

# phospho-Myosin IIA Heavy Chain (Ser-1943) Peptide

Cat. # MX3835

Size 50 µg

## **Background:**

Nonmuscle myosin II is an actin-based motor protein essential to cell motility, cell division, migration, adhesion and polarity. This myosin forms a hexameric complex comprised of two heavy chains (NMHC-II), two essential light chains, and two regulatory light chains (RLC). In vertebrates, there are three NMHC-II isoforms (NMHC-IIA, NMHC-IIB, and NMHC-IIC), which exhibit distinct patterns of expression in cells and tissues. Regulation of NMHC-II activity occurs through RLC and HC phosphorylation. RLCs are phosphorylated at Thr-18 and Ser-19, leading to activation of myosin II motor activity and increased myosin filament stability. By contrast, PKC phosphorylation of Ser-1/Ser-2 and Thr-9 in RLC may decrease activated myosin II interaction with actin. NMHC-II phosphorylation may be an important mode for regulating myosin-II assembly. PKC phosphorylates NMHC-IIA on Ser-1916 in the C-terminal region and NMHC-IIB on multiple serines in the tailpiece. Casein kinase II phosphorylates NMHC-IIA on Ser-1943 in the tailpiece and increases disassembly of NMHC-IIA filaments.

## **References**

Murakami, N. et al. (1998) *Biochemistry* 37:1989.  
Dulyaninova, N.G. et al. (2007) *Mol Biol Cell* 18:3144.  
Conti, M.A. & Adelstein, R.S. (2008) *J Cell Sci.* 121:11.  
Breckenridge, M.T. et al. (2009) *Mol Biol Cell* 20:338.

## **Peptide Sequence:**

Phospho-NMHC-IIA (Ser-1943) synthetic peptide corresponds to amino acid residues surrounding Ser-1943 in human myosin IIA heavy chain. This peptide sequence is highly conserved in rat and mouse NMHC-IIA, but is not found in NMHC-IIB and is not well conserved in NMHC-IIC.

## **Buffer and Storage:**

Blocking Peptide is supplied in 50µl phosphate-buffered saline and 0.05% sodium azide. Store at -20°C. Stable for 1 year.

## **Applications:**

Blocking 1:1000

ELISA 50 ng/well

End user should determine optimal concentration dependent on the concentration of the antibody.  
Recommended for blocking antibody reactivity in Western blot and immunocytochemistry.  
ELISA established in 96-well Nunc immunoplates where peptide was bound to plates for 2 hrs in 0.1 M sodium carbonate buffer, pH 8.5.

## **Specificity:**

The peptide is specifically recognized by Myosin IIA Heavy Chain (Ser-1943) phospho-specific antibody (MP3831) in ELISA, and has been shown to block the reactivity of MP3831 in Western blot. In addition, the peptide is recommended for use in blocking MP3831 reactivity in immunocytochemistry.

## **Related Products:**

MP3831 Myosin IIA Heavy Chain (Ser-1943), phospho-specific Rabbit  
MP3791 Myosin IIA Heavy Chain (a.a. 1936-1950) Rabbit Polyclonal  
MX3795 Myosin IIA Heavy Chain (a.a. 1936-1950) Peptide  
MM3441 Myosin Regulatory Light Chain (MLC20) Mouse Monoclonal  
MP3461 Myosin Regulatory Light Chain (Ser-1), phospho-specific  
MK6370 Myosin IIA Heavy Chain Phospho-Regulation Antibody Sampler Kit

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