abcam

ab210702

Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668]

Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702) is a rabbit monoclonal antibody detecting Glucose 6 Phosphate Dehydrogenase in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 10 publications

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	EPR20668
Purification technique	Affinity purification Protein A
Concentration	0.443 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/40
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/400
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information Glucose-6-phosphate 1-dehydrogenase

Function	Catalyzes the rate-limiting step of the oxidative pentose-phosphate pathway, which represents a route for the dissimilation of carbohydrates besides glycolysis. The main function of this enzyme is to provide reducing power (NADPH) and pentose phosphates for fatty acid and nucleic acid synthesis. Also catalyzes the conversion of NAADPH, which is produced by enzymes such as DUOX1, DUOX2 and NOX5 from NAADP and promotes Ca(2+) signaling during T cell activation, back to NAADP (PubMed:34784249).

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

What is this antibody validated in?
Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of Glucose 6 Phosphate Dehydrogenase?
Anti-Glucose 6 Phosphate Dehydrogenase [EPR20668] (ab210702) specifically detects a band for Glucose 6 Phosphate Dehydrogenase (UniProt: P11413) at a molecular weight of 59kDa.

Trusted by the scientific community
Anti-Glucose 6 Phosphate Dehydrogenase [EPR20668] (ab210702) was first used in a scientific publication in 2017 and has been cited over 10 times in peer-reviewed journals.

Other related products
We have a range of other formats of antibody clone [EPR20668] also available for your convenience: ab210702, Carrier free - ab231828, ab322989, Carrier free - ab322995

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	Glucose 6 Phosphate Dehydrogenase also known as G6PD or G6P dehydrogenase plays an important role in the pentose phosphate pathway catalyzing the conversion of glucose 6-phosphate to 6-phosphoglucono-Δ-lactone while producing NADPH from NADP+. G6PD with a molecular mass of approximately 59 kDa is expressed in various tissues with high levels found in red blood cells liver and adrenal glands. This enzyme is vital for protecting cells from oxidative damage by supplying reductive capacity.
Biological function summary	Glucose 6-phosphate dehydrogenase is essential for maintaining cellular redox balance especially in cells lacking mitochondria like red blood cells. It functions as part of a monomer which can dimerize depending on the cellular needs and conditions. The activity of G6PD directly affects the production of NADPH which is necessary for the biosynthesis of nucleic acids and lipids and for maintaining reduced glutathione levels therefore sustaining the antioxidant capacity of the cell.
Pathways	Glucose 6-phosphate dehydrogenase is a pivotal enzyme in the oxidative phase of the pentose phosphate pathway which provides ribose 5-phosphate for nucleotide synthesis and NADPH for reductive biosynthetic reactions. G6PD connects with other enzymes in the pathway such as 6-phosphogluconate dehydrogenase contributing to the regulation of cellular metabolic needs. Its function is tightly linked to glucose metabolism and indirectly influences glycolytic processes.
Associated diseases and disorders	Alterations in glucose 6-phosphate dehydrogenase activity lead to conditions such as G6PD deficiency which can cause hemolytic anemia when individuals are exposed to certain drugs infections or foods. This enzyme's deficiency is one of the most common enzymatic disorders in humans and is triggered by genetic mutations affecting G6PD function. Moreover G6PD has implications in cancer biology as its activity influences the proliferation and survival of cancer cells alongside other proteins like TP53 and NF-κB which are involved in cellular stress responses.

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

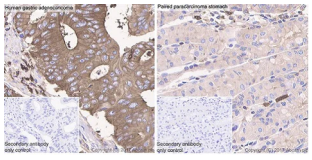
We do not recommend this combination. It is not covered by our product promise.

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.

