

p-MYPT1 (A-6): sc-377542

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 Ca^{2+} 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 myosin light chain to MYPT1. PP1c interacts 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 it is distributed close to the cell membrane and at cell-cell contacts to regulate myosin phosphatase activity.

CHROMOSOMAL LOCATION

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

SOURCE

p-MYPT1 (A-6) is a mouse monoclonal antibody epitope corresponding to a short amino acid sequence containing Ser 903 phosphorylated MYPT1 of human origin.

PRODUCT

Each vial contains 200 μg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-MYPT1 (A-6) is available conjugated to agarose (sc-377542 AC), 500 μg /0.25 ml agarose in 1 ml, for IP; to HRP (sc-377542 HRP), 200 μg /ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377542 PE), fluorescein (sc-377542 FITC), Alexa Fluor® 488 (sc-377542 AF488), Alexa Fluor® 546 (sc-377542 AF546), Alexa Fluor® 594 (sc-377542 AF594) or Alexa Fluor® 647 (sc-377542 AF647), 200 μg /ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377542 AF680) or Alexa Fluor® 790 (sc-377542 AF790), 200 μg /ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-377542 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

RESEARCH USE

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

APPLICATIONS

p-MYPT1 (A-6) is recommended for detection of Ser 903 phosphorylated MYPT1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μg per 100-500 μg of total protein (1 ml of cell lysate)], 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).

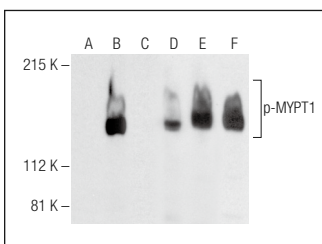
p-MYPT1 (A-6) is also recommended for detection of correspondingly phosphorylated MYPT1 in additional species, including equine.

Suitable for use as control antibody for MYPT1 siRNA (h): sc-37240, MYPT1 siRNA (m): sc-37241, MYPT1 siRNA (r): sc-156101, MYPT1 shRNA Plasmid (h): sc-37240-SH, MYPT1 shRNA Plasmid (m): sc-37241-SH, MYPT1 shRNA Plasmid (r): sc-156101-SH, MYPT1 shRNA (h) Lentiviral Particles: sc-37240-V, MYPT1 shRNA (m) Lentiviral Particles: sc-37241-V and MYPT1 shRNA (r) Lentiviral Particles: sc-156101-V.

Molecular Weight of p-MYPT1: 130 kDa.

Positive Controls: HeLa + Calyculin A cell lysate: sc-2271.

DATA



Western blot analysis of MYPT1 phosphorylation in untreated (A,D), induction cocktail (sc-362324) treated (B,E) and induction cocktail (sc-362324) and lambda protein phosphatase (sc-200312A) treated (C,F) HeLa whole cell lysates. Antibodies tested include p-MYPT1 (A-6): sc-377542 (A,B,C) and MYPT1 (H-130): sc-25618 (D,E,F).

SELECT PRODUCT CITATIONS

- Xu, J., et al. 2022. Carvedilol alleviates lipopolysaccharide (LPS)-induced acute lung injury by inhibiting Ras homolog family member A (RhoA)/ROCK activities. *Bioengineered* 13: 4137-4145.
- Qiao, J., et al. 2024. Histone H3K18 and ezrin lactylation promote renal dysfunction in sepsis-associated acute kidney injury. *Adv. Sci.* 11: e2307216.

PROTOCOLS

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

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