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(54) Title: GENE THERAPY USING TGF–β

(57) Abstract

The subject invention is related to a cell–mediated gene therapy treatment for orthopedic disease using a member belonging to the transforming growth factor–β (TGF–β) superfamily. TGF–β gene therapy as a new treatment method for degenerative arthritis is demonstrated. After transfection of TGF–β cDNA expression vectors into fibroblasts (NIH 3T3–TGF–β1), the cells were injected into rabbit achilles tendon and knee joints with artificially–made cartilage defects. Intratendinous injections were performed to determine the optimal concentration for *in vivo* expression. Partially defected cartilage model was made to simulate degenerative arthritis of the knee joint. The partial cartilage defect treated with the cell–mediated gene therapy procedure was covered by newly formed hyaline cartilage which indicates that the cells survived and stimulated matrix formation in this area. Completely denuded cartilage areas were covered by fibrous collagen.

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