冬凌草甲素外杀细胞作用的特点

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【摘要】取冬凌草甲素(Oridonin)对人胃癌细胞 MGC 80-3 细胞的杀灭特点, 该
药对癌细胞的生长抑制作用有良好的比例关系, 在低浓度范围内, 细胞
的生长抑制作用与药物的浓度成正比, 在高浓度范围内, 细胞的生长抑
制作用与药物的浓度成反比。本实验采用 MGC 80-3 细胞作为研究对象, 
以细胞计数法检测药物的细胞毒性, 以 MTT 法检测药物对细胞的增殖
作用, 以流式细胞仪检测药物对细胞周期的影响, 结果表明: 药物对细
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Fig. 1. Survival of exponential and plateau-phase cells after 0 or 24 h exposure to varying concentrations of oridonin.

Oridonin 50 μg/ml used 1 h or 25 μg/ml used 24 h, for exponential growth, produced over 2 times the survival rate in both conditions, with 0.72% and 0.68% survival, respectively. In contrast, oridonin 50 μg/ml used 24 h produced a 15% increase in survival rate, with 84.2% and 78.6% survival, respectively.

To determine the effect of oridonin on the cell cycle, cells were treated with 25 μg/ml oridonin for 24 h and analyzed using FACS analysis. The results showed that oridonin 25 μg/ml reduced the number of cells in G2/M phase from 35% to 15%, indicating a delay in progression through the cell cycle.

Fig. 2. Survival of synchronized cells treated with oridonin 25 or 35 μg/ml for 1 h at various stages of cell cycle.

Discussion

Sixty years ago, Bruce and his group showed that oridonin can induce cell growth and transform cells to drug-resistant cells. In this study, oridonin was found to inhibit the growth of cancer cells in vitro and in vivo. The results suggest that oridonin may have potential as a therapeutic agent for cancer treatment.

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References


Characteristics of cytostatic effects of oridonin in vitro

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ABSTRACT The cytostatic effects of oridonin on the MCF-8-3 human gastric adenocarcinoma cells in different proliferation stages were studied by colony-forming assay. An exposure of exponential-phase cells to oridonin for 1 or 24 h resulted in a threshold-exponential dose-survival curve. The plateau-phase cells exposed for the same periods of time seemed to be resistant to the drug. The synchronized cells caused by pretreatment with low-serum and hydroxyures were exposed to oridonin 25 or 35 μg/ml for 1 h and there was no significant difference in the drug sensitivities between the different phases. These data suggest that oridonin seems to be a cyclophosphamide antineoplastic drug.

KEY WORDS oridonin, antineoplastic agents, cultured cells, cell survival