abcam

ab199438

Anti-PGK1 antibody [EPR19057]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR19057
Purification technique	Affinity purification Protein A
Concentration	0.6665 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Mouse
Dilution info	1/2000
Notes	-

Species	Human

Dilution info	1/2000
Notes	-

Species	Rat
Dilution info	1/2000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/250
Notes	-

Expected

Species	Mouse
Dilution info	1/250
Notes	-

Species	Rat
Dilution info	1/250
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/150
Notes	-

Expected

Species	Mouse
Dilution info	1/150

Notes	-

Species	Rat
Dilution info	1/150
Notes	-

Target data

See full target information PGK1

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).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	PGK1 also known as phosphoglycerate kinase-1 is an enzyme involved in glycolysis with a mass of approximately 45 kDa. PGK1 catalyzes the reversible transfer of a phosphate group from 13-bisphosphoglycerate to ADP forming 3-phosphoglycerate and ATP. This enzyme is expressed ubiquitously across various tissues with significant roles in energy metabolism. In yeast it is referred to simply as phosphoglycerate kinase where its function in cellular respiration is widely studied.
Biological function summary	The PGK1 protein plays an essential role in energy production by participating in the glycolytic pathway. This enzyme functions independently and is not part of any complex. By converting 13-bisphosphoglycerate to 3-phosphoglycerate it supports cellular processes that require ATP. Such activity facilitates the high energy needs of cells ensuring proper cellular function and homeostasis.
Pathways	The enzyme PGK1 operates predominantly within the glycolytic and gluconeogenesis pathways. Throughout glycolysis it partners with enzymes like phosphofructokinase and pyruvate kinase facilitating the breakdown of glucose into pyruvate while generating ATP. In gluconeogenesis PGK1 aids in glucose formation which helps balance energy dynamics particularly in tissues like the liver and kidney.
Associated diseases and disorders	PGK1 has associations with tumor growth and proliferation in various cancers. Its elevated expression is often found in tumors linking it to oncogenesis due to the increased demand for glycolytic activity. Additionally mutations in PGK1 can result in phosphoglycerate kinase deficiency a disorder affecting red blood cell metabolism. This links it to related proteins involved in managing metabolic pathways of energy production in affected tissues.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

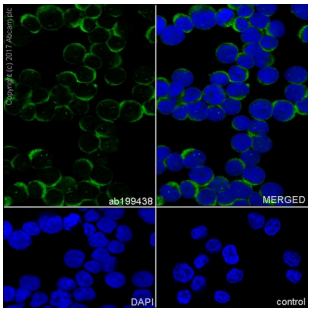
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

---

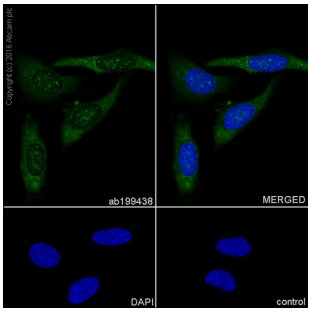
8 product images



Immunocytochemistry/ Immunofluorescence - Anti-PGK1 antibody [EPR19057] (ab199438)

PGK1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PGK1 antibody

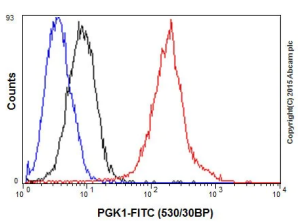
Immunofluorescent analysis of 100% methanol-fixed Jurkat (human T cell leukemia cell line from peripheral blood) cells labeling PGK1 with ab199438 at 1/250 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic and weak nuclear staining in Jurkat cells. The nuclear counterstain is DAPI (blue).



Immunocytochemistry/ Immunofluorescence - Anti-PGK1 antibody [EPR19057] (ab199438)

PGK1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PGK1 antibody

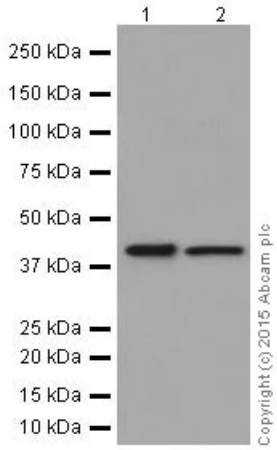
Immunofluorescent analysis of 100% methanol-fixed HeLa (human epithelial cell line from cervix adenocarcinoma) cells labeling PGK1 with ab199438 at 1/250 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic and weak nuclear staining in HeLa cells. The nuclear counterstain is DAPI (blue).



Flow Cytometry (Intracellular) - Anti-PGK1 antibody [EPR19057] (ab199438)

PGK1 Flow Cytometry (Intracellular) staining using rabbit Anti-PGK1 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling PGK1 with ab199438 at 1/150 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730; black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (FITC) at 1/500 dilution was used as the secondary antibody.



