SYSY Antibodies

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Gephyrin

Cat.No. 147 018; Recombinant rabbit 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 : 1000 **IHC**: 1 : 500 up to 1 : 1000 (see remarks) **IHC-P**: not recommended **IHC-Fr**: 1 : 500 (see remarks)
Clone	RbmAb7a
Subtype	IgG1 (κ light chain)
Immunogen	Nativ Protein corresponding to AA 1 to 768 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. **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. **IHC-Fr**: Fixation with acetone or PFA/formaldehyde is recommended. Signal intensities as follows: acetone > PFA > acetone-methanol > methanol.

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 147 018

ErbB4 promotes inhibitory synapse formation by cell adhesion, independent of its kinase activity.
Luo B, Liu Z, Lin D, Chen W, Ren D, Yu Z, Xiong M, Zhao C, Fei E, Li B
Translational psychiatry (2021) 111: 361. . **WB, ICC; tested species: mouse**

ROCK/PKA inhibition rescues hippocampal hyperexcitability and GABAergic neuron alterations in Oligophrenin-1 Knock-out mouse model of X-linked intellectual disability.
Busti I, Allegra M, Spalletti C, Panzi C, Restani L, Billuart P, Caleo M
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) : . . **IHC; tested species: mouse**

miR-143-3p modulates depressive-like behaviors via Lasp1 in the mouse ventral hippocampus.
Yu H, Li X, Zhang Q, Geng L, Su B, Wang Y
Communications biology (2024) 71: 944. . **IHC; tested species: mouse**

Excitation-inhibition imbalance disrupts visual familiarity in amyloid and non-pathology conditions.
Niraula S, Doderer JJ, Indulkar S, Berry KP, Hauser WL, L'Esperance OJ, Deng JZ, Keeter G, Rouse AG, Subramanian J
Cell reports (2023) 421: 111946. . **IHC; tested species: mouse**

Noncanonical Activity of Tissue Inhibitor of Metalloproteinases 2 (TIMP2) Improves Cognition and Synapse Density in Aging.
Britton R, Wasley T, Harish R, Holz C, Hall J, Yee DC, Melton Witt J, Booth EA, Braithwaite S, Czirr E, Kerrisk Campbell M, et al.
eNeuro (2023) 106: . . **IHC; tested species: mouse**

Reprogramming reactive glia into interneurons reduces chronic seizure activity in a mouse model of mesial temporal lobe epilepsy.
Lentini C, d'Orange M, Marichal N, Trottmann MM, Vignoles R, Foucault L, Verrier C, Massera C, Raineteau O, Conzelmann KK, Rival-Gervier S, et al.
Cell stem cell (2021) : . . **IHC; tested species: mouse**

Spinal Wnt5a Plays a Key Role in Spinal Dendritic Spine Remodeling in Neuropathic and Inflammatory Pain Models and in the Proalgesic Effects of Peripheral Wnt3a.
Simonetti M, Kuner R
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) 4035: 6664-6677. . **IHC; tested species: mouse**

Surfaceome dynamics reveal proteostasis-independent reorganization of neuronal surface proteins during development and synaptic plasticity.
van Oostrum M, Campbell B, Seng C, Müller M, Tom Dieck S, Hammer J, Pedrioli PGA, Földy C, Tyagarajan SK, Wollscheid B
Nature communications (2020) 111: 4990. . **ICC; tested species: rat**

A Conserved Tyrosine Residue in Slitrk3 Carboxyl-Terminus Is Critical for GABAergic Synapse Development.
Li J, Han W, Wu K, Li YD, Liu Q, Lu W
Frontiers in molecular neuroscience (2019) 12: 213. . **ICC; tested species: mouse**

Selected General References

Identification of multiple gephyrin variants in different organs of the adult rat.
Hermann A et al. Biochem. Biophys. Res. Commun. (2001) PubMed:11263972

Widespread expression of gephyrin, a putative glycine receptor-tubulin linker protein, in rat brain.
Kirsch J et al. Brain Res. (1993) PubMed:8242343

Access the online factsheet including applicable protocols at https://sysy.com/product/147018 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 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.