

PRODUCT INFORMATION

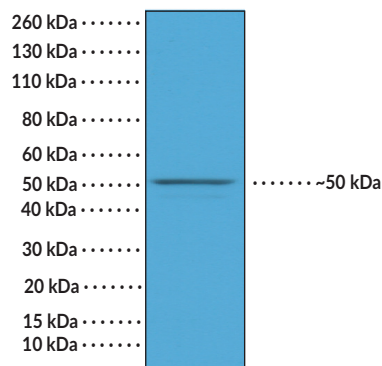
GFAP Rabbit Monoclonal Antibody (Clone RM246)

Item No. 42822

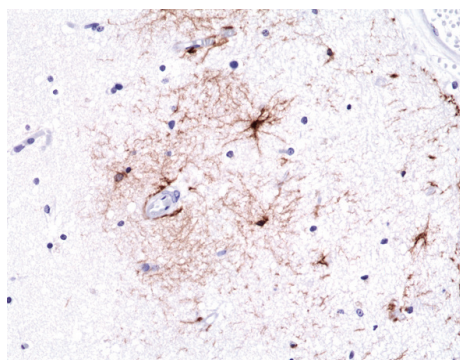
Overview and Properties

Contents:	This vial contains 100 µl of protein-A affinity purified antibody.
Synonyms:	ALXDRD, Glial Fibrillary Acidic Protein Intermediate Filament Protein
Immunogen:	A peptide corresponding to the N-terminus of human GFAP
Cross Reactivity:	(+) GFAP
Species Reactivity:	(+) Human, mouse
Molecular Weight:	~50 kDa
Form:	Liquid
Storage:	-20°C
Stability:	≥1 year
Storage Buffer:	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Clone:	RM246
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution for IHC is 1:200-1:500 and 1:1,000:1:3,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



WB of mouse brain tissue lysate using GFAP Rabbit Monoclonal Antibody (Clone RM246) at a 1:2,500 dilution.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human brain tissue section using GFAP Rabbit Monoclonal Antibody (Clone RM246) (Item No. 42822) at a 1:500 dilution.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Glial fibrillary acidic protein (GFAP) is a protein encoded by the *GFAP* gene in humans and a member of the class III intermediate filament (IF) protein family.¹ It is composed of an N-terminal head domain, a highly conserved α -helical rod domain, and a C-terminal tail domain that mediate GFAP self-assembly, dimerization, and oligomerization, respectively.^{2,3} GFAP is expressed in, and has commonly been used as a pan marker for, mature astrocytes.¹ GFAP IFs form a dynamic network of cytosolic filament proteins that collectively provide structure and strength to the cytoskeleton of astrocytes, thus supporting their morphology and function.¹ Isolated astrocytes from neonatal *Gfap*^{-/-} mouse brain have reduced numbers of IFs and IF bundles, increased proliferation, and loss of contact-inhibited growth.^{4,5} *Gfap*^{-/-} mice develop more diffuse and infiltrative brain lesions compared to wild-type littermates in a mouse model of experimental autoimmune encephalomyelitis (EAE).⁶ Mutations in the rod and tail domains of *GFAP* have been associated with Rosenthal fiber formation, a hallmark of Alexander disease.⁷ Transgenic overexpression of *Gfap* in mice increases the expression of certain cytokines and antioxidative enzymes in the olfactory bulb and has been used as a mouse model of Alexander disease.⁸ GFAP can be citrullinated on the arginine residue at position 270 (R270) and at R416 by protein arginine deiminase 1 (PAD1; Item No. 10784) and PAD2 (Item No. 10785).⁹ Citrullinated GFAP has been found in rat cerebral cortex in a model of traumatic brain injury, as well as in postmortem hippocampus from patients with Alzheimer's disease.^{9,10} Cayman's GFAP Rabbit Monoclonal Antibody (Clone RM246) can be used for immunohistochemistry (IHC) and Western blot (WB) applications. The antibody recognizes GFAP at approximately 50 kDa from human and mouse samples.

References

1. Hol, E.M. and Capetanaki, Y. Type III intermediate filaments desmin, glial fibrillary acidic protein (GFAP), vimentin, and peripherin. *Cold Spring Harb. Perspect. Biol.* **9**(12), a021642 (2017).
2. Inagaki, M., Nakamura, Y., Takeda, M., et al. Glial fibrillary acidic protein: Dynamic property and regulation by phosphorylation. *Brain Pathol.* **4**(3), 239-243 (1994).
3. Chen, W.-J. and Liem, R.K.H. The endless story of the glial fibrillary acidic protein. *J. Cell Sci.* **107**(Pt 8), 2299-2311 (1994).
4. Pekny, M., Eliasson, C., Chien, C.L., et al. GFAP-deficient astrocytes are capable of stellation in vitro when cocultured with neurons and exhibit a reduced amount of intermediate filaments and an increased cell saturation density. *Exp. Cell Res.* **239**(2), 332-343 (1998).
5. Rutka, J.T., and Smith, S.L. Transfection of human astrocytoma cells with glial fibrillary acidic protein complementary DNA: Analysis of expression, proliferation, and tumorigenicity. *Cancer Res.* **53**(15), 3624-3631 (1993).
6. Liedtke, W., Edelmann, W., Chiu, F.C., et al. Experimental autoimmune encephalomyelitis in mice lacking glial fibrillary acidic protein is characterized by a more severe clinical course and an infiltrative central nervous system lesion. *Am. J. Pathol.* **152**(1), 251-259 (1998).
7. Li, R., Messing, A., Goldman, J.E., et al. GFAP mutations in Alexander disease. *Int. J. Dev. Neurosci.* **20**(3-5), 259-268 (2002).
8. Hagemann, T.L., Gaeta, S.A., Smith, M.A., et al. Gene expression analysis in mice with elevated glial fibrillary acidic protein and Rosenthal fibers reveals a stress response followed by glial activation and neuronal dysfunction. *Hum. Mol. Genet.* **14**(16), 2443-2458 (2005).
9. Ishigami, A., Masutomi, H., Handa, S., et al. Mass spectrometric identification of citrullination sites and immunohistochemical detection of citrullinated glial fibrillary acidic protein in Alzheimer's disease brains. *J. Neurosci. Res.* **93**(11), 1664-1674 (2015).
10. Lazarus, R.C., Buonora, J.E., Flora, M.N., et al. Protein citrullination: A proposed mechanism for pathology in traumatic brain injury. *Front. Neurol.* **6**:204, (2015).

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