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Extracellular vesicle therapeutics for liver disease

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Abstract

Extracellular vesicles (EVs) are endogenous nanoparticles that play important roles in intercellular communication. Unmodified and engineered EVs can be utilized for therapeutic purposes. For instance, mesenchymal stem cell (MSC)-derived EVs have shown promise for tissue repair, while drug-loaded EVs have the potential to be used for cancer treatment. The liver is an ideal target for EV therapy due to the intrinsic regenerative capacity of hepatic tissue and the tropism of systemically injected nanovesicles for this organ. This review will give an overview of the potential of EV therapeutics in liver disease. Specifically, the mechanisms by which MSC-EVs induce liver repair will be covered. Moreover, the use of drug-loaded EVs for the treatment of hepatocellular carcinoma will also be discussed. Although there are several challenges associated with the clinical translation of EVs, these biological nanoparticles represent a promising new therapeutic modality for liver disease.

Keywords: Extracellular vesicle; exosome; liver; mesenchymal stem cell; nanovesicle

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