SYSY Antibodies

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GABA-A receptor α1 extracellular

Cat.No. 224 203; Polyclonal rabbit 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**: yes **ICC**: 1 : 500 (see remarks) **IHC**: 1 : 500 up to 1 : 5000 (see remarks) **IHC-P**: not tested yet
Immunogen	Synthetic peptide/recombinant protein corresponding to residues near the amino terminus from rat GABA-A receptor α1. (UniProt Id: P62813)
Reactivity	Reacts with: rat (P62813), mouse (P62812). Other species not tested yet.
Specificity	K.O. validated PubMed: 25080596
Matching control	224-2P
Remarks	**ICC**: This antibody can be used for the surface staining of living cells. **IHC**: For best results use the protocol of Schneider Gasser et al., 2006.

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

Background

Gamma-**a**mino**b**utyric **a**cid type **A** (**GABA-A**) receptors mediate the majority of inhibitory neurotransmission in the brain. These receptor proteins are ligand gated chloride ion channels and consist of a pentameric combination of different subunits (**alpha**, beta, gamma, delta, epsilon and rho). The resulting heterogenous population of GABA-A receptor subtypes are expressed throughout the brain with specific cellular and subcellular expression patterns.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

Selected References for 224 203

The endoplasmic reticulum membrane complex promotes proteostasis of GABAA receptors.
Whittsette AL, Wang YJ, Mu TW
iScience (2022) 258: 104754. . **WB, IP, UPTAKE; tested species: rat**

Chronic Toxoplasma infection is associated with distinct alterations in the synaptic protein composition.
Lang D, Schott BH, van Ham M, Morton L, Kulikovskaja L, Herrera-Molina R, Pielot R, Klawonn F, Montag D, Jänsch L, Gundelfinger ED, et al.
Journal of neuroinflammation (2018) 151: 216. . **WB, IHC; tested species: mouse**

Different subtypes of GABA-A receptors are expressed in human, mouse and rat T lymphocytes.
Mendu SK, Bhandage A, Jin Z, Birnir B
PloS one (2012) 78: e42959. . **WB, ICC**

Cerebellar microglia-derived IL-17A mitigates autism-related behavioral and synaptic deficits.
Yin J, Li W, Shen LP, Zhang WL, Chen JY, Zhang BB, Chen YJ, Li T, Li HZ, Gao Z, Xie ST, et al.
Molecular psychiatry (2026) : . . **WB, IHC**

Enriched environment ameliorates memory impairments in rats after postsurgery sleep deprivation.
Gao J, Yang C, Li D, Zhao L, Wang H
Journal of chemical neuroanatomy (2020) : 101850. . **WB, IHC; tested species: rat**

Neurexophilin4 is a selectively expressed α-neurexin ligand that modulates specific cerebellar synapses and motor functions.
Meng X, McGraw CM, Wang W, Jing J, Yeh SY, Wang L, Lopez J, Brown AM, Lin T, Chen W, Xue M, et al.
eLife (2019) 8: . . **WB, IHC; tested species: mouse**

Epitope-preserving magnified analysis of proteome (eMAP).
Park J, Khan S, Yun DH, Ku T, Villa KL, Lee JE, Zhang Q, Park J, Feng G, Nedivi E, Chung K, et al.
Science advances (2021) 746: eabf6589. . **CLARITY; tested species: mouse,marmoset**

Neuron-specific WDR5 epigenetically upregulates ARID5B to impair GABAergic synaptic transmission and promotes epileptogenesis.
Gu J, Ke PY, Zhang XY, Liu C, Yang Y, Yu ML, Xu ZZ, Zhang CX, Dong W
Theranostics (2026) 166: 2721-2747. . **ICC; tested species: mouse**

Protocol for studying GABAA receptor subsynaptic domains in rat hippocampal neurons using single-molecule localization microscopy.
Lima T, Paupiah AL, Merlaud Z, Imani Z, Lévi S
STAR protocols (2025) 63: 104031. . **IHC; tested species: rat**

Improving Proteostasis of Trafficking-Deficient GABAA Receptor Variants by Activating IRE1.
Fu X, Wang YJ, Lee K, Ahn LY, Chen X, Harvey BT, Wang M, Seibert H, Zhang PP, Guerrero A, Schaffer AE, et al.
ACS chemical neuroscience (2025) 1623: 4429-4445. . **WB; tested species: human**

Enhanced Synaptic Inhibition in the Dorsolateral Geniculate Nucleus in a Mouse Model of Glaucoma.
Van Hook MJ, McCool S
eNeuro (2024) 117: . . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/224203 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.