

Abstract

Microtubules composed of $\alpha\beta$ -tubulin heterodimers are an integral part of the cellular cytoskeleton of eukaryotic organisms. They participate in the cellular transport, determine the distribution of membrane organelles and help defining cellular polarity. Microtubules are part of dynamic structures such as mitotic spindle, but they also form stable structures such as flagellar and ciliar axonemes. Microtubules have many distinct functions in cells and tissues and therefore must differ from each other in some way. Post-translational modifications of $\alpha\beta$ -tubulin in microtubules are the major source of their diversity and collectively define so-called tubulin code. Twelve posttranslational modifications of tubulin/microtubules have been identified so far. Unraveling the mechanisms involved in post-translational modifications of tubulin/microtubules, including the identification of responsible enzymes, is an important source of understanding of the effects of these modifications on biological functions.

Key words: tubulin, post-translational modificaton, microtubules, acetylation, tyrosination, polyamination, polyglutamylaton