

Endophilin 1

Cat.No. 159 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For reconstitution add 200 µl H ₂ O, then aliquot and store at -20°C until use.
Applications	WB: 1 : 1000 up to 1 : 10000 (AP staining) IP: yes ICC: 1 : 500 IHC: 1 : 200 IHC-P/FFPE: 1 : 1000
Immunogen	Synthetic peptide corresponding to AA 256 to 276 from mouse Endophilin1 (UniProt Id: Q62420)
Reactivity	Reacts with: rat (O35179), mouse (Q62420). Other species not tested yet.
Specificity	Specific for endophilin 1.
matching control	159-0P

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

Endophilins are SH3 domain proteins involved in endocytosis. Both, **Endophilin 1** and **2** have been shown to play important roles in clathrin mediated synaptic vesicle recycling. They recruit and stabilize the polyphosphoinositide phosphatase synaptojanin at nerve terminals.

The divergent C-terminal tail of Vglut1 has been reported to be a binding partner of Endophilin A1.

In contrast to Endophilin 1 that shows a brain specific expression, Endophilin 2 is abundantly expressed in different tissues.

Selected References SYSY Antibodies

Evidence for a Clathrin-independent mode of endocytosis at a continuously active sensory synapse.

Fuchs M, Brandstätter JH, Regus-Leidig H

Frontiers in cellular neuroscience (2014) 8: 60. **IHC, EM; tested species: rat**

A local, periaxial zone endocytic machinery at photoreceptor synapses in close vicinity to synaptic ribbons.

Wahl S, Katiyar R, Schmitz F

The Journal of neuroscience : the official journal of the Society for Neuroscience (2013) 33(25): 10278-300. **WB, ICC**

Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins.

Wilhelm BG, Mandad S, Truckenbrodt S, Kröhnert K, Schäfer C, Rammner B, Koo SJ, Claßen GA, Krauss M, Haucke V, Urlaub H, et al.

Science (New York, N.Y.) (2014) 344(6187): 1023-8. **ICC, IHC; tested species: mouse, rat**

VGLUT1 Binding to Endophilin or Intersectin1 and Dynamin Phosphorylation in a Diurnal Context.

Richter K, Schmutz I, Darna M, Zander JF, Chavan R, Albrecht U, Ahnert-Hilger G

Neuroscience (2018) 371: 29-37. **WB; tested species: mouse**

Parkinson Sac Domain Mutation in Synaptojanin 1 Impairs Clathrin Uncoating at Synapses and Triggers Dystrophic Changes in Dopaminergic Axons.

Cao M, Wu Y, Ashrafi G, McCartney AJ, Wheeler H, Bushong EA, Boassa D, Ellisman MH, Ryan TA, De Camilli P

Neuron (2017) 93(4): 882-896.e5. **WB; tested species: mouse**

Endophilin-A Deficiency Induces the Foxo3a-Fbxo32 Network in the Brain and Causes Dysregulation of Autophagy and the Ubiquitin-Proteasome System.

Murdoch JD, Rostovsky CM, Gowrisankaran S, Arora AS, Soukup SF, Vidal R, Capece V, Freytag S, Fischer A, Verstreken P, Bonn S, et al.

Cell reports (2016) 17(4): 1071-1086. **ICC; tested species: mouse**

Endosomal sorting of readily releasable synaptic vesicles.

Hoopmann P, Punge A, Barysch SV, Westphal V, Bückers J, Opazo F, Bethani I, Lauterbach MA, Hell SW, Rizzoli SO

Proceedings of the National Academy of Sciences of the United States of America (2010) 107(44): 19055-60.

Selected General References

Interaction between the vesicular glutamate transporter type 1 and endophilin A1, a protein essential for endocytosis.

Vinatier J, Herzog E, Plamont MA, Wojcik SM, Schmidt A, Brose N, Daviet L, El Mestikawy S, Giros B

Journal of neurochemistry (2006) 97(4): 1111-25.

Endophilin is required for synaptic vesicle endocytosis by localizing synaptojanin.

Schuske KR, Richmond JE, Matthies DS, Davis WS, Runz S, Rube DA, van der Bliek AM, Jorgensen EM

Neuron (2003) 40(4): 749-62.

Synaptojanin is recruited by endophilin to promote synaptic vesicle uncoating.

Verstreken P, Koh TW, Schulze KL, Zhai RG, Hiesinger PR, Zhou Y, Mehta SQ, Cao Y, Roos J, Bellen HJ

Neuron (2003) 40(4): 733-48.

Endophilin and synaptojanin hook up to promote synaptic vesicle endocytosis.

Song W, Zinsmaier KE

Neuron (2003) 40(4): 665-7.

Formation of an endophilin-Ca²⁺ channel complex is critical for clathrin-mediated synaptic vesicle endocytosis.

Chen Y, Deng L, Maeno-Hikichi Y, Lai M, Chang S, Chen G, Zhang JF

Cell (2003) 115(1): 37-48.

Endophilin-1: a multifunctional protein.

Reutens AT, Begley CG

The international journal of biochemistry & cell biology (2002) 34(10): 1173-7.

Endophilin mutations block clathrin-mediated endocytosis but not neurotransmitter release.

Verstreken P, Kjaerulff O, Lloyd TE, Atkinson R, Zhou Y, Meinertzhagen IA, Bellen HJ

Cell (2002) 109(1): 101-12.

Differential expression of endophilin 1 and 2 dimers at central nervous system synapses.

Ringstad N, Nemoto Y, De Camilli P

The Journal of biological chemistry (2001) 276(44): 40424-30.

Fission and uncoating of synaptic clathrin-coated vesicles are perturbed by disruption of interactions with the SH3 domain of endophilin.

Gad H, Ringstad N, Löw P, Kjaerulff O, Gustafsson J, Wenk M, Di Paolo G, Nemoto Y, Crun J, Ellisman MH, De Camilli P, et al.

Neuron (2000) 27(2): 301-12.