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SANTA CRUZ BIOTECHNOLOGY, INC.

PP2Cα/β (h2): 293T Lysate: sc-116262

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. Protein phosphatase 2Cα (PP2Cα) has broad specificity. It dephosphorylates and negatively regulates the activities of MAP kinases and MAP kinase-kinases while also inhibiting the activation of p38 and JNK kinase cascades, induced by environmental stresses. PP2Cα also induces the expression of endogenous p53 and the p53-responsive gene p21, leading to cell cycle arrest and apoptosis. The PP2Cα 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 Mg^{2+}-activated histone phosphatase and phosphorylation by cAMP-dependent protein kinase. Arch. Biochem. Biophys. 331: 1-8.
4. Takekawa, M., et al. 1998. Protein phosphatase 2Cα inhibits the human stress-responsive p38 and JNK MAPK pathways. EMBO J. 17: 4744-4452.
5. Lifschitz-Mercer, B., et al. 2001. Protein phosphatase 2Cα 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 PP2Cα. Biochemistry 42: 8513-8521.
7. Ofek, P., et al. 2003. Cell cycle regulation and p53 activation by protein phosphatase 2Cα. J. Biol. Chem. 278: 14299-14305.

CHROMOSOMAL LOCATION

Genetic locus: PPM1A (human) mapping to 14q23.1.

PRODUCT

PP2Cα/β (h2): 293T Lysate represents a lysate of human PP2Cα/β transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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

APPLICATIONS

PP2Cα/β (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive PP2Cα/β antibodies. Recommended use: 10-20 µl per lane.

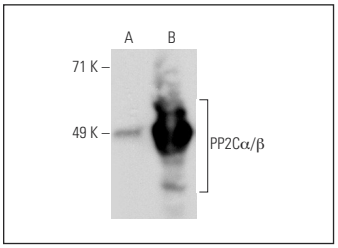
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PP2Cα (6D708): sc-71922 or is recommended as a positive control antibody for Western Blot analysis of enhanced human PP2Cα/β expression in PP2Cα/β transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



PP2Cα (6D708): sc-71922. Western blot analysis of PP2Cα/β expression in non-transfected: sc-117752 (**A**) and human PP2Cα/β transfected: sc-116262 (**B**) 293T whole cell lysates.

RESEARCH USE

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