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.<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 (AP staining)<br>**IP**: yes<br>**ICC**: 1 : 200 up to 1 : 1000<br>**IHC**: 1 : 500<br>**IHC-P**: 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.<br>Other species not tested yet. |
| Specificity | Recognizes dynamin 1, 2 and 3 with a preference for dynamin 1. K.D. validated<br>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 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.