SANTA CRUZ BIOTECHNOLOGY, INC.

Troponin T-C (CT3): sc-20025

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.

CHROMOSOMAL LOCATION

Genetic locus: TNNT2 (mouse) mapping to 1q32.1; Tnnt2 (mouse) mapping to 1 E4.

SOURCE

Troponin T-C (CT3) is a mouse monoclonal antibody raised against bovine cardiac muscle Troponin T.

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-C (CT3) is available conjugated to agarose (sc-20025 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-20025 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-20025 PE), fluorescein (sc-20025 FITC), Alexa Fluor® 488 (sc-20025 AF488), Alexa Fluor® 546 (sc-20025 AF546), Alexa Fluor® 594 (sc-20025 AF594) or Alexa Fluor® 647 (sc-20025 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-20025 AF680) or Alexa Fluor® 790 (sc-20025 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Troponin T-C (CT3) is recommended for detection of cardiac muscle Troponin T of broad species origin by Western Blotting (starting dilution 1:200, 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

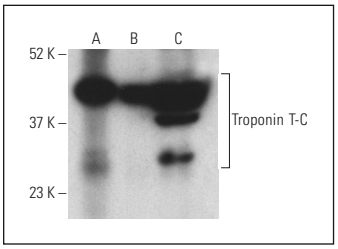
Suitable for use as control antibody for Troponin T-C siRNA (h): sc-36740, Troponin T-C siRNA (m): sc-36741, Troponin T-C shRNA Plasmid (h): sc-36740-SH, Troponin T-C shRNA Plasmid (m): sc-36741-SH, Troponin T-C shRNA (h) Lentiviral Particles: sc-36740-V and Troponin T-C shRNA (m) Lentiviral Particles: sc-36741-V.

Molecular Weight of Troponin T-C: 39 kDa.

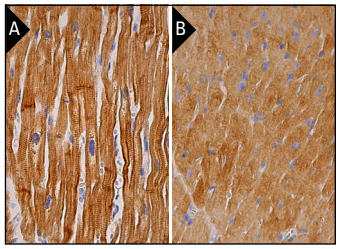
STORAGE

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

DATA



Troponin T-C (CT3) HRP: sc-20025 HRP. Direct western blot analysis of Troponin T-C expression in mouse heart (**A**), rat heart (**B**) and human heart (**C**) tissue extracts.



Troponin T-C (CT3): sc-20025. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic and intercalated disc staining of myocytes (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse heart muscle tissue showing cytoplasmic staining of myocytes. Detection reagent used: m-IgGκ BP-HRP: sc-516102 (**B**).

SELECT PRODUCT CITATIONS

1. Song, Y.H., et al. 2007. VEGF is critical for spontaneous differentiation of stem cells into cardiomyocytes. Biochem. Biophys. Res. Commun. 354: 999-1003.
2. Li, P. and Zhang, L. 2015. Exogenous Nkx2.5- or GATA-4-transfected rabbit bone marrow mesenchymal stem cells and myocardial cell co-culture on the treatment of myocardial infarction in rabbits. Mol. Med. Rep. 12: 2607-2621.
3. Fatima, A., et al. 2016. Murine transgenic iPS cell line for monitoring and selection of cardiomyocytes. Stem Cell Res. 17: 266-272.
4. Konersman, C.G., et al. 2017. Novel autosomal dominant TNNT1 mutation causing nemaline myopathy. Mol. Genet. Genomic Med. 5: 678-691.
5. Akiyama, T., et al. 2018. Efficient differentiation of human pluripotent stem cells into skeletal muscle cells by combining RNA-based MYOD1-expression and POU5F1-silencing. Sci. Rep. 8: 1189.
6. Zhen, L.X., et al. 2019. MiR-301a promotes embryonic stem cell differentiation to cardiomyocytes. World J. Stem Cells 11: 1130-1141.
7. Zhen, L., et al. 2020. miR-301a-PTEN-AKT signaling induces cardiomyocyte proliferation and promotes cardiac repair post-MI. Mol. Ther. Nucleic Acids 22: 251-262.
8. Fu, Y.L., et al. 2021. GJA1-20k attenuates Ang II-induced pathological cardiac hypertrophy by regulating gap junction formation and mitochondrial function. Acta Pharmacol. Sin. 42: 536-549.

RESEARCH USE

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