



1C-250-C100

Monoclonal Antibody to alpha-tubulin Dyomics 547 (DY547) conjugated (0.1 mg)

Clone:	TU-01
Isotype:	Mouse IgG1
Specificity:	The antibody TU-01 recognizes the defined epitope (aa 65-97) on N-terminal structural domain of alpha-tubulin.
Immunogen:	Fraction of tubulin purified from porcine brain by two cycles of polymerization - depolymerization.
Species Reactivity:	Broad species reactivity
Preparation:	The purified antibody is conjugated with Dyomics 547 (DY547) under optimum conditions. The conjugate is purified by size-exclusion chromatography.
Concentration:	1 mg/ml
Storage Buffer:	Phosphate buffered saline (PBS) with 15 mM sodium azide, approx. pH 7.4
Storage / Stability:	Store in the dark at 2-8°C. Do not freeze. Avoid prolonged exposure to light. Do not use after expiration date stamped on vial label. Short-term exposure to room temperature should not affect the quality of the reagent. However, if reagent is stored under any conditions other than those specified, the conditions must be verified by the user.
Usage:	Immunocytochemistry on fixed and permeabilized cells. Suggested working dilution is 1:200. It is recommended that the user titrates the reagent for use in the particular testing system.
Expiration:	See vial label
Lot Number:	See vial label

For laboratory research only, not for drug, diagnostic or other use.

**Antibodies****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 (guanosinotriphosphate) 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.

References:

- *Viklicky V, Draber P, Hasek J, Bartek J: Production and characterization of a monoclonal antitubulin antibody. *Cell Biol Int Rep.* 1982 Aug;6(8):725-31.
- *Draber P, Draberova E, Zicconi D, Sellitto C, Viklicky V, Cappuccinelli P: Heterogeneity of microtubules recognized by monoclonal antibodies to alpha-tubulin. *Eur J Cell Biol.* 1986 Jun;41(1):82-8.
- *Grimm M, Breitling F, Little M: Location of the epitope for the alpha-tubulin monoclonal antibody TU-O1. *Biochim Biophys Acta.* 1987 Jul 24;914(1):83-8.
- *Draber P, Draberova E, Linhartova I, Viklicky V: Differences in the exposure of C- and N-terminal tubulin domains in cytoplasmic microtubules detected with domain-specific monoclonal antibodies. *J Cell Sci.* 1989 Mar;92 (Pt 3):519-28.
- *Draber P, Draberova E, Viklicky V: Immunostaining of human spermatozoa with tubulin domain-specific monoclonal antibodies. Recognition of a unique beta tubulin epitope in the sperm head. *Histochemistry.* 1991;95(5):519-24.
- *Linhartova I, Draber P, Draberova E, Viklicky V: Immunological discrimination of beta-tubulin isoforms in developing mouse brain. Post-translational modification of non-class-III beta-tubulins. *Biochem J.* 1992 Dec 15;288 (Pt 3):919-24.
- *Nováková M, Dráberová E, Schürmann W, Czihak G, Viklický V, Dráber P: gamma-Tubulin redistribution in taxol-treated mitotic cells probed by monoclonal antibodies. *Cell Motil Cytoskeleton.* 1996;33(1):38-51.
- *Smertenko A, Blume Y, Viklicky V, Opatrny Z, Draber P: Post-translational modifications and multiple tubulin isoforms in *Nicotiana tabacum* L. cells. *Planta.* 1997;201(3):349-58.
- *Kukharsky V, Sulimenko V, Macúrek L, Sulimenko T, Dráberová E, Dráber P: Complexes of gamma-tubulin with nonreceptor protein tyrosine kinases Src and Fyn in differentiating P19 embryonal carcinoma cells. *Exp Cell Res.* 2004 Aug 1;298(1):218-28.
- *Lukas J, Mazna P, Valenta T, Doubravska L, Pospichalova V, Vojtechova M, Fafílek B, Ivanek R, Plachy J, Novak J, Korinek V: Dazap2 modulates transcription driven by the Wnt effector TCF-4. *Nucleic Acids Res.* 2009 Mar 20. [Epub ahead of print]
- *Smertenko A, Blume Y, Viklický V, Dráber P: Exposure of tubulin structural domains in *Nicotiana tabacum* microtubules probed by monoclonal antibodies. *Eur J Cell Biol.* 1997 Feb;72(2):104-12.

For laboratory research only, not for drug, diagnostic or other use.