SYSY Antibodies

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Collybistin

Cat.No. 261 003; 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_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 : 2000 (AP staining) **IP**: yes **ICC**: 1 : 500 **IHC**: external data (see remarks) **IHC-P (FFPE)**: not tested yet
Immunogen	Recombinant protein corresponding to AA 4 to 229 from mouse Collybistin (UniProt Id: Q3UTH8)
Reactivity	Reacts with: rat (Q9QX73), mouse (Q3UTH8). Other species not tested yet.
Specificity	Specific for collybistin; immunogen present in all three described splice-variants K.O. validated
Remarks	**IHC**: This antibody has been successfully used and published for this application by customers (see application-specific references). It is not compatible with our standard protocols.

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

Background

The GDP/GTP-exchange factor **collybistin** is composed of a dbl homology domain (DH) and a pleckstrin homology domain (PH) connected by a linker sequence. Three splice variants with different C-terminal regions have been described, so far.
Collybistin is supposed to be involved in the clustering of gephyrin, a scaffolding protein linking glycine and GABA receptors to microtubuli.

Selected References for 261 003

Identification of a Core Amino Acid Motif within the α Subunit of GABAARs that Promotes Inhibitory Synaptogenesis and Resilience to Seizures.
Nathanson AJ, Zhang Y, Smalley JL, Ollerhead TA, Rodriguez Santos MA, Andrews PM, Wobst HJ, Moore YE, Brandon NJ, Hines RM, Davies PA, et al.
Cell reports (2019) 283: 670-681.e8. . **WB, ICC; tested species: mouse**

Autism-associated ARHGEF9 variants impair GABAergic synapses and ultrasonic communication by reducing gephyrin phosphorylation.
Jung H, Kim B, Jang G, Lee H, Kim Y, Kim H, Lee HJ, Kim D, Yang Y, Jeong WC, Kim S, et al.
Molecular psychiatry (2025) : . . **WB, ICC; tested species: human,mouse**

A proline-rich motif in the large intracellular loop of the glycine receptor α1 subunit interacts with the Pleckstrin homology domain of collybistin.
Breitinger U, Weinländer K, Pechmann Y, Langlhofer G, Enz R, Becker CM, Sticht H, Kneussel M, Villmann C, Breitinger HG
Journal of advanced research (2021) 29: 95-106. . **WB, ICC; tested species: mouse**

Gephyrin clusters are absent from small diameter primary afferent terminals despite the presence of GABA(A) receptors.
Lorenzo LE, Godin AG, Wang F, St-Louis M, Carbonetto S, Wiseman PW, Ribeiro-da-Silva A, De Koninck Y
The Journal of neuroscience : the official journal of the Society for Neuroscience (2014) 3424: 8300-17. . **IHC**

miRNA-mediated control of gephyrin synthesis drives sustained inhibitory synaptic plasticity.
Welle TM, Rajgor D, Kareemo DJ, Garcia JD, Zych SM, Wolfe SE, Gookin SE, Martinez TP, Dell'Acqua ML, Ford CP, Kennedy MJ, et al.
EMBO reports (2024) 2511: 5141-5168. . **WB; tested species: rat**

Selective overexpression of Collybistin in mouse hippocampal pyramidal cells enhances GABAergic neurotransmission and protects against PTZ-induced seizures.
George S, James S, de Blas AL
eNeuro (2021) : . . **IHC; tested species: mouse**

Recruitment of Plasma Membrane GABA-A Receptors by Submembranous Gephyrin/Collybistin Clusters.
George S, Chiou TT, Kanamalla K, De Blas AL
Cellular and molecular neurobiology (2021) : . . **ICC; tested species: mouse**

Phosphorylation on Ser 359 of the α2 subunit in GABA type A receptors down-regulates their density at inhibitory synapses.
Nakamura Y, Morrow DH, Nathanson AJ, Henley JM, Wilkinson KA, Moss SJ
The Journal of biological chemistry (2020) : . . **WB; tested species: rat**

Alternative Splicing and the Intracellular Domain Mediate TM-agrin's Ability to Differentially Regulate the Density of Excitatory and Inhibitory Synapse-like Specializations in Developing CNS Neurons.
Handara G, Kröger S
Neuroscience (2019) : . . **ICC; tested species: mouse**

In vivo transgenic expression of collybistin in neurons of the rat cerebral cortex.
Fekete CD, Goz RU, Dinallo S, Miralles CP, Chiou TT, Bear J, Fiondella CG, LoTurco JJ, De Blas AL
The Journal of comparative neurology (2017) 5255: 1291-1311. . **IHC; tested species: rat**

Collybistin binds and inhibits mTORC1 signaling: a potential novel mechanism contributing to intellectual disability and autism.
Machado CO, Griesi-Oliveira K, Rosenberg C, Kok F, Martins S, Passos-Bueno MR, Sertie AL
European journal of human genetics : EJHG (2016) 241: 59-65. . **WB**

Access the online factsheet including applicable protocols at https://sysy.com/product/261003 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.