SYSY Antibodies

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ZnT1 (SLC30A1)

Cat.No. 166 103; 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 (AP staining) **IP**: not tested yet **ICC**: 1 : 500 **IHC**: not tested yet **IHC-P (FFPE)**: 1 : 1000
Immunogen	Synthetic peptide corresponding to AA 494 to 507 from rat ZnT1 (UniProt Id: Q62720)
Reactivity	Reacts with: rat (Q62720), mouse (Q60738). Other species not tested yet.
Specificity	K.D. validated PubMed: 34871934

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

Background

The essential micronutrient zinc (Zn^{2+}) plays an important role in many biological processes like growth, development, and reproduction. It is found in the active site of many enzymes, where ionization, polarization or replacement of Zn^{2+} bound water is involved in catalytic reactions. As a charged ion Zn^{2+} cannot cross biological membranes by simple diffusion and must be transported by specialized transport mechanisms. Two families of Zn^{2+} transporters, SLC30 (ZnT, Zn^{2+} transporter) and SLC39 (ZIP, Zinc (Zn^{2+})-Iron (Fe^{2+}) permease), function in opposite directions to maintain cellular Zn^{2+} homeostasis (1).
Ten Zn^{2+} transporter proteins **ZnT1-10** have been described. All of them contain several transmembrane domains and a histidine rich intracellular loop (2).
ZnT1 is abundantly expressed and has been suggested to be responsible for the efflux of Zn^{2+} from cells. It is upregulated by high oral Zn^{2+} doses. ZnT1 plays an essential role in maintaining neuronal Zn^{2+} balance, which is critical for synaptic signalling, neuroprotection, and the prevention of Zn^{2+} toxicity. Dysregulation of ZnT1 in neural tissues has been linked to neurodegenerative conditions and cognitive impairments (3). ZnT1 is involved in regulating Zn^{2+} levels within β-cells, which is essential for insulin storage and secretion. Proper ZnT1 function ensures optimal pancreatic endocrine activity and supports glucose homeostasis (4).

Selected References for 166 103

Functional Transport Properties of Human Zinc Transporter 1: Kinetics and pH-Dependency.
Yoshioka Y, Miyaji T
Biological & pharmaceutical bulletin (2026) 492: 364-370. . **DOTBLOT**

ZnT1 is a neuronal Zn2+/Ca2+ exchanger.
Gottesman N, Asraf H, Bogdanovic M, Sekler I, Tzounopoulos T, Aizenman E, Hershfinkel M
Cell calcium (2021) 101: 102505. . **WB; KD verified; tested species: mouse**

Modulation of ZnT-1 by Let7a unveils a therapeutic potential in amyotrophic lateral sclerosis.
Anzilotti S, Franco C, Valsecchi V, Cuomo O, Lombardi G, Di Muraglia N, De Iesu N, Laudati G, Annunziato L, Canzoniero LMT, Giuseppe P, et al.
Neurotherapeutics : the journal of the American Society for Experimental NeuroTherapeutics (2025) : e00571. . **WB; KD verified; tested species: mouse**

Selected General References

The SLC30 family of zinc transporters - a review of current understanding of their biological and pathophysiological roles.
Huang L et al. Mol Aspects Med (2013) PubMed:23506888

Zinc Transporter Proteins.
Baltaci AK et al. Neurochem Res (2018) PubMed:29243032

Widespread expression of zinc transporter ZnT (SLC30) family members in mouse endocrine cells.
Zhong ML et al. Histochem Cell Biol (2012) PubMed:22673841

Mammalian zinc transporters.
Liuzzi JP et al. Annu Rev Nutr (2004) PubMed:15189117

Access the online factsheet including applicable protocols at https://sysy.com/product/166103 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.