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

PGK1 Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7094b

Product Information

Application	IHC-P, IF, FC, WB, E
Primary Accession	P00558
Other Accession	P16617, P09411, Q60HD8
Reactivity	Human, Rat, Mouse
Predicted	Monkey, Rat, Bovine, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	44615
Antigen Region	117-145

Additional Information

Gene ID	5230
Other Names	Phosphoglycerate kinase 1, Cell migration-inducing gene 10 protein, Primer recognition protein 2, PRP 2, PGK1, PGKA
Target/Specificity	This PGK1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 117-145 amino acids from the Central region of human PGK1.
Dilution	IHC-P~~1:100~500 IF~~1:10~50 FC~~1:10~50 WB~~1:1000 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	PGK1 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PGK1 (HGNC:8896)
Synonyms	PGKA

Function	Catalyzes one of the two ATP producing reactions in the glycolytic pathway via the reversible conversion of 1,3- diphosphoglycerate to 3-phosphoglycerate (PubMed:30323285, PubMed:7391028). Both L- and D-forms of purine and pyrimidine nucleotides can be used as substrates, but the activity is much lower on pyrimidines (PubMed:18463139). In addition to its role as a glycolytic enzyme, it seems that PGK1 acts as a polymerase alpha cofactor protein (primer recognition protein) (PubMed:2324090). Acts as a protein kinase when localized to the mitochondrion where it phosphorylates pyruvate dehydrogenase kinase PDK1 to inhibit pyruvate dehydrogenase complex activity and suppress the formation of acetyl- coenzyme A from pyruvate, and consequently inhibit oxidative phosphorylation and promote glycolysis (PubMed:26942675, PubMed:36849569). May play a role in sperm motility (PubMed:26677959).
Cellular Location	Cytoplasm, cytosol. Mitochondrion matrix. Note=Hypoxic conditions promote mitochondrial targeting (PubMed:26942675). Targeted to the mitochondrion following phosphorylation by MAPK1/ERK2, cis-trans isomerization by PIN1, and binding to mitochondrial circRNA mcPGK1 (PubMed:36849569).
Tissue Location	Mainly expressed in spermatogonia. Localized on the principle piece in the sperm (at protein level). Expression significantly decreased in the testis of elderly men

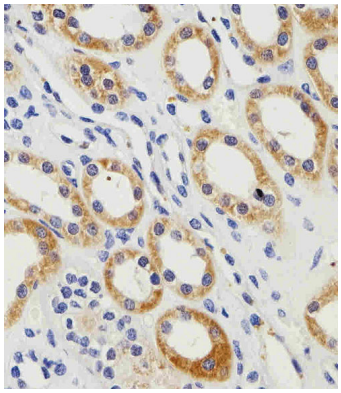
Background

Also known as ATP:3-phosphoglycerate 1-phosphotransferase (EC 2.7.2.3), this major enzyme in glycolysis catalyzes the reversible conversion of 1,3-diphosphoglycerate to 3-phosphoglycerate, generating one molecule of ATP. New blood vessel formation or angiogenesis is critical for tumor expansion and metastasis. Lay et al. (2000) showed that the plasmin reductase isolated from conditioned medium of fibrosarcoma cells is the glycolytic enzyme phosphoglycerate kinase. They concluded that phosphoglycerate kinase not only functions in glycolysis but is secreted by tumor cells and participates in the angiogenic process as a disulfide reductase.

References

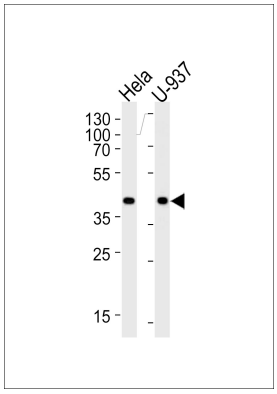
Lay, A. J., et al. Nature 408: 869-873 (2000).

Images

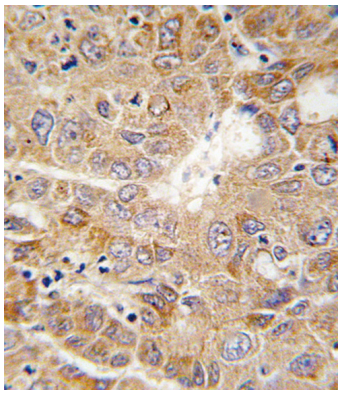


Immunohistochemical analysis of paraffin-embedded H. kidney section using PGK1 Antibody (Center)(Cat#AP7094b). AP7094b was diluted at 1:100 dilution. A peroxidase-conjugated goat anti-rabbit IgG at 1:400 dilution was used as the secondary antibody, followed by DAB staining.

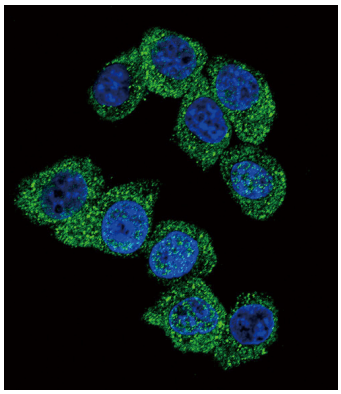
Western blot analysis of lysates from Hela, U-937 cell line (from left to right), using PGK1 Antibody (G132)(Cat. #AP7094b). AP7094b was diluted at 1:1000 at each lane. A goat anti-rabbit IgG H&L(HRP) at 1:5000 dilution was



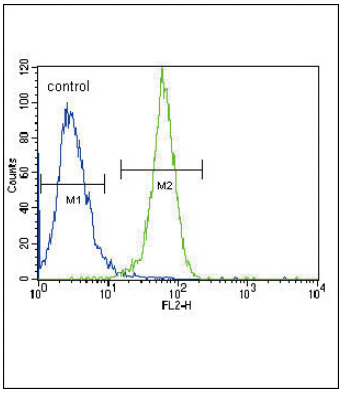
used as the secondary antibody. Lysates at 35ug per lane.



Formalin-fixed and paraffin-embedded human hepatocarcinoma tissue reacted with PGK1 antibody (Center), 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.



Confocal immunofluorescent analysis of PGK1 Antibody (Center)(Cat#AP7094b) with Hela cell followed by Alexa Fluor 488-conjugated goat anti-rabbit lgG (green).DAPI was used to stain the cell nuclear (blue).



PGK1 Antibody (Center) (Cat. #AP7094b) flow cytometric analysis of Hela cells (right histogram) compared to a negative control cell (left histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

Citations

- O-GlcNAcylation of PGK1 coordinates glycolysis and TCA cycle to promote tumor growth
- Phosphoglycerate kinase 2 (PGK2) is essential for sperm function and male fertility in mice.
- Role of hypoxia inducible factor-1 alpha in modulation of apoptosis resistance.
- Parkinson's disease-associated mutations in leucine-rich repeat kinase 2 augment kinase activity.
- Proteomic profiling reveals a severely perturbed protein expression pattern in aged skeletal muscle.
- Opposite pathobiochemical fate of pyruvate kinase and adenylate kinase in aged rat skeletal muscle as revealed by

proteomic DIGE analysis.
- Cigarette smoking exposure alters pebp1 DNA methylation and protein profile involved in MAPK signaling pathway in mice testis.
- Antrodia cinnamomea Inhibits Migration in Human Hepatocellular Carcinoma Cells.
- The effect of 3-bromopyruvate on human colorectal cancer cells is dependent on glucose concentration but not hexokinase II expression.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.