SYSY Antibodies

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GABA transporter1

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) (see remarks) **IP**: yes **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 1000 **IHC_P**: 1 : 500 **EXM**: yes
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. PubMed: 33664860
Matching control	274-1P
Remarks	**WB**: GABA transporter 1 aggregates after boiling, making it necessary to run SDS-PAGE with non-boiled samples.

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**

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

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, Quick MW
Neuropharmacology (2008) 542: 309-18. .

Regulation of a gamma-aminobutyric acid transporter by reciprocal tyrosine and serine phosphorylation.
Quick MW, Hu J, Wang D, Zhang HY
The Journal of biological chemistry (2004) 27916: 15961-7. .

Functional regulation of gamma-aminobutyric acid transporters by direct tyrosine phosphorylation.
Law RM, Stafford A, Quick MW
The Journal of biological chemistry (2000) 27531: 23986-91. .

Protein kinase C regulates the interaction between a GABA transporter and syntaxin 1A.
Beckman ML, Bernstein EM, Quick MW
The Journal of neuroscience : the official journal of the Society for Neuroscience (1998) 1816: 6103-12. .

Production of specific antibodies against GABA transporter subtypes (GAT1, GAT2, GAT3) and their application to immunocytochemistry.
Ikegaki N, Saito N, Hashima M, Tanaka C
Brain research. Molecular brain research (1994) 261-2: 47-54. .

Structure, function and brain localization of neurotransmitter transporters.
Jursky F, Tamura S, Tamura A, Mandiyan S, Nelson H, Nelson N
The Journal of experimental biology (1994) 196: 283-95. .

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 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.