

Munc13-1

Cat.No. 126 115; Polyclonal Guinea pig antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For reconstitution add 50 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 (AP staining) IP: not tested yet ICC: 1 : 500 IHC: 1 : 500 IHC-P: not tested yet
Immunogen	Recombinant protein corresponding to residues near the N-terminus of rat Munc13-1 (UniProt Id: Q62768)
Reactivity	Reacts with: rat (Q62768), mouse (Q4KUS2). Other species not tested yet.
Specificity	Specific for Munc13-1. Shows some minimal residual staining in KO tissue. K.O. validated

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

Background

Munc13s 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. Munc13-2 is mainly expressed in cortex and hippocampus, whereas **Munc13-3** 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 (ubMunc13-2) has been described.

Munc13-3 has been shown to be involved in the regulation of cerebellar synaptic transmission and motor learning.

Selected General References

- Regulation of insulin exocytosis by Munc13-1.
Sheu L et al. J. Biol. Chem. (2003) PubMed:12871971
- Rab34 and its effector munc13-2 constitute a new pathway modulating protein secretion in the cellular response to hyperglycemia.
Goldenberg NM et al. Am. J. Physiol., Cell Physiol. (2009) PubMed:19641095
- Munc13-2/- baseline secretion defect reveals source of oligomeric mucins in mouse airways.
Zhu Y et al. J. Physiol. (Lond.) (2008) PubMed:18258655
- Bidirectional regulation of Munc13-3 protein expression by age and dark rearing during the critical period in mouse visual cortex.
Yang CB et al. Neuroscience (2007) PubMed:17997229
- Cast: a novel protein of the cytomatrix at the active zone of synapses that forms a ternary complex with RIM1 and munc13-1.
Ohtsuka T et al. J. Cell Biol. (2002) PubMed:12163476
- Identification of Munc13-3 as a candidate gene for critical-period neuroplasticity in visual cortex.
Yang CB et al. J. Neurosci. (2002) PubMed:12351735
- The cerebellum-specific Munc13 isoform Munc13-3 regulates cerebellar synaptic transmission and motor learning in mice.
Augustin I et al. J. Neurosci. (2001) PubMed:11150314
- Munc13-1 acts as a priming factor for large dense-core vesicles in bovine chromaffin cells.
Ashery U et al. EMBO J. (2000) PubMed:10899113
- Regulation of transmitter release by Unc-13 and its homologues.
Brose N et al. Curr. Opin. Neurobiol. (2000) PubMed:10851170
- Differential expression of two novel Munc13 proteins in rat brain.
Augustin I et al. Biochem. J. (1999) PubMed:9895278
- Direct interaction of the rat unc-13 homologue Munc13-1 with the N terminus of syntaxin.
Betz A et al. J. Biol. Chem. (1997) PubMed:8999968
- The synaptic vesicle cycle: a cascade of protein-protein interactions.
Südhof TC et al. Nature (1995) PubMed:7791897
- Mammalian homologues of *Caenorhabditis elegans* unc-13 gene define novel family of C2-domain proteins.
Brose N et al. J. Biol. Chem. (1995) PubMed:7559667

Access the online factsheet including applicable protocols at <https://sysy.com/product/126115> or scan the QR-code.



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 purified 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 at 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.