SYSY Antibodies

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Caveolin1

Cat.No. 161-0P; control peptide, 100 µg peptide (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg peptide, lyophilized. 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. Control peptides should be stored at -20°C when still lyophilized! For detailed information, see back of the data sheet.
Immunogen	Synthetic peptide corresponding to AA 1 to 17 from rat Caveolin1 (UniProt Id: P41350)
Recommended dilution	Optimal concentrations should be determined by the end-user.
Matching antibodies	161 002, 161 003
Remarks	This control peptide consists of the synthetic peptide (MSGGKYVDSEGHLYTVP) that has been used for immunization. It has been tested in preadsorption experiments and blocks efficiently and specifically the corresponding signal in Western blots. The amount of peptide needed for efficient blocking depends on the titer and on the affinity of the antibody to the antigen.

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

Background

Caveolae are distinct flask shaped invaginations which contain high concentrations of cholesterol and sphingolipids. These subcellular compartments can be found at the surface of many cell types. The primary structural proteins of caveolae are caveolins, a family comprising three members: caveolin1, caveolin2, and caveolin3. Caveolin1 exists in two isoforms, caveolin1α and caveolin1β, which differ in their N-terminal sequences. Caveolin1 is ubiquitously expressed in all cell types and is the predominant coat protein of endothelial caveolae. Caveolin1 is essential in multiple cellular processes, including membrane trafficking, cholesterol homeostasis, signal transduction, and cellular communication (1). Knockout studies have demonstrated that the absence of caveolin1 leads to a complete loss of caveolae structures in various cell types, underscoring its essential role in caveolae formation (2). Its dysregulation has been implicated in cardiovascular diseases, neurodegenerative disorders, metabolic diseases, and cancer (3). Caveolin1 plays a complex role in glioblastoma (GBM), the most aggressive primary brain tumor. Its function in GBM appears to be context-dependent, exhibiting both tumor-promoting and tumor-suppressing activities (4).

Selected General References

The caveolin proteins.
Williams TM et al. Genome Biol (2004) PubMed:15003112

Caveolin-1, a Key Mediator Across Multiple Pathways in Glioblastoma and an Independent Negative Biomarker of Patient Survival.
Moriconi C et al. Front Oncol (2021) PubMed:34490102

Caveolin-1 in the regulation of cell metabolism: a cancer perspective.
Nwosu ZC et al. Mol Cancer (2016) PubMed:27852311

The biology of caveolae: lessons from caveolin knockout mice and implications for human disease.
Hnasko R et al. Mol Interv (2003) PubMed:14993453

Access the online factsheet including applicable protocols at https://sysy.com/product/161-0P 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.