SANTA CRUZ BIOTECHNOLOGY, INC.

Troponin I (C-4): sc-133117

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.

SOURCE

Troponin I (C-4) is a mouse monoclonal antibody raised against amino acids 40-210 mapping at the C-terminus of Troponin I-C 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.

Troponin I (C-4) is available conjugated to agarose (sc-133117 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-133117 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-133117 PE), fluorescein (sc-133117 FITC), Alexa Fluor® 488 (sc-133117 AF488), Alexa Fluor® 546 (sc-133117 AF546), Alexa Fluor® 594 (sc-133117 AF594) or Alexa Fluor® 647 (sc-133117 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-133117 AF680) or Alexa Fluor® 790 (sc-133117 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

Troponin I (C-4) is recommended for detection of Troponin I, cardiac muscle; Troponin I, slow skeletal muscle; and Troponin I, fast skeletal 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), 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).

Molecular Weight of Troponin I: 29 kDa.

Positive Controls: Sol8 cell lysate: sc-2249, rat heart extract: sc-2393 or mouse heart extract: sc-2254.

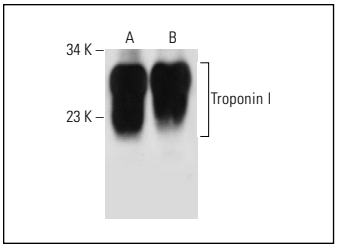
STORAGE

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

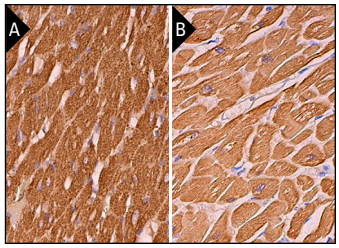
RESEARCH USE

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

DATA



Troponin I (C-4): sc-133117. Western blot analysis of Troponin I expression in mouse heart (**A**) and rat heart (**B**) tissue extracts.



Troponin I (C-4): sc-133117. Immunoperoxidase staining of formalin fixed, paraffin-embedded rat heart muscle (**A**) and human heart muscle (**B**) tissue showing cytoplasmic staining of myocytes.

SELECT PRODUCT CITATION

1. Lacerda, C.M., et al. 2009. Differential protein expression between normal, early-stage, and late-stage myxomatous mitral valves from dogs. Proteomics Clin. Appl. 3: 1422-1429.
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3. Xue, R., et al. 2017. Sestrin 1 ameliorates cardiac hypertrophy via autophagy activation. J. Cell. Mol. Med. 21: 1193-1205.
4. Rossi, T.M., et al. 2018. Analytical validation of cardiac Troponin I assays in horses. J. Vet. Diagn. Invest. 30: 226-232.
5. Chacar, S., et al. 2019. Long-term intake of phenolic compounds attenuates age-related cardiac remodeling. Aging Cell 18: e12894.
6. Li, J.Y., et al. 2019. Changes in autophagy levels in rat myocardium during exercise preconditioning-initiated cardioprotective effects. Int. Heart J. 60: 419-428.
7. Fathi, E., et al. 2020. Cardiac differentiation of bone-marrow-resident c-kit+ stem cells by L-carnitine increases through secretion of VEGF, IL6, IGF-1, and TGF-β as clinical agents in cardiac regeneration. J. Biosci. 45: 92.
8. Wang, Y., et al. 2020. Hispidulin attenuates cardiac hypertrophy by improving mitochondrial dysfunction. Front. Cardiovasc. Med. 7: 582890.
9. Palmquist-Gomes, P., et al. 2021. Training biochemistry students in experimental developmental biology: induction of cardia bifida formation in the chick embryo. Biochem. Mol. Biol. Educ. 49: 782-788.
10. Ribeiro, M.C., et al. 2022. A new versatile platform for assessment of improved cardiac performance in human-engineered heart tissues. J. Pers. Med. 12: 214.

PROTOCOLS

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