abcam

ab247669

Anti-Glutathione Peroxidase 1 antibody [EPR3311] - 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	EPR3311
Purification technique	Affinity purification
Concentration	1.007 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-

Notes	Antigen retrieval is recommended.

Expected

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

Not recommended

Species	Mouse
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Not recommended

Species	Mouse
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human

Dilution info	-
Notes	-

Expected

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

Not recommended

Species	Mouse
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human, Rat, Mouse
Dilution info	-
Notes	-

Target data

See full target information Glutathione peroxidase 1

Function	Catalyzes the reduction of hydroperoxides in a glutathione-dependent manner thus regulating cellular redox homeostasis (PubMed:11115402, PubMed:36608588). Can reduce small soluble hydroperoxides such as H2O2, cumene hydroperoxide and tert-butyl hydroperoxide, as well as several fatty acid-derived hydroperoxides (PubMed:11115402, PubMed:36608588). In platelets catalyzes the reduction of 12-hydroperoxyeicosatetraenoic acid, the primary product of the arachidonate 12-lipoxygenase pathway (PubMed:11115402).

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

ab247669 is the carrier-free version of ab108429.

Species reactivity
Mouse: We have preliminary internal testing data to indicate this antibody may not react with this species. Please contact us for more information.

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	Glutathione Peroxidase 1 (GPx1) also known as GSH peroxidase is a selenium-containing enzyme with a mass of approximately 22 kDa. It plays an important role in reducing hydrogen peroxide to water using glutathione as a substrate therefore protecting cells from oxidative damage. GPx1 is widely expressed in many tissues

	but is found in high concentrations in the liver and erythrocytes. Researchers use antibodies specific to GPx1 often obtained from specialized suppliers to study and quantify this enzyme in various biological samples.
Biological function summary	The enzyme guards cellular components by neutralizing free radicals. GPx1 is not part of a large complex but functions as a homotetramer. Its activity is essential for preserving the redox balance within the cell preventing cellular damage from reactive oxygen species (ROS). Enzyme-linked immunosorbent assays (ELISA) often measure GPx1 activity to assess oxidative stress levels in research and clinical settings.
Pathways	GPx1 is important in the glutathione metabolism and cellular antioxidant defense pathways. Within these pathways GPx1 works closely with proteins like glutathione reductase to maintain reduced glutathione levels. This interplay with other antioxidant proteins ensures cellular protection against oxidative damage. Studies focus on GPx1's role in these pathways as it underpins many critical cellular processes maintaining cell health.
Associated diseases and disorders	Decreased GPx1 activity links to neurodegenerative diseases and cardiovascular disorders. In neurodegenerative diseases such as Alzheimer's the oxidative stress overwhelms the antioxidant defenses including GPx1. Similarly in cardiovascular disorders a diminished GPx1 activity correlates with increased oxidative stress contributing to disease progression. Researchers also investigate connections between GPx1 and other oxidative stress-related proteins like superoxide dismutase to fully understand GPx1's role in disease mechanisms.

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

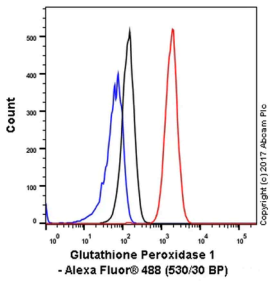
We do not recommend this combination. It is not covered by our product promise.

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.

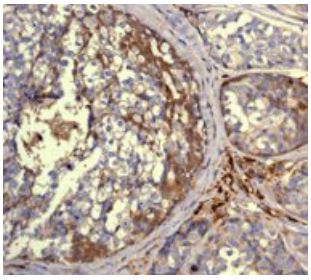
6 product images



Flow Cytometry (Intracellular) - Anti-Glutathione Peroxidase 1 antibody [EPR3311] - BSA and Azide free (ab247669)

Glutathione Peroxidase 1 Flow Cytometry (Intracellular) staining using rabbit Anti-Glutathione Peroxidase 1 antibody

This data was developed using ab108429, the same antibody clone in a different buffer formulation.
Intracellular Flow Cytometry analysis of THP-1 (human acute monocytic leukemia) cells labeling Glutathione Peroxidase 1 with purified ab108429 at 1/250 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) (ab172730) was used as the isotype control, Cell without incubation with primary antibody and secondary antibody (Blue) were used as the unlabeled control.

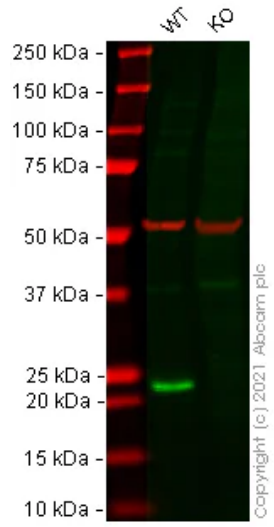


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glutathione Peroxidase 1 antibody [EPR3311] - BSA and Azide free (ab247669)

Glutathione Peroxidase 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Glutathione Peroxidase 1 antibody

This data was developed using ab108429, the same antibody clone in a different buffer formulation.
ab108429, at 1/100 dilution, staining Glutathione Peroxidase 1 in paraffin-embedded Human breast carcinoma tissue by Immunohistochemistry.

Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Western blot - Anti-Glutathione Peroxidase 1 antibody [EPR3311] - BSA and Azide free (ab247669)

Glutathione Peroxidase 1 Western blot staining using rabbit Anti-Glutathione Peroxidase 1 antibody

False colour image of Western blot: Anti-Glutathione Peroxidase 1 antibody [EPR3311] staining at 1/1000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab108429 was shown to bind specifically to Glutathione Peroxidase 1. A band was observed at 22 kDa in wild-type HEK-293T cell lysates with no signal observed at this size in GPX1 knockout cell line ab266650 (knockout cell lysate ab256932). To generate this image, wild-type and GPX1 knockout HEK-293T cell lysates were analysed. First, 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 IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) at 1/20000 dilution.
All lanes:
Western blot - Anti-Glutathione Peroxidase 1 antibody [EPR3311] (ab108429) at 1/1000 dilution

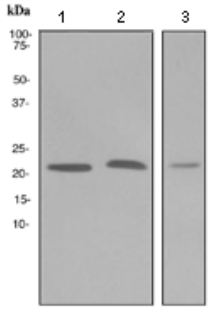
Lane 1:
Wild-type HEK-293T cell lysate at 20 µg

Lane 2:
Western blot - Human GPX1 (Glutathione Peroxidase 1) knockout HEK-293T cell lysate (ab256932) at 20 µg

Performed under reducing conditions.

Predicted band size: 22 kDa

Observed band size: 22 kDa



Western blot - Anti-Glutathione Peroxidase 1 antibody [EPR3311] - BSA and Azide free (ab247669)

Glutathione Peroxidase 1 Western blot staining using rabbit Anti-Glutathione Peroxidase 1 antibody

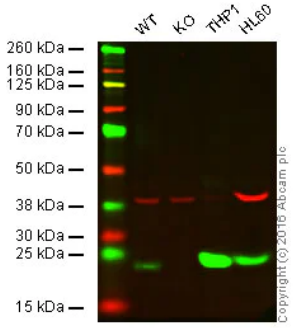
This data was developed using ab108429, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-Glutathione Peroxidase 1 antibody [EPR3311] (ab108429) at 1/1000 dilution

Lane 1:
Human fetal liver lysate at 10 µg

Lane 2:
SH SY5Y cell lysate at 10 µg

Lane 3:
THP1 cell lysate at 10 µg

Predicted band size: 22 kDa



Western blot - Anti-Glutathione Peroxidase 1 antibody [EPR3311] - BSA and Azide free (ab247669)

This data was developed using ab108429, the same antibody clone in a different buffer formulation.
Lane 1: Wild-type HAP1 cell lysate (20 µg)

Lane 2: GPX1 knockout HAP1 cell lysate (20 µg)

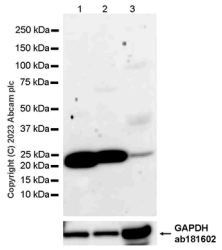
Lane 3: THP1 cell lysate (20 µg)

Lane 4: HL60 cell lysate (20 µg)

Lanes 1 and 2: Merged signal (red and green). Green - ab108429, observed at 22 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab108429 was shown to specifically react with Glutathione Peroxidase 1 in wild-type HAP1 cells. No band was observed when Glutathione Peroxidase 1 knockout samples were examined. Wild-type and Glutathione Peroxidase 1 knockout samples were subjected to SDS-PAGE. ab108429 and ab8245 (loading control to GAPDH) were diluted 1/1000 and 1/2000 respectively and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1/10,000 dilution for 1 hour at room temperature before imaging.
All lanes:
Western blot - Anti-Glutathione Peroxidase 1 antibody [EPR3311] (ab108429)

Predicted band size: 22 kDa



Western blot - Anti-Glutathione Peroxidase 1 antibody [EPR3311] - BSA and Azide free (ab247669)

Glutathione Peroxidase 1 Western blot staining using rabbit Anti-Glutathione Peroxidase 1 antibody

This data was developed using ab108429, the same antibody clone in a different buffer formulation.

Blocking and dilution buffer: 5% NFDM/TBST.

Low expression control: rat skeletal muscle (reference HPA protein expression data).

In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution.

All lanes:
Western blot - Anti-Glutathione Peroxidase 1 antibody [EPR3311] (ab108429) at 1/1000 dilution

Lane 1:
Rat liver tissue lysate at 20 µg

Lane 2:
Rat lung tissue lysate at 20 µg

Lane 3:
Rat skeletal muscle tissue lysate at 20 µg

Secondary

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

Predicted band size: 22 kDa

Observed band size: 22 kDa

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