

Gephyrin

Cat.No. 147 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

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 until use.
Applications	WB: not recommended (see remarks) IP: not recommended (see remarks) ICC: 1 : 250 up to 1 : 1000 IHC: 1 : 500 (see remarks) IHC-P/FFPE: not tested yet EM: yes
Clone	mAb7a
Subtype	IgG1 (κ light chain)
Immunogen	Nativ Protein corresponding to AA 1 to 768 from rat Gephyrin (UniProt Id: Q03555)
Epitop	Epitop: AA 264 to 276 from rat Gephyrin (UniProt Id: Q03555)
Reactivity	Reacts with: human (Q9NQX3), rat (Q03555), mouse (Q8BUV3), pig, goldfish, zebrafish, chicken. Other species not tested yet.
Specificity	Specific for the brain specific 93 kDa splice variant phosphorylated at Ser-270. K.O. PubMed: 9812897
Remarks	WB: Clone 3B11 (cat. no. 147 111) is highly recommended. IP: Clone 3B11 (cat. no. 147 111) is highly recommended. IHC: Hybridoma supernatant (cat. no. 147 021) highly recommended. For best results use the protocol of Schneider Gasser et al., 2006.

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

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 SYSY Antibodies

- Autism and Schizophrenia-Associated CYFIP1 Regulates the Balance of Synaptic Excitation and Inhibition. Davenport EC, Szulc BR, Drew J, Taylor J, Morgan T, Higgs NF, López-Doménech G, Kittler JT Cell reports (2019) 268: 2037-2051.e6. . **WB, ICC, IHC; tested species: mouse**
- HIV-1 Tat-Induced Astrocytic Extracellular Vesicle miR-7 Impairs Synaptic Architecture. Hu G, Niu F, Liao K, Periyasamy P, Sil S, Liu J, Dravid SM, Buch S Journal of neuroimmune pharmacology : the official journal of the Society on NeuroImmune Pharmacology (2019) : . . **WB, ICC, IHC; tested species: human,rat,monkey**
- 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**
- Distribution of gephyrin-immunoreactivity in the trigeminal motor nucleus: an immunohistochemical study in rats. Li Z, Ge S, Zhang F, Zhang T, Mizuno N, Hioki H, Kaneko T, Gao G, Li J Anatomical record (Hoboken, N.J. : 2007) (2012) 2954: 641-51. . **IHC, EM; tested species: rat**
- Nanoscale Subsynaptic Domains Underlie the Organization of the Inhibitory Synapse. Crosby KC, Gookin SE, Garcia JD, Hahm KM, Dell'Acqua ML, Smith KR Cell reports (2019) 2612: 3284-3297.e3. . **ICC, IHC; tested species: rat**
- The X-Linked Intellectual Disability Gene Zdhhc9 Is Essential for Dendrite Outgrowth and Inhibitory Synapse Formation. Shimell JJ, Shah BS, Cain SM, Thouta S, Kuhlmann N, Tatarikov I, Jovellar DB, Brigidi GS, Kass J, Milnerwood AJ, Snutch TP, et al. Cell reports (2019) 298: 2422-2437.e8. . **WB, ICC; tested species: rat**
- Clptm1 Limits Forward Trafficking of GABAA Receptors to Scale Inhibitory Synaptic Strength. Ge Y, Kang Y, Cassidy RM, Moon KM, Lewis R, Wong ROL, Foster LJ, Craig AM Neuron (2018) 973: 596-610.e8. . **ICC, IHC; tested species: mouse**
- Gephyrin-binding peptides visualize postsynaptic sites and modulate neurotransmission. Maric HM, Hausrat TJ, Neubert F, Dalby NO, Dooze S, Sauer M, Kneussel M, Strømgaard K Nature chemical biology (2017) 132: 153-160. . **WB, ICC; tested species: mouse**
- Postsynaptic gephyrin clustering controls the development of adult-born granule cells in the olfactory bulb. Deprez F, Pallotto M, Vogt F, Grabiec M, Virtanen MA, Tyagarajan SK, Panzanelli P, Fritschy JM The Journal of comparative neurology (2015) 52313: 1998-2016. . **IHC, EM**
- Genetic evidence for the adhesion protein IgSF9/Dasm1 to regulate inhibitory synapse development independent of its intracellular domain. Mishra A, Traut MH, Becker L, Klopstock T, Stein V, Klein R The Journal of neuroscience : the official journal of the Society for Neuroscience (2014) 3412: 4187-99. . **ICC, IHC; tested species: mouse**
- Differential distribution of glycine receptor subtypes at the rat calyx of Held synapse. Hruskova B, Trojanova J, Kulik A, Kralikova M, Pysanenko K, Bures Z, Syka J, Trussell LO, Turecek R The Journal of neuroscience : the official journal of the Society for Neuroscience (2012) 3247: 17012-24. . **IHC, EM**
- Distinct mechanisms regulate GABAA receptor and gephyrin clustering at perisomatic and axo-axonic synapses on CA1 pyramidal cells. Panzanelli P, Gunn BG, Schlatter MC, Benke D, Tyagarajan SK, Scheiffele P, Belelli D, Lambert JJ, Rudolph U, Fritschy JM The Journal of physiology (2011) 589Pt 20: 4959-80. . **IHC, EM; tested species: mouse**
- PIK3CA variants selectively initiate brain hyperactivity during gliomagenesis. Yu K, Lin CJ, Hatcher A, Lozzi B, Kong K, Huang-Hobbs E, Cheng YT, Beechar VB, Zhu W, Zhang Y, Chen F, et al. Nature (2020) : . . **IHC-P; tested species: mouse**
- Semilunar granule cells are the primary source of the perisomatic excitatory innervation onto parvalbumin-expressing interneurons in the dentate gyrus. Rovira-Esteban L, Hájos N, Nagy GA, Crespo C, Nacher J, Varea E, Blasco-Ibáñez JM eNeuro (2020) : . . **IHC; tested species: mouse**
- A GTPase-induced switch in phospholipid affinity of collybistin contributes to synaptic gephyrin clustering. Kilisch M, Mayer S, Mitkovski M, Roehse H, Henrich J, Schwappach B, Papadopoulos T Journal of cell science (2020) : . . **ICC; tested species: rat**
- Neurotransmitters and motoneuron contacts of multifunctional and behaviorally specialized turtle spinal cord interneurons. Bannatyne BA, Hao ZZ, Dyer GMC, Watanabe M, Maxwell DJ, Berkowitz A The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) : . . **IHC**