SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

# Rab3c

**Cat.No. 107 203; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)**

## Data Sheet

| | |
|---|---|
| Reconstitution/ Storage | 50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For **reconstitution** add 50 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)<br>**IP**: yes<br>**ICC**: 1 : 500<br>**IHC**: not tested yet<br>**IHC-P (FFPE)**: not tested yet |
| Reactivity | Reacts with: human (Q96E17), rat (P62824), mouse (P62823), monkey, cow.<br>No signal: zebrafish.<br>Other species not tested yet. |

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

## Background

Rab3 proteins belong to the Rab family, a subset of the Ras-related superfamily of small monomeric GTPases. There are four known isoforms: Rab3a, Rab3b, Rab3c, and Rab3d (1, 2). Rab3a and Rab3c are primarily found in neuronal and neuroendocrine cells, whereas Rab3b and Rab3d are predominantly expressed in non-neuronal tissues such as the parotid gland, pancreas, mast cells, and adipose tissue (2, 3).
Rab3a, the most abundant and well-characterized isoform, is highly enriched in synaptic vesicles. It regulates vesicle transport, docking, fusion, and $Ca^{2+}$-dependent neurotransmitter release by cycling between a GDP-bound inactive state and a GTP-bound vesicle-associated active state, interacting with other synaptic proteins in the process (1, 2).
Unlike integral membrane proteins of synaptic vesicles, Rab3a and Rab3c are absent from the Golgi complex, preventing immunostaining of the axo-dendritic region, which can occur with proteins such as synaptophysin, synaptobrevin/VAMP, or synaptogyrin (1).
Beyond the nervous system, Rab3a is also expressed in the pancreas, where it is predominantly localized to β-cells of the islets of Langerhans. It plays a crucial role in regulated insulin secretion, while Rab3d is primarily involved in exocrine pancreatic enzyme secretion (3).

## Selected References for 107 203

Quantitative analysis of synaptic vesicle Rabs uncovers distinct yet overlapping roles for Rab3a and Rab27b in Ca2+-triggered exocytosis.
Pavlos NJ, Grønborg M, Riedel D, Chua JJ, Boyken J, Kloepper TH, Urlaub H, Rizzoli SO, Jahn R
The Journal of neuroscience : the official journal of the Society for Neuroscience (2010) 3040: 13441-53. . **WB**

The proteomic landscape of synaptic diversity across brain regions and cell types.
van Oostrum M, Blok TM, Giandomenico SL, Tom Dieck S, Tushev G, Fürst N, Langer JD, Schuman EM
Cell (2023) 18624: 5411-5427.e23. . **WB; tested species: mouse**

SNARE Complex-associated Proteins in the Lateral Amygdala of Macaca mullatta Following Long-term Ethanol Drinking.
Alexander NJ, Rau AR, Jimenez VA, Daunais JB, Grant KA, McCool BA
Alcoholism, clinical and experimental research (2018) : . . **WB; tested species: monkey**

BMS-708163 and Nilotinib restore synaptic dysfunction in human embryonic stem cell-derived Alzheimer's disease models.
Nishioka H, Tooi N, Isobe T, Nakatsuji N, Aiba K
Scientific reports (2016) 6: 33427. . **WB**

Complexin II plays a positive role in Ca2+-triggered exocytosis by facilitating vesicle priming.
Cai H, Reim K, Varoqueaux F, Tapechum S, Hill K, Sørensen JB, Brose N, Chow RH
Proceedings of the National Academy of Sciences of the United States of America (2008) 10549: 19538-43. . **WB**

## Selected General References

Rab proteins in regulated exocytosis.
Fischer von Mollard G et al. Trends Biochem Sci (1994) PubMed:8016866

Localization versus function of Rab3 proteins. Evidence for a common regulatory role in controlling fusion.
Schlüter OM et al. J. Biol. Chem. (2002) PubMed:12167638

Subcellular distribution and function of Rab3A, B, C, and D isoforms in insulin-secreting cells.
Iezzi M et al. Mol Endocrinol (1999) PubMed:9973251

Access the online factsheet including applicable protocols at https://sysy.com/product/107203 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.