

p-MYPT1 (Ser 695): sc-33360

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 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 (Ser 695) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 695 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-33360 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-MYPT1 (Ser 695) is recommended for detection of Ser 695 phosphorylated MYPT1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 (Ser 695) is also recommended for detection of correspondingly phosphorylated MYPT1 in additional species, including equine, canine, bovine, porcine and avian.

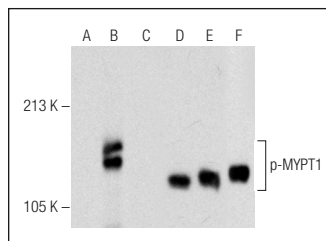
Suitable for use as control antibody for MYPT1 siRNA (h): sc-37240, MYPT1 siRNA (m): sc-37241, MYPT1 shRNA Plasmid (h): sc-37240-SH, MYPT1 shRNA Plasmid (m): sc-37241-SH, MYPT1 shRNA (h) Lentiviral Particles: sc-37240-V and MYPT1 shRNA (m) Lentiviral Particles: sc-37241-V.

Molecular Weight of p-MYPT1: 130 kDa.

STORAGE

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

DATA



Western blot analysis of MYPT1 phosphorylation in untreated (A, D), Ser/Thr induction cocktail (sc-362324) treated (B, E) and Ser/Thr induction cocktail (sc-362324) and lambda protein phosphatase (sc-200312A) treated (C, F) HeLa whole cell lysates. Antibodies tested include p-MYPT1 (Ser 695): sc-33360 (A, B, C) and MYPT1 (H-130): sc-25618 (D, E, F).

SELECT PRODUCT CITATIONS

- Gao, Y., et al. 2008. Preservation of cGMP-induced relaxation of pulmonary veins of fetal lambs exposed to chronic high altitude hypoxia: role of PKG and Rho kinase. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 295: L889-L896.
- Umeda, D., et al. 2008. H89 (N-[2-(p-bromocinnamylamino)ethyl]-5-isoquinolinesulfonamide) induces reduction of myosin regulatory light chain phosphorylation and inhibits cell proliferation. *Eur. J. Pharmacol.* 590: 61-66.
- Piwkowska, A., et al. 2012. Hydrogen peroxide induces dimerization of protein kinase G type Iα subunits and increases albumin permeability in cultured rat podocytes. *J. Cell. Physiol.* 227: 1004-1016.
- Peng, G., et al. 2012. Sustained therapeutic hypercapnia attenuates pulmonary arterial Rho-kinase activity and ameliorates chronic hypoxic pulmonary hypertension in juvenile rats. *Am. J. Physiol. Heart Circ. Physiol.* 302: H2599-H2611.
- Okamoto, R., et al. 2013. FHL2 prevents cardiac hypertrophy in mice with cardiac-specific deletion of ROCK2. *FASEB J.* 27: 1439-1449.
- Piwkowska, A., et al. 2013. Insulin increases glomerular filtration barrier permeability through dimerization of protein kinase G type Iα subunits. *Biochim. Biophys. Acta* 1832: 791-804.

RESEARCH USE

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


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Try **p-MYPT1 (F-11): sc-377531**, our highly recommended monoclonal alternative to p-MYPT1 (Ser 695).