4949 SW 41st Blvd.
Suites 40 & 50
Gainesville, FL 32608
Tel: (352) 372 7022
Fax: (352) 372 7066
admin@encorbio.com

Catalogue# Prot-GFAP: Purified bovine Glial Fibrillary Acidic Protein (GFAP) Lot #31414

Background: Glial Fibrillary Acidic Protein (GFAP) was discovered by Amico Bignami and coworkers as a major fibrous protein of multiple sclerosis plaques (2). 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 GFAP protein runs on gels at ~55 kDa protein, usually associated with lower molecule weight bands which are proteolytic fragments and 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 many damage and disease states GFAP expression is heavily upregulated in astrocytes. In addition neural stem cells frequently strongly express GFAP. Antibodies to GFAP are therefore very useful as markers of astrocytic cells and neural stem cells. In addition many types of brain tumor, presumably derived from astrocytic cells, heavily express GFAP. Finally, Alexander's disease was recently shown to be caused by point mutations in protein coding region of the GFAP gene (3). All forms of Alexander disease are characterized by the presence of Rosenthal fibers, which are GFAP containing cytoplasmic inclusions found in astrocytes. See also reference 4 for some important earlier work. The HGNC name for this protein is GFAP.

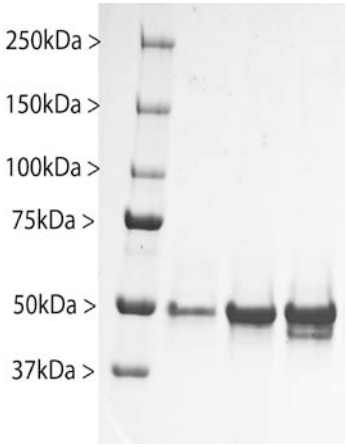

Figure: GFAP was isolated from pig spinal cord using the method of Leung and Liem as far as the 6M urea/hydroxyapatite step (1). The material was then fractionated using a salt gradient on DEAE-cellulose in 6M urea, and GFAP elutes as shown in the three fraction to the right, which we pooled. There are multiple isotypes of GFAP generated by alternate transcription from a single gene, and there are several possible post-translational modifications of the expressed isoforms. As a result, these preparations do not show a single protein band, but several, all of which can be bound with GFAP antibodies.

References:

1. Leung, C. L. and Liem, R. K. H. Isolation of intermediate filaments. Curr. Prot. Cell Biol. 3:Unit 3.23 doi: 10.1002/0471143030.cb0323s31 (2006).

2. 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.

3. Brenner M, Johnson AB, Boespflug-Tanguy O, Rodriguez D, Goldman JE and Messing A. Mutations in GFAP, encoding glial fibrillary acidic protein, are associated with Alexander disease. Nat Genet 27:117-20 2001

4. Liem RKH, Yen SH, Salomon GD and Shelanski ML. Intermediate filaments in nervous tissues. J Cell Biol 79:637-745 (1978).

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