

PLC β 1 (D-8): sc-5291

BACKGROUND

Phosphoinositide-specific phospholipase C (PLC) plays a crucial 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 β 1, PLC β 2, PLC β 3, PLC β 4, PLC γ 1, PLC γ 2, PLC δ 1, PLC δ 2 and PLC ϵ . PLC γ 1 is widely distributed in bronchiolar epithelium, type I and II pneumocytes and fibroblasts of the interstitial tissue. Actin-regulatory protein villin is tyrosine phosphorylated and associates with PLC γ 1 in the brush border of intestinal epithelial cells. Villin regulates PLC γ 1 activity by modifying its own ability to bind phosphatidylinositol 4,5-bisphosphate. PLC γ 1 binds α 1 β 1 integrin and modulates α 1 β 1 integrin-specific adhesion. PLC γ 1 and Ca²⁺ play a direct role in VEGF-regulated endothelial growth, however this signaling pathway is not linked to FGF-mediated effects in primary endothelial cells. PLC γ 1 is rapidly activated in response to growth factor stimulation and plays an important role in regulating cell proliferation and differentiation. It may also have a protective function during cellular response to oxidative stress.

REFERENCE

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.

CHROMOSOMAL LOCATION

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

SOURCE

PLC β 1 (D-8) is a mouse monoclonal antibody raised against amino acids 831-1063 of PLC β 1 of rat origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PLC β 1 (D-8) is available conjugated to agarose (sc-5291 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-5291 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-5291 PE), fluorescein (sc-5291 FITC), Alexa Fluor® 488 (sc-5291 AF488), Alexa Fluor® 546 (sc-5291 AF546), Alexa Fluor® 594 (sc-5291 AF594) or Alexa Fluor® 647 (sc-5291 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-5291 AF680) or Alexa Fluor® 790 (sc-5291 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

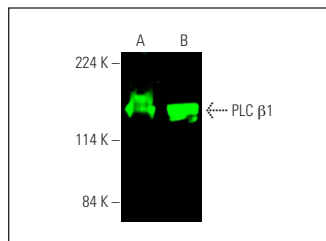
PLC β 1 (D-8) is recommended for detection of PLC β 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 PLC β 1 siRNA (h): sc-36266, PLC β 1 siRNA (m): sc-36267, PLC β 1 siRNA (r): sc-270424, PLC β 1 shRNA Plasmid (h): sc-36266-SH, PLC β 1 shRNA Plasmid (m): sc-36267-SH, PLC β 1 shRNA Plasmid (r): sc-270424-SH, PLC β 1 shRNA (h) Lentiviral Particles: sc-36266-V, PLC β 1 shRNA (m) Lentiviral Particles: sc-36267-V and PLC β 1 shRNA (r) Lentiviral Particles: sc-270424-V.

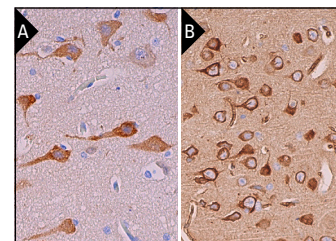
Molecular Weight of PLC β 1: 150 kDa.

Positive Controls: human brain extract: sc-364375, NIH/3T3 whole cell lysate: sc-2210 or mouse brain extract: sc-2253.

DATA



PLC β 1 (D-8): sc-5291. Near-infrared western blot analysis of PLC β 1 expression in human brain (A) and mouse brain (B) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGx BP-CFL 680: sc-516180.



PLC β 1 (D-8): sc-5291. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic staining of neuronal cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse brain tissue showing cytoplasmic staining of neuronal cells and cytoplasmic and membrane staining of endothelial cells (B).

SELECT PRODUCT CITATIONS

1. Tachibana, T., et al. 2003. Immunohistochemical expressions of mGluR5, P2Y2 receptor, PLC β 1, and IP3R-I and -II in merkel cells in rat sinus hair follicles. *Histochem. Cell Biol.* 120: 13-21.
2. Kim, S.H., et al. 2021. Prediction of Alzheimer's disease-specific phospholipase c γ -1 SNV by deep learning-based approach for high-throughput screening. *Proc. Natl. Acad. Sci. USA* 118: e2011250118.
3. Perez-Valle, A., et al. 2022. Upregulated phospholipase D2 expression and activity is related to the metastatic properties of melanoma. *Oncol. Lett.* 23: 140.

RESEARCH USE

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

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