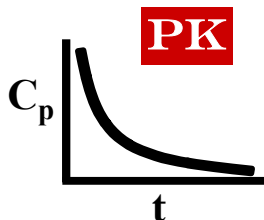
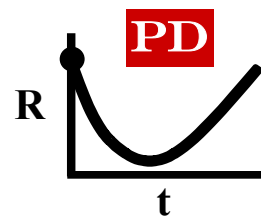


PHARMACOKINETIC-PHARMACODYNAMIC



MODELING

Concepts and Applications



COURSE OUTLINE

Over the past decade, significant progress has been made in the theory and applications of *pharmacodynamics*. On the basis of diverse *pharmacokinetic-pharmacodynamic modeling* concepts it has become possible to describe and predict the time course of drug effects under physiological and pathological conditions. The study of pharmacokinetic-pharmacodynamic relationships can be of considerable value in understanding drug action, summarizing extensive data, finding optimal dosing regimens, and in making predictions under new circumstances. Not surprisingly, pharmacokinetic-pharmacodynamic modeling concepts are increasingly applied in both basic research as well as in drug development.

This course will deal with the theoretical aspects and with the applications of pharmacokinetic and pharmacodynamic modeling. Subjects that will be discussed include:

- Basic pharmacodynamic theory:** receptor binding, post-receptor events, concentration-effect-time relationships.
- Pharmacokinetic complexities:** e.g. the role of distribution, metabolites, protein binding, the implications for the design of *in vivo* pharmacodynamic investigations; use of biomarkers and surrogate responses, models for pharmacogenomics;
- Biophase compartment modeling:** parametric, semi-parametric and non-parametric approaches;
- Physiological pharmacodynamic modeling:** indirect response models, cell lifespan models, chemotherapeutic effects;
- Pharmacodynamic drug-drug interactions:** isobolograms, competitive and non-competitive interactions;
- Functional tolerance development:** desensitization, counter-regulation, physiological feedback, indirect precursor models;
- Population pharmacodynamics:** application of NONMEM in pharmacodynamics, issues in use of covariates.
- Specific drug applications:** CNS active agents, cardiovascular agents, corticosteroids, anticoagulants, antibodies, antibiotics.
- Special topics:** Signal transduction, circadian rhythms, target-mediated PK/PD models, disease progression models.

COURSE DIRECTION

William J. Jusko, PhD

Dr. Jusko is Professor and Chair of Pharmaceutical Sciences at the School of Pharmacy and Pharmaceutical Sciences at the University of Buffalo. Dr. Jusko supervises a research program on the pharmacokinetics and pharmacodynamics of immunosuppressive drugs such as corticosteroids, tacrolimus and sirolimus and holds three NIH grants in areas such as corticosteroid PK/PD, mathematical modeling, and biomedical computation. He has authored over 450 publications and consults for the FDA, NIH, and the pharmaceutical industry.



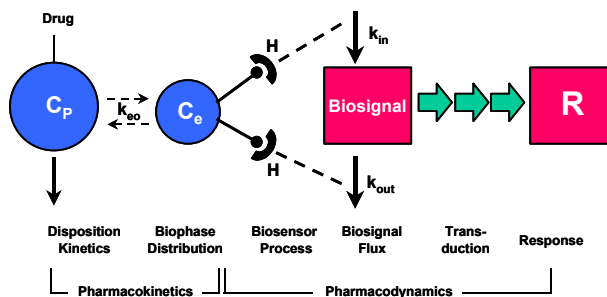
William J. Jusko, PhD

Ancillary Course A

May 26-27, 2005

Use of WinNonlin for PK/PD Modeling

A "hands on" computer tutorial.



University at Buffalo
The State University of New York at Buffalo
School of Pharmacy and Pharmaceutical Sciences

Ancillary Course B

May 26-28, 2005

Population PK/PD Modeling: Introduction to NONMEM®

A "hands on" computer tutorial.



