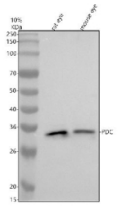
PDC Antibody / Phosducin (FY12954)

Catalog No.	Formulation	Size
FY12954	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	Mouse, Rat
Format	Lyophilized
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	P20941
Applications	Western Blot : 0.25-0.5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This PDC antibody is available for research use only.



Western blot analysis of PDC using anti-PDC antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: rat eye tissue lysates, Lane 2: mouse eye 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-PDC 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 an ECL Plus Western Blotting Substrate. A specific band was detected for PDC at approximately 28 kDa. The expected molecular weight of PDC is ~28 kDa.

Description

PDC antibody detects Phosducin, a phosphoprotein that modulates G-protein signaling in photoreceptor cells and other neurons. The UniProt recommended name is Phosducin (PDC), an abundant cytosolic protein expressed primarily in the retina. Phosducin regulates heterotrimeric G-protein signaling by binding the beta-gamma subunits (Gbetagamma) of transducin, thereby controlling phototransduction and other G-protein-mediated pathways.

Functionally, PDC antibody identifies a 28 kDa protein that plays a central role in the visual signal transduction cascade. In dark-adapted photoreceptors, phosducin forms a complex with Gbetagamma subunits, preventing reassociation with the alpha subunit and thereby maintaining the inactive G-protein state. Upon light stimulation, elevated cAMP and phosphorylation by protein kinase A (PKA) reduce its affinity for Gbetagamma, freeing these subunits to reassemble with transducin alpha and activate cGMP phosphodiesterase. This mechanism ensures the precise timing and sensitivity of visual signaling.

The PDC gene is located on chromosome 1q25.2 and encodes a protein consisting of a central G-protein beta-binding domain. Beyond the retina, phosducin is expressed in pineal gland, olfactory neurons, and parts of the brain, suggesting broader roles in neuromodulation. It participates in feedback control of G-protein signaling, potentially influencing synaptic plasticity and hormone release. Phosducin is evolutionarily conserved, with homologs present in multiple vertebrate species, highlighting its importance in sensory transduction and neural signaling.

PDC antibody is used in neurobiology and vision research to explore phototransduction mechanisms, G-protein signaling regulation, and phosphorylation dynamics. In rod cells, phosphorylation state changes of phosducin reflect illumination conditions and photoreceptor adaptation. Studies also show that phosducin participates in stress responses by modulating sympathetic nervous system activity, linking retinal signaling pathways with systemic physiological regulation.

Structurally, phosducin comprises a coiled-coil N-terminal region required for Gbetagamma binding and a C-terminal domain that interacts with chaperones and kinases. It is phosphorylated at multiple serine residues, including Ser54 and Ser73, which alter its subcellular distribution and binding capacity. These regulatory mechanisms fine-tune G-protein signaling under varying environmental and metabolic conditions. Mutations or dysregulation of PDC expression have been implicated in retinal degeneration and light adaptation defects.

NSJ Bioreagents offers PDC antibody reagents validated for research applications in vision, signal transduction, and G-protein biology. These antibodies are suited for applications used to study the localization and regulation of phosducin in photoreceptor and neuronal systems.

Application Notes

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

Immunogen

E.coli-derived human PDC recombinant protein (Position: M1-E246) was used as the immunogen for the PDC antibody.

Storage

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