

## GABA-A receptor $\alpha 2$ extracellular

Cat.No. 224 102; Polyclonal rabbit antibody, 200  $\mu$ l antiserum (lyophilized)

### Data Sheet

Reconstitution/ Storage	200 $\mu$ l antiserum, lyophilized. For <b>reconstitution</b> add 200 $\mu$ l H <sub>2</sub> O, 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	<b>WB:</b> 1 : 1000 (AP staining) <b>IP:</b> yes <b>ICC:</b> yes (see remarks) <b>IHC:</b> yes (see remarks) <b>IHC-P:</b> not tested yet
Immunogen	Synthetic peptide corresponding to AA 29 to 37 from rat GABA-A receptor $\alpha 2$ (UniProt Id: P23576)
Reactivity	Reacts with: human (P47869), rat (P23576), mouse (P26048). Other species not tested yet.
Matching control	224-1P
Remarks	<b>WB:</b> To avoid protein aggregation, do not heat samples for SDS-PAGE. <b>ICC:</b> The affinity purified antibody ( <a href="#">cat.no. 224 103</a> ) is highly recommended for ICC. <b>IHC:</b> The affinity purified antibody (cat.no. 224 103) is highly recommended for this applications.

**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 224 102

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**

$\gamma$ -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  $\alpha 1$  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 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 at 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.