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ProductInformation

MONOCLONAL ANTI-MAP1 LIGHT CHAIN
Clone E12
Mouse Ascites Fluid

Product Number **M 6783**

Product Description

Monoclonal anti-MAP1 Light Chain (mouse IgG1 isotype) is derived from the E12 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a bovine brain MAPs preparation.[1] 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 Light Chain specifically binds to the larger of the MAP1 light chain components (LC-1, 34 kDa).[1,2] It labels neuronal microtubules in a specific manner, applying immunoblotting and immunofluorescent techniques. Immunoprecipitation of MAP1 heavy chains together with the 34 kDa component indicates that the 34 kDa polypeptide forms a complex with MAP1 heavy chains. Both major isoforms of MAP1 heavy chains (MAP1A and MAP1B) are found in the immunoprecipitate. Digestion of MAP1 with α-chymotrypsin and analysis of the chymotryptic peptides reveals a 120 kDa fragment of the MAP1 heavy chain that binds to microtubules and is precipitable with the 34 kDa light chain antibody, suggesting that the 34 kDa light chain also binds to this domain of the molecule. The antibody reacts against both rat and bovine MAP1 light chains.

Microtubules are the ubiquitous cytoskeletal structural components that are involved in intracellular transport. They are composed of tubulin and microtubule-associated proteins (MAPs).[3] 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 kDa).[3] Purified preparations of MAP1 from bovine brain have been demonstrated to contain at least two low molecualr weight components (19-34 kDa) 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.[4] In developmental neurobiology, MAP1 acts as a marker of neuronal maturation. In Alzheimer disease research the, product may be used for studies of the lesion plaques which contain MAP1.

Monoclonal anti-MAP1 Light Chain is a homogenous population of antibody molecules which may be used for the localization of MAP1 Light Chain using various immunochemical assays such as ELISA, immunoprecipitation, immunoblot, dot blot, and immunocytochemistry.

Reagents

The product is provided as ascites fluid with 0.1% 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.

Storage/Stability

For continuous use, store at 0-5 °C. 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.

Product Profile

The antibody titer (1:1,000) was determined by immunoblotting using rat or bovine brain 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.

MAM 8/02

References

1. Kuznetsov, S., et al., J. Cell Biol., **102**, 1060 (1986).
2. Rodionov, V., et al., Exp. Cell Res., **159**, 377 (1985).
3. Matus, A., Ann. Rev. Neurosci., **11**, 29 (1988).
4. Valee, R., Cell Motil. Cyt., **15**, 204 (1990).