GFAP
Rabbit Polyclonal Antibody

RPCA-GFAP

Ordering Information
Web *www.encorbio.com*
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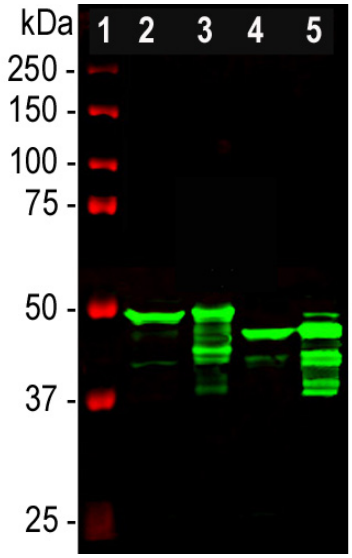
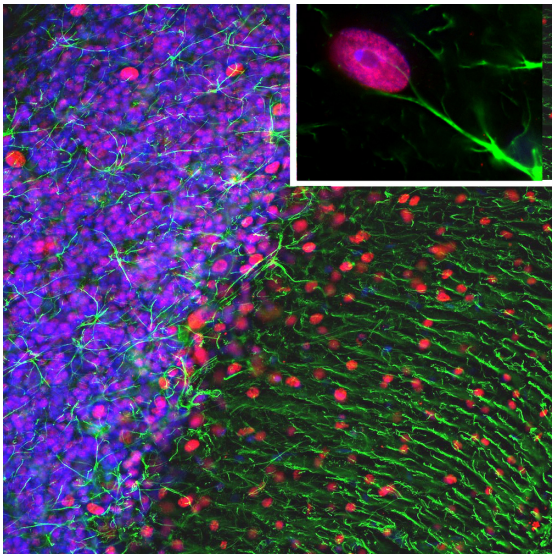
Phone *352-372-7022*
Fax *352-372-7066*

HGNC Name: *GFAP*
UniProt: *P14136*
RRID: *AB_2572310*
Immunogen: *Recombinant full length human GFAP isotype 1 expressed in and purified from E. coli.*
Format: *Antibody is supplied as an aliquot of serum plus 5mM NaN_3*
Storage: *Store at 4°C for short term, for longer term at -20°C. Avoid freeze / thaw cycles.*
Recommended dilutions:
WB: 1:5,000 IF/ICC and IHC 1:1,000-1,5,000

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC	Rabbit		~50kDa	Hu, Rt, Ms, Bo, Po, Ho



Western blot analysis of different tissue lysates using rabbit polyclonal antibody to GFAP, RPCA-GFAP, dilution 1:5,000 in green: [1] protein standard (red), [2] rat brain, [3] rat spinal cord, [4] mouse brain, [5] mouse spinal cord. Strong band at about 50kDa corresponds to the major isotype of the GFAP protein. Smaller isotypes and proteolytic fragments of GFAP are also detected on the blot.



Immunofluorescent analysis of a rat cerebellum section stained with rabbit pAb to GFAP, RPCA-GFAP, dilution 1:5,000 in green and costained with mouse mAb to MeCP2, MCA-4F11, dilution 1:500, in red. The blue is Hoechst staining of nuclear DNA. Following transcardial perfusion of rat with 4% paraformaldehyde, brain was post fixed for 1 hour, cut to 45µM, and free-floating sections were stained with above antibodies. The GFAP antibody stains the network of astrocytic cells and the processes of Bergmann glia in the molecular layer. The MeCP2 antibody specifically labels nuclei of certain neurons.

Background:

Glial Fibrillary Acidic Protein (GFAP) is a major CNS protein which runs on SDS-PAGE as a ~50kDa protein, usually associated with somewhat lower molecule weight bands which are alternate transcripts from the single gene or in vivo proteolytic fragments. GFAP is strongly and specifically expressed in astrocytes and certain other glia in the central nervous system, in satellite cells in peripheral ganglia, and in non-myelinating Schwann cells in peripheral nerves and is also a component of neural stem cells (1-3). Astrocytes respond to many damage and disease states resulting in “astrogliosis” or the presence of a “glial response”. GFAP antibodies are widely used to see the reactive astrocytes which form part of this response, since reactive astrocytes stain much more strongly with GFAP antibodies than normal astrocytes. GFAP also forms a major component of the so-called glial scar, an astrocyte rich structure apparently forming part of the barrier to nerve fiber regeneration following damage in the central nervous system (4). Neural stem cells frequently strongly express GFAP but many lose this if they develop into neurons or oligodendrocytes. Finally, Alexander disease was recently shown to be caused by point mutations in the protein coding region of the GFAP gene (5). All forms of Alexander disease are characterized by the presence of Rosenthal fibers, which are GFAP containing cytoplasmic inclusions found in astrocytes. Antibodies to GFAP are therefore very useful as markers of glial cells in central and peripheral nerve system, as well as of developing neural stem cells. The immunogen used to generate RPCA-GFAP antibody was full length recombinant human GFAP, Prot-r-GFAP, expressed in and purified from *E. coli*. The antibody works well on western blots, and on immunostaining of cell culture or tissue sections. The same GFAP immunogen was used to produce chicken, CPCA-GFAP, and goat, GPCA-GFAP, polyclonal antibodies. Using a different immunogens EnCor manufactured a widely used mouse monoclonal antibodies to GFAP, MCA-5C10, MCA-2A5, and MCA-3E10.

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. Yen SH, Fields KL. Antibodies to neurofilament, glial filament, and fibroblast intermediate filament proteins bind to different cell types of the nervous system. J Cell Biol. 88:115-26 (1981).
3. Shaw G, Osborn M, Weber K. An immunofluorescence microscopical study of the neurofilament triplet proteins, vimentin and glial fibrillary acidic protein within the adult rat brain. Eur. J. Cell Biol. 26:68-82 (1981).
4. Fitch MT, Silver J. CNS injury, glial scars, and inflammation: Inhibitory extracellular matrices and regeneration failure. Exp. Neurol. 209:294-301 (2008).
5. Brenner M, et al. Mutations in GFAP, encoding glial fibrillary acidic protein, are associated with Alexander disease. Nat. Genet. 27:117-20 (2001).

The antibody has been sold through many OEM partners, and peer-reviewed publications making use of it can be found by searching Google Scholar for "RPCA-GFAP" or, if you are viewing this online, simply by selecting this link.

Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken Dr—D. rerio Dm—D. melanogaster Sm—S. mutans Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.