GFAP
Mouse Monoclonal Antibody

MCA-2A5

Ordering Information
Web *www.encorbio.com*
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Phone *352-372-7022*
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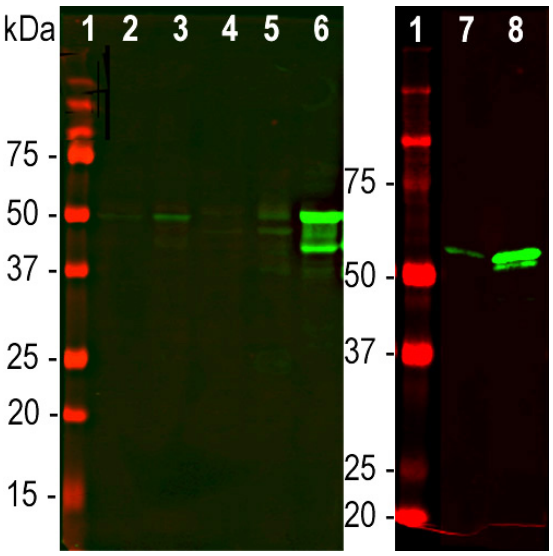
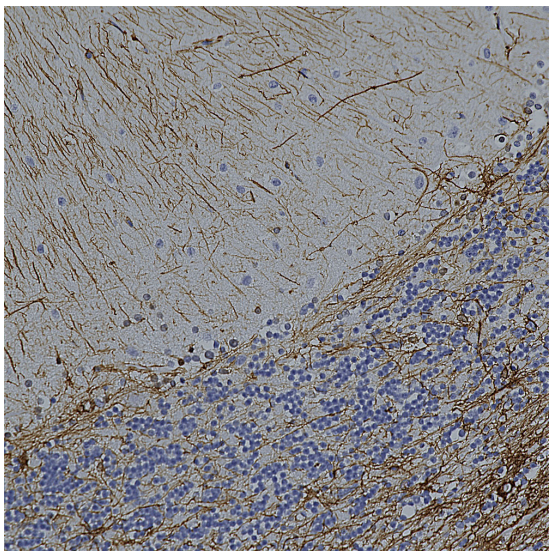
HGNC Name: *GFAP*
UniProt: *F1RR02*
RRID: *AB_2732880*
Immunogen: *GFAP isolated biochemically from pig spinal cord*
Format: *Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN_3*
Storage: *Store at 4°C for short term, for longer term store at -20°C*
Recommended dilutions:
WB: 1:2,000. IF/ICC: 1:500. IHC: 1:2,000

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



Western blot analysis of equal amount of total protein from different tissue lysates and recombinant proteins solutions using mouse mAb to GFAP, MCA-2A5, dilution 1:2,000 in green: [1] protein standard (red), [2] rat brain, [3] rat spinal cord, [4] mouse brain, [5] mouse spinal cord, [6] pig brain, [7] rat recombinant GFAP, [8] human recombinant GFAP. Bands around 50kDa correspond to alternative transcripts and proteolytic products of GFAP. Note that MCA-2A5 antibody has significantly stronger reactivity with pig and human GFAP as compared to rodent, suggesting that it binds to an epitope which is not totally conserved across mammalian sequences.



Paraffin embedded histological section of human cerebellum stained with MCA-2A5 using the HRP/DAB staining, counterstained with hematoxylin/eosin. Tissues were fixed in formalin and processed for paraffin embedding. To the top left is a region of cerebellar molecular layer containing the prominent cytoskeletal fibers of Bergmann glia which are strongly positive for GFAP. The bottom right shows a region of the granular layer and to further to the right is white matter, both of which contain GFAP positive astrocytes. 5µ paraffin embedded section staining was achieved using a 15 minute pressure cooker heat retrieval in Abcam Antigen Retrieval Buffer, Citrate buffer at pH=6.0, and staining was performed with the Vector ImmPress rat adsorbed horse anti-mouse IgG detection kit. See here for further details.

Background:

Glial Fibrillary Acidic Protein (GFAP) is strongly and specifically expressed in astrocytes, Bergmann glia and certain other glia in the central nervous system, in satellite cells in peripheral ganglia, and in non-myelinating Schwann cells in peripheral nerves (1-3). GFAP expression is also seen in developing neural stem cells and GFAP levels may greatly increase in regions of CNS injury or disease (4), and point mutations in the GFAP gene are causative of Alexander's disease (5). Antibodies to GFAP such as MCA-2A5 are useful for visualizing glia and monitoring developmental, disease and damage related CNS alterations. This antibody has been shown to work well on western blots, IF, ICC and IHC of human. pig and cow samples. 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). Measurement of the levels of blood or CSF GFAP may give information about patient presention, progress, response to therapy or outcome. MCA-2A5 has been widely used as a capture reagent in ELISA and other antibody based assays detecting human GFAP in human blood and CSF samples. MCA-2A5 also works well on paraffin sections of human brain, see data under the "additional info" tag.

The MCA-2A5 antibody was raised against GFAP purified from pig spinal cord. It works well on human tissues and is particularly useful as a capture reagent in ELISA. As shown at the left it also works well for immunohistochemistry on paraffin sections. The MCA-2A5 epitope is in the N-terminal region of the α-helical coiled-coil region of GFAP, a 147 amino acid region from 71-217 of human GFAP isotype 1. The epitope is somewhat divergent between human and rodents, so this antibody is not recommended for rodent studies, try MCA-5C10 for that. EnCor supplies widely used rabbit, chicken, and goat polyclonal antibodies to GFAP, RPCA-GFAP, CPCA-GFAP, and GPCA-GFAP. We also supply two other mouse monoclonal antibodies to GFAP, MCA-5C10 which is particularly useful for western blotting and cell staining on a wide range of species, and MCA-3E10, which also works well on human material.

References:

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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.
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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.