PRODUCT INFORMATION

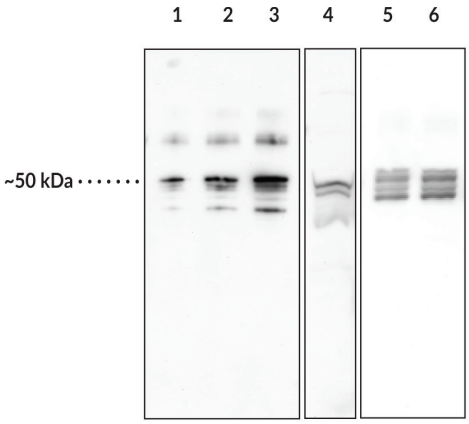
GFAP Polyclonal Antibody

Item No. 28848

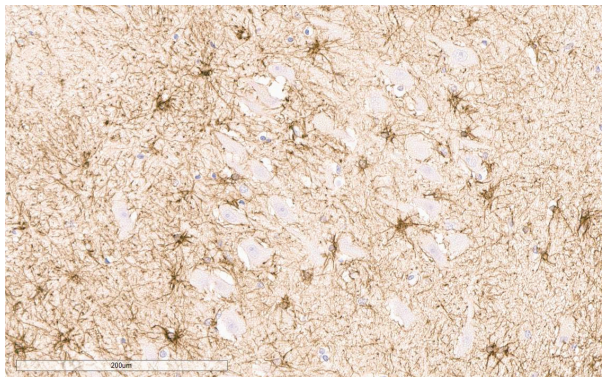
Overview and Properties

Contents: This vial contains 500 µg of protein A-purified polyclonal antibody.
Synonyms: ALXDRD, Glial Fibrillary Acidic Protein, Intermediate Filament Protein
Immunogen: Full length recombinant human GFAP protein
Species Reactivity: (+) Human, mouse; other species not tested
Uniprot No.: P14136
Form: Liquid
Storage: -20°C (as supplied)
Stability: ≥3 years
Storage Buffer: PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Host: Rabbit
Applications: ELISA, Immunohistochemistry (IHC), and Western blot (WB); the recommended starting dilution is 1:200. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Image



Lane 1: GFAP Recombinant Protein (10 ng)
Lane 2: GFAP Recombinant Protein (25 ng)
Lane 3: GFAP Recombinant Protein (50 ng)
Lane 4: Mouse Brain Lysate (50 µg)
Lane 5: Human Brain Lysate (5 µg)
Lane 6: Human Brain Lysate (10 µg)



Immunohistochemistry analysis of formalin-fixed, paraffin-embedded (FFPE) human brain, cortex, tissue after heat induced antigen retrieval in pH 6.0 citrate buffer. After incubation with Cayman's GFAP Polyclonal Antibody (Item No. 28848) at a 1:200 dilution, slides were incubated with biotinylated secondary antibody, followed by alkaline phosphatase-streptavidin and chromogen (DAB).

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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 Polyclonal Antibody can be used for ELISA, IHC, and WB applications. The antibody recognizes GFAP at ~50 kDa from human and murine 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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