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MYH7B siRNA (m): sc-149746

BACKGROUND

Actin is a highly conserved protein that is expressed in all eukaryotic cells. Actin filaments can form both stable and labile structures, and are crucial components of microvilli and the contractile apparatus of muscle cells. Myosin is a hexamer of two heavy chains (MHC) and four light chains (MLC) that interact with Actin to generate the force for diverse cellular movements, including cytokinesis, phagocytosis and muscle contraction. Myosin heavy chains, encoded by the MYH gene family, contain Actin-activated ATPase activity that generate the motor function of Myosin. Myosin heavy chains were initially isolated from human fetal skeletal muscle and are the major determinant in the speed of contraction of skeletal muscle. Various isoforms of Myosin heavy chains are differentially expressed depending on the functional activity of the muscle. MYH7B (Myosin, heavy chain 7B, cardiac muscle, β) is a 1,941 amino acid member of the MYH family that contains one IQ domain and one Myosin head-like domain, and is involved in muscle contraction.

REFERENCES

1. Nagai, R., et al. 1989. Vertebrate smooth muscle Myosin heavy chains (MHCs) exist as two isoforms with molecular masses of 204 and 200 kDa (MHC204 and MHC200) that are generated from a single gene by alternative splicing of mRNA. *J. Biol. Chem.* 264: 9734-9737.
2. Karsch-Mizrachi, I., et al. 1990. Generation of a full-length human perinatal Myosin heavy-chain-encoding cDNA. *Gene* 89: 289-294.
3. Bober, E., et al. 1990. Identification of three developmentally controlled isoforms of human Myosin heavy chains. *Eur. J. Biochem.* 189: 55-65.
4. Yoon, S.J., et al. 1992. Organization of the human skeletal Myosin heavy chain gene cluster. *Proc. Natl. Acad. Sci. USA* 89: 12078-12082.
5. Cheney, R.E., et al. 1993. Phylogenetic analysis of the Myosin superfamily. *Cell Motil. Cytoskelet.* 24: 215-223.
6. Jullian, E.H., et al. 1995. Characterization of a human perinatal Myosin heavy-chain transcript. *Eur. J. Biochem.* 230: 1001-1006.
7. Owens, G.K. 1995. Regulation of differentiation of vascular smooth muscle cells. *Physiol. Rev.* 75: 487-517.

CHROMOSOMAL LOCATION

Genetic locus: Myh7b (mouse) mapping to 2 H1.

PRODUCT

MYH7B 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MYH7B shRNA Plasmid (m): sc-149746-SH and MYH7B shRNA (m) Lentiviral Particles: sc-149746-V as alternate gene silencing products.

For independent verification of MYH7B (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-149746A, sc-149746B and sc-149746C.

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

MYH7B siRNA (m) is recommended for the inhibition of MYH7B 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.

GENE EXPRESSION MONITORING

MYH (B-5): sc-376157 is recommended as a control antibody for monitoring of MYH7B 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 MYH7B gene expression knockdown using RT-PCR Primer: MYH7B (m)-PR: sc-149746-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.

PROTOCOLS

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