SYSY Antibodies

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Dynamin1/2/3

Cat.No. 115 002; 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 **ICC**: 1 : 200 up to 1 : 1000 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 100
Immunogen	Synthetic peptide corresponding to AA 2 to 17 from rat Dynamin1 (UniProt Id: P21575)
Reactivity	Reacts with: human (Q05193, P50570, Q9UQ16), rat (P21575, P39052, Q08877), mouse (P39053, P39054, Q8BZ98), cow. Other species not tested yet.
Specificity	Recognizes dynamin 1, 2 and 3 with a preference for dynamin 1. K.D. validated PubMed: 32989096
Matching control	115-0P

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

Background

Dynamin was discovered because of its binding to microtubules. It was later shown not to function in the cytoskeleton but in endocytosis. Dynamin is required for clathrin - mediated endocytosis. It contains a NH2 - terminal GTPase domain, a middle pleckstrin - homology domain, and a COOH-terminal proline - rich sequence. The COOH - terminal sequence binds to amphiphilin which contains a SH3 domain that recognizes the proline - rich sequence of dynamin.
There are at least three isoforms of dynamin: Dynamin 1 is enriched in synapses whereas dynamin 2 is ubiquitous and dynamin 3 is expressed in brain and testis. Neuronal dynamin 1 is phosphorylated by protein kinase C and dephosphorylated by calcineurin during an action potential in the nerve terminal. It is possible that the dephosphorylation provides a trigger for endocytosis.

Selected References for 115 002

Efficient synaptic vesicle recycling after intense exocytosis concomitant with the accumulation of non-releasable endosomes at early developmental stages.
Bartolomé-Martín D, Ramírez-Franco J, Castro E, Sánchez-Prieto J, Torres M
Journal of cell science (2012) 125Pt 2: 422-34. . **WB, ICC; tested species: rat**

Release mode dynamically regulates the RRP refilling mechanism at individual hippocampal synapses.
Kim Y, Lee U, Choi C, Chang S
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) : . . **WB, ICC; KD verified; tested species: rat**

Endosomal phosphatidylinositol 3-phosphate controls synaptic vesicle cycling and neurotransmission.
Liu GT, Kochlamazashvili G, Puchkov D, Müller R, Schultz C, Mackintosh AI, Vollweiter D, Haucke V, Soykan T
The EMBO journal (2022) : e109352. . **WB; tested species: rat**

Distinct synaptic vesicle recycling in inhibitory nerve terminals is coordinated by SV2A.
Bae JR, Lee W, Jo YO, Han S, Koh S, Song WK, Kim SH
Progress in neurobiology (2020) : 101879. . **ICC; tested species: rat**

VGLUT1 Binding to Endophilin or Intersectin1 and Dynamin Phosphorylation in a Diurnal Context.
Richter K, Schmutz I, Darna M, Zander JF, Chavan R, Albrecht U, Ahnert-Hilger G
Neuroscience (2018) 371: 29-37. . **WB; tested species: mouse**

Dynamin regulates the fusion pore of endo- and exocytotic vesicles as revealed by membrane capacitance measurements.
Lasič E, Stenovec M, Kreft M, Robinson PJ, Zorec R
Biochimica et biophysica acta (2017) 18619: 2293-2303. . **ICC; tested species: rat**

Proteomic screening of glutamatergic mouse brain synaptosomes isolated by fluorescence activated sorting.
Biesemann C, Grønborg M, Luquet E, Wichert SP, Bernard V, Bungers SR, Cooper B, Varoqueaux F, Li L, Byrne JA, Urlaub H, et al.
The EMBO journal (2014) 332: 157-70. . **WB; tested species: mouse**

Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins.
Wilhelm BG, Mandad S, Truckenbrodt S, Kröhnert K, Schäfer C, Rammner B, Koo SJ, Claßen GA, Krauss M, Haucke V, Urlaub H, et al.
Science (New York, N.Y.) (2014) 3446187: 1023-8. . **WB**

Small-scale isolation of synaptic vesicles from mammalian brain.
Ahmed S, Holt M, Riedel D, Jahn R
Nature protocols (2013) 85: 998-1009. . **WB; tested species: mouse**

Increased neurotransmitter release at the neuromuscular junction in a mouse model of polyglutamine disease.
Rozas JL, Gómez-Sánchez L, Tomás-Zapico C, Lucas JJ, Fernández-Chacón R
The Journal of neuroscience : the official journal of the Society for Neuroscience (2011) 313: 1106-13. . **WB**

Access the online factsheet including applicable protocols at https://sysy.com/product/115002 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.