

# PDPK1 (5): sc-136243

## BACKGROUND

PDPK1 (3-phosphoinositide dependent protein kinase 1), also known as PDK1, PDPK2, PDPK2P or PR00461, is 556 amino acid ubiquitously expressed protein that localizes to the cell membrane, cytoplasm and nucleus. Acting as a master kinase, PDPK1 phosphorylates and activates a subgroup of the AGC family of protein kinases. PDPK1 is involved in mediating signal transduction for controlling proliferation, survival, and growth of developing pancreatic  $\beta$  cells, regulating  $\text{Ca}^{2+}$  uptake and  $\text{Ca}^{2+}$ -activated  $\text{K}^{+}$  channels of mast cells, regulation of chemotaxis and motility of vascular endothelial cells, cardiac homeostasis, and thymocyte development. Belonging to the protein kinase superfamily, PDPK1 contains a PH domain, which play an essential role in homodimerization, localization and nuclear import of PDPK1, and a protein kinase domain. PDPK1 exists as five alternatively spliced isoforms and is encoded by a gene located on human chromosome 16p13.3.

## REFERENCES

1. Alessi, D.R., et al. 1997. 3-phosphoinositide-dependent protein kinase-1 (PDK1): structural and functional homology with the *Drosophila* DSTPK61 kinase. *Curr. Biol.* 7: 776-789.
2. Stephens, L., et al. 1998. Protein kinase B kinases that mediate phosphatidylinositol 3,4,5-trisphosphate-dependent activation of protein kinase B. *Science* 279: 710-714.
3. Mora, A., et al. 2004. PDK1, the master regulator of AGC kinase signal transduction. *Semin. Cell Dev. Biol.* 15: 161-170.
4. Feldman, R.I., et al. 2005. Novel small molecule inhibitors of 3-phosphoinositide-dependent kinase-1. *J. Biol. Chem.* 280: 19867-19874.
5. Gao, X. and Harris, T.K. 2006. Role of the PH domain in regulating *in vitro* autophosphorylation events required for reconstitution of PDK1 catalytic activity. *Bioorg. Chem.* 34: 200-223.
6. Hashimoto, N., et al. 2006. Ablation of PDK1 in pancreatic beta cells induces diabetes as a result of loss of  $\beta$  cell mass. *Nat. Genet.* 38: 589-593.
7. Primo, L., et al. 2007. Essential role of PDK1 in regulating endothelial cell migration. *J. Cell Biol.* 176: 1035-1047.

## CHROMOSOMAL LOCATION

Genetic locus: PDPK1 (human) mapping to 16p13.3; Pdpk1 (mouse) mapping to 17 A3.3.

## SOURCE

PDPK1 (5) is a mouse monoclonal antibody raised against amino acids 439-555 of PKB Kinase of rat origin.

## PRODUCT

Each vial contains 50  $\mu\text{g}$  IgG<sub>1</sub> in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-136243 P, (100  $\mu\text{g}$  peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

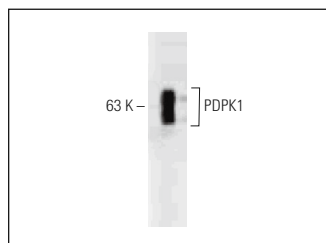
PDPK1 (5) is recommended for detection of PDPK1 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu\text{g}$  per 100-500  $\mu\text{g}$  of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for PDPK1 siRNA (h): sc-29448, PDPK1 siRNA (m): sc-36242, PDPK1 shRNA Plasmid (h): sc-29448-SH, PDPK1 shRNA Plasmid (m): sc-36242-SH, PDPK1 shRNA (h) Lentiviral Particles: sc-29448-V and PDPK1 shRNA (m) Lentiviral Particles: sc-36242-V.

Molecular Weight of PDPK1: 68 kDa.

Positive Controls: SW-13 cell lysate: sc-24778, MCF7 whole cell lysate: sc-2206 or K-562 whole cell lysate: sc-2203.

## DATA



PDPK1 (5): sc-136243. Western blot analysis of PDPK1 expression in SW-13 whole cell lysate.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures. Not for resale.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.



See **PDPK1 (E-3): sc-17765** for PDPK1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.