

Munc 13-1

Cat.No. 126 111; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. 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: 1 : 500 up to 1 : 5000 (AP staining) IP: yes (see remarks) ICC: yes (see remarks) IHC: not tested yet IHC-P/FFPE: not tested yet ELISA: yes (see remarks)
Clone	266B1
Subtype	IgG2b (κ light chain)
Immunogen	Recombinant protein corresponding to AA 3 to 317 from rat Munc13-1 (UniProt Id: Q62768)
Epitop	Epitop: AA 3 to 317 from rat Munc13-1 (UniProt Id: Q62768)
Reactivity	Reacts with: rat (Q62768), mouse (Q4KUS2), zebrafish. Other species not tested yet.
Specificity	Specific for munc 13-1. (K.O. verified)
Remarks	IP: For most effective IP use the solubilization protocol described in the ELISA protocol. Consider that protein-protein interaction may be affected. ICC: limited to methanol fixation. ELISA: Suitable as capture antibody for sandwich-ELISA with cat. no. 126 103 as detector antibody (protocol for sandwich-ELISA).

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

Munc 13s are homologues of the *C. elegans* unc-13 gene product. Three brain specific isoforms, Munc 13-1, -13-2, and -13-3 are expressed in rat where they localize to presynaptic terminals. All three isoforms share multiple regulatory domains that may mediate phorbol ester and diacylglycerol binding.

Munc13-1 shows the broadest expression pattern and is found in cortex, cerebellum, olfactory bulb and hippocampus. Munc 13-2 is mainly expressed in cortex and hippocampus whereas **Munc 13-3** exhibits highest expression levels in cerebellum and pons. Munc13-1 interacts directly with a putative coiled coil domain in the N-terminal part of syntaxin and is involved in synaptic vesicle priming. For Munc13-2 an additional ubiquitously expressed N-terminal splice variant (ubMunc 13-2) has been described.

Munc 13-3 has been shown to be involved in the regulation of cerebellar synaptic transmission and

motor learning.

Selected References SYSY Antibodies

Formation of Golgi-derived active zone precursor vesicles.

Maas C, Torres VI, Altrrock WD, Leal-Ortiz S, Wagh D, Terry-Lorenzo RT, Fejtova A, Gundelfinger ED, Ziv NE, Garner CC
The Journal of neuroscience : the official journal of the Society for Neuroscience (2012) 32(32): 11095-108. **WB, ICC**

Different Munc13 isoforms function as priming factors in lytic granule release from murine cytotoxic T lymphocytes.
Dudenhöffer-Pfeifer M, Schirra C, Pattu V, Halimani M, Maier-Peuschel M, Marshall MR, Matti U, Becherer U, Dirks J, Jung M, Lipp P, et al.

Traffic (Copenhagen, Denmark) (2013) 14(7): 798-809. **IP; tested species: mouse**

Vti1a/b regulate synaptic vesicle and dense core vesicle secretion via protein sorting at the Golgi.
Emperador-Melero J, Huson V, van Weering J, Bollmann C, Fischer von Mollard G, Toonen RF, Verhage M
Nature communications (2018) 9(1): 3421. **ICC; tested species: mouse**

RIM C2B Domains Target Presynaptic Active Zone Functions to PIP2-Containing Membranes.
de Jong APH, Roggero CM, Ho MR, Wong MY, Brautigam CA, Rizo J, Kaeser PS
Neuron (2018) 98(2): 335-349.e7. **ICC; tested species: mouse**

Synaptotagmin-12 phosphorylation by cAMP-dependent protein kinase is essential for hippocampal mossy fiber LTP.
Kaeser-Woo YJ, Younts TJ, Yang X, Zhou P, Wu D, Castillo PE, Südhof TC
The Journal of neuroscience : the official journal of the Society for Neuroscience (2013) 33(23): 9769-80. **WB**

Studying synaptic efficiency by post-hoc immunolabelling.
Ramírez-Franco J, Alonso B, Bartolomé-Martín D, Sánchez-Prieto J, Torres M
BMC neuroscience (2013) 14: 127. **ICC**

Efficient synaptic vesicle recycling after intense exocytosis concomitant with the accumulation of non-releasable endosomes at early developmental stages.
Bartolomé-Martín D, Ramírez-Franco J, Castro E, Sánchez-Prieto J, Torres M
Journal of cell science (2012) 125(Pt 2): 422-34. **ICC; tested species: rat**

Munc18-1 regulates first-phase insulin release by promoting granule docking to multiple syntaxin isoforms.
Oh E, Kalwat MA, Kim MJ, Verhage M, Thurmond DC
The Journal of biological chemistry (2012) 287(31): 25821-33. **WB; tested species: mouse**

Non-additive potentiation of glutamate release by phorbol esters and metabotropic mGlu7 receptor in cerebrocortical nerve terminals.
Martín R, Bartolomé-Martín D, Torres M, Sánchez-Prieto J
Journal of neurochemistry (2011) 116(4): 476-85. **ICC; tested species: mouse**

The metabotropic glutamate receptor mGlu7 activates phospholipase C, translocates munc-13-1 protein, and potentiates glutamate release at cerebrocortical nerve terminals.
Martín R, Durroux T, Ciruela F, Torres M, Pin JP, Sánchez-Prieto J
The Journal of biological chemistry (2010) 285(23): 17907-17. **IP**

Doc2b is a high-affinity Ca²⁺ sensor for spontaneous neurotransmitter release.
Groffen AJ, Martens S, Díez Arazola R, Cornelisse LN, Lozovaya N, de Jong AP, Goriounova NA, Habets RL, Takai Y, Borst JG, Brose N, et al.
Science (New York, N.Y.) (2010) 327(5973): 1614-8. **WB; tested species: mouse**

Munc13-4 is a limiting factor in the pathway required for platelet granule release and hemostasis.
Ren Q, Wimmer C, Chicka MC, Ye S, Ren Y, Hughson FM, Whiteheart SW
Blood (2010) 116(6): 869-77. **WB; tested species: mouse**

Molecular anatomy of a trafficking organelle.
Takamori S, Holt M, Stenius K, Lemke EA, Grønborg M, Riedel D, Urlaub H, Schenck S, Brügger B, Ringler P, Müller SA, et al.
Cell (2006) 127(4): 831-46. **WB**

Active zone protein CAST is a component of conventional and ribbon synapses in mouse retina.
Deguchi-Tawarada M, Inoue E, Takao-Rikitsu E, Inoue M, Kitajima I, Ohtsuka T, Takai Y
The Journal of comparative neurology (2006) 495(4): 480-96. **WB; tested species: mouse**

Selected General References

Regulation of insulin exocytosis by Munc13-1.
Sheu L, Pasyk EA, Ji J, Huang X, Gao X, Varoquaux F, Brose N, Gaisano HY
The Journal of biological chemistry (2003) 278(30): 27556-63.

Rab34 and its effector munc13-2 constitute a new pathway modulating protein secretion in the cellular response to hyperglycemia.
Goldenberg NM, Silverman M
American journal of physiology. Cell physiology (2009) 297(4): C1053-8.