

PLC γ 1 (E-12): sc-7290



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 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 Integrin α 1/ β 1 and modulates Integrin α 1/ β -specific adhesion. PLC γ 1 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 γ 1 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

- 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.
- 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 γ 1 (E-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1243-1262 near the C-terminus of PLC γ 1 of bovine origin (differs from corresponding human sequence by a single amino acid).

PRODUCT

Each vial contains 200 μ g IgG₃ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PLC γ 1 (E-12) is available conjugated to agarose (sc-7290 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-7290 HRP), 200 μ g/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 μ g/ml, for WB (RGB), IF, IHC(P) and FCM.

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

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RESEARCH USE

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

APPLICATIONS

PLC γ 1 (E-12) is recommended for detection of PLC γ 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).

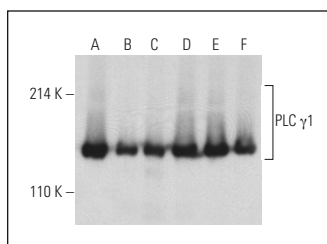
PLC γ 1 (E-12) is also recommended for detection of PLC γ 1 in additional species, including bovine.

Suitable for use as control antibody for PLC γ 1 siRNA (h): sc-29452, PLC γ 1 siRNA (m): sc-36265, PLC γ 1 shRNA Plasmid (h): sc-29452-SH, PLC γ 1 shRNA Plasmid (m): sc-36265-SH, PLC γ 1 shRNA (h) Lentiviral Particles: sc-29452-V and PLC γ 1 shRNA (m) Lentiviral Particles: sc-36265-V.

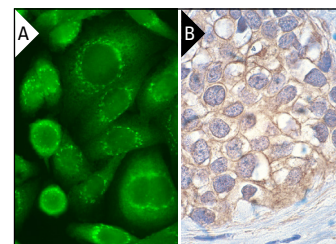
Molecular Weight of PLC γ 1: 155 kDa.

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

DATA



PLC γ 1 (E-12): sc-7290. Western blot analysis of PLC γ 1 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-IgG₃ BP-HRP: sc-533670.



PLC γ 1 (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 γ 1 (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

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

STORAGE

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