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# Caveolin1

Cat.No. 161 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

### **Data Sheet**

Reconstitution/ Storage	100 μg purified IgG, lyophilized. Albumin and azide were added for stabilization. For <b>reconstitution</b> add 100 μl H <sub>2</sub> O 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 recommended ICC: 1: 500 (see remarks) IHC: 1: 500 (see remarks) IHC-P: 1: 1000 IHC-Fr: 1: 500 (see remarks) IHC-G: 1: 500 (see remarks)
Clone	SY-177E4
Subtype	IgG2b (κ light chain)
Immunogen	Recombinant protein corresponding to cytoplasatic domain of mouse Caveolin1 (UniProt Id: P49817)
Reactivity	Reacts with: mouse (P49817), rat (P41350), human (Q03135). Other species not tested yet.
Remarks	ICC: Methanol fixation is recommended.  IHC: One of the following antigen retrievals is required: citrate buffer pH 6, Tris-EDTA buffer pH 9.  Antigen retrieval with formic acid is tolerated.  IHC-Fr: The following fixatives are possible: acetone, 4% formaldehyde/PFA, methanol, methanol-acetone.  IHC-G: The following fixatives are possible: 3% glyoxal, 9% glyoxal.

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, caveolin1a 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 <a href="https://sysy.com/product/161011">https://sysy.com/product/161011</a> or scan the QR-code.



# FAQ - How should I store my antibody?

# **Shipping Conditions**

 All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freezedried) and are stable in this form 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. They must not be stored in the freezer when still lyophilized!
   Temperatures below zero may cause loss of performance.
- Fluorescence-labeled antibodies should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

# Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle
  between freezing and thawing (to reduce frost-build-up), which is exactly what should be
  avoided. For the same reason, antibody vials should be placed in an area of the freezer that
  has minimal temperature fluctuations, for instance towards the back rather than on a door
  shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl)
  and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock
  concentration is affected by evaporation and adsorption of the antibody to the surface of the
  storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of
  activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

# **Product Specific Hints for Storage**

## Control proteins / peptides

• Store at -20°C to -80°C.

#### **Monoclonal Antibodies**

- Ascites and hybridoma supernatant should be stored at -20°C up to -80°C. Prolonged storage at 4°C is not recommended! Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

#### **Polyclonal Antibodies**

- Crude antisera: With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- Affinity purified antibodies: Less robust than antisera. Storage at -20°C up to -80°C is
  recommended. Adding a carrier protein like BSA will increase long term stability. Most of our
  antibodies already contain carrier proteins. Please refer to the data-sheet for detailed
  information.

#### Fluorescence-labeled Antibodies

• Store as a liquid with 1:1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

# Avoid repeated freeze-thaw cycles for all antibodies!

# FAQ - How should I reconstitute my antibody?

#### Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add
  the amount of deionized water given in the respective datasheet. If higher volumes are
  preferred, add water as mentioned above and then the desired amount of PBS and a
  stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies
  already contain albumin. Take this into account when adding more carrier protein.
   For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the
  solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled
  with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot a 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1:1 (v/v) glycerol to a final
  concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in
  liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freezethaw cycles.
- Please refer to our tips and hints for subsequent storage of reconstituted antibodies and control peptides and proteins.