

## Neurologin 2

Cat.No. 129 511; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

### Data Sheet

|                            |                                                                                                                                                                    |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reconstitution/<br>Storage | 100 µg purified IgG, lyophilized. For reconstitution add 100 µl H <sub>2</sub> O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.       |
| Applications               | <b>WB:</b> 1 : 1000 (AP staining)<br><b>IP:</b> yes<br><b>ICC:</b> 1 : 100 up to 1 : 500<br><b>IHC:</b> 1 : 500 (see remarks)<br><b>IHC-P/FFPE:</b> not tested yet |
| Clone                      | 5E6                                                                                                                                                                |
| Subtype                    | IgG1 (κ light chain)                                                                                                                                               |
| Immunogen                  | Synthetic peptide corresponding to AA 750 to 767 from rat Neurologin2 (UniProt Id: Q62888)                                                                         |
| Epitop                     | Epitop: AA 750 to 767 from rat Neurologin2 (UniProt Id: Q62888)                                                                                                    |
| Reactivity                 | Reacts with: human (Q8NFZ4), rat (Q62888), mouse (Q69ZK9).<br>Other species not tested yet.                                                                        |
| Specificity                | Specific for neurologin 2 . (K.O. verified)                                                                                                                        |
| Remarks                    | <b>IHC:</b> Fix for 15 min with 4% PFA and 15% picric acid in PBS.                                                                                                 |

### TO BE USED IN VITRO / FOR RESEARCH ONLY

### NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

**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. Neurologin 1 and neurologin 3 are specifically localized to post-synaptic densities of excitatory synapses whereas **neurologin 2** is found exclusively on inhibitory synapses. Mutations in neurologin 3 and neurologin 4 have been implicated with a rare, heritable form of autism.

### Selected References SYSY Antibodies

Molecular Dissection of Neuroligin 2 and Slitrk3 Reveals an Essential Framework for GABAergic Synapse Development. Li J, Han W, Pelkey KA, Duan J, Mao X, Wang YX, Craig MT, Dong L, Petralia RS, McBain CJ, Lu W, et al. Neuron (2017) 96(4): 808-826.e8. **WB, ICC, IHC; KO verified; tested species: mouse**

Sorting nexin 27 rescues neuroligin 2 from lysosomal degradation to control inhibitory synapse number. Binda C, Nakamura Y, Henley J, Wilkinson K The Biochemical journal (2019) : . **WB, ICC; tested species: rat**

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**

IgSF9b regulates anxiety behaviors through effects on centromedial amygdala inhibitory synapses. Babaev O, Cruces-Solis H, Piletti Chatain C, Hammer M, Wenger S, Ali H, Karalis N, de Hoz L, Schlüter OM, Yanagawa Y, Ehrenreich H, et al. Nature communications (2018) 9(1): 5400. **IHC; tested species: mouse**

Unique versus Redundant Functions of Neuroligin Genes in Shaping Excitatory and Inhibitory Synapse Properties. Chanda S, Hale WD, Zhang B, Wernig M, Südhof TC The Journal of neuroscience : the official journal of the Society for Neuroscience (2017) 37(29): 6816-6836. **WB; tested species: mouse**

IgSF21 promotes differentiation of inhibitory synapses via binding to neurexin2α. Tanabe Y, Naito Y, Vasuta C, Lee AK, Soumounou Y, Linhoff MW, Takahashi H Nature communications (2017) 8(1): 408. **WB**

Neurotrophin-3 Regulates Synapse Development by Modulating TrkC-PTPα Synaptic Adhesion and Intracellular Signaling Pathways. Han KA, Woo D, Kim S, Choi G, Jeon S, Won SY, Kim HM, Heo WD, Um JW, Ko J The Journal of neuroscience : the official journal of the Society for Neuroscience (2016) 36(17): 4816-31. **WB**

GSK3 and KIF5 regulate activity-dependent sorting of gephyrin between axons and dendrites. Rathgeber L, Gromova KV, Schaefer I, Breiden P, Lohr C, Kneussel M European journal of cell biology () 94(3-4): 173-8. **ICC**

### Selected General References

Neuroligin 1 is a postsynaptic cell-adhesion molecule of excitatory synapses. Song JY, Ichtchenko K, Südhof TC, Brose N Proceedings of the National Academy of Sciences of the United States of America (1999) 96(3): 1100-5.

Activity-dependent validation of excitatory versus inhibitory synapses by neuroligin-1 versus neuroligin-2. Chubykin AA, Atasoy D, Etherton MR, Brose N, Kavalali ET, Gibson JR, Südhof TC Neuron (2007) 54(6): 919-31.

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) 280(23): 22365-74.

Neuroligin 2 is exclusively localized to inhibitory synapses. Varoqueaux F, Jamain S, Brose N European journal of cell biology (2004) 83(9): 449-56.

Synaptic targeting of neuroligin is independent of neurexin and SAP90/PSD95 binding. Dresbach T, Neeb A, Meyer G, Gundelfinger ED, Brose N Molecular and cellular neurosciences (2004) 27(3): 227-35.

The making of neuroligins. Missler M, Fernandez-Chacon R, Südhof TC Journal of neurochemistry (1998) 71(4): 1339-47.

Structures, alternative splicing, and neurexin binding of multiple neuroligins. Ichtchenko K, Nguyen T, Südhof TC The Journal of biological chemistry (1996) 271(5): 2676-82.

Neuroligin 1: a splice site-specific ligand for beta-neurexins. Ichtchenko K, Hata Y, Nguyen T, Ullrich B, Missler M, Moomaw C, Südhof TC Cell (1995) 81(3): 435-43.

The synaptic vesicle cycle: a cascade of protein-protein interactions. Südhof TC Nature (1995) 375(6533): 645-53.