SANTA CRUZ BIOTECHNOLOGY, INC.

PP1β (A-6): sc-365678

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. and Walter, G. 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 (A-6) 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_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PP1β (A-6) is available conjugated to agarose (sc-365678 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365678 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365678 PE), fluorescein (sc-365678 FITC), Alexa Fluor® 488 (sc-365678 AF488), Alexa Fluor® 546 (sc-365678 AF546), Alexa Fluor® 594 (sc-365678 AF594) or Alexa Fluor® 647 (sc-365678 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365678 AF680) or Alexa Fluor® 790 (sc-365678 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365678 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 (A-6) 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

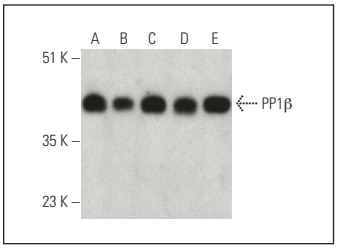
PP1β (A-6) is also recommended for detection of PP1β in additional species, including canine, bovine, porcine and avian.

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.

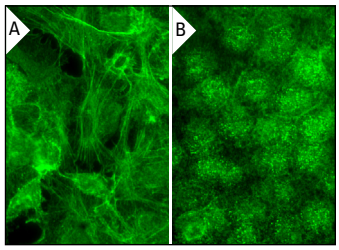
Molecular Weight of PP1β: 36 kDa.

Positive Controls: L8 cell lysate: sc-3807, HeLa whole cell lysate: sc-2200 or A549 cell lysate: sc-2413.

DATA



PP1β (A-6) HRP: sc-365678 HRP. Direct western blot analysis of PP1β expression in HeLa (**A**), L8 (**B**), MDA-MB-231 (**C**), A549 (**D**) and SK-N-SH (**E**) whole cell lysates.



PP1β (A-6): sc-365678. Immunofluorescence staining of formalin-fixed Hep G2 cells showing membrane localization (**A**). Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear, cytoplasmic and membrane localization (**B**).

SELECT PRODUCT CITATIONS

1. Li, Y.C., et al. 2016. Oridonin suppress cell migration via regulation of nonmuscle myosin IIA. Cytotechnology 68: 389-397.
2. Maeda, M., et al. 2020. Mitotic ER exit site disassembly and reassembly are regulated by the phosphorylation status of TANGO1. Dev. Cell 55: 237-250.e5.
3. Schnell, H.M., et al. 2021. Reg1 and Snf1 regulate stress-induced relocalization of protein phosphatase-1 to cytoplasmic granules. FEBS J. 288: 4833-4848.
4. Felgueiras, J., et al. 2022. PP1 catalytic isoforms are differentially expressed and regulated in human prostate cancer. Exp. Cell Res. 418: 113282.
5. Yuki, R., et al. 2023. SH2D4A promotes centrosome maturation to support spindle microtubule formation and mitotic progression. Sci. Rep. 13: 2067.

RESEARCH USE

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