SYSY Antibodies

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GFAP

Cat.No. 173 006; Polyclonal chicken antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For **reconstitution** add 50 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°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	**WB**: not recommended (see remarks) **IP**: not tested yet **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 **IHC_P**: 1 : 200 up to 1 : 500 **DNA_PAINT**: 1 : 500 **IDISCO**: 1 : 400
Immunogen	full-length recombinant human GFAP (UniProt Id: P14136)
Reactivity	Reacts with: human (P14136), rat (P47819), mouse (P03995). Other species not tested yet.
Specificity	Specific for GFAP, detects all isoforms. K.O.
Matching control	173-0P
Remarks	**WB**: Cat. nos. 173 002, 173 004 or 173 011 are recommended.

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

Background

Glial **f**ibrillary **a**cidic **p**rotein **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 173 006

Targeting the glycine-rich domain of TDP-43 with antibodies prevents its aggregation in vitro and reduces neurofilament levels in vivo.
Riemenschneider H, Simonetti F, Sheth U, Katona E, Roth S, Hutten S, Farny D, Michaelsen M, Nuscher B, Schmidt MK, Flatley A, et al.
Acta neuropathologica communications (2023) 111: 112. . **IHC-P; tested species: mouse**

Fast DNA-PAINT imaging using a deep neural network.
Narayanasamy KK, Rahm JV, Tourani S, Heilemann M
Nature communications (2022) 131: 5047. . **DNA_PAINT; tested species: rat**

A neurovascular-unit-on-a-chip for the evaluation of the restorative potential of stem cell therapies for ischaemic stroke.
Lyu Z, Park J, Kim KM, Jin HJ, Wu H, Rajadas J, Kim DH, Steinberg GK, Lee W
Nature biomedical engineering (2021) 58: 847-863. . **ICC; tested species: human**

Dopamine-induced calcium signaling in olfactory bulb astrocytes.
Fischer T, Scheffler P, Lohr C
Scientific reports (2020) 101: 631. . **IHC; tested species: mouse**

Brain-gut photobiomodulation restores cognitive alterations in chronically stressed mice through the regulation of Sirt1 and neuroinflammation.
Sancho-Balsells A, Borràs-Pernas S, Flotta F, Chen W, Del Toro D, Rodríguez MJ, Alberch J, Blivet G, Touchon J, Xifró X, Giralt A, et al.
Journal of affective disorders (2024) : . . **IHC; tested species: mouse**

Induced Remodelling of Astrocytes In Vitro and In Vivo by Manipulation of Astrocytic RhoA Activity.
Domingos C, Müller FE, Passlick S, Wachten D, Ponimaskin E, Schwarz MK, Schoch S, Zeug A, Henneberger C
Cells (2023) 122: . . **IHC; tested species: mouse**

The NKCC1 ion transporter modulates microglial phenotype and inflammatory response to brain injury in a cell-autonomous manner.
Tóth K, Lénárt N, Berki P, Fekete R, Szabadits E, Pósfai B, Cserép C, Alatshan A, Benkő S, Kiss D, Hübner CA, et al.
PLoS biology (2022) 201: e3001526. . **IHC; tested species: mouse**

Microglia modulate blood flow, neurovascular coupling, and hypoperfusion via purinergic actions.
Császár E, Lénárt N, Cserép C, Környei Z, Fekete R, Pósfai B, Balázsfi D, Hangya B, Schwarcz AD, Szabadits E, Szöllősi D, et al.
The Journal of experimental medicine (2022) 2193: . . **IHC; tested species: mouse**

Microglia alter the threshold of spreading depolarization and related potassium uptake in the mouse brain.
Varga DP, Menyhárt Á, Pósfai B, Császár E, Lénárt N, Cserép C, Orsolits B, Martinecz B, Szlepák T, Bari F, Farkas E, et al.
Journal of cerebral blood flow and metabolism : official journal of the International Society of Cerebral Blood Flow and Metabolism (2020) : 271678X19900097. . **IHC; tested species: mouse**

Amyloid β induces interneuron-specific changes in the hippocampus of APPNL-F mice.
Sos KE, Mayer MI, Takács VT, Major A, Bardóczi Z, Beres BM, Szeles T, Saito T, Saido TC, Mody I, Freund TF, et al.
PloS one (2020) 155: e0233700. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/173006 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.