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Sommario/riassunto

Multipotent mesenchymal stem cells (MSCs) are a heterogeneous population of cells which reside in a variety of tissues. They differentiate into several mesodermal lineages, secrete a multitude of trophic factors and contribute to tissue homeostasis. MSCs are able to exert immunosuppressive activities by interfering with inflammatory cytokine production and with T- and B-cell proliferation. These immunomodulating properties make MSCs promising candidates for the treatment of chronic inflammatory and autoimmune disorders. There are, however, certain caveats involved including inappropriate migration of cells in the body, immune rejection, tumor formation, or graft versus host disease (GvHD). This book investigates the current state of the MSC-dependent therapy of chronic inflammatory disorders and autoimmune diseases. Among the covered topics are GvHD, chronic kidney, liver and lung disease, ischemic heart and inflammatory bowel disease, diabetes, osteoarthritis, various rheumatic and neurological disorders and, lastly, tumors and solid organ transplantations. This book also questions the immunoprivileged status of MSCs, discusses the therapeutic role of MSCs in experimental animal disease models and their translation to the corresponding human disorders, envisions a role for MSCs in tumor interventions and, lastly, describes a systems biology approach for stem cells and inflammation.