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Title (English)

Cartilage regeneration:
Injectable matrix for bone marrow stem cells

Title (Swedish)

Abstract

Human articular cartilage heals poorly in adults and current surgical procedures do not provide long-term repair. Cell therapy and tissue engineering may provide a solution for this problem. In this study the effectiveness of gels consisting of hyaluronic acid, fibrin and collagen were investigated with respect to cartilage formation from bone marrow stromal cells. Gelling properties, morphology and cell differentiation was determined in gels of different compositions. Histology showed that the cells organized in lacunae and deposited matrix in all gels. Immunohistochemistry confirmed that the matrix consisted of collagen type II, a typical marker for mature chondrocytes. Gels based on hyaluronic acid were inducing chondrogenesis more efficiently than collagen based ones, which could be due to interactions between the hyaluronic acid and the cells during differentiation.

Keywords

Cartilage, fibrin, hyaluronic acid, bone marrow stromal cells, chondrocytes, collagen type II

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