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论文

光激发纳米TiO_2对胃癌SGC-7901细胞的杀伤作用

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摘要:

探讨了光激发纳米TiO_2对胃癌SGC-7901细胞的杀伤作用, 考察了在不同纳米TiO_2浓度及不同光照时间下纳米TiO_2的抑瘤效果, 并探讨了抑瘤机制. 结果表明, 光激发纳米TiO_2对胃癌SGC-7901细胞具有明显的抑制作用, 其过程类似一级反应的动力学规律; 当纳米TiO_2浓度为300 μg/mL时, 对胃癌SGC-7901细胞表现出较强的杀伤效果, 其主要表现形式有两种, 即细胞坏死和细胞凋亡, 是由光激发条件下, 纳米TiO_2表面产生的活性氧组分对肿瘤细胞的有效杀伤所致.

关键词: 纳米TiO_2; 胃癌SGC-7901细胞; 光激发; 杀伤效应

Damaging Effects of Photoexcited TiO_2 Nanoparticles on Gastric Cancer SGC-7901 Cells

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Abstract:

Damaging effects of photoexcited TiO_2 nanoparticles on gastric cancer SGC-7901 cells were investigated. The influences of nanosized TiO_2 content, and irradiation time on cancer inhibition were systematically studied, and the inhibition mechanism was primarily discussed. The results demonstrate that photoexcited TiO_2 nanoparticles exhibit good inhibition effects on gastric cancer SGC-7901 cells, and this process follows appro-ximately first-order reaction rule. While the concentration of TiO_2 nanoparticles is about 300 μg/mL, the damaging effects are rather remarkable. In addition, the exhibition forms of gastric cancer SGC-7901 cells are apoptosis and necrosis in killing experiments. Taken together, damaging effects of photoexcited TiO_2 nanoparticles on gastric cancer SGC-7901 cells might be attributed to the reactive oxygen species formed on the TiO_2 nanoparticles surface.

Keywords: TiO_2 nanoparticle; Gastric cancer SGC-7901 cell; Photoexcitement; Damaging effect

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