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[Review](#) [Adv Drug Deliv Rev.](#) 2009 Feb 27;61(2):140-57. doi: 10.1016/j.addr.2008.09.005.

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Nanoparticles for nasal vaccination

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Abstract

The great interest in mucosal vaccine delivery arises from the fact that mucosal surfaces represent the major site of entry for many pathogens. Among other mucosal sites, nasal delivery is especially attractive for immunization, as the nasal epithelium is characterized by relatively high permeability, low enzymatic activity and by the presence of an important number of immunocompetent cells. In addition to these advantageous characteristics, the nasal route could offer simplified and more cost-effective protocols for vaccination with improved patient compliance. The use of nanocarriers provides a suitable way for the nasal delivery of antigenic molecules. Besides improved protection and facilitated transport of the antigen, nanoparticulate delivery systems could also provide more effective antigen recognition by immune cells. These represent key factors in the optimal processing and presentation of the antigen, and therefore in the subsequent development of a suitable immune response. In this sense, the design of optimized vaccine nanocarriers offers a promising way for nasal mucosal vaccination.

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