SANTA CRUZ BIOTECHNOLOGY, INC.

Troponin I-C (414): sc-52272

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Actin is a highly conserved protein that is expressed in all eukaryotic cells. Actin filaments can form both stable and labile structures and are crucial components of microvilli and the contractile apparatus of muscle cells. Myosin is a hexamer composed of two heavy chains (MHC) and four light chains (MLC); it interacts with Actin 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 comprises 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 Troponin T (the link to the muscle thin filament). Troponin C is dumbbell-shaped and has a hydrophobic pocket that increases the contractile force of muscle fibers. Troponin C has two isoforms: fast and slow. Fast Troponin C has two calcium binding sites while slow/cardiac Troponin C has a single calcium binding site.

REFERENCES

1. Parmacek, M.S., et al. 1989. Structure and expression of the murine slow/cardiac Troponin C gene. J. Biol. Chem. 264: 13217-13225.
2. Koppe, R.I., et al. 1989. cDNA clone and expression analysis of rodent fast and slow skeletal muscle Troponin I mRNAs. J. Biol. Chem. 264: 14327-14333.
3. Ausoni, S., et al. 1994. Structure and regulation of the mouse cardiac Troponin I gene. J. Biol. Chem. 269: 339-346.
4. Potter, J.D., et al. 1995. A direct regulatory role for Troponin T and a dual role for Troponin C in the Ca^{2+} regulation of muscle contraction. J. Biol. Chem. 270: 2557-2562.
5. Barkalow, K., et al. 1995. Actin cytoskeleton. Setting the pace of cell movement. Curr. Biol. 5: 1000-1002.
6. Baker, J.P., et al. 1998. Myosins: matching functions with motors. Curr. Opin. Cell Biol. 10: 80-86.
7. Squire, J.M., et al. 1998. A new look at thin filament regulation in vertebrate skeletal muscle. FASEB J. 12: 761-771.

CHROMOSOMAL LOCATION

Genetic locus: TNNI3 (human) mapping to 19q13.42; Tnni3 (mouse) mapping to 7 A1.

SOURCE

Troponin I-C (414) is a mouse monoclonal antibody raised against free cardiac Troponin I of human origin, with epitope mapping to amino acids 56-61.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

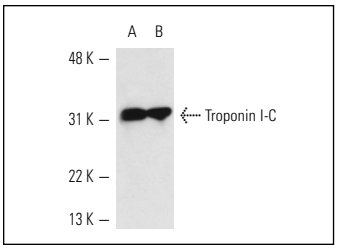
Troponin I-C (414) is recommended for detection of free Troponin I of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Troponin I-C siRNA (h): sc-36738, Troponin I-C siRNA (m): sc-36739, Troponin I-C shRNA Plasmid (h): sc-36738-SH, Troponin I-C shRNA Plasmid (m): sc-36739-SH, Troponin I-C shRNA (h) Lentiviral Particles: sc-36738-V and Troponin I-C shRNA (m) Lentiviral Particles: sc-36739-V.

Molecular Weight of Troponin I-C: 30 kDa.

Positive Controls: mouse heart extract: sc-2254, rat heart extract: sc-2393 or human heart extract: sc-363763.

DATA



Troponin I-C (414): sc-52272. Western blot analysis of Troponin I-C expression in rat heart (**A**) and mouse heart (**B**) tissue extracts.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CONJUGATES

See **Troponin I (E-9): sc-365446** for Troponin I antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.