SANTA CRUZ BIOTECHNOLOGY, INC.

MYL1 (T-14): sc-168680

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

1. Barton, P.J., et al. 1985. The myosin alkali light chain proteins and their genes. Biochem. J. 231: 249-261.
2. Seidel, U., et al. 1987. The complete nucleotide sequences of cDNA clones coding for human myosin light chains 1 and 3. Nucleic Acids Res. 15: 4989.
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.

CHROMOSOMAL LOCATION

Genetic locus: MYL1 (human) mapping to 2q34; Myl1 (mouse) mapping to 1 C3.

SOURCE

MYL1 (T-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MYL1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-168680 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MYL1 (T-14) is recommended for detection of MYL1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

MYL1 (T-14) is also recommended for detection of MYL1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for MYL1 siRNA (h): sc-106267, MYL1 siRNA (m): sc-149748, MYL1 shRNA Plasmid (h): sc-106267-SH, MYL1 shRNA Plasmid (m): sc-149748-SH, MYL1 shRNA (h) Lentiviral Particles: sc-106267-V and MYL1 shRNA (m) Lentiviral Particles: sc-149748-V.

Molecular Weight of MYL1: 21 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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