SOT FDA Colloquia on Emerging Toxicological Science: Challenges in Food and Ingredient Safety

December 12, 2019

Dermal Absorption and Toxicity: Concepts for Application to Safety Assessment

Wiley Auditorium, US FDA, CFSAN, College Park, MD • Live Webcast

Chair: Nancy Monteiro-Riviere, North Carolina State University and Kansas State University

Co-Chair: Jeffrey Yourick, US Food and Drug Administration

Food Safety Colloquia Series

The Society of Toxicology in conjunction with the US FDA Center for Food Safety and Applied Nutrition (CFSAN) have partnered to provide this colloquia series. The series presents scientific information that is high-quality, cutting-edge, future-oriented toxicological science to provide a well-grounded foundation to inform the work of US FDA employees. These sessions are open to the public to attend in person or via webcast. These events are not a public forum for discussion of toxicology regulatory issues.

Dermal absorption information is needed to conduct a realistic exposure assessment for a chemical that is directly applied to skin or otherwise comes in contact with skin. If a potentially hazardous chemical/ingredient has been identified that contacts skin, then the next step in the process of safety evaluation is to estimate human exposure. Systemic exposure resulting from skin contact is a function of many different properties including the amount of chemical applied to the skin, the duration of skin contact, area of body contact, chemical physio-chemical properties and the extent of dermal absorption. If no data are available for specific exposure conditions for a chemical, then reasonable estimates of these parameters must be used. This colloquium will explore how different factors can affect the extent of dermal absorption such as skin structure, dermal absorption measurement techniques (*in vivo* and *in vitro*), skin metabolism, use of skin absorption kinetic modeling techniques, physio-chemical properties, mixtures, formulations and some case-study examples. A reasonable estimate of human exposure to a topically applied chemical can be calculated if the extent of skin absorption is realistically determined.

Schedule *(All times are Eastern US, GMT-5)*

8:00 AM–8:30 AM	**Badge Pick Up**
8:30 AM–8:40 AM	**Welcome, Overview, and Speaker Introductions** **Jeffrey Yourick,** US FDA, Laurel, MD
8:40 AM–9:15 AM	**Introduction to the Comparative Anatomical Factors Affecting Topical Skin Delivery** **Nancy Monteiro-Riviere,** North Carolina State University, Raleigh, NC; and Kansas State University, Manhattan, KS
9:15 AM–9:50 AM	**Simulation and Modeling of Dermal Absorption Kinetics: What Level of Detail is Needed?** **Gerald Kasting,** University of Cincinnati, Cincinnati, OH
9:50 AM–10:25 AM	**Assessing Mixture and Formulation Influence on Skin Absorption** **Ronald Baynes,** North Carolina State University, Raleigh, NC
10:25 AM–10:40 AM	**Break**
10:40 AM–11:15 AM	**Cutaneous Metabolism and Its Importance for Skin Permeation and Toxicity** **Simon Charles Wilkinson,** Newcastle University, Newcastle upon Tyne, United Kingdom
11:15 AM–11: 50 AM	**Practical Considerations for Incorporating Skin Penetration Data into a Risk Assessment for a Consumer Product Launch** **Timothy McCarthy,** Johnson and Johnson, Skillman, NJ
11:50 AM–12:50 PM	**Roundtable Discussion** **Moderator: Nancy Monteiro-Riviere,** North Carolina State University, Raleigh, NC; and Kansas State University, Manhattan, KS **All Speakers** **Nakissa Sadrieh,** US FDA, College Park, MD

Organizing Committee

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Future Colloquia Topics

February 2020	Route-to-Route Extrapolation
April 2020	Use of Artificial Intelligence/Big Data in Food Additive, Ingredient, and Cosmetics Evaluation
May 2020	Integrated Approaches to Testing and Assessment—The Future of Predictive Toxicology

Most Recent Colloquia

- ***In Silico* Methods for Food Ingredient, Dietary Supplement, and Cosmetic Safety**
- **Alternative Methods for Predictive Safety Testing: 3D Bioprinted Tissue Models**
- **Redesigning the Rodent Bioassay for the 21st Century**
- **Food from Genetically Engineered Plants: What Role for Metabolomics?**
- **Can Alternatives Inform the Risk Assessments of Mixtures in Food?**
- ***In Vitro* to *In Vivo* Concordance for Toxicity Prediction and Use in Safety Assessments**
- **Safety Assessment of Food Packaging and Other Food Contact Substances**
- **Considerations for the Determination of Adversity in Food Chemical Safety Evaluations**
- **Application of *In Vitro* to *In Vivo* Extrapolation in Safety Assessment**

.....plus 10 additional diverse topics, and other learning opportunities, all available at www.toxicology.org

SOT | Society of Toxicology

Creating a Safer and Healthier World by Advancing the Science and Increasing the Impact of Toxicology

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