



GastroPlus®

Virtual Introductory Workshop

February 7th-11th, 2022

Workshop Overview

This introductory **GastroPlus®** workshop is designed to provide participants with the necessary information and skills needed to execute basic physiologically based pharmacokinetic (PBPK) modeling and simulations, and to provide a foundational understanding of the GastroPlus software.

This virtual workshop will consist of a combination of live lectures and hands-on exercises within the software.

The workshop materials are structured to demonstrate both theoretical and practical aspects of PBPK modeling yet remain versatile enough to benefit participants with diverse backgrounds.

No prior experience with GastroPlus is required. However, if you are brand new to the software, we recommend attending one of our [complimentary, monthly 5-hour introductory sessions](#) first, if possible.

Learning Objectives

At workshop completion you will have an understanding of the inputs and interactions that exist among the various mechanistic phenomena affecting drug dissolution, drug absorption, pharmacokinetics, and pharmacodynamics.

Topics will include but are not limited to the following:

- pKa – ionization effects on solubility, dissolution, permeability, and absorption
- Solubility and permeability changes in the gastrointestinal tract and the differences in physiology between humans and preclinical species
- Formulation effects including, particle size distributions and controlled release dosage forms
- Predicting drug properties from chemical structures using the **ADMET Predictor® Module**
- Recognizing when to use PBPK versus standard compartmental PK models
- Assessing formulation strategies such as micro ionization and nanoparticles
- Fitting nonlinear metabolism and transport models
- Building PBPK-PD models using simulated target tissue concentrations
- Simulating populations such as mixes of ages, gender ratios, and ethnicities to help virtual trials predict bioequivalence
- Deconvoluting *in vivo* dissolution to generate more useful IVIVCs
- Modeling the *in vivo* exposure of large molecules (**Biologics**)



Register online! simulations-plus.com/workshops



SimulationsPlus



GastroPlus®

Course Instruction

The workshop will be taught by experienced PBPK modelers from Simulations Plus.



Denise Morris

Agenda (All times are Pacific Standard Time)

Monday

- 08:00 - 10:00 **Introduction to GastroPlus**
- 10:00 - 10:15 Break (15 min)
- 10:15 - 13:45 **Solubility Dissolution and Precipitation (includes 30 minute break)**

Tuesday

- 08:00 - 09:00 **Passive Permeability and Absorption**
- 09:00 - 09:15 Break (15 min)
- 09:15 - 12:45 **PBPK Modeling (IVIVE) (includes 30 minute break)**

Wednesday

- 08:00 - 10:00 **Nonlinear Metabolism and Carrier Mediated Transport**
- 10:00 - 10:15 Break (15 min)
- 10:15 - 11:15 **Compartmental PK Modeling**
- 11:15 - 12:00 Break (45 min for lunch)
- 12:00 - 13:00 **PBPK Modeling of Biologics**

Thursday

- 08:00 - 11:30 **Mechanistic IVIVCs and Virtual Bioequivalence Trials (includes 30 minute break)**
- 11:30 - 12:00 Break (30 min)
- 12:00 - 13:00 **PBPK-PD Modeling**

Friday

- 08:00 - 10:00 **DDI Predictions**
- 10:00 - 10:30 Break (30 min)
- 10:30 - 12:30 **Additional Dosage Routes (two of the following; dermal, pulmonary, ocular, and intra-articular)**

Virtual Platform

Training sessions will consist of live instruction and hands-on examples via Microsoft Teams meetings. Participants will virtually attend using their PCs with enabling of cameras and microphones *optional but encouraged*.

Requirements

PCs equipped with internet access and Google Chrome with Flash 9+ plugins are required to participate.



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