GFAP
Mouse Monoclonal Antibody

MCA-3E10

Ordering Information
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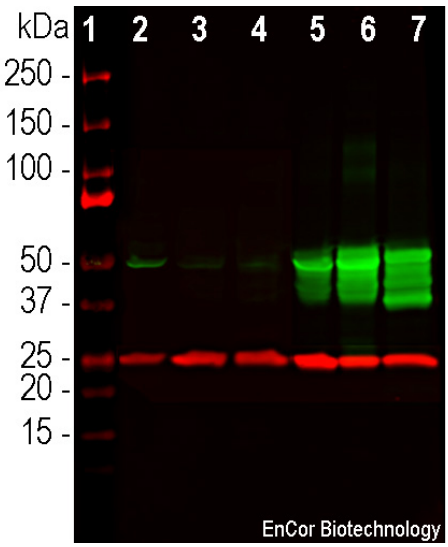
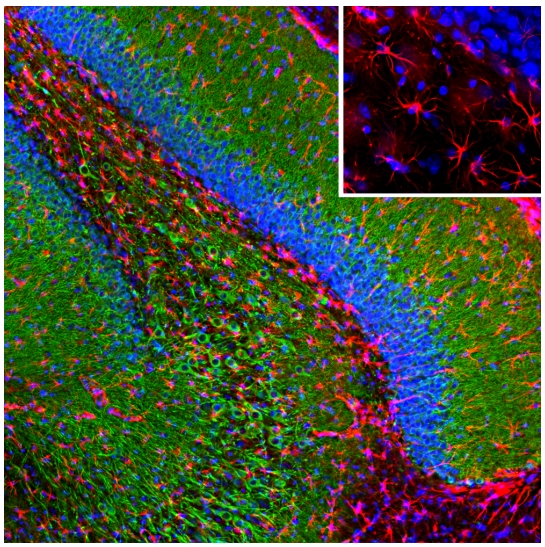
HGNC Name: GFAP
UniProt: P14136
RRID: AB_2861215
Immunogen: Recombinant human alpha-helical GFAP fragment expressed in and purified from E. coli
Format: Purified at 1mg/mL in PBS, 50% glycerol, 5mM NaN_3
Storage: Store at 4°C for short term, for longer term at -20°C
Recommended dilutions:
WB: 1:1,000. IF/ICC or IHC: 1:500.

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC	Mouse	IgG1	50kDa	Hu, Rt, Ms, Pi, Co



Western blot analysis of equal amount of total proteins from different cell and tissue lysates using mouse mAb to GFAP, MCA-3E10, dilution 1:1,000 in green: [1] protein standard (red), [2] primary rat cortical neuron-glial cells, [3] rat brain, [4] mouse brain, [5] cow cortex, [6] cow cerebellum and [7] pig hippocampus. Bands around 50kDa marks correspond to GFAP protein and its alternative transcripts and fragments. The MCA-3E10 antibody has stronger reactivity with cow and pig GFAP as compare to rodent and reacts strongly with human native and recombinant GFAP (not shown). The same blot was probed with chicken pAb to UCHL1, CPCA-UCHL1, a neuron cell marker, dilution 1:2,000, in red. The UCHL1 antibody reveals a 25kDa band corresponding to UCHL1 protein detected in all preparations.



Immunofluorescent analysis of rat hippocampus section stained with mouse mAb to GFAP, MCA-3E10, dilution 1:500 in red, and costained with chicken pAb to MAP2, CPCA-MAP2, dilution 1:5,000, in green. The blue is Hoechst staining of nuclear DNA. Following transcardial perfusion of rat with 4% paraformaldehyde, brain was post fixed for 24 hours, cut to 45µM, and free-floating sections were stained with above antibodies. The GFAP antibody stains the network of astroglial cells while the CPCA-MAP2 antibody labels perikarya and dendrites of neurons.

Background:

Glial fibrillary acidic protein (GFAP) is strongly and specifically expressed in astrocytes, Bergmann glia, certain other glia in the central nervous system, in satellite cells in peripheral ganglia, and in non-myelinating Schwann cells in peripheral nerves. GFAP expression is also seen in developing neural stem cells and GFAP levels may greatly increase in regions of CNS injury or disease. The formation of a GFAP rich "glial scar" following CNS injury may be one reason why reconnection of severed processes is relatively inefficient in adults. Point mutations in the GFAP gene are causative of Alexander disease (5). All forms of Alexander disease are characterized by the presence of Rosenthal fibers, which are GFAP containing cytoplasmic inclusions found in astrocytes. Some interest has recently been focused on GFAP as a protein released into blood and CSF following traumatic brain injury, stroke and other CNS compromises (6,7). Measurement of the levels of blood or CSF GFAP may give information about patient presentation, progress, response to therapy or outcome.

The MCA-3E10 antibody was made against a recombinant construct containing amino acids 71-217 of the human isotype 1 sequence in NP_002046.1. This region is somewhat variable between species so antibodies to this human construct may be superior on human cells, tissues and for biomarker assays of human proteins. The MCA-3E10 has a KD of 6.157 X 10^{-10}M. High quality antibodies to GFAP such as MCA-3E10 are useful for visualizing glia and monitoring developmental, disease and damage related CNS alterations and for ELISA and bead based type assays. EnCor supplies widely used rabbit, RPCA-GFAP, chicken, CPCA-GFAP, and goat, GPCA-GFAP polyclonal antibodies. We also generated two other mouse monoclonal antibodies directed against GFAP, MCA-2A5, and MCA-5C10. MCA-2A5 is particularly useful for studies of human GFAP in blood or CSF samples by ELISA while MCA-5C10 is a useful reagent for visualizing astrocytes and their processes in a variety of species.

References:

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7. Schiff L, 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).

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.