human) mapping to 7q31.1.

PRODUCT

MDFIC siRNA (h) is a pool of 3 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MDFIC shRNA Plasmid (h): sc-89686-SH and MDFIC shRNA (h) Lentiviral Particles: sc-89686-V as alternate gene silencing products.

For independent verification of MDFIC (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-89686A, sc-89686B and sc-89686C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MDFIC siRNA (h) is recommended for the inhibition of MDFIC expression in human 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 µM in 66 µl. 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.

GENE EXPRESSION MONITORING

MDFIC (D-9): sc-515212 is recommended as a control antibody for monitoring of MDFIC gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MDFIC gene expression knockdown using RT-PCR Primer: MDFIC (h)-PR: sc-89686-PR (20 µl, 544 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Han, S., et al. 2024. Standigm ASK™: knowledge graph and artificial intelligence platform applied to target discovery in idiopathic pulmonary fibrosis. Brief. Bioinform. 25: bbae035.

RESEARCH USE

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

PROTOCOLS

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