SANTA CRUZ BIOTECHNOLOGY, INC.

Troponin T-SS (A-8): sc-271673

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Actin is a highly conserved protein that is expressed in all eukaryotic cells and interacts with Myosin to generate the force for diverse cellular movements, including cytokinesis, phagocytosis and muscle contraction. Troponin facilitates the interaction between Actin and Myosin by binding to calcium. Troponin is made up of at least two subunits, which are divergent in cardiac muscle, fast skeletal muscle and slow skeletal muscle. Structures of skeletal muscle Troponin are composed of Troponin C (the sensor), Troponin I (the regulator) and three Troponin T (the link to the muscle thin filament) proteins, one of which functions as a Tropomyosin-binding protein and is known as Troponin T-SS (Troponin T-slow skeletal). Defects in the gene encoding Troponin T-SS are the cause of nemaline myopathy type 5 (NEM5), a form of nemaline myopathy characterized by mild contractures of the shoulders and hips, tremors and respiratory problems that often lead to death. Troponin T-SS is expressed as three isoforms due to alternative splicing events.

REFERENCES

1. Stefancsik, R., et al. 1998. Identification and mutagenesis of a highly conserved domain in Troponin T responsible for Troponin I binding: potential role for coiled coil interaction. Proc. Natl. Acad. Sci. USA 95: 957-962.
2. Mukherjea, P., et al. 1999. Altered regulatory function of two familial hypertrophic cardiomyopathy Troponin T mutants. Biochemistry 38: 13296-13301.
3. Barton, P.J., et al. 1999. Close physical linkage of human troponin genes: organization, sequence, and expression of the locus encoding cardiac Troponin I and slow skeletal Troponin T. Genomics 57: 102-109.
4. Yuasa, K., et al. 1999. A novel interaction of cGMP-dependent protein kinase I with Troponin T. J. Biol. Chem. 274: 37429-37434.
5. Johnston, J.J., et al. 2000. A novel nemaline myopathy in the Amish caused by a mutation in Troponin T1. Am. J. Hum. Genet. 67: 814-821.
6. Schmidtmann, A., et al. 2002. The interaction of the bisphosphorylated N-terminal arm of cardiac Troponin I-A 31P-NMR study. FEBS Lett. 513: 289-293.
7. Clarkson, E., et al. 2004. Congenital myopathies: diseases of the Actin cytoskeleton. J. Pathol. 204: 407-417.
8. Wang, X., et al. 2005. Cellular fate of truncated slow skeletal muscle Troponin T produced by Glu180 nonsense mutation in Amish nemaline myopathy. J. Biol. Chem. 280: 13241-13249.
9. Pinto, J.R., et al. 2008. A Troponin T mutation that causes infantile restrictive cardiomyopathy increases Ca^{2+} sensitivity of force development and impairs the inhibitory properties of Troponin. J. Biol. Chem. 283: 2156-2166.

CHROMOSOMAL LOCATION

Genetic locus: TNNT1 (human) mapping to 19q13.42; Tnnt1 (mouse) mapping to 7 A1.

RESEARCH USE

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

SOURCE

Troponin T-SS (A-8) is a mouse monoclonal antibody raised against amino acids 181-235 of Troponin T-SS of human origin.

PRODUCT

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

APPLICATIONS

Troponin T-SS (A-8) is recommended for detection of Troponin T-SS of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

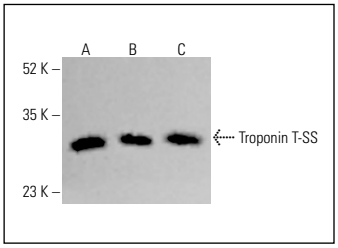
Suitable for use as control antibody for Troponin T-SS siRNA (h): sc-43251, Troponin T-SS siRNA (m): sc-43252, Troponin T-SS shRNA Plasmid (h): sc-43251-SH, Troponin T-SS shRNA Plasmid (m): sc-43252-SH, Troponin T-SS shRNA (h) Lentiviral Particles: sc-43251-V and Troponin T-SS shRNA (m) Lentiviral Particles: sc-43252-V.

Positive Controls: HCT-116 whole cell lysate: sc-364175, COLO 320DM cell lysate: sc-2226 or Jurkat whole cell lysate: sc-2204.

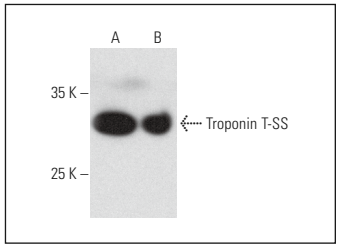
RECOMMENDED SUPPORT REAGENTS

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.

DATA



Troponin T-SS (A-8): sc-271673. Western blot analysis of Troponin T-SS expression in HeLa (**A**), K-562 (**B**) and HCT-116 (**C**) whole cell lysates. Detection reagent used: m-IgG_1 BP-HRP: sc-525408.



Troponin T-SS (A-8): sc-271673. Western blot analysis of Troponin T-SS expression in Jurkat (**A**) and COLO 320DM (**B**) whole cell lysates.

STORAGE

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