

Monoclonal Antibody to alpha + beta Tubulin (heterodimer) - DY547

Alternate names: alpha-tubulin, beta-tubulin, tubulin alpha, tubulin beta

Catalog No.: SM3165D5

Quantity: 0.1 mg

Concentration: 0.5 mg/ml

Background: The microtubules are intracellular dynamic polymers made up of evolutionarily conserved polymorphic alpha/beta-tubulin heterodimers and a large number of microtubule-associated proteins (MAPs). The microtubules consist of 13 protofilaments and have an outer diameter 25 nm. Microtubules have their intrinsic polarity; highly dynamic plus ends and less dynamic minus ends. Microtubules are required for vital processes in eukaryotic cells including mitosis, meiosis, maintenance of cell shape and intracellular transport. Microtubules are also necessary for movement of cells by means of flagella and cilia. In mammalian tissue culture cells microtubules have their minus ends anchored in microtubule organizing centers (MTOCs). The GTP (guanosin triphosphate) molecule is an essential for tubulin heterodimer to associate with other heterodimers to form microtubule. In vivo, microtubule dynamics vary considerably. Microtubule polymerization is reversible and a populations of microtubules in cells are on their minus ends either growing or shortening this phenomenon is called dynamic instability of microtubules. On a practical level, microtubules can easily be stabilized by the addition of non-hydrolysable analogues of GTP (eg. GMPPCP) or more commonly by anti-cancer drugs such as Taxol. Taxol stabilizes microtubules at room temperature for many hours. Using limited proteolysis by enzymes both tubulin subunits can be divided into N-terminal and C-terminal structural domains. The alpha-tubulin (relative molecular weight around 50 kDa) is globular protein that exists in cells as part of soluble alpha/beta-tubulin dimer or it is polymerized into microtubules. In different species it is coded by multiple tubulin genes that form tubulin classes (in human 6 genes). Expressed tubulin genes are named tubulin isotypes. Some of the tubulin isotypes are expressed ubiquitously, while some have more restricted tissue expression. Alpha-tubulin is also subject of numerous post-translational modifications. Tubulin isotypes and their posttranslational modifications are responsible for multiple tubulin charge variants - tubulin isoforms. Heterogeneity of alpha-tubulin is concentrated in C-terminal structural domain. The beta-tubulin (relative molecular weight around 50 kDa) is counterpart of alpha-tubulin in tubulin heterodimer, it is coded by multiple tubulin genes and it is also posttranslationally modified. Heterogeneity of subunit is concentrated in C-terminal structural domain.

Host / Isotype: Mouse / IgM

Clone: TU-10

Immunogen: Microtubule proteins from porcine brain

- Format:** **State:** Liquid Ig fraction
Purification: Size-exclusion chromatography
Buffer System: Phosphate buffered saline (PBS) containing 15 mM sodium azide and 0.2% (w/v) high-grade protease free Bovine Serum Albumin (BSA) as a stabilizing agent
Label: DY547 – Conjugated with Dyomics 547
- Applications:** Immunocytochemistry: 1:500 as starting point.
Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.
- Specificity:** This antibody TU-10 recognizes alpha, beta-tubulin heterodimer, a basic intracellular structural unit of microtubules. Alpha- and beta-tubulins form approximately 100 kDa tubulin heterodimer, a globular protein that polymerizes to form microtubules. Recognized epitope is conserved in all species.
- Storage:** Store the antibody at 2 - 8 °C. DO NOT FREEZE! This product is photosensitive and should be protected from light.
Shelf life: one year from despatch.
- General Readings:** 1. Cowan NJ, Dobner PR, Fuchs EV, Cleveland DW. Expression of human alpha-tubulin genes: interspecies conservation of 3' untranslated regions. Mol Cell Biol. 1983 Oct;3(10):1738-45. PubMed PMID: 6646120.
2. Linhartová I, Dráberová E, Viklický V, Dráber P. Distribution of non-class-III beta-tubulin isoforms in neuronal and non-neuronal cells. FEBS Lett. 1993 Mar 29;320(1):79-82. PubMed PMID: 8462682.