Special Issue

Application of Gene Delivery: Challenges and Opportunities

Message from the Guest Editors

Issues with delivery are still one of the most important problems to overcome in the development of nucleic acids as drugs. Although viral vectors such as retroviruses or adenoviruses have shown high transfection efficiencies and have been used in clinical trials, certain concerns regarding the immunogenicity or recombination of oncogenes must be overcome. Moreover, viral vectors still suffer from capacity constraints, a high cost of goods, long lead times, and significant upfront investment requirements. In contrast, nonviral vectors such as lipids, cell-penetrating peptides, polymers or gold nanoparticles have emerged as promising alternatives to deliver nucleic acids. It is essential to deepen the regulation of gene therapy drugs, as well as the investigation of the safety of these drugs.

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