

PP2C α/β (h): 293T Lysate: sc-113626

BACKGROUND

Eukaryotic protein phosphorylation and dephosphorylation on serine and threonine residues regulates numerous cell functions, including division, homeostasis and apoptosis. A group of proteins that play a major role in this process are the serine/threonine protein phosphatases. Protein phosphatase (PP) holoenzyme is a trimeric complex that contains a regulatory subunit, a variable subunit and a catalytic subunit. PP2C family members are negative regulators of cell stress response pathways. Protein phosphatase 2C α (PP2C α) 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. 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. The PP2C β enzyme also has broad specificity and is highly expressed in the heart and skeletal muscle. It may be involved in cell cycle control as it dephosphorylates the cyclin-dependent kinases (CDKs), CDK2 and CDK6, *in vitro*. Overexpression of PP2C β can cause cell-growth arrest or cell death.

REFERENCES

- 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.
- Takekawa, M., et al. 1998. Protein phosphatase 2C α inhibits the human stress-responsive p38 and JNK MAPK pathways. *EMBO J.* 17: 4744-4752.
- Marley, A.E., et al. 1998. The cloning expression and tissue distribution of human PP2C β . *FEBS Lett.* 431: 121-124.
- Cheng, A., et al. 2000. Dephosphorylation of human cyclin-dependent kinases by protein phosphatase type 2C α and β 2 isoforms. *J. Biol. Chem.* 275: 34744-34749.
- Lifschitz-Mercer, B., et al. 2001. Protein phosphatase 2C α expression in normal human tissues: an immunohistochemical study. *Histochem. Cell Biol.* 116: 31-39.
- Jackson, M.D., et al. 2003. Probing the function of conserved residues in the serine/threonine phosphatase PP2C α . *Biochemistry* 42: 8513-8521.
- Ofek, P., et al. 2003. Cell cycle regulation and p53 activation by protein phosphatase 2C α . *J. Biol. Chem.* 278: 14299-14305.
- Hufnagel, B., et al. 2005. Unsaturated fatty acids isolated from human lipoproteins activate protein phosphatase type 2C β and induce apoptosis in endothelial cells. *Atherosclerosis* 180: 245-254.
- Brautigan, D.L., et al. 2005. Allosteric activation of protein phosphatase 2C by D-chiro-inositol-galactosamine, a putative mediator mimetic of Insulin action. *Biochemistry* 44: 11067-11073.

RESEARCH USE

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

CHROMOSOMAL LOCATION

Genetic locus: PPM1A (human) mapping to 14q23.1, PPM1B (human) mapping to 2p21.

PRODUCT

PP2C α/β (h): 293T Lysate represents a lysate of human PP2C α/β transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

PP2C α/β (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive PP2C α/β antibodies. Recommended use: 10-20 μ l per lane.

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

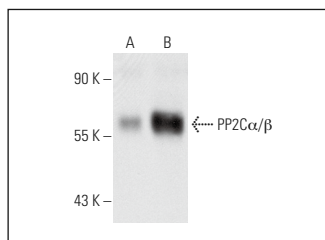
PP2C α/β (D-8): sc-166662 is recommended as a positive control antibody for Western Blot analysis of enhanced human PP2C α/β expression in PP2C α/β transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

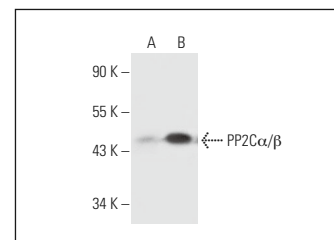
To ensure optimal results, the following support reagents are recommended:

1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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



PP2C α/β (D-8): sc-166662. Western blot analysis of PP2C α/β expression in non-transfected: sc-117752 (A) and human PP2C α/β transfected: sc-113626 (B) 293T whole cell lysates.



PP2C α (6D708): sc-71922. Western blot analysis of PP2C α/β expression in non-transfected: sc-117752 (A) and human PP2C α/β transfected: sc-113626 (B) 293T whole cell lysates.

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.