SYSY Antibodies

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# **Synaptotagmin1 (p65)** luminal domain

**Cat.No. 105 221; Monoclonal mouse antibody, 200 µl hybridoma supernatant (lyophilized)**

## Data Sheet

| | |
|---|---|
| Reconstitution/ Storage | 200 µl hybridoma supernatant, lyophilized. For **reconstitution** add 200 µl $H_2O$, then aliquot and store at -20°C until use.<br>Antibodies should be stored at +4°C when still lyophilized. Do not freeze!<br>For detailed information, see back of the data sheet. |
| Applications | **WB**: 1 : 1000 up to 1 : 10000 (AP staining) (see remarks)<br>**IP**: yes<br>**ICC**: 1 : 100 up to 1 : 500 (see remarks)<br>**IHC**: 1 : 500 (see remarks)<br>**IHC-P (FFPE)**: not tested yet |
| Clone | 604.1 |
| Subtype | IgG3 (κ light chain) |
| Immunogen | Synthetic peptide corresponding to residues near the amino terminus of rat Synaptotagmin1 (UniProt Id: P21707) |
| Reactivity | Reacts with: rat (P21707), mouse (P46096).<br>No signal: zebrafish.<br>Other species not tested yet. |
| Specificity | K.O. validated PubMed: 26195798 |
| Remarks | **WB**: Only detects rat Synaptotagmin1 in westernblots.<br>**ICC**: This antibody can also be used for labeling of recycling synaptic vesicles in living neurons.<br>It detects PFA fixed rat Synaptotagmin1, but is negative on PFA fixed mouse Synaptotagmin1.<br>**IHC**: Antibody detects PFA fixed rat Synaptotagmin1, but is negative on PFA fixed mouse Synaptotagmin1. |

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

## Background

**Synaptotagmin1**, also known as **p65**, is an integral membrane glycoprotein of neuronal synaptic vesicles and secretory granules of neuroendocrine cells that is widely (but not ubiquitously) expressed in the central and peripheral nervous system. It has a variable N-terminal domain that is exposed to the lumen of the vesicle and a conserved cytoplasmic tail that contains two $Ca^{2+}$-binding C2-domains. $Ca^{2+}$-binding to synaptotagmin triggers exocytosis of synaptic vesicles, thus linking $Ca^{2+}$-influx during depolarization to neurotransmitter release.
Lumenal antibodies were used in living neurons to label synaptic vesicles from the outside via endocytotic uptake.

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

## Selected References for 105 221

Structural elements that underlie Doc2β function during asynchronous synaptic transmission.
Xue R, Gaffaney JD, Chapman ER
Proceedings of the National Academy of Sciences of the United States of America (2015) 11231: E4316-25. . **WB, ICC; KO verified; tested species: mouse**

Storage and uptake of D-serine into astrocytic synaptic-like vesicles specify gliotransmission.
Martineau M, Shi T, Puyal J, Knolhoff AM, Dulong J, Gasnier B, Klingauf J, Sweedler JV, Jahn R, Mothet JP
The Journal of neuroscience : the official journal of the Society for Neuroscience (2013) 338: 3413-23. . **IP, IHC; tested species: rat**

SV2B regulates synaptotagmin 1 by direct interaction.
Lazzell DR, Belizaire R, Thakur P, Sherry DM, Janz R
The Journal of biological chemistry (2004) 27950: 52124-31. . **IP, WB; tested species: mouse**

STED microscopy reveals that synaptotagmin remains clustered after synaptic vesicle exocytosis.
Willig KI, Rizzoli SO, Westphal V, Jahn R, Hell SW
Nature (2006) 4407086: 935-9. . **UPTAKE**

High-content image-based pooled screens reveal regulators of synaptogenesis.
Le A, Biederer T, Blainey PC
Cell reports (2025) 447: 115889. . **ICC; tested species: rat**

Disease-linked mutations in Munc18-1 deplete synaptic Doc2.
Guiberson NGL, Black LS, Haller JE, Brukner A, Abramov D, Ahmad S, Xie YX, Sharma M, Burré J
Brain : a journal of neurology (2024) : . . **UPTAKE; tested species: mouse**

Targeted stabilization of Munc18-1 function via pharmacological chaperones.
Abramov D, Guiberson NGL, Daab A, Na Y, Petsko GA, Sharma M, Burré J
EMBO molecular medicine (2020) : e12354. . **UPTAKE; tested species: mouse**

Mechanism-based rescue of Munc18-1 dysfunction in varied encephalopathies by chemical chaperones.
Guiberson NGL, Pineda A, Abramov D, Kharel P, Carnazza KE, Wragg RT, Dittman JS, Burré J
Nature communications (2018) 91: 3986. . **UPTAKE; tested species: mouse**

Loss of Doc2-Dependent Spontaneous Neurotransmission Augments Glutamatergic Synaptic Strength.
Ramirez DMO, Crawford DC, Chanaday NL, Trauterman B, Monteggia LM, Kavalali ET
The Journal of neuroscience : the official journal of the Society for Neuroscience (2017) 3726: 6224-6230. . **UPTAKE; tested species: rat**

BDNF enhances spontaneous and activity-dependent neurotransmitter release at excitatory terminals but not at inhibitory terminals in hippocampal neurons.
Shinoda Y, Ahmed S, Ramachandran B, Bharat V, Brockelt D, Altas B, Dean C
Frontiers in synaptic neuroscience (2014) 6: 27. . **ICC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/105221 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.