

Product Information

Monoclonal Anti- γ -Tubulin

Clone GTU-88

produced in mouse, ascites fluid

Catalog No. **T6557**

Product Description

Monoclonal Anti- γ -Tubulin (mouse IgG1 isotype) is derived from the GTU-88 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. A synthetic γ -tubulin peptide (N-terminal amino acids 38-53) conjugated to KLH was used as the immunogen. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti- γ -Tubulin recognizes an epitope located in the N-terminal amino acids 38-53 of γ -tubulin (48 kDa). The product may be applied in immunoblotting, immunocytochemical staining of cultured cells, and in ELISA. Cross reactivity has been observed with human, bovine, dog, hamster, rat, mouse, chicken, and *Xenopus* γ -tubulin.

A typical eukaryotic centrosome consists of a pair of centrioles constructed of microtubules and surrounded by an electron dense amorphous cloud of pericentriolar material. Many cellular functions depend on the proper organization of microtubules which are essential for mitosis, meiosis, some forms of organellar movement, and other cytoskeletal functions.¹ Thus, temporal and spatial regulation of microtubule assembly is critical for the correct assembly of the mitotic apparatus and of the cytoplasmic microtubule array. Microtubules are composed primarily of two similar proteins, α - and β -tubulin, which form a heterodimer that assembles into microtubules. The properties of microtubules are due in part, to other microtubule-associated proteins, which co-assemble with α - and β -tubulin, and alter the assembly characteristics of microtubules. A special class of microtubule-associated proteins (dynein, kinesin and related proteins) is involved in microtubule-based motility, while other proteins are involved in the attachment of microtubules to kinetochores and promote the assembly of microtubules at the microtubule organizing centers (MTOC), such as the centrosome.^{2,3} Centrosomes nucleate the assembly of

microtubules and establish the polarity of microtubules, with the minus end centrosome proximal. The protein that binds microtubule minus ends, and is responsible for mediating the link between microtubules and the centrosome, is called γ -tubulin.^{1,4} γ -Tubulin functions as the microtubule nucleator at the MTOC. By binding to the β -tubulin half of the tubulin molecule, it establishes the polarity of a microtubule, leaving the α -tubulin half exposed at the positive end. γ -Tubulin (~48 kDa) is a ubiquitous and highly conserved protein within the MTOCs in eukaryotic kingdom.⁵ It is related to α - and β -tubulin and is, thus, a member of the tubulin superfamily of proteins. However, its abundance is less than 1% of the level of either α - or β -tubulin.⁵ Moreover, unlike α - and β -tubulin, it is not a component of microtubules. Rather, it is located at the MTOC.^{1,6-8} γ -Tubulin shares 28-32% identity with α -tubulin from various organisms and 32-36% identity with β -tubulins. Some regions (including regions thought to be involved in GTP binding) are highly conserved among α -, β -, and γ -tubulins. The detection, localization and characterization of proteins involved in microtubule function is fundamental to the understanding of mitosis, meiosis and the microtubule cytoskeleton. Antibodies reacting specifically with γ -tubulin⁵⁻⁸ serve as an essential tool in the detection of the presence and role of this molecule in various cellular settings.

Reagent

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

Precautions/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/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze 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

Immunoblotting: a minimum working antibody dilution of 1:10,000 is determined using cultured chicken fibroblasts extract.

Immunocytochemistry: a minimum working antibody dilution of 1:5,000 is determined using HeLa cells..

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

References

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4. Oakley, C., and Oakley, B., *Nature*, **338**, 662 (1989).
5. Stearns, T., et al., *Cell*, **65**, 825 (1991).
6. Zheng, Y., et al., *Cell*, **65**, 817 (1991).
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MG,KAA,PHC 05/09-1