SANTA CRUZ BIOTECHNOLOGY, INC.

Troponin I (E-9): sc-365446

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 four 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. Parmacek, M.S. and Leiden, J.M. 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.

CHROMOSOMAL LOCATION

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

SOURCE

Troponin I (E-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 186-209 at the C-terminus of Troponin I-C of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Troponin I (E-9) is available conjugated to agarose (sc-365446 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365446 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-365446 PE), fluorescein (sc-365446 FITC) or Alexa Fluor® 488 (sc-365446 AF488) or Alexa Fluor® 647 (sc-365446 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-365446 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

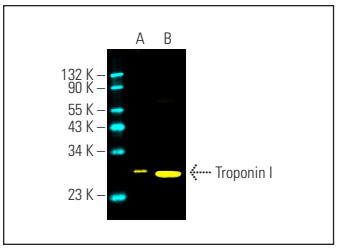
Troponin I (E-9) is recommended for detection of Troponin I, cardiac muscle of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with Troponin I, slow skeletal muscle and Troponin I, fast skeletal muscle.

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.

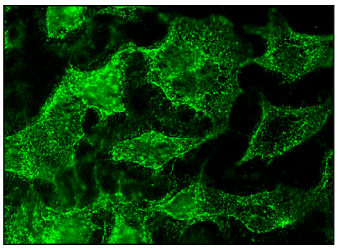
Molecular Weight of Troponin I: 29 kDa.

Positive Controls: Sol8 cell lysate: sc-2249, rat heart extract: sc-2393 or human heart extract: sc-363763.

DATA



Troponin I (E-9) Alexa Fluor® 488: sc-365446 AF488. Direct fluorescent western blot analysis of Troponin I expression in rat heart (**A**) and human heart (**B**) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor® 647: sc-516791.



Troponin I (E-9): sc-365446. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Hilse, K.E., et al. 2018. The expression of uncoupling protein 3 coincides with the fatty acid oxidation type of metabolism in adult murine heart. Front. Physiol. 9: 747.
2. Chang, Y., et al. 2020. Fluorescent indicators for continuous and lineage-specific reporting of cell cycle phases in human pluripotent stem cells. Biotechnol. Bioeng. 117: 2177-2186.
3. Chimenti, I., et al. 2022. The impact of autophagy modulation on phenotype and survival of cardiac stromal cells under metabolic stress. Cell Death Discov. 8: 149.
4. Beltran-Vargas, N.E., et al. 2022. Sodium alginate/chitosan scaffolds for cardiac tissue engineering: the influence of its three-dimensional material preparation and the use of gold nanoparticles. Polymers 14: 3233.

RESEARCH USE

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