

## ·基础与临床研究·

## 新型矿化胶原膜的体外细胞相容性评价

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**【摘要】目的** 观察新型矿化胶原膜对 MG63 成骨样细胞体外细胞相容性的影响。**方法** 采用体外仿生矿化技术构建新型矿化胶原双层膜, 致密层为 I 型胶原, 疏松层为纳米羟基磷灰石-胶原。进行 HE 染色和扫描电镜 (SEM) 观察 MG63 细胞在新型矿化胶原膜表面的生长和黏附情况; 以新型矿化膜浸提液培养 MG63 细胞, 另设空白对照组, 检测 MG63 细胞的细胞周期和凋亡率。采用 SPSS 17.0 软件对数据进行统计学分析。**结果** HE 染色可见大量细胞附着在矿化胶原膜表面; SEM 下观察细胞在胶原膜上生长良好, 通过突起与粗糙表面紧密接触; 细胞周期检测显示, 对照组细胞的 G<sub>0</sub>/G<sub>1</sub> 期、S 期、G<sub>2</sub>/M 期比率分别为 (74.05±0.45) %、(17.03±1.34) %、(8.93±1.02) %, 矿化胶原膜组为 (75.11±0.97) %、(16.32±0.89) %、(8.13±0.46) %, 差异无统计学意义 ( $P>0.05$ ); 对照组细胞的凋亡率为 (4.25±1.26) %, 矿化胶原膜组为 (4.27±0.36) %, 差异也无统计学意义 ( $P>0.05$ )。**结论** 矿化胶原膜对 MG63 细胞生长无抑制作用, 具有良好的生物学性能。

**【关键词】** 胶原膜 MG63 细胞 细胞周期 细胞凋亡

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## In vitro cytocompatibility evaluation of a novel mineralized collagen membrane

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**【Abstract】Objective** The study aimed to evaluate the effects of a new mineralized collagen membrane on in-vitro cytocompatibility of MG63 osteoblasts. **Methods** In vitro biomimetic technology is used to construct a new mineralized collagen bilayer membrane, the dense layer is collagen I, loose layer is nano hydroxyapatite-collagen. HE staining and scanning electron microscopy (SEM) were used to observe the MG63 cell growth and adhesion on the surface of the new mineralized collagen membrane, MG63 cells were cultured with the new mineralized membrane extract, and a blank control group was set up to detect the cell cycle and apoptosis of MG63 cells. Statistical analysis was assessed using SPSS17.0 software. **Results** HE staining showed that a large number of cells were attached to the surface of the mineralized collagen membrane. Cells were observed to grow well on the membrane under SEM, and the protrusions were in close contact with the rough surface. The ratios of G<sub>0</sub>/G<sub>1</sub>, S, and G<sub>2</sub>/M phases in the control group were (74.05±0.45) %, (17.03±1.34) %, (8.93±1.02) %, and mineralized collagen membrane group was (75.11±0.97) %, (16.32±0.89) %, (8.13±0.46) %. The apoptosis rate of the control group was (4.25±1.26) % and the collagen membrane group was (4.27±0.36) %. Compared with the

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