Western blot - Anti-PGK1 antibody [EPR19057] (ab199438)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-PGK1 antibody [EPR19057] (ab199438) at 1/2000 dilution

Lane 1:
Human fetal brain lysate at 10 µg

Lane 2:
Human fetal heart lysate at 10 µg

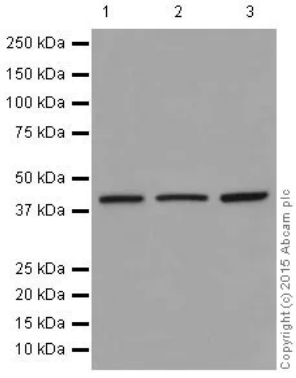
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/10000 dilution

Predicted band size: 45 kDa

Observed band size: 45 kDa

Exposure time: 1s



Western blot - Anti-PGK1 antibody [EPR19057] (ab199438)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-PGK1 antibody [EPR19057] (ab199438) at 1/2000 dilution

Lane 1:
HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 2:
HepG2 (Human liver hepatocellular carcinoma) whole cell lysate at 20 µg

Lane 3:
Jurkat (Human T cell leukemia cells from peripheral blood) whole cell lysate at 20 µg

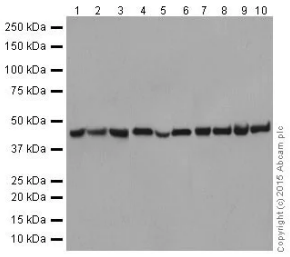
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 45 kDa

Observed band size: 45 kDa

Exposure time: 1s



Western blot - Anti-PGK1 antibody [EPR19057] (ab199438)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-PGK1 antibody [EPR19057] (ab199438) at 1/2000 dilution

Lane 1:
Mouse brain lysate at 10 µg

Lane 2:
Mouse heart lysate at 10 µg

Lane 3:
Mouse kidney lysate at 10 µg

Lane 4:
Rat brain lysate at 10 µg

Lane 5:
Rat heart lysate at 10 µg

Lane 6:
Rat kidney lysate at 10 µg

Lane 7:
C6 (Rat glial tumor cells) whole cell lysate

Lane 8:
RAW 264.7 (Mouse macrophage cells transformed with Abelson murine leukemia virus) whole cell lysate

Lane 9:
PC-12 (Rat adrenal gland pheochromocytoma) whole cell lysate

Lane 10:
NIH/3T3 (Mouse embryo fibroblast cells) whole cell lysate

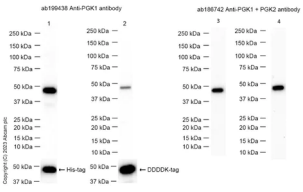
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 45 kDa

Observed band size: 45 kDa

Exposure time: 1s



Western blot - Anti-PGK1 antibody [EPR19057] (ab199438)

Blocking and Diluting Buffer: 5% NFDM /TBST Lanes 3 and 4 Exposure: 60 seconds
Lanes 1 - 2:
Western blot - Anti-PGK1 antibody [EPR19057] (ab199438) at 1/1000 dilution

Lanes 3 - 4:
Western blot - Anti-PGK1 + PGK2 antibody [EPR14908] (ab186742) at 1/5000 dilution

Lanes 1 and 3:
PGK1 Human Recombinant Protein at 20 µg

Lanes 2 and 4:

PGK2 Human Recombinant Protein at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 45 kDa

Exposure time: 5s

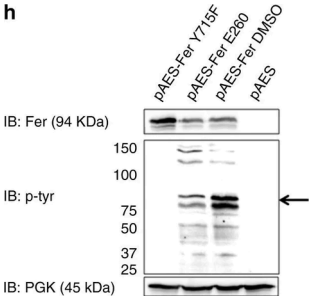


Image collected and cropped by CiteAb under a CC-BY license from the publication

Western blot - Anti-PGK1 antibody [EPR19057] (ab199438)

PGK1 western blot using anti-PGK1 antibody [EPR19057] ab199438. Publication image and figure legend from Elkis, Y., Cohen, M., et al., 2017, Nat Commun, PubMed 29038547.

ab199438 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab199438 please see the product overview.

Development of the Fer/FerT kinase inhibitor-E260 by using a yeast-based HTS system. a Native Fer (pAES-Fer) and a mutated kinase inactive Fer (pAES-FerY715F) were expressed in yeast cells using the pAES expression vector. Protein lysates from transfected cells were subjected to WB analysis using anti-HA (for HA-tagged Fer), anti-Fer, anti-phosphotyrosine (p-tyr), and anti-actin antibodies. b Growth curve of yeast cells expressing either the empty pAES vector, native Fer, inactive Fer, and non-transformed yeast cells; n = 3,±SE. c Scheme of the HTS program. d The chemical structure the 0342 compound. e The chemical structure of the E260 compound. f Growth curve of yeast transformed with the different plasmids and treated with either DMSO, 2 µM E260, or 2 µM 0342. pAES-harboring cells treated with DMSO, mutant Fer treated with DMSO, native Fer-expressing cells treated with DMSO, native Fer-expressing cells treated with 0342, native Fer-expressing cells treated with E260. Untransformed yeast cells served as a negative control; n = 3, ±SE. g Histograms depicting the 600 nm OD readings of the yeast growth-curves (presented in f) after 40 h; n = 3, ±SE. h Protein lysates prepared from yeast expressing mutant Fer and treated with DMSO for 24 h (pAES-FerY715F), active Fer and treated with 2 µM E260 (pAES-Fer E260), active Fer and treated with DMSO (pAES-Fer DMSO), or harboring the pAES vector alone and treated with DMSO, were subjected to WB analysis using anti-Fer, anti-p-tyr, and anti-PGK antibodies. Arrow on the right depicts the MW of Fer. This image presents one experiment representative of three, which gave similar results

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