SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

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. 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**: 1 : 500 **IHC**: not tested yet **IHC-P (FFPE)**: 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). No signal: human (P13473-1). 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 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.