Synaptic Systems

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

Neuroligin 1

Cat.No. 129 111; 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_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. For detailed information, see back of the data sheet.
Applications	**WB**: 1 : 1000 (AP staining) **IP**: not tested yet **ICC**: not recommended **IHC**: not recommended **IHC-P/FFPE**: not tested yet
Clone	4C12
Subtype	IgG1 (κ light chain)
Immunogen	Recombinant protein corresponding to AA 1 to 695 from rat Neuroligin1 (UniProt Id: Q62765)
Epitop	Epitop: AA 1 to 695 from rat Neuroligin1 (UniProt Id: Q62765)
Reactivity	Reacts with: rat (Q62765), mouse (Q99K10). Other species not tested yet.
Specificity	Epitope present in all 4 isoforms of neuroligin 1; no cross reactivity to neuroligins 2, 3, 4. K.O. PubMed: 31801062

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

Access the online factsheet including applicable protocols at https://sysy.com/product/129111 or scan the QR-code.

Background

Neuroligins form a family of postsynaptic cell surface molecules that interact with β-neurexins. They are 110-120 kDa polypeptides with homology to acetylcholine esterase. **Neuroligin 1** and neuroligin 3 are specifically localized to post-synaptic densities of excitatory synapses whereas neuroligin 2 is found exclusively on inhibitory synapses.
Mutations in neuroligin 3 and neuroligin 4 have been implicated with a rare, heritable form of autism.

Selected References for 129 111

Dissection of synapse induction by neuroligins: effect of a neuroligin mutation associated with autism.
Chubykin AA, Liu X, Comoletti D, Tsigelny I, Taylor P, Südhof TC
The Journal of biological chemistry (2005) 28023: 22365-74. . **WB, ICC**

Neuroligin 1 is dynamically exchanged at postsynaptic sites.
Schapitz IU, Behrend B, Pechmann Y, Lappe-Siefke C, Kneussel SJ, Wallace KE, Stempel AV, Buck F, Grant SG, Schweizer M, Schmitz D, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2010) 3038: 12733-44. . **WB, IP; tested species: rat**

The Adhesion-GPCR BAI1 Promotes Excitatory Synaptogenesis by Coordinating Bidirectional Trans-synaptic Signaling.
Tu YK, Duman JG, Tolias KF
The Journal of neuroscience : the official journal of the Society for Neuroscience (2018) 3839: 8388-8406. . **WB, ICC; KD verified; tested species: human,cos cells**

Neuroligin-1 in brain and CSF of neurodegenerative disorders: investigation for synaptic biomarkers.
Camporesi E, Lashley T, Gobom J, Lantero-Rodriguez J, Hansson O, Zetterberg H, Blennow K, Becker B
Acta neuropathologica communications (2021) 91: 19. . **WB; tested species: human**

SPARCL1 Promotes Excitatory But Not Inhibitory Synapse Formation and Function Independent of Neurexins and Neuroligins.
Gan KJ, Südhof TC
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) 4042: 8088-8102. . **WB; KO verified; tested species: mouse**

Elevated protein synthesis in microglia causes autism-like synaptic and behavioral aberrations.
Xu ZX, Kim GH, Tan JW, Riso AE, Sun Y, Xu EY, Liao GY, Xu H, Lee SH, Do NY, Lee CH, et al.
Nature communications (2020) 111: 1797. . **WB; tested species: mouse**

Synaptic neurexin-1 assembles into dynamically regulated active zone nanoclusters.
Trotter JH, Hao J, Maxeiner S, Tsetsenis T, Liu Z, Zhuang X, Südhof TC
The Journal of cell biology (2019) : . . **WB; tested species: mouse**

Synaptic Kalirin-7 and Trio Interactomes Reveal a GEF Protein-Dependent Neuroligin-1 Mechanism of Action.
Paskus JD, Tian C, Fingleton E, Shen C, Chen X, Li Y, Myers SA, Badger JD, Bemben MA, Herring BE, Roche KW, et al.
Cell reports (2019) 2910: 2944-2952.e5. . **WB; KO verified; tested species: rat**

The STEP61 interactome reveals subunit-specific AMPA receptor binding and synaptic regulation.
Won S, Incontro S, Li Y, Nicoll RA, Roche KW
Proceedings of the National Academy of Sciences of the United States of America (2019) : . . **WB; tested species: mouse**

Glia-to-neuron transfer of miRNAs via extracellular vesicles: a new mechanism underlying inflammation-induced synaptic alterations.
Prada I, Gabrielli M, Turola E, Iorio A, D'Arrigo G, Parolisi R, De Luca M, Pacifici M, Bastoni M, Lombardi M, Legname G, et al.
Acta neuropathologica (2018) 1354: 529-550. . **WB; tested species: mouse**

Neuroligin 1, 2, and 3 Regulation at the Synapse: FMRP-Dependent Translation and Activity-Induced Proteolytic Cleavage.
Chmielewska JJ, Kuzniewska B, Milek J, Urbanska K, Dziembowska M
Molecular neurobiology (2018) : . . **WB; tested species: mouse**

UPR activation specifically modulates glutamate neurotransmission in the cerebellum of a mouse model of autism.
Trobiani L, Favaloro FL, Di Castro MA, Di Mattia M, Cariello M, Miranda E, Canterini S, De Stefano ME, Comoletti D, Limatola C, De Jaco A, et al.
Neurobiology of disease (2018) : . . **WB; tested species: mouse**

Isoform-specific cleavage of neuroligin-3 reduces synapse strength.
Bemben MA, Nguyen TA, Li Y, Wang T, Nicoll RA, Roche KW
Molecular psychiatry (2018) : . . **WB; tested species: rat**

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 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.