SANTA CRUZ BIOTECHNOLOGY, INC.

Tropomyosin (SPM224): sc-56603

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Tropomyosins are a group of structural proteins. Tropomyosins are present in virtually all eukaryotic cells (both muscle and non-muscle), where they bind Actin filaments and function to modulate Actin-Myosin interaction and stabilize Actin filament structure. Tropomyosin α is encoded by the TPM1 gene, which maps to human chromosome 15q22.2 and undergoes alternative splicing to generate at least four isoforms including skeletal muscle (isoform 1), smooth muscle (isoform 2), fibroblast/TM3 (isoform 3) and isoform 4. Tropomyosin β is encoded by the TPM2 gene, which maps to human chromosome 9p13.3 and undergoes alternative splicing to generate three isoforms including skeletal muscle (isoform 1), nonmuscle/fibroblast TM36/epithelial TMe1 (isoform 2) and nonmuscle (isoform 3). Troponin I binds Tropomyosin at a specific region and the association of Tropomyosin-Troponin with Actin filaments may increase the rigidity of Actin filaments. Tropomyosin also interacts with caldesmon to regulate smooth muscle contraction.

REFERENCES

1. Tiso, N., et al. 1997. Fine mapping of five human skeletal muscle genes: Tropomyosin α, Tropomyosin β, Troponin I slow-twitch, Troponin I fast-twitch and Troponin C fast. Biochem. Biophys. Res. Commun. 230: 347-350.
2. Lehman, W., et al. 2000. Tropomyosin and Actin isoforms modulate the localization of Tropomyosin strands on Actin filaments. J. Mol. Biol. 302: 593-606.
3. Goldmann, W.H. 2000. Binding of Tropomyosin-Troponin to Actin increases filament bending stiffness. Biochem. Biophys. Res. Commun. 276: 1225-1228.
4. Ohtsuki, I. and Shiraishi, F. 2002. Periodic binding of Troponin C.I and Troponin I to Tropomyosin-Actin filaments. J. Biochem. 131: 739-743.
5. SWISS-PROT/TrEMBL (136090). World Wide Web URL: http://www.expasy.ch/sprot/sprot-top.html
6. LocusLink Report (LocusID: 7168). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: TPM1 (human) mapping to 15q22.2; Tpm1 (mouse) mapping to 9 C.

SOURCE

Tropomyosin (SPM224) is a mouse monoclonal antibody raised against purified muscle Tropomyosin of chicken origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

Tropomyosin (SPM224) is recommended for detection of striated muscle forms of Tropomyosin, including cardiac α Tropomyosin and skeletal muscle forms of Tropomyosin of mouse, rat, human and avian origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); may cross-react with chicken cardiac muscle. Does not cross-react with smooth muscle or non-muscle isoforms of Tropomyosin.

Suitable for use as control antibody for Tropomyosin siRNA (h): sc-36734, Tropomyosin siRNA (m): sc-36735, Tropomyosin shRNA Plasmid (h): sc-36734-SH, Tropomyosin shRNA Plasmid (m): sc-36735-SH, Tropomyosin shRNA (h) Lentiviral Particles: sc-36734-V and Tropomyosin shRNA (m) Lentiviral Particles: sc-36735-V.

Molecular Weight (predicted) of Tropomyosin α: 33 kDa.

Molecular Weight (predicted) of Tropomyosin β: 33 kDa.

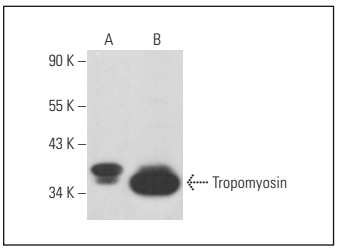
Molecular Weight (predicted) of Tropomyosin γ: 33 kDa.

Molecular Weight (predicted) of Tropomyosin 4: 29 kDa.

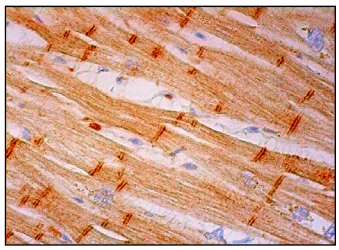
Molecular Weight (observed) of Tropomyosin: 31-47 kDa.

Positive Controls: human heart extract: sc-363763 or C2C12 whole cell lysate: sc-364188.

DATA



Tropomyosin (SPM224): sc-56603. Western blot analysis of Tropomyosin expression in C2C12 whole cell lysate (**A**) and human heart tissue extract (**B**).



Tropomyosin (SPM224): sc-56603. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic and intercalated disk staining of myocytes.

SELECT PRODUCT CITATIONS

1. Butezloff, M.M., et al. 2019. Gene expression changes are associated with severe bone loss and deficient fracture callus formation in rats with complete spinal cord injury. Spinal Cord. E-published.

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.