SANTA CRUZ BIOTECHNOLOGY, INC.

PLC ζ (S-12): sc-131756

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, PLC ζ. PLC ζ (phospholipase C-ζ-1), also known as 1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase ζ-1 and Testis-development protein NYD-SP27, is a 608 amino acid protein that triggers intracellular calcium oscillations in oocytes solely during M phase and may be the molecular trigger for egg activation during fertilization. Upon nuclear envelope breakdown for mitosis, PLC ζ localizes from the pronucleus to the cytoplasm and then localizes again to the pronucleus at interphase following meiosis and mitosis. There are three isoforms of PLC ζ that are produced as a result of alternative splicing events.

REFERENCES

1. Cox, L.J., et al. 2002. Sperm phospholipase C ζ from humans and cynomolgus monkeys triggers Ca^{2+} oscillations, activation and development of mouse oocytes. Reproduction 124: 611-623.
2. Zhu, H., et al. 2003. Rescue of defective pancreatic secretion in cystic-fibrosis cells by suppression of a novel isoform of phospholipase C. Lancet 362: 2059-2065.
3. Rogers, N.T., et al. 2004. Phospholipase C ζ causes Ca^{2+} oscillations and parthenogenetic activation of human oocytes. Reproduction 128: 697-702.
4. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 608075. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/.
5. Ito, M., et al. 2008. Relationship between nuclear sequestration of PLC ζ and termination of PLC ζ-induced Ca^{2+} oscillations in mouse eggs. Cell Calcium 44: 400-410.
6. Bi, Y., et al. 2009. NYD-SP27, a novel intrinsic decapacitation factor in sperm. Asian J. Androl. 11: 229-239.
7. Choi, Y.H., et al. 2009. Effect of sperm extract injection volume, injection of PLC ζ cRNA, and tissue cell line on efficiency of equine nuclear transfer. Cloning Stem Cells. 11: 301-308.
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CHROMOSOMAL LOCATION

Genetic locus: Plcz1 (mouse) mapping to 6 G2.

SOURCE

PLC ζ (S-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PLC ζ of mouse origin.

RESEARCH USE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-131756 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PLC ζ (S-12) is recommended for detection of PLC ζ of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with other PLC family members.

Suitable for use as control antibody for PLC ζ siRNA (m): sc-152298, PLC ζ shRNA Plasmid (m): sc-152298-SH and PLC ζ shRNA (m) Lentiviral Particles: sc-152298-V.

Molecular Weight of PLC ζ: 70 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.