SYSY Antibodies

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RIM1 PDZ domain

Cat.No. 140 003; 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 : 100 up to 1 : 1000 (AP staining) **IP**: not tested yet **ICC**: 1 : 200 up to 1 : 500 **IHC**: external data (see remarks) **IHC-P (FFPE)**: 1 : 500
Immunogen	Recombinant protein corresponding to the PDZ domain of rat RIM1 (UniProt Id: Q9JIR4)
Reactivity	Reacts with: human (Q86UR5), rat (Q9JIR4), mouse (Q99NE5), hamster, chicken, frog. Other species not tested yet.
Specificity	Specific for RIM 1 with weak cross reactivity to RIM 2. K.O. validated PubMed: 32521280
Remarks	**IHC**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols.

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

Background

RIMs are presynaptic active zone proteins that regulate Ca^{2+} triggered release of neurotransmitters. RIM 1α and RIM 2α are composed of an N-terminal zinc-finger domain, a central PDZ domain and two C-terminal C2 domains that are seperated by long alternatively spliced sequences.
RIM 1α is a putative Rab 3a effector and has been shown to interact with other active zone proteins like Munc13-1, ERC 1b, ERC 2 and α-liprins. Deletion of RIM 1α in mice impaired neurotransmitter release without changing the structure of the synapse.

Selected References for 140 003

Active zone protein expression changes at the key stages of cerebellar cortex neurogenesis in the rat.
Juranek JK, Mukherjee K, Siddiqui TJ, Kaplan BJ, Li JY, Ahnert-Hilger G, Jahn R, Calka J
Acta histochemica (2013) 1156: 616-25. . **WB, ICC, IHC**

Rab3a interacting molecule (RIM) and the tethering of pre-synaptic transmitter release site-associated CaV2.2 calcium channels.
Wong FK, Stanley EF
Journal of neurochemistry (2010) 1122: 463-73. . **WB, IP; tested species: chicken**

ELKS1 Captures Rab6-Marked Vesicular Cargo in Presynaptic Nerve Terminals.
Nyitrai H, Wang SSH, Kaeser PS
Cell reports (2020) 3110: 107712. . **WB, ICC; KO verified; tested species: mouse**

Analysis of RIM Expression and Function at Mouse Photoreceptor Ribbon Synapses.
Löhner M, Babai N, Müller T, Gierke K, Atorf J, Joachimsthaler A, Peukert A, Martens H, Feigenspan A, Kremers J, Schoch S, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2017) 3733: 7848-7863. . **WB, IHC; tested species: mouse**

RIM1/2-Mediated Facilitation of Cav1.4 Channel Opening Is Required for Ca2+-Stimulated Release in Mouse Rod Photoreceptors.
Grabner CP, Gandini MA, Rehak R, Le Y, Zamponi GW, Schmitz F
The Journal of neuroscience : the official journal of the Society for Neuroscience (2015) 3538: 13133-47. . **IHC, WB**

Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins.
Wilhelm BG, Mandad S, Truckenbrodt S, Kröhnert K, Schäfer C, Rammner B, Koo SJ, Claßen GA, Krauss M, Haucke V, Urlaub H, et al.
Science (New York, N.Y.) (2014) 3446187: 1023-8. . **ICC, IHC; tested species: mouse,rat**

RIM, Munc13, and Rab3A interplay in acrosomal exocytosis.
Bello OD, Zanetti MN, Mayorga LS, Michaut MA
Experimental cell research (2012) 3185: 478-88. . **WB, ICC**

Protocol for single-molecule analysis of synaptic protein complex-mediated vesicle recruitment.
Kapadia A, Hafner AS
STAR protocols (2025) 64: 104249. . **ICC; tested species: rat**

Modulating synaptic glutamate receptors by targeting network nodes of the postsynaptic density condensate.
Jia B, Zhu S, Shen Z, Chen X, Li H, Zhao S, Cai Q, Wang Y, Wang Z, Nicoll RA, Lu Y, et al.
Molecular cell (2025) 8516: 3166-3183.e10. . **ICC; tested species: rat**

Endogenous SNAP-Tagging of Munc13□1 for Monitoring Synapse Nanoarchitecture.
Kowald M, Bachollet SPJT, Benseler F, Steinecker M, Boll M, Kaushik S, Soykan T, Sun S, Birke R, Ilic D, Brose N, et al.
JACS Au (2025) 56: 2475-2490. . **WB; tested species: mouse**

Expression of synaptic proteins and development of dendritic spines in fetal and postnatal neocortex of the pig, the European wild boar Sus scrofa.
Sobierajski E, Czubay K, Schmidt MR, Wiedenski S, Rettschlag S, Beemelmans C, Beemelmans C, Wahle P
Brain structure & function (2025) 2302: 38. . **WB; tested species: pig**

Access the online factsheet including applicable protocols at https://sysy.com/product/140003 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.