SANTA CRUZ BIOTECHNOLOGY, INC.

Tropomyosin (CH1): sc-58868

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), non-muscle/fibroblast TM36/epithelial TMe1 (isoform 2) and non-muscle (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.

CHROMOSOMAL LOCATION

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

SOURCE

Tropomyosin (CH1) 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.

APPLICATIONS

Tropomyosin (CH1) is recommended for detection of striated muscle forms of Tropomyosin, including cardiac α Tropomyosin and skeletal muscle forms of Tropomyosin of mouse, rat, human, avian and *Xenopus laevis* origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:10-1:200), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:10-1:200) and immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:10-1:200); may cross-react with chicken cardiac muscle; non cross-reactive 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/β/γ: 33 kDa.

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

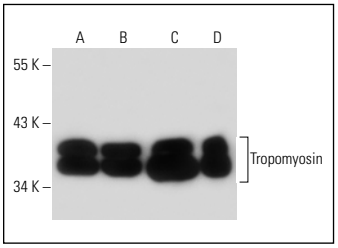
Molecular Weight (observed) of Tropomyosin: 31-47 kDa.

Positive Controls: L8 cell lysate: sc-3807, rat heart extract: sc-2393 or human heart extract: sc-363763.

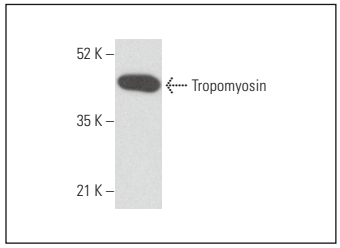
STORAGE

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

DATA



Tropomyosin (CH1): sc-58868. Western blot analysis of Tropomyosin expression in L8 (**A**) whole cell lysate, rat skeletal muscle (**B**), and human heart (**C**,**D**) tissue extract, under reducing (**A**,**B**,**C**) and non-reducing (**D**) conditions.



Tropomyosin (CH1): sc-58868. Western blot analysis of Tropomyosin expression in rat heart tissue extract.

SELECT PRODUCT CITATIONS

1. Sahr, K.E., et al. 2009. Targeted deletion of the γ-adducin gene (Add3) in mice reveals differences in α-adducin interactions in erythroid and nonerythroid cells. Am. J. Hematol. 84: 354-361.
2. Ochala, J., et al. 2014. Pointed-end capping by tropomodulin modulates actomyosin crossbridge formation in skeletal muscle fibers. FASEB J. 28: 408-415.
3. Manni, M.E., et al. 2016. Monoamine oxidase is overactivated in left and right ventricles from ischemic hearts: an intriguing therapeutic target. Oxid. Med. Cell. Longev. 2016: 4375418.
4. Foditsch, E.E., et al. 2016. Skeletal muscle proteins: a new approach to delimitate the time since death. Int. J. Legal Med. 130: 433-440.
5. Cowley, P.M., et al. 2019. Reversal of right ventricular failure by chronic α_{1A}-subtype adrenergic agonist therapy. Am. J. Physiol. Heart Circ. Physiol. 316: H224-H232.
6. Hong, Y., et al. 2019. Amelioration of muscle wasting by glucagon-like peptide-1 receptor agonist in muscle atrophy. J. Cachexia Sarcopenia Muscle 10: 903-918.
7. Karaöz, E., et al. 2019. Differentiation potential and tumorigenic risk of rat bone marrow stem cells are affected by long-term *in vitro* expansion. Turk. J. Haematol. 36: 255-265.
8. Kuo, H.F., et al. 2021. Endocardial endothelial dysfunction and unknown polymorphic composite accumulation in heart failure. Biomedicines 9: 1465.
9. Sharlo, K.A., et al. 2023. The effect of SERCA activation on functional characteristics and signaling of rat soleus muscle upon 7 days of unloading. Biomolecules 13: 1354.

RESEARCH USE

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