SYSY Antibodies

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ZnT1

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**: 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

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 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.