

PRODUCT INFORMATION



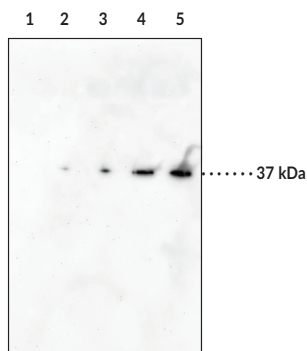
Citrullinated GFAP (R416) Monoclonal Antibody (Clone 4B8)

Item No. 27795

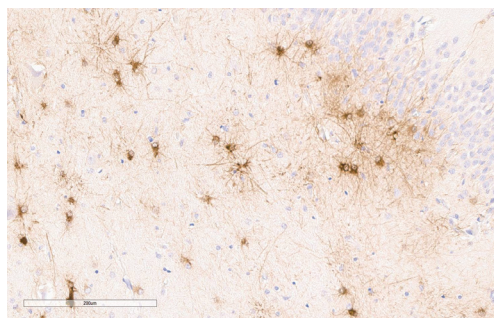
Overview and Properties

Contents:	This vial contains 300 µg of protein G-purified monoclonal antibody.
Synonyms:	ALXDRD, Glial Fibrillary Acidic Protein, Intermediate Filament Protein
Immunogen:	Peptide from the C-terminal region of human GFAP citrullinated at R416
Cross Reactivity:	(+) Citrullinated GFAP; (-) Native GFAP, other citrullinated proteins
Species Reactivity:	(+) Human; 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
Clone:	4B8
Host:	Mouse
Isotype:	IgG1
Applications:	ELISA, Immunohistochemistry (IHC), and Western blot (WB); the recommended starting dilution for ELISA and WB is 1:1,000 and 1:200 for IHC. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



Lane 1: GFAP (human, recombinant) (Item No. 27353) (100 ng)
Lane 2: Citrullinated GFAP (human, recombinant) (Item No. 28622) (25 ng)
Lane 3: Citrullinated GFAP (human, recombinant) (Item No. 28622) (50 ng)
Lane 4: Citrullinated GFAP (human, recombinant) (Item No. 28622) (100 ng)
Lane 5: Citrullinated GFAP (human, recombinant) (Item No. 28622) (200 ng)



Immunohistochemistry analysis of formalin-fixed, paraffin-embedded (FFPE) human Alzheimer's brain, hippocampus, tissue after heat induced antigen retrieval in pH 6.0 citrate buffer. After incubation with citrullinated GFAP Monoclonal Antibody (Clone 4B8) (Item No. 27795) at a 1:200 dilution, slides were incubated with biotinylated secondary antibody, followed by alkaline phosphatase-streptavidin and chromogen (DAB).

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
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Description

Citrullinated glial fibrillary acidic protein (citGFAP) is a citrullinated form of GFAP (Item No. 27353), a class III intermediate filament (IF) protein that is expressed in mature astrocytes and contributes to cytoskeletal structure and strength.¹ GFAP can be citrullinated in a calcium-dependent manner 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).² citGFAP levels are increased by the calcium ionophore ionomycin (Item No. 10004974) in an *in vitro* model of traumatic brain injury (TBI) using NHA CC-2565 human astrocytes and are induced by controlled cortical impact in the cerebral cortex in a rat model of TBI.³ It has been found in the hippocampus in a rat model of Alzheimer's disease induced by amyloid- β (25-35), as well as in the retina in a mouse model of alkali-induced eye injury.^{4,5} citGFAP has also been found in postmortem hippocampus from patients with Alzheimer's disease, and citGFAP levels are increased in postmortem-derived brain lesions from patients with multiple sclerosis.^{2,6} Cayman's Citrullinated GFAP (R416) Monoclonal Antibody (Clone 4B8) can be used for ELISA, Immunohistochemistry, and Western blot applications. The antibody recognizes recombinant GFAP and citGFAP at 37 kDa.

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. 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).
3. 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).
4. Arif, M. and Kato, T. Increased expression of PAD2 after repeated intracerebroventricular infusions of soluble A β ₂₅₋₃₅ in the Alzheimer's disease model rat brain: Effect of memantine. *Cell. Mol. Biol. Lett.* **14(4)**, 703-714 (2009).
5. Wizeman, J.W., Nicholas, A.P., Ishigami, A., *et al.* Citrullination of glial intermediate filaments is an early response in retinal injury. *Mol. Vis.* **22**, 1137-1155 (2016).
6. Bradford, C.M., Ramos, I., Cross, A.K., *et al.* Localisation of citrullinated proteins in normal appearing white matter and lesions in the central nervous system in multiple sclerosis. *J. Neuroimmunol.* **273(1-2)**, 85-95 (2014).