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**: not tested yet **ELISA**: (see remarks)
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**: For most effective IP, use the denaturing IP-protocol. Consider that protein-protein interactions may be affected. **ELISA**: Suitable as detector antibody for sandwich-ELISA with cat. no. 126 111 as capture antibody. The ELISA-protocol for membrane proteins is recommended.

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

Background

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 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**

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**

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**

Presynaptic short-term plasticity persists in the absence of PKC phosphorylation of Munc18-1.
Wang CC, Weyrer C, Fioravante D, Kaeser PS, Regehr WG
The Journal of neuroscience : the official journal of the Society for Neuroscience (2021) : . . **WB; tested species: mouse**

Neuronal BIN1 Regulates Presynaptic Neurotransmitter Release and Memory Consolidation.
De Rossi P, Nomura T, Andrew RJ, Masse NY, Sampathkumar V, Musial TF, Sudwarts A, Recupero AJ, Le Metayer T, Hansen MT, Shim HN, et al.
Cell reports (2020) 3010: 3520-3535.e7. . **IHC; tested species: mouse**

Disabling the Gβγ-SNARE interaction disrupts GPCR-mediated presynaptic inhibition, leading to physiological and behavioral phenotypes.
Zurawski Z, Thompson Gray AD, Brady LJ, Page B, Church E, Harris NA, Dohn MR, Yim YY, Hyde K, Mortlock DP, Jones CK, et al.
Science signaling (2019) 12569: . . **WB; tested species: mouse**

RIM-BP2 primes synaptic vesicles via recruitment of Munc13-1 at hippocampal mossy fiber synapses.
Brockmann MM, Maglione M, Willmes CG, Stumpf A, Bouazza BA, Velasquez LM, Grauel MK, Beed P, Lehmann M, Gimber N, Schmoranzer J, et al.
eLife (2019) 8: . . **IHC; 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 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 a 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.