

MYPT1 (C-6): sc-514261



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 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 with at least four binding sites on the amino-terminus of MYPT1. MYPT2, a novel isoform of MYPT1, also interacts with PP1c. 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.

SOURCE

MYPT1 (C-6) is a mouse monoclonal antibody raised against amino acids 711-840 of MYPT1 of human origin.

PRODUCT

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

MYPT1 (C-6) is available conjugated to agarose (sc-514261 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514261 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514261 PE), fluorescein (sc-514261 FITC), Alexa Fluor® 488 (sc-514261 AF488), Alexa Fluor® 546 (sc-514261 AF546), Alexa Fluor® 594 (sc-514261 AF594) or Alexa Fluor® 647 (sc-514261 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514261 AF680) or Alexa Fluor® 790 (sc-514261 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MYPT1 (C-6) is recommended for detection of MYPT1 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

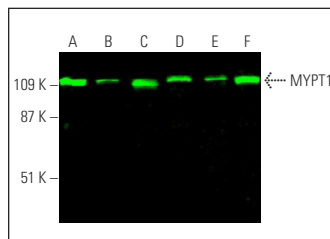
Suitable for use as control antibody for MYPT1 siRNA (h): sc-37240, MYPT1 shRNA Plasmid (h): sc-37240-SH and MYPT1 shRNA (h) Lentiviral Particles: sc-37240-V.

Molecular Weight of MYPT1: 130 kDa.

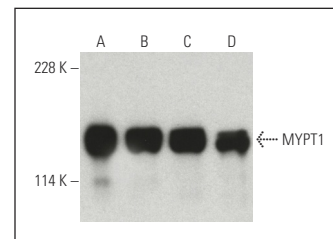
STORAGE

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

DATA



MYPT1 (C-6): sc-514261. Near-infrared western blot analysis of MYPT1 expression in DU 145 (A), HeLa (B), Jurkat (C), A549 (D) and MCF7 (E) whole cell lysates and HeLa nuclear extract (F). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



MYPT1 (C-6) HRP: sc-514261 HRP. Direct western blot analysis of MYPT1 expression in DU 145 (A), HeLa (B), MCF7 (C) and Jurkat (D) whole cell lysates.

SELECT PRODUCT CITATIONS

- Liu, Z., et al. 2017. Melatonin inhibits colon cancer RKO cell migration by downregulating Rho-associated protein kinase expression via the p38/MAPK signaling pathway. *Mol. Med. Rep.* 16: 9383-9392.
- Weith, M., et al. 2018. Ubiquitin-independent disassembly by a p97 AAA-ATPase complex drives PP1 holoenzyme formation. *Mol. Cell* 72: 766-777.
- Mason, D.E., et al. 2019. YAP and TAZ limit cytoskeletal and focal adhesion maturation to enable persistent cell motility. *J. Cell Biol.* 218: 1369-1389.
- Sun, D., et al. 2020. Atorvastatin alleviates left ventricular remodeling in isoproterenol-induced chronic heart failure in rats by regulating the RhoA/Rho kinase signaling pathway. *Pharmacol. Rep.* 72: 903-911.
- Xu, L., et al. 2021. Feedback control of PLK1 by Apo1 ensures accurate chromosome segregation. *Cell Rep.* 36: 109343.
- 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.
- Zhang, L., et al. 2022. MYPT1/PP1-mediated EZH2 dephosphorylation at S21 promotes epithelial-mesenchymal transition in fibrosis through control of multiple families of genes. *Adv. Sci.* 9: e2105539.
- Li, N., et al. 2022. Inhibitory mechanism of tangeretin, a citrus flavone on the sphingosylphosphorylcholine (SPC)-induced vascular smooth muscle contraction. *J. Pharmacol. Sci.* 149: 189-197.
- Miki, H., et al. 2023. LTβR signaling directly controls airway smooth muscle deregulation and asthmatic lung dysfunction. *J. Allergy Clin. Immunol.* 151: 976-990.e5.

RESEARCH USE

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

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA