abcam

ab133525

# Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR6292]

Recombinant | RabMAb

## 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** | EPR6292 |
| **Purification technique** | Affinity purification Protein A |
| **Dissociation constant** | $4.3 \times 10^{-11}$ M |
| **Concentration** | 0.1 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/50 - 1/100 |

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

## IP

### Not recommended

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

## WB

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 - 1/10000 |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 |
| **Notes** | ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. |

# 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** | Stable for 12 months at -20°C |

## Notes

Cellular localisation: centrosome, cytosol, internal side of plasma membrane, intracellular membrane bounded organelle. There are 3 isoforms produced by alternative splicing.

**Species reactivity**

Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these 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.

## 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**

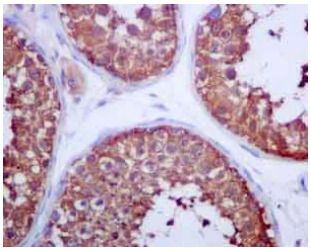
We do not recommend this combination. It is not covered by our product promise.

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.

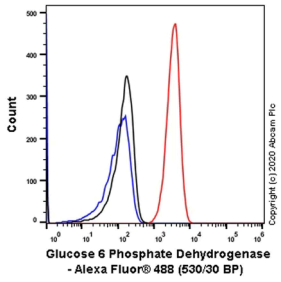
## 4 product images



### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR6292] (ab133525)

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

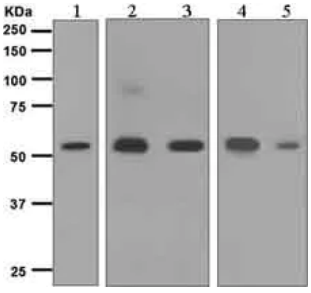
Immunohistochemistry analysis of Paraffin Embedded Human testis tissue labelling Glucose 6 Phosphate Dehydrogenase with ab133525 at 1/50.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.




### Flow Cytometry (Intracellular) - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR6292] (ab133525)

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

Flow Cytometry analysis of A549 (Human lung carcinoma epithelial cell) cells labeling Glucose 6 Phosphate Dehydrogenase with purified ab133525 at 1/1000 dilution (1 µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).




### Western blot - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR6292] (ab133525)

All lanes:
Western blot - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR6292] (ab133525) at 1/1000 dilution

Lane 1:
Molt 4 cell lysate at 10 µg

Lane 2:
A549 cell lysate at 10 µg

Lane 3:
MCF7 cell lysate at 10 µg

Lane 4:
HeLa cell lysate at 10 µg

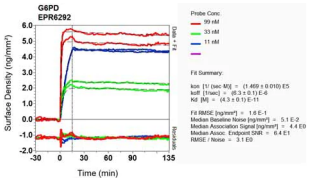
Lane 5:
HepG2 cell lysate at 10 µg

Secondary

All lanes:
Goat anti-rabbit at 1/2000 dilution

Predicted band size: 59 kDa

Observed band size: 58 kDa




## OI-RD Scanning - Anti-Glucose 6 Phosphate Dehydrogenase antibody [EPR6292] (ab133525)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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