SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

Pyruvate carboxylase

Cat.No. 494 005; Polyclonal Guinea pig antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For **reconstitution** add 50 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°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	**WB**: 1 : 1000 (AP-staining) **IP**: not tested yet **ICC**: 1 : 500 **IHC**: 1 : 500 up to 1 : 1000 **IHC-P**: not tested yet
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of mouse Pyruvate carboxylase (UniProt Id: Q05920)
Reactivity	Reacts with: mouse (Q05920), rat (P52873), human (P11498). Other species not tested yet.
Specificity	K.D. validated

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

Background

Pyruvate carboxylase (PC) is a mitochondrial enzyme catalyzing the ATP-dependent carboxylation of pyruvate to oxaloacetate (1). This is a central biochemical reaction controlling whole-body energetics (2). It is the first step of gluconeogenesis and the main anaplerotic reaction to replenish tricarboxylic acid (TCA) cycle intermediates. Additionally, it is involved in e.g. lipogenesis or insulin secretion.
PC shows high expression in liver and kidney, the primary organs of gluconeogenesis, which synthesize and export glucose into the bloodstream (3).
In the brain, PC plays a critical anaplerotic role during metabolism as well. It is predominately expressed in astrocytes and is needed for the de novo synthesis of glutamate, the main excitatory neurotransmitter (see Featured Topic The Glutamatergic Synapse). Recent literature indicates that PC is also expressed in a subpopulation of neurons (4). There is evidence that gluconeogenesis exists in brain astrocytes (5) and this is becoming more recognized as an important alternative glucose source for neurons, specifically in ischemic stroke and brain tumors. PC has been associated with metabolic reprogramming of cancer cells and tumor progression in a variety of cancer models (2).

Selected General References

Immunocytochemical examination of neural rat and mouse primary cultures using monoclonal antibodies raised against pyruvate carboxylase.
Cesar M et al. J Neurochem (1995) PubMed:7722517

Liver or kidney: Who has the oar in the gluconeogenesis boat and when?
Sahoo B et al. World J Diabetes (2023) PubMed:37547592

The presence of pyruvate carboxylase in the human brain and its role in the survival of cultured human astrocytes.
Gondáš E et al. Physiol Res (2023) PubMed:37449752

Pyruvate carboxylase and cancer progression.
Kiesel VA et al. Cancer Metab (2021) PubMed:33931119

Cerebral Gluconeogenesis and Diseases.
Yip J et al. Front Pharmacol (2016) PubMed:28101056

Access the online factsheet including applicable protocols at https://sysy.com/product/494005 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.