

Gephyrin

Cat.No. 147 111; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

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| Reconstitution/ Storage | 100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 100 µl H ₂ O 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 : 1000 up to 1 : 5000 (AP staining) IP: yes ICC: 1 : 500 up to 1 : 1000 IHC: not recommended IHC-P: not recommended IHC-Fr: 1 : 500 (see remarks) ExM: external data (see remarks) ELISA: |
| Clone | 3B11 |
| Subtype | IgG1 (κ light chain) |
| Immunogen | Recombinant protein corresponding to AA 307 to 735 from rat Gephyrin (UniProt Id: Q03555) |
| Epitop | AA 326 to 550 from rat Gephyrin (UniProt Id: Q03555) |
| Reactivity | Reacts with: human (Q9NQX3), rat (Q03555), mouse (Q8BUV3), zebrafish. Other species not tested yet. |
| Specificity | Detects all splice variants that contain a complete E-domain including the C6 domain. K.O. validated PubMed: 26829712 |
| Remarks | This antibody is highly recommended for Western blot experiments and immunoprecipitation. IHC-Fr: The following fixatives are possible: 4% formaldehyde/PFA, methanol-acetone. ExM: This antibody has been successfully applied and published for this method by customers (see application-specific references). |

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

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 147 111

Spinal Cord Neuronal Network Formation in a 3D Printed Reinforced Matrix-A Model System to Study Disease Mechanisms.
Fischhaber N, Faber J, Bakirci E, Dalton PD, Budday S, Villmann C, Schaefer N
Advanced healthcare materials (2021) 1019: e2100830. . **WB, ICC, UPTAKE**

TRPM2 and CaMKII Signaling Drives Excessive GABAergic Synaptic Inhibition Following Ischemia.
Burch AM, Garcia JD, O'Leary H, Haas A, Orfila JE, Tiemeier E, Chalmers N, Smith KR, Quillan N, Herson PS
The Journal of neuroscience : the official journal of the Society for Neuroscience (2024) 4419: . . **WB, ICC, IHC; tested species: mouse**

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**

Autism-associated ARHGEF9 variants impair GABAergic synapses and ultrasonic communication by reducing gephyrin phosphorylation.
Jung H, Kim B, Jang G, Lee H, Kim Y, Kim H, Lee HJ, Kim D, Yang Y, Jeong WC, Kim S, et al.
Molecular psychiatry (2025) : . . **WB, ICC; tested species: human,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**

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. . **WB, ICC; tested species: mouse**

LPS induces microglial activation and GABAergic synaptic deficits in the hippocampus accompanied by prolonged cognitive impairment.
Jung H, Lee D, You H, Lee M, Kim H, Cheong E, Um JW
Scientific reports (2023) 131: 6547. . **WB, IHC; tested species: mouse**

Adamtsl3 mediates DCC signaling to selectively promote GABAergic synapse function.
Cramer TML, Pinan-Lucarre B, Cavaccini A, Damilou A, Tsai YC, Bhat MA, Panzanelli P, Rama N, Mehlen P, Benke D, Karayannis T, et al.
Cell reports (2023) 428: 112947. . **ICC, IHC; tested species: mouse**

The complement inhibitor CD59 is required for GABAergic synaptic transmission in the dentate gyrus.
Wen L, Yang X, Wu Z, Fu S, Zhan Y, Chen Z, Bi D, Shen Y
Cell reports (2023) 424: 112349. . **WB, IHC; tested species: mouse**

A DARPIn-based molecular toolset to probe gephyrin and inhibitory synapse biology.
Campbell BFN, Dittmann A, Dreier B, Plückthun A, Tyagarajan SK
eLife (2022) 11: . . **ICC, IHC; tested species: rat**

Cross-talk between GABAergic postsynapse and microglia regulate synapse loss after brain ischemia.
Cramer T, Gill R, Thirouin ZS, Vaas M, Sampath S, Martineau F, Noya SB, Panzanelli P, Sudharshan TJJ, Colameo D, Chang PK, et al.
Science advances (2022) 89: eabj0112. . **WB, IHC; tested species: mouse**

Access the online factsheet including applicable protocols at <https://sysy.com/product/147111> 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.