SYSY Antibodies

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Glycine receptor

Cat.No. 146 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 100 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 : 500 up to 1 : 1000 (AP staining) **IP**: yes **ICC**: external data (see remarks) **IHC**: 1 : 250 (see remarks) **IHC-P (FFPE)**: 1 : 100 up to 1 : 500 **FACS**: yes
Clone	mAb4a
Subtype	IgG1 (κ light chain)
Immunogen	Nativ Protein corresponding to AA 1 to 457 from rat Glycine receptor α1 (UniProt Id: P07727)
Epitop	AA 96 to 105 from rat Glycine receptor α1 (UniProt Id: P07727)
Reactivity	Reacts with: human (P23415, P23416, P48167), rat (P07727, P22771, P20781), mouse (Q64018, Q7TNC8, P48168), pig, zebrafish. Other species not tested yet.
Specificity	Specific for all glycine receptor subunits.
Remarks	**ICC**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols. **IHC**: Antigen retrieval with methanol/acetic acid is required. For details see Dumoulin A, Triller A & Dieudonné S (2001).

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

Background

The inhibitory **glycine receptor** (GlyR) is a member of the ligand-gated ion channel superfamily of neurotransmitter receptors. It is an oligomeric protein composed of homologous subunits (α 1-4 and β) with four transmembrane segments (M1-M4) each.
It shows a widespread expression profile in brain. Several isoforms and splice variants with distinct pharmacology have been discovered so far.

Selected References for 146 011

Distribution of the glycine receptor β-subunit in the mouse CNS as revealed by a novel monoclonal antibody.
Weltzien F, Puller C, O'Sullivan GA, Paarmann I, Betz H
The Journal of comparative neurology (2012) 52017: 3962-81. . **WB, ICC, IHC**

Glycine Receptor Autoantibodies Impair Receptor Function and Induce Motor Dysfunction.
Rauschenberger V, von Wardenburg N, Schaefer N, Ogino K, Hirata H, Lillesaar C, Kluck CJ, Meinck HM, Borrmann M, Weishaupt A, Doppler K, et al.
Annals of neurology (2020) 883: 544-561. . **WB, IHC, UPTAKE; tested species: human,zebrafish**

Neuronal cotransport of glycine receptor and the scaffold protein gephyrin.
Maas C, Tagnaouti N, Loebrich S, Behrend B, Lappe-Siefke C, Kneussel M
The Journal of cell biology (2006) 1723: 441-51. . **WB, IP, ICC**

Binding patterns of glycine receptor autoantibodies are related to clinical syndromes.
Piro I, Wiessler AL, Kakavela E, Baykan B, Tüzün E, Villmann C, Sommer C
Acta neuropathologica communications (2025) 131: 166. . **ICC, IHC; tested species: human,mouse**

Impaired Presynaptic Function Contributes Significantly to the Pathology of Glycine Receptor Autoantibodies.
Wiessler AL, Zheng F, Werner C, Habib M, Tuzun E, Alzheimer C, Sommer C, Villmann C
Neurology(R) neuroimmunology & neuroinflammation (2025) 122: e200364. . **WB, ICC; tested species: mouse**

Glycine Receptor β-Targeting Autoantibodies Contribute to the Pathology of Autoimmune Diseases.
Wiessler AL, Talucci I, Piro I, Seefried S, Hörlin V, Baykan BB, Tüzün E, Schaefer N, Maric HM, Sommer C, Villmann C, et al.
Neurology(R) neuroimmunology & neuroinflammation (2024) 112: e200187. . **WB, ICC; tested species: human,mouse**

Glycine receptor autoantibody binding to the extracellular domain is independent from receptor glycosylation.
Rauschenberger V, Piro I, Kasaragod VB, Hörlin V, Eckes AL, Kluck CJ, Schindelin H, Meinck HM, Wickel J, Geis C, Tüzün E, et al.
Frontiers in molecular neuroscience (2023) 16: 1089101. . **WB, UPTAKE; tested species: human**

A novel glycine receptor variant with startle disease affects syndapin I and glycinergic inhibition.
Langlhofer G, Schaefer N, Maric HM, Keramidas A, Zhang Y, Baumann P, Blum R, Breitinger U, Strømgaard K, Schlosser A, Kessels MM, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) : . . **WB, ICC; tested species: human**

The GlyR Extracellular β8-β9 Loop - A Functional Determinant of Agonist Potency.
Janzen D, Schaefer N, Delto C, Schindelin H, Villmann C
Frontiers in molecular neuroscience (2017) 10: 322. . **WB, ICC; tested species: human**

Disturbed neuronal ER-Golgi sorting of unassembled glycine receptors suggests altered subcellular processing is a cause of human hyperekplexia.
Schaefer N, Kluck CJ, Price KL, Meiselbach H, Vornberger N, Schwarzinger S, Hartmann S, Langlhofer G, Schulz S, Schlegel N, Brockmann K, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2015) 351: 422-37. . **ICC, WB**

Disturbances of Ligand Potency and Enhanced Degradation of the Human Glycine Receptor at Affected Positions G160 and T162 Originally Identified in Patients Suffering from Hyperekplexia.
Atak S, Langlhofer G, Schaefer N, Kessler D, Meiselbach H, Delto C, Schindelin H, Villmann C
Frontiers in molecular neuroscience (2015) 8: 79. . **WB, ICC; tested species: human**

Single expressed glycine receptor domains reconstitute functional ion channels without subunit-specific desensitization behavior.
Meiselbach H, Vogel N, Langlhofer G, Stangl S, Schleyer B, Bahnassawy L, Sticht H, Breitinger HG, Becker CM, Villmann C
The Journal of biological chemistry (2014) 28942: 29135-47. . **WB, ICC; tested species: mouse,rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/146011 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.