

PP1 (E-9): sc-7482



The Power to Question

BACKGROUND

In eukaryotes, the phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions, including division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the protein phosphatases. In general, the protein phosphatase (PP) holoenzyme is a trimeric complex composed of a regulatory subunit, a variable subunit and a catalytic subunit. Four major families of protein phosphatase catalytic subunit have been identified, designated PP1, PP2A, PP2B (calcineurin) and PP2C. An additional protein phosphatase catalytic subunit, PPX (also known as PP4) is a putative member of a novel PP family. The PP1 family is comprised of sub-family members PP1 α , PP1 β and PP1 γ , which are MgATP-dependent enzymes. PP1 inactivity is maintained through its association with the in-hibitory protein NIPP-1 (nuclear inhibitor of PP1). Phosphorylation of NIPP-1 by cAMP-PK or casein kinase II results in the release of active PP1.

SOURCE

PP1 (E-9) is a mouse monoclonal antibody raised against full length phosphatase PP1 α of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PP1 (E-9) is available conjugated to agarose (sc-7482 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-7482 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-7482 PE), fluorescein (sc-7482 FITC), Alexa Fluor[®] 488 (sc-7482 AF488), Alexa Fluor[®] 546 (sc-7482 AF546), Alexa Fluor[®] 594 (sc-7482 AF594) or Alexa Fluor[®] 647 (sc-7482 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-7482 AF680) or Alexa Fluor[®] 790 (sc-7482 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

PP1 (E-9) is recommended for detection of PP1 family catalytic subunits of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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), 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).

PP1 (E-9) is also recommended for detection of PP1 family catalytic subunits in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for pan PP1 siRNA (h): sc-43545, pan PP1 siRNA (m): sc-43533, pan PP1 shRNA Plasmid (h): sc-43545-SH, pan PP1 shRNA Plasmid (m): sc-43533-SH, pan PP1 shRNA (h) Lentiviral Particles: sc-43545-V and pan PP1 shRNA (m) Lentiviral Particles: sc-43533-V.

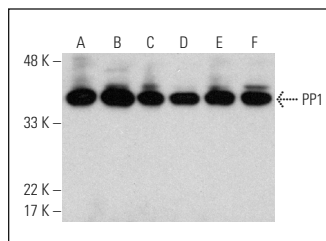
Molecular Weight of PP1: 36 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, KNRK whole cell lysate: sc-2214 or MDA-MB-231 cell lysate: sc-2232.

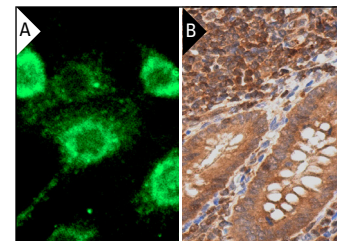
STORAGE

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

DATA



PP1 (E-9) HRP: sc-7482 HRP. Direct western blot analysis of PP1 expression in Jurkat (A), KNRK (B), PC-12 (C), A-431 (D), MDA-MB-231 (E) and MCF7 (F) whole cell lysates.



PP1 (E-9): sc-7482. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing cytoplasmic and nuclear staining of glandular cells and lymphoid cells (B).

SELECT PRODUCT CITATIONS

- Hishiya, A., et al. 1999. Protein phosphatase 2C inactivates F-Actin binding of human platelet moesin. *J. Biol. Chem.* 274: 26705-26712.
- Navia-Pelaez, J.M., et al. 2018. Modulation of nNOS^{ser852} phosphorylation and translocation by PKA/PP1 pathway in endothelial cells. *Nitric Oxide* 72: 52-58.
- Luo, W., et al. 2018. Protein phosphatase 1 regulatory subunit 1A in ewing sarcoma tumorigenesis and metastasis. *Oncogene* 37: 798-809.
- Dedigama-Arachchige, P.M., et al. 2018. Identification of PP1-Gadd34 substrates involved in the unfolded protein response using K-BIPS, a method for phosphatase substrate identification. *Mol. Omics* 14: 121-133.
- Morris, C.W., et al. 2018. The association of spinophilin with disks large-associated protein 3 (SAPAP3) is regulated by metabotropic glutamate receptor (mGluR) 5. *Mol. Cell. Neurosci.* 90: 60-69.
- He, L., et al. 2018. Protease-activated receptor 2 signaling modulates susceptibility of colonic epithelium to injury through stabilization of YAP *in vivo*. *Cell Death Dis.* 9: 949.
- Pyo, K.E., et al. 2018. ULK1 O-GlcNAcylation is crucial for activating VPS34 via ATG14L during autophagy initiation. *Cell Rep.* 25: 2878-2890.
- Rahman, A., et al. 2018. Intraventricular infusion of quinolinic acid impairs spatial learning and memory in young rats: a novel mechanism of lead-induced neurotoxicity. *J. Neuroinflammation* 15: 263.
- Qin, R., et al. 2019. Exercise training reduces ventricular arrhythmias through restoring calcium handling and sympathetic tone in myocardial infarction mice. *Physiol. Rep.* 7: e13972.

RESEARCH USE

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