SYSY Antibodies

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Gephyrin

Cat.No. 147 021; Monoclonal mouse antibody, 300 µl hybridoma supernatant (lyophilized)

Data Sheet

Reconstitution/ Storage	300 µl hybridoma supernatant, lyophilized. For **reconstitution** add 300 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**: not recommended (see remarks) **IP**: not recommended (see remarks) **ICC**: 1 : 250 up to 1 : 500 **IHC**: 1 : 100 up to 1 : 250 (see remarks) **IHC-P (FFPE)**: not recommended **IHC-Fr**: 1 : 500 (see remarks) **IHC-G**: yes (see remarks) **ExM**: external data (see remarks) **EM**: external data (see remarks)
Clone	mAb7a
Subtype	IgG1 (κ light chain)
Immunogen	Nativ Protein corresponding to AA 1 to 768 from rat Gephyrin (UniProt Id: Q03555)
Epitop	AA 264 to 276 from rat Gephyrin (UniProt Id: Q03555)
Reactivity	Reacts with: human (Q9NQX3), rat (Q03555), mouse (Q8BUV3), pig, goldfish, zebrafish, frog. Other species not tested yet.
Specificity	Specific for the brain specific 93 kDa splice variant phosphorylated at Ser-270. K.O. validated
Remarks	**WB**: Clone 3B11 (cat. no. 147 111) is highly recommended. **IP**: Clone 3B11 (cat. no. 147 111) highly recommended. **IHC**: Antigen retrieval with citrate buffer pH 6 can be applied to improve the signal-to-noise ratio. Alternatively, the mild fixation protocol according to in Schneider Gasser et al. 2006, can be applied. Clone mAb7a and its recombinant derivatives can cause non-specific nuclear staining, which becomes more pronounced after AGR treatment. The culture supernatants (147 021, 147 318 and 147 018) are less prone to this effect and are the preferred choices for IHC experiments. **IHC-Fr**: The following fixatives are possible: acetone, 4% formaldehyde/PFA. Methanol fixation is not advised. **IHC-G**: 9% glyoxal fixation is recommended. **ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **EM**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

Background

Gephyrin is a bifunctional protein which is essential for both synaptic clustering of inhibitory neurotransmitter receptors in the central nervous system and the biosynthesis of the molybdenum cofactor (MoCo) in peripheral tissues. It co-purifies with the inhibitory glycine receptor (GlyR) and is expressed abundantly in all brain areas which contain synapses.

Selected References for 147 021

Molecular Dissection of Neuroligin 2 and Slitrk3 Reveals an Essential Framework for GABAergic Synapse Development.
Li J, Han W, Pelkey KA, Duan J, Mao X, Wang YX, Craig MT, Dong L, Petralia RS, McBain CJ, Lu W, et al.
Neuron (2017) 964: 808-826.e8. . **WB, ICC, IHC; tested species: mouse**

A critical role of Neuroligin 2 C-terminus in OCD and social behavior.
Pandey S, Ostergren S, Li J, Peng S, Wang G, Tian Q, Dong L, Lu W
The Journal of neuroscience : the official journal of the Society for Neuroscience (2025) 4519: . . **ICC, IHC, WB; tested species: mouse**

A protocol for concurrent high-quality immunohistochemical and biochemical analyses in adult mouse central nervous system.
Notter T, Panzanelli P, Pfister S, Mircsof D, Fritschy JM
The European journal of neuroscience (2014) 392: 165-75. . **IHC, EM**

Astrocyte-Derived PTPRZ1 Regulates Excitatory Synapse Density in the Mouse Cortex.
Eaker AR, Spence-Osorio HE, Coble MG, Dogan BC, Baldwin KT
eNeuro (2026) 134: . . **ICC, IHC; tested species: rat,mouse**

Interference With Complex IV as a Model of Age-Related Decline in Synaptic Connectivity.
Kriebel M, Ebel J, Battke F, Griesbach S, Volkmer H
Frontiers in molecular neuroscience (2020) 13: 43. . **WB, ICC; tested species: rat**

Extrasynaptic homomeric glycine receptors in neurons of the rat trigeminal mesencephalic nucleus.
Bae JY, Lee JS, Ko SJ, Cho YS, Rah JC, Cho HJ, Park MJ, Bae YC
Brain structure & function (2018) : . . **IHC, EM; tested species: rat**

Expression of Neurofilament Subunits at Neocortical Glutamatergic and GABAergic Synapses.
Bragina L, Conti F
Frontiers in neuroanatomy (2018) 12: 74. . **WB, IHC; tested species: rat**

Electron tomography on γ-aminobutyric acid-ergic synapses reveals a discontinuous postsynaptic network of filaments.
Linsalata AE, Chen X, Winters CA, Reese TS
The Journal of comparative neurology (2014) 5224: 921-36. . **EM, ICC; tested species: rat**

Single-cell synaptome mapping of endogenous protein subpopulations in mammalian brain.
Uchigashima M, Iguchi R, Fujii K, Shiku K, Kumar P, Liu X, Isogai M, Hoshino C, Abe M, Nozumi M, Okamura Y, et al.
Nature communications (2025) 161: 9705. . **IHC_G; tested species: mouse**

Spatial proteomics in neurons at single-protein resolution.
Unterauer EM, Shetab Boushehri S, Jevdokimenko K, Masullo LA, Ganji M, Sograte-Idrissi S, Kowalewski R, Strauss S, Reinhardt SCM, Perovic A, Marr C, et al.
Cell (2024) 1877: 1785-1800.e16. . **DNA_PAINT; tested species: rat**

Structural Heterogeneity of the GABAergic Tripartite Synapse.
Brunskine C, Passlick S, Henneberger C
Cells (2022) 1119: . . **EXM; tested species: mouse**

Adeno-Associated Virus Vector-Mediated Expression of Neuroligin 2 in the Mouse Hippocampus Attenuates the Progression of Pentylenetetrazol-Induced Seizures.
Tokutake T, Hara A, Murayama A, Mitsuda Y, Yokose J, Yano Y, Shigetsura Y, Ito M, Takino N, Kumagai S, Shimazaki K, et al.
The journal of gene medicine (2026) 2810: e70116. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/147021 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.