

World Drug Delivery Summit

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Transdermal drug delivery microporation and micropore lifetime enhancement

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The modern age of transdermal drug delivery started with the marketing of Transderm Scōp in 1979 as a scopolamine patch for the treatment of motion sickness, nausea and vomiting. Since 1997, transdermal drug delivery companies have aligned with life science and biopharmaceutical industries, to deliver large molecules, peptides and proteins, i.e. insulin, calcitonin, PTH (1-34), etc. Strategies and technologies have been developed for skin pretreatment or continuous use, in order to accomplish large molecule delivery. So far, the most effective strategy for overcoming the skin's barrier properties has been to focus on the creation of micropores in the stratum corneum. Microchannels or micropores can be created by external means such as microneedles, ultrasound, electroporation, radiofrequency and laser. Strategies and methods are now being developed to characterize micropores and understand their viability. Additionally, approaches to enhancing micropore lifetime are being investigated. The key to future successes in transdermal drug delivery of large molecules, especially biopharmaceuticals, will be the understanding and maintenance of skin micropores generated by microneedle pretreatment or other external physical techniques.

Biography

Steven A Giannos is an independent transdermal consultant. His expertise is in pioneering skin permeation enhancement technologies (i.e. iontophoresis, sonophoresis, microneedles, etc.). His career includes working on novel transdermal and controlled release technologies at Chrono Therapeutics, Inc., Novartis, Sontra Medical, Lavipharm Corp., Boston Scientific and MIT. He holds an MS degree in Management from Capella University and an MS degree in Polymer Science from the University of Massachusetts, Lowell. He holds 5 patents, with more pending and has authored a number of book chapters, publications and invited articles and presentations covering new technologies for transdermal drug delivery technologies.

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