**Gephyrin**

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

**Data Sheet**

<table>
<thead>
<tr>
<th>Reconstitution/Storage</th>
<th>100 µg purified IgG, lyophilized. For reconstitution add 100 µl H₂O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.</th>
</tr>
</thead>
</table>
| **Applications**       | WB: 1: 1000 up to 1: 5000  
ICC: 1: 500 up to 1: 1000  
IHC: yes, methanol-acetone fixation  
IHC-P/FFPE: not tested yet  
ELISA: yes (see remarks) |
| **Subtype**            | IgG1 (κ light chain) |
| **Immunogen**          | Recombinant protein corresponding to AA 307 to 735 from rat Gephyrin (UniProt Id: Q03555) |
| **Epitope**            | Epitope: 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. verified) |
| **Remarks**            | This antibody is highly recommended for Western blot experiments and immunoprecipitation.  
ELISA: Suitable as capture antibody for sandwich-ELISA with cat. no. 147 003 as detector antibody (protocol for sandwich-ELISA). |

**Selected References SYSY Antibodies**

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  

Estradiol modulates the efficacy of synaptic inhibition by decreasing the dwell time of GABA receptors at inhibitory synapses.  

Neuroligin 4 is localized to glycergic postsynapses and regulates inhibition in the retina.  

S-sulfooctansine/NMDA receptor-dependent signaling underlies neurodegeneration in molybdenum cofactor deficiency.  

Several posttranslational modifications act in concert to regulate gephyrin scaffolding and GABAergic transmission.  
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Neuronal 1, 2, and 3 Regulation at the Synapse: FMRP-Dependent Translation and Activity-Induced Proteolytic Cleavage.  
Chmielnicka J, Kuzniakies B, Milek I, Urbanska K, Dziemboinsia M  
Molecular neurobiology (2018) : WB; tested species: mouse

A unique intracellular tyrosine in neurilin-1 regulates AMPA receptor recruitment during synaptic differentiation and potentiation.  

The catalytic function of the gephyrin-binding protein IQSEC3 regulates neurotransmitter-specific matching of pre- and postsynaptic structures in primary hippocampal cultures.  
Frisch S, Tyagarajan SK, Campbell B, Boshard G, Fritschy JM  

UPR activation specifically modulates glutamate neurotransmission in the cerebellum of a mouse model of autism.  
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Developmental changes in plasticity, synaptic, glia, and connectivity protein levels in rat medial prefrontal cortex.  
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Artemisinins Target GABA Receptor Signaling and Impair a Cell Identity.  
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Loss of Neuroligin3 specifically downregulates retinal GABAa2 receptors without abolishing direction selectivity.  
Hoon M, Krishnamoorthy V, Collisch T, Falkenberg B, Varoqueaux F  
Plos one (2017) 12(7): e0181011. IHC; tested species: mouse

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Forebrain-specific loss of synaptic GABA receptors results in altered neuronal excitability and synaptic plasticity in mice.  

Bidirectional Homeostatic Regulation of a Depression-Related Brain State by Gamma-Aminobutyric Acidergic Deficits and Ketamine Treatment.  
Biological psychiatry (2016) 80(6): 457-468. ICC