SANTA CRUZ BIOTECHNOLOGY, INC.

PLC γ1 (E-12): sc-7290

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 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, and may have a protective function during cellular response to oxidative stress.

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.

CHROMOSOMAL LOCATION

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

SOURCE

PLC γ1 (E-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1243-1262 near the C-terminus of PLC γ1 of bovine origin (differs from corresponding human sequence by a single amino acid).

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PLC γ1 (E-12) is available conjugated to agarose (sc-7290 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-7290 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-7290 PE), fluorescein (sc-7290 FITC) or Alexa Fluor® 488 (sc-7290 AF488) or Alexa Fluor® 647 (sc-7290 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-7290 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

PLC γ1 (E-12) is recommended for detection of PLC γ1 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).

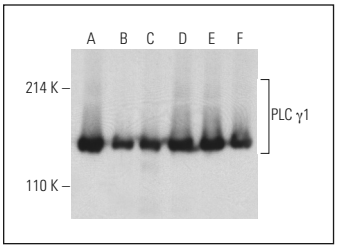
PLC γ1 (E-12) is also recommended for detection of PLC γ1 in additional species, including bovine.

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.

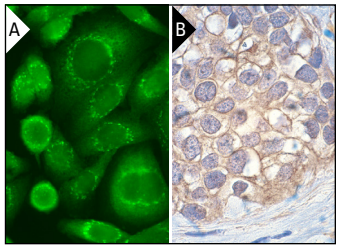
Molecular Weight of PLC γ1: 155 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, Hep G2 cell lysate: sc-2227 or Jurkat whole cell lysate: sc-2204.

DATA



PLC γ1 (E-12): sc-7290. Western blot analysis of PLC γ1 expression in Jurkat (**A**), MCF7 (**B**), Hep G2 (**C**), ALL-SIL (**D**), CCRF-CEM (**E**) and TK-1 (**F**) whole cell lysates. Detection reagent used: m-IgG_3 BP-HRP: sc-533670.



PLC γ1 (E-12) Alexa Fluor® 488: sc-7290 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing membrane localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). PLC γ1 (E-12): sc-7290. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli and tubuli. Kindly provided by The Swedish Human Protein Atlas (HPA) program (**B**).

SELECT PRODUCT CITATIONS

1. Manetz, T., et al. 2001. Vav1 regulates phospholipase Cγ activation and calcium responses in mast cells. Mol. Cell. Biol. 21: 3763-3774.
2. Watari, K., et al. 2020. NDRG1 activates VEGF-A-induced angiogenesis through PLC γ1/ERK signaling in mouse vascular endothelial cells. Commun. Biol. 3: 107.
3. Kim, C.H., et al. 2021. NSrp70 is a lymphocyte-essential splicing factor that controls thymocyte development. Nucleic Acids Res. 49: 5760-5778.

RESEARCH USE

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