

## Parvalbumin

Cat.No. 195 004; 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) (see remarks) <b>IP:</b> yes <b>ICC:</b> not tested yet <b>IHC:</b> 1 : 500 up to 1 : 10000 <b>IHC_P:</b> 1 : 500 up to 1 : 2000 <b>EM:</b> yes
Immunogen	Full-length recombinant rat Parvalbumin (UniProt Id: P02625)
Reactivity	Reacts with: rat (P02625), mouse (P32848), chicken, zebrafish, sheep, human (P20472). Other species not tested yet.
Matching control	195-0P
Remarks	<b>WB:</b> Due to its small size a tricine gel is recommended. 195 002 is more sensitive and recommended for westernblotting

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

## Background

**Parvalbumin** is a small, acidic calcium binding protein and belongs to the family of EF hand proteins. The protein is found in skeletal muscle and the brain of vertebrates where it locates to a specific population of GABAergic interneurons. This subset of neurons may contribute to maintaining the balance between excitation and inhibition in the cortex and the hippocampus.

## Selected References for 195 004

- A Hippocampus-Accumbens Tripartite Neuronal Motif Guides Appetitive Memory in Space. Trouche S, Koren V, Doig NM, Ellender TJ, El-Gaby M, Lopes-Dos-Santos V, Reeve HM, Perestenko PV, Garas FN, Magill PJ, Sharott A, et al. Cell (2019) : . . . **IHC, EM; tested species: mouse**
- Long term effects of peripubertal stress on excitatory and inhibitory circuits in the prefrontal cortex of male and female mice. Bueno-Fernandez C, Perez-Rando M, Alcaide J, Coviello S, Sandi C, Castillo-Gómez E, Nacher J Neurobiology of stress (2021) 14: 100322. . **ICC, IHC; tested species: mouse**
- Synaptic organisation and behaviour-dependent activity of mGluR8a-innervated GABAergic trilaminar cells projecting from the hippocampus to the subiculum. Katona L, Hartwich K, Tomioka R, Somogyi J, Roberts JDB, Wagner K, Joshi A, Klausberger T, Rockland KS, Somogyi P Brain structure & function (2020) 2252: 705-734. . **IHC, EM; tested species: rat**
- The functional microscopic neuroanatomy of the human subthalamic nucleus. Alkemade A, de Hollander G, Miletic S, Keuken MC, Balesar R, de Boer O, Swaab DF, Forstmann BU Brain structure & function (2019) 2249: 3213-3227. . **IHC-P; tested species: human**
- Long-term labeling and imaging of synaptically connected neuronal networks in vivo using double-deletion-mutant rabies viruses. Jin L, Sullivan HA, Zhu M, Lavin TK, Matsuyama M, Fu X, Lea NE, Xu R, Hou Y, Rutigliani L, Pruner M, et al. Nature neuroscience (2024) 272: 373-383. . **IHC; tested species: mouse**
- Cortical somatostatin long-range projection neurons and interneurons exhibit divergent developmental trajectories. Fisher J, Verhagen M, Long Z, Moissidis M, Yan Y, He C, Wang J, Micoli E, Alastruey CM, Moors R, Marín O, et al. Neuron (2024) 1124: 558-573.e8. . **IHC; tested species: mouse**
- Native-state proteomics of Parvalbumin interneurons identifies unique molecular signatures and vulnerabilities to early Alzheimer's pathology. Kumar P, Goettemoeller AM, Espinosa-Garcia C, Tobin BR, Tfairly A, Nelson RS, Natu A, Dammer EB, Santiago JV, Malepati S, Cheng L, et al. Nature communications (2024) 151: 2823. . **IHC; tested species: mouse**
- Central role of the habenulo-interpeduncular system in the neurodevelopmental basis of susceptibility and resilience to anxiety in mice. Rakotobe M, Fjerdingsstad N, Ruiz-Reig N, Lamonerie T, D'Autréaux F Neurobiology of disease (2024) 191: 106392. . **IHC; tested species: mouse**
- A cost-effective and efficient ex vivo, ex situ human whole brain perfusion protocol for immunohistochemistry. Hade AC, Philips MA, Promet L, Jagomäe T, Hanumantharaju A, Salumäe L, Reimann E, Plaas M, Vasar E, Väli M Journal of neuroscience methods (2024) 404: 110059. . **IHC; tested species: human**
- Acan downregulation in parvalbumin GABAergic cells reduces spontaneous recovery of fear memories. Lavertu-Jolin M, Chattopadhyaya B, Chehrizi P, Carrier D, Wünnemann F, Leclerc S, Dumouchel F, Robertson D, Affia H, Saba K, Gopal V, et al. Molecular psychiatry (2023) : . . **IHC; tested species: mouse**
- Differential effects of group III metabotropic glutamate receptors on spontaneous inhibitory synaptic currents in spine-innervating double bouquet and parvalbumin-expressing dendrite-targeting GABAergic interneurons in human neocortex. Lukacs IP, Francavilla R, Field M, Hunter E, Howarth M, Horie S, Plaha P, Stacey R, Livermore L, Anson O, Tamas G, et al. Cerebral cortex (New York, N.Y. : 1991) (2023) 335: 2101-2142. . **IHC; tested species: human**

Access the online factsheet including applicable protocols at <https://sysy.com/product/195004> 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.