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Potential nanocarriers for topical skin delivery of drugs

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Abstract

Nanotechnology is one of the most growing areas of scientific research. Recent advances in that area have led to the optimization of different types of nano-sized materials to various biomedical applications. Nanocarriers are increasingly being exploited to deliver drugs, cosmetic compounds, dyes, vaccines or gene fragments to specific cell targets for therapeutic or diagnostic purposes.

Skin offers an ideal application site to deliver therapeutic agents for both local and systemic actions. Topical therapy is an attractive choice for dermatology due to its advantageous such as targeting the site of disease and reduction of risk of systemic side effects. The drugs should penetrate into the skin, either reach dermis layer of skin. However, *stratum corneum*, the outermost layer of skin, is a unique barrier to passage of drugs. In order to overcome its barrier characteristics, optimization of nanocarriers has emerged as potential alternative for delivering drugs across *stratum corneum* to achieve either local effect for the treatment of diseases. Different types of nanocarriers including colloidal, vesicular, nanoparticulates are used for delivery of drugs to enhance cutaneous passage of drugs to target different layers of the skin. Among these systems, nanosized colloidal systems, microemulsions are one of the promising carries concerning dermal drug delivery. Nano-sized drug carriers depending of their size and physicochemical structures can be particularly a useful way of targeting skin layers.

Biography

Sevgi Gungor has completed her Ph.D in 2001 and worked post-doctorate researcher at Istanbul University. She became a lecturer at Istanbul University Faculty of Pharmacy in 2004. She has also worked visiting scientist at University of Bath in between 2005-2006; 2007-2008. She has published 25 papers in peer reviewed journals, 4 book chapters in international books. She has given more than 45 oral and poster presentations in international conferences. Her research focuses of the enhancement of skin permeation of drugs with enhancers, colloidal nanocarriers, and iontophoresis; the characterization of skin transport mechanism of drugs; and the development of innovative topical&transdermal systems.