SYSY Antibodies

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GABA-A receptor α1 extracellular

Cat.No. 224 205; 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 up to 1 : 2000 (AP staining) **IP**: not tested yet **ICC**: 1 : 200 up to 1 : 1000 (see remarks) **IHC**: external data (see remarks) **IHC-P (FFPE)**: 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: 39261733
Matching control	224-2P
Remarks	**ICC**: This antibody can be used for the surface staining of living cells. **IHC**: This antibody has been successfully applied for this method by our customers using antigen retrieval with pepsin according to Lorincz and Nusser 2010 (see gallery). It has not been validated using our standard protocol.

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 224 205

A brain-to-gut signal controls intestinal fat absorption.
Lyu Q, Xue W, Liu R, Ma Q, Kasaragod VB, Sun S, Li Q, Chen Y, Yuan M, Yang Y, Zhang B, et al.
Nature (2024) : . . **WB, IHC; KO verified; tested species: mouse**

The TMEM132B-GABAA receptor complex controls alcohol actions in the brain.
Wang G, Peng S, Reyes Mendez M, Keramidas A, Castellano D, Wu K, Han W, Tian Q, Dong L, Li Y, Lu W, et al.
Cell (2024) 18723: 6649-6668.e35. . **ICC; tested species: mouse**

Aberrant hippocampal gamma oscillations in a mouse model of fragile X syndrome: insights from in vitro slice models.
Pollali E, Donaire DF, Ángel MD, Demiray YE, Lacalle SE, Hollnagel JO, Annamneedi A, Çalışkan G
Molecular autism (2025) 161: 55. . **WB; 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**

Tonic GABAergic Inhibition Is Essential for Nerve Injury-Induced Afferent Remodeling in the Somatosensory Thalamus and Ectopic Sensations.
Nagumo Y, Ueta Y, Nakayama H, Osaki H, Takeuchi Y, Uesaka N, Kano M, Miyata M
Cell reports (2020) 3112: 107797. . **IHC; tested species: rat**

Elucidating the Molecular Basis for Inhibitory Neurotransmission Regulation by Artemisinins.
Kasaragod VB, Hausrat TJ, Schaefer N, Kuhn M, Christensen NR, Tessmer I, Maric HM, Madsen KL, Sotriffer C, Villmann C, Kneussel M, et al.
Neuron (2019) 1014: 673-689.e11. . **WB; tested species: mouse**

Myosin XVI Regulates Actin Cytoskeleton Dynamics in Dendritic Spines of Purkinje Cells and Affects Presynaptic Organization.
Roesler MK, Lombino FL, Freitag S, Schweizer M, Hermans-Borgmeyer I, Schwarz JR, Kneussel M, Wagner W
Frontiers in cellular neuroscience (2019) 13: 330. . **WB; tested species: mouse**

Early-life adversity selectively impairs α2-GABAA receptor expression in the mouse nucleus accumbens and influences the behavioral effects of cocaine.
Mitchell SJ, Maguire EP, Cunningham L, Gunn BG, Linke M, Zechner U, Dixon CI, King SL, Stephens DN, Swinny JD, Belelli D, et al.
Neuropharmacology (2018) : . . **IHC; tested species: mouse**

Selected General References

The distribution of thirteen GABAA receptor subunit mRNAs in the rat brain. III. Embryonic and postnatal development.
Laurie DJ et al. J. Neurosci. (1992) PubMed:1331359

GABA receptor heterogeneity modulates dendrodendritic inhibition.
Sassoè-Pognetto M et al. Ann. N. Y. Acad. Sci. (2009) PubMed:19686144

Access the online factsheet including applicable protocols at https://sysy.com/product/224205 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.