SYSY Antibodies

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# Podoplanin

**Cat.No. 548 003; Polyclonal rabbit 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 (fluorescent detection)<br>**IP**: not tested yet<br>**ICC**: not tested yet<br>**IHC**: 1 : 500<br>**IHC-P (FFPE)**: 1 : 1000 |
| Immunogen | Recombinant protein corresponding to residues near the amino region of mouse Podoplanin (UniProt Id: Q62011) |
| Reactivity | Reacts with: mouse (Q62011).<br>No signal: human (Q86YL7), rat (Q64294).<br>Other species not tested yet. |

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

## Background

Podoplanin (PDPN) is a mucin-type transmembrane glycoprotein expressed in lymphatic endothelial cells, podocytes, and stromal cells. Structurally, it consists of a heavily O-glycosylated extracellular domain, a single transmembrane region, and a short cytoplasmic tail that lacks enzymatic activity. PDPN is primarily localized to the plasma membrane, enriched in actin-rich structures such as filopodia and lamellipodia, where it interacts with ERM (ezrin, radixin, moesin) proteins to regulate cytoskeletal organization, cell adhesion, and migration. Its incorporation into extracellular vesicles suggests roles in intercellular communication and microenvironmental regulation (1, 2).
Physiologically, PDPN is essential for lymphatic vascular development, separating blood and lymphatic vessels through platelet CLEC-2 interactions. It also maintains lymphoid tissue architecture and supports immune cell trafficking, largely via Rho GTPase-mediated cytoskeletal remodeling (3).
Pathologically, PDPN is upregulated in cancer, inflammation, and fibrosis. In the tumor microenvironment, PDPN marks cancer-associated fibroblasts (CAFs), which remodel the extracellular matrix, increase tissue stiffness, and facilitate tumor invasion and metastasis. PDPN+ CAFs also modulate immune responses and interact with platelets to promote tumor-associated thrombosis (4).
In inflammatory diseases, PDPN is expressed by activated fibroblasts, macrophages, and Th17 cells, where it regulates immune cell migration, cytokine production, and tissue remodeling, contributing to chronic inflammation and fibrosis (3). Additionally, PDPN-mediated platelet activation links it to vascular pathology and thrombosis (5).
Overall, PDPN is a multifunctional plasma membrane protein that orchestrates cell–cell and cell–matrix interactions, cytoskeletal dynamics, and tissue remodeling. Its expression in pathological contexts—cancer, inflammation, and fibrosis—highlights PDPN as a key biomarker and a promising therapeutic target.

## Selected General References

Podoplanin: An emerging cancer biomarker and therapeutic target.
Krishnan H et al. Cancer Sci (2018) PubMed:29575529

Roles of Podoplanin in Malignant Progression of Tumor.
Suzuki H et al. Cells (2022) PubMed:35159384

Podoplanin promotes tumor growth, platelet aggregation, and venous thrombosis in murine models of ovarian cancer.
Sasano T et al. J Thromb Haemost (2022) PubMed:34608736

Podoplanin is a component of extracellular vesicles that reprograms cell-derived exosomal proteins and modulates lymphatic vessel formation.
Carrasco-Ramírez P et al. Oncotarget (2016) PubMed:26893367

Podoplanin: emerging functions in development, the immune system, and cancer.
Astarita JL et al. Front Immunol (2012) PubMed:22988448

Access the online factsheet including applicable protocols at https://sysy.com/product/548003 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.