

PC-PLD1 (h): 293T Lysate: sc-117219

BACKGROUND

Virtually every cell uses phosphatidylcholine as a substrate to produce phosphatidic acid and choline. Phosphatidylcholine phospholipase D1 and D2 (PC-PLD1 and PC-PLD2) are phospholipid-specific phosphodiesterases that hydrolyze phosphatidylcholine. Unlike PC-PLD1, which associates with secretory granules, PC-PLD2 localizes to the plasma membrane where it is implicated in the formation of endocytotic vesicles. Both PC-PLD1 and PC-PLD2 coordinately regulate macrophage phagocytosis. PC-PLD activity in mammalian cells is transiently stimulated upon activation by G protein-coupled and receptor tyrosine kinase cell surface receptors. For example, PC-PLD1 and PC-PLD2 participate in sphingosine 1-phosphate stimulation of ERK phosphorylation and IL-8 secretion in bronchial epithelial cells. In addition, tubulin binding to PC-PLD2 inhibits muscarinic receptor-linked PC-PLD2 activation. PC-PLD2 also enhances PKC ζ activity through direct interaction in a lipase activity-independent manner. PC-PLD1 and PC-PLD2 stimulate cell growth by repressing expression of p21 gene through p53-dependent and p53-independent pathways, respectively, which may ultimately lead to carcinogenesis.

REFERENCES

1. Nishida, A., et al. 1994. Brain ischemia decreases phosphatidylcholine-phospholipase D but not phosphatidylinositol phospholipase C in rats. *Stroke* 25: 1247-1251.
2. del Peso, L., et al. 1996. Activation of phospholipase D by Ras proteins is independent of protein kinase C. *J. Cell. Biochem.* 61: 599-608.
3. Houle, M.G., et al. 1999. Regulation of phospholipase D by phosphorylation-dependent mechanisms. *Biochim. Biophys. Acta* 1439: 135-149.
4. Cockcroft, S. 2001. Signalling roles of mammalian phospholipase D1 and D2. *Cell. Mol. Life Sci.* 58: 1674-1687.
5. Zhao, D., et al. 2001. Generation of choline for acetylcholine synthesis by phospholipase D isoforms. *BMC Neurosci.* 2: 16.
6. Chahdi, A., et al. 2002. Serine/threonine protein kinases synergistically regulate phospholipase D1 and 2 and secretion in RBL-2H3 mast cells. *Mol. Immunol.* 38:1269-1276.
7. Wang, L., et al. 2002. Involvement of phospholipases D1 and D2 in sphingosine 1-phosphate-induced ERK (extracellular-signal-regulated kinase) activation and interleukin-8 secretion in human bronchial epithelial cells. *Biochem. J.* 367: 751-760.
8. Kwun, H.J., et al. 2003. Transcriptional repression of cyclin-dependent kinase inhibitor p21 gene by phospholipase D1 and D2. *FEBS Lett.* 544: 38-44.
7. Ahn, B.H., et al. 2003. Transmodulation between phospholipase D and c-Src enhances cell proliferation. *Mol. Cell. Biol.* 23: 3103-3115.
9. Iyer, S.S., et al. 2004. Phospholipases D1 and D2 coordinately regulate macrophage phagocytosis. *J Immunol.* 173: 2615-2623.

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.

CHROMOSOMAL LOCATION

Genetic locus: PLD1 (human) mapping to 3q26.31.

PRODUCT

PC-PLD1 (h): 293T Lysate represents a lysate of human PC-PLD1 transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

PC-PLD1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive PC-PLD1 antibodies. Recommended use: 10-20 μ l per lane.

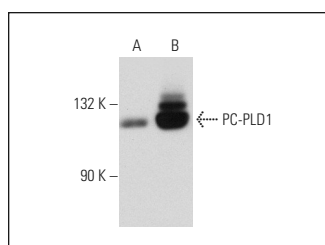
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PC-PLD1 (F-12): sc-28314 is recommended as a positive control antibody for Western Blot analysis of enhanced human PC-PLD1 expression in PC-PLD1 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



PC-PLD1 (F-12): sc-28314. Western blot analysis of PC-PLD1 expression in non-transfected: sc-117752 (A) and human PC-PLD1 transfected: sc-117219 (B) 293T whole cell lysates.

RESEARCH USE

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

PROTOCOLS

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