SANTA CRUZ BIOTECHNOLOGY, INC.

Tropomyosin β (3C8): sc-293374

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The Power to Question

BACKGROUND

Tropomyosin β, also known as TPM2 or TMSB, is a 284 amino acid protein that localizes to both the cytoplasm and the cytoskeleton and belongs to the Tropomyosin family of structural proteins. Existing as a heterodimer with a Tropomyosin α protein, Tropomyosin β functions to bind Actin filaments in muscle and non-muscle cells and, via this binding, plays a central role in the regulation of striated muscle contraction and in the stabilization of cytoskeletal Actin filaments. Tropomyosin β is expressed as multiple alternatively spliced isoforms and is present in primary breast cancer tissues, suggesting a role in tumor formation and metastasis. Defects in the gene encoding Tropomyosin β are the cause of nemaline myopathy type 4 (NEM4) and distal arthrogryposis type 1 (DA1), the former of which is a form of congenital myopathy and the latter of which is a form of inherited multiple congenital contractures.

REFERENCES

1. Holtzer, M.E., et al. 1992. ββ homodimers exist in native rabbit skeletal muscle tropomyosin and increase after denaturation-renaturation. Protein Sci. 1: 335-341.
2. Hunt, C.C., et al. 1995. Assignment of the human β Tropomyosin gene (TPM2) to band 9p13 by fluorescence *in situ* hybridisation. Cytogenet. Cell Genet. 71: 94-95.
3. Donner, K., et al. 2002. Mutations in the β-tropomyosin (TPM2) gene—a rare cause of nemaline myopathy. Neuromuscul. Disord. 12: 151-158.
4. Tajsharghi, H., et al. 2007. Congenital myopathy with nemaline rods and cap structures caused by a mutation in the β-Tropomyosin gene (TPM2). Arch. Neurol. 64: 1334-1338.
5. Robinson, P., et al. 2007. Mutations in fast skeletal Troponin I, Troponin T, and β-Tropomyosin that cause distal arthrogryposis all increase contractile function. FASEB J. 21: 896-905.
6. Tajsharghi, H., et al. 2007. Distal arthrogryposis and muscle weakness associated with a β-Tropomyosin mutation. Neurology 68: 772-775.
7. Nilsson, J. and Tajsharghi, H. 2008. β-Tropomyosin mutations alter tropomyosin isoform composition. Eur. J. Neurol. 15: 573-578.
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CHROMOSOMAL LOCATION

Genetic locus: TPM2 (human) mapping to 9p13.3; Tpm2 (mouse) mapping to 4 B1.

SOURCE

Tropomyosin β (3C8) is a mouse monoclonal antibody raised against amino acids 1-284 representing full length Tropomyosin β of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Tropomyosin β (3C8) is recommended for detection of Tropomyosin β of mouse, rat and human 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), 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).

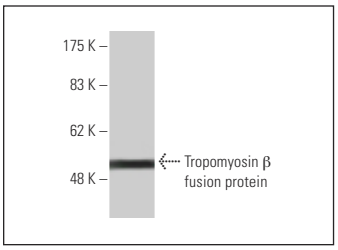
Suitable for use as control antibody for Tropomyosin β siRNA (h): sc-43478, Tropomyosin β siRNA (m): sc-43479, Tropomyosin β shRNA Plasmid (h): sc-43478-SH, Tropomyosin β shRNA Plasmid (m): sc-43479-SH, Tropomyosin β shRNA (h) Lentiviral Particles: sc-43478-V and Tropomyosin β shRNA (m) Lentiviral Particles: sc-43479-V.

Molecular Weight of Tropomyosin β: 33 kDa.

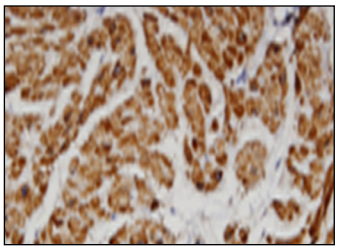
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Tropomyosin β (3C8): sc-293374. Western blot analysis of human recombinant Tropomyosin β fusion protein.



Tropomyosin β (3C8): sc-293374. Immunoperoxidase staining of formalin fixed, paraffin-embedded human smooth muscle tissue showing cytoplasmic and cytoskeletal staining.

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.