SANTA CRUZ BIOTECHNOLOGY, INC.

PP1 (FL): sc-4291

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. Ingebritsen, T.S. and Cohen, P. 1983. Protein phosphatases: properties and role in cellular regulation. Science 221: 331-338.
2. Cohen, P. 1989. The structure and regulation of protein phosphatases. AnnU. Rev. Biochem. 58: 453-508.
3. Cohen, P.T.W., Brewis, N.D., Hughes, V. and Mann, D.J. 1990. Protein serine/threonine phosphatases; an expanding family. FEBS Lett. 268: 355-359.
4. Kamibayashi, C., Estes, R., Slaughter, C. and Mumby, M.C. 1991. Subunit interactions control protein phosphatase 2A. Effects of limited proteolysis, N-ethylmaleimide, and heparin on the interaction of the B subunit. J. Biol. Chem. 266: 13251-13260.
5. Ruediger, R., Roeckel, D., Fait, J., Bergqvist, A., Magnusson, G. and Walter, G. 1992. Identification of binding sites on the regulatory A subunit of protein phosphatase 2A for the catalytic C subunit and for tumor antigens of simian virus 40 and polyomavirus. Mol. Cell. Biol. 12: 4872-4882.
6. Shenolikar, S. and Nairn, A.C. 1991. Protein phosphatases: recent progress. Adv. Second Messenger Phosphoprotein Res. 23: 1-121.
7. Sontag, E., Fedorov, S., Kamibayashi, C., Robbins, D., Cobb, M. and Mumby, M. 1993. The interaction of SV40 small tumor antigen with protein phosphatase 2A stimulates the map kinase pathway and induces cell proliferation. Cell. 75: 887-897.

CHROMOSOMAL LOCATION

Genetic locus: PPP1CA (human) mapping to 11q13.1; Ppp1ca (mouse) mapping to 19 A.

STORAGE

Store desiccated at -20° C. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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

SOURCE

PP1 (FL) is produced in *E. coli* as 38 kDa polyhistidine tagged fusion protein corresponding to full length PP1 of human origin.

PRODUCT

PP1 (FL) is purified from bacterial lysates (98%); supplied as 50 µg purified protein; also available as 10 µg protein in 0.1 ml SDS-PAGE loading buffer, sc-4291 WB.

APPLICATIONS

PP1 (FL) is suitable as a Western blotting control for sc-7482 and sc-443.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.