

## Glutamate dehydrogenase

Cat.No. 508 004; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

### Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For <b>reconstitution</b> add 100 µl H <sub>2</sub> O, then aliquot and store at -20°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	<b>WB:</b> 1 : 1000 (AP-staining) <b>IP:</b> not tested yet <b>ICC:</b> 1 : 500 <b>IHC:</b> 1 : 1000 (see remarks) <b>IHC-P:</b> 1 : 500
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of mouse glutamate dehydrogenase (UniProt Id: P26443)
Reactivity	Reacts with: mouse (P26443), rat (P10860), human (P00367). Other species not tested yet.
Specificity	The antibody may also recognize human glutamate dehydrogenase 2 ( <a href="#">UniProt Id: P49448</a> ) due to sequence homology.
Remarks	<b>IHC:</b> Heat-mediated antigen retrieval (citrate buffer pH 6) is recommended for immunohistochemical staining.

**TO BE USED IN VITRO / FOR RESEARCH ONLY**  
**NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS**

## Background

**Glutamate dehydrogenase**, also referred to as **GDH** or **GLUD1**, is a mitochondrial enzyme that catalyzes the reversible conversion of L-glutamate to alpha-ketoglutarate and ammonia, thus connecting amino acid metabolism and TCA cycle activity (1,2).

Mammalian glutamate dehydrogenase is composed of six identical subunits, and it is subject to complex allosteric regulation by a wide array of ligands (1,2). While most mammals possess a single GDH enzyme, two isoenzymes encoded by different genes are found in human tissues (1, 2). Glutamate dehydrogenase is highly expressed in brain, liver, kidney, placenta and pancreas (1). In brain, it is expressed predominantly in astrocytes, responsible for removing and metabolizing the transmitter glutamate (1, 2). In liver and kidney, it functions in ammonia and acid-base homeostasis. In pancreas, it plays a major role in insulin homeostasis (1, 2). Deregulation of glutamate dehydrogenase is implicated in the pathogenesis of several human disorders ranging from insulin disorders to tumor growth (1, 2).

## Selected General References

The Glutamate Dehydrogenase Pathway and Its Roles in Cell and Tissue Biology in Health and Disease. Plaitakis A, Kalef-Ezra E, Kotzamani D, Zaganas I, Spanaki C. *Biology* (2017) 61:..

Glutamate Dehydrogenase, a Complex Enzyme at a Crucial Metabolic Branch Point. Smith HQ, Li C, Stanley CA, Smith TJ. *Neurochemical research* (2019) 441: 117-132. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/508004> or scan the QR-code.



# FAQ - How should I store my antibody?

## Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form without loss of quality at ambient temperatures for several weeks.

## Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at 4°C before reconstitution. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

## Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

## Product Specific Hints for Storage

### Control proteins / peptides

- Store at -20°C to -80°C.

### Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

### Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

### Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

# Avoid repeated freeze-thaw cycles for all antibodies!

## FAQ - How should I reconstitute my antibody?

### Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot a 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.