

## GFAP

Cat.No. 173 004; 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 up to 1 : 5000 (AP staining) <b>IP:</b> yes <b>ICC:</b> 1 : 500 up to 1 : 1000 <b>IHC:</b> 1 : 1000 <b>IHC-P:</b> 1 : 1000
Immunogen	Full-length recombinant human GFAP (UniProt Id: P14136)
Reactivity	Reacts with: human (P14136), rat (P47819), mouse (P03995), chicken, sheep. Other species not tested yet.
Specificity	Specific for GFAP, detects all isoforms. K.O. validated
Matching control	173-0P

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

## Background

**Glial fibrillary acidic protein GFAP** is a glial-specific member of the intermediate filament protein family. This group comprises cell type-specific filamentous proteins with similar structure and function as scaffold for cytoskeleton assembly and maintenance.

Frequently, neural stem cells also express GFAP. In addition many types of brain tumors, probably derived from astrocytic cells, heavily express GFAP. This protein is also found in the lens epithelium, Kupffer cells of the liver, in some cells in salivary tumors and others.

Point-mutations in the GFAP gene have been correlated to Alexander disease, a fatal leukoencephalopathy that leads to the dysmyelination or demyelination of the central nervous system.

## Selected References for 173 004

Fc gamma receptors are expressed in the developing rat brain and activate downstream signaling molecules upon cross-linking with immune complex.

Stamou M, Grodzki AC, van Oostrum M, Wollscheid B, Lein PJ  
Journal of neuroinflammation (2018) 151: 7. . **ICC, FACS; tested species: rat**

Tanycytes and a differential fatty acid metabolism in the hypothalamus.  
Hofmann K, Lamber C, Piotrowitz K, Offermann N, But D, Scheller A, Al-Amoudi A, Kuerschner L  
Glia (2017) 652: 231-249. . **IHC, WB; tested species: mouse**

Resident Astrocytes can Limit Injury to Developing Hippocampal Neurons upon THC Exposure.  
Krassnitzer M, Boisvert B, Beiersdorf J, Harkany T, Keimpema E  
Neurochemical research (2022) : . . **WB, IHC; tested species: mouse**

Reactive Glia-Derived Neuroinflammation: a Novel Hallmark in Lafora Progressive Myoclonus Epilepsy That Progresses with Age.

Lahuerta M, Gonzalez D, Aguado C, Fathinajafabadi A, García-Giménez JL, Moreno-Estellés M, Romá-Mateo C, Knecht E, Pallardó FV, Sanz P  
Molecular neurobiology (2019) : . . **IHC-P; tested species: mouse**

Apolipoprotein E aggregation in microglia initiates Alzheimer's disease pathology by seeding β-amyloidosis.  
Kaji S, Berghoff SA, Spieth L, Schlaphoff L, Sasmita AO, Vitale S, Büschgens L, Kedia S, Zirngibl M, Nazarenko T, Damkou A, et al.  
Immunity (2024) : . . **IHC; tested species: mouse**

Single-cell m6A profiling in the mouse brain uncovers cell type-specific RNA methylomes and age-dependent differential methylation.

Tegowski M, Prater AK, Holley CL, Meyer KD  
Nature neuroscience (2024) : . . **IHC; tested species: mouse**

Dipeptidyl peptidase 4 deficiency improves survival after focal cerebral ischemia in mice and ameliorates microglia activation and specific inflammatory markers.

Höfling C, Donkersloot P, Ulrich L, Burghardt S, Opitz M, Geissler S, Schilling S, Cynis H, Michalski D, Roßner S  
Neurobiology of disease (2024) 201: 106671. . **IHC; tested species: mouse**

Membrane properties and coupling of macroglia in the optic nerve.

Kompier N, Semtner M, Walter S, Kakabadze N, Steinhäuser C, Nolte C, Kettenmann H  
Current research in neurobiology (2024) 7: 100137. . **IHC; tested species: mouse**

Microglia-astrocyte crosstalk in the amyloid plaque niche of an Alzheimer's disease mouse model, as revealed by spatial transcriptomics.

Mallach A, Zielonka M, van Lieshout V, An Y, Khoo JH, Vanheusden M, Chen WT, Moechars D, Arancibia-Carcamo IL, Fiers M, De Strooper B, et al.  
Cell reports (2024) 436: 114216. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols  
at <https://sysy.com/product/173004> 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.