Free and hydrogel encapsulated exosome-based therapies in regenerative medicine.

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Over the last few decades, mesenchymal stem cells-derived exosomes (MSCs-Ex) have attracted a lot of attention as a therapeutic tool in regenerative medicine. Exosomes are extracellular vehicles (EVs) that play important roles in cell-cell communication through various processes such as stress response, senescence, angiogenesis, and cell differentiation. Success in the field of regenerative medicine sparked exploration of the potential use of exosomes as key therapeutic effectors of MSCs to promote tissue regeneration. Various approaches including direct injection, intravenous injection, intraperitoneal injection, oral administration, and hydrogel-based encapsulation have been exploited to deliver exosomes to target tissues in different disease models. Despite significant advances in exosome therapy, it is unclear which approach is more effective for administering exosomes. Herein, we critically review the emerging progress in the applications of exosomes in the form of free or association with hydrogels as therapeutic agents for applications in regenerative medicine.

Słowa kluczowe

Exosome, Hydrogels, Mesenchymal stem cell, Regenerative medicine

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