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Product Information

Monoclonal Anti-Growth Associated Protein-43
clone GAP-7B10
produced in mouse, ascites fluid

Catalog Number **G9264**

Synonym: Anti-GAP-43

Product Description

Monoclonal Anti-Growth Associated Protein-43 (mouse IgG2a isotype) is derived from the GAP-7B10 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with HPLC-purified GAP-43 from neonatal rat forebrain membranes. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Cat. No. ISO2.

Monoclonal Anti- Growth Associated Protein-43[1] recognizes an epitope present on both kinase C phosphorylated and dephosphorylated forms of GAP-43. The epitope detected by the antibody seems to be a tertiary configuration, existing in all 3 isoforms of GAP-43, which is destroyed by even a limited proteolysis (e.g. by Chymotrypsin or V8 protease). Nevertheless, SDS and heat-denaturation does not significantly effect the epitope recognized by the antibody in an immunoblot. Following SDS-PAGE (10% gel) of denatured-reduced newborn rat brain preparation, the antibody localizes a band at 46 kDa in immunoblotting. An additional band of ~55 kDa may also be stained when using higher concentrations of the antibody. The antibody has been used for immunohistochemical staining of formalin-fixed, paraffin-embedded and frozen tissue sections.[1] The product exhibits a wide interspecies cross-reactivity (e.g., human, hamster, cat, rat, mouse, chick and snake).

The neural-specific Growth-Associated Protein-43 (GAP-43, also known as B-50, F1, pp46, p57 and neuromodulin), is an intracellular phosphoprotein found exclusively in the peripheral and central nervous systems.[2] GAP-43 is a major protein of axonal growth cones[3] (the structure that is elaborated at the tip of growing axons specifically to perform functions of motility and pathfinding during axonogenesis and regeneration) and in certain presynaptic terminals. GAP-43 is absent from dendritic growth cones.

It has a very acidic pI (4.3-4.6, depending on the species) and an anomalous behavior in SDS gels such that its reported molecular mass ranges from 43-57 kDa, whereas the primary sequence of the protein and its hydrodynamic behavior indicate a molecular mass of about 24 kDa. Although its precise function in growth cones and synaptic terminals is not known, increased phosphorylation of GAP-43 correlates with exocytosis, depolarization, and treatment of growth cones with NGF, implying that kinase C and possibly other protein kinase-mediated phosphorylation of GAP-43 could be a component of a common response of growth cones to diverse extracellular stimuli. GAP-43 associates with the plasma membrane via acylated residues near the amino terminus and with the submembrane fraction of the cytoskeleton, presumably through its highly charged, extended carboxyl terminus, which bears similarities to neurofilament proteins. Monoclonal antibody reacting specifically against GAP-43 is a useful tool in the study of the role and function of GAP-43[4] during axonogenesis and in the adult nervous system.

Monoclonal Anti- Growth Associated Protein-43 may be used for the localization of GAP-43 using various immunochemical assays including ELISA, immunoblot and immunohistochemistry.

Reagents

Supplied as ascites fluid with 15 mM sodium azide as preservative.

Precautions and Disclaimer

This product is 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

For continuous use, store at 2-8 °C for up to one month. For extended storage, the solution may be frozen in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

<u>Immunoblotting</u>: a working dilution of 1:2000 was determined by using newborn rat brain extract.

Note: In order to obtain best results in different techniques and preparations, it is recommend to determine optimal working dilutions by titration assay.

References

1. Meiri, K., et al., *J. Cell Biol*., **112**, 991 (1991).
2. Skene, *J., Ann. Rev. Neurosci*., **12**, 127 (1989).
3. Meiri, K., et al., *Proc. Natl. Acad. Sci. USA*, **83**, 3537 (1986).
4. Gordon-Weeks, P., *Trends Neurosci*., **12**, 363 (1989).

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