STEM CELLS AS MEDIUM FOR ORTHOPEDIC GENE TREATMENT

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2013

ABSTRACT

Adult stem cells inhabit in adult tissues and provide as the resource for their specific cells. In reply to definite issues and indications, adult stem cells can differentiate and into functional tissue, specialized cells. Adult mesenchymal stem cells (MSCs) include the prospective to differentiate into diverse mesenchymal ancestry such as muscle, bone, cartilage, fat, tendon and ligaments. Adult MSCs can be more or less clearly isolated from different tissues such as bone marrow, fat and muscle. Adult MSCs are easy to control and develop in vitro. It is these characteristics of adult MSCs that have made them the focal point of cell mediated gene treatment for skeletal tissue regeneration. Adult MSCs engineered to articulate a variety of aspects not only distribute them in vivo, but also counter to these factors and differentiate into skeletal specialized cells. This permits them to actively contribute in the tissue regeneration progression. In this dissertation the recent accomplishments and improvement in stem-cell-based gene treatment advances and their relevance to bone, and ligament tissues that are the current spotlight of orthopaedic medicine will be discussed.