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PDPK1 Antibody (S393) Blocking Peptide

Synthetic peptide
Catalog # BP7042h

Specification

PDPK1 Antibody (S393) Blocking Peptide - Product Information

Primary Accession O15530

PDPK1 Antibody (S393) Blocking Peptide - Additional Information

Gene ID 5170

Other Names
3-phosphoinositide-dependent protein kinase 1, hPDK1, PDPK1, PDK1

Target/Specificity
The synthetic peptide sequence used to generate the antibody AP7042h was selected from the S393 region of human PDPK1. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

PDPK1 Antibody (S393) Blocking Peptide - Protein Information

Name PDPK1

Synonyms PDK1

PDPK1 Antibody (S393) Blocking Peptide - Background

PDPK1 (3 Phosphoinositide Dependent Protein Kinase 1) phosphorylates AGC kinases. PDPK1 activates conventional PKC and PKC zeta through phosphorylation of critical threonine residues in the activation loop. PDPK1 also phosphorylates Protein Kinase B (PKB) at threonine 308 in the presence ofphosphatidylinositol-3,4,5-trisphosphate. Active Akt inactivates Glycogen Synthase Kinase 3 (GSK3), eventually leading to the dephosphorylation and activation of glycogen synthase, and the stimulation of glycogen synthesis. Because of the role that PDPK1 plays in insulin-induced glycogen synthesis and PKC activation, it is a potentially important target for metabolic drug research.

PDPK1 Antibody (S393) Blocking Peptide - References

Nilsen, T., et al., J. Biol. Chem. 279(6):4794-4801 (2004).Collins, B.J., et al., EMBO J. 22(16):4202-4211 (2003).Egawa, K., et al., J. Biol. Chem. 277(41):38863-38869 (2002).Sato, S., et al., J. Biol. Chem. 277(42):39360-39367 (2002).Scott, M.T., et al., EMBO J. 21(24):6771-6780 (2002).

Function

Serine/threonine kinase which acts as a master kinase, phosphorylating and activating a subgroup of the AGC family of protein kinases. Its targets include: protein kinase B (PKB/AKT1, PKB/AKT2, PKB/AKT3), p70 ribosomal protein S6 kinase (RPS6KB1), p90 ribosomal protein S6 kinase (RPS6KA1, RPS6KA2 and RPS6KA3), cyclic AMP-dependent protein kinase (PRKACA), protein kinase C (PRKCD and PRKCZ), serum and glucocorticoid-inducible kinase (SGK1, SGK2 and SGK3), p21-activated kinase-1 (PAK1), protein kinase PKN (PKN1 and PKN2). Plays a central role in the transduction of signals from insulin by providing the activating phosphorylation to PKB/AKT1, thus propagating the signal to downstream targets controlling cell proliferation and survival, as well as glucose and amino acid uptake and storage. Negatively regulates the TGF-beta-induced signaling by: modulating the association of SMAD3 and SMAD7 with TGF-beta receptor, phosphorylating SMAD2, SMAD3, SMAD4 and SMAD7, preventing the nuclear translocation of SMAD3 and SMAD4 and the translocation of SMAD7 from the nucleus to the cytoplasm in response to TGF-beta. Activates PPARG transcriptional activity and promotes adipocyte differentiation. Activates the NF-kappa-B pathway via phosphorylation of IKKB. The tyrosine phosphorylated form is crucial for the regulation of focal adhesions by angiotensin II. Controls proliferation, survival, and growth of developing pancreatic cells. Participates in the regulation of Ca(2+) entry and Ca(2+)-activated K(+) channels of mast cells. Essential for the motility of vascular endothelial cells (ECs) and is involved in the regulation of their chemotaxis. Plays a critical role in cardiac homeostasis by serving as a dual effector for cell survival and beta-adrenergic response. Plays an important role during thymocyte development by regulating the expression of key nutrient receptors on the surface of pre-T cells and mediating Notch-induced cell growth and proliferative responses. Provides negative feedback inhibition to toll-like receptor-mediated NF-kappa-B activation in macrophages. Isoform 3 is catalytically inactive.

Cellular Location

Cytoplasm. Nucleus. Cell membrane;

Peripheral membrane protein. Cell junction, focal adhesion. Note=Tyrosine phosphorylation seems to occur only at the cell membrane. Translocates to the cell membrane following insulin stimulation by a mechanism that involves binding to GRB14 and INSR. SRC and HSP90 promote its localization to the cell membrane. Its nuclear localization is dependent on its association with PTPN6 and its phosphorylation at Ser- 396. Restricted to the nucleus in neuronal cells while in non-neuronal cells it is found in the cytoplasm. The Ser-241 phosphorylated form is distributed along the perinuclear region in neuronal cells while in non-neuronal cells it is found in both the nucleus and the cytoplasm IGF1 transiently increases phosphorylation at Ser-241 of neuronal PDPK1, resulting in its translocation to other cellular compartments The tyrosine-phosphorylated form colocalizes with PTK2B in focal adhesions after angiotensin II stimulation

Tissue Location
Appears to be expressed ubiquitously. The Tyr-9 phosphorylated form is markedly increased in diseased tissue compared with normal tissue from lung, liver, colon and breast

PDPK1 Antibody (S393) Blocking Peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides