عنوان مقاله:

In vitro behavior of silk fibroin-coated calcium magnesium silicate scaffolds

محل انتشار:

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خلاصه مقاله:

Bioceramic scaffolds such as silicate bioceramics have been widely used for bone tissue engineering. However, their high degradation rate, low mechanical strength and surface instability are main challenges compromising their bioactivity and cytocompatibility which further negatively affect the cell growth and attachment. In this study, we have investigated the effects of silk fibroin coating on the tricalcium magnesium silicate scaffolds in term of biological behavior for bone tissue engineering. The microstructure, morphology, cell adhesion and chemical composition of coated scaffolds were analyzed by scanning electron microscopy and Fourier transform infrared spectroscopy. Also, MTT assay test showed that both coated and uncoated scaffolds supported growth of mouse embryonic fibroblast cell. However, the coated scaffold revealed a higher cell proliferation than uncoated one. All the results postulated that silk fibroin was successfully coated on the scaffold and improved the biological properties of scaffold indicating a promising biomaterial for bone tissue engineering application.

کلمات کلیدی:

Calcium magnesium silicate, Scaffold, Silk, coating, In vitro