Evaluation of chitosan/laminin scaffolds biocompatibility

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Abstract

Aim and Background: *Tissue engineering is a promising area in biomedical engineering to repair or replace the function of defective or damaged tissues or organs. Recently, tissue engineering has provided a new medical therapy as an alternative to conventional transplantation methods by using polymeric biomaterials with living cells. The scaffold provides the microenvironment (synthetic temporary extracellular matrix) for regenerative cells, supporting cell attachment, proliferation, differentiation, and neo tissue genesis due to their suitable chemical, physical and biological. In this research, chitosan/laminin nanocomposite was exploited as scaffold for suitable cell proliferation.*

Materials and Methods*: Freeze-drying technique was used to fabricate chitosan/laminin-nanocomposites for L929 fibroblast cellsseeding, proliferation and attachment. The physico-chemical properties of the scaffold were fully characterized by using scanning electron microscopy (SEM). Consequently, the biocompatibility of scaffold was evaluated by biocompatibility test.*

Results: *The microstructure observation with SEM suggests the formation of cylinder-shaped porous structure and interconnected porosity.*

Conclusion: *Our results demonstrated that the nano-sized chitosan/laminin scaffolds are nontoxic and biocompatible which can promote proliferation and attachment of L929 fibroblast cells. And their appropriate adhesion to nanocomposite for improved tissue engineering applications.*

Keywords: *Tissue engineering, Scaffold, Chitosan/laminin*

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