

## Anti-GFAP Antibody (Previously Covance catalog# SMI-23R)

<b>Catalog# / Size</b>	837301 / 100 µL 837302 / 500 µL
<b>Clone</b>	SMI 23
<b>Regulatory Status</b>	RUO
<b>Other Names</b>	Glial fibrillary acidic protein
<b>Previously</b>	Covance Catalog# SMI-23R
<b>Isotype</b>	Mouse IgG2b, κ
<b>Description</b>	<p>Glial fibrillary acidic protein is an intermediate filament (IF) protein that is expressed by numerous cell types of the central nervous system (CNS) including astrocytes and ependymal cells. GFAP has also been found to be expressed in glomeruli and peritubular fibroblasts, Leydig cells of the testis, keratinocytes, osteocytes and chondrocytes and stellate cells of the pancreas and liver. GFAP is a type III IF protein that is closely related to its non-epithelial family members, vimentin, desmin, and peripherin, which are all involved in the structure and function of the cell's cytoskeleton. GFAP is thought to help to maintain astrocyte mechanical strength, as well as the shape of cells.</p>

Type III intermediate filaments are highly conserved and contain three domains, named the head, rod and tail domains. This rod domain coils around that of another filament to form a dimer, with the N-terminal and C-terminal of each filament aligned. Type III filaments such as GFAP are capable of forming both homodimers and heterodimers; GFAP can polymerize with other type III proteins or with neurofilament protein (NF-L). Interestingly, GFAP and other type III IF proteins cannot assemble with keratins, the type I and II intermediate filaments: in cells that express both proteins, two separate intermediate filament networks form.

To form networks, the initial GFAP dimers combine to make staggered tetramers, which are the basic subunits of an intermediate filament. The non-helical head and tail domains are necessary for filament formation. The head and tail regions have greater variability of sequence and structure. In spite of this increased variability, the head of GFAP contains two conserved arginines and an aromatic residue that are required for proper assembly.

### Product Details

---

<b>Verified Reactivity</b>	Human, Mouse, Rat
<b>Antibody Type</b>	Monoclonal
<b>Host Species</b>	Mouse
<b>Immunogen</b>	Monoclonal antibody against glial fibrillary acidic protein (GFAP) derived from the Bigner-Eng clone MAb1B4.
<b>Preparation</b>	Ascites
<b>Concentration</b>	The concentration is not quantified as this product is sold as undiluted crude mouse ascites fluid. The concentration might vary from lot-to-lot and an estimated concentration would be 1-3 mg/ml.
<b>Storage &amp; Handling</b>	Store at -20°C. Upon initial thawing, apportion into working aliquots and store at -20°C. Avoid repeated freeze-thaw cycles to prevent denaturing the antibody.
<b>Application</b>	<a href="#">IHC-P - Quality tested</a> <a href="#">WB - Verified</a>
<b>Recommended Usage</b>	Each lot of this antibody is quality control tested by formalin-fixed paraffin-embedded immunohistochemical staining. For immunohistochemistry, a dilution range of 1:1000 - 1:2000 is suggested. For Western blotting, the suggested use of this reagent is 1:1000 - 1:2000 dilution. It is recommended that the reagent be titrated for optimal performance for each application.
<b>Application Notes</b>	SMI 23 provides for general visualization of GFAP in astrocytes and Bergman glia, it detects a more selected group of astrocytomas than mixtures of SMI 23, 24 and 25. The significance of this selectivity has not yet been explored. Possibilities are different characteristics of individual tumors

or cooperativity of antibodies.

<b>Additional Product Notes</b>	Monoclonal antibody against glial fibrillary acidic protein (GFAP) derived from the Bigner-Eng clone MAb1B4
<b>RRID</b>	AB_2565373 (BioLegend Cat. No. 837301) AB_2565374 (BioLegend Cat. No. 837302)

## Antigen Details

---

<b>Structure</b>	GFAP is a 432 amino acid protein with a molecular mass of approximately 50 kD.
<b>Distribution</b>	Tissue distribution: GFAP is expressed by numerous cell types of the central nervous system (CNS) including astrocytes, ependymal cells, and Bergmann glia cells (protoplasmic astrocyte). GFAP is expressed in cells lacking fibronectin. Cellular distribution: cytoskeleton and cytosol.
<b>Function</b>	GFAP is a class-III intermediate filament and a structural constituent of the cytoskeleton. It is a cell-specific marker that is used to distinguish astrocytes from other glial cells during the development of the CNS.
<b>Cell Type</b>	Astrocytes
<b>Biology Area</b>	Cell Biology, Neuroscience, Neuroscience Cell Markers
<b>Molecular Family</b>	Intermediate Filaments
<b>Antigen References</b>	1. Khakh BS, Sofroniew MV. 2015. <i>Nat. Neurosci.</i> 18:942-52. <a href="#">PubMed</a>
<b>Gene ID</b>	<a href="#">2670</a>

## Related Protocols

---

[Western Blotting Protocol](#)

[Immunohistochemistry Protocol for Paraffin-Embedded Sections](#)

