BOSTER
antibody and ELISA experts

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Anti-alpha-Tubulin Purified TUBA1A Monoclonal Antibody

Catalog Number: M03989

About TUBA1

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 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.

Overview

Product Name	Anti-alpha-Tubulin Purified TUBA1A Monoclonal Antibody
Reactive Species	Human, Mouse, Pig, Turkey, Yeast, Arabidopsis, Eisenia, Paramecium, Nicotiana
Description	Boster Bio Anti-alpha-Tubulin Purified TUBA1A Monoclonal Antibody (Catalog# M03989). Tested in WB, IHC-P, ICC, IP, Flow Cytometry application(s). This antibody reacts with Mouse, Pig, Human, Turkey, Eisenia, Paramecium, Nicotiana, Yeast, Arabidopsis.
Application	Flow Cytometry, IP, IHC-P, ICC, WB
Clonality	Monoclonal TU-01
Formulation	Phosphate buffered saline (PBS), pH 7.4, 15 mM sodium azide
Storage Instructions	Store at 2-8°C. Do not freeze.
Host	Mouse
Uniprot ID	Q71U36

Technical Details

Immunogen	Fraction of tubulin purified from porcine brain by two cycles of polymerization - depolymerization.

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	The antibody TU-01 recognizes a defined epitope (aa 65-97) on N-terminal structural domain of alpha-tubulin.
Predicted Reactive Species	Primate
Cross Reactivity	This antibody does not cross-react with Thy-1.1 alloantigen.
Isotype	Mouse IgG1
Form	Liquid
Concentration	1 mg/ml
Purification	Purified by protein-A affinity chromatography.
Suggested Dilutions	Flow cytometry: 1-4 ug/ml, intracellular staining. Western blotting: 1-2 ug/ml, reducing conditions.

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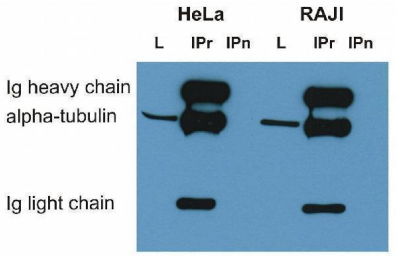
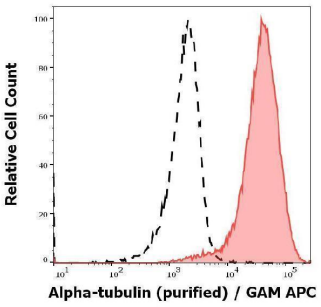
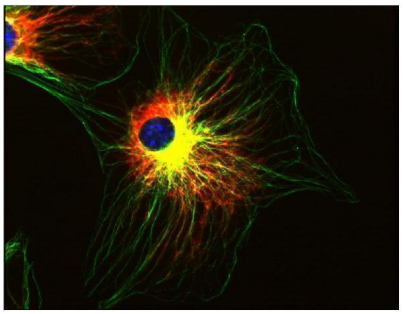
Anti-alpha-Tubulin Purified TUBA1A Monoclonal Antibody (M03989) Images



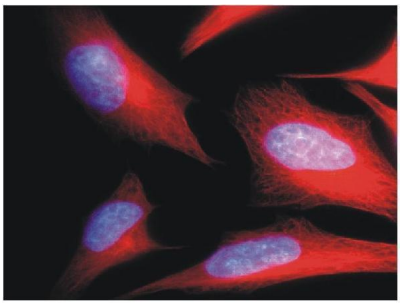
Immunoprecipitation of alpha-tubulin from HeLa and RAJI cell lysate by antibody TU-16 and its detection by antibody TU-01. IgM heavy chain (76-92 kDa) and IgM light chain (25-30 kDa) indicated. Mr of alpha tubulin is around 50 kDa. L = lysate IPr = immunoprecipitate (reducing conditions) IPn = immunoprecipitate (non-reducing conditions)



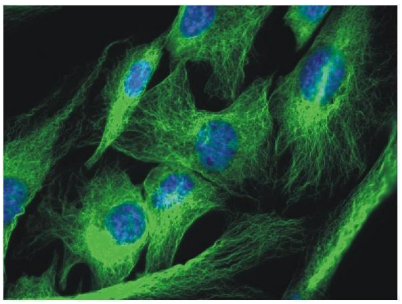
Separation of HeLa cells stained using anti-alpha-Tubulin (TU-01) purified antibody (concentration in sample 3 µg/ml, GAM APC, red-filled) from HeLa cells unstained by primary antibody (GAM APC, black-dashed) in flow cytometry analysis (intracellular staining).



