



**PAGE Satellite meeting:
A one day MONOLIX Satellite workshop:
Marseille, France, 17th June 2008**

Overview

MONOLIX is a free software <http://software.monolix.org/> dedicated to the analysis of non linear mixed effects models. The objective of this software is to perform:

- 1) Parameter estimation,
 - computing the maximum likelihood estimator of the parameters, without any approximation of the model
 - computing standard errors for the maximum likelihood estimator,
- 2) Model selection,
 - comparing several models using some information criteria (AIC, BIC),
 - testing hypotheses using the Likelihood Ratio Test.
 - testing parameters using the Wald Test.
- 3) Goodness of fit plots,
- 4) Data simulation,

Several stochastic algorithms are used in MONOLIX: stochastic approximation of EM (SAEM), Importance Sampling, MCMC, Simulated Annealing... Theoretical properties of the proposed algorithms and practical applications were published in several papers.

MONOLIX 2.3 proposes several new features mainly dedicated to PK/PD applications:

- * PK/PD libraries,
- * single dose, multiple doses and steady state PK,
- * models defined by differential equations,
- * left-censored data,
- * PK-PD models,
- * data in NONMEM format
- * goodness of fit plots

MONOLIX 2.4 should be available in June 2008 and will propose several new features (IOV, categorical covariates, 3 compartment models, effect compartment model, solver for model defined by differential equation by C++,...)

Developers

This software was developed by Marc Lavielle and Hector Mesa, with the valuable help of several members of the MONOLIX Group. MONOLIX was developed with the financial support of Johnson & Johnson Pharmaceutical Research & Development, a Division of Janssen Pharmaceutica N.V. This collaboration was initiated thanks to Vladimir Piotrovskij and his interest for MONOLIX and the SAEM algorithm.

Course Agenda (1 full day)

The course will last for 1 day and consists of both lectures and hands-on computer exercises. Participants will use MONOLIX 2.3 (or MONOLIX 2.4 if available).

Time	Session Topic	Tutors
8:00	Registration + Coffee	
8:30	Introduction to Monolix & demo 1	France Mentre / Marc Lavielle
10:00	Coffee/Tea Break	
10:30	Hands on 1: PK model, outputs and goodness of fits	France Mentre / Marc Lavielle and instructors
12:00	Lunch	
13:00	More complex models in Monolix & demo 2	France Mentre / Marc Lavielle
15:00	Coffee/Tea Break	
15:30	Hands on 2: PKPD model and model selection,	France Mentre / Marc Lavielle and instructors
17:30	Adjourn	

Computers

The course will emphasize hands on training, with the participants working on their own computers. Participants should bring their own computer. They will run all programs from an USB memory-stick and will not be required to install any programs on their computer. In case a participant needs a computer, he should indicate it to the organizers.

Prerequisite

To understand the basics of population PK-PD modelling

Instructors

Prof. Marc Lavielle

Marc Lavielle is Professor of Mathematics at the University Paris 5 and actually on leave at INRIA Saclay as Research Director. He is the Director of the GDR (CNRS Research Group) "Statistique et Santé". He has worked on the development of maximum-likelihood estimation methods, applied to a broad area of applications (geophysics, signal processing, neuro-imaging, agronomy, genetics, PKPD,...). He has co-authored several papers on various aspects of statistical estimation and on SAEM algorithm. Several of the methods that he developed are implemented in the MONOLIX software (<http://software.monolix.org>). He co-animates with Pr France. Mentré the Monolix research group since 2003 (<http://group.monolix.org>).

Prof. France Mentré

Dr. Mentré is Professor of Biostatistics at the Medical School of University Paris Diderot (Paris 7). She heads an INSERM research unit on Methods and Models for therapeutic assessment in chronic diseases. In addition to her medical degree, she has a PhD in Biomathematics. She has worked on development and application of methods for nonlinear mixed-effects models in pharmacokinetics and pharmacodynamics for more than 20 years. She has co-authored several papers on optimal design for population PK-PD analyses and her group has developed the PFIM software. She co-animates with Pr Marc Lavielle the Monolix research group since 2003 (<http://group.monolix.org>).

PRACTICAL INFORMATION

MONOLIX one day Satellite Workshop (17 June 2008)

Registration Fees, VAT included:

With own laptop **Industry:** 600 € **Reduced fees for Academic:** 400 €

With rental laptop **Industry:** 650 € **Reduced fees for Academic:** 450 €

Registration fees include: syllabus; 1 USB Key loaded with all software; morning and afternoon refreshment breaks and lunch for the day; In addition a complementary welcome dining cocktail on Monday June 16th 2008 will be offered.

- Attendance is strictly limited to 40
- Number of “reduced fees” for Academics and students is limited.
- Registration and academic fees will be offered on the basis of *first come, first served*

Workshop location:

Novotel Marseille Vieux Port

36, Boulevard Charles Livon, 13007 MARSEILLE, FRANCE

☎ : (+33) 496 11 42 11 ; Fax : (+33) 496 11 42 20;

Located in the heart of the city, the hotel overlooks the world famous *Old Harbour*. It is situated in a green environment with panoramic terrace and stunning views.

The **City of Marseille** is surrounded by Mediterranean Sea. As the capital of the third economic region of France and the first industrial and services pole of the south of France, it can easily be reached by plane, train (high speed connection from Lyon or Paris), freeway or even ... boat.

Workshop Organised by AP²POP; contact persons:

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MONOLIX Satellite Workshop Registration process:

Through the PAGE web page, starting on February 15th 2008

You will receive after February 15 a special code to log into the *Atout Organisation Science* web-site (see <http://www.page-meeting.org/>) to finalize and pay your PAGE registration fee and reserve a hotel room.

If you are willing to register to the MONOLIX workshop, payment to PAGE and workshop will have to be performed simultaneously as a single operation.

NB

1. No registration to the workshop will be possible later on through the web site: the only possibility is to register to the workshop at the same time you pay your PAGE registration.
2. All organisational information concerning the workshop will be obtained through the Workshop Organising Committee listed above, not from *Atout Organisation Science*.
3. Accommodation is not provided. Participants will have to book their hotel through *Atout Organisation Science* web-site or through a list of close by hotels that will be send out to the registrants.