SANTA CRUZ BIOTECHNOLOGY, INC.

PP1β (C-5): sc-373782

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 subfamily members PP1α, PP1β and PP1γ, 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.

REFERENCES

1. Cohen, P.T. 1993. Important roles for novel protein phosphatases dephosphorylating serine and threonine residues. Biochem. Soc. Trans. 21: 884-888.
2. Mumby, M.C., et al. 1993. Protein serine/threonine phosphatases: structure, regulation, and functions in cell growth. Physiol. Rev. 73: 673-699.

CHROMOSOMAL LOCATION

Genetic locus: PPP1CB (human) mapping to 2p23.2; Ppp1cb (mouse) mapping to 5 B1.

SOURCE

PP1β (C-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 295-322 at the C-terminus of PP1β of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PP1β (C-5) is available conjugated to agarose (sc-373782 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-373782 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373782 PE), fluorescein (sc-373782 FITC), Alexa Fluor® 488 (sc-373782 AF488), Alexa Fluor® 546 (sc-373782 AF546), Alexa Fluor® 594 (sc-373782 AF594) or Alexa Fluor® 647 (sc-373782 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373782 AF680) or Alexa Fluor® 790 (sc-373782 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-373782 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

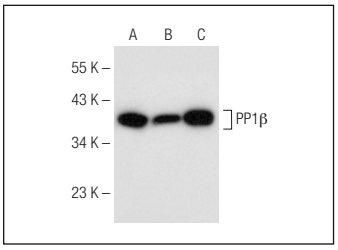
APPLICATIONS

PP1β (C-5) is recommended for detection of PP1β of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

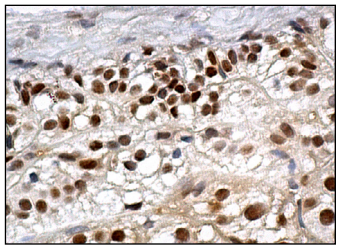
Suitable for use as control antibody for PP1β siRNA (h): sc-36295, PP1β siRNA (m): sc-36296, PP1β shRNA Plasmid (h): sc-36295-SH, PP1β shRNA Plasmid (m): sc-36296-SH, PP1β shRNA (h) Lentiviral Particles: sc-36295-V and PP1β shRNA (m) Lentiviral Particles: sc-36296-V.

Molecular Weight of PP1β: 36 kDa.

DATA



PP1β (C-5): sc-373782. Western blot analysis of PP1β expression in HeLa (**A**), L8 (**B**) and SJRH30 (**C**) whole cell lysates.



PP1β (C-5): sc-373782. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing nuclear and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Nie, H., et al. 2013. Phosphorylation of FOXP3 controls regulatory T cell function and is inhibited by TNF-α in rheumatoid arthritis. Nat. Med. 19: 322-328.
2. Hiraga, S.I., et al. 2017. Human RIF1 and protein phosphatase 1 stimulate DNA replication origin licensing but suppress origin activation. EMBO Rep. 18: 403-419.
3. Martina, J.A. and Puertollano, R. 2018. Protein phosphatase 2A stimulates activation of TFEB and TFE3 transcription factors in response to oxidative stress. J. Biol. Chem. 293: 12525-12534.
4. Choi, S.Y., et al. 2020. Prevention of mitochondrial impairment by inhibition of protein phosphatase 1 activity in amyotrophic lateral sclerosis. Cell Death Dis. 11: 888.
5. Xu, L., et al. 2021. Feedback control of PLK1 by Apolo1 ensures accurate chromosome segregation. Cell Rep. 36: 109343.
6. Benedyk, T.H., et al. 2021. pUL21 is a viral phosphatase adaptor that promotes herpes simplex virus replication and spread. PLoS Pathog. 17: e1009824.

RESEARCH USE

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