SYSY Antibodies

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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_2O 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, Rab**27A** 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 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.