

ZnT3

Cat.No. 197 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was added for stabilization. For reconstitution add 50 µl H ₂ O 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: yes ICC: 1 : 100 up to 1 : 500 IHC: 1 : 100 up to 1 : 500 IHC_P: 1 : 500
Immunogen	Recombinant protein corresponding to AA 2 to 75 from mouse ZnT3 (UniProt Id: P97441)
Reactivity	Reacts with: rat (Q6QIX3), mouse (P97441). No signal: zebrafish. Other species not tested yet.
Specificity	K.O. PubMed: 35263617
Matching control	197-0P

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

Background

The essential micronutrient zinc 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 Zn²⁺ bound water is involved in catalytic reactions. As a charged ion Zn²⁺ cannot cross biological membranes by simple diffusion and must be transported into or out of cells by specialized transport mechanisms. Four Zn transporter proteins, ZnT 1 to ZnT 4, have been cloned. All of them contain several transmembrane domains and a histidine rich intracellular loop. In the central nervous system Zn plays important roles in synaptic function and plasticity. At synapses Zn is stored in synaptic vesicles by a mechanism depending on the integral membrane protein **ZnT 3**.

Selected References for 197 003

- Colocalization of different neurotransmitter transporters on synaptic vesicles is sparse except for VGLUT1 and ZnT3. Upmanyu N, Jin J, Emde HV, Ganzella M, Bösch L, Malviya VN, Zhuleku E, Politi AZ, Ninov M, Silbern I, Leutenegger M, et al. *Neuron* (2022) : . . **WB, ICC; KO verified; tested species: rat**
- Nestin-expressing cell types in the temporal lobe and hippocampus: Morphology, differentiation, and proliferative capacity. Liu J, Reeves C, Jacques T, McEvoy A, Miserocchi A, Thompson P, Sisodiya S, Thom M *Glia* (2018) 661: 62-77. . **IHC; tested species: human**
- Synaptic Zn²⁺ potentiates the effects of cocaine on striatal dopamine neurotransmission and behavior. Gomez JL, Bonaventura J, Keighron J, Wright KM, Marable DL, Rodriguez LA, Lam S, Carlton ML, Ellis RJ, Jordan CJ, Bi GH, et al. *Translational psychiatry* (2021) 111: 570. . **IHC; tested species: mouse**
- Polyglucosan bodies in medullary catecholaminergic neurones in SUDEP. Patodia S, Somani A, Thom M *Epilepsy & behavior reports* (2021) 15: 100430. . **IHC; tested species: human**
- Functional responses of the hippocampus to hyperexcitability depend on directed, neuron-specific KCNQ2 K⁺ channel plasticity. Carver CM, Hastings SD, Cook ME, Shapiro MS *Hippocampus* (2019) : . . **IHC; tested species: mouse**
- Impact of Swiprosin-1/Efh2 on Adult Hippocampal Neurogenesis. Regensburger M, Prots I, Reimer D, Brachs S, Loskarn S, Lie DC, Mielenz D, Winner B *Stem cell reports* (2018) 102: 347-355. . **IHC; tested species: mouse**

Selected General References

- Vglut1 and ZnT3 co-targeting mechanisms regulate vesicular zinc stores in PC12 cells. Salazar G, Craige B, Love R, Kalman D, Faundez V *Journal of cell science* (2005) 118Pt 9: 1911-21. .
- The zinc transporter ZnT3 interacts with AP-3 and it is preferentially targeted to a distinct synaptic vesicle subpopulation. Salazar G, Love R, Werner E, Doucette MM, Cheng S, Levey A, Faundez V *Molecular biology of the cell* (2004) 152: 575-87. .
- Accumulation of zinc in degenerating hippocampal neurons of ZnT3-null mice after seizures: evidence against synaptic vesicle origin. Lee JY, Cole TB, Palmiter RD, Koh JY *The Journal of neuroscience : the official journal of the Society for Neuroscience* (2000) 2011: RC79. .
- Elimination of zinc from synaptic vesicles in the intact mouse brain by disruption of the ZnT3 gene. Cole TB, Wenzel HJ, Kafer KE, Schwartzkroin PA, Palmiter RD *Proceedings of the National Academy of Sciences of the United States of America* (1999) 964: 1716-21. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/197003> 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.