

عنوان مقاله:

Viability assessment of human colon and gastric adenocarcinoma cells after treatment with nano-MgO

محل انتشار:

چهارمین کنگره بین المللی و شانزدهمین کنگره ملی ژنتیک (سال: 1399)

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خلاصه مقاله:

Background and Aim: Colon and gastric cancers are major clinical concerns worldwide, with high incidence in developing and industrial nations. Adenocarcinoma of the colon makes more than ۹۰% of all colorectal cancer cases, and develops in cells lining of the large intestine. Since mortality rate of colon and gastric adenocarcinomas are high in Iran, the aim of present study was to determine effects of nano-MgO synthesized by luminescent vibrio. **Methods:** Biosynthesis of nano-MgO was carried out in culture medium containing $Mg(NO_3)_2 / MgN_2O_6$. After centrifugation, pellets were freeze-dried and DMSO was used to dissolve obtained nano-MgO, although its solubility was low. To prepare final dilutions, RPMI or DMEM supplemented with ۱۰% FBS were used just before each experiment. For cytotoxicity assessment, human colon and gastric adenocarcinoma cells (HT۲۹ and MKN۴۵ cell lines, respectively) were treated with ۵, ۱۰ and ۲۰ $\mu g/ml$ biosynthetic nano-MgO, as well as DMSO alone as relevant control. After ۲۴ h, viability of cells was evaluated by resazurin and morphological alterations of cells were recorded by an inverted microscope. **Results:** Evaluation of HT۲۹ cell viability indicated that ۹۵%, ۸۷% and ۸۲% of HT۲۹ cells were alive upon ۲۴ h treatment with ۵, ۱۰ and ۲۰ $\mu g/ml$ nano-MgO, respectively. In contrast, MKN۴۵ cell viability was determined as ۱۰۰%, ۱۰۰% and ۷۳%, upon administration of ۵, ۱۰ and ۲۰ $\mu g/ml$ nano-MgO, respectively. Taken together, obtained results indicated that nano-MgO induced more toxic effects on MKN۴۵ cells when used in concentration of ۲۰ $\mu g/ml$. **Conclusion:** Further studies are required to improve solubility of nano-MgO by use of other agents such as PEG, and also to confirm our results on other colon and gastric cancer cell lines.

کلمات کلیدی:

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