SANTA CRUZ BIOTECHNOLOGY, INC.

PLC γ1 (B-4): sc-374467

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, PLC δ2 and PLC ε. 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 Integrin α1/β1 and modulates Integrin α1/β-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.

CHROMOSOMAL LOCATION

Genetic locus: PLCG1 (human) mapping to 20q12; Plcg1 (mouse) mapping to 2 H2.

SOURCE

PLC γ1 (B-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 75-115 near the N-terminus of PLC γ1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-374467 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

PLC γ1 (B-4) is recommended for detection of PLC γ1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

PLC γ1 (B-4) is also recommended for detection of PLC γ1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PLC γ1 siRNA (h): sc-29452, PLC γ1 siRNA (m): sc-36265, PLC γ1 shRNA Plasmid (h): sc-29452-SH, PLC γ1 shRNA Plasmid (m): sc-36265-SH, PLC γ1 shRNA (h) Lentiviral Particles: sc-29452-V and PLC γ1 shRNA (m) Lentiviral Particles: sc-36265-V.

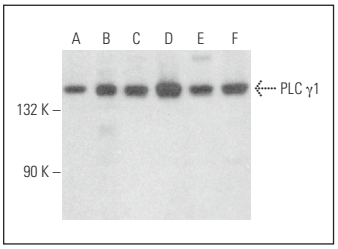
Molecular Weight of PLC γ1: 155 kDa.

Positive Controls: 3T3-L1 cell lysate: sc-2243, A-431 whole cell lysate: sc-2201 or MCF7 whole cell lysate: sc-2206.

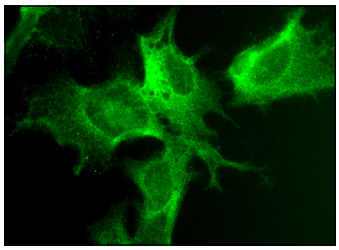
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 γ1 (B-4): sc-374467. Western blot analysis of PLC γ1 expression in 3T3-L1 (**A**), A-431 (**B**), HeLa (**C**), Jurkat (**D**), MCF7 (**E**) and Hep G2 (**F**) whole cell lysates.



PLC γ1 (B-4): sc-374467. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic and membrane localization.

SELECT PRODUCT CITATIONS

1. Andrikopoulos, P., et al. 2017. Coupling between the TRPC3 ion channel and the NCX1 transporter contributed to VEGF-induced ERK1/2 activation and angiogenesis in human primary endothelial cells. Cell. Signal. 37: 12-30.
2. Matsushima, S., et al. 2020. Anosmin-1 activates vascular endothelial growth factor receptor and its related signaling pathway for olfactory bulb angiogenesis. Sci. Rep. 10: 188.
3. Cheshenko, N., et al. 2022. Cell-impermeable staurosporine analog targets extracellular kinases to inhibit HSV and SARS-CoV-2. Commun. Biol. 5: 1096.

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.

CONJUGATES

See **PLC γ1 (E-12): sc-7290** for PLC γ1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.