10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

PDK2 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7039b

Product Information

Application	WB, IHC-P, E
Primary Accession	Q15119
Other Accession	Q64536, Q9JK42
Reactivity	Human, Rat, Monkey, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	46154
Antigen Region	378-407

Additional Information

Gene ID	5164
Other Names	[Pyruvate dehydrogenase (acetyl-transferring)] kinase isozyme 2, mitochondrial, Pyruvate dehydrogenase kinase isoform 2, PDH kinase 2, PDKII, PDK2, PDHK2
Target/Specificity	This PDK2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 378-407 amino acids from the C-terminal region of human PDK2.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	PDK2 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PDK2
Synonyms	PDHK2
Function	Kinase that plays a key role in the regulation of glucose and fatty acid

metabolism and homeostasis via phosphorylation of the pyruvate dehydrogenase subunits PDHA1 and PDHA2. This inhibits pyruvate dehydrogenase activity, and thereby regulates metabolite flux through the tricarboxylic acid cycle, down-regulates aerobic respiration and inhibits the formation of acetyl-coenzyme A from pyruvate. Inhibition of pyruvate dehydrogenase decreases glucose utilization and increases fat metabolism. Mediates cellular responses to insulin. Plays an important role in maintaining normal blood glucose levels and in metabolic adaptation to nutrient availability. Via its regulation of pyruvate dehydrogenase activity, plays an important role in maintaining normal blood pH and in preventing the accumulation of ketone bodies under starvation. Plays a role in the regulation of cell proliferation and in resistance to apoptosis under oxidative stress. Plays a role in p53/TP53-mediated apoptosis.

Cellular Location Mitochondrion matrix.

Tissue Location Expressed in many tissues, with the highest level in heart and skeletal muscle, intermediate levels in brain, kidney, pancreas and liver, and low levels in placenta and lung

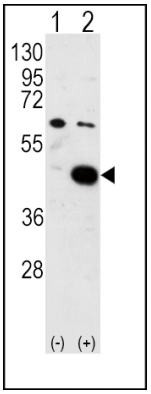
Background

PDK2 inhibits the mitochondrial pyruvate dehydrogenase complex by phosphorylation of the E1 alpha subunit, thus contributing to the regulation of glucose metabolism.

References

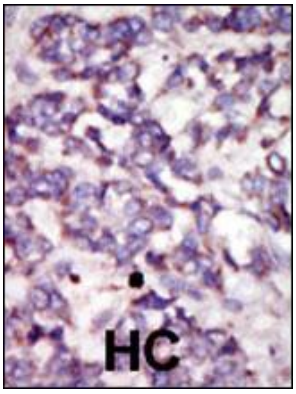
Hiromasa, Y., et al., J. Biol. Chem. 278(36):33681-33693 (2003). Baker, J.C., et al., J. Biol. Chem. 275(21):15773-15781 (2000). Gudi, R., et al., J. Biol. Chem. 270(48):28989-28994 (1995). Sun, W. et al. Clin Cancer Res. January 15; 15(2): 476?84(2009).

Images



Western blot analysis of PDK2 (arrow) using PDK2 Antibody (C-term)(Cat. #AP7039b). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the PDK2 gene (Lane 2) (Origene Technologies).

Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.



Citations

- Exosomal circTUBGCP4 promotes vascular endothelial cell tipping and colorectal cancer metastasis by activating Akt signaling pathway
- BCKDK regulates the TCA cycle through PDC in the absence of PDK family during embryonic development
- Astrocytic pyruvate dehydrogenase kinase-2 is involved in hypothalamic inflammation in mouse models of diabetes
- Inactivation of pyruvate dehydrogenase kinase 2 by mitochondrial reactive oxygen species.
- The relationship between human skeletal muscle pyruvate dehydrogenase phosphatase activity and muscle aerobic capacity.
- Mechanism of a genetically encoded dark-to-bright reporter for caspase activity.
- PDH activation during in vitro muscle contractions in PDH kinase 2 knockout mice: effect of PDH kinase 1 compensation.
- Prolonged L-alanine exposure induces changes in metabolism, Ca(2+) handling and desensitization of insulin secretion in clonal pancreatic beta-cells.
- Mitochondrial mutations contribute to HIF1alpha accumulation via increased reactive oxygen species and up-regulated pyruvate dehydrogenease kinase 2 in head and neck squamous cell carcinoma.
- Regulation of pyruvate dehydrogenase in the common killifish, Fundulus heteroclitus, during hypoxia exposure.
- Estrogen-related receptors stimulate pyruvate dehydrogenase kinase isoform 4 gene expression.
- Regulation of PDK mRNA by high fatty acid and glucose in pancreatic islets.
- Reperfusion-induced translocation of deltaPKC to cardiac mitochondria prevents pyruvate dehydrogenase reactivation.