Revision 4

Store at -20C

#3674

Phospho-Myosin Light Chain 2 (Thr18/Ser19) Antibody

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:
W, W-S	H M	Endogenous	18	Rabbit	#P24844	10398

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Simple Western™	1:10 - 1:50

Storage

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

Specificity/Sensitivity

Phospho-Myosin Light Chain 2 (Thr18/Ser19) Antibody detects endogenous levels of myosin light chain 2 (smooth muscle) only when dually phosphorylated at threonine 18 and serine 19. The antibody does not cross-react with the cardiac isoform of myosin light chain 2.

Species predicted to react based on 100% sequence homology

Rat, Chicken, Xenopus, Zebrafish, Bovine, Pig

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr18/Ser19 of human myosin light chain 2. Antibodies are purified by protein A and peptide affinity chromatography.

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 BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **W-S:** Simple Western™

Cross-Reactivity Key

H: Human **M:** Mouse

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Limited Uses

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