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壳聚糖及其改性材料对骨髓基质细胞的作用

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壳聚糖是一种广泛应用的生物可降解材料。该论文研究了几种与壳聚糖相关的材料对骨髓基质细胞生长和分化的作用。主要实验方法是在材料表面培养骨髓基质细胞并对其进行诱导促使其向成骨细胞方向分化。通过对细胞生长和分化情况的观察和测定，对几种材料与骨髓基质细胞的亲和性作出了评价。另外，通过ELISA法测定了细胞外基质分子在材料上的吸附量，测量了各材料的表面接触角以研究细胞在材料表面的铺展和增殖。结果表明尽管壳聚糖本身与骨髓基质细胞并不具有很好的亲和性，但通过与明胶混合，壳聚糖的生物相容性得到了明显提高，是很有应用前景的骨修复材料。

THE INFLUENCE OF CHITOSAN AND ITS MODIFIED MATERIALS ON MARROW STROMAL CELLS

Chitosan is a kind of widely used biodegradable materials. In order to explore the ability of several chitosan related materials to promote the growth and differentiation of marrow stromal cells, marrow stromal cells were cultured and induced into osteoblasts on these materials. By observing and investigating the growth and differentiation of the cells on these materials, the affinity of these materials for marrow stromal cells were evaluated. In addition, the wettability of these materials and the adsorption amount of extracellular matrix molecules on all these materials were measured to study the cell behaviors of marrow stromal cells. Results showed that although chitosan did not have very good affinity for marrow stromal cells, the biocompatibility of chitosan was apparently enhanced after mixing with gelatin. The mixture of chitosan and gelatin is a promising material for bone repairing.

关键词

壳聚糖(Chitosan); 明胶(Gelatin); 骨髓基质细胞(Marrow stromal cells); 细胞外基质分子(Extracellular matrix molecule); 蛋白质吸附(Protein adsorption)