SANTA CRUZ BIOTECHNOLOGY, INC.

MYPT1 (H-130): sc-25618

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 promotor 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 MYPTI and phosphorylates the inhibitory site in smooth muscle. The phosphorylation of MYPT1 by protein kinase C results in altered dephosphoryation of myosin by attenuating the binding of protein phosphatase 1 catalytic subunit (PP1c) and the phosphorylated myosin light chain to MYPT1. PP1c interacts with at least four binding sties on the amino-terminus of MYPT1. MYPT1 is localized on stress fibers; 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

MYPT1 (H-130) is a rabbit polyclonal antibody raised against amino acids 711-840 of 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.

MYPT1 (H-130) is available conjugated to agarose (sc-25618 AC), 500 µg /0.25 ml agarose in 1 ml, for IP.

APPLICATIONS

MYPT1 (H-130) is recommended for detection of 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

MYPT1 (H-130) is also recommended for detection of MYPT1 in additional species, including equine, canine 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.

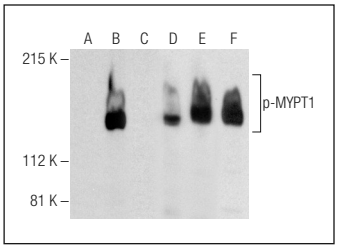
Molecular Weight of MYPT1: 130 kDa.

Positive Controls: DU 145 cell lysate: sc-2268.

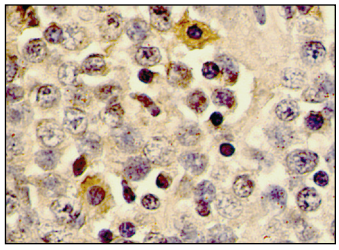
STORAGE

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**), 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**).



MYPT1 (H-130): sc-25618. Immunoperoxidase staining of formalin fixed, paraffin-embedded human brain tumor showing cytoplasmic localization in selected cells.

SELECT PRODUCT CITATIONS

1. Hashimoto, T., et al. 2006. Apelin stimulates myosin light chain phosphorylation in vascular smooth muscle cells. Arterioscler. Thromb. Vasc. Biol. 26: 1267-1272.
2. Lee, Y.J., et al. 2009. Extracellular matrix controls Insulin signaling in mammary epithelial cells through the RhoA/Rok pathway. J. Cell. Physiol. 220: 476-484.
3. Bregeon, J., et al. 2009. Angiotensin II induces RhoA activation through SHP2-dependent dephosphorylation of the RhoGAP p190A in vascular smooth muscle cells. Am. J. Physiol., Cell Physiol. 297: C1062-C1070.
4. Jiang, X., et al. 2010. HGAL, a germinal center specific protein, decreases lymphoma cell motility by modulation of the RhoA signaling pathway. Blood 116: 5217-5227.
5. Yasuda, T., et al. 2011. Rho-kinase inhibition alleviates pulmonary hypertension in transgenic mice expressing a dominant-negative type II bone morphogenetic protein receptor gene. Am. J. Physiol. Lung Cell. Mol. Physiol. 301: L667-L674.

RESEARCH USE

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