SANTA CRUZ BIOTECHNOLOGY, INC.

MYBPC3 (G-7): sc-137237

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

MYBPC3 (myosin-binding protein C, cardiac) encodes the cardiac isoform of the thick-filament myosin-binding protein C. It is found in the crossbridge-bearing zone (C region) of A bands in vertebrate striated muscle. Regulatory phosphorylation of MYBPC3 by cAMP-dependent protein kinase (PKA) upon adrenergic stimulation may be linked to modulation of cardiac contraction. MYBPC3 binds F-Actin, MHC and native thin filaments, and modifies the activity of Actin-activated myosin ATPase. Mutations in the MYBPC3 gene lead mainly to truncation of the protein, which results in one cause of familial hypertrophic cardiomyopathy type 4 (CMH4), a heart disorder characterized by ventricular hypertrophy, which often involves the interventricular septum and is usually asymmetric. The MYBPC3 gene maps to chromosome 11p11.2.

CHROMOSOMAL LOCATION

Genetic locus: MYBPC3 (human) mapping to 11p11.2; Mybpc3 (mouse) mapping to 2 E1.

SOURCE

MYBPC3 (G-7) is a mouse monoclonal antibody raised against amino acids 1-120 mapping at the N-terminus of MYBPC3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MYBPC3 (G-7) is available conjugated to agarose (sc-137237 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-137237 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137237 PE), fluorescein (sc-137237 FITC), Alexa Fluor® 488 (sc-137237 AF488), Alexa Fluor® 546 (sc-137237 AF546), Alexa Fluor® 594 (sc-137237 AF594) or Alexa Fluor® 647 (sc-137237 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-137237 AF680) or Alexa Fluor® 790 (sc-137237 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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

APPLICATIONS

MYBPC3 (G-7) is recommended for detection of MYBPC3 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 MYBPC3 siRNA (h): sc-61111, MYBPC3 siRNA (m): sc-61112, MYBPC3 shRNA Plasmid (h): sc-61111-SH, MYBPC3 shRNA Plasmid (m): sc-61112-SH, MYBPC3 shRNA (h) Lentiviral Particles: sc-61111-V and MYBPC3 shRNA (m) Lentiviral Particles: sc-61112-V.

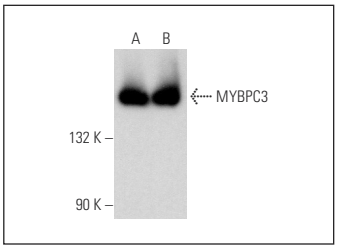
Molecular Weight of MYBPC3: 144 kDa.

Positive Controls: mouse heart extract: sc-2254, human fetal heart tissue extract or rat heart extract: sc-2393.

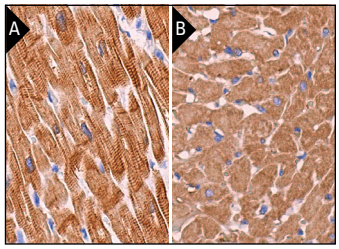
STORAGE

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

DATA



MYBPC3 (G-7): sc-137237. Western blot analysis of MYBPC3 expression in human fetal heart (**A**) and rat heart (**B**) tissue extracts.



MYBPC3 (G-7): sc-137237. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing intercalated disc and cytoplasmic staining of myocytes (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded rat heart muscle tissue showing cytoplasmic staining of myocytes (**B**).

SELECT PRODUCT CITATIONS

1. Walker, L.A., et al. 2011. Biochemical and myofilament responses of the right ventricle to severe pulmonary hypertension. Am. J. Physiol. Heart Circ. Physiol. 301: H832-H840.
2. Alvarado, G., et al. 2015. Heme-induced contractile dysfunction in human cardiomyocytes caused by oxidant damage to thick filament proteins. Free Radic. Biol. Med. 89: 248-262.
3. Arvanitis, D.A., et al. 2017. Muscle Lim protein and myosin binding protein C form a complex regulating muscle differentiation. Biochim. Biophys. Acta 1864: 2308-2321.
4. Ushijima, T., et al. 2018. The Actin-organizing formin protein Fhod3 is required for postnatal development and functional maintenance of the adult heart in mice. J. Biol. Chem. 293: 148-162.
5. Doh C.Y., et al. 2019. The HCM-causing Y235S cMyBPC mutation accelerates contractile function by altering C1 domain structure. Biochim. Biophys. Acta Mol. Basis Dis. 1865: 661-677.
6. Chiao, Y.A., et al. 2020. Late-life restoration of mitochondrial function reverses cardiac dysfunction in old mice. Elife 9: e55513.
7. Kumar, M., et al. 2020. Phosphorylation of cardiac myosin-binding protein-C contributes to calcium homeostasis. J. Biol. Chem. 295: 11275-11291.
8. Horvath, C., et al. 2021. Pleiotropic, non-cell death-associated effects of inhibitors of receptor-interacting protein kinase 1 in the heart. Mol. Cell. Biochem. 476: 3079-3087.
9. Sevrieva, I.R., et al. 2022. Phosphorylation-dependent interactions of myosin binding protein-C and troponin coordinate the myofilament response to protein kinase A. J. Biol. Chem. E-published.

RESEARCH USE

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