

Alpha Tubulin Antibody / TUBA1C (FY12945)

Catalog No.	Formulation	Size
FY12945	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9BQE3
Applications	Western Blot : 0.25-0.5ug/ml Immunohistochemistry : 2-5ug/ml Immunocytochemistry : 5ug/ml Immunofluorescence : 5ug/ml
Limitations	This Alpha Tubulin antibody is available for research use only.

Description

Alpha Tubulin antibody detects Alpha tubulin, a fundamental structural component of microtubules, which are integral parts of the cytoskeleton responsible for cell shape, intracellular transport, and mitotic spindle formation. The UniProt recommended name is Tubulin alpha chain, encompassing multiple isoforms encoded by genes such as TUBA1A, TUBA1B, and TUBA1C. Tubulins polymerize to form dynamic microtubule filaments that continually undergo assembly and disassembly, enabling cellular motility, division, and intracellular trafficking.

Functionally, Alpha Tubulin antibody recognizes a conserved 50 kDa cytoskeletal protein that pairs with beta-tubulin to form heterodimers, the basic building blocks of microtubules. These structures are critical for maintaining cell polarity, providing tracks for motor proteins like kinesin and dynein, and ensuring accurate chromosome segregation during mitosis. Tubulin polymerization is regulated by GTP binding and hydrolysis, and is sensitive to factors such as temperature, post-translational modifications, and microtubule-associated proteins (MAPs). The equilibrium between polymerized microtubules and soluble tubulin dimers governs many cellular functions, including vesicle transport and organelle positioning.

Alpha tubulin undergoes various modifications such as acetylation, tyrosination, detyrosination, and polyglutamylation, which influence microtubule stability and motor protein interactions. Acetylated alpha tubulin is often used as a marker for stable microtubules, particularly in cilia and flagella. The Alpha Tubulin antibody is therefore widely applied as a loading control in western blotting, an internal cytoskeletal marker in immunofluorescence, and a reference protein for quantifying microtubule organization.

The TUBA gene family encodes several alpha-tubulin isoforms with tissue-specific expression patterns. TUBA1A is the predominant neuronal isoform and plays a major role in axon guidance and brain development. Mutations in TUBA1A have been associated with lissencephaly, cortical dysplasia, and microcephaly. Non-neuronal alpha-tubulin isoforms are equally essential for mitotic spindle integrity and intracellular transport in proliferating cells. Disruption of alpha-tubulin function, through chemical inhibitors such as colchicine or vinblastine, arrests cells in metaphase by depolymerizing microtubules.

Alpha Tubulin antibody provides a robust marker for assessing cytoskeletal architecture, cellular morphology, and proliferation. It is frequently used in combination with antibodies against beta tubulin, gamma tubulin, or actin to visualize cytoskeletal dynamics. In research involving neurobiology, alpha tubulin serves as a key indicator of axonal growth and neuronal polarity. In cancer studies, changes in tubulin expression and post-translational modification patterns reflect cytoskeletal reorganization during transformation, invasion, and drug resistance. NSJ Bioreagents offers this antibody validated for applications in western blotting, immunohistochemistry, and immunocytochemistry to study cell structure, mitosis, and cytoskeletal integrity.

Application Notes

Optimal dilution of the Alpha Tubulin antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the C-terminus of human TUBA1C was used as the immunogen for the Alpha Tubulin antibody.

Storage

After reconstitution, the Alpha Tubulin antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.