SANTA CRUZ BIOTECHNOLOGY, INC.

# p-MYL9 (Ser 19): sc-293109

## 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 light chain 9, which is encoded by MYL9, is one of the numerous regulatory myosin light chains. Regulatory myosin light chains, also known as MLCs, regulate contraction in smooth muscle and non-muscle cells via phosphorylation by myosin light chain kinase (MLCK). Phosphorylation of regulatory myosin light chains is catalyzed by MLCK in the presence of calcium and calmodulin and it 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. Yamakita, Y., et al. 1994. *In vivo* phosphorylation of regulatory light chain of Myosin II during mitosis of cultured cells. J. Cell Biol. 124: 129-137.
2. Amano, M., et al. 1996. Phosphorylation and activation of Myosin by Rho-associated kinase (Rho-kinase). J. Biol. Chem. 271: 20246-20249.
3. Seto, M., et al. 1996. Myosin light chain dephosphorylation is enhanced by growth promotion of cultured smooth muscle cells. Pflugers Arch. 432: 7-13.
4. Kawano, Y., et al. 1999. Phosphorylation of Myosin-binding subunit (MBS) of Myosin phosphatase by Rho-kinase *in vivo*. J. Cell Biol. 147: 1023-1038.
5. Seto, M., et al. 1999. The molecular mechanism of vasospasm and the attenuation by fasudil. Nippon Yakurigaku Zasshi 114: 66-70.
6. Shimokawa, H., et al. 1999. Rho-kinase-mediated pathway induces enhanced Myosin light chain phosphorylations in a swine model of coronary artery spasm. Cardiovasc. Res. 43: 1029-1039.
7. Totsukawa, G., et al. 2000. Distinct roles of ROCK (Rho-kinase) and MLCK in spatial regulation of MLC phosphorylation for assembly of stress fibers and focal adhesions in 3T3 fibroblasts. J. Cell Biol. 150: 797-806.


## SOURCE

p-MYL9 (Ser 19) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 19 phosphorylated MYL9 of human origin.

## PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## PROTOCOLS

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

## APPLICATIONS

p-MYL9 (Ser 19) is recommended for detection of Ser 19 phosphorylated MYL9, nonsarcomeric and smooth muscle isoforms of mouse, rat and human 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); may cross-react with correspondingly phosphorylated MRLC2 and MRCL3 of human origin and Mylc2b of mouse and rat origin.

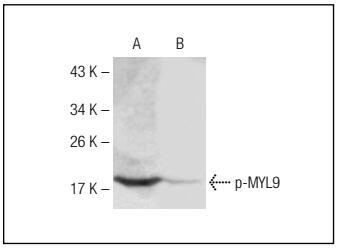
Molecular Weight of p-MYL9: 18-20 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206 or HeLa whole cell lysate: sc-2200.

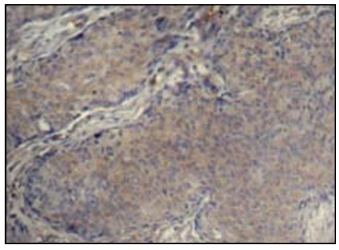
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

## DATA




p-MYL9 (Ser 19): sc-293109. Western blot analysis of MYL9 phosphorylation expression in serum-starved (**A**) and untreated (**B**) 293 whole cell lysates.



p-MYL9 (Ser 19): sc-293109. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS


1. Tripathi, B.K. and Zelenka, P.S. 2009. Cdk5-dependent regulation of Rho activity, cytoskeletal contraction, and epithelial cell migration via suppression of Src and p190$^{RhoGAP}$. Mol. Cell. Biol. 29: 6488-6499.


## RESEARCH USE

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