SANTA CRUZ BIOTECHNOLOGY, INC.

Troponin I-FS (E-1): sc-514969

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 of two heavy chains (MHC) and forur light chains (MLC) that 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 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 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. Berezowsky, C. and Bag, J. 1992. Developmentally regulated Troponin C mRNAs of chicken skeletal muscle. Biochem. Cell Biol. 70: 156-165.
2. Prigozy, T.I., et al. 1997. Differential expression of Troponin C genes during tongue myogenesis. Dev. Dyn. 209: 36-44.
3. O'Connell, B., et al. 2004. Troponin C isoform composition determines D characteristics between rat diaphragm fibers. Am. J. Physiol., Cell Physiol. 287: C79-C87.
4. Blumenschein, T.M., et al. 2005. Calcium-dependent changes in the flexibility of the regulatory domain of Troponin C in the Troponin complex. J. Biol. Chem. 280: 21924-21932.
5. Stoutamyer, A. and Dhoot, G.K. 2005. Transient expression of fast Troponin C transcripts in embryonic quail heart. J. Muscle Res. Cell Motil. 26: 237-245.
6. Vinogradova, M.V., et al. 2005. Ca^{2+}-regulated structural changes in Troponin. Proc. Natl. Acad. Sci. USA 102: 5038-5043.

CHROMOSOMAL LOCATION

Genetic locus: TNNI2 (human) mapping to 11p15.5; Tnni2 (mouse) mapping to 7 F5.

SOURCE

Troponin I-FS (E-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1-18 at the N-terminus of Troponin I-FS 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.

RESEARCH USE

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

APPLICATIONS

Troponin I-FS (E-1) is recommended for detection of Troponin I-FS 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 I-FS siRNA (h): sc-37037, Troponin I-FS siRNA (m): sc-37038, Troponin I-FS shRNA Plasmid (h): sc-37037-SH, Troponin I-FS shRNA Plasmid (m): sc-37038-SH, Troponin I-FS shRNA (h) Lentiviral Particles: sc-37037-V and Troponin I-FS shRNA (m) Lentiviral Particles: sc-37038-V.

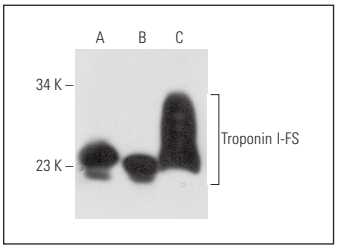
Molecular Weight of Troponin I-FS: 28 kDa.

Positive Controls: human skeletal muscle extract: sc-363776, mouse skeletal muscle extract: sc-364250 or rat skeletal muscle extract: sc-364810.

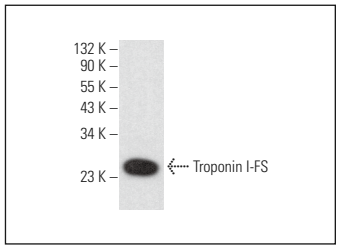
RECOMMENDED SUPPORT REAGENTS

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 I-FS (E-1): sc-514969. Western blot analysis of Troponin I-FS expression in rat skeletal muscle (**A**), human skeletal muscle (**B**) and mouse skeletal muscle (**C**) tissue extracts.



Troponin I-FS (E-1): sc-514969. Western blot analysis of Troponin I-FS expression in C2C12 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Yeon, M.H., et al. 2023. Bavachin and corylifol A improve muscle atrophy by enhancing mitochondria quality control in type 2 diabetic mice. Antioxidants 12: 137.

STORAGE

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