SANTA CRUZ BIOTECHNOLOGY, INC.

# PP1 (E-9): sc-7482

SANTA CRUZ BIOTECHNOLOGY

*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$\alpha$, PP1$\beta$ and PP1$\gamma$, which are MgATP-dependent enzymes. PP1 inactivity is maintained through its association with the inhibitory 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$\alpha$ of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_{2b}$ 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 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-7482 HRP), 200 µg/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 µg/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 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.



## 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 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).

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.

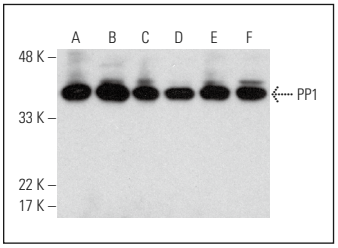
Molecular Weight of PP1: 36 kDa.

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

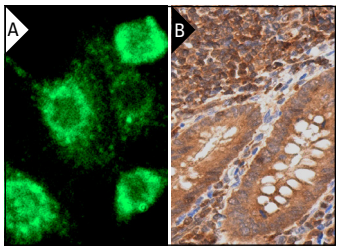
## STORAGE

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

1. Hishiya, A., et al. 1999. Protein phosphatase 2C inactivates F-Actin binding of human platelet moesin. J. Biol. Chem. 274: 26705-26712.
2. Manser, C., et al. 2012. Lemur tyrosine kinase-2 signalling regulates kinesin-1 light chain-2 phosphorylation and binding of Smad2 cargo. Oncogene 31: 2773-2782.
3. Monici, M., et al. 2013. Effect of IR laser on myoblasts: a proteomic study. Mol. Biosyst. 9: 1147-1161.
4. Kerekes, É., et al. 2014. Functional analysis of the glycogen binding subunit CG9238/Gbs-70E of protein phosphatase 1 in *Drosophila melanogaster.* Insect Biochem. Mol. Biol. 49: 70-79.
5. Lim, J.M., et al. 2015. Control of the pericentrosomal $H_2O_2$ level by peroxiredoxin I is critical for mitotic progression. J. Cell Biol. 210: 23-33.
6. Sadredini, M., et al. 2016. $\beta$-adrenoceptor stimulation reveals $Ca^{2+}$ waves and sarcoplasmic reticulum $Ca^{2+}$ depletion in left ventricular cardiomyocytes from post-infarction rats with and without heart failure. PLoS ONE 11: e0153887.
7. Kas, S.M., et al. 2017. Insertional mutagenesis identifies drivers of a novel oncogenic pathway in invasive lobular breast carcinoma. Nat. Genet. 49: 1219-1230.
8. Luo, W., et al. 2018. Protein phosphatase 1 regulatory subunit 1A in ewing sarcoma tumorigenesis and metastasis. Oncogene 37: 798-809.
9. 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.