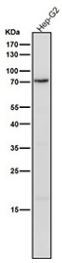
Phospho-PKC delta (Tyr311) Antibody / PRKCD [clone 32P27] (FY13374)

Catalog No.	Formulation	Size
FY13374	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	2-3 weeks
Species Reactivity	Human
Format	Liquid
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	32P27
Purity	Affinity chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	Q05655
Applications	Western Blot : 1:500-1:2000 Immunohistochemistry : 1:50-1:200 Immunoprecipitation : 1:50
Limitations	This Phospho-PKC delta (Tyr311) antibody is available for research use only.



Western blot testing of huma HepG2 cell lysate using the Phospho-PKC delta (Tyr311) antibody at 1:1000 dilution for 1 hour at room temperature. Predicted molecular weight ~75 kDa.

Description

Phospho-PKC delta (Tyr311) antibody detects PKC delta phosphorylated at tyrosine 311, encoded by the PRKCD gene. PKC delta is a member of the novel protein kinase C family of serine-threonine kinases, which are activated by diacylglycerol but not by calcium. Phosphorylation at Tyr311 is a critical regulatory modification that enhances PKC delta

catalytic activity and determines substrate specificity. Phospho-PKC delta (Tyr311) antibody provides researchers with a precise tool to study how tyrosine phosphorylation integrates into PKC signaling, apoptosis regulation, and stress responses.

PKC delta is widely expressed and participates in multiple signaling pathways. Research using Phospho-PKC delta (Tyr311) antibody has shown that phosphorylation at Tyr311 occurs downstream of growth factor receptors, integrin engagement, and stress-inducing stimuli such as DNA damage and oxidative stress. This modification is catalyzed by upstream kinases including Src family kinases and Abl, which directly phosphorylate PKC delta on its regulatory domain. Phosphorylation at Tyr311 alters the conformation of PKC delta, promoting kinase activity and enabling interaction with specific substrates. These findings illustrate the importance of Tyr311 phosphorylation in fine-tuning PKC delta signaling output.

One of the major biological roles of PKC delta phosphorylated at Tyr311 is regulation of apoptosis. Studies with Phospho-PKC delta (Tyr311) antibody have revealed that this modification supports pro-apoptotic signaling in response to genotoxic stress. PKC delta phosphorylated at Tyr311 translocates to mitochondria, where it interacts with Bcl-2 family proteins to promote cytochrome c release and caspase activation. In parallel, it phosphorylates nuclear substrates to enhance DNA fragmentation and apoptosis execution. This dual mitochondrial and nuclear activity underscores PKC delta's role as a stress-activated pro-death kinase.

In cancer research, PKC delta shows context-dependent functions. Research using Phospho-PKC delta (Tyr311) antibody has shown that in certain malignancies, such as glioblastoma and breast cancer, PKC delta acts as a tumor suppressor by promoting apoptosis through Tyr311 phosphorylation. Conversely, in other cancers, PKC delta activity supports survival and migration. The specific role depends on cellular context, phosphorylation status, and cross-talk with other signaling pathways. These observations highlight the complexity of targeting PKC delta in oncology.

Cardiovascular studies have also linked PKC delta phosphorylation at Tyr311 to heart disease. Research using Phospho-PKC delta (Tyr311) antibody has demonstrated that excessive activation promotes cardiomyocyte apoptosis during ischemia-reperfusion injury, contributing to loss of viable myocardium. Similarly, PKC delta regulates vascular smooth muscle contraction and remodeling. Dysregulation of Tyr311 phosphorylation has been associated with atherosclerosis and vascular dysfunction, suggesting a role for PKC delta in cardiovascular pathology.

Beyond apoptosis and cardiovascular disease, PKC delta is involved in immune signaling and inflammation. Studies with Phospho-PKC delta (Tyr311) antibody have revealed that Tyr311 phosphorylation modulates cytokine production, macrophage activation, and antigen receptor signaling. By influencing immune cell function, PKC delta participates in host defense as well as chronic inflammatory conditions. These findings expand its functional repertoire beyond classical stress and apoptosis pathways.

Phospho-PKC delta (Tyr311) antibody is widely applied in western blotting, immunohistochemistry, and immunofluorescence. In western blotting, it detects the phosphorylated form of PKC delta as distinct from total protein levels, providing a readout of activation state. Immunohistochemistry highlights tissue-specific regions of PKC delta activation, including tumors, heart, and vascular tissue under stress conditions. Immunofluorescence shows subcellular distribution, often revealing mitochondrial or nuclear localization in apoptotic cells. Together, these applications demonstrate the utility of the antibody in both basic science and translational research.

By supplying validated Phospho-PKC delta (Tyr311) antibody reagents, NSJ Bioreagents supports studies into apoptosis, cardiovascular biology, immune function, and cancer. Detection of PKC delta phosphorylated at Tyr311 provides insight into how tyrosine phosphorylation modulates kinase activity and influences cellular fate decisions across multiple systems.

Application Notes

Optimal dilution of the Phospho-PKC delta (Tyr311) antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human Phospho-PKC delta (Y311) was used as the immunogen for the Phospho-PKC delta (Tyr311) antibody.

Storage

Store the Phospho-PKC delta (Tyr311) antibody at -20oC.