
New therapeutic aspects of flavones: the anticancer properties of Scutellaria and its main active constituents Wogonin, Baicalein and Baicalin.


Source
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Abstract
Traditional Chinese medicines have been recently recognized as a new source of anticancer drugs and new chemotherapy adjuvant to enhance the efficacy of chemotherapy and to ameliorate the side effects of cancer chemotherapies however their healing mechanisms are still largely unknown. Scutellaria baicalensis is one of the most popular and multi-purpose herb used in China traditionally for treatment of inflammation, hypertension, cardiovascular diseases, and bacterial and viral infections. Accumulating evidence demonstrate that Scutellaria also possesses potent anticancer activities. The bioactive components of Scutellaria have been confirmed to be flavones. The major constituents of Scutellaria baicalensis are Wogonin, Baicalein and Baicalin. These phytochemicals are not only cytostatic but also cytotoxic to various human tumor cell lines in vitro and inhibit tumor growth in vivo. Most importantly, they show almost no or minor toxicity to normal epithelial and normal peripheral blood and myeloid cells. The antitumor functions of these flavones are largely due to their abilities to scavenge oxidative radicals, to attenuate NF-kappaB activity, to inhibit several genes important for regulation of the cell cycle, to suppress COX-2 gene expression and to prevent viral infections. The tumor-selectivity of Wogonin has recently been demonstrated to be due to its ability to differentially modulate the oxidation-reduction status of malignant vs. normal lymphocytic cells and to preferentially induce phospholipase C gamma 1, a key enzyme involved in Ca(2+)+ signaling, through H(2)O(2) signaling in malignant lymphocytes. This review is aimed to summarize the research results obtained since the last 20 years and to highlight the recently discovered molecular mechanisms.

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