SANTA CRUZ BIOTECHNOLOGY, INC.

MYH6 siRNA (h): sc-106275

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 interacts 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 contraction speed of skeletal muscle. MYH6 (myosin heavy chain 6), also known as MYHCA (myosin heavy chain, cardiac muscle α isoform), is a 1,939 amino acid protein that is encoded by a gene that maps to human chromosome 14q11.2. Defects in MYH6 are linked to atrial septal defect type 3 (ASD3) and cardiomyopathy familial hypertrophic type 14 (CMH14).

REFERENCES

1. Mahdavi, V., et al. 1982. Molecular characterization of two myosin heavy chain genes expressed in the adult heart. Nature 297: 659-664.
2. Edwards, Y.H., et al. 1985. Human myosin heavy chain genes assigned to chromosome 17 using a human cDNA clone as probe. Ann. Hum. Genet. 49: 101-109.
3. Buckingham, M., et al. 1986. Actin and myosin multigene families: their expression during the formation and maturation of striated muscle. Am. J. Med. Genet. 25: 623-634.
4. Saez, L.J., et al. 1987. Human cardiac myosin heavy chain genes and their linkage in the genome. Nucleic Acids Res. 15: 5443-5459.
5. Yamauchi-Takihara, K., et al. 1989. Characterization of human cardiac myosin heavy chain genes. Proc. Natl. Acad. Sci. USA 86: 3504-3508.
6. Epp, T.A., et al. 1993. Structural organization of the human cardiac α-myosin heavy chain gene (MYH6). Genomics 18: 505-509.
7. Carniel, E., et al. 2005. α-myosin heavy chain: a sarcomeric gene associated with dilated and hypertrophic phenotypes of cardiomyopathy. Circulation 112: 54-59.

CHROMOSOMAL LOCATION

Genetic locus: MYH6 (human) mapping to 14q11.2.

PRODUCT

MYH6 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 MYH6 shRNA Plasmid (h): sc-106275-SH and MYH6 shRNA (h) Lentiviral Particles: sc-106275-V as alternate gene silencing products.

For independent verification of MYH6 (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-106275A, sc-106275B and sc-106275C.

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

MYH6 siRNA (h) is recommended for the inhibition of MYH6 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

MYH (B-5): sc-376157 is recommended as a control antibody for monitoring of MYH6 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 MYH6 gene expression knockdown using RT-PCR Primer: MYH6 (h)-PR: sc-106275-PR (20 µl, 593 bp). 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.