11 product images

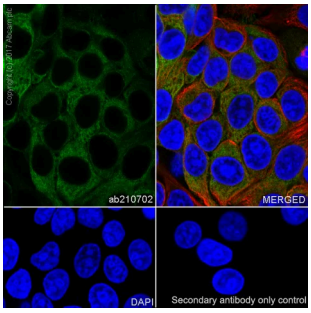


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

Glucose 6 Phosphate Dehydrogenase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Glucose 6 Phosphate Dehydrogenase antibody

Immunohistochemical analysis of paraffin-embedded human gastric adenocarcinoma tissue (left panel) and human gastric paracarcinoma (right panel) labeling Glucose 6 Phosphate Dehydrogenase with ab210702 at 1/2000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Strong cytoplasmic staining on human gastric adenocaricoma, compared with weak cytoplasmic staining on the paired paracarcinoma stomach (PMID: 22012600). Both tissue sections are derived from the same patient sample. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

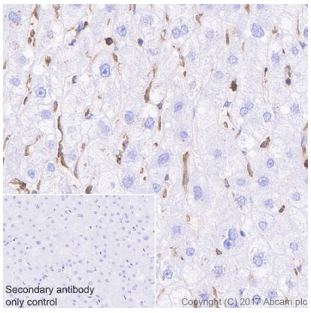


Immunocytochemistry/ Immunofluorescence - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

Glucose 6 Phosphate Dehydrogenase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Glucose 6 Phosphate Dehydrogenase antibody

Immunofluorescent analysis of methanol-fixed MCF7 (human breast adenocarcinoma cell line) cells labeling Glucose 6 Phosphate Dehydrogenase with ab210702 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on MCF7 cell line.
The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) (red) at 1/200 dilution.

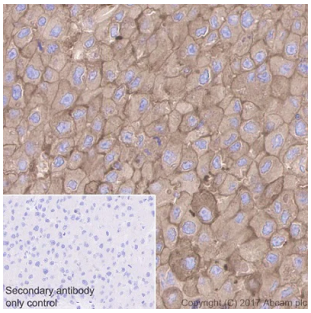
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

Immunohistochemical analysis of paraffin-embedded human liver tissue labeling Glucose 6 Phosphate Dehydrogenase with ab210702 at 1/2000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Cytoplasmic staining on stroma of human liver (PMID: 24994855, PMID: 26583321). Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

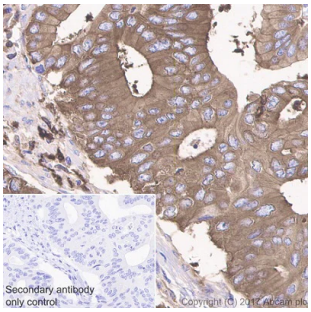


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

Glucose 6 Phosphate Dehydrogenase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Glucose 6 Phosphate Dehydrogenase antibody

Immunohistochemical analysis of paraffin-embedded human hepatocellular carcinoma tissue labeling Glucose 6 Phosphate Dehydrogenase with ab210702 at 1/2000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Staining on hepatocellular carcinoma (PMID: 24994855, PMID: 26583321). Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

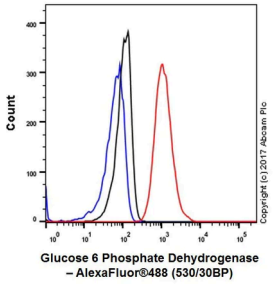


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

Glucose 6 Phosphate Dehydrogenase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Glucose 6 Phosphate Dehydrogenase antibody

Immunohistochemical analysis of paraffin-embedded human gastric adenocarcinoma tissue labeling Glucose 6 Phosphate Dehydrogenase with ab210702 at 1/2000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Strong cytoplasmic staining on human gastric adenocarcinoma (PMID: 22012600). Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.

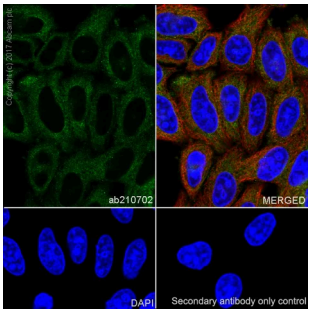
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

Glucose 6 Phosphate Dehydrogenase Flow Cytometry (Intracellular) staining using rabbit Anti-Glucose 6 Phosphate Dehydrogenase antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HeLa (human epithelial cell line from cervix adenocarcinoma) cell line labeling Glucose 6 Phosphate Dehydrogenasewith ab210702 at 1/400 (red) compared with an Isotype control rabbit monoclonal IgG (ab172730) (black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1/2000 dilution was used as the secondary antibody.



