

Title (en)
FUNGAL BETA-TUBULIN GENES

Title (de)
FUNGUS BETA-TUBULIN GENEN

Title (fr)
GENES FONGIQUES DE BETA-TUBULINE

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Application
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Abstract (en)
[origin: WO0056894A1] The anticancer drug taxol binds to beta-tubulin in assembled microtubules (MT) and causes cell cycle arrest in animal cells; in contrast, the effect of taxol varies in fungi. For instance, the taxol-producer Pestalotiopsis microspora Ne32, an ascomycete, is resistant to taxol (IC₅₀>11.7 M), whereas Pythium ultimum and Phytophthora cinnamomi, two oomycetes, are sensitive to taxol (IC₅₀ 0.1 mu M). cDNAs encoding beta-tubulin from P.microspora, P. ultimum, and P. cinnamomi were isolated. The deduced amino acid sequences of beta-tubulin from P. microspora, P.ultimum, and P. cinnamomi can be used in (1) binding assays for the detection of taxol and taxol-like substances; (2) diagnostic assays for the pharmacologic efficacy of taxol against a tumor sample; (3) designing drugs with taxol-like activity via application of information regarding the effect of specific residues on taxol binding; and (4) detection of taxol and taxol-like activity via use of taxol-sensitive and taxol-resistant isogenic strains of P.ultimum constructed by substitution of residues necessary for taxol binding.

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