

PLC γ 1 (1F1): sc-58407

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 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. It may also 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.
3. Meldrum, E., et al. 1991. A second gene product of the inositol-phospholipid-specific phospholipase C δ subclass. *Eur. J. Biochem.* 196: 159-165.
4. Rhee, S.G., et al. 1992. Regulation of inositol phospholipid-specific phospholipase C isozymes. *J. Biol. Chem.* 267: 12393-12396.

CHROMOSOMAL LOCATION

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

SOURCE

PLC γ 1 (1F1) is a mouse monoclonal antibody raised against full length PLC γ 1 of human origin.

PRODUCT

Each vial contains IgG_{2a} in 100 μ l of 10 mM HEPES with 150 mM NaCl, 50% glycerol and < 0.1% stabilizer protein.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

APPLICATIONS

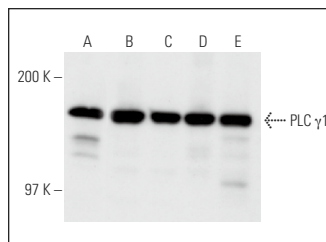
PLC γ 1 (1F1) is recommended for detection of PLC γ 1 of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 μ l per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:30-1:5000).

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.

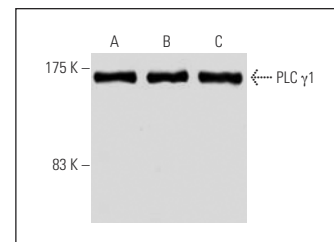
Molecular Weight of PLC γ 1: 155 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, NIH/3T3 whole cell lysate: sc-2210 and U-937 cell lysate: sc-2239.

DATA



PLC γ 1 (1F1): sc-58407. Western blot analysis of PLC γ 1 expression in A-431 (A), NIH/3T3 (B), KNRK (C), MCF7 (D) and U-937 (E) whole cell lysates.



PLC γ 1 (1F1): sc-58407. Western blot analysis of PLC γ 1 expression in Hep G2 (A) and 293T (B) whole cell lysates and mouse brain (C) tissue extract.

SELECT PRODUCT CITATIONS

1. Sanderson, M.P., et al. 2010. Comparison of the anti-allergic activity of Syk inhibitors with optimized Syk siRNAs in Fc ϵ RI-activated RBL-2H3 basophilic cells. *Cell. Immunol.* 262: 28-34.
2. Wang, S.W., et al. 2021. Melatonin impedes prostate cancer metastasis by suppressing MMP-13 expression. *J. Cell. Physiol.* 236: 3979-3990.
3. Tsai, C.H., et al. 2021. CXCL13/CXCR5 axis facilitates endothelial progenitor cell homing and angiogenesis during rheumatoid arthritis progression. *Cell Death Dis.* 12: 846.
4. Achudhan, D., et al. 2021. Antcin K inhibits VEGF-dependent angiogenesis in human rheumatoid arthritis synovial fibroblasts. *J. Food Biochem.* 46: e14022.

RESEARCH USE

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



See **PLC γ 1 (E-12): sc-7290** for PLC γ 1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.