RESEARCH SEMINAR SERIES REMOTE

The Center for Dermal Research Welcomes

Michael Herbig

Co-founder and CEO of RaDes GmbH, Hamburg, Germany

"Topical development of new chemical entities (NCEs): Compound selection and rational design of formulations"

October 16, 5:30pm EST

Michael Herbig is co-founder and CEO of RaDes GmbH, Hamburg, Germany, a service provider for development & analytics of liquid and semi-solid formulations. Prior to that, he was Head of Pharmaceutical Development at Almirall Hermal, and held positions of increasing responsibility in pre-formulation and pharmaceutical development at Novartis, Basel, Switzerland. One focus of his work is the "rational design" of semi-solid and liquid formulations for topical use. He has authored many peer-reviewed publications in the field of formulation design and characterization, in vitro performance models, and characterization of complex excipients, and is co-inventor of several formulation patents. He studied pharmaceutical sciences at the university of Wurzburg, Germany, and holds a PhD in drug delivery & formulation from the Swiss Federal Institute of Technology (ETH) Zurich, Switzerland, and an MBA from OUBS, UK.

Abstract: Topical semi-solid formulations are often complex as they typically consist of several phases and undergo a transformation after application. To enable rational design, it is important to identify empirical assumptions in the development process and replace them with systematic hypotheses and approaches. This begins with definitions of what a semi-solid drug formulation is: it can be considered a drug delivery system, a physical body, and a quality product, and can be characterized accordingly. Most active pharmaceutical ingredients (APIs) are not specifically designed for semi-solid topical products but are repurposed from peroral or parenteral programs. Therefore, developability assessments of NCEs and systematic candidate selection are important. Candidates with a favorable profile for topical delivery have a much higher probability of success and lower development costs.

Rational formulation design focuses on the solubility, saturation, and distribution of the drug (and functional excipients) in the formulation and anticipates the effects of vehicle transformation upon application.

As a physical entity, most formulations are structured liquids and need to be understood in terms of manufacturability, storage stability and device compatibility. Systematic rheological studies help to understand, design, and control the physical properties. Many potentially critical excipients (surfactants, petrolatum, oils) in semi-solid formulations are complex. Understanding their true composition and variability helps to design robust formulations.

CONFERENCE LINK:

Meeting link: https://rutgers.zoom.us/j/91728156605?pwd=c25xTm9PV1dPbFVRdlJJclFMYklCUT09

Link is also available on our website: https://sites.rutgers.edu/centerfordermalresearch/

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