SANTA CRUZ BIOTECHNOLOGY, INC.

PLC β1 (D-8): sc-5291

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 β1, PLC β2, PLC β3, PLC β4, PLC γ1, PLC γ2, PLC δ1, PLC δ2 and PLCε. PLC γ1 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 γ1 in the brush border of intestinal epithelial cells. Villin regulates PLC γ1 activity by modifying its own ability to bind phosphatidylinositol 4,5-biphosphate. PLC γ1 binds α1β1 integrin and modulates α1β1 integrin-specific adhesion. PLC γ1 and Ca^{2+} 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 γ1 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 β1 (D-8) is a mouse monoclonal antibody raised against amino acids 831-1063 of PLC β1 of rat origin.

PRODUCT

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

PLC β1 (D-8) is available conjugated to agarose (sc-5291 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-5291 HRP), 200 µg/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 µg/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 µg/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

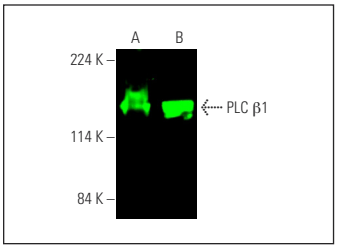
PLC β1 (D-8) is recommended for detection of PLC β1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 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 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.

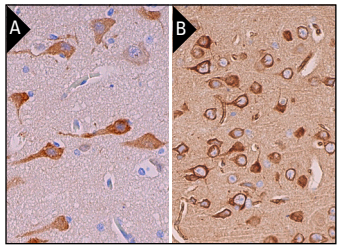
Molecular Weight of PLC β1: 150 kDa.

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

DATA



PLC β1 (D-8): sc-5291. Near-infrared western blot analysis of PLC β1 expression in human brain (**A**) and mouse brain (**B**) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



PLC β1 (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 β1, 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.