

عنوان مقاله:

Exosomes of mesenchymal stem cells as nano-cargos for anti-SARS-CoV-2 asRNAs

محل انتشار:

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خلاصه مقاله:

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) emerged in December 2019 and rapidly spread

worldwide. Since then, scientists have searched to find an effective treatment for coronavirus disease ۲۰۱۹ (COVID-۱۹). In this regard, several antiviral drugs are currently undergoing clinical trial studies to evaluate their safety and efficacy in the treatment of COVID-۱۹. Some of these drugs have been designed based on this fact that SARS-CoV-۲ is a positive-sense single-stranded RNA virus and previous studies showed the efficacy of anti-RNA virus, single strand RNA inhibiting antisense RNAs (asRNAs), for silencing virus replication, in vitro. Exosomes can be suggested as a promising candidate to transfer the anti-SARS-CoV-۲ asRNAs to human respiratory epithelium. Exosomes are secreted by mesenchymal stem cells (MSCs) and can be loaded by asRNAs of an anti-RNA virus. MSCs-secreted exosomes as a nano-cargo of asRNAs of anti-SARS-CoV-۲ have other therapeutic potentials such as immunomodulatory effects of their cytokine contents, affinity to respiratory epithelial attachment, anti-fibrotic activity in lung, non-toxicity for normal cells, and not triggering an immune response. Moreover, inhalation of anti-SARS-CoV-۲ asRNAs may stop SARS-CoV-۲ replication. Producing specific anti-SARS-CoV-۲ asRNAs by targeting the genome of virus and their delivery by MSCs exosomes are suggested and discussed. This approach will potentially shed light on .gene therapy of the other human lung diseases via inhalational delivery using exosomes in future

کلمات کلیدی:

SARS-CoV-۲, COVID-۱۹, antisense RNA, exosome, mesenchymal stem cells

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