SYSY Antibodies

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Munc13-1

Cat.No. 126 117; Monoclonal rat 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. 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 up to 1 : 5000 (AP staining) **IP**: not tested yet **ICC**: 1 : 500 **IHC**: 1 : 500 **IHC-P (FFPE)**: not recommended
Clone	SY-147D6
Subtype	IgG2b (κ light chain)
Immunogen	Recombinant protein corresponding to residues near the N-terminus of rat Munc13-1 (UniProt Id: Q62768)
Reactivity	Reacts with: mouse (Q4KUS2), rat (Q62768). No signal: human (Q9UPW8). Other species not tested yet.
Specificity	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, Munc13-1, -13-2, and -13-3, are expressed in mammals, 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.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

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

Access the online factsheet including applicable protocols at https://sysy.com/product/126117 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable 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. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.