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Catalogue# Prot-r-GFAP: Recombinant human Glial Fibrillary Acidic Protein (GFAP)

Background: Glial Fibrillary Acidic Protein (GFAP) was discovered by Amico Bignami and coworkers as a major fibrous protein of multiple sclerosis plaques (1). It was subsequently found to be a member of the 10nm or intermediate filament protein family, specifically the intermediate filament protein family Class III, which also includes peripherin, desmin and vimentin. The most common isotype of the GFAP protein runs on gels at ~55 kDa protein, usually associated with lower molecule weight bands which are proteolytic fragments and less abundant alternate transcripts from the single gene. GFAP is strongly and specifically expressed in astrocytes and certain other astroglia in the central nervous system, in satellite cells in peripheral ganglia, and in non-myelinating Schwann cells in peripheral nerves. In addition neural stem cells frequently strongly express GFAP. In many damage and disease states GFAP expression is heavily upregulated in astrocytes (2), and Alexander's disease is associated with point mutations in the GFAP gene (3). There has been considerable recent interest in GFAP due to the potential use of this protein as a damage and degeneration biomarker, since it can be detected in blood and CSF following various kinds of CNS damage and disease states (4). Our recombinant form of GFAP is an excellent protein standard for such experiments. Since the rodent protein is somewhat different in primary sequence from the human protein, we have also generated a recombinant form of that, PROT-r-GFAP-rat. This form is therefore a more appropriate standard for studies of rodent models of traumatic and neurodegerative states. The HGNC name for this protein is GFAP.

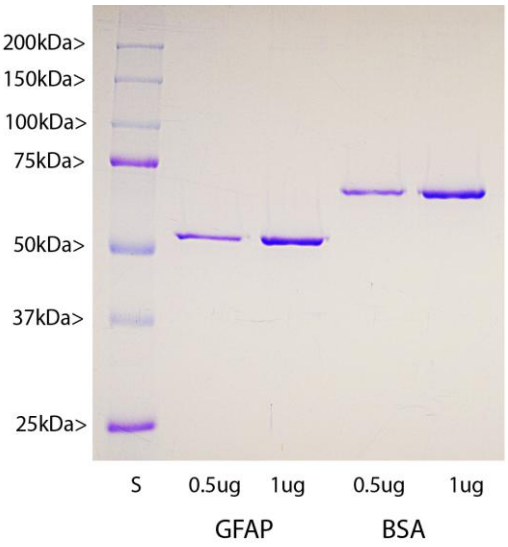

Figure Left: 0.5 and 1µg of recombinant GFAP based on the human isotype I sequence was expressed in and purified from *E. coli* using standard methods and run in lanes on the left as indicated. The two rightmost lanes show 0.5 and 1µg of BSA protein standard. Lane S shows protein standards of the indicated molecular weights.

References:

1. Bignami A, Eng LF, Dahl D, Uyeda CT. Localization of the glial fibrillary acidic protein in astrocytes by immunofluorescence. Brain Res. 43:429-35 (1972).
2. Brenner M, et al. Mutations in GFAP, encoding glial fibrillary acidic protein, are associated with Alexander disease. Nat Genet 27:117-20 (2001).
3. Silver J. Miller JH. Regeneration beyond the glial scar. Nat. Rev. Neurosci. 5:146-56 (2004) .
4. Schiff L1, Hadker N, Weiser S, Rausch C. A literature review of the feasibility of glial fibrillary acidic protein as a biomarker for stroke and traumatic brain injury. Mol. Diagn. Ther. 16:79-92 (2012).

Limitations: This product is for research use only and is not approved for use in humans or in clinical diagnosis.