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## CELL TECHNOLOGIES IN CARTILAGE REGENERATION

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The damages of cartilage (CT) remain an important clinical problem, characterized by a decrease in the quality of life, severe pain, limited function and, in the case of extensive lesions, mobility and deep disability. Microfracturing and abrasive chondroplasty, methods of activating reparative regeneration in many cases lead to the formation of tissue inferior to the properties of the native one. In this regard, the development of personalized tissue-engineering structures, including cells and a scaffold selected specifically to replace cartilage defects of different severity and clinical manifestations, seems to be very relevant. This review discusses various types of cells and scaffolds in the context of ideas about biochemical and mechanical factors that can stimulate chondrogenesis *in vivo*. Advantages and disadvantages of scaffolds of biological and synthetic origin are examined according to the criteria of biocompatibility, immunogenicity, mechanical strength, stability, adhesiveness. It has been shown that currently the most promising scaffolds are composite ones, combining materials of biological and synthetic origin and preferably populated by autologous cells.

**Keywords:** cartilage tissue, chondrogenesis, multipotent mesenchymal stromal cells, tissue engineering, carrier, extracellular matrix, bioreactor