

p-MYPT1 (Ser 903): sc-17557

BACKGROUND

Myosin phosphatase target subunit 1 (MYPT1), also called Myosin-binding subunit of Myosin phosphatase, is one of the subunits and an integral component of the Myosin phosphatase. Myosin phosphatase regulates the interaction of Actin and Myosin downstream of the guanosine triphosphatase Rho, which inhibits Myosin phosphatase through the action of Rho-kinase. MYPT1 promoter contains one Sp1 transcription factor binding site, suggesting that MYPT1 is a housekeeping gene. Myotonic dystrophy protein kinase phosphorylates MYPT1 at tyrosine 654 to regulate Myosin II phosphorylation. Inhibition of Myosin light chain phosphatase results in Ca²⁺ sensitization of smooth muscle contraction. This inhibition is modulated through phosphorylation of MYPT1 by a ZIP-like kinase, which associates with MYPT1 and phosphorylates the inhibitory site in smooth muscle. The phosphorylation of MYPT1 by protein kinase C results in altered dephosphorylation of Myosin by attenuating the binding of protein phosphatase 1 catalytic subunit (PP1c) and the phosphorylated 20 kDa Myosin light chain to MYPT1. PP1c interacts with at least four binding sites on the amino-terminus of MYPT1. A novel isoform of MYPT1, MYPT2, also interacts with PP1c. MYPT1 is localized on stress fibers, and is distributed close to the cell membrane and at cell-cell contacts to regulate Myosin phosphatase activity.

REFERENCES

- Kimura, K., et al. 1996. Regulation of Myosin phosphatase by Rho and Rho-associated kinase (Rho-kinase). *Science* 273: 245-248.
- Takahashi, N., et al. 1997. Localization of the gene coding for Myosin phosphatase, target subunit 1 (MYPT1) to human chromosome 12q15-q21. *Genomics* 44: 150-152.
- Fujioka, M., et al. 1998. A new isoform of human Myosin phosphatase targeting/regulatory subunit (MYPT2): cDNA cloning, tissue expression and chromosomal mapping. *Genomics* 49: 59-68.

CHROMOSOMAL LOCATION

Genetic locus: PPP1R12A (human) mapping to 12q21.2; Ppp1r12a (mouse) mapping to 10 D1.

SOURCE

p-MYPT1 (Ser 903) is available as either goat (sc-17557) or rabbit (sc-17557-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Ser 903 phosphorylated MYPT1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-17557 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

p-MYPT1 (Ser 903) is recommended for detection of Ser 903 phosphorylated MYPT1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

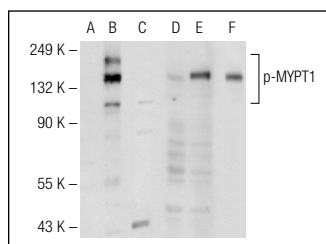
p-MYPT1 (Ser 903) is also recommended for detection of correspondingly phosphorylated MYPT1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for MYPT1 siRNA (h): sc-37240, MYPT1 siRNA (m): sc-37241, MYPT1 shRNA Plasmid (h): sc-37240-SH, MYPT1 shRNA Plasmid (m): sc-37241-SH, MYPT1 shRNA (h) Lentiviral Particles: sc-37240-V and MYPT1 shRNA (m) Lentiviral Particles: sc-37241-V.

Molecular Weight of p-MYPT1: 130 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

DATA



p-MYPT1 (Ser 903): sc-17557. Western blot analysis of MYPT1 phosphorylation in untreated (A, D), Calyculin treated (B, E) and Calyculin and lambda protein phosphatase (sc-200312A) treated (C, F) HeLa whole cell lysates. Antibodies tested include p-MYPT1 (Ser 903): sc-17557 (A, B, C) and MYPT1 (H-130): sc-25618 (D, E, F).

RESEARCH USE

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

PROTOCOLS

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

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Try **p-MYPT1 (A-6): sc-377542**, our highly recommended monoclonal alternative to p-MYPT1 (Ser 903).