SANTA CRUZ BIOTECHNOLOGY, INC.

PP1α (N-19): sc-6105

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.

CHROMOSOMAL LOCATION

Genetic locus: PPP1CA (human) mapping to 11q13.2; Ppp1ca (mouse) mapping to 19 A.

SOURCE

PP1α (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of PP1α of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-6105 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as agarose conjugate for immunoprecipitation, sc-6105 AC, 500 µg/0.25 ml agarose in 1 ml.

APPLICATIONS

PP1α (N-19) is recommended for detection of PP1α 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).

PP1α (N-19) is also recommended for detection of PP1α in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for PP1α siRNA (h): sc-36299, PP1α siRNA (m): sc-36300, PP1α shRNA Plasmid (h): sc-36299-SH, PP1α shRNA Plasmid (m): sc-36300-SH, PP1α shRNA (h) Lentiviral Particles: sc-36299-V and PP1α shRNA (m) Lentiviral Particles: sc-36300-V.

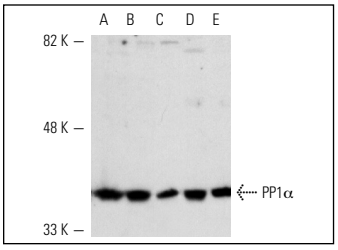
Molecular Weight of PP1α: 37 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, NIH/3T3 whole cell lysate: sc-2210 or Hep G2 cell lysate: sc-2227.

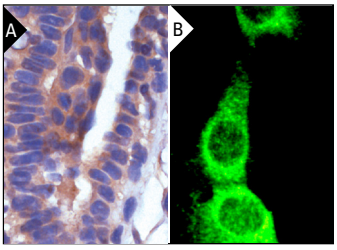
STORAGE

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

DATA



PP1α (N-19): sc-6105. Western blot analysis of PP1α expression in C32 (**A**), Hep G2 (**B**), A-431 (**C**), KNRK (**D**) and NIH/3T3 (**E**) whole cell lysates.



PP1α (N-19): sc-6105. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast tumor showing cytoplasmic localization (**A**). Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization (**B**).

SELECT PRODUCT CITATIONS

1. Mallozzi, C., et al. 2005. Protein phosphatase 1α is tyrosine-phosphorylated and inactivated by peroxynitrite in erythrocytes through the src family kinase fgr. Free Radic. Biol. Med. 38: 1625-1636.
2. Chakir, K., et al. 2008. Reversal of global apoptosis and regional stress kinase activation by cardiac resynchronization. Circulation 117: 1369-1377.
3. Ayon, R., et al. 2009. Complex phosphatase regulation of Ca^{2+}-activated Cl^- currents in pulmonary arterial smooth muscle cells. J. Biol. Chem. 284: 32507-32521.
4. Groskreutz, D.J., et al. 2010. Respiratory syncytial virus limits α subunit of eukaryotic translation initiation factor 2 (eIF2α) phosphorylation to maintain translation and viral replication. J. Biol. Chem. 285: 24023-24031.
5. Canals, D., et al. 2012. Protein phosphatase 1α mediates ceramide-induced ERM protein dephosphorylation: a novel mechanism independent of phosphatidylinositol 4,5-biphosphate (PIP2) and myosin/ERM phosphatase. J. Biol. Chem. 287: 10145-10155.
6. Bottardi, S., et al. 2014. The IKAROS Interaction with a complex including chromatin remodeling and transcription elongation activities is required for hematopoiesis. PLoS Genet. 10: e1004827.

RESEARCH USE

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