SANTA CRUZ BIOTECHNOLOGY, INC.

MYL12A/B (A-20): sc-9449

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 non-muscle cells. Biochemistry 28: 4027-4035.
2. Kolodney, M.S., et al. 1999. Ca^{2+}-independent Myosin II phosphorylation and contraction in chicken embryo fibroblasts. J. Physiol. 515: 87-92.

SOURCE

MYL12A/B (A-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of 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.

Blocking peptide available for competition studies, sc-9449 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

MYL12A/B (A-20) 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 originby 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); also reacts with the human proteins LOC391722 and LOC642076 and, to a lesser extent, MYL9 of mouse, rat and human origin.

MYL12A/B (A-20) is also recommended for detection of the myosin regulatory light chains encoded by MYL12A and MYL12B in additional species, including equine, canine, bovine, porcine and avian.

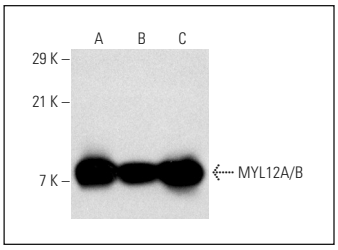
Molecular Weight of MYL12A/B: 20 kDa.

Positive Controls: Sol8 cell lysate: sc-2249, BC_3H1 cell lysate: sc-2299 or A-10 cell lysate: sc-3806.

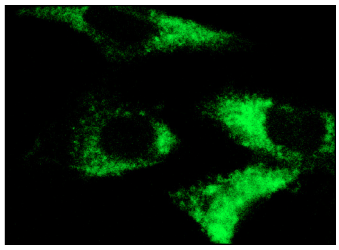
STORAGE

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

DATA



MYL12A/B (A-20): sc-9449. Western blot analysis of MYL12A/B expression in Sol8 (**A**), BC_3H1 (**B**) and A-10 (**C**) whole cell lysates.



MYL12A/B (A-20): sc-9449. Immunofluorescence staining of methanol-fixed A-10 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Edens, H.A., et al. 2002. Neutrophil transepithelial migration: evidence for sequential, contact-dependent signaling events and enhanced paracellular permeability independent of transjunctional migration. J. Immunol. 169: 476-486.
2. Galler, A.B., et al. 2006. VASP-dependent regulation of Actin cytoskeleton rigidity, cell adhesion, and detachment. Histochem. Cell Biol. 125: 457-474.
3. Hashimoto, T., et al. 2006. Apelin stimulates Myosin light chain phosphorylation in vascular smooth muscle cells. Arterioscler. Thromb. Vasc. Biol. 26: 1267-1272.
4. Willis, M.S., et al. 2009. Cardiac muscle ring finger-1 increases susceptibility to heart failure *in vivo*. Circ. Res. 105: 80-88.
5. Uray, K.S., et al. 2011. Sodium hydrogen exchanger as a mediator of hydrostatic edema-induced intestinal contractile dysfunction. Surgery 149: 114-125.
6. Zhang, Y.S., et al. 2015. A novel function of nuclear nonmuscle myosin regulatory light chain in promotion of xanthine oxidase transcription after myocardial ischemia/reperfusion. Free Radic. Biol. Med. 83: 115-128.

RESEARCH USE

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