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Review

Curcumin and Analogues as Lead Compounds for Development of Anticancer Agents

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Abstract: The plant kingdom is a rich source of compounds with anticancer activities. Curcumin [1,7-bis(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione] is a secondary metabolite produced in rhizomes of *Curcuma longa* that has being used for centuries in a variety of pharmaceutical applications. Anticancer activity is one of the pharmacological properties of curcumin; whose targets include transcription factors, growth and angiogenesis regulators, apoptosis-related genes, adhesion-related molecules, and cellular signaling molecules. Several curcumin analogues (e.g. glycoderivatives and metallocomplexes) have been synthesized, characterized and evaluated for anticancer activity. In this review, we discuss the mechanism of action by which curcumin represses the progression of tumor growth and the structure-activity relationships of its analogues. The understanding of how these compounds exert their anticancer activities is essential for future development of effective drugs.