abcam

ab182144

Anti-GPD2 antibody [EPR14260]

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	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	EPR14260
Purification technique	Affinity purification Protein A
Concentration	0.72 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000 - 1/2000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/140
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

IHC-P

Tested

Species	Human
Dilution info	1/500
Notes	-

Target data

See full target information GPD2

Function	Calcium-responsive mitochondrial glycerol-3-phosphate dehydrogenase which seems to be a key component of the pancreatic beta-cell glucose-sensing device.

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	Glycerol-3-phosphate dehydrogenase 2 (GPD2) also known as GPDM-m and mGPDH is an enzyme that belongs to the glycerol-3-phosphate dehydrogenase family. GPD2 weighs approximately 74 kDa and is expressed in several tissues including the liver kidney and muscle. It primarily localizes in the mitochondrial inner membrane. Mechanically GPD2 catalyzes the oxidation of glycerol-3-phosphate to dihydroxyacetone phosphate playing an important role in energy metabolism by participating in the glycerol phosphate shuttle. This shuttle facilitates the transfer of reducing equivalents across the mitochondrial membrane.
Biological function summary	GPD2 plays a role in cellular energy production by linking lipid metabolism to carbohydrate metabolism. It forms part of a complex system supporting oxidative phosphorylation by transferring electrons to the mitochondrial electron transport chain. The activity of GPD2 helps sustain the NAD+/NADH balance which is essential for maintaining cellular redox states. Through its function GPD2 contributes to metabolic flexibility allowing cells to adapt to changes in fuel availability.
Pathways	GPD2 is involved in important energy production pathways such as the glycerol phosphate shuttle and the oxidative phosphorylation pathway. These pathways are important for efficient ATP production in eukaryotic cells. GPD2 interacts with other metabolic proteins like cytosolic glycerol-3-phosphate dehydrogenase (GPD1) which works in tandem to facilitate the shuttle of reducing equivalents between cytosol and mitochondria. Such processes ensure continuous energy supply necessary for cellular functions especially under conditions where carbohydrates and lipids serve interchangeably as energy sources.
Associated diseases and disorders	GPD2 associates with conditions such as obesity and type 2 diabetes where energy metabolism is often disrupted. Altered GPD2 activity can lead to impaired mitochondrial function contributing to the pathogenesis of these metabolic disorders. Furthermore GPD2 links to proteins implicated in these diseases such as insulin receptor substrates and oxidative stress markers which further influence glucose and lipid homeostasis. Understanding GPD2's interaction with these elements helps in uncovering potential therapeutic targets for such diseases.

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

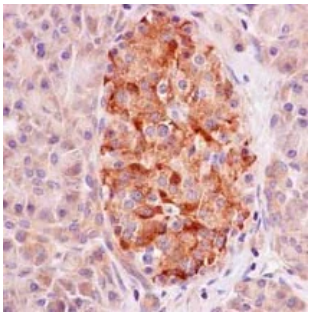
We do not recommend this combination. It is not covered by our product promise.

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.

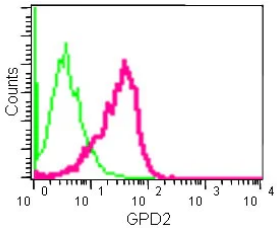
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GPD2 antibody [EPR14260] (ab182144)

GPD2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GPD2 antibody

Immunohistochemical analysis of paraffin embedded Human pancreas tissue sections labeling GPD2 using ab182144 at a 1/500 dilution. A ready to use HRP Polymer for Rabbit IgG was used as the secondary. Hematoxylin counterstain.
Perform heat mediated antigen retrieval with EDTA buffer pH 9 before commencing with IHC staining protocol.

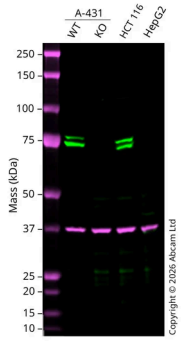


Flow Cytometry (Intracellular) - Anti-GPD2 antibody [EPR14260] (ab182144)

GPD2 Flow Cytometry (Intracellular) staining using rabbit Anti-GPD2 antibody

Intracellular Flow Cytometry analysis of HeLa cells labeling GPD2 using ab182144 at a 1/140 dilution (pink). Goat anti rabbit IgG (FITC) used as the secondary at a 1/150 dilution. Isotype

control Rabbit monoclonal IgG (green). Cells were fixed in 2% paraformaldehyde.



Western blot - Anti-GPD2 antibody [EPR14260] (ab182144)

GPD2 Western blot staining using rabbit Anti-GPD2 antibody

Western blot: Anti-GPD2 antibody [EPR14260] ab182144 staining at 1/2000 dilution, shown in green; Mouse anti GAPDH ab8245 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 75 kDa in Wild-type A-431 cell lysates with no signal observed at this size in GPD2 knockout A-431 cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3% 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-GPD2 antibody [EPR14260] (ab182144) at 1/2000 dilution

Lane 1:
Western blot - Human wild-type A-431 cell line (ab263975) at 20 µg

Lane 2:
Western blot - Human GPD2 knockout A-431 cell line (ab269618) at 20 µg

Lane 3:
HCT 116 at 20 µg

Lane 4:
HepG2 at 20 µg

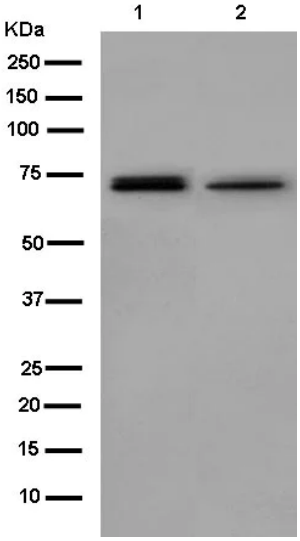
Secondary

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

Performed under reducing conditions.

Predicted band size: 75 kDa

Observed band size: 75 kDa



Western blot - Anti-GPD2 antibody [EPR14260] (ab182144)

All lanes:
Western blot - Anti-GPD2 antibody [EPR14260] (ab182144) at 1/2000 dilution

Lane 1:
NIH:OVCAR-3 cell lysate at 10 µg

Lane 2:
MCF-7 cell lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 66 kDa, 81 kDa

Observed band size: 66 kDa

B

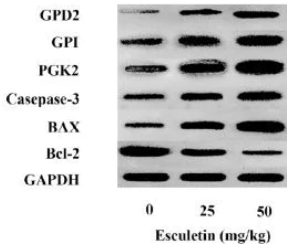


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Western blot - Anti-GPD2 antibody [EPR14260] (ab182144)

GPD2 Western blot staining using rabbit Anti-GPD2 antibody

GPD2 western blot using anti-GPD2 antibody [EPR14260] ab182144. Publication image and figure legend from Wu, S. T., Liu, B., et al., 2020, Front Pharmacol, PubMed 32292350.

ab182144 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 ab182144 please see the product overview.

(A) Effects of esculetin on final tumor weight. (B) Comparison of PGK2, GPD2, GPI, Casepase-3, BAX, Bcl-2, and GAPDH levels in tumor tissue from different groups by WB, 0 mg/kg group was used as a control. Results are means± SEM, n=3 per experiment, *p < 0.05, **p < 0.01.

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