

GABA-A receptor $\alpha 1$ extracellular

Cat.No. 224 203; Polyclonal rabbit antibody, 50 μ g specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 μ g specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For reconstitution add 50 μ l H ₂ O 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) (see remarks) IP: yes ICC: 1 : 500 (see remarks) IHC: 1 : 1000 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 $\alpha 1$. (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	WB: GABA-A receptor $\alpha 1$ aggregates after boiling, making it necessary to run SDS-PAGE with non-boiled samples. ICC: This antibody is PFA fixation sensitive, use only mild fixation (2% PFA). Best results are obtained by application on living cells. After washing cells with bound antibodies, they can be fixed and visualized with secondary reagents. 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-aminobutyric acid 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 224 203

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**

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**

Developmental transformation of Ca²⁺ channel-vesicle nanotopography at a central GABAergic synapse.

Chen JJ, Kaufmann WA, Chen C, Arai I, Kim O, Shigemoto R, Jonas P

Neuron (2024) 1125: 755-771.e9. . **IHC; tested species: mouse**

Distinct mechanisms drive sequential internalization and degradation of GABAARs during global ischemia and reperfusion injury.

Garcia JD, Wolfe SE, Stewart AR, Tiemeier E, Gookin SE, Guerrero MB, Quillinan N, Smith KR

iScience (2023) 2610: 108061. . **ICC; tested species: rat**

Vision-dependent specification of cell types and function in the developing cortex.

Cheng S, Butrus S, Tan L, Xu R, Sagireddy S, Trachtenberg JT, Shekhar K, Zipursky SL

Cell (2022) 1852: 311-327.e24. . **IHC; tested species: mouse**

Conformational state-dependent regulation of GABAA receptor diffusion and subsynaptic domains.

Merlaud Z, Marques X, Russeau M, Saade U, Tostain M, Moutkine I, Gielen M, Corringer PJ, Lévi S

iScience (2022) 2511: 105467. . **ICC; tested species: rat**

ErbB4 promotes inhibitory synapse formation by cell adhesion, independent of its kinase activity.

Luo B, Liu Z, Lin D, Chen W, Ren D, Yu Z, Xiong M, Zhao C, Fei E, Li B

Translational psychiatry (2021) 111: 361. . **ICC; tested species: mouse**

Stepwise disassembly of GABAergic synapses during pathogenic excitotoxicity.

Garcia JD, Gookin SE, Crosby KC, Schwartz SL, Tiemeier E, Kennedy MJ, Dell'Acqua ML, Herson PS, Quillinan N, Smith KR

Cell reports (2021) 3712: 110142. . **ICC; tested species: rat**

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 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.