

Rab3

Cat.No. 107 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was added for stabilization. For reconstitution add 50 µl H ₂ O 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) IP: not tested yet ICC: 1 : 1000 IHC: 1 : 200 up to 1 : 500 IHC-P: not tested yet
Immunogen	Recombinant protein corresponding to AA 154 to 227 from human Rab3c (UniProt Id: Q96E17)
Reactivity	Reacts with: human (P20336, P20337, Q96E17, O95716), rat (P63012, Q63941, P62824, Q63942), mouse (P63011, Q9CZT8, P62823, P35276). Other species not tested yet.
Specificity	Specific for all four Rab 3 isoforms a, b, c, d.
Remarks	This antibody has been affinity purified with the complete antigen (aa 154 - 227) and recognizes all isoforms, due to the homology of Rab 3 proteins.

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 Ca²⁺-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 107 003

A secretagogin locus of the mammalian hypothalamus controls stress hormone release. Romanov RA, Alpár A, Zhang MD, Zeisel A, Calas A, Landry M, Fuszard M, Shirran SL, Schnell R, Dobolyi Á, Oláh M, et al. The EMBO journal (2015) 34(1): 36-54. . **IHC; tested species: mouse, rat**

Liprin-α2 promotes the presynaptic recruitment and turnover of RIM1/CASK to facilitate synaptic transmission. Spangler SA, Schmitz SK, Kevenaar JT, de Graaff E, de Wit H, Demmers J, Toonen RF, Hoogenraad CC The Journal of cell biology (2013) 2016: 915-28. . **ICC; tested species: rat**

Synaptotagmin-1 docks secretory vesicles to syntaxin-1/SNAP-25 acceptor complexes. de Wit H, Walter AM, Milosevic I, Gulyás-Kovács A, Riedel D, Sørensen JB, Verhage M Cell (2009) 138(5): 935-46. . **WB**

Synaptic localization of C9orf72 regulates post-synaptic glutamate receptor 1 levels. Xiao S, McKeever PM, Lau A, Robertson J Acta neuropathologica communications (2019) 71: 161. . **WB; tested species: mouse**

Dynamic Partitioning of Synaptic Vesicle Pools by the SNARE-Binding Protein Tomosyn. Cazares VA, Njus MM, Manly A, Saldate JJ, Subramani A, Ben-Simon Y, Sutton MA, Ashery U, Stuenkel EL The Journal of neuroscience : the official journal of the Society for Neuroscience (2016) 36(44): 11208-11222. . **ICC; tested species: rat**

A new probe for super-resolution imaging of membranes elucidates trafficking pathways. Revelo NH, Kamin D, Truckenbrodt S, Wong AB, Reuter-Jessen K, Reisinger E, Moser T, Rizzoli SO The Journal of cell biology (2014) 205(4): 591-606. . **ICC**

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/107003> 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.