SANTA CRUZ BIOTECHNOLOGY, INC.

MYBPC3 (G-2): sc-166081

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.

REFERENCES

1. Gautel, M., et al. 1995. Phosphorylation switches specific for the cardiac isoform of myosin binding protein-C: a modulator of cardiac contraction? EMBO J. 14: 1952-1960.
2. Bonne, G., et al. 1995. Cardiac myosin binding protein-C gene splice acceptor site mutation is associated with familial hypertrophic cardiomyopathy. Nat. Genet. 11: 438-440.
3. Carrier, L., et al. 1997. Organization and sequence of human cardiac myosin binding protein C gene (MYBPC3) and identification of mutations predicted to produce truncated proteins in familial hypertrophic cardiomyopathy. Circ. Res. 80: 427-434.

CHROMOSOMAL LOCATION

Genetic locus: MYBPC3 (human) mapping to 11p11.2.

SOURCE

MYBPC3 (G-2) 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.

APPLICATIONS

MYBPC3 (G-2) is recommended for detection of MYBPC3 of 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 MYBPC3 siRNA (h): sc-61111, MYBPC3 shRNA Plasmid (h): sc-61111-SH and MYBPC3 shRNA (h) Lentiviral Particles: sc-61111-V.

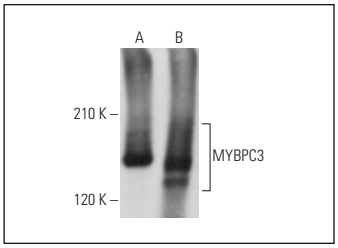
Molecular Weight of MYBPC3: 144 kDa.

Positive Controls: MYBPC3 (h): 293T Lysate: sc-112697, human heart extract: sc-363763 or human fetal heart tissue extract.

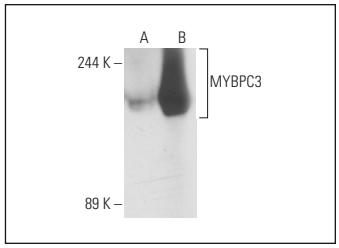
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



MYBPC3 (G-2): sc-166081. Western blot analysis of MYBPC3 expression in human fetal heart (**A**) and human heart (**B**) tissue extracts.



MYBPC3 (G-2): sc-166081. Western blot analysis of MYBPC3 expression in non-transfected: sc-117752 (**A**) and human MYBPC3 transfected: sc-112697 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Ojala, M., et al. 2016. Mutation-specific phenotypes in hiPSC-derived cardiomyocytes carrying either myosin-binding protein C or α-tropomyosin mutation for hypertrophic cardiomyopathy. Stem Cells Int. 2016: 1684792.
2. Häkli, M., et al. 2021. Human induced pluripotent stem cell-based platform for modeling cardiac ischemia. Sci. Rep. 11: 4153.
3. Häkli, M., et al. 2022. Electrophysiological changes of human-induced pluripotent stem cell-derived cardiomyocytes during acute hypoxia and reoxygenation. Stem Cells Int. 2022: 9438281.
4. Maria Cherian, R., et al. 2022. Fluorescent hiPSC-derived MYH6-mSCarlet cardiomyocytes for real-time tracking, imaging, and cardiotoxicity assays. Cell Biol. Toxicol. E-published.

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.

PROTOCOLS

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