Product Information

Anti-γ-Tubulin Antibody, Mouse Monoclonal

Clone GTU-88, purified from hybridoma cell culture

T5326

Product Description

Anti-γ-Tubulin (mouse IgG1 isotype) is derived from the GTU-88 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to a sequence the N-terminal amino acids of γ-tubulin, conjugated to KLH. The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Cat. No. ISO2.

Anti-γ-Tubulin recognizes γ-tubulin from human,[1, 2] bovine, dog, hamster, rat,[4] mouse,[1, 4] chicken, and Xenopus.[3] The antibody epitope resides within a fragment of γ-tubulin. The antibody may be used in immunoblotting (48 kDa),[1, 2] immunocytochemical staining of cultured cells,[1, 2] immunoprecipitation,[2] and ELISA.

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 portion of the tubulin molecule, the polarity of a microtubule is established leaving the α-tubulin portion exposed at the positive end.

γ-Tubulin (~48 kDa) is a ubiquitous and highly conserved protein within the MTOCs in the eukaryotic kingdom.[5] It is related to α- and β-tubulin and is a member of the tubulin superfamily of proteins. However, its abundance is less than 1% of the level of either α- or β-tubulin. 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-tubulin[5-8] serve as an essential tool for the detection and role of this molecule in various cellular settings.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody concentration: ~1 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at -20 °C. For continuous use, the product may be stored at 2-8 °C for up to one month. For extended storage, freeze in working aliquots at -20 °C. 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. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting

A working antibody concentration of 1-2 µg/mL is recommended using a total cell extract of chicken fibroblasts.

Immunocytochemistry

A minimum working antibody concentration of 1-2 µg/mL is determined using HeLa cells.

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

References

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