SANTA CRUZ BIOTECHNOLOGY, INC.

MIST1 siRNA (m): sc-108000

BACKGROUND

MIST1 (muscle, intestine and stomach expression 1), also known as BHLHB8 (basic helix-loop-helix domain containing, class B, 8), is a 189 amino acid nuclear protein expressed in liver, brain, skeletal muscle and spleen. MIST1 contains a basic helix-loop-helix (bHLH) domain and belongs to the bHLH family of transcription factors. Members of this family bind to the E-box motifs present in the promoter or enhancer regions of a variety of developmentally regulated genes and function as either transcriptional activators or transcriptional repressors. MIST1 is capable of binding to E-box motifs as a homodimer or a heterodimer with E-proteins (E12 and E47) and is believed to play a role regulating the transcriptional activity of MyoD, a protein involved in the regulation of muscle cell development. More specifically, MIST1 functions as a repressor of MyoD activity, ensuring that myoblast populations do not differentiate. In addition, MIST1 is expressed in mammary epithelial cells and is essential for the regulation of mammary gland development.

REFERENCES

1. Lemercier, C., et al. 1997. MIST1: a novel basic helix-loop-helix transcription factor exhibits a developmentally regulated expression pattern. Dev. Biol. 182: 101-113.
2. Yoshida, S., et al. 2001. Sgn1, a basic helix-loop-helix transcription factor delineates the salivary gland duct cell lineage in mice. Dev. Biol. 240: 517-530.
3. Pin, C.L., et al. 2001. The bHLH transcription factor MIST1 is required to maintain exocrine pancreas cell organization and acinar cell identity. J. Cell Biol. 155: 519-530.
4. McLellan, A.S., et al. 2002. Exhaustive identification of human class II basic helix-loop-helix proteins by virtual library screening. Mech. Dev. 119: S285-S291.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608606. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Zhao, Y., et al. 2006. Identification of a basic helix-loop-helix transcription factor expressed in mammary gland alveolar cells and required for maintenance of the differentiated state. Mol. Endocrinol. 20: 2187-2198.

CHROMOSOMAL LOCATION

Genetic locus: BhlhA15 (mouse) mapping to 5 G2.

PRODUCT

MIST1 siRNA (m) 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 MIST1 shRNA Plasmid (m): sc-108000-SH and MIST1 shRNA (m) Lentiviral Particles: sc-108000-V as alternate gene silencing products.

For independent verification of MIST1 (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-108000A, sc-108000B and sc-108000C.

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

MIST1 siRNA (m) is recommended for the inhibition of MIST1 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 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

MIST1 (A-6): sc-166181 is recommended as a control antibody for monitoring of MIST1 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MIST1 gene expression knockdown using RT-PCR Primer: MIST1 (m)-PR: sc-108000-PR (20 µl). 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.

PROTOCOLS

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