SYSY Antibodies

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CAPS1

Cat.No. 262 013; 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**: external data (see remarks) **IP**: not tested yet **ICC**: 1 : 200 up to 1 : 500 **IHC**: not tested yet **IHC-P (FFPE)**: not tested yet
Immunogen	Recombinant protein corresponding to AA 18 to 107 from mouse CAPS1 (UniProt Id: Q80TJ1)
Reactivity	Reacts with: rat (Q62717), mouse (Q80TJ1). Other species not tested yet.
Specificity	Specific for CAPS 1, no cross-reactvity to CAPS 2 K.O. validated PubMed: 25719439
Remarks	**WB**: Cat. no. 262 003 is recommended for this application. This antibody has not yet been successfully tested for this application using our standard protocol, but has been published by customers (see “application” references).

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

Background

The **Ca**$^{2+}$-dependent activator **p**rotein for **s**ecretion (CAPS) regulates exocytosis of catecholamine- or neuropeptide-containing dense-core vesicles (DCVs) at secretion sites.
Two differen isoforms CAPS 1/CADPS 1 and **CAPS 2/CADPS 2** that are mainly expressed in brain have been identified in mammals. Both have been shown to be essential components of the synaptic vesicle priming machinery.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

Selected References for 262 013

Paralogs of the Calcium-Dependent Activator Protein for Secretion Differentially Regulate Synaptic Transmission and Peptide Secretion in Sensory Neurons.
Shaib AH, Staudt A, Harb A, Klose M, Shaaban A, Schirra C, Mohrmann R, Rettig J, Becherer U
Frontiers in cellular neuroscience (2018) 12: 304. . **WB, ICC; KO verified; tested species: mouse**

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**

RNA editing-mediated regulation of calcium-dependent activator protein for secretion (CAPS1) localization and its impact on synaptic transmission.
Shumate KM, Tas ST, Kavalali ET, Emeson RB
Journal of neurochemistry (2021) 1582: 182-196. . **ICC; tested species: mouse**

Tomosyn associates with secretory vesicles in neurons through its N- and C-terminal domains.
Geerts CJ, Mancini R, Chen N, Koopmans FTW, Li KW, Smit AB, van Weering JRT, Verhage M, Groffen AJA
PloS one (2017) 127: e0180912. . **ICC; tested species: mouse**

CAPS-1 promotes fusion competence of stationary dense-core vesicles in presynaptic terminals of mammalian neurons.
Farina M, van de Bospoort R, He E, Persoon CM, van Weering JR, Broeke JH, Verhage M, Toonen RF
eLife (2015) 4: . . **ICC; KO verified**

Selected General References

Interaction of calcium-dependent activator protein for secretion 1 (CAPS1) with the class II ADP-ribosylation factor small GTPases is required for dense-core vesicle trafficking in the trans-Golgi network.
Sadakata T et al. J. Biol. Chem. (2010) PubMed:20921225

CAPS1 and CAPS2 regulate stability and recruitment of insulin granules in mouse pancreatic beta cells.
Speidel D et al. Cell Metab. (2008) PubMed:18177725

Tissue distribution of Ca2+-dependent activator protein for secretion family members CAPS1 and CAPS2 in mice.
Sadakata T et al. J. Histochem. Cytochem. (2007) PubMed:17164411

CAPS-1 and CAPS-2 are essential synaptic vesicle priming proteins.
Jockusch WJ et al. Cell (2007) PubMed:18022372

Differential distributions of the Ca2+ -dependent activator protein for secretion family proteins (CAPS2 and CAPS1) in the mouse brain.
Sadakata T et al. J. Comp. Neurol. (2006) PubMed:16506193

CAPS1 regulates catecholamine loading of large dense-core vesicles.
Speidel D et al. Neuron (2005) PubMed:15820695

Access the online factsheet including applicable protocols at https://sysy.com/product/262013 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.