SYSY Antibodies

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Rab5

Cat.No. 108 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. 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. 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 up to 1 : 10000 (AP staining) **IP**: yes **ICC**: 1 : 100 up to 1 : 1000 (see remarks) **IHC**: not tested yet **IHC-P**: not tested yet
Clone	621.3
Subtype	IgG2a (κ light chain)
Immunogen	Recombinant protein corresponding to AA 1 to 215 from rat Rab5 (UniProt Id: O88565)
Reactivity	Reacts with: human (Q9UJ41), rat (M0RC99), mouse (Q9JM13), hamster. No signal: zebrafish. Other species not tested yet.
Specificity	Specific for rab 5 (probably only rab 5a). No cross-reactivity to other rab proteins.
Remarks	- Recommended for human samples. - This antibody was used very successfully for immunoisolation of early endosomes and for the differentiation of early endosomes from related trafficking organelles in neurons and nonneuronal cells. **ICC**: Not suitable for ICC of PFA-fixed cells. Methanol fixation is recommended.

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

Background

Rab 5 is a member of the Rab protein family that belongs to the ras-related superfamily of small monomeric GTPases. Rab 5 is ubiquitously expressed in all tissues where it functions in the fusion of early endosomes which is the first fusion step of endocytic organelles after their formation and detachment from the plasma membrane. It is presently the best marker with selectivity for this compartment.

Selected References for 108 011

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, ICC**

The amyloid precursor protein is a conserved Wnt receptor.
Liu T, Zhang T, Nicolas M, Boussicault L, Rice H, Soldano A, Claeys A, Petrova I, Fradkin L, De Strooper B, Potier MC, et al.
eLife (2021) 10: . . **WB, ICC; tested species: mouse**

Critical role for piccolo in synaptic vesicle retrieval.
Ackermann F, Schink KO, Bruns C, Izsvák Z, Hamra FK, Rosenmund C, Garner CC
eLife (2019) 8: . . **WB, ICC; tested species: rat**

Neuronal lysosomal dysfunction releases exosomes harboring APP C-terminal fragments and unique lipid signatures.
Miranda AM, Lasiecka ZM, Xu Y, Neufeld J, Shahriar S, Simoes S, Chan RB, Oliveira TG, Small SA, Di Paolo G
Nature communications (2018) 91: 291. . **WB, ICC; tested species: mouse**

Dendritic Cell-Secreted Cytotoxic T-Lymphocyte-Associated Protein-4 Regulates the T-cell Response by Downmodulating Bystander Surface B7.
Halpert MM, Konduri V, Liang D, Chen Y, Wing JB, Paust S, Levitt JM, Decker WK
Stem cells and development (2016) 2510: 774-87. . **WB, ICC; tested species: mouse**

The serine/threonine kinase Ndr2 controls integrin trafficking and integrin-dependent neurite growth.
Rehberg K, Kliche S, Madencioglu DA, Thiere M, Müller B, Meineke BM, Freund C, Budinger E, Stork O
The Journal of neuroscience : the official journal of the Society for Neuroscience (2014) 3415: 5342-54. . **WB, ICC**

Rab5 and Rab7 control endocytic sorting along the axonal retrograde transport pathway.
Deinhardt K, Salinas S, Verastegui C, Watson R, Worth D, Hanrahan S, Bucci C, Schiavo G
Neuron (2006) 522: 293-305. . **ICC, WB**

Sunday driver interacts with two distinct classes of axonal organelles.
Abe N, Almenar-Queralt A, Lillo C, Shen Z, Lozach J, Briggs SP, Williams DS, Goldstein LS, Cavalli V
The Journal of biological chemistry (2009) 28450: 34628-39. . **IP**

Sugar transporter Slc37a2 regulates bone metabolism in mice via a tubular lysosomal network in osteoclasts.
Ng PY, Ribet ABP, Guo Q, Mullin BH, Tan JWY, Landao-Bassonga E, Stephens S, Chen K, Yuan J, Abudulai L, Bollen M, et al.
Nature communications (2023) 141: 906. . **WB; tested species: mouse**

Depletion of the AD Risk Gene SORL1 Selectively Impairs Neuronal Endosomal Traffic Independent of Amyloidogenic APP Processing.
Knupp A, Mishra S, Martinez R, Braggin JE, Szabo M, Kinoshita C, Hailey DW, Small SA, Jayadev S, Young JE
Cell reports (2020) 319: 107719. . **ICC; tested species: human**

CtBP1-Mediated Membrane Fission Contributes to Effective Recycling of Synaptic Vesicles.
Ivanova D, Imig C, Camacho M, Reinhold A, Guhathakurta D, Montenegro-Venegas C, Cousin MA, Gundelfinger ED, Rosenmund C, Cooper B, Fejtova A, et al.
Cell reports (2020) 307: 2444-2459.e7. . **ICC; tested species: mouse**

MHC class I and II peptide homology regulates the cellular immune response.
Halpert MM, Konduri V, Liang D, Vazquez-Perez J, Hofferek CJ, Weldon SA, Baig Y, Vedula I, Levitt JM, Decker WK
FASEB journal : official publication of the Federation of American Societies for Experimental Biology (2020) : . . **ICC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/108011 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.