

PRODUCT INFORMATION



Citrullinated GFAP (human, recombinant)

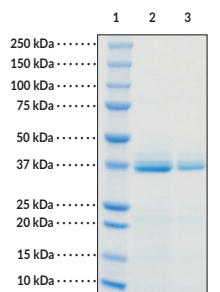
Item No. 28622

Overview and Properties

Synonyms:	ALXDRD, Glial Fibrillary Acidic Protein, Intermediate Filament Protein
Source:	Recombinant N-terminal histidine-tagged GFAP expressed in <i>E. coli</i> , citrullinated with recombinant human PAD2
Amino Acids:	2-432 (full length)
Uniprot No.:	P14136
Molecular Weight:	51.9 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	batch specific (≥85% estimated by SDS-PAGE)
Supplied in:	10 mM Tris, pH 7.4
Protein Concentration:	batch specific mg/ml

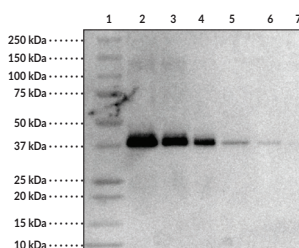
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: Cit. GFAP (4 µg)
Lane 3: Cit. GFAP (2 µg)

Figure 1: SDS-PAGE analysis using Coomassie Brilliant Blue



Lane 1: MW Markers
Lane 2: Cit. GFAP (200 ng)
Lane 3: Cit. GFAP (100 ng)
Lane 4: Cit. GFAP (50 ng)
Lane 5: GFAP (200 ng)
Lane 6: GFAP (100 ng)
Lane 7: GFAP (50 ng)

Figure 2: Analysis of GFAP citrullination. GFAP and citrullinated GFAP were reacted with Cayman's Citrulline-specific Probe-biotin (Item No. 17450) and detected using Streptavidin-HRP (Item No. 16747).

Cayman's Citrullinated GFAP has an expected size of 51.9 kDa, though SDS-PAGE shows it running closer to 37 kDa. We have confirmed the 37 kDa band is citrullinated GFAP by mass spectrometry.

MGSSHHHHHH	SSGENLYFQG	SERRRITSA	RRSYVSSGEM	MVGLAPGR
LGPTRLRLSLA	RMPPPLPTRV	DFSLAGALNA	GFKETRASER	AEMMELNDRF
ASYIEKVRFL	EQNKALAAE	LNQLRAKEPT	KLADVYQAEI	RELRLRDQL
TANSARLEVE	RDNLAQDLAT	VRQKLQDET	LRLEAENL	AYRQADEAT
LARLDLERKI	ESLEEIRFL	RKIHEEVRE	LQEQLARQQV	HVELDVAKPD
LTAALKEIRT	QYEAMASSNM	HEAEWYRSK	FADLTDAAR	NAELLQAKH
EANDYRRQLQ	SLTCDLESRL	GTNESLERQM	REQEERHVRE	AASYQALAR
LEEEGQSLKD	EMARHLQEYQ	DLNVLKALD	IEIATYRKLL	EGEENRITIP
VQTFNSLQIR	ETSIDTKSVS	EGHLKRNVV	KTVEMRDGEV	IKESKQEHKD

— VM

Identification of modified sites in Citrullinated GFAP (Item No. 28622). Citrullinated GFAP was detected by LC-MS/MS and analyzed using Mascot and Scaffold PTM software. Demethylated arginines are indicated in teal. Citrullination sites shown are representative of typical results. Batch-to-batch variations may occur.

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

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 protein can be used for Western blot and ELISA applications.

References

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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).
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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).
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