

PC-PLD2 (1C5): sc-293214

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

- Nishida, A., et al. 1994. Brain ischemia decreases phosphatidylcholine-phospholipase D but not phosphatidylinositol phospholipase C in rats. *Stroke* 25: 1247-1251.
- 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.
- Houle, M.G., et al. 1999. Regulation of phospholipase D by phosphorylation-dependent mechanisms. *Biochim. Biophys. Acta* 1439: 135-149.
- Cockcroft, S. 2001. Signalling roles of mammalian phospholipase D1 and D2. *Cell. Mol. Life Sci.* 58: 1674-1687.
- Zhao, D., et al. 2001. Generation of choline for acetylcholine synthesis by phospholipase D isoforms. *BMC Neurosci.* 2: 16.
- 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.
- 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.

CHROMOSOMAL LOCATION

Genetic locus: PLD2 (human) mapping to 17p13.2; Pld2 (mouse) mapping to 11 B3.

SOURCE

PC-PLD2 (1C5) is a mouse monoclonal antibody raised against amino acids 834-933 of PC-PLD2 of human origin.

PRODUCT

Each vial contains 100 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PC-PLD2 (1C5) is recommended for detection of PC-PLD2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PC-PLD2 siRNA (h): sc-44001, PC-PLD2 siRNA (m): sc-61367, PC-PLD2 siRNA (r): sc-270132, PC-PLD2 shRNA Plasmid (h): sc-44001-SH, PC-PLD2 shRNA Plasmid (m): sc-61367-SH, PC-PLD2 shRNA Plasmid (r): sc-270132-SH, PC-PLD2 shRNA (h) Lentiviral Particles: sc-44001-V, PC-PLD2 shRNA (m) Lentiviral Particles: sc-61367-V and PC-PLD2 shRNA (r) Lentiviral Particles: sc-270132-V.

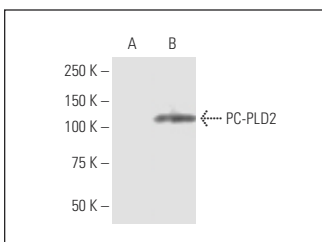
Molecular Weight of PC-PLD2: 117 kDa.

Positive Controls: human liver extract: sc-363766 or PC-PLD2 transfected 293T whole cell lysate.

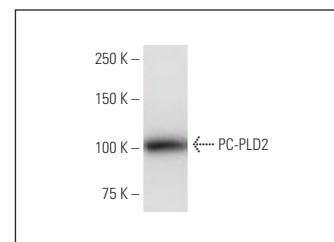
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



PC-PLD2 (1C5): sc-293214. Western blot analysis of PC-PLD2 expression in non-transfected (A) and PC-PLD2 transfected (B) 293T whole cell lysates.



PC-PLD2 (1C5): sc-293214. Western blot analysis of PC-PLD2 expression in human liver tissue extract.

SELECT PRODUCT CITATIONS

- Chakraborti, S., et al. 2017. Role of ADP ribosylation factor6-cytohesin1-phospholipase D signaling axis in U46619 induced activation of NADPH oxidase in pulmonary artery smooth muscle cell membrane. *Arch. Biochem. Biophys.* 633: 1-14.

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.