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Progress in developing cationic vectors for non-viral systemic gene therapy against cancer

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Titre	Progress in developing cationic vectors for non-viral systemic gene therapy against cancer
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Auteur	Morille, Marie [1], Passirani-Malleret, Catherine [2], Vonarbourg, Arnaud [3], Clavreul, Anne [4], Benoît, Jean-Pierre [5]
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Mots-clés	carrier [6], intracellular trafficking [7], nucleic acids [8], poly(ethylene glycol) [9], stealthy [10], targeting system [11]
Résumé en anglais	Initially, gene therapy was viewed as an approach for treating hereditary diseases, but its potential role in the treatment of acquired diseases such as cancer is now widely recognized. The understanding of the molecular mechanisms involved in cancer and the development of nucleic acid delivery systems are two concepts that have led to this development. Systemic gene delivery systems are needed for therapeutic application to cells inaccessible by percutaneous injection and for multi-located tumor sites, i.e. metastases. Non-viral vectors based on the use of cationic lipids or polymers appear to have promising potential, given the problems of safety encountered with viral vectors. Using these non-viral vectors, the current challenge is to obtain a similarly effective transfection to viral ones. Based on the advantages and disadvantages of existing vectors and on the hurdles encountered with these carriers, the aim of this review is to describe the "perfect vector" for systemic gene therapy against cancer. (c) 2008 Elsevier Ltd. All rights reserved.
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