SANTA CRUZ BIOTECHNOLOGY, INC.

MYPT1/2 (C-18): sc-34143

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. MYPT2, a novel isoform of MYPT1, also interacts with PPlc. MYPT1 is localized on stress fibers; it is distributed close to the cell membrane and at cell-cell contacts to regulate Myosin phosphatase activity.

REFERENCES

1. Kimura, K., et al. 1996. Regulation of Myosin phosphatase by Rho and Rho-associated kinase (Rho-kinase). Science 273: 245-248.
2. 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.
3. 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.
4. Toth, A., et al. 2000. Phosphorylation of MYPT1 by protein kinase C attenuates interaction with PP1 catalytic subunit and the 20 kDa light chain of Myosin. FEBS Lett. 484: 113-117.
5. Toth, A., et al. 2000. Study of the subunit interactions in Myosin phosphatase by surface plasmon resonance. Eur. J. Biochem. 267: 1687-1697.

SOURCE

MYPT1/2 (C-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus 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.

Blocking peptide available for competition studies, sc-34143 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

MYPT1/2 (C-18) is recommended for detection of MYPT1, MYPT2 and PPP1R12C of human and rat origin and MYPT2 and PPP1R12C of mouse 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).

MYPT1/2 (C-18) is also recommended for detection of MYPT1, MYPT2 and PPP1R12C in additional species, including equine, canine, bovine, porcine and avian.

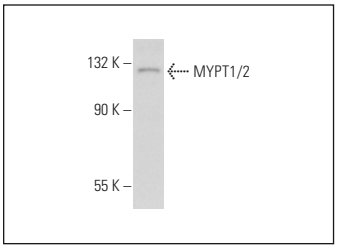
Molecular Weight of MYPT1/2: 130 kDa.

Positive Controls: HeLa nuclear extract: sc-2120 or DU 145 cell lysate: sc-2268.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



MYPT1/2 (C-18): sc-34143. Western blot analysis of MYPT1/2 expression in HeLa nuclear extract.

RESEARCH USE

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