

Gephyrin

Cat.No. 147 008; Recombinant rabbit antibody, 50 µg recombinant IgG (lyophilized)

Data Sheet

Reconstitution/Storage	50 µg purified recombinant IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 50 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: yes (see remarks) IP: yes (see remarks) ICC: 1 : 500 IHC: 1 : 500 up to 1 : 1000 (see remarks) IHC-P: not recommended ExM: yes (see remarks)
Clone	RbmAb7a
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. 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 monoclonal mouse antibody mAb7a. The constant regions of the heavy and light chains have been replaced with rabbit specific sequences. The antibody can therefore be used with standard anti-rabbit secondary reagents. The antibody has been expressed in mammalian cells. WB: Clone 3B11 (cat. no. 147 111) is highly recommended. IP: Clone 3B11 (cat. no. 147 111) is highly recommended. IHC: For best results use the protocol of Schneider Gasser et al., 2006. Alternatively antigen retrieval (10 mM citrate, pH 6.0, over night at 60°C) can be applied. ExM: This antibody has been successfully used for the epitope-preserving magnified analysis of the proteome (eMAP) expansion microscopy method (Park et al. 2021. PMID: 34767453).

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 147 008

- The Alzheimer susceptibility gene BIN1 induces isoform-dependent neurotoxicity through early endosome defects. Lambert E, Saha O, Soares Landeira B, Melo de Farias AR, Hermant X, Carrier A, Pelletier A, Gadaut J, Davoine L, Dupont C, Amouyel P, et al. *Acta neuropathologica communications* (2022) 101: 4. . **ICC, IHC; tested species: rat**
- 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**
- A proline-rich motif in the large intracellular loop of the glycine receptor α1 subunit interacts with the Pleckstrin homology domain of collybistin. Breiting U, Weinländer K, Pechmann Y, Langlhofer G, Enz R, Becker CM, Sticht H, Kneussel M, Villmann C, Breiting HG *Journal of advanced research* (2021) 29: 95-106. . **WB; tested species: mouse**
- Presynaptic Rac1 in the hippocampus selectively regulates working memory. Kim J, Bustamante E, Sotonyi P, Maxwell N, Parameswaran P, Kent JK, Wetsel WC, Soderblom EJ, Rácz B, Soderling SH *eLife* (2024) 13: . . **ICC; tested species: mouse**
- Regulation of synapse density by Pumilio RNA-binding proteins. Randolph LK, Pauers MM, Martinez JC, Sibener LJ, Zrzavy MA, Sharif NA, Gonzalez TM, Ramachandran KV, Dominguez D, Hengst U *Cell reports* (2024) 4310: 114747. . **ICC; tested species: rat**
- Autism risk gene Cul3 alters neuronal morphology via caspase-3 activity in mouse hippocampal neurons. Xia QQ, Singh A, Wang J, Xuan ZX, Singer JD, Powell CM *Frontiers in cellular neuroscience* (2024) 18: 1320784. . **ICC; tested species: mouse**
- Suppression of astrocyte BMP signaling improves Fragile X syndrome molecular signatures and functional deficits. Deng J, Labarta-Bajo L, Brandebura AN, Kahn SB, Pinto AFM, Diedrich JK, Allen NJ *bioRxiv : the preprint server for biology* (2024) : . . **IHC; tested species: mouse**
- Neuron type-specific proteomics reveals distinct Shank3 proteoforms in iSPNs and dSPNs lead to striatal synaptopathy in Shank3B^{-/-} mice. Wang YZ, Perez-Rosello T, Smukowski SN, Surmeier DJ, Savas JN *Molecular psychiatry* (2024) 298: 2372-2388. . **IHC; tested species: mouse**
- Engram cell connectivity as a mechanism for information encoding and memory function. Ortega-de San Luis C, Pezzoli M, Urrieta E, Ryan TJ *Current biology : CB* (2023) 3324: 5368-5380.e5. . **IHC; tested species: mouse**
- Machine learning identifies experimental brain metastasis subtypes based on their influence on neural circuits. Sanchez-Aguilera A, Masmudi-Martín M, Navas-Olive A, Baena P, Hernández-Oliver C, Priego N, Cordón-Barris L, Alvaro-Espinosa L, García S, Martínez S, Lafarga M, et al. *Cancer cell* (2023) 419: 1637-1649.e11. . **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. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at <https://sysy.com/product/147008> or scan the QR-code.



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

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 a 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.