

## ZnT3

Cat.No. 197 004; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

### Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For <b>reconstitution</b> add 100 µl H <sub>2</sub> O, then aliquot and store at -20°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	<b>WB:</b> 1 : 1000 (AP staining) <b>IP:</b> yes <b>ICC:</b> 1 : 500 <b>IHC:</b> 1 : 500 <b>IHC_P:</b> 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.
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 Zn<sup>2+</sup> bound water is involved in catalytic reactions. As a charged ion Zn<sup>2+</sup> 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 197 004

Loss of synaptic zinc transport in progranulin deficient mice may contribute to progranulin-associated psychopathology and chronic pain.  
Hardt S, Heidler J, Albuquerque B, Valek L, Altmann C, Wilken-Schmitz A, Schäfer MKE, Wittig I, Tegeder I  
Biochimica et biophysica acta. Molecular basis of disease (2017) 186311: 2727-2745. . **WB, IHC; tested species: mouse**

Genetic diversity drives extreme responses to traumatic brain injury and post-traumatic epilepsy.  
Shannon T, Cotter C, Fitzgerald J, Houle S, Levine N, Shen Y, Rajjoub N, Dobres S, Iyer S, Xenakis J, Lynch R, et al.  
Experimental neurology (2024) : 114677. . **IHC; tested species: mouse**

Canonical Wnt activator Chir99021 prevents epileptogenesis in the intrahippocampal kainate mouse model of temporal lobe epilepsy.  
Mardones MD, Rostam KD, Nickerson MC, Gupta K  
Experimental neurology (2024) 376: 114767. . **IHC; tested species: mouse**

Altered hippocampal activation in seizure-prone CACNA2D2 knockout mice.  
Danis A, Gallagher AA, Anderson AN, Isakharov A, Beeson KA, Schnell E  
bioRxiv : the preprint server for biology (2023) : . . **IHC; tested species: mouse**

Synaptic hyperexcitability of cytomegalic pyramidal neurons contributes to epileptogenesis in tuberous sclerosis complex.  
Wu X, Sosunov AA, Lado W, Teoh JJ, Ham A, Li H, Al-Dalahmah O, Gill BJA, Arancio O, Schevon CA, Frankel WN, et al.  
Cell reports (2022) 403: 111085. . **IHC; tested species: mouse**

Expression profile of the zinc transporter ZnT3 in taste cells of rat circumvallate papillae and its role in zinc release, a potential mechanism for taste stimulation.  
Nishida K, Bansho S, Ikukawa A, Kubota T, Ohishi A, Nagasawa K  
European journal of histochemistry : EJH (2022) 664: . . **IHC; tested species: rat**

Neuronal network remodeling and Wnt pathway dysregulation in the intra-hippocampal kainate mouse model of temporal lobe epilepsy.  
Gupta K, Schnell E  
PloS one (2019) 1410: e0215789. . **IHC; tested species: mouse**

Short-Term Depression of Sprouted Mossy Fiber Synapses from Adult-Born Granule Cells.  
Hendricks WD, Chen Y, Bensen AL, Westbrook GL, Schnell E  
The Journal of neuroscience : the official journal of the Society for Neuroscience (2017) 3723: 5722-5735. . **IHC; tested species: mouse**

The schizophrenia risk gene product miR-137 alters presynaptic plasticity.  
Siegert S, Seo J, Kwon EJ, Rudenko A, Cho S, Wang W, Flood Z, Martorell AJ, Ericsson M, Mungenast AE, Tsai LH, et al.  
Nature neuroscience (2015) 187: 1008-16. . **IHC; tested species: mouse**

Differentiation and functional incorporation of embryonic stem cell-derived GABAergic interneurons in the dentate gyrus of mice with temporal lobe epilepsy.  
Maisano X, Litvina E, Tagliatela S, Aaron GB, Grabel LB, Naegle JR  
The Journal of neuroscience : the official journal of the Society for Neuroscience (2012) 321: 46-61. . **IHC**

Access the online factsheet including applicable protocols  
at <https://sysy.com/product/197004> 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 at 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.