Immunocytochemistry staining of 3T3 mouse embryonal fibroblast cell line using anti-alpha-tubulin (TU-01; green) and anti-Vimentin (VI-01; red). Nucleus is stained with DAPI (blue).



Immunocytochemistry staining of HeLa human cervix carcinoma cell line using anti-alpha-tubulin (TU-01; red). Nucleus is stained with DAPI (blue).



Immunocytochemistry staining of 3T3 mouse embryonal fibroblast cell line using anti-alpha-tubulin (TU-01; green). Nucleus is stained with DAPI (blue).

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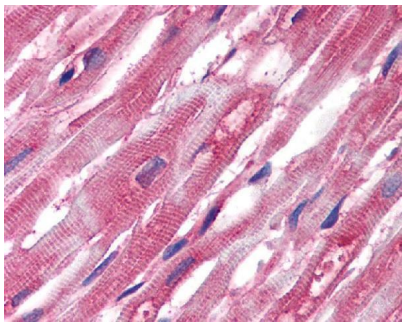
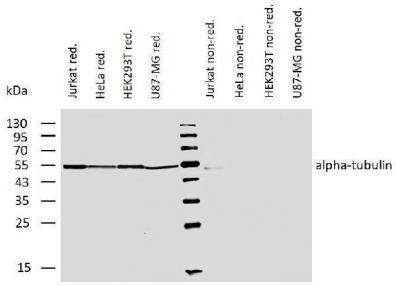
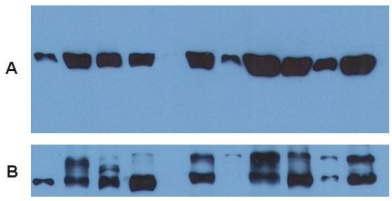


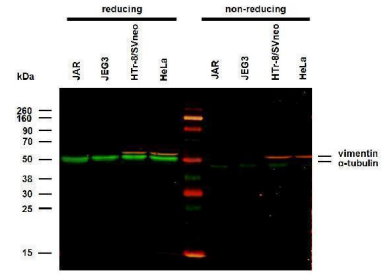
Immunohistochemistry staining of human heart (paraffin sections) using anti-alpha-tubulin (TU-01). Commercially tested by LifeSpan BioSciences.



Western blotting analysis of human alpha-tubulin using mouse monoclonal antibody TU-01 on lysates of various cell lines under reducing and non-reducing conditions. Nitrocellulose membrane was probed with 2 µg/ml of mouse anti-alpha-tubulin monoclonal antibody followed by IRDye800-conjugated anti-mouse secondary antibody. A specific band was detected for alpha-tubulin at approximately 54 kDa.



Use of anti-alpha-tubulin antibody TU-01 as a loading control (A) in an Western blotting experiment revealing the staining pattern of various cell lysates by a newly developed monoclonal antibody (B).



Anti-alpha-Tubulin Purified (TU-01) works in WB application under reducing conditions. Western blotting analysis was performed on whole cell extracts (RIPA lysis buffer) of JAR, JEG3, HTr-8/SVneo, and HeLa cell lines mixed and heated (100°C, 5 min) with reducing (2-mercaptoethanol) or non-reducing SDS-loading buffer. Samples were resolved using 10% SDS-PAGE gel. Nitrocellulose membrane blot was probed simultaneously with mouse IgG1 monoclonal antibody TU-01 (1 µg/ml) and mouse IgM monoclonal antibody VI-01 detecting vimentin. Subclass-specific secondary antibodies IRDye 800CW Goat-anti-Mouse IgG (green) and IRDye 680RD Goat-anti-Mouse IgM (red) were used for multiplex fluorescent Western blot detection. Alpha-tubulin was detected at ~50 kDa and vimentin at ~55 kDa.

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