

***In vitro* absorption prediction and parameters behind it**

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Accurate absorption prediction in the early stage of formulation development is a major contributor to successful formulations, regardless of the absorption site. Numerous assays, equipment, and software were developed to help the scientist with a deeper understanding of the absorption process and ultimately with better prediction of absorption. The current presentation will focus on solubility, permeability, and flux as key parameters to understand the absorption process and on devices that can measure such parameters and help the effort.

The presentation will introduce membrane permeability and flux as physicochemical parameters, it will discuss the solubility-permeability interplay, and will provide examples of the complex effect of excipients on these parameters. Various 96 well plate-based and larger volume *in vitro* permeability/flux devices will be shown and example studies will be presented. Examples will cover excipient selection for the oral formulation, gastro-intestinal absorption predictions, bioequivalence estimations.

References (optional):

1. Dahan A. *et al.*, *AAPS J.* 14, 2 (2012).
2. Borbas E. *et al.*, *Mol. Pharmaceutics.* 13, 11 (2016)
3. Borbas E. *et al.*, *Mol. Pharmaceutics.* 16, 10 (2019)
4. Kádár Sz. *Et al.*, *The AAPS Journal.* 24:22 (2022)

Short Curriculum Vitae:

Bálint Sinkó received an M.Sc. degree in Pharmacy at Semmelweis University in 2007 and a Ph.D. degree in 2012. As part of his Ph.D. project, he has developed a skin penetration model that has been licensed and commercialized by Pion Inc. Currently, he works for Pion Inc. as the leader of the development team. His research interest is focused on the formulation effect on intestinal and skin absorption. In these topics, he has authored or co-authored over 20 research articles in peer-reviewed journals and 1 book chapter. He is an industrial consultant of multiple Ph.D. students at Semmelweis University and Budapest University of Technology and Economics on intestinal absorption prediction. He also holds an honorary associate professor title at Semmelweis University.