

MYL9/MYL12A/B (FL-172): sc-15370

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. Szczesna-Cordary, D., et al. 2005. The E22K mutation of myosin RLC that causes familial hypertrophic cardiomyopathy increases calcium sensitivity of force and ATPase in transgenic mice. *J. Cell Sci.* 118: 3675-3683.

SOURCE

MYL9/MYL12A/B (FL-172) is a rabbit polyclonal antibody raised against amino acids 1-172 representing full length MYL12A of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MYL9/MYL12A/B (FL-172) is recommended for detection of the myosin regulatory light chains encoded by MYL9, MYL12A, MYL12B and LOC391722 of human origin, Mylc2b, Myl9 and Myl12a of mouse origin and Mr1cb and Myl9 of rat 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), 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).

MYL9/MYL12A/B (FL-172) is also recommended for detection of the myosin regulatory light chains encoded by MYL9, MYL12A, MYL12B and LOC391722 in additional species, including equine, canine, bovine, porcine and avian.

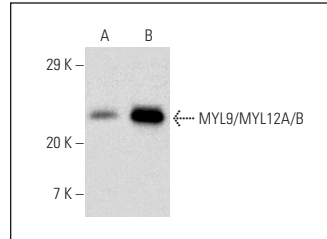
Molecular Weight of MYL9/MYL12A/B: 20 kDa.

Positive Controls: Sol8 cell lysate: sc-2249, BC₃H1 cell lysate: sc-2299 or A-10 cell lysate: sc-3806.

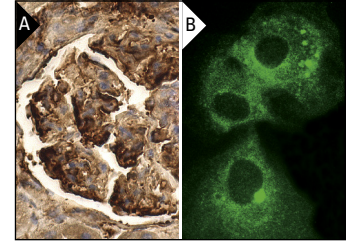
STORAGE

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

DATA



MYL9/MYL12A/B (FL-172): sc-15370. Western blot analysis of MYL9/MYL12A/B expression in BC₃H1 (A) and A-10 (B) whole cell lysates.



MYL9/MYL12A/B: sc-15370. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli and tubules (A). Immunofluorescence staining of methanol-fixed A-10 cells showing cytoplasmic localization (B).

SELECT PRODUCT CITATIONS

1. Iwabu, A., et al. 2004. Epidermal growth factor induces fibroblast contractility and motility via a protein kinase C δ -dependent pathway. *J. Biol. Chem.* 279: 14551-14560.
2. Acharyya, S., et al. 2004. Cancer cachexia is regulated by selective targeting of skeletal muscle gene products. *J. Clin. Invest.* 114: 370-378.
3. Rolando, M., et al. 2010. Transcriptome dysregulation by anthrax lethal toxin plays a key role in induction of human endothelial cell cytotoxicity. *Cell. Microbiol.* 12: 891-905.
4. Sanz-Moreno, V., et al. 2011. ROCK and JAK1 signaling cooperate to control actomyosin contractility in tumor cells and stroma. *Cancer Cell* 20: 229-245.
5. Maddugoda, M.P., et al. 2011. cAMP signaling by anthrax edema toxin induces transendothelial cell tunnels, which are resealed by MIM via Arp2/3-driven actin polymerization. *Cell Host Microbe.* 10: 464-474.
6. Peng, G., et al. 2012. Sustained therapeutic hypercapnia attenuates pulmonary arterial Rho-kinase activity and ameliorates chronic hypoxic pulmonary hypertension in juvenile rats. *Am. J. Physiol. Heart Circ. Physiol.* 302: H2599-H2611.
7. Mollica, J.P., et al. 2012. S-glutathionylation of troponin I (fast) increases contractile apparatus Ca²⁺ sensitivity in fast-twitch muscle fibres of rats and humans. *J. Physiol.* 590: 1443-1463.
8. Mukherjee, S., et al. 2013. Ca²⁺ oscillations, Ca²⁺ sensitization, and contraction activated by protein kinase C in small airway smooth muscle. *J. Gen. Physiol.* 141: 165-178.
9. An, C., et al. 2015. Role of telokin in regulating murine gastric fundus smooth muscle tension. *PLoS ONE* 10: e0134876.

RESEARCH USE

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