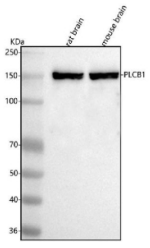
PLCB1 Antibody / Phospholipase C beta 1 (FY12463)

Catalog No.	Formulation	Size
FY12463	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9NQ66
Applications	Western Blot: 0.25-0.5ug/ml ELISA: 0.1-0.5ug/ml
Limitations	This PLCB1 antibody is available for research use only.



Western blot analysis of PLCB1 using anti-PLCB1 antibody. Lane 1: rat brain tissue lysates, Lane 2: mouse brain tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-PLCB1 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. The expected molecular weight of PLCB1 is ~138 kDa.

Description

PLCB1 antibody recognizes Phospholipase C beta 1, an enzyme that hydrolyzes phosphatidylinositol 4,5-bisphosphate (PIP2) to generate the key second messengers inositol 1,4,5-trisphosphate (IP3) and diacylglycerol (DAG). This reaction triggers intracellular calcium release and activates protein kinase C, integrating multiple receptor-mediated signaling cascades. Phospholipase C beta 1 functions downstream of G-protein-coupled receptors and plays an essential role in neuronal excitability, synaptic plasticity, and cellular growth regulation. The PLCB1 antibody is widely used to study

intracellular signaling pathways, phosphoinositide metabolism, and neurological disorders involving aberrant calcium signaling.

PLCB1 is encoded by the PLCB1 gene on human chromosome 20p12.3 and belongs to the phospholipase C family, which includes beta, gamma, delta, epsilon, eta, and zeta isoforms. The protein contains characteristic catalytic X and Y domains, a C2 domain responsible for calcium-dependent membrane association, and a C-terminal G-protein-binding domain. Activation occurs via interaction with Galphaq or Gbetagamma subunits of heterotrimeric G proteins. Within neurons, PLCB1 is highly expressed in the cerebral cortex, hippocampus, and striatum, where it contributes to muscarinic acetylcholine and glutamate receptor signaling. Dysregulation of PLCB1 signaling has been linked to epilepsy, schizophrenia, and bipolar disorder, emphasizing its importance in brain function.

Using the PLCB1 antibody, researchers can detect multiple isoforms of phospholipase C beta 1 ranging from 120-150 kDa depending on tissue and post-translational modifications. Western blot and immunohistochemical studies demonstrate strong neuronal cytoplasmic staining, often enriched near the plasma membrane. Functional analyses reveal that PLCB1 interacts with scaffolding proteins and cytoskeletal elements, coupling receptor activation to localized calcium dynamics and neurotransmitter release. In addition to neuronal tissues, PLCB1 is expressed in cardiac, hepatic, and endothelial cells, where it mediates G-protein-linked responses controlling vascular tone, secretion, and metabolism.

Loss of PLCB1 activity impairs signal transduction, while overactivation can lead to excitotoxicity and dysregulated calcium homeostasis. Knockout models show severe neurodevelopmental defects and altered behavior, confirming its critical physiological role. Beyond the nervous system, PLCB1 contributes to immune cell activation, insulin signaling, and smooth muscle contraction. NSJ Bioreagents provides a validated PLCB1 antibody optimized for western blot, immunofluorescence, and immunohistochemistry, supporting investigations into GPCR-driven signaling, phosphoinositide metabolism, and disease mechanisms involving calcium-dependent processes.

Application Notes

Optimal dilution of the PLCB1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PLCB1 recombinant protein (Position: H9-D834) was used as the immunogen for the PLCB1 antibody.

Storage

After reconstitution, the PLCB1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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