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ProductInformation

Monoclonal Anti-β-Tubulin
Clone 2-28-33
Mouse Ascites Fluid

Product Number **T 5293**

Product Description

Monoclonal Anti-β-Tubulin (mouse IgG1 isotype) is derived from the 2-28-33 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. Sarkosyl-resistant ribbons from *Strongylocentrotus purpuratus* (sea urchin) sperm axonemes[1] were used as the immunogen. 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 β-Tubulin recognizes the two major β-tubulin isotypes and one of the minor β-tubulin isotypes of the free-living soil nematode *Caenorhabditis elegans*.[1] It also binds to Sarkosyl-resistant ribbons from *Strongylocentrotus purpuratus* (sea urchin) sperm axonemes,[1] to neuronal axons of the larva of *Ciona intestinalis* (ascidian),[2] and to tubulin of chicken and mammals (e.g., cultured human fibroblasts, bovine, and rat brain tissue). In *C. elegans* preparations, the antibody does not recognize tubulin that has been heat denatured in the presence of SDS and β-mercaptoethanol, though it is bound to tubulin separated on isoelectric focusing gels,[1] and found reactive with heat-denatured and reduced mammalian preparations in immunoblotting.

Tubulin is the major building block of microtubules. This intracellular cylindrical filamentous structure is present in almost all eukaryotic cells. Microtubules function as structural and mobile elements in mitosis, intracellular transport, flagellar movement and the cytoskeleton. Tubulin is a heterodimer which consists of α-tubulin and β-tubulin; both subunits have a molecular weight of approx. 50 kDa and share considerable homology. Structurally different tubulin subunits have been identified as the products of different genes. Within either family, individual subunits diverge from each other (both within and across species) at less than 10% of the amino acid positions.[3] The most extreme diversity is localized to the carboxy-terminal 15 residues. For β-tubulin, five evolutionarily conserved isotype clones have been identified. These are highly conserved in the subunits utilized in the same cell types of different species, with the exception of the hematopoietic β-tubulin which is highly divergent in sequence and is not conserved between species.

Research has been centered around the hypothesis that the β-tubulin isotypes contribute to unique functional properties. It has been reported that the isotypes of tubulin differ from each other in their ability to polymerize into microtubules.[4] Monoclonal antibody recognizing β-tubulin, together with monoclonal antibodies to other types of tubulins (β-tubulin isotype I + II, β-tubulin isotype III, tyrosine tubulin, α-tubulin, and the acetylated form of α-tubulin), provides a specific and useful tool in studying the intracellular distribution of tubulin, and the static and dynamic aspects of cytoskeleton. It is also useful in deducing the role that different tubulin isotypes play in nerve development, function or maintenance.[1]

Monoclonal Anti-β-Tubulin, clone 2-28-33 may be used for the localization of β-tubulin using various immunochemical assays such as immunoblotting 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 hazards and safe handling practices.

Storage/Stability
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.

Product Profile
A working dilution of at least 1:1,000 was determined by indirect immunofluorescent labeling of cultured human fibroblasts.

In order to obtain best results, it is recommended that each individual user determine their optimum working dilution by titration assay.

References

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3. Joshi, H. C., and Cleveland, D. W., Cell. Motil. Cytoskeleton, **16**, 159 (1990).
4. Banerjee, A., et al., J. Biol. Chem., **265**, 1794 (1990).
5. Piperno, G., et al., J. Cell Biol., **104**, 289 (1987).

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