

GFAP

Cat.No. 173 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/Storage	200 µl antiserum, lyophilized. For reconstitution add 200 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 (AP staining) (see remarks) IP: yes ICC: 1 : 1000 IHC: yes IHC-P/FFPE: 1 : 1000 ELISA: yes (see remarks)
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, zebrafish. Other species not tested yet.
Specificity	Specific for GFAP, detects all isoforms.
Matching control	173-OP
Remarks	WB: The polyclonal antibodies are more sensitive compared to the monoclonals. ELISA: Suitable as detector antibody for sandwich-ELISA with cat. no. 173 011 as capture antibody.

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://sysy.com/product/173002> 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 173 002

Distinct *in vivo* roles of secreted APP ectodomain variants APPs_α and APPs_β in regulation of spine density, synaptic plasticity, and cognition.

Richter MC, Ludewig S, Winschel A, Abel T, Bold C, Salzburger LR, Klein S, Han K, Weyer SW, Fritz AK, Laube B, et al. The EMBO journal (2018) : . . **WB, IHC; tested species: mouse**

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. . **ICC, IHC; tested species: mouse**

The Anti-amyloid Compound DO1 Decreases Plaque Pathology and Neuroinflammation-Related Expression Changes in 5xFAD Transgenic Mice.

Boeddrich A, Babila JT, Wiglenda T, Diez L, Jacob M, Nietfeld W, Huska MR, Haenig C, Groenke N, Buntru A, Blanc E, et al. Cell chemical biology (2018) : . . **ELISA; tested species: mouse**

Identification of low molecular weight pyroglutamate A(β) oligomers in Alzheimer disease: a novel tool for therapy and diagnosis.

Wirhth O, Erck C, Martens H, Harmeier A, Geumann C, Jawhar S, Kumar S, Multhaup G, Walter J, Ingelsson M, Degerman-Gunnarsson M, et al.

The Journal of biological chemistry (2010) 28553: 41517-24. . **IHC-P; tested species: mouse**

Loss of all three APP family members during development impairs synaptic function and plasticity, disrupts learning, and causes an autism-like phenotype.

Steubler V, Erdinger S, Back MK, Ludewig S, Fässler D, Richter M, Han K, Slomianka L, Amrein I, von Engelhardt J, Wolfer DP, et al.

The EMBO journal (2021) : e107471. . **IHC; tested species: mouse**

Auxiliary α2δ1 and α2δ3 Subunits of Calcium Channels Drive Excitatory and Inhibitory Neuronal Network Development.

Bikbaev A, Ciurazkiewicz-Wojciech A, Heck J, Klatt O, Freund R, Mitlöhner J, Enrile Lacalle S, Sun M, Repetto D, Frischknecht R, Ablinger C, et al.

The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) 4025: 4824-4841. . **ICC; tested species: rat**

Glial activation is moderated by sex in response to amyloidosis but not to tau pathology in mouse models of neurodegenerative diseases.

Biechele G, Franzmeier N, Blume T, Ewers M, Luque JM, Eckenweber F, Sacher C, Beyer L, Ruch-Rubinstein F, Lindner S, Gildehaus FJ, et al.

Journal of neuroinflammation (2020) 171: 374. . **IHC; tested species: mouse**

Dopamine Receptor Activation Modulates the Integrity of the Perisynaptic Extracellular Matrix at Excitatory Synapses.

Mitlöhner J, Kaushik R, Niekisch H, Blondiaux A, Gee CE, Happel MFK, Gundelfinger E, Dityatev A, Frischknecht R, Seidenbecher C

Cells (2020) 92: . . **ICC; tested species: rat**

Biallelic Mutations in TSC2 Lead to Abnormalities Associated with Cortical Tubers in Human iPSC-Derived Neurons.

Winden KD, Sundberg M, Yang C, Wafa SMA, Dwyer S, Chen PF, Buttermore ED, Sahin M

The Journal of neuroscience : the official journal of the Society for Neuroscience (2019) 3947: 9294-9305. . **ICC; tested species: human**

Sonic hedgehog expression in the postnatal brain.

Rivell A, Petralia RS, Wang YX, Clawson E, Moehl K, Mattson MP, Yao PJ Biology open (2019) : . . **WB; tested species: rat**

Glial-to-neuron transfer of miRNAs via extracellular vesicles: a new mechanism underlying inflammation-induced synaptic alterations.

Prada I, Gabrielli M, Turola E, Iorio A, D'Arrigo G, Parolisi R, De Luca M, Pacifici M, Bastoni M, Lombardi M, Legname G, et al. Acta neuropathologica (2018) 1354: 529-550. . **ICC; tested species: mouse**

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 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.