SYSY Antibodies

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Glutamine synthetase

Cat.No. 367 005; 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**: not tested yet **IHC**: 1 : 500 **IHC-P**: 1 : 500
Immunogen	Full-length recombinant mouse Glutamine synthetase (UniProt Id: P15105)
Reactivity	Reacts with: rat (P09606), mouse (P15105). Other species not tested yet.

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

Background

Glutamine synthetase, also referred to as **Glutamate-ammonia ligase** or **GS**, is an enzyme that catalyzes the ATP-dependent condensation of glutamate with ammonia to yield glutamine. It is present predominantly in brain, kidneys, and liver. In the brain, it is particularly found in astrocytes. Glutamine synthetase plays a pivotal role in glutamate and glutamine homoeostasis, and it is largely responsible for the removal of both blood-derived and metabolically generated ammonia, preventing neurotoxicity. It is also a key enzyme in the recycling of the neurotransmitter glutamate.
Several studies indicated that the expression, distribution, and activity of brain glutamine synthetase is altered in some brain disorders, including Alzheimer's disease, schizophrenia, depression, suicidality, and mesial temporal lobe epilepsy (MTLE).

Selected References for 367 005

Innate Immune Zonation in the Liver: NF-κB (p50) Activation and C-Reactive Protein Expression in Response to Endotoxemia Are Zone Specific.
McCarthy WC, Sherlock LG, Grayck MR, Zheng L, Lacayo OA, Solar M, Orlicky DJ, Dobrinskikh E, Wright CJ
Journal of immunology (Baltimore, Md. : 1950) (2023) 2109: 1372-1385. . **IHC-P; tested species: mouse**

Caloric restriction triggers morphofunctional remodeling of astrocytes and enhances synaptic plasticity in the mouse hippocampus.
Popov A, Denisov P, Bychkov M, Brazhe A, Lyukmanova E, Shenkarev Z, Lazareva N, Verkhratsky A, Semyanov A
Cell death & disease (2020) 113: 208. . **WB; tested species: mouse**

Lysophosphatidic acid activates satellite glia cells and Schwann cells.
Robering JW, Gebhardt L, Wolf K, Kühn H, Kremer AE, Fischer MJM
Glia (2019) : . . **IHC; tested species: mouse**

The Musashi-1-type 2 deiodinase pathway regulates astrocyte proliferation.
Mohácsik P, Halmos E, Dorogházi B, Ruska Y, Wittmann G, Bianco AC, Fekete C, Gereben B
The Journal of biological chemistry (2024) 3007: 107477. . **IHC; tested species: mouse**

INSIHGT: an accessible multi-scale, multi-modal 3D spatial biology platform.
Yau CN, Hung JTS, Campbell RAA, Wong TCY, Huang B, Wong BTY, Chow NKN, Zhang L, Tsoi EPL, Tan Y, Li JJX, et al.
Nature communications (2024) 151: 10888. . **IHC; tested species: mouse**

The normalizing effects of the CYP46A1 activator efavirenz on retinal sterol levels and risk factors for glaucoma in Apoj-/- mice.
El-Darzi N, Mast N, Li Y, Dailey B, Kang M, Rhee DJ, Pikuleva IA
Cellular and molecular life sciences : CMLS (2023) 807: 194. . **IHC; tested species: mouse**

Microglia alter the threshold of spreading depolarization and related potassium uptake in the mouse brain.
Varga DP, Menyhárt Á, Pósfai B, Császár E, Lénárt N, Cserép C, Orsolits B, Martinecz B, Szlepák T, Bari F, Farkas E, et al.
Journal of cerebral blood flow and metabolism : official journal of the International Society of Cerebral Blood Flow and Metabolism (2020) : 271678X19900097. . **IHC; tested species: mouse**

Changes in the transcriptional fingerprint of satellite glial cells following peripheral nerve injury.
Jager SE, Pallesen LT, Richner M, Harley P, Hore Z, McMahon S, Denk F, Vaegter CB
Glia (2020) : . . **IHC; tested species: mouse**

Occurrence of Transmembrane Protein 119 in the Retina is Not Restricted to the Microglia: An Immunohistochemical Study.
Su N, März S, Plagemann T, Cao J, Schnittler HJ, Eter N, Heiduschka P
Translational vision science & technology (2019) 86: 29. . **IHC; tested species: mouse**

Selected General References

Astrocyte glutamine synthetase: pivotal in health and disease.
Rose CF et al. Biochem. Soc. Trans. (2013) PubMed:24256247

Access the online factsheet including applicable protocols at https://sysy.com/product/367005 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.