SYSY Antibodies

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Doc2b

Cat.No. 174 103; 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 : 1000 (AP staining) **IP**: not tested yet **ICC**: not tested yet **IHC**: not tested yet **IHC-P (FFPE)**: not tested yet
Immunogen	Recombinant protein corresponding to AA 38 to 119 from rat Doc2b (UniProt Id: P70610)
Reactivity	Reacts with: rat (P70610), mouse (P70169). Other species not tested yet.
Specificity	Specific for Doc 2b, no cross-reactivity to Doc 2a and Doc 2c. K.O. validated PubMed: 32347796

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

Background

The **Doc 2** protein family comprises the three isoforms Doc 2a, b and c. All three proteins are composed of a short N-terminal Munc 13 binding region followed by two C-terminal calcium binding domains (C2A and C2B). Doc 2a and b are predominantly expressed in brain and colocalize with small secretory vesicles whereas Doc 2c is mainly expressed in the heart.
The exact mechanism how the Doc proteins are involved in Ca^{2+} induced exocytosis has yet to be determined.

Selected References for 174 103

Munc13-1 is a Ca2+-phospholipid-dependent vesicle priming hub that shapes synaptic short-term plasticity and enables sustained neurotransmission.
Lipstein N, Chang S, Lin KH, López-Murcia FJ, Neher E, Taschenberger H, Brose N
Neuron (2021) : . . **WB; tested species: mouse**

Single synapse glutamate imaging reveals multiple levels of release mode regulation in mammalian synapses.
Farsi Z, Walde M, Klementowicz AE, Paraskevopoulou F, Woehler A
iScience (2021) 241: 101909. . **ICC; tested species: rat**

Loss of Doc2b does not influence transmission at Purkinje cell to deep nuclei synapses under physiological conditions.
Khan MM, Regehr WG
eLife (2020) 9: . . **IHC; KO verified; tested species: mouse**

Disease-linked mutations in Munc18-1 deplete synaptic Doc2.
Guiberson NGL, Black LS, Haller JE, Brukner A, Abramov D, Ahmad S, Xie YX, Sharma M, Burré J
Brain : a journal of neurology (2024) : . . **WB; tested species: mouse**

Distinct insulin granule subpopulations implicated in the secretory pathology of diabetes types 1 and 2.
Kreutzberger AJB, Kiessling V, Doyle CA, Schenk N, Upchurch CM, Elmer-Dixon M, Ward AE, Preobraschenski J, Hussein SS, Tomaka W, Seelheim P, et al.
eLife (2020) 9: . . **WB; tested species: rat**

Selected General References

DOC2A and DOC2B are sensors for neuronal activity with unique calcium-dependent and kinetic properties.
Groffen AJ et al. J. Neurochem. (2006) PubMed:16515538

Ca(2+)-induced recruitment of the secretory vesicle protein DOC2B to the target membrane.
Groffen AJ et al. J. Biol. Chem. (2004) PubMed:15033971

Different spatiotemporal expression of DOC2 genes in the developing rat brain argues for an additional, nonsynaptic role of DOC2B in early development.
Korteweg N et al. Eur. J. Neurosci. (2000) PubMed:10651871

Transient, phorbol ester-induced DOC2-Munc13 interactions in vivo.
Duncan RR et al. J. Biol. Chem. (1999) PubMed:10488064

Doc2 is not associated with known regulated exocytotic or endosomal compartments in adrenal chromaffin cells.
Charvin N et al. Biochem. J. (1999) PubMed:10377260

Role of the Doc2 alpha-Munc13-1 interaction in the neurotransmitter release process.
Mochida S et al. Proc. Natl. Acad. Sci. U.S.A. (1998) PubMed:9736751

Physical and functional interactions of Doc2 and Munc13 in Ca2+-dependent exocytotic machinery.
Orita S et al. J. Biol. Chem. (1997) PubMed:9195900

DOC2 proteins in rat brain: complementary distribution and proposed function as vesicular adapter proteins in early stages of secretion.
Verhage M et al. Neuron (1997) PubMed:9115738

Access the online factsheet including applicable protocols at https://sysy.com/product/174103 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.