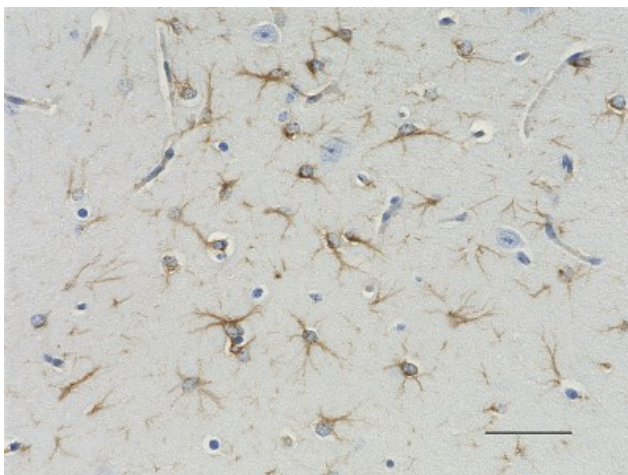
## Other Formats

---

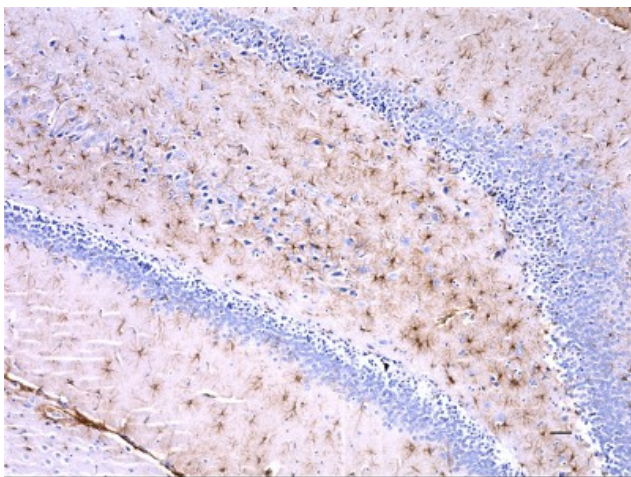
Anti-GFAP, Purified anti-GFAP

## Product Data

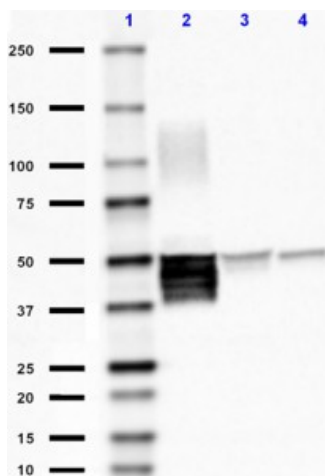
---



IHC staining of anti-GFAP antibody (clone SMI 23) on formalin-fixed paraffin-embedded mouse brain tissue. Following antigen retrieval using Retrieve-All Antigen Unmasking System 3: Acidic, 100X (Cat. No. 927601), the tissue was incubated with a 1:2000 dilution of the primary antibody overnight at 4°C. BioLegend's Ultra-Streptavidin (USA) HRP kit (Multi-Species, DAB, Cat. No. 929901) was used for detection followed by hematoxylin counterstaining, according to the protocol provided. The image was captured with a 40X objective. Scale bar: 50 µm



IHC staining of anti-GFAP antibody (clone SMI 23) on formalin-fixed paraffin-embedded rat brain tissue. Following antigen retrieval using Retrieve-All Antigen Unmasking System 3: Acidic, 100X (Cat. No. 927601), the tissue was incubated with a 1:2000 dilution of the primary antibody overnight at 4°C. BioLegend's Ultra-Streptavidin (USA) HRP kit (Multi-Species, DAB, Cat. No. 929901) was used for detection followed by hematoxylin counterstaining, according to the protocol provided. The image was captured with a 20X objective. Scale bar: 50  $\mu$ m



Western blot of anti-GFAP antibody antibody (clone SMI 23). Lane 1: Molecular weight marker; Lane 2: 20  $\mu$ g of human brain lysate; Lane 3: 20  $\mu$ g of rat brain lysate; Lane 4: 20  $\mu$ g of mouse brain lysate. The blot was incubated with a 1:2000 dilution of the primary antibody overnight at 4°C, followed by incubation with HRP labeled goat anti-mouse IgG (Cat. No. 405306). Enhanced chemiluminescence was used as the detection system.

For research use only. Not for diagnostic use. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

\*These products may be covered by one or more Limited Use Label Licenses (see the BioLegend Catalog or our website, [www.biolegend.com/ordering#license](http://www.biolegend.com/ordering#license)). BioLegend products may not be transferred to third parties, resold, modified for resale, or used to manufacture commercial products, reverse engineer functionally similar materials, or to provide a service to third parties without written approval of BioLegend. By use of these products you accept the terms and conditions of all applicable Limited Use Label Licenses. Unless otherwise indicated, these products are for research use only and are not intended for human or animal diagnostic, therapeutic or commercial use.

BioLegend Inc., 8999 BioLegend Way, San Diego, CA 92121 [www.biolegend.com](http://www.biolegend.com)  
Toll-Free Phone: 1-877-Bio-Legend (246-5343) Phone: (858) 768-5800 Fax: (877) 455-9587