SYSY Antibodies

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GABA-A receptor α2 extracellular

Cat.No. 224 102; 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**: not tested yet (see remarks) **IHC**: not tested yet (see remarks) **IHC-P (FFPE)**: not tested yet
Immunogen	Synthetic peptide/recombinant protein corresponding to residues near the amino terminus of rat GABA-A receptor α2 (UniProt Id: P23576)
Reactivity	Reacts with: human (P47869), rat (P23576), mouse (P26048). Other species not tested yet.
Matching control	224-1P
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **ICC**: The affinity purified antibody (cat.no. 224 103) is highly recommended for ICC. **IHC**: The affinity purified antibody (cat.no. 224 103) is highly recommended for this application.

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.

Selected References for 224 102

Reciprocal control of excitatory synapse numbers by Wnt and Wnt inhibitor PRR7 secreted on exosomes.
Lee SH, Shin SM, Zhong P, Kim HT, Kim DI, Kim JM, Do Heo W, Kim DW, Yeo CY, Kim CH, Liu QS, et al.
Nature communications (2018) 91: 3434. . **WB, ICC; tested species: rat**

Aberrant expression of S-SCAM causes the loss of GABAergic synapses in hippocampal neurons.
Shin SM, Skaar S, Danielson E, Lee SH
Scientific reports (2020) 101: 83. . **ICC; tested species: rat**

Behavioral profiling as a translational approach in an animal model of posttraumatic stress disorder.
Ardi Z, Albrecht A, Richter-Levin A, Saha R, Richter-Levin G
Neurobiology of disease (2016) 88: 139-47. . **WB**

γ-Aminobutyric Acid Type A (GABAA) Receptor Subunits Play a Direct Structural Role in Synaptic Contact Formation via Their N-terminal Extracellular Domains.
Brown LE, Nicholson MW, Arama JE, Mercer A, Thomson AM, Jovanovic JN
The Journal of biological chemistry (2016) 29127: 13926-42. . **WB**

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

Synaptogenesis in the cerebellar cortex: differential regulation of gephyrin and GABAA receptors at somatic and dendritic synapses of Purkinje cells.
Viltono L et al. J. Comp. Neurol. (2008) PubMed:18366064

Compensatory alteration of inhibitory synaptic circuits in cerebellum and thalamus of gamma-aminobutyric acid type A receptor alpha1 subunit knockout mice.
Kralic JE et al. J. Comp. Neurol. (2006) PubMed:16485284

Postsynaptic clustering of major GABAA receptor subtypes requires the gamma 2 subunit and gephyrin.
Essrich C et al. Nat. Neurosci. (1998) PubMed:10196563

GABAA-receptor heterogeneity in the adult rat brain: differential regional and cellular distribution of seven major subunits.
Fritschy JM et al. J. Comp. Neurol. (1995) PubMed:8557845

Distribution, prevalence, and drug binding profile of gamma-aminobutyric acid type A receptor subtypes differing in the beta-subunit variant.
Benke D et al. J. Biol. Chem. (1994) PubMed:7929453

The distribution of 13 GABAA receptor subunit mRNAs in the rat brain. II. Olfactory bulb and cerebellum.
Laurie DJ et al. J. Neurosci. (1992) PubMed:1312132

The distribution of 13 GABAA receptor subunit mRNAs in the rat brain. I. Telencephalon, diencephalon, mesencephalon.
Wisden W et al. J. Neurosci. (1992) PubMed:1312131

Access the online factsheet including applicable protocols at https://sysy.com/product/224102 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.