

# PC-PLD1 (F-12): sc-28314

## 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 $\zeta$  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.

## CHROMOSOMAL LOCATION

Genetic locus: PLD1 (human) mapping to 3q26.31; Pld1 (mouse) mapping to 3 A3.

## SOURCE

PC-PLD1 (F-12) is a mouse monoclonal antibody raised against amino acids 1-160 of PC-PLD1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

PC-PLD1 (F-12) is recommended for detection of PC-PLD1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1,000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], 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).

Suitable for use as control antibody for PC-PLD1 siRNA (h): sc-44000, PC-PLD1 siRNA (m): sc-41629, PC-PLD1 shRNA Plasmid (h): sc-44000-SH, PC-PLD1 shRNA Plasmid (m): sc-41629-SH, PC-PLD1 shRNA (h) Lentiviral Particles: sc-44000-V and PC-PLD1 shRNA (m) Lentiviral Particles: sc-41629-V.

Molecular Weight of PC-PLD1 $\alpha$ : 120 kDa.

Molecular Weight of PC-PLD1 $\beta$ : 115 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, HL-60 whole cell lysate: sc-2209 or HeLa whole cell lysate: sc-2200.

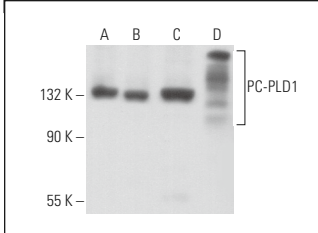
## RESEARCH USE

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

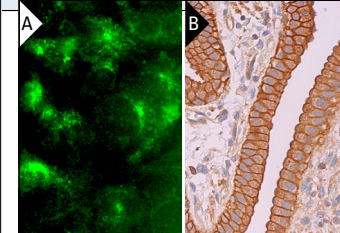
## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## DATA



PC-PLD1 (F-12): sc-28314. Western blot analysis of PC-PLD1 expression in MCF7 (A), HeLa (B), HL-60 (C) and AMJ2-C8 (D) whole cell lysates.



PC-PLD1 (F-12): sc-28314. Immunofluorescence staining of formalin-fixed Hep G2 cells showing Golgi apparatus and cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing cytoplasmic and membrane staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

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- Cipriano, R., et al. 2013. FAM83B-mediated activation of PI3K/Akt and MAPK signaling cooperates to promote epithelial cell transformation and resistance to targeted therapies. *Oncotarget* 4: 729-738.
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- 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.
- Han, H., et al. 2018. Regulation of the Hippo pathway by phosphatidic acid-mediated lipid-protein interaction. *Mol. Cell* 72: 328-340.e8.
- Tei, R. and Baskin, J.M. 2020. Spatiotemporal control of phosphatidic acid signaling with optogenetic, engineered phospholipase Ds. *J. Cell Biol.* 219: e201907013.
- Zhao, Z., et al. 2021. Lipid metabolism is a novel and practical source of potential targets for antiviral discovery against porcine parvovirus. *Vet. Microbiol.* 261: 109177.
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## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.