SANTA CRUZ BIOTECHNOLOGY, INC.

PDPK1 (D-5): sc-376586

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The Power to Question

BACKGROUND

PDPK1 (3-phosphoinositide dependent protein kinase 1), also known as PDK1, PDPK2, PDPK2P or PRO0461, 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 β cells, regulating Ca^{2+} uptake and Ca^{2+}-activated 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.

CHROMOSOMAL LOCATION

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

SOURCE

PDPK1 (D-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 529-556 at the C-terminus of PDPK1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-376586 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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.

APPLICATIONS

PDPK1 (D-5) is recommended for detection of PDPK1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

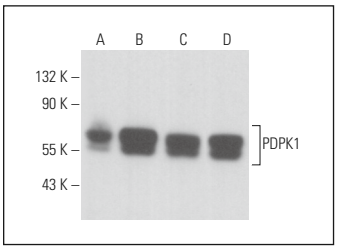
Molecular Weight of PDPK1: 68 kDa.

Positive Controls: SK-BR-3 cell lysate: sc-2218, MCF7 whole cell lysate: sc-2206 or NIH/3T3 whole cell lysate: sc-2210.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



PDPK1 (D-5): sc-376586. Western blot analysis of PDPK1 expression in MCF7 (**A**), ZR-75-1 (**B**), SK-BR-3 (**C**) and NIH/3T3 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Ma, X., et al. 2020. MicroRNA-363-3p inhibits cell proliferation and induces apoptosis in retinoblastoma cells via the Akt/mTOR signaling pathway by targeting PIK3CA. Oncol. Rep. 43: 1365-1374.

CONJUGATES

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.