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SANTA CRUZ BIOTECHNOLOGY, INC.

MYL1 siRNA (m): sc-149748

BACKGROUND

Myosin, the major component of thick muscle filaments, is a long asymmetric molecule containing a globular head and a long tail. Activation of smooth and cardiac/ventricular muscle primarily involves pathways which increase calcium and myosin phosphorylation, resulting in contraction. Myosin in vertebrate striated muscle is composed of two heavy chains and four light chains. There are two distinct types of light chains: the phosphorylatable, regulatory or MLC2 type; and the nonphosphorylatable, alkali or MLC1 and MLC3 types. Myosin light chain phosphatase acts to regulate muscle contraction by dephosphorylating activated myosin light chain. The role of myosin alkali light chains in vertebrate skeletal muscle is poorly understood, although alkali light chains in smooth muscle may be involved with the active site of myosin. Several isoforms of myosin alkali light chains have been identified, encoded by a family of myosin light chain genes. Each is associated with different muscle types. MYL1 (myosin light chain 3, skeletal muscle isoform), also known as MLC1F or MLC3F, is a hexameric ATPase cellular motor protein that is composed of two heavy chains, two nonphosphorylatable alkali light chains, and two phosphorylatable regulatory light chains. MYL1 is expressed in fast skeletal muscle and two isoforms exist due to alternative splicing.

REFERENCES

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3. Cohen-Haguenauer, O., et al. 1988. Assignment of the human fast skeletal muscle myosin alkali light chains gene (MLC1F/MLC3F) to 2q 32.1-2qter. Hum. Genet. 78: 65-70.
4. Cohen-Haguenauer, O., et al. 1989. Chromosomal assignment of two myosin alkali light-chain genes encoding the ventricular/slow skeletal muscle isoform and the atrial/fetal muscle isoform (MYL3, MYL4). Hum. Genet. 81: 278-282.
5. Davoli, R., et al. 2000. Mapping of 14 expressed sequence tags (ESTs) from porcine skeletal muscle by somatic cell hybrid analysis. Anim. Genet. 31: 400-403.
6. Fontanesi, L., et al. 2000. Linkage assignment of the fast skeletal alkali myosin light polypeptide 1 (MYL1) gene to porcine chromosome 15. Anim. Genet. 31: 415-416.
7. Davis, J.S., et al. 2001. The overall pattern of cardiac contraction depends on a spatial gradient of myosin regulatory light chain phosphorylation. Cell 107: 631-641.
8. Muramatsu, Y., et al. 2003. Chromosomal mapping of HSPCB and MYL1 expressed abundantly in the bovine fetus. Anim. Biotechnol. 14: 83-86.
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CHROMOSOMAL LOCATION

Genetic locus: Myl1 (mouse) mapping to 1 C3.

PRODUCT

MYL1 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 MYL1 shRNA Plasmid (m): sc-149748-SH and MYL1 shRNA (m) Lentiviral Particles: sc-149748-V as alternate gene silencing products.

For independent verification of MYL1 (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-149748A, sc-149748B and sc-149748C.

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

MYL1 siRNA (m) is recommended for the inhibition of MYL1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MYL1 gene expression knockdown using RT-PCR Primer: MYL1 (m)-PR: sc-149748-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.