SYSY Antibodies

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GABA transporter1 (GAT1)

Cat.No. 274 102; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, 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	**WB**: 1 : 1000 (AP staining) **IP**: yes **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 500 **ExM**: external data (see remarks)
Immunogen	Synthetic peptide corresponding to AA 585 to 599 from mouse GABA transporter1 (UniProt Id: P31648)
Reactivity	Reacts with: rat (P23978), mouse (P31648). Other species not tested yet.
Specificity	K.O. validated PubMed: 33664860
Matching control	274-1P
Remarks	**ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

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

Background

γ-aminobutyric acid (GABA) is a major inhibitory neurotransmitter. After the release of GABA from synaptic vesicles into the synaptic cleft during neurotransmission, **GABA transporters** (GATs) remove extracellular GABA by reuptake into the presynaptic terminal.
Three GABA transporters are described so far of which only GAT 1 and GAT 3 are expressed in the brain.

Selected References for 274 102

GABA uptake transporters support dopamine release in dorsal striatum with maladaptive downregulation in a parkinsonism model.
Roberts BM, Doig NM, Brimblecombe KR, Lopes EF, Siddorn RE, Threlfell S, Connor-Robson N, Bengoa-Vergniory N, Pasternack N, Wade-Martins R, Magill PJ, et al.
Nature communications (2020) 111: 4958. . **WB, IHC; tested species: mouse**

A GABAergic system in atrioventricular node pacemaker cells controls electrical conduction between the atria and ventricles.
Liang D, Zhou L, Zhou H, Zhang F, Fang G, Leng J, Wu Y, Zhang Y, Yang A, Liu Y, Chen YH, et al.
Cell research (2024) : . . **ICC, IHC; tested species: mouse**

Disrupting stroke-induced GAT-1-syntaxin1A interaction promotes functional recovery after stroke.
Lin YH, Wu F, Li TY, Lin L, Gao F, Zhu LJ, Xu XM, Chen MY, Hou YL, Zhang CJ, Wu HY, et al.
Cell reports. Medicine (2024) 511: 101789. . **WB, ICC; tested species: mouse**

Structural Heterogeneity of the GABAergic Tripartite Synapse.
Brunskine C, Passlick S, Henneberger C
Cells (2022) 1119: . . **EXM; tested species: mouse**

Novel full-thickness biomimetic corneal model for studying pathogenesis and treatment of diabetic keratopathy.
Cui Z, Li X, Ou Y, Sun X, Gu J, Ding C, Yu Z, Guo Y, Liang Y, Mao S, Ma JH, et al.
Materials today. Bio (2025) 30: 101409. . **ICC; tested species: human**

Environmental enrichment implies GAT-1 as a potential therapeutic target for stroke recovery.
Lin Y, Yao M, Wu H, Wu F, Cao S, Ni H, Dong J, Yang D, Sun Y, Kou X, Li J, et al.
Theranostics (2021) 118: 3760-3780. . **IHC; KO verified; tested species: mouse**

Gamma-Aminobutyric Acid Transporters in the Nucleus Tractus Solitarii Regulate Inhibitory and Excitatory Synaptic Currents That Influence Cardiorespiratory Function.
Martinez D, Lima-Silveira L, Matott MP, Hasser EM, Kline DD
Frontiers in physiology (2021) 12: 821110. . **IHC; tested species: rat**

Selected General References

Substrate-mediated regulation of gamma-aminobutyric acid transporter 1 in rat brain.
Hu J et al. Neuropharmacology (2008) PubMed:17991494

Regulation of a gamma-aminobutyric acid transporter by reciprocal tyrosine and serine phosphorylation.
Quick MW et al. J. Biol. Chem. (2004) PubMed:14761965

Functional regulation of gamma-aminobutyric acid transporters by direct tyrosine phosphorylation.
Law RM et al. J. Biol. Chem. (2000) PubMed:10816599

Protein kinase C regulates the interaction between a GABA transporter and syntaxin 1A.
Beckman ML et al. J. Neurosci. (1998) PubMed:9698305

Production of specific antibodies against GABA transporter subtypes (GAT1, GAT2, GAT3) and their application to immunocytochemistry.
Ikegaki N et al. Brain Res. Mol. Brain Res. (1994) PubMed:7854065

Access the online factsheet including applicable protocols at https://sysy.com/product/274102 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable 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. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.