Detection of GTP-tubulin conformation in vivo reveals a role for GTP remnants in microtubule rescues.

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Résumé

Microtubules display dynamic instability, with alternating phases of growth and shrinkage separated by catastrophe and rescue events. The guanosine triphosphate (GTP) cap at the growing end of microtubules, whose presence is essential to prevent microtubule catastrophes in vitro, has been difficult to observe in vivo. We selected a recombinant antibody that specifically recognizes GTP-bound tubulin in microtubules and found that GTP-tubulin was indeed present at the plus end of growing microtubules. Unexpectedly, GTP-tubulin remnants were also present in older parts of microtubules, which suggests that GTP hydrolysis is sometimes incomplete during polymerization. Observations in living cells suggested that these GTP remnants may be responsible for the rescue events in which microtubules recover from catastrophe.

Antibodies–Europe. Engineering the next generation of antibodies.

Biotechnology journal : 298-300 : DOI : 10.1002/biot.200800011

Résumé