Endocannabinoids as emerging suppressors of angiogenesis and tumor invasion (review).


Source

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Abstract

The medicinal properties of extracts from the hemp plant Cannabis sativa have been known for centuries but only in the 90s membrane receptors for the Cannabis major principle were discovered in mammalian cells. Later on the endogenous ligands for the cannabinoid receptors were identified and the term 'endocannabinoid system' was coined to indicate the complex signaling system of cannabinoid receptors, endogenous ligands and the enzymes responsible for their biosynthesis and inactivation. The 'endocannabinoid system' is involved in a broad range of functions and in a growing number of pathological conditions. There is increasing evidence that endocannabinoids are able to inhibit cancer cell growth in culture as well as in animal models. Most work has focused on the role of endocannabinoids in regulating tumor cell growth and apoptosis and ongoing research is addressed to further dissect the precise mechanisms of cannabinoid antitumor action. However, endocannabinoids are now emerging as suppressors of angiogenesis and tumor spreading since they have been reported to inhibit angiogenesis, cell migration and metastasis in different types of cancer, pointing to a potential role of the endocannabinoid system as a target for a therapeutic approach of such malignant diseases. The potential use of cannabinoids to retard tumor growth and spreading is even more appealing considering that they show a good safety profile, regarding toxicity, and are already used in cancer patients as palliatives to stimulate appetite and to prevent devastating effects such as nausea, vomiting and pain.

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