SYSY Antibodies

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Gephyrin

Cat.No. 147 011; 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**: not recommended (see remarks) **IP**: not recommended (see remarks) **ICC**: 1 : 1000 up to 1 : 2000 **IHC**: 1 : 1000 up to 1 : 2000 (see remarks) **IHC-P (FFPE)**: not recommended **ExM**: external data (see remarks) **DNA-PAINT**: external data (see remarks) **Clarity**: 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, chicken. Other species not tested yet.
Specificity	Specific for the brain specific 93 kDa splice variant phosphorylated at Ser-270. K.O. validated PubMed: 9812897
Remarks	**WB**: Clone 3B11 (cat. no. 147 111) is highly recommended. **IP**: Clone 3B11 (cat. no. 147 111) is 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. **ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **DNA-PAINT**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **Clarity**: 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

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 147 011

Autism and Schizophrenia-Associated CYFIP1 Regulates the Balance of Synaptic Excitation and Inhibition.
Davenport EC, Szulc BR, Drew J, Taylor J, Morgan T, Higgs NF, López-Doménech G, Kittler JT
Cell reports (2019) 268: 2037-2051.e6. . **WB, ICC, IHC; tested species: mouse**

Bazedoxifene reverses sexually dimorphic autistic-like abnormalities in biallelic MDGA1-mutant mice.
Kim S, Kim H, Pelayo JP, Alvarez S, Jang G, Kim J, Kim B, Hoelscher VM, Calleja-Pérez B, Jung H, Yang Y, et al.
EMBO molecular medicine (2026) : . . **ICC, IHC, WB; tested species: mouse,rat**

HIV-1 Tat-Induced Astrocytic Extracellular Vesicle miR-7 Impairs Synaptic Architecture.
Hu G, Niu F, Liao K, Periyasamy P, Sil S, Liu J, Dravid SM, Buch S
Journal of neuroimmune pharmacology : the official journal of the Society on NeuroImmune Pharmacology (2019) : . . **WB, ICC, IHC; tested species: human,rat,monkey**

Extracellular signal-regulated kinase and glycogen synthase kinase 3β regulate gephyrin postsynaptic aggregation and GABAergic synaptic function in a calpain-dependent mechanism.
Tyagarajan SK, Ghosh H, Yévenes GE, Imanishi SY, Zeilhofer HU, Gerrits B, Fritschy JM
The Journal of biological chemistry (2013) 28814: 9634-47. . **WB, IP**

Distribution of gephyrin-immunoreactivity in the trigeminal motor nucleus: an immunohistochemical study in rats.
Li Z, Ge S, Zhang F, Zhang T, Mizuno N, Hioki H, Kaneko T, Gao G, Li J
Anatomical record (Hoboken, N.J. : 2007) (2012) 2954: 641-51. . **IHC, EM; tested species: rat**

Levetiracetam restores GABAergic function and network homeostasis following Vps35 deficiency in excitatory neurons.
Liu ZP, Lee D, Tan Z, Wu A, Mei L, Xiong WC
Translational neurodegeneration (2026) 151: . . **WB, IHC; tested species: mouse**

Necl-4/CADM4 regulates GABAergic synaptic strength on GABAergic inhibitory neurons via ErbB4 activation and prevents neuronal impairments.
Komaki R, Shiotani H, Kuriu T, Kameyama T, Miyata M, Kedashiro S, Katanazaka K, Nishii S, Chihara N, Matsumoto R, Koebis M, et al.
Molecular neurobiology (2025) : . . **ICC, IHC; tested species: mouse**

Mdga2 deficiency leads to an aberrant activation of BDNF/TrkB signaling that underlies autism-relevant synaptic and behavioral changes in mice.
Zhao D, Huo Y, Zheng N, Zhu X, Yang D, Zhou Y, Wang S, Jiang Y, Wu Y, Zhang YW
PLoS biology (2025) 234: e3003047. . **WB, ICC; tested species: human,mouse**

Cd99l2 regulates excitatory synapse development and restrains immediate-early gene activation.
Kang M, Yoon SH, Kang M, Park SP, Song WS, Kim J, Lee S, Park DH, Song JM, Kim B, Park KH, et al.
Cell reports (2025) 441: 115155. . **WB, IHC; tested species: human,mouse**

Learning-induced remodelling of inhibitory synapses in the motor cortex.
Bhembre N, Paolino A, Das SS, Guntupalli S, Fenlon LR, Anggono V
Open biology (2024) 1411: 240109. . **ICC, IHC; tested species: mouse,rat**

Role of the Glycine Receptor β Subunit in Synaptic Localization and Pathogenicity in Severe Startle Disease.
Wiessler AL, Hasenmüller AS, Fuhl I, Mille C, Cortes Campo O, Reinhard N, Schenk J, Heinze KG, Schaefer N, Specht CG, Villmann C, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2024) 442: . . **ICC, IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/147011 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.