

PLC β 4 (D-7): sc-166133

BACKGROUND

Phosphoinositide-specific phospholipase C (PLC) plays a critical role in the initiation of receptor mediated signal transduction through the generation of the two second messengers, inositol 1, 4, 5-triphosphate and diacylglycerol from phosphatidylinositol 4, 5 bisphosphate. A total of eight mammalian PLC isozymes have been described (PLC β 1, PLC β 2, PLC β 3, PLC β 4, PLC γ 1, PLC γ 2, PLC δ 1 and PLC δ 2). The γ -type enzymes are unique in that they contain SH2 and SH3 domains. Moreover, the two γ -type enzymes, but not the β and δ isozymes, are subject to activation by a number of protein tyrosine kinases which associate with their SH2 domains and induce their activation by phosphorylation. In contrast, activation of PLC β 1, PLC β 2 and PLC β 3 is mediated by the α subunits of the G_q class of heterotrimeric G proteins and by certain $\beta\gamma$ G protein subunits. The regulatory mechanisms for PLC δ 1 and PLC δ 2 are not yet resolved.

REFERENCES

1. Suh, P., et al. 1988. Inositol phospholipid-specific phospholipase C: complete cDNA and protein sequences and sequence homology to tyrosine kinase-related oncogene products. *Proc. Natl. Acad. Sci. USA* 85: 5419-5423.
2. Emori, Y., et al. 1989. A second type of rat phosphoinositide-specific phospholipase C containing a Src-related sequence not essential for phosphoinositide-hydrolyzing activity. *J. Biol. Chem.* 264: 21885-21890.
3. Meldrum, E., et al. 1991. A second gene product of the inositol-phospholipid-specific phospholipase C subclass. *Eur. J. Biochem.* 196: 159-165.
4. Koch, C.A., et al. 1991. SH2 and SH3 domains: elements that control interactions of cytoplasmic signaling proteins. *Science* 252: 668-674.
5. Rhee, S.G. and Choi, K.D. 1992. Regulation of inositol phospholipid-specific phospholipase C isozymes. *J. Biol. Chem.* 267: 12393-12396.
6. Kim, M.J., et al. 1993. Cloning of cDNA encoding rat phospholipase C β 4, a new member of the phospholipase C. *Biochem. Biophys. Res. Commun.* 194: 706-712.
7. Jhon, D., et al. 1993. Cloning, sequencing, purification and G_q -dependent activation of phospholipase C β 3. *J. Biol. Chem.* 268: 6654-6661.
8. Wu, D., et al. 1993. Activation of phospholipase C β 2 by the α and $\beta\gamma$ subunits of trimeric GTP-binding protein. *Proc. Natl. Acad. Sci. USA* 90: 5297-5301.

CHROMOSOMAL LOCATION

Genetic locus: PLCB4 (human) mapping to 20p12.3; Plcb4 (mouse) mapping to 2 F3.

SOURCE

PLC β 4 (D-7) is a mouse monoclonal antibody raised against amino acids 876-1115 of PLC β 4 of human origin.

PRODUCT

Each vial contains 200 μ g IgG κ 1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PLC β 4 (D-7) is recommended for detection of PLC β 4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

Suitable for use as control antibody for PLC β 4 siRNA (h): sc-36274, PLC β 4 siRNA (m): sc-36275, PLC β 4 shRNA Plasmid (h): sc-36274-SH, PLC β 4 shRNA Plasmid (m): sc-36275-SH, PLC β 4 shRNA (h) Lentiviral Particles: sc-36274-V and PLC β 4 shRNA (m) Lentiviral Particles: sc-36275-V.

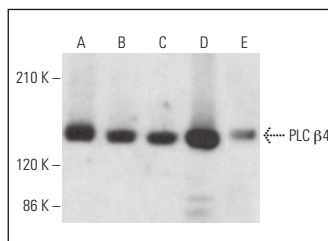
Molecular Weight of PLC β 4: 145 kDa.

Positive Controls: mouse cerebellum extract: sc-2403, ARPE-19 whole cell lysate: sc-364357 or mouse brain extract: sc-2253.

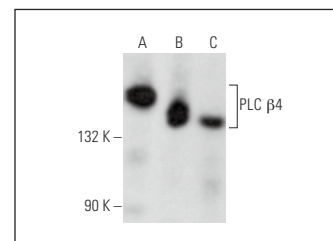
RECOMMENDED SUPPORT REAGENTS

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). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



PLC β 4 (D-7): sc-166133. Western blot analysis of PLC β 4 expression in WI-38 (A), IMR-32 (B), Neuro-2A (C), AMJZ-C8 (D) and C6 (E) whole cell lysates.



PLC β 4 (D-7): sc-166133. Western blot analysis of PLC β 4 expression in ARPE-19 whole cell lysate (A) and rat brain (B) and mouse brain (C) tissue extracts.

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 for detailed protocols and support products.