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[KO]PDPK1 Rabbit mAb

Catalog # AP75887

Product Information

Application	WB, IHC-P
Primary Accession	O15530
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Purified
Calculated MW	63152

Additional Information

Gene ID	5170
Other Names	PDPK1
Dilution	WB~~1:500-1:1000 IHC-P~~N/A
Format	Liquid in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

Name	PDPK1
Synonyms	PDK1
Function	Serine/threonine kinase which acts as a master kinase, phosphorylating and activating a subgroup of the AGC family of protein kinases (PubMed:10226025, PubMed:10480933, PubMed:10995762, PubMed:12167717, PubMed:14585963, PubMed:14604990, PubMed:16207722, PubMed:16251192, PubMed:17327236, PubMed:17371830, PubMed:18835241, PubMed:9094314, PubMed:9368760, PubMed:9445476, PubMed:9445477, PubMed:9707564, PubMed:9768361). 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), TSSK3, protein kinase PKN (PKN1 and PKN2) (PubMed:10226025,

PubMed:10480933, PubMed:10995762, PubMed:12167717, PubMed:14585963, PubMed:14604990, PubMed:16207722, PubMed:16251192, PubMed:17327236, PubMed:17371830, PubMed:18835241, PubMed:9094314, PubMed:9368760, PubMed:9445476, PubMed:9707564, PubMed:9768361). 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 (PubMed:10226025, PubMed:12167717, PubMed:9094314). 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 (PubMed:17327236). Activates PPARG transcriptional activity and promotes adipocyte differentiation (By similarity). Activates the NF-kappa-B pathway via phosphorylation of IKKB (PubMed:16207722). The tyrosine phosphorylated form is crucial for the regulation of focal adhesions by angiotensin II (PubMed:14585963). Controls proliferation, survival, and growth of developing pancreatic cells (By similarity). Participates in the regulation of Ca(2+) entry and Ca(2+)-activated K(+) channels of mast cells (By similarity). Essential for the motility of vascular endothelial cells (ECs) and is involved in the regulation of their chemotaxis (PubMed:17371830). Plays a critical role in cardiac homeostasis by serving as a dual effector for cell survival and beta-adrenergic response (By similarity). 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 (By similarity). Provides negative feedback inhibition to toll-like receptor-mediated NF-kappa-B activation in macrophages (By similarity).

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

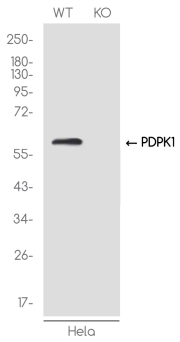
Tissue Location

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

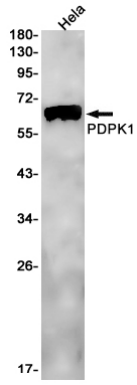
Background

Phosphoinositide-dependent protein kinase 1 (PDK1) plays a central role in many signal transduction pathways including the activation of Akt and the PKC isoenzymes p70 S6 kinase and RSK. Through its effects on these kinases, PDK1 is involved in the regulation of a wide variety of processes, including cell proliferation, differentiation and apoptosis.

Images



Western blot analysis of PDPK1 in HeLa(WT) and PDPK1-Knockout HeLa(KO) using PDPK1 antibody.



Western blot analysis of PDPK1 in Hela lysates using PDPK1 antibody.

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