

Rab27A

Cat.No. 168-0P; control protein, 100 µg protein (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg protein, lyophilized. For reconstitution add 100 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Control proteins should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Immunogen	Recombinant protein corresponding to AA 1 to 221 from rat Rab27A (UniProt Id: P23640)
Recommended dilution	Optimal concentrations should be determined by the end-user.
Matching antibodies	168 003, 168 013
Remarks	This control protein consists of the recombinant protein that has been used for immunization. It has been tested in preadsorption experiments and blocks efficiently and specifically the corresponding signal in Western blots. The amount of protein needed for efficient blocking depends on the titer and on the affinity of the antibody to the antigen.

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

Background

Rab27 proteins are members of the Rab protein family that belongs to the ras-related superfamily of small monomeric GTPases. These proteins play a crucial role in intracellular vesicle trafficking, particularly in the fusion of vesicles or organelles with their target membranes (1, 2). Two Rab27 isoforms, **Rab27A** and **27B**, have been described so far.

Mutations in the RAB27A gene have been shown to be responsible for the Griscelli syndrome characterized by pigment dilution of the hair and an uncontrolled T-lymphocyte and macrophage activation. This disorder is probably caused by a dysfunction of melanosomes in melanocytes and lytic granules in CD8+ cytotoxic T lymphocytes (CTLs) (3). Additionally, Rab27A is located on mature insulin granules of pancreatic β-cells highlighting its role in insulin secretion (4, 5). Moreover, Rab27A is expressed in the retinal pigment epithelium and choriocapillaris, suggesting a functional role in ocular physiology (6). In patients with Griscelli syndrome caused by missense mutations in RAB27A, Rab27B expression is upregulated, partially compensating for the loss of Rab27A function. Rab27B has been found to regulate amylase secretion in parotid acinar cells, further emphasizing its role in exocytosis (7, 8).

Furthermore, a study by (9) revealed that Rab27A plays a critical role in the processing of inflammatory pain in mice and demonstrated that Rab27A is highly expressed in sensory neurons and the superficial dorsal horn of the spinal cord. Further studies have expanded the functional scope of Rab27A, revealing its involvement in renal fibrosis through the regulation of exosome secretion (10).

Selected General References

Functional analysis of Rab27a effector granuphilin in insulin exocytosis.
Izumi T et al. Meth. Enzymol. (2005) PubMed:16473589

Rab27a Contributes to the Processing of Inflammatory Pain in Mice.
Gross T et al. Cells (2020) PubMed:32570938

Tubule-derived exosomes play a central role in fibroblast activation and kidney fibrosis.
Liu X et al. Kidney Int (2020) PubMed:32139089

Rab7 and Rab27a control two motor protein activities involved in melanosomal transport.
Jordens I et al. Pigment Cell Res. (2006) PubMed:16965270

Rab3A and Rab27A cooperatively regulate the docking step of dense-core vesicle exocytosis in PC12 cells.
Tsuboi T et al. J. Cell. Sci. (2006) PubMed:16684812

Rab27a mediates the tight docking of insulin granules onto the plasma membrane during glucose stimulation.
Kasai K et al. J. Clin. Invest. (2005) PubMed:15690086

Rab27a: a new face in beta cell metabolism-secretion coupling.
Aizawa T et al. J. Clin. Invest. (2005) PubMed:15690078

Rab27b localizes to zymogen granules and regulates pancreatic acinar exocytosis.
Chen X et al. Biochem. Biophys. Res. Commun. (2004) PubMed:15451418

The small GTPase Rab27B regulates amylase release from rat parotid acinar cells.
Imai A et al. J. Cell. Sci. (2004) PubMed:15039459

Griscelli syndrome: description of a case with Rab27A mutation.
Aslan D et al. Pediatr Hematol Oncol () PubMed:16517541

Access the online factsheet including applicable protocols at <https://sysy.com/product/168-0P> 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.