SYSY Antibodies

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# **Lamin B1** mouse specific

**Cat.No. 404 117; Monoclonal rat antibody, 100 µg purified IgG (lyophilized)**

## Data Sheet

| | |
|---|---|
| Reconstitution/ Storage | 100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization.<br>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.<br>Antibodies should be stored at +4°C when still lyophilized. Do not freeze!<br>For detailed information, see back of the data sheet. |
| Applications | **WB**: 1 : 1000 (AP staining)<br>**IP**: not tested yet<br>**ICC**: 1 : 100 (see remarks)<br>**IHC**: 1 : 400<br>**IHC-P (FFPE)**: 1 : 100 up to 1 : 400 |
| Clone | SY-4H6 |
| Subtype | IgG2b (κ light chain) |
| Immunogen | Synthetic peptide corresponding to residues near the carboxy terminus of mouse Lamin B1 (UniProt Id: P14733) |
| Reactivity | Reacts with: mouse (P14733), pig.<br>No signal: human (P20700), rat (P70615).<br>Other species not tested yet. |
| Remarks | **ICC**: Methanol fixation is recommended. |

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

## Background

Lamin B1 (LMNB1) is an intermediate filament-type protein of the nuclear lamina and is ubiquitously expressed throughout development. It plays important roles in many cellular processes like the distribution of heterochromatin and the regulation of gene expression and splicing. The maintenance of LMNB1 protein levels is required for DNA replication and repair and thus mutations in B-type lamins are usually lethal.
Duplication of the LMNB1 gene causes adult-onset autosomal-dominant leukodystrophy (ADLD), a rare neurological disorder in which overexpression of LMNB1 causes progressive central nervous system demyelination. Improper Lamin B1 expression is often present in tumor cells and decreased levels are observed for example in colon cancer, breast cancer and B-cell malignancies. Lamin B1 loss is also a senescence-associated biomarker and distinguishes senescent from proliferating cells in pre-neoplastic lesions or marks senescent cells in various age-related pathologies.

## Selected General References

Lamin B1 regulates somatic mutations and progression of B-cell malignancies.
Klymenko T et al. Leukemia (2018) PubMed:28804121

SEPT12/SPAG4/LAMINB1 complexes are required for maintaining the integrity of the nuclear envelope in postmeiotic male germ cells.
Yeh CH et al. PLoS ONE (2015) PubMed:25775403

Role of lamin b1 in chromatin instability.
Butin-Israeli V et al. Mol. Cell. Biol. (2015) PubMed:25535332

The role of lamin B1 for the maintenance of nuclear structure and function.
Camps J et al. Nucleus (2015) PubMed:25602590

Redistribution of the Lamin B1 genomic binding profile affects rearrangement of heterochromatic domains and SAHF formation during senescence.
Sadaie M et al. Genes Dev. (2013) PubMed:23964094

The clinicopathological significance of lamin A/C, lamin B1 and lamin B receptor mRNA expression in human breast cancer.
Wazir U et al. Cell. Mol. Biol. Lett. (2013) PubMed:24293108

Lamin B1 loss is a senescence-associated biomarker.
Freund A et al. Mol. Biol. Cell (2012) PubMed:22496421

The integrity of a lamin-B1-dependent nucleoskeleton is a fundamental determinant of RNA synthesis in human cells.
Tang CW et al. J. Cell. Sci. (2008) PubMed:18334554

Lamin B1 is required for mouse development and nuclear integrity.
Vergnes L et al. Proc. Natl. Acad. Sci. U.S.A. (2004) PubMed:15232008

Decreased and aberrant nuclear lamin expression in gastrointestinal tract neoplasms.
Moss SF et al. Gut (1999) PubMed:10517909

Binding of matrix attachment regions to lamin B1.
Ludérus ME et al. Cell (1992) PubMed:1525831

Teratocarcinoma stem cells and early mouse embryos contain only a single major lamin polypeptide closely resembling lamin B.
Stewart C et al. Cell (1987) PubMed:3311384

Access the online factsheet including applicable protocols at https://sysy.com/product/404117 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.