

Troponin I-SS (C-4): sc-514899

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: TNNI1 (human) mapping to 1q32.1; Tnni1 (mouse) mapping to 1 E4.

SOURCE

Troponin I-SS (C-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 166-187 at the C-terminus of Troponin I-SS of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Troponin I-SS (C-4) is available conjugated to agarose (sc-514899 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514899 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514899 PE), fluorescein (sc-514899 FITC), Alexa Fluor® 488 (sc-514899 AF488), Alexa Fluor® 546 (sc-514899 AF546), Alexa Fluor® 594 (sc-514899 AF594) or Alexa Fluor® 647 (sc-514899 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514899 AF680) or Alexa Fluor® 790 (sc-514899 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-514899 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

Troponin I-SS (C-4) is recommended for detection of Troponin I-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), 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).

Suitable for use as control antibody for Troponin I-SS siRNA (h): sc-37035, Troponin I-SS siRNA (m): sc-37036, Troponin I-SS shRNA Plasmid (h): sc-37035-SH, Troponin I-SS shRNA Plasmid (m): sc-37036-SH, Troponin I-SS shRNA (h) Lentiviral Particles: sc-37035-V and Troponin I-SS shRNA (m) Lentiviral Particles: sc-37036-V.

Molecular Weight (predicted) of Troponin I-SS: 22 kDa.

Molecular Weight (observed) of Troponin I-SS: 23-28 kDa.

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

DATA



Troponin I-SS (C-4): sc-514899. Western blot analysis of Troponin I-SS expression in human heart (A), human skeletal muscle (B), rat skeletal muscle (C) and mouse skeletal muscle (D) tissue extracts. Note lack of reactivity with the cardiac form of human Troponin I in lane A.

Troponin I-SS (C-4): sc-514899. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse skeletal muscle tissue (A) and human skeletal muscle tissue (B) showing cytoplasmic staining of myocytes.

SELECT PRODUCT CITATIONS

1. Yang, X., et al. 2022. SESN2 prevents the slow-to-fast myofiber shift in denervated atrophy via AMPK/PGC-1α pathway. *Cell. Mol. Biol. Lett.* 27: 66.
2. 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.

RESEARCH USE

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