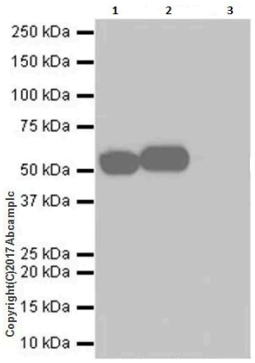
Immunocytochemistry/ Immunofluorescence - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

Glucose 6 Phosphate Dehydrogenase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Glucose 6 Phosphate Dehydrogenase antibody

Immunofluorescent analysis of methanol-fixed HeLa (human epithelial cell line from cervix adenocarcinoma) cells labeling Glucose 6 Phosphate Dehydrogenase with ab210702 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on HeLA cell line.
The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) (red) at 1/200 dilution.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

Immunoprecipitation - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)



Glucose 6 Phosphate Dehydrogenase was immunoprecipitated from 0.35mg of HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab210702 at 1/40 dilution. Western blot was performed from the immunoprecipitate using ab210702 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.
Lane 1: HeLa whole cell lysate 10 µg (Input).

Lane 2: ab210702 IP in HeLa whole cell lysate.

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab210702 in HeLa whole cell lysate.

Blocking/Dilution buffer: 5% NFDM/TBST.

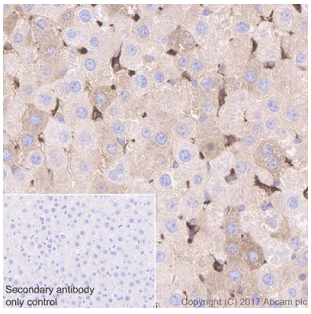
Exposure time: 30 seconds.

All lanes:
Immunoprecipitation - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

Predicted band size: 59 kDa

Exposure time: 30s

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

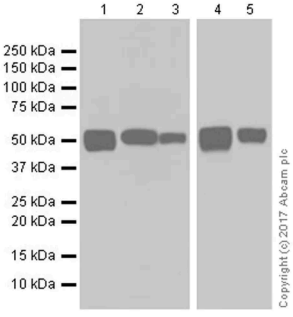


Glucose 6 Phosphate Dehydrogenase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Glucose 6 Phosphate Dehydrogenase antibody

Immunohistochemical analysis of paraffin-embedded rat liver tissue labeling Glucose 6 Phosphate Dehydrogenase with ab210702 at 1/2000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Cytoplasmic staining on rat liver (PMID: 24994855, PMID: 26583321). Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Western blot - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)



Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure times: Lanes 1/2/3: 3 minutes; Lanes 4/5: 3 seconds.

All lanes:
Western blot - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702) at 1/5000 dilution

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

Lane 2:
C2C12 (mouse myoblast cell line) whole cell lysate at 20 µg

Lane 3:
Mouse testis lysate at 20 µg

Lane 4:
MCF7 (human breast adenocarcinoma cell line) whole cell lysate at 10 µg

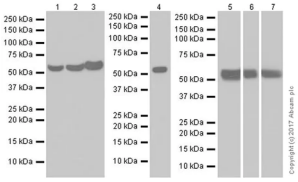
Lane 5:
RAW 264.7 (mouse macrophage cell line transformed with Abelson murine leukemia virus) whole cell lysate at 10 µg

Secondary

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

Predicted band size: 59 kDa

Observed band size: 59 kDa



Western blot - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702)

Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure times: Lanes 1/2/3: 3 minutes; Lane 4: 15 seconds; Lanes 5/6: 30 seconds; Lane 7: 15 seconds.

All lanes:
Western blot - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR20668] (ab210702) at 1/1000 dilution

Lane 1:
Rat brain lysate at 10 µg

Lane 2:
Rat liver lysate at 10 µg

Lane 3:
Rat spleen lysate at 10 µg

Lane 4:
Mouse spleen lysate at 10 µg

Lane 5:
C6 (rat glial tumor cell line) whole cell lysate at 10 µg

Lane 6:
NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate at 10 µg

Lane 7:
PC-12 (rat adrenal gland pheochromocytoma cell line) whole cell lysate at 10 µg

Secondary

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

Predicted band size: 59 kDa

Observed band size: 59 kDa

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