SANTA CRUZ BIOTECHNOLOGY, INC.

PLC δ4 (B-2): sc-373875

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 (IP3) and diacylglycerol (DAG) from phosphatidylinositol 4,5-bisphosphate. There are several mammalian PLC proteins, including PLC β1, PLC β2, PLC β3, PLC β4, PLC γ1, PLC γ2, PLC δ1, PLC δ3, PLC δ4 and PLCε. PLC δ1, a calcium signal amplifier, is activated by an atypical GTP-binding protein and functions as an effector for GTP-binding protein transglutaminase II-mediated oxytocin receptor and α1B-adrenoreceptor signaling. PLC δ1 is highly expressed in brain, heart, lung and testis and is abnormally accumulated in autopsied brains with Alzheimer's disease (AD), suggesting that it may play a role in the pathology of AD. Both PLC δ3 and PLC δ4 contain several functional domains through which they bind calcium as a cofactor and catalyze the creation of DAG and IP3, playing an essential role in signal transduction. PLC δ4 is highly expressed in skeletal muscle and kidney tissue, as well as in corneal epithelial cells, suggesting a role in the regulation of kidney and ocular function.

REFERENCES

1. Lee, K.H., et al. 1995. Evidence suggesting a role for phospholipase C isozyme, PLC-δ1 in corticomedullary osmotic gradients in rat kidneys. Biochem. Mol. Biol. Int. 37: 25-31.
2. Liu, N., et al. 1996. A new phospholipase C δ 4 is induced at S-phase of the cell cycle and appears in the nucleus. J. Biol. Chem. 271: 355-360.
3. Matecki, A., et al. 1997. Effect of sphingomyelin and its metabolites on the activity of human recombinant PLC δ1. Int. J. Biochem. Cell Biol. 29: 815-828.
4. Lee, K.H., et al. 1997. Attenuation of renomedullary phospholipase C isozyme, PLC-δ1, in spontaneously hypertensive rats. Biochem. Mol. Biol. Int. 43: 741-747.

CHROMOSOMAL LOCATION

Genetic locus: PLCD4 (human) mapping to 2q35; Plcd4 (mouse) mapping to 1 C3.

SOURCE

PLC δ4 (B-2) is a mouse monoclonal antibody raised against amino acids 1-250 mapping at the N-terminus of PLC δ4 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.

PLC δ4 (B-2) is available conjugated to agarose (sc-373875 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-373875 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373875 PE), fluorescein (sc-373875 FITC), Alexa Fluor® 488 (sc-373875 AF488), Alexa Fluor® 546 (sc-373875 AF546), Alexa Fluor® 594 (sc-373875 AF594) or Alexa Fluor® 647 (sc-373875 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373875 AF680) or Alexa Fluor® 790 (sc-373875 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PLC δ4 (B-2) is recommended for detection of PLC δ4 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), 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).

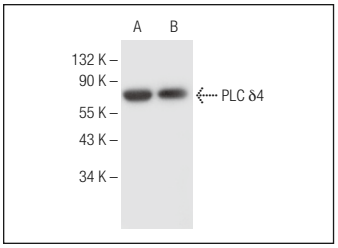
Suitable for use as control antibody for PLC δ4 siRNA (h): sc-45853, PLC δ4 siRNA (m): sc-45854, PLC δ4 shRNA Plasmid (h): sc-45853-SH, PLC δ4 shRNA Plasmid (m): sc-45854-SH, PLC δ4 shRNA (h) Lentiviral Particles: sc-45853-V and PLC δ4 shRNA (m) Lentiviral Particles: sc-45854-V.

Molecular Weight of PLC δ4: 90 kDa.

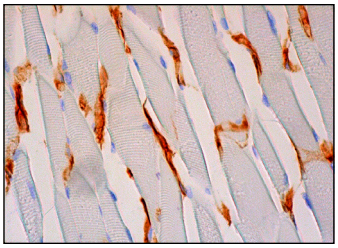
Molecular Weight of PLC δ4 testis specific form: 93 kDa.

Positive Controls: rat testis extract: sc-2400 or rat skeletal muscle extract: sc-364810.

DATA



PLC δ4 (B-2): sc-373875. Western blot analysis of PLC δ4 expression in rat testis (**A**) and rat skeletal muscle (**B**) tissue extracts.



PLC δ4 (B-2): sc-373875. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of fibroblasts.

SELECT PRODUCT CITATIONS

1. Fais, P., et al. 2018. Phosphoinositide-specific phospholipase C in normal human liver and in alcohol abuse. J. Cell. Biochem. 120: 7907-7917.
2. Elliott, B., et al. 2019. Essential role of JunD in cell proliferation is mediated via Myc signaling in prostate cancer cells. Cancer Lett. 448: 155-167.
3. Rah, S.Y., et al. 2023. CD38/ADP-ribose/TRPM2-mediated nuclear Ca^{2+} signaling is essential for hepatic gluconeogenesis in fasting and diabetes. Exp. Mol. Med. 55: 1492-1505.

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.