

GFAP

Cat.No. 173 004; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/Storage	100 µl antiserum, lyophilized. For reconstitution add 100 µl H ₂ O, then aliquot and store at -20°C until use. For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 up to 1 : 5000 (AP staining) IP: yes ICC: 1 : 500 up to 1 : 1000 IHC: 1 : 1000 IHC-P/FFPE: 1 : 1000
Immunogen	Recombinant protein corresponding to AA 1 to 432 from 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.
Matching control	173-0P

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

Access the online factsheet including applicable protocols at <https://susy.com/product/173004> or scan the QR-code.



Background

Glial fibrillary acidic protein GFAP is a glial-specific member of the intermediate filament protein family. This group comprises celltype-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, Lamberz C, Piotrowitz K, Offermann N, But D, Scheller A, Al-Amoudi A, Kuerschner L
Glia (2017) 652: 231-249. . **IHC, WB; 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**

Defective metabolic programming impairs early neuronal morphogenesis in neural cultures and an organoid model of Leigh syndrome.

Inak G, Rybak-Wolf A, Lisowski P, Pentimalli TM, Jüttner R, Glažar P, Uppal K, Bottani E, Brunetti D, Secker C, Zink A, et al.
Nature communications (2021) 121: 1929. . **ICC; tested species: human**

Drebrin controls scar formation and astrocyte reactivity upon traumatic brain injury by regulating membrane trafficking.
Schiweck J, Murk K, Ledderose J, Münster-Wandowski A, Ornaghi M, Vida I, Eickholt BJ
Nature communications (2021) 121: 1490. . **IHC; tested species: mouse**

Human iPSC-Derived Down Syndrome Astrocytes Display Genome-Wide Perturbations in Gene Expression, an Altered Adhesion Profile, and Increased Cellular Dynamics.

Bally BP, Farmer WT, Jones EV, Jessa S, Kacerovsky JB, Mayran A, Peng H, Lefebvre JL, Drouin J, Hayer A, Ernst C, et al.
Human molecular genetics (2020) : . . **ICC; tested species: human**

Innate immune response in neuronopathic forms of Gaucher disease confers resistance against viral-induced encephalitis.
Melamed S, Avraham R, Rothbard DE, Erez N, Israely T, Klausner Z, Futerman AH, Paran N, Vitner EB
Acta neuropathologica communications (2020) 81: 144. . **IHC-P; tested species: mouse**

Molecular design of hypothalamus development.

Romanov RA, Tretiakov EO, Kastrić ME, Zupancić M, Häring M, Korchynska S, Popadin K, Benevento M, Rebernik P, Lallemand F, Nishimori K, et al.
Nature (2020) 5827811: 246-252. . **IHC; tested species: mouse**

Sustained Hypoxia Alters nTS Glutamatergic Signaling and Expression of Excitatory Amino Acid Transporters.
Matott MP, Hasser EM, Kline DD
Neuroscience (2020) : . . **IHC; tested species: mouse**

Langat virus infection affects hippocampal neuron morphology and function in mice without disease signs.
Cornelius ADA, Hosseini S, Schreier S, Fritzsche D, Weichert L, Michaelsen-Preusse K, Fendt M, Kröger A
Journal of neuroinflammation (2020) 171: 278. . **IHC; tested species: mouse**

Matrix Metalloproteinase 14 Mediates APP Proteolysis and Lysosomal Alterations Induced by Oxidative Stress in Human Neuronal Cells.

Llorente P, Martins S, Sastre I, Aldudo J, Recuero M, Adjaye J, Bullido MJ
Oxidative medicine and cellular longevity (2020) 2020: 5917187. . **ICC; tested species: human**

iPSC-Derived Neuronal Cultures Carrying the Alzheimer's Disease Associated TREM2 R47H Variant Enables the Construction of an Aβ-Induced Gene Regulatory Network.

Martins S, Müller-Schiffmann A, Erichsen L, Bohndorf M, Wruck W, Slegers K, Van Broeckhoven C, Korth C, Adjaye J
International journal of molecular sciences (2020) 2112: . . **ICC; tested species: human**

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 10 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 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.