



## Vesicular systems for intranasal drug delivery

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Recently, the nasal route for systemic drug delivery has gained great interest. It provides several advantages over other routes of drug administrations. These include rapid absorption, avoidance of the intestinal and hepatic presystemic disposition, and high potential for drug transfer to the cerebrospinal fluid. Unfortunately, the mucociliary clearance which reduces the residence time of the nasally applied drugs and the poor nasal permeability made it difficult for many drugs to be delivered through this route. Alternative approaches have been adopted to overcome these problems. These include the use of mucoadhesive formulations, or employing chemical penetration enhancers. Vesicular drug delivery systems provide promising alternative for enhanced and controlled nasal drug delivery. Alternative terminology was used to describe the vesicular systems. These include liposomes, niosomes, ethosomes, and transfersomes. These systems are morphologically similar but differ in composition and function. The nasal delivery employed liposomes and niosomes, and their corresponding preconcentrates, proliposomes and proniosomes. Encouraging results have been recorded for these systems after nasal application with the possibility of achieving many purposes such as systemic delivery of small and large molecular weight drugs. This review article discussed such systems for intranasal vaccination and to improve the nasal drug delivery to the central nervous system. The review critically evaluated the potential of such systems for systemic drug delivery after intranasal applications.

### Biography

Ibrahim A. Alsarra has completed his Ph.D. in Pharmaceutics & Pharmaceutical Biotechnology at the age of 30 years from Division of Pharmaceutical Sciences, School of Pharmacy, University of Missouri-Kansas City, MO, USA. He is the Deputy Director of Center of Excellence in Biotechnology Research, Riyadh, Saudi Arabia, an excellence center funded by the Saudi Arabia's government. He has published more than 55 papers in reputed journals and serving as an editorial board member of outstanding journals, such International Journal of Pharmaceutics, Pharmaceutical Development and Technology, and Expert Opinion in Drug Delivery. He also has presented his work in various prestigious international Conferences.