Center for Dermal Research
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Dr. Nicole Brogden

Dr. Brogden received her PharmD from the University of Iowa (2007) and completed her residency (2007-08) and PhD training (2012) at the University of Kentucky. She has been on the faculty at the University of Iowa College of Pharmacy for 11 years, where she is Principal Investigator of an externally funded research program in topical and transdermal drug delivery. Her research explores the effects of delivery methods, formulation, and clinical variability on dermal drug delivery, with a major focus on microneedle systems. Major areas of interest include novel formulations for drug absorption through microneedle treated skin, characterization of skin healing response to microneedle insertion, and microneedle application in diverse skin types. A related area also under investigation is the use of thermosensitive polymers for analgesic and antibiotic treatments for chronic wounds. Dr. Brogden's research is highly translational, involving in vitro studies and in vivo small animal models, as well as pilot studies in human subjects. She has completed 13 studies in human subjects: 3 pharmacokinetics studies, 3 studies of epidermal cytokines, and 7 microneedle studies. Her work has been funded by NIH, FDA, private foundations, and small pharmaceutical companies.

"Clinical and patient-specific factors impacting microneedle drug delivery"

Abstract

Microneedles remain a promising approach for transdermal delivery of a broad range of active pharmaceutical ingredients (APIs) for chronic and acute disease states. Successful microneedle delivery of drugs, vaccines, and macromolecules depends on characteristics of both the formulation and the patient population. Specifically, the clinical features and skin healing response of target patient populations directly influences microneedle-assisted drug delivery. The influence of clinical variability and patient-specific characteristics needs to be considered early in development so therapies can be optimized for specific disease states and patient populations of interest. In this presentation, topics relating to the impact of patient characteristics and skin types on microneedle drug delivery will be reviewed.