SYSY Antibodies

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Munc13-1

Cat.No. 126 102; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°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**: yes (see remarks) **ICC**: 1 : 500 **IHC**: 1 : 200 **IHC-P (FFPE)**: not tested yet
Immunogen	Recombinant protein corresponding to AA 3 to 317 from rat Munc13-1 (UniProt Id: Q62768)
Reactivity	Reacts with: human (Q9UPW8), rat (Q62768), mouse (Q4KUS2), zebrafish. Other species not tested yet.
Specificity	K.O. validated
Remarks	**IP**: Denaturing IP-protocol is recommended. Protein-protein interactions may be affected.

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 References for 126 102

Active zone protein expression changes at the key stages of cerebellar cortex neurogenesis in the rat.
Juranek JK, Mukherjee K, Siddiqui TJ, Kaplan BJ, Li JY, Ahnert-Hilger G, Jahn R, Calka J
Acta histochemica (2013) 1156: 616-25. . **WB, ICC, IHC**

The Calcium-Binding Protein S100A10 (p11) Is Required for Normal Motor Performance by Regulating Vesicle Dynamics at Excitatory Synapses.
Vilches-Herrando E, Rodríguez-Bey G, Hernández RG, Gento-Caro Á, Pastor ÁM, Campos-Caro A, González-Forero D, Moreno-López B
Acta physiologica (Oxford, England) (2026) 2422: e70158. . **WB, IHC; tested species: rat**

No symphony without bassoon and piccolo: changes in synaptic active zone proteins in Huntington's disease.
Huang TT, Smith R, Bacos K, Song DY, Faull RM, Waldvogel HJ, Li JY
Acta neuropathologica communications (2020) 81: 77. . **WB, ICC; tested species: mouse**

Spinal TNF-α impedes Fbxo45-dependent Munc13-1 ubiquitination to mediate neuropathic allodynia in rats.
Hsieh MC, Ho YC, Lai CY, Chou D, Chen GD, Lin TB, Peng HY
Cell death & disease (2018) 98: 811. . **WB, IHC; KD verified; tested species: rat**

Dynamic recruitment of Munc13 primes docked secretory granules for exocytosis.
Echeverry S, Saras J, Lund PE, Dunevall J, Gandasi NR, Barg S
Cell reports (2025) 4410: 116301. . **WB; tested species: rat**

CIRBP regulates mitochondrial respiratory function and modulates neuronal developmental abnormalities induced by perinatal hypoxia.
Guan R, Zou Y, Wang T, Zhu X, Li M, Zhao F, Chen J, Aschner M, Zhang J, Luo W
Free radical biology & medicine (2025) 237: 21-36. . **WB; tested species: mouse**

Non-canonical function of ADAM10 in presynaptic plasticity.
Bär J, Fanutza T, Reimann CC, Seipold L, Grohe M, Bolter JR, Delfs F, Bucher M, Gee CE, Schweizer M, Saftig P, et al.
Cellular and molecular life sciences : CMLS (2024) 811: 342. . **ICC; tested species: mouse**

cAMP-EPAC-PKCε-RIM1α signaling regulates presynaptic long-term potentiation and motor learning.
Wang XT, Zhou L, Dong BB, Xu FX, Wang DJ, Shen EW, Cai XY, Wang Y, Wang N, Ji SJ, Chen W, et al.
eLife (2023) 12: . . **WB; tested species: mouse**

A presynaptic phosphosignaling hub for lasting homeostatic plasticity.
Müller JA, Betzin J, Santos-Tejedor J, Mayer A, Oprişoreanu AM, Engholm-Keller K, Paulußen I, Gulakova P, McGovern TD, Gschossman LJ, Schönhense E, et al.
Cell reports (2022) 393: 110696. . **WB; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/126102 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.