

# MYL12A/B (G-5): sc-376677

## BACKGROUND

Myosin is a highly conserved, ubiquitously expressed protein that interacts with Actin to generate the force for cellular movements. Conventional myosins are hexameric proteins consisting of two heavy chain subunits, a pair of non-phosphorylatable light chain subunits and a pair of phosphorylatable light chain subunits. Three general classes of myosin have been cloned: smooth muscle myosins, striated muscle myosins and non-muscle myosins. Myosin regulatory light chains, including MYL12A (also known as MRLC3 or MLCB), MYL12B (also known as MRLC2) and MYL9 (also known as LC20, MLC2, MRLC1 or MYRL2), regulate contraction in smooth muscle and non-muscle cells via phosphorylation by myosin light chain kinase (MLCK). Phosphorylation of myosin regulatory light chains, catalyzed by MLCK in the presence of calcium and calmodulin, increases the Actin-activated myosin ATPase activity, thereby regulating the contractile activity. Myosin light chain is also located in striated skeletal muscle, where its function remains undefined.

## REFERENCES

1. Kumar, C.C., et al. 1989. Characterization and differential expression of human vascular smooth muscle myosin light chain 2 isoform in nonmuscle cells. *Biochemistry* 28: 4027-4035.
2. Kolodney, M.S., et al. 1999. Ca<sup>2+</sup>-independent myosin II phosphorylation and contraction in chicken embryo fibroblasts. *J. Physiol.* 515: 87-92.
3. Sward, K., et al. 2000. Inhibition of Rho-associated kinase blocks agonist-induced Ca<sup>2+</sup> sensitization of myosin phosphorylation and force in guinea-pig ileum. *J. Physiol.* 522: 33-49.
4. Numata, T., et al. 2001. Functional role of the C-terminal domain of smooth muscle myosin light chain kinase on the phosphorylation of smooth muscle myosin. *J. Biochem.* 129: 437-444.
5. Nobe, H., et al. 2003. Rho kinase mediates serum-induced contraction in fibroblast fibers independent of myosin LC20 phosphorylation. *Am. J. Physiol. Cell Physiol.* 284: C599-C606.

## CHROMOSOMAL LOCATION

Genetic locus: MYL12A/MYL12B (human) mapping to 18p11.31;  
Myl12b (mouse) mapping to 17 E1.3.

## SOURCE

MYL12A/B (G-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 103-141 within an internal region of MYL12A 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.

Blocking peptide available for competition studies, sc-376677 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

MYL12A/B (G-5) is recommended for detection of the myosin regulatory light chains encoded by MYL12A and MYL12B of human origin, Mylc2b of mouse origin and Mrlcb of rat 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).

MYL12A/B (G-5) is also recommended for detection of the myosin regulatory light chains encoded by MYL12A and MYL12B in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Mylc2b siRNA (m): sc-149751, Mylc2b shRNA Plasmid (m): sc-149751-SH and Mylc2b shRNA (m) Lentiviral Particles: sc-149751-V.

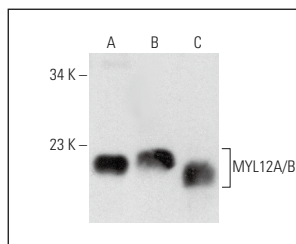
Molecular Weight of MYL9/MRLC2/MRLC3: 20 kDa.

Positive Controls: L6 whole cell lysate: sc-364196, BC<sub>3</sub>H1 cell lysate: sc-2299 or A-10 cell lysate: sc-3806.

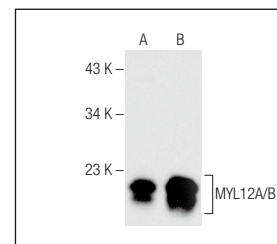
## RECOMMENDED SUPPORT REAGENTS

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



MYL12A/B (G-5): sc-376677. Western blot analysis of MYL12A/B expression in HUV-EC-C (A), EOC 20 (B) and L6 (C) whole cell lysates.



MYL12A/B (G-5): sc-376677. Western blot analysis of MYL12A/B expression in BC<sub>3</sub>H1 (A) and A-10 (B) whole cell lysates.

## 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.