PRODUCT DATA SHEET

11-427-C100

Monoclonal Antibody to beta-tubulin Purified Antibody (0.1 mg)

Clone:	TU-12
Isotype:	Mouse IgM
Specificity:	The antibody TU-12 recognizes an epitope located within aa 345-430 of C-terminal domain of beta-tubulin in various species.
Regulatory Status:	RUO
Immunogen:	Porcine brain microtubule protein MTP-1.
Species Reactivity:	Broad species reactivity
Application:	Western Blotting Recommended dilution: 2 µg/ml, 60 min in room temperature Positive control: Porcine brain lysate Sample preparation: Mix lysate with reducing Laemmli SDS-PAGE sample buffer. Boil for 3 min in water bath. Application note: Reducing conditions. Excellent antibody for WB application. Immunocytochemistry Recommended dilution: Staining technique: fixed and permeabilized cells
Purity:	> 95% (by SDS-PAGE)
Purification:	Purified by precipitation and chromatography
Concentration:	1 mg/ml
Storage Buffer:	Tris buffered saline (TBS) with 15 mM sodium azide, approx. pH 8.0
Storage / Stability:	Store at 2-8ºC. Do not freeze. Do not use after expiration date stamped on vial label.
Expiration:	See vial label
Lot Number:	See vial label

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

EXBIO Praha | Nad Safinou II 341 | 252 50 Vestec u Prahy | Czech Republic
Tel: +420 261 090 666 | Fax: +420 261 090 660 | orders@exbio.cz | www.exbio.cz

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 (guanosintriphosphate) 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 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.

References:

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*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.
*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.
*Blume Y, Yemets A, Sheremet Y, Nyporko A, Sulimenko V, Sulimenko T, Draber P: Exposure of beta-tubulin regions defined by antibodies on an Arabidopsis thaliana microtubule protofilament model and in the cells. BMC Plant Biol. 2010 Feb 18;10(1):29. [Epub ahead of print]

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