SANTA CRUZ BIOTECHNOLOGY, INC.

PC-PLD2 (N-20): sc-18523

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

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 PKCζ 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.
9. Ahn, B.H., et al. 2003. Transmodulation between phospholipase D and c-Src enhances cell proliferation. Mol. Cell. Biol. 23: 3103-3115.

CHROMOSOMAL LOCATION

Genetic locus: PLD2 (human) mapping to 17p13.2.

SOURCE

PC-PLD2 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of PC-PLD2 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-18523 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PC-PLD2 (N-20) is recommended for detection of PC-PLD2A, PC-PLD2B and PC-PLD2C of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

PC-PLD2 (N-20) is also recommended for detection of PC-PLD2A, PC-PLD2B and PC-PLD2C in additional species, including equine and bovine.

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

Molecular Weight of PC-PLD2: 117 kDa.

Positive Controls: U-937 cell lysate: sc-2239.

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) 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.

SELECT PRODUCT CITATIONS

1. Lehman, N., et al. 2006. Phagocyte cell migration is mediated by phospholipases PLD1 and PLD2. Blood 108: 3564-3572.

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.