abcam

ab236129

Anti-PCK2 antibody [EPR14224] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR14224
Purification technique	Affinity purification Protein A
Concentration	1.035 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	-

Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information PCK2

Function	Mitochondrial phosphoenolpyruvate carboxykinase that catalyzes the conversion of oxaloacetate (OAA) to phosphoenolpyruvate (PEP), the rate-limiting step in the metabolic pathway that produces glucose from lactate and other precursors derived from the citric acid cycle (PubMed:28955899). Can play an active role in glyceroneogenesis and gluconeogenesis (PubMed:28955899). Also acts as a serine/threonine-protein kinase: phosphorylates and activates ACSL4, thereby promoting ferroptosis (PubMed:38720107).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab236129 is the carrier-free version of ab187145.

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.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	Phosphoenolpyruvate carboxykinase 2 (PCK2) also known as mitochondrial PEPCK is an enzyme that plays an important role in gluconeogenesis. It catalyzes the conversion of oxaloacetate to phosphoenolpyruvate in the mitochondria. PCK2 has a molecular mass of approximately 69 kDa and is expressed mainly in tissues that require high energy production such as the liver and kidney. Despite its vital function in energy metabolism PCK2 is also present in other metabolic tissues.
Biological function summary	PCK2 contributes to the regulation of glucose homeostasis. It achieves this by being a part of the gluconeogenic pathway working in concert with cytosolic PCK1. PCK2 does not work alone; it integrates into a larger metabolic framework that includes various enzymes essential for converting different substrates into glucose. This enzyme is notably active during fasting states or periods of high energy demands such as intense exercise ensuring a continuous supply of glucose to maintain cellular functions.
Pathways	PCK2 plays an important role in the gluconeogenesis and TCA cycle. The gluconeogenesis pathway allows the liver and kidney to produce glucose from non-carbohydrate substrates which is integral during fasting and low-carbohydrate diet. It is functionally linked with other key enzymes like pyruvate carboxylase in converting pyruvate to glucose and also cooperates with malate dehydrogenase in the TCA cycle. This cooperation ensures efficient energy production and conversion balance in the cell.

Associated diseases and disorders	PCK2 expression is linked to type 2 diabetes and certain cancers. In type 2 diabetes altered PCK2 activity impacts glucose production contributing to hyperglycemia. Studies have shown that its dysregulation may correlate with insulin resistance a characteristic feature of diabetes. In cancer particularly some forms of breast cancer the interplay between PCK2 and oncogenes like KRAS can affect tumor metabolism promoting the adaptation of cancer cells to the energy-demanding environment.

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

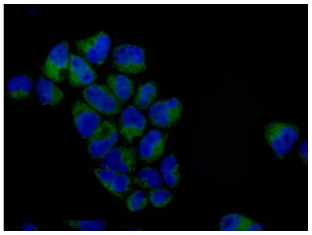
We do not recommend this combination. It is not covered by our product promise.

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.

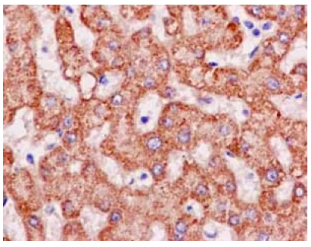
4 product images



Immunocytochemistry/ Immunofluorescence - Anti-PCK2 antibody [EPR14224] - BSA and Azide free (ab236129)

PCK2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PCK2 antibody

Immunofluorescence analysis of 4% paraformaldehyde-fixed HeLa cells, labeling PCK2 (green) with ab187145 at 1/500 dilution. Alexa Fluor®488-conjugated goat anti-rabbit IgG was used as a secondary antibody at 1/200 dilution. Nuclei were counterstained with DAPI (blue).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab187145).

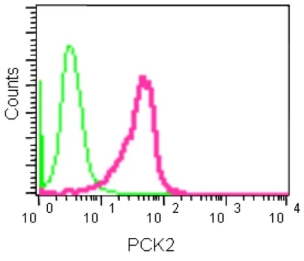


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PCK2 antibody [EPR14224] - BSA and Azide free (ab236129)

PCK2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PCK2 antibody

Immunohistochemical analysis of paraffin-embedded Human liver tissue, labeling PCK2 with ab187145 at 1/500 dilution. Detected using HRP Polymer for Rabbit IgG and counter-stained using hematoxylin.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab187145).

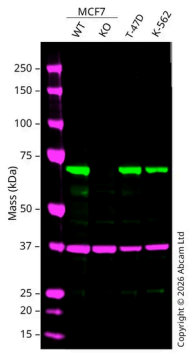
Perform heat mediated antigen retrieval with EDTA buffer pH 9 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-PCK2 antibody [EPR14224] - BSA and Azide free (ab236129)

PCK2 Flow Cytometry (Intracellular) staining using rabbit Anti-PCK2 antibody

Intracellular Flow Cytometry analysis of PCK2 expression in 2% paraformaldehyde-fixed HeLa cells using ab187145 at 1/50 dilution (red) and a rabbit IgG as negative control (green). A FITC-conjugated goat anti-rabbit IgG (1/150) was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab187145).



Western blot - Anti-PCK2 antibody [EPR14224] - BSA and Azide free (ab236129)

PCK2 Western blot staining using rabbit Anti-PCK2 antibody

This data was developed using ab187145, the same antibody clone in a different buffer formulation.

Western blot: Anti-PCK2 antibody [EPR14224] - C-terminal ab187145 staining at 1/1000 dilution, shown in green; Mouse anti GAPDH ab8245 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 70 kDa in Wild-type MCF7 cell lysates with no signal observed at this size in PCK2 knockout MCF7 cell line. To generate this image, samples were run on an SDS-

PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5% Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit 800CW and Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-PCK2 antibody [EPR14224] - C-terminal (ab187145) at 1/1000 dilution

Lane 1:
Western blot - Human wild-type MCF7 cell line (ab271144) at 20 µg

Lane 2:
Western blot - Human PCK2 knockout MCF7 cell line (ab273845) at 20 µg

Lane 3:
T-47D at 20 µg

Lane 4:
K-562 at 20 µg

Secondary

All lanes:
Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 70 kDa

Observed band size: 71 kDa

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