Melleolides induce rapid cell death in human primary monocytes and cancer cells.

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Abstract

The melleolides are structurally unique and bioactive natural products of the basidiomycete genus Armillaria. Here, we report on cytotoxic effects of melleolides from Armillaria mellea towards non-transformed human primary monocytes and human cancer cell lines, respectively. In contrast to staurosporine or pretubulysin that are less cytotoxic for monocytes, the cytotoxic potency of the active melleolides in primary monocytes is comparable to that in cancer cells. The onset of the cytotoxic effects of melleolides was rapid (within 5h, each). Side-by-side comparison with the detergent triton X-100 and staurosporine in microscopic and flow cytometric analysis studies as well as analysis of the viability of mitochondria exclude cell lysis and apoptosis as relevant or primary mechanisms. Our results rather point to necrotic features of cell death mediated by an as yet elusive but rapid mechanism.

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