Workshop on coupled localized spectroscopy/non-linear data fitting to resolve passive diffusion and release kinetics of drugs

12 - 14 August 2019

UiO - University of Oslo

Department of Pharmacy, Institute of Mathematics and Natural Sciences

Workshop description

The focus of this workshop is to help the development and increase the implementation of a new spectroscopic/computational method recently introduced (*Mol. Pharm. 15(2018)1488-1494*), within different Nordic POP institutions. This method has been applied to solve several pharmaceutically relevant problems, form measuring diffusion coefficients of different chemical entities, to the determination of equilibrium constants drug-complexing agents (*Eur. J. Pharm. Biopharm. 139(2019)205-212)*. This versatile method has huge potentials and could be used to study, for example, drug permeability, drug release from nanocarriers and, potentially, drug dissolution.
In this workshop, this unique method will be described to the participants by the mean of theoretical lectures as well as practical tutorial on data fitting and laboratory exercises.

Learning goal

At the end of the workshop, students should be able to independently use and apply the method in their own institutions.

Instructors

Dr. *Paul C. Stein*, University of Southern Denmark (SDU), Odense, Dk
Dr. *Massimiliano Pio di Cagno*, University of Oslo (UiO), NO
Dr. *Fabrizio Clarelli*, UiT The Arctic University of Norway (UiT), NO
Dr. *Mario Grassi*, University of Trieste (UniTr), I

Number of participants

10 PhD students (limited number due to practical hands-on training). Senior participants are also welcome.

How to enrol

To enrol in the workshop please send an e-mail to Massimiliano Pio di Cagno: m.p.d.cagno@farmasi.uio.no. Deadline for enrolment is 02nd of August 2019.

Preliminary program

Monday 12.08.2019

12:00-12:15	Welcome to the participants (Massimiliano Pio di Cagno, UiO)
12:15-13:00	*Lunch*
13:15-15:00	Lecture: Passive diffusion and drug release theory, an introduction (Mario Grassi, UniTr)
15:00-15:15	*Coffee break with small pastries/fruit*
15:15-17:00	Lecture: Analytical solution of diffusion equations and basis of data fitting (Paul C. Stein, Univ. of Southern Denmark)
17:00-18:45	Tutorial: Data fitting in practice (Paul C. Stein, SDU)
19:00-	*Social event (Pizza)*

Tuesday 13.08.2019

	Group A (5 students)	Group B (5 students)
09:15-11:00	Lecture: Introduction to numerical solution of differential equations (Fabrizio Clarelli, UiT)	Lab section (Massimiliano di Cagno, UiO)
11:00-11:15	*Coffee break with small pastries/fruit*	
11:15:13:00	Tutorial: numerical data analysis (Fabrizio Clarelli, UiT)	Lab section (Massimiliano di Cagno, UiO)
13:14-14:00	*Lunch*	
14:15-16:00	Lab section (Massimiliano di Cagno, UiO)	Lecture: Introduction to numerical solution of differential equations (Fabrizio Clarelli, UiT)
16:00-16:15	*Coffee break with small pastries/fruit*	
16:15-18:00	Lab section (Massimiliano di Cagno, UiO)	tutorial: numerical data analysis (Fabrizio Clarelli, UiT)
19:00-	*Social event (Dinner)*	

Wednesday 14.08.2019

09:15-11:00	Brainstorm on prospective and applications /conclusion remarks
11:00-11:15	*Grab-and go lunch*

N.B.! For the tutorial sections, it is request that students bring their personal laptop with *MATLAB* program already installed.

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