

# PC-PLD3 (N-20): sc-161995

## BACKGROUND

Virtually every cell uses phosphatidylcholine as a substrate to produce phosphatidic acid and choline. Phosphatidylcholine phospholipase D1, D2, D3, D4 and D5 (PC-PLD1-5) are phospholipid-specific phosphodiesterases that hydrolyze phosphatidylcholine to produce choline. PC-PLD activity in mammalian cells is transiently stimulated upon activation by G protein-coupled and receptor tyrosine kinase cell surface receptors. Both PC-PLD1 (which associates with secretory granules) and PC-PLD2 (which localizes to the plasma membrane) regulate macrophage phagocytosis and, through repression of p21, stimulate cell growth. PC-PLD3 localizes to the membrane of the endoplasmic reticulum (ER) and is thought to be highly expressed in neurons, possibly playing a role in neuronal choline production. PC-PLD4 and PC-PLD5 are both single-pass membrane proteins that localize to the membrane and contain two phosphodiesterase domains. Unlike its family members, PC-PLD5 lacks conserved active sites, suggesting that it has no phospholipase activity.

## 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.
- Zhao, D., et al. 2001. Generation of choline for acetylcholine synthesis by phospholipase D isoforms. *BMC Neurosci.* 2: 16.
- 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.
- Kwon, H.J., et al. 2003. Transcriptional repression of cyclin-dependent kinase inhibitor p21 gene by phospholipase D1 and D2. *FEBS Lett.* 544: 38-44.
- Ahn, B.H., et al. 2003. Transmodulation between phospholipase D and c-Src enhances cell proliferation. *Mol. Cell. Biol.* 23: 3103-3115.
- Iyer, S.S., et al. 2004. Phospholipases D1 and D2 coordinately regulate macrophage phagocytosis. *J Immunol.* 173: 2615-2623.
- Munck, A., et al. 2005. Hu-K4 is a ubiquitously expressed type 2 transmembrane protein associated with the endoplasmic reticulum. *FEBS J.* 272: 1718-1726.

## CHROMOSOMAL LOCATION

Genetic locus: PLD3 (human) mapping to 19q13.2; Pld3 (mouse) mapping to 7 A3.

## SOURCE

PC-PLD3 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an N-terminal cytoplasmic domain of PC-PLD3 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-161995 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

PC-PLD3 (N-20) is recommended for detection of PC-PLD3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other PC-PLD family members.

PC-PLD3 (N-20) is also recommended for detection of PC-PLD3 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PC-PLD3 siRNA (h): sc-97795, PC-PLD3 siRNA (m): sc-152046, PC-PLD3 shRNA Plasmid (h): sc-97795-SH, PC-PLD3 shRNA Plasmid (m): sc-152046-SH, PC-PLD3 shRNA (h) Lentiviral Particles: sc-97795-V and PC-PLD3 shRNA (m) Lentiviral Particles: sc-152046-V.

Molecular Weight of PC-PLD3: 55 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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.

## PROTOCOLS

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