

Phospho-Myosin Light Chain 2 (Ser19) Antibody

- Small 100 μ l
(10 Western mini-blot)
- Large 300 μ l
(30 Western mini-blot)

rev. 09/23/08

Orders ■ 877-616-CELL (2355)
orders@cellsignal.com

Support ■ 877-678-TECH (8324)
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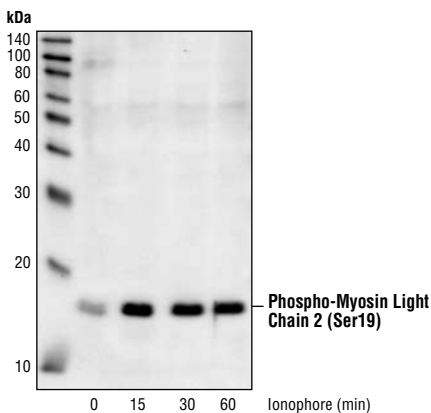
Web ■ www.cellsignal.com

This product is for *in vitro* research use only and is not intended for use in humans or animals.
This product is not intended for use as a therapeutic or in diagnostic procedures.

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IF-IC Endogenous	H, M, R, Dr, (C, B, X)	18 kDa	Rabbit**

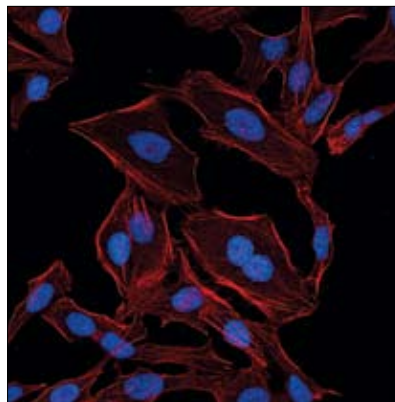
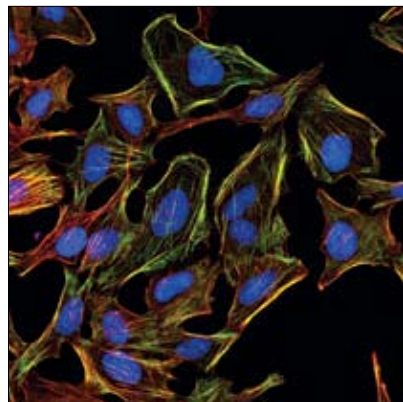
Background: Myosin is composed of six polypeptide chains: two identical heavy chains and two pairs of light chains. Myosin light chain 2 (MLC2), also known as myosin regulatory light chain (MRLC or RLC, LC20), has many isoforms depending on its distribution. In smooth muscle, MLC2 is phosphorylated at Thr18 and Ser19 by myosin light chain kinase (MLCK) in a Ca^{2+} /calmodulin-dependent manner (1). This phosphorylation is correlated with myosin ATPase activity and smooth muscle contraction (2). ROCK also phosphorylates Ser19 of smooth muscle MLC2, which regulates the assembly of stress fibers (3). Phosphorylation of smooth muscle MLC2 at Ser1/Ser2 and Ser9 by PKC and cdc2 has been reported to inhibit myosin ATPase activity (4,5). Phosphorylation by cdc2 controls the timing of cytokinesis (5). Transgenic mice lacking phosphorylation sites on the cardiac muscle isoform show morphological and functional abnormalities (6).

Specificity/Sensitivity: Phospho-Myosin Light Chain 2 (Ser19) Antibody detects endogenous levels of myosin light chain 2 (smooth muscle) only when phosphorylated at serine 19. The antibody does not cross-react with the cardiac isoform of myosin light chain 2.



Western blot analysis of extracts from HEK293 cells stimulated with ionophore A23187 for the indicated times, using Phospho-Myosin Light Chain 2 (Ser19) Antibody.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic phospho-peptide (KLH-coupled) corresponding to residues surrounding Ser19 of human myosin light chain 2. Antibodies are purified by protein A and peptide affinity chromatography.



Confocal immunofluorescent images of HeLa cells, untreated (left) or phosphatase-treated (right), labeled with Phospho-Myosin Light Chain 2 (Ser19) Antibody (green). Actin filaments have been labeled with Alexa Fluor[®] 555 phalloidin (red). Blue pseudocolor = DRAQ5[™] (fluorescent DNA dye).

Entrez-Gene ID #10398
Swiss-Prot Acc. #P24844

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 μ g/ml BSA and 50% glycerol. Store at $-20^{\circ}C$.
Do not aliquot the antibody.

*Species cross-reactivity is determined by Western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western blotting	1:1000
Immunofluorescence (IF-IC)	1:50

For application specific protocols please see the web page for this product at www.cellsignal.com.

Companion Products:

Phospho-Myosin Light Chain 2 (Thr18/Ser19) Antibody #3674
Myosin Light Chain 2 Antibody #3672
Phospho-Myosin Light Chain 2 (Ser19) Mouse mAb #3675
Anti-rabbit IgG, HRP-linked Antibody #7074
Prestained Protein Marker, Broad Range (Premixed Format) #7720
Biotinylated Protein Ladder Detection Pack #7727
20X LumiGLO[®] Reagent and 20X Peroxide #7003

Selected Application References:

John, G.R. et al. (2004) Interleukin-1 β Induces a Reactive Astroglial Phenotype via Deactivation of the Rho GTPase-Rock Axis. *J. Neurosci.* 24 (11), 2837–2845. Applications: IC-IF, W.

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 (15), 14551–14560. Application: W.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

- (1) Ikebe, M. and Hartshorne, D.J. (1985) *J. Biol. Chem.* 260, 10027–10031.
- (2) Tan, J. L. et al. (1992) *Annu. Rev. Biochem.* 61, 721–759.
- (3) Totsukawa, G. et al. (2000) *J. Cell Biol.* 150, 797–806.
- (4) Ikebe, M. et al. (2000) *J. Biol. Chem.* 262, 9569–9573.
- (5) Satterwhite, L. L. et al. (1992) *J. Cell Biol.* 118, 595–605.
- (6) Sanbe, A. et al. (1999) *J. Biol. Chem.* 274, 21085–21094.

IMPORTANT: For Western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide

Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebra fish B—bovine

Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% sequence homology.