SYSY Antibodies

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# LAMP2A

**Cat.No. 437 005; Polyclonal Guinea pig 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. For detailed information, see back of the data sheet. |
| Applications | **WB**: 1 : 1000 (AP staining)<br>**IP**: not tested yet<br>**ICC**: 1 : 500<br>**IHC**: not tested yet<br>**IHC-P**: 1 : 400 |
| Immunogen | Synthetic peptide corresponding to AA 406 to 415 from mouse LAMP2A (UniProt Id: P17047-1) |
| Reactivity | Reacts with: mouse (P17047-1), rat (P17046-1).<br>No signal: human (P13473-1).<br>Other species not tested yet. |
| Specificity | K.D. validated |

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

## Background

LAMP2 (**l**ysosomal-**a**ssociated **m**embrane **p**rotein **2**), also referred to as **CD107b**, is a member of the LAMP protein family and a highly glycosylated single-pass type I transmembrane protein. It shuttles between lysosomes, endosomes, and the plasma membrane.
LAMP2 exists in three isoforms. Isoform **LAMP2A** is expressed for instance in liver, kidney, and placenta, and only low in brain.
LAMP2 proteins protect the lysosomal membrane from degradation by lysosomal hydrolases and participate in intracellular cholesterol trafficking, lysosomal biogenesis, and lysosomal motility along microtubules. In addition to these common functions, the different splice variants of LAMP2 have also specialized functions. LAMP2A serves as a receptor for cytosolic proteins that undergo degradation via chaperone-mediated autophagy (CMA). It facilitates the translocation of targeted proteins and peptides into the lysosome. LAMP2A is also implicated in MHCII presentation of cytoplasmic antigens as well as in the regulation of T-cell responses. Beyond that, LAMP2A is the rate-limiting factor for the neuronal uptake and degradation of aggregation prone proteins via CMA such as α-synuclein and huntingtin that are neurotoxic when aggregated.
Recent studies demonstrated that LAMP2A is involved in cancer progression by promoting tumor growth.

## Selected References for 437 005

Chaperone-mediated autophagy in neuronal dendrites utilizes activity-dependent lysosomal exocytosis for protein disposal.
Grochowska KM, Sperveslage M, Raman R, Failla AV, Głów D, Schulze C, Laprell L, Fehse B, Kreutz MR
Cell reports (2023) 428: 112998. . **ICC; tested species: rat**

## Selected General References

Tumor cells induce LAMP2a expression in tumor-associated macrophage for cancer progression.
Wang R et al. EBioMedicine (2019) PubMed:30711520

VPS35 in Dopamine Neurons Is Required for Endosome-to-Golgi Retrieval of Lamp2a, a Receptor of Chaperone-Mediated Autophagy That Is Critical for α-Synuclein Degradation and Prevention of Pathogenesis of Parkinson's Disease.
Tang FL et al. J. Neurosci. (2015) PubMed:26203154

LAMP2A as a therapeutic target in Parkinson disease.
Xilouri M et al. Autophagy (2013) PubMed:24145820

LAMP2A overexpression in breast tumors promotes cancer cell survival via chaperone-mediated autophagy.
Saha T et al. Autophagy (2012) PubMed:22874552

The chaperone-mediated autophagy receptor organizes in dynamic protein complexes at the lysosomal membrane.
Bandyopadhyay U et al. Mol. Cell. Biol. (2008) PubMed:18644871

Unique properties of lamp2a compared to other lamp2 isoforms.
Cuervo AM et al. J. Cell. Sci. (2000) PubMed:11082038

Expression patterns of murine lysosome-associated membrane protein 2 (Lamp-2) transcripts during morphogenesis.
Lichter-Konecki U et al. Differentiation (1999) PubMed:10448712

An alternatively spliced form of the human lysosome-associated membrane protein-2 gene is expressed in a tissue-specific manner.
Konecki DS et al. Biochem. Biophys. Res. Commun. (1995) PubMed:7488019

Access the online factsheet including applicable protocols at https://sysy.com/product/437005 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 freeze-dried) 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 freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.