

Workshop on Modeling and Simulation

Kinetic and Dynamic Complexity in Drug Transit-Response in the Human Body

MD Pharmacon Pharmaceutical Services Ltd (www.mdpharmacon.com) organizes a one-day (June 2, 2015) international workshop on modeling and simulation approaches regarding the “*Kinetic and Dynamic Complexity in Drug Transit-Response in the Human Body*”. The programme is focusing on the dynamical aspects of drug phenomena in *in vitro* and *in vivo* processes.

For more details on the programme and information on registration see [here](#).

Workshop summary

This one-day workshop is intended for Academics/students or scientists working in Academia, pharmaceutical industries, regulatory agencies, and contract research organizations. Scientists from several disciplines may attend this workshop like Pharmaceutics, Mathematics, Programming, Physics, Chemical Engineers, Physiology etc. The attendees of this workshop may have or not a scientific background on the issues discussed in this workshop.

This workshop will begin with a short overview of the current modeling and simulation status in the European Medicines Agency (EMA) and the US Food and Drug Administration (FDA). The introduction into the mathematical methodological tools will be implemented with three presentations focusing on the dynamical models of gastrointestinal drug absorption, the illustration of nonlinear dynamics in physiological / pharmacokinetic systems, and the overview of stochastic differential equations by explaining both theoretical concepts and applications.

The workshop will proceed with presentation of the modeling approaches for the biopharmaceutic classification of drugs and the biowaiver status. Special emphasis will be placed on the use of modeling & simulation methods in bioequivalence. This session will cover the theoretical and the regulatory aspects as well as examples of modeling and simulation applications.

This course will also focus on some special types of pharmacokinetic behavior which can be viewed in terms of fractals and fractional kinetics. The entire route of drug transit through the body will be covered such as drug release, drug absorption, and disposition.

Finally, the workshop will end up with a discussion on complex systems either pharmacokinetic or pharmacodynamic. In particular, it will be presented how we can control complex pharmacokinetic systems as well as methods dealing with the complexity of long-term hepatitis C viral dynamic models and antiviral response.

Scientific Programme

Time	Speaker	Topic
09.00	Chrysa Daousani <i>MD Pharmacon Pharmaceutical Services</i>	Welcome – Introduction The modeling and simulation setting in the EMA and FDA
09.15	Masoud Jamei <i>Simcyp – a Certara company</i>	Physiological modeling of gastrointestinal drug absorption
10.00	Robert Bies <i>Division of Clinical Pharmacology, Indiana University</i>	Nonlinear dynamic physiological/pharmacokinetic systems: Chaos Synchronization as a possible approach to parameter estimation
10.45	Georgia Karali <i>Department of Applied Mathematics University of Crete</i>	Stochastic differential equations: Theory and applications
11.30	Coffee Break	
12.00	Panos Macheras <i>Faculty of Pharmacy, National & Kapodistrian University of Athens</i>	Modeling approaches for the biopharmaceutic classification of drugs and the biowaiver status
12.45	Vangelis Karalis <i>Faculty of Pharmacy, National & Kapodistrian University of Athens</i>	Modeling and simulation in the field of bioequivalence
13.30	Lunch	
14.30	Panos Macheras <i>Faculty of Pharmacy, National & Kapodistrian University of Athens</i>	Fractals and fractal kinetics in drug release and drug disposition
15.15	Aris Dokoumetzidis <i>Faculty of Pharmacy, National & Kapodistrian University of Athens</i>	Fractional pharmacokinetics
16.00	Coffee Break	

16.30	Charalambos Sarimveis <i>School of Chemical Engineering, National & Technical University of Athens</i>	Control of complex pharmacokinetic systems
17.15	Jeremie Guedj <i>Inserm and Université Paris Diderot</i>	On the complexity of long-term HCV dynamic models and antiviral response
18.00	End of Workshop	

Registration-Fees

Early bird registration (up to May 1st 2015):

- Industry : 400 €
- Academia-Government 300 €
- Student : 150 €

Late bird registration (up to May 20th 2015):

- Industry : 450 €
- Academia- Government 350 €
- Student : 200 €