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ProductInformation

MONOCLONAL ANTI-MAP1
CLONE HM-1
Mouse Ascites Fluid

Product No. **M 4278**

Product Description

Monoclonal Anti-MAP1 (mouse IgG1 isotype) is derived from the HM-1 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a rat brain MAPs preparation. The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-MAP1 is immunospecific for MAP1 (also known as MAP 1a) as determined by immunoblotting methods using whole brain homogenate proteins. Immunohistochemical staining of brain tissue with anti-MAP1 showed selective labeling of neurons and stronger staining of axons and dendrites. Monoclonal Anti-MAP1 stains both the cell bodies and dendritic trees of neurons throughout the brain. Purkinje cells are stained more strongly than granule cells. Monoclonal Anti-MAP1 reacts best on rat or mouse tissue and cells. It does not stain tubulin or other microtubule associated proteins.

Monoclonal Anti-MAP1 may be used for the localization of MAP1 using various immunochemical assays such as immunoblot, dot blot, and immunocytochemistry. It may be used to study MAP expression and cytological localization under different developmental and environmental circumstances.

Microtubules are the ubiquitous cytoskeletal structural components that are involved in intracellular transport. They are composed of tubulin and microtubule-associated proteins (MAPs). There is considerable evidence that MAPs may mediate the binding of membranous organelles, actin filaments and intermediate filaments to microtubules, leading to the speculation that they may therefore be important for cellular processes such as mitosis and organelle transport, and for determining the dynamic properties of the cytoskeleton. Two classes of high molecular weight components termed MAP1 and MAP2 have been demonstrated to co-purify with tubulin during cycles of microtubule assembly and disassembly, and to stimulate microtubule assembly *in vitro*.
MAP1 is one of the major neuronal MAPs as well as being the largest (350 kD). Purified preparations of MAP1 from bovine brain have been demonstrated to contain at least two low molecualr weight components (19-34 kD) that remain tightly associated with MAP1 heavy chains under nondenaturing conditions. In contrast to MAP2 which is localized primarily in the dendrites of neurons in brain and possibly in small amounts in other cells, MAP1 is more generally distributed, being found in both dendrites and axons of neurons and in glial cells in brain, in chromtophores, and on both interphase and mitotic microtubules in various tissue culture cells, suggesting that MAP1 may have a more general function.

In the newborn rat brain the expression of MAP1 is almost absent. Its levels begin to increase from postnatal day 5 and increase steadily, in step with neuronal differentiation, reaching a maximum around postnatal day 28, the time when neurons have reached their mature morphology. MAP1 is degraded by a Cathepsin D like protease in the brain of aged rats. In developmental neurobiology MAP1 acts as a marker of neuronal maturation.

Reagents

The product is provided as ascites fluid with 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Product Profile

A minimum working dilution of 1:500 was determined by indirect immunoblotting using fresh total rat brain extract or enriched microtubule protein preparations.

In order to obtain best results, in different techniques and preparations, it is recommended that each individual user determine their optimum working dilutions by titration assay.

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 is **not** recommended. Storage in "frost-free" freezers is **not** recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Pcs5/00