SANTA CRUZ BIOTECHNOLOGY, INC.

PLC β1 (16): sc-136040

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. There are many mammalian PLC isozymes, including PLC β1, PLC β2, PLC β3, PLC β4, PLC γ1, PLC γ2, PLC δ1 and PLC δ2 and PLCe. PLC β1, one of the PLC β isozymes, exists as two immunologically distinguishable proteins (PLC-β1a) and (PLC β1b). The two isoforms encode in two distinct transcripts and are generated by alternative splicing of a single gene. PLC β1a is preferentially expressed in the cytosol, whereas PLC β1b is predominantly localized in the nuclei. PLC β1 is a G protein-dependent phosphodiesterase that hydrolyses phosphatidylinositol 4,5 biphosphate into inositol 1,4,5-triphosphate and diacylglycerol after the stimulation of a variety of neurotransmitter receptors at the cell surface. The C-terminal region of PLC β1 has G_q GAP activity and has ability to interact with G_q and other PLC-β1 molecules.

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 Cδ subclass. Eur. J. Biochem. 196: 159-165.
4. Rhee, S.G., et al. 1992. Regulation of inositol phospholipid-specific phospholipase C isozymes. J. Biol. Chem. 267: 12393-12396.
5. Kim, M.J., et al. 1993. Cloning of cDNA encoding rat phospholipase C-β4, a new member of the phospholipase C family. Biochem. Biophys. Res. Commun. 194: 706-712.
6. Jhon, D., et al. 1993. Cloning, sequencing, purification and G_q-dependent activation of phospholipase C-β3. J. Biol. Chem. 268: 6654-6661.

CHROMOSOMAL LOCATION

Genetic locus: PLCB1 (human) mapping to 20p12.3; Plcb1 (mouse) mapping to 2 F3.

SOURCE

PLC β1 (16) is a mouse monoclonal antibody raised against amino acids 4-159 of PLC β1 of rat origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

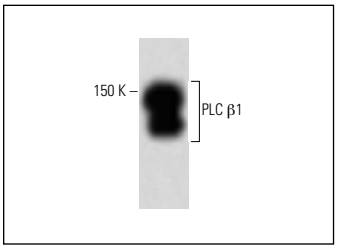
PLC β1 (16) is recommended for detection of PLC β1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for PLC β1 siRNA (h): sc-36266, PLC β1 siRNA (m): sc-36267, PLC β1 siRNA (r): sc-270424, PLC β1 shRNA Plasmid (h): sc-36266-SH, PLC β1 shRNA Plasmid (m): sc-36267-SH, PLC β1 shRNA Plasmid (r): sc-270424-SH, PLC β1 shRNA (h) Lentiviral Particles: sc-36266-V, PLC β1 shRNA (m) Lentiviral Particles: sc-36267-V and PLC β1 shRNA (r) Lentiviral Particles: sc-270424-V.

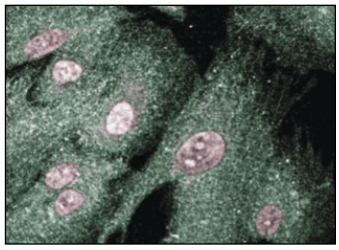
Molecular Weight of PLC β1: 150 kDa.

Positive Controls: rat cerebellum extract: sc-2398, NIH/3T3 whole cell lysate: sc-2210 or rat brain extract: sc-2392.

DATA



PLC β1 (16): sc-136040. Western blot analysis of PLC β1 expression in rat cerebrum tissue extract.



PLC β1 (16): sc-136040. Immunofluorescence staining of human intestinal smooth muscle cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Guo, Y., et al. 2012. α-Synuclein increases the cellular level of phospholipase Cβ1. Cell. Signal. 24: 1109-1114.
2. Ho, W.H., et al. 2012. Proteomic identification of a novel HSP 90-containing protein-mineral complex which can be induced in cells in response to massive calcium influx. J. Proteome Res. 11: 3160-3174.
3. Liu, J.F., et al. 2020. Thrombospondin-2 stimulates MMP-9 production and promotes osteosarcoma metastasis via the PLC, PKC, c-Src and NFκB activation. J. Cell. Mol. Med. 24: 12826-12839.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.