

# MYBPC3 (G-2): sc-166081

## 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<sub>1</sub> 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.

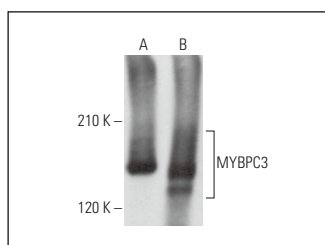
Positive Controls: MYBPC3 (h): 293T Lysate: sc-112697, human heart extract: sc-363763 or human fetal heart tissue extract.

## RECOMMENDED SUPPORT REAGENTS

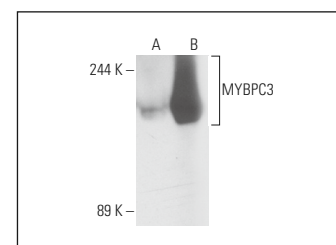
To ensure optimal results, the following support reagents are recommended:

- 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  $\alpha$ -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. 2023. Fluorescent hiPSC-derived MYH6-mScarlet cardiomyocytes for real-time tracking, imaging, and cardiotoxicity assays. *Cell Biol. Toxicol.* 39: 145-163.

## 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](http://www.scbt.com) for detailed protocols and support products.