

# PLC $\beta$ 4 (A-8): sc-166131

## 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. A total of eight mammalian PLC isozymes have been described (PLC  $\beta$ 1, PLC  $\beta$ 2, PLC  $\beta$ 3, PLC  $\beta$ 4, PLC  $\gamma$ 1, PLC  $\gamma$ 2, PLC  $\delta$ 1 and PLC  $\delta$ 2). The  $\gamma$ -type enzymes are unique in that they contain SH2 and SH3 domains. Moreover, the two  $\gamma$ -type enzymes, but not the  $\beta$  and  $\delta$  isozymes, are subject to activation by a number of protein tyrosine kinases which associate with their SH2 domains and induce their activation by phosphorylation. In contrast, activation of PLC  $\beta$ 1, PLC  $\beta$ 2 and PLC  $\beta$ 3 is mediated by the  $\alpha$  subunits of the  $G_q$  class of heterotrimeric G proteins and by certain  $\beta\gamma$  G protein subunits. The regulatory mechanisms for PLC  $\delta$ 1 and PLC  $\delta$ 2 are not yet resolved.

## CHROMOSOMAL LOCATION

Genetic locus: PLCB4 (human) mapping to 20p12.3; Plcb4 (mouse) mapping to 2 F3.

## SOURCE

PLC  $\beta$ 4 (A-8) is a mouse monoclonal antibody raised against amino acids 876-1115 of PLC  $\beta$ 4 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PLC  $\beta$ 4 (A-8) is available conjugated to agarose (sc-166131 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166131 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166131 PE), fluorescein (sc-166131 FITC), Alexa Fluor<sup>®</sup> 488 (sc-166131 AF488), Alexa Fluor<sup>®</sup> 546 (sc-166131 AF546), Alexa Fluor<sup>®</sup> 594 (sc-166131 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-166131 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-166131 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-166131 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

PLC  $\beta$ 4 (A-8) is recommended for detection of PLC  $\beta$ 4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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).

Suitable for use as control antibody for PLC  $\beta$ 4 siRNA (h): sc-36274, PLC  $\beta$ 4 siRNA (m): sc-36275, PLC  $\beta$ 4 shRNA Plasmid (h): sc-36274-SH, PLC  $\beta$ 4 shRNA Plasmid (m): sc-36275-SH, PLC  $\beta$ 4 shRNA (h) Lentiviral Particles: sc-36274-V and PLC  $\beta$ 4 shRNA (m) Lentiviral Particles: sc-36275-V.

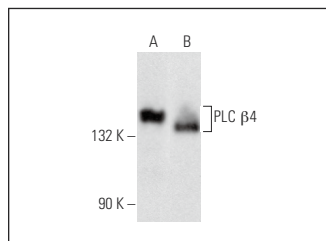
Molecular Weight of PLC  $\beta$ 4: 145 kDa.

Positive Controls: ACHN whole cell lysate: sc-364365, A549 cell lysate: sc-2413 or rat brain extract: sc-2392.

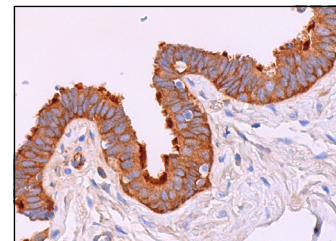
## STORAGE

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

## DATA



PLC  $\beta$ 4 (A-8): sc-166131. Western blot analysis of PLC  $\beta$ 4 expression in ACHN whole cell lysate (A) and rat brain tissue extract (B).



PLC  $\beta$ 4 (A-8): sc-166131. Immunoperoxidase staining of formalin fixed, paraffin-embedded human fallopian tube tissue showing cytoplasmic staining of glandular cells.

## SELECT PRODUCT CITATIONS

- Frantzi, M., et al. 2016. Silencing of Profilin-1 suppresses cell adhesion and tumor growth via predicted alterations in integrin and Ca<sup>2+</sup> signaling in T24M-based bladder cancer models. *Oncotarget* 7: 70750-70768.
- Wei, L., et al. 2017. Rosiglitazone inhibits angiotensin II-induced proliferation of glomerular mesangial cells via the G<sub>αq</sub>/PLC  $\beta$ 4/TRPC signaling pathway. *Cell. Physiol. Biochem.* 44: 2228-2242.
- Fais, P., et al. 2019. Phosphoinositide-specific phospholipase C in normal human liver and in alcohol abuse. *J. Cell. Biochem.* 120: 7907-7917.
- Róg, J., et al. 2019. Dystrophic mdx mouse myoblasts exhibit elevated ATP/UTP-evoked metabotropic purinergic responses and alterations in calcium signalling. *Biochim. Biophys. Acta Mol. Basis Dis.* 1865: 1138-1151.
- Wang, Q., et al. 2020. Targeting Opsin4/Melanopsin with a novel small molecule suppresses PKC/RAF/MEK/ERK signaling and inhibits lung adenocarcinoma progression. *Mol. Cancer Res.* 18: 1028-1038.
- Sasai, M., et al. 2021. Uncovering a novel role of PLC  $\beta$ 4 in selectively mediating TCR signaling in CD8<sup>+</sup> but not CD4<sup>+</sup> T cells. *J. Exp. Med.* 218: e20201763.
- Róg, J., et al. 2023. Primary mouse myoblast metabotropic purinoceptor profiles and calcium signalling differ with their muscle origin and are altered in mdx dystrophinopathy. *Sci. Rep.* 13: 9333.
- Wang, Y., et al. 2024. PLC  $\beta$ 4 driven by cadmium-exposure during gestation and lactation contributes to cognitive deficits by suppressing PIP2/PLC  $\gamma$ 1/CREB/BDNF signaling pathway in male offspring. *J. Hazard. Mater.* 474: 134756.

## RESEARCH USE

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

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