Welcome and Opening Remarks

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M-CERSI workshop: Drug Permeability: Best Practices for BCS-based Biowaivers
Biopharmaceutics Classification System (BCS)

- BCS is a well-established scientific framework based on solubility and permeability of the drug substance, plus dissolution of the drug product.
- Provides assurance of in vivo bioequivalence based on extensive in vitro comparative characterization.
- BCS provides a pathway to avoid unnecessary human studies.
- BCS was finalized in 2019 as the ICH M9 guidance.
- The most difficult criterion to establish is that the drug substance is highly permeable.
  - Mass-balance or absolute bioavailability, or extensive in vitro cell permeability data using a properly validated system.
- To discuss the industry, academic and regulatory experience in generating and evaluating permeability data which will further facilitate implementation of BCS and efficient development of high-quality drug products globally.
Items on M-CERSI website

• Agenda
• Biographies
• Breakout session information

• https://cersi.umd.edu/event/16683/drug-permeability-best-practices-for-bcs-based-biowaivers

• Within ~3 weeks, speaker slides will be available, along with recordings from the 8:30 AM-2:00 PM and 4:05 PM-4:20 PM “main workshop”
Breakout session information

• Breakout Session #1: In vitro and in silico intestinal permeability methods
  • Identify permeability assessment methods other than Caco-2 and how to validate methods

• Breakout Session #2: Excipient effects on permeability, do we need to be concerned?
  • Identify excipients that do not need to be Q1 and/or Q2 in various situations, including any limits on excipient amounts.

• Breakout Session #3: Use of label and literature data to designate permeability class
  • Identify label and literature data types that can serve as primary data to classify permeability as high, and requirements to be met.
Webex logistics

• “Main workshop” URL link
  • 8:30am - 2pm
  • 4:05 - 4:20pm
  • Please enter questions into Chat at anytime for panel discussion

• Separate URL link for 2pm breakout session
  • 2-3pm
  • Please “raise your hand” to be recognized (to speak); enter questions into Chat

• Separate URL link for 3pm breakout session
  • 3-4pm
  • Please “raise your hand” to be recognized (to speak); enter questions into Chat

• aanonsen@umd.edu
Breakout sessions:
How to raise hand in Webex?

• At the bottom center of Webex, select the **React** button, and tap **Raise hand**. Reaction button also available via **More** button.
Breakout sessions: How to lower hand in Webex?

• At the bottom center of Webex, select the **React** button, and tap **Lower hand**.
Agreement about the importance of a harmonized international approach

Harmonized international approach for regulatory standards related to the development and approval of complex generic products

www.complexgenerics.org
Brief BCS history

• Draft FDA BCS guidance published in 1999
• Final FDA BCS guidance published in 2000
• Wu and Benet BDDCS paper published in 2005
• WHO guidelines published in 2006
• EMA BE guidance published in 2010; FDA BCS guidance updated in 2017
• ICH M9 BCS guidance published in 2019
BCS regulatory applications are over 20 years old

Percent fraction dose absorbed in humans vs. Caco-2 permeability in the 2% supplemented calf serum (sCS) system.

University of Maryland Center of Excellence in Regulatory Science and Innovation (M-CERSI)

• M-CERSI is an FDA-sponsored center at the Baltimore and College Park campuses of the University of Maryland (www.cersi.umd.edu).

• The mission of the Center is to foster the development of regulatory science – the science of developing new tools, standards and approaches to assess the safety, efficacy, quality and performance of FDA-regulated products.

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Thank you

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• Special thanks to Mehul Mehta and Paul Seo.