Product Information

Anti-Glial Fibrillary Acidic Protein (GFAP)–Cy3™ Antibody, Mouse Monoclonal

Clone G-A-5, purified from hybridoma cell culture

C9205

Product Description

Anti-Glial Fibrillary Acidic Protein (GFAP) (mouse IgG1 isotype) conjugated to Cy3 is a purified mouse monoclonal antibody conjugated to Cy3 reactive dye.[1] It is derived from the hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. Purified GFAP from pig spinal cord was used as the immunogen.[2] The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Cat. No. ISO2. The Cy3-antibody conjugate is extensively dialyzed to remove unbound Cy3.

Anti-Glial Fibrillary Acidic Protein (GFAP)-Cy3 reacts with the 50 kDa intermediate filament protein, GFAP, in brain and spinal cord, but not with other intermediate filaments. The epitope recognized is localized on the carboxy terminal Cys II fragment of GFAP and the N-terminal part of the tail sequence of the molecule.[2,3] The antibody has a broad cross-species reactivity, for example: human, pig, cat, rat, chicken (not in Bergmann glia), goldfish, octopus and snail. The epitope recognized by the antibody is partially sensitive to prolonged formalin-fixation,4 but is resistant to alcohol-fixation followed by paraffin-embedding and to acetone-fixation of frozen sections.

Anti-Glial Fibrillary Acidic Protein (GFAP)-Cy3 may be used for:

1. Identification of astrocytes and glia-related neoplasms.
2. Prenatal detection of astrocytes in cultured cells, for example: from amniotic fluids of pregnancies with neural tube defects.
3. Screening of chemicals for neurotoxic effects in animals.
4. Studies of post-traumatic gliosis.
5. Developmental studies.
6. The conjugate may be applied in double labeling experiments with fluorescein-tagged antibodies.

In the central nervous system, GFAP is found in developing, normal, reactive and neoplastic astrocytes and ependymal cells.[1,5-10] It is expressed in developing oligodendrocytes in the peripheral nervous system. GFAP is found in some Müller glia of the retina, Schwann cells, enteric glial cells and the satellite cells of human sensory ganglia. It has been demonstrated in some non-glial cells such as human salivary gland duct cells, adenohypophyseal folliculo-stellate cells, interstitial cells of the pineal gland, in a minor sub-population of breast myoepithelial cells,[11] elastic cartilage cells and perichondrial cells,[10] but not in neurons. GFAP is expressed in several glial-related intracranial neoplasms such as astrocytomas (especially in the well-differentiated variety) and to a variable extent in ependymomas, medulloblastomas, choroid plexus papillomas, gangliogliomas, mixed gliomas, hemangioblastomas, pineocytomas, pineoblastomas, pituitary adenomas, retinoblastomas, oligodendrogliomas and in a small minority of peripheral nerve sheath tumors (schwannomas and neurofibromas). It may also be found in pleomorphic adenomas and ovarian and testicular teratomas.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1% BSA with 15 mM sodium azide as preservative.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at 2-8 °C. Protect from prolonged exposure to light. Do not freeze. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

Direct immunofluorescence: A minimum working dilution of 1:400 was determined using alcohol-fixed, paraffin-embedded rat cerebellum.

Note: In order to obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

Spectral Characteristics of Cy3

Absorbance: Max 552 nm

Emission: Max 570 nm

F/P Molar Ratio: 3-9

The F/P molar ratio of the antibody-Cy3 conjugate is determined spectrophotometrically as follows:

$F = A_{552}/0.14 \qquad P = \frac{A_{280} - (A_{552} \times 0.05)}{1.4}$

F/P Molar Ratio = F/P x 0.16

Where:

0.14 = extinction coefficient of Cy3 at A_{552}.

1.4 = extinction coefficient of IgG at A_{280}.

0.05 = correction factor for Cy3 absorbance at A_{280}.

0.16 = correction factor for molecular weights of Cy3 and IgG.

References

1. Southwick, P., et al., Cytometry, 11, 418 (1990).
2. Debus, E., et al., Differentiation, 25, 193 (1983).
3. Shaw, G., and Hawkins, J., Neuro Report, 3, 461 (1992).
4. Viale, G., et al., Am. J. Pathol., 133, 369 (1988).
5. Altmannsberger, M., et al., Lab. Invest., 46, 520, (1982).
6. Osborn, M., and Weber, K., Cell, 31, 303 (1982).
7. Osborn, M., and Weber, K., Lab. Invest., 48, 372 (1983).
8. Lazarides, E., Ann. Rev. Biochem., 51, 219 (1982).
9. Geisler, N., and Weber, K., EMBO J., 2, 2059 (1983).
10. Achstätter, T., and Moll, R., et al., Differentiation, 31, 206 (1986).
11. Viale, G., et al., Virch. Arch. A. Pathol. Anat., 418, 339 (1991).

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