Revision 3

#3675 Store at -20C

Phospho-Myosin Light Chain 2 (Ser19) Mouse mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, W-S, IF-IC	H M R B Pg	Endogenous	18	Mouse IgG1	#P24844	10398

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Simple Western™	1:10 - 1:50
Immunofluorescence (Immunocytochemistry)	1:200 - 1:400

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

Phospho-Myosin Light Chain 2 (Ser19) Mouse mAb detects endogenous levels of myosin light chain 2 (smooth muscle) only when phosphorylated at serine 19. This antibody does not cross-react with the cardiac isoform of myosin light chain 2.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser19 of human myosine light chain 2 (smooth muscle).

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), RLC, or 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).

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.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **W-S:** Simple Western™ **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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