

Troponin T-FS (H-8): sc-166663

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.
4. Potter, J.D., et al. 1995. A direct regulatory role for Troponin T and a dual role for Troponin C in the Ca²⁺ regulation of muscle contraction. *J. Biol. Chem.* 270: 2557-2562.

CHROMOSOMAL LOCATION

Genetic locus: TNNT3 (human) mapping to 11p15.5; Tnnt3 (mouse) mapping to 7 F5.

SOURCE

Troponin T-FS (H-8) is a mouse monoclonal antibody raised against amino acids 36-258 mapping at the C-terminus of fast skeletal muscle Troponin T 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 T-FS (H-8) is available conjugated to agarose (sc-166663 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166663 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166663 PE), fluorescein (sc-166663 FITC), Alexa Fluor[®] 488 (sc-166663 AF488), Alexa Fluor[®] 546 (sc-166663 AF546), Alexa Fluor[®] 594 (sc-166663 AF594) or Alexa Fluor[®] 647 (sc-166663 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-166663 AF680) or Alexa Fluor[®] 790 (sc-166663 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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

APPLICATIONS

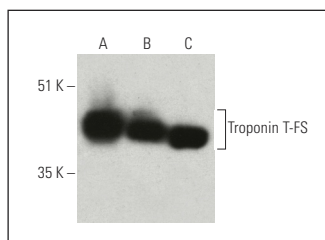
Troponin T-FS (H-8) is recommended for detection of fast skeletal muscle Troponin T of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting 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 T-FS siRNA (h): sc-36742, Troponin T-FS siRNA (m): sc-36743, Troponin T-FS shRNA Plasmid (h): sc-36742-SH, Troponin T-FS shRNA Plasmid (m): sc-36743-SH, Troponin T-FS shRNA (h) Lentiviral Particles: sc-36742-V and Troponin T-FS shRNA (m) Lentiviral Particles: sc-36743-V.

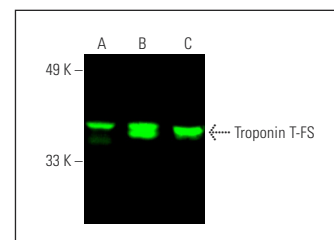
Molecular Weight of Troponin T-FS: 31 kDa.

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

DATA



Troponin T-FS (H-8): sc-166663. Direct western blot analysis of Troponin T-FS expression in human skeletal muscle (A), mouse skeletal muscle (B) and rat skeletal muscle (C) tissue extracts.



Troponin T-FS (H-8): sc-166663. Near-infrared western blot analysis of Troponin T-FS expression in human skeletal muscle (A), mouse skeletal muscle (B) and rat skeletal muscle (C) tissue extracts. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

SELECT PRODUCT CITATIONS

1. Wei, C., et al. 2018. Correction of GSK3β at young age prevents muscle pathology in mice with myotonic dystrophy type 1. *FASEB J.* 32: 2073-2085.
2. Zhang, W., et al. 2018. SIRT6 deficiency results in developmental retardation in cynomolgus monkeys. *Nature* 560: 661-665.
3. Huang, S.C., et al. 2023. Slow skeletal muscle Troponin T acts as a potential prognostic biomarker and therapeutic target for hepatocellular carcinoma. *Gene* 865: 147331.

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.