SYSY Antibodies

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Gephyrin

Cat.No. 147 318; Recombinant Guinea pig antibody, 200 µl recombinant IgG supernatant (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl purified recombinant IgG supernatant, lyophilized. For **reconstitution** add 200 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 : 200 **IHC**: 1 : 200 (see remarks) **IHC-P (FFPE)**: not recommended **IHC-Fr**: 1 : 200 up to 1 : 500 (see remarks)
Clone	GpmAb7a
Subtype	IgG2 (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. Other species not tested yet.
Specificity	Specific for the brain specific 93 kDa splice variant phosphorylated at Ser-270. K.O. validated
Remarks	This antibody is a chimeric antibody based on the well known clone mAb7a. The constant regions of the heavy and light chains have been replaced with Guinea pig specific sequences. The antibody can therefore be used with standard anti-Guinea pig secondary reagents. It also carries a Strep-tag at the C-terminus of the heavy chain and has been expressed in mammalian cells. **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: 4% formaldehyde/PFA, acetone, methanol-acetone, methanol. Signal intensities as follows: PFA = acetone > acetone-methanol > methanol.

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 147 318

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**

Microglial CX3CR1 signaling mediates synaptic pruning in degenerative cervical myelopathy.
Zhou CM, Asgarihafshejani A, Hong J, Brockie ST, Movahed M, Sadat S, Kouhzaei S, Fehlings MG
Neurobiology of disease (2026) 228: 107567. . **IHC; tested species: mouse**

Deletion of the microglial phagocytic receptor MerTK mimics early-life adversity-induced changes in synapses and behavior in male mice.
Garvin MM, Kar U, Kooiker CL, Bolton JL
Brain, behavior, and immunity (2026) 133: 106246. . **IHC; tested species: mouse**

Stathmin 1 regulates epileptic seizures by influencing GABAA R-mediated inhibitory synaptic activity.
Yang M, Hu Y, Wu J, Zhang H, Li J, Wang X, Xu X
Neurobiology of disease (2026) 220: 107310. . **IHC; tested species: human**

ADGRB1 contributes to astrocyte-mediated phagocytosis of excitatory synapses.
Shiu FH, Hill EJ, Li Y, Tang S, Ettigi N, King AT, Yao B, Yang J, Sloan SA, Escayg A
Experimental neurology (2025) 395: 115451. . **IHC; tested species: mouse**

Insulin resistance alters cortical inhibitory neurons and microglia to exacerbate Alzheimer's knock-in mouse phenotypes.
Nicholson L, Tang SJ, Karra T, Abouelatta H, Strittmatter SM
bioRxiv : the preprint server for biology (2025) : . . **IHC; tested species: mouse**

Semaphorin 3A-mediated perineuronal nets formation incubates depressive-like behaviors in male mice via activating parvalbumin-expressing interneurons.
Mei YX, Chen HS, Cao QL, Lv WW, Liu Y, Deng SL, Zhou Q, Zhang ZJ, Wang F, Hu ZL, Chen JG, et al.
Molecular psychiatry (2025) : . . **IHC; tested species: mouse**

Dual lineage origins contribute to neocortical astrocyte diversity.
Zhou J, Vitali I, Roig-Puiggros S, Javed A, Cantando I, Puglisi M, Bezzi P, Jabaudon D, Mayer C, Bocchi R
Nature communications (2025) 161: 6992. . **IHC; tested species: mouse**

Distinct mechanisms control the specific synaptic functions of Neuroligin 1 and Neuroligin 2.
Wang J, Sudhof T, Wernig M
EMBO reports (2025) : . . **ICC; tested species: mouse**

Biphasic Npas4 expression promotes inhibitory plasticity and suppression of fear memory consolidation in mice.
Brito DVC, Kupke J, Sokolov R, Cambridge S, Both M, Bengtson CP, Rozov A, Oliveira AMM
Molecular psychiatry (2024) : . . **IHC; tested species: mouse**

The TMEM132B-GABAA receptor complex controls alcohol actions in the brain.
Wang G, Peng S, Reyes Mendez M, Keramidas A, Castellano D, Wu K, Han W, Tian Q, Dong L, Li Y, Lu W, et al.
Cell (2024) 18723: 6649-6668.e35. . **ICC; tested species: mouse**

Cholecystokinin-expressing interneurons mediated inhibitory transmission and plasticity in basolateral amygdala modulate stress-induced anxiety-like behaviors in mice.
Fang W, Chen X, He J
Neurobiology of stress (2024) 33: 100680. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/147318 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.