SYSY Antibodies

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Synaptotagmin1 (p65) cytoplasmic tail

Cat.No. 105 011; Monoclonal mouse 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 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 100 up to 1 : 500 **IHC**: 1 : 500 **IHC-P**: 1 : 200 up to 1 : 500 **EM**: external data (see remarks) **ELISA**: yes (see remarks)
Clone	41.1
Subtype	IgG2a (κ light chain)
Immunogen	Recombinant protein corresponding to AA 80 to 421 from rat Synaptotagmin1 (UniProt Id: P21707)
Epitop	AA 150 to 240 from rat Synaptotagmin1 (UniProt Id: P21707)
Reactivity	Reacts with: human (P21579), rat (P21707), mouse (P46096), mammals, zebrafish. Other species not tested yet.
Specificity	K.O. validated PubMed: 29274147
Remarks	Since synaptotagmin 1 is unevenly expressed in neuronal subpopulations and may, in fact, be missing from some, it is less well suited as a general marker for synapses. **WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. **EM**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **ELISA**: The ELISA-protocol for membrane proteins is required. Suitable as capture antibody for sandwich-ELISA. Please refer to the protocol for suitable detector antibodies.

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 105 011

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. . **IHC, IP, WB; tested species: mouse**

Synaptotagmin I, synaptobrevin II, and syntaxin I are coexpressed in rat and gerbil pinealocytes.
Redecker P
Cell and tissue research (1996) 2833: 443-54. . **WB, EM, IHC; tested species: rat**

Structural and mutational analysis of functional differentiation between synaptotagmins-1 and -7.
Xue M, Craig TK, Shin OH, Li L, Brautigam CA, Tomchick DR, Südhof TC, Rosenmund C, Rizo J
PloS one (2010) 59: . . **WB, ICC; tested species: mouse**

Combining nanobody labeling with STED microscopy reveals input-specific and layer-specific organization of neocortical synapses.
Akter Y, Jones G, Daskivich GJ, Shifflett V, Vargas KJ, Hruska M
PLoS biology (2025) 234: e3002649. . **ICC, IHC; tested species: mouse**

Copine-6 is a Ca2+ sensor for activity-induced AMPA receptor exocytosis.
Tan JZA, Jang SE, Batallas-Borja A, Bhembre N, Chandra M, Zhang L, Guo H, Ringuet MT, Widagdo J, Collins BM, Anggono V, et al.
Cell reports (2023) 4212: 113460. . **WB, ICC; tested species: rat**

Clathrin-independent endocytic retrieval of SV proteins mediated by the clathrin adaptor AP-2 at mammalian central synapses.
López-Hernández T, Takenaka KI, Mori Y, Kongpracha P, Nagamori S, Haucke V, Takamori S
eLife (2022) 11: . . **WB, ICC; tested species: mouse**

Analysis of tripartite Synaptotagmin-1-SNARE-complexin-1 complexes in solution.
Jaczynska K, Esquivies L, Pfuetzner RA, Alten B, Brewer KD, Zhou Q, Kavalali ET, Brunger AT, Rizo J
FEBS open bio (2022) : . . **WB, ICC; KD verified; tested species: rat**

Creatine transporter deficiency impairs stress-adaptation and brain energetics homeostasis.
Chen HR, Zhang-Brotzge X, Morozov YM, Li Y, Wang S, Zhang H, Kuan IS, Fugate EM, Mao H, Sun YY, Rakic P, et al.
JCI insight (2021) : . . **WB, IHC; tested species: mouse**

Synaptotagmin-7 enhances calcium-sensing of chromaffin cell granules and slows discharge of granule cargos.
Bendahmane M, Chapman-Morales A, Kreutzberger AJB, Schenk NA, Mohan R, Bakshi S, Philippe J, Zhang S, Kiessling V, Tamm LK, Giovannucci DR, et al.
Journal of neurochemistry (2020) : e14986. . **WB, ICC; tested species: mouse**

Endophilin-A coordinates priming and fusion of neurosecretory vesicles via intersectin.
Gowrisankaran S, Houy S, Del Castillo JGP, Steubler V, Gelker M, Kroll J, Pinheiro PS, Schwitters D, Halbsgut N, Pechstein A, van Weering JRT, et al.
Nature communications (2020) 111: 1266. . **WB, ICC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/105011 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.