

Tropomyosin (F-6): sc-74480

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.

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.

CHROMOSOMAL LOCATION

Genetic locus: TPM1 (human) mapping to 15q22.2, TPM2 (human) mapping to 9p13.3; Tpm1 (mouse) mapping to 9 C, Tpm2 (mouse) mapping to 4 B1.

SOURCE

Tropomyosin (F-6) is a mouse monoclonal antibody raised against amino acids 1-284 representing full length Tropomyosin α 1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Tropomyosin (F-6) is available conjugated to agarose (sc-74480 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74480 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74480 PE), fluorescein (sc-74480 FITC), Alexa Fluor[®] 488 (sc-74480 AF488), Alexa Fluor[®] 546 (sc-74480 AF546), Alexa Fluor[®] 594 (sc-74480 AF594) or Alexa Fluor[®] 647 (sc-74480 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-74480 AF680) or Alexa Fluor[®] 790 (sc-74480 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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RESEARCH USE

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

APPLICATIONS

Tropomyosin (F-6) is recommended for detection of Tropomyosin α 1-4 and β 1-3 isoforms of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

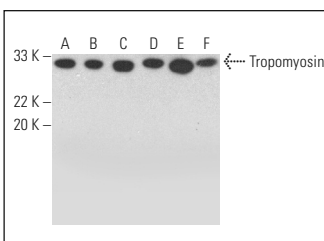
Molecular Weight (predicted) of Tropomyosin β : 33 kDa.

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

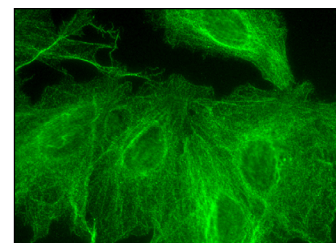
Molecular Weight (predicted) of Tropomyosin 4: 29 kDa.

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

DATA



Tropomyosin (F-6) HRP: sc-74480 HRP. Direct western blot analysis of Tropomyosin expression in HeLa (A), C6 (B), RAW 264.7 (C), WI-38 (D), C2C12 (E) and ARPE-19 (F) whole cell lysates.



Tropomyosin (F-6): sc-74480. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoskeletal localization.

SELECT PRODUCT CITATIONS

1. Steffens, A.A., et al. 2011. Sodium arsenite delays the differentiation of C2C12 mouse myoblast cells and alters methylation patterns on the transcription factor myogenin. *Toxicol. Appl. Pharmacol.* 250: 154-161.
2. Bruijn, L.E., et al. 2020. Extreme diversity of the human vascular mesenchymal cell landscape. *J. Am. Heart Assoc.* 9: e017094.
3. Öztürk-Öncel, M.Ö., et al. 2021. Impact of poly(dimethylsiloxane) surface modification with conventional and amino acid-conjugated self-assembled monolayers on the differentiation of induced pluripotent stem cells into cardiomyocytes. *ACS Biomater. Sci. Eng.* 7: 1539-1551.

STORAGE

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