

PP2C α (N-13): sc-32401

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine protein phosphatases. The protein phosphatase 2C α (PP2C α) has broad specificity. It dephosphorylates and negatively regulates the activities of MAP kinases and MAP kinase-kinases, and also inhibits the activation of p38 and JNK kinase cascades induced by environmental stresses. PP2C α also induces the expression of endogenous p53 and the p53-responsive gene p21, leading to cell cycle arrest and apoptosis. The PP2C α protein, which contains an active site containing a dinuclear metal ion center, shows highest expression in epithelial cells as well as in the digestive tract, lung, kidney, breast, prostate, endocrine glands and brain.

REFERENCES

1. Ueki, K., et al. 1992. Structure and expression of two isoforms of the murine calmodulin-dependent protein phosphatase regulatory subunit (calcineurin B). *Biochem. Biophys. Res. Commun.* 187: 537-543.
2. Cohen, P.T. 1993. Important roles for novel protein phosphatases dephosphorylating serine and threonine residues. *Biochem. Soc. Trans.* 21: 884-888.
3. Yokoyama, N., et al. 1996. Purification and characterization of protein phosphatase 2C in rat parotid acinar cells: two forms of Mg²⁺-activated histone phosphatase and phosphorylation by cAMP-dependent protein kinase. *Arch. Biochem. Biophys.* 331: 1-8.
4. Takekawa, M., et al. 1998. Protein phosphatase 2C α inhibits the human stress-responsive p38 and JNK MAPK pathways. *EMBO J.* 17: 4744-52.
5. Lifschitz-Mercer, B., et al. 2001. Protein phosphatase 2C α expression in normal human tissues: an immunohistochemical study. *Histochem. Cell. Biol.* 116: 31-39.
6. Jackson, M.D., et al. 2003. Probing the function of conserved residues in the serine/threonine phosphatase PP2C α . *Biochemistry* 42: 8513-8521.
7. Ofek, P., et al. 2003. Cell cycle regulation and p53 activation by protein phosphatase 2C α . *J. Biol. Chem.* 278: 14299-14305.

CHROMOSOMAL LOCATION

Genetic locus: PPM1A (human) mapping to 14q23.1; Ppm1a (mouse) mapping to 12 C3.

SOURCE

PP2C α (N-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PP2C α 1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-32401 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PP2C α (N-13) is recommended for detection of PP2C α isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

PP2C α (N-13) is also recommended for detection of PP2C α isoforms 1 and 2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PP2C α siRNA (h): sc-45214, PP2C α siRNA (m): sc-45215, PP2C α shRNA Plasmid (h): sc-45214-SH, PP2C α shRNA Plasmid (m): sc-45215-SH, PP2C α shRNA (h) Lentiviral Particles: sc-45214-V and PP2C α shRNA (m) Lentiviral Particles: sc-45215-V.

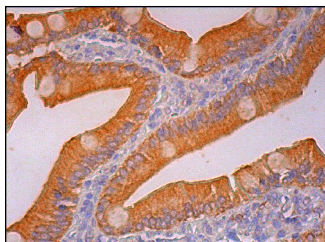
Molecular Weight of PP2C α : 46 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201 or HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker[™] Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz[™] Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz[™]: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



PP2C α (N-13): sc-32401. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic staining of glandular cells.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. 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.