COURSE PROGRAM

May 22	Sunday		
6:30-7:00	Registration/Reception	10:00-11:00	Dr. W.J. Jusko: Modeling Irreversible Effects
7:00-8:00	Dr. W.J. Jusko: History & Highlights	11:00-12:00	Dr. A. Forrest: Modeling Chemotherapeutic Effects
8:00-9:30	Dinner	12:00-01:00	Lunch
		01:00-02:00	Dr. W.J. Jusko: Modeling Functional Adaptation
May 23	Monday	02:00-03:00	Dr. W.J. Jusko: Modeling Transduction Processes
08:00	Continental Breakfast	03:00-03:15	Refreshments
08:30-08:45	Dr. W.J. Jusko: Introductions	03:15-04:15	Dr. D. Mager: Target-Mediated PK/PD Models
08:45-09:45	Dr. W.J. Jusko: Basic Pharmacologic Theory	04:15-05:15	Dr. W.J. Jusko: Modeling Drug Interactions
09:45-10:45	Dr. D. Mager: Kinetics of Pharmacologic Effects		
10:45-11:00	Coffee	May 25	Wednesday
11:00-12:00	Dr. W.J. Jusko: Modeling Biophase Distribution	08:00	Continental Breakfast
12:00-01:00	Lunch	08:30-09:45	Dr. W.J. Jusko: Review & Exercises II
01:00-02:00	Dr. W.J. Jusko: Basic Indirect Response Models	09:45-10:00	Coffee
02:00-03:00	Dr. W. Krzyzanski: Cell Lifespan Models	10:00-11:00	Dr. J. Balthasar: Monoclonal Antibodies
03:00-03:30	Break	11:00-12:00	Dr. W.J. Jusko: Animal Scaling in PK/PD
03:30-04:30	Dr. W.J. Jusko: Complexities of Indirect Responses	12:00-01:00	Lunch
		01:00-02:00	Dr. W.J. Jusko: Disease Progression Models
May 24	Tuesday	02:00-03:00	Pf. J. Fiedler-Kelly: Population PK/PD Models
08:00	Continental Breakfast	03:00-03:15	Refreshments
08:30-09:45	Dr. D. Mager: Review & Exercises I	03:15-04:15	Dr. W.J. Jusko: Computational Issues in PK/PD
09:45-10:00	Coffee	04:15-05:15	Dr. W.J. Jusko: Final Discussion and Summary

REGISTRATION INFORMATION

Course location: The course will be held at the University Inn & Conference Center, 2401 N. Forest Road, Amherst, New York 14226-0823, U.S.A. Phone: (716) 636-7500. Fax: (716) 636-8296. The Conference Center is 15 min. from Buffalo International Airport. The price is \$86/day. **Hotel Deadline:** April 22, 2005.

Fee: Individual fee: \$1900. This includes course documentation, mid-session refreshments, lunches and opening dinner during the course. Up to 5 graduate students may enroll at a fee of \$900. US Government rate: \$1400.

Registration: Please register ASAP in view of the limited course capacity of 36 participants. Confirmation of registration will be returned upon receipt, together with an invoice for the course fee. Registration will not be final until payment is received.

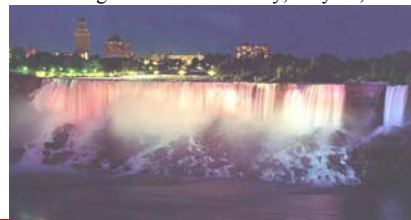
Cancellations: Cancellations with a full refund may be made until March 31, 2005. No refund is possible on cancellations received after this date. Substitutions may be made at any time.

Payment: University at Buffalo Foundation Inc. Bank transfers and credit card payments are accepted as well as checks.

Ancillary WinNonlin Course: This course will be followed by an optional 2-day hands-on tutorial course in "Use of WinNonlin for PK/PD Modeling" with primary instruction by Dr. Jeffery Wald from GSK. This course will utilize the Computer Laboratory at the The University at Buffalo. An additional fee of \$900 is required (Govt. \$700, Students \$450).

Ancillary NONMEM® Course: An optional 3-day hands-on tutorial course in "Population PK Data Analysis using NONMEM®" will be provided by Prof. Jill Fiedler-Kelly from Cognigen and Alan Forrest from UB. An additional fee of \$1900 is required (Govt. \$1400, Students \$900).

Niagara Excursion: Cognigen Corporation will sponsor a bus trip to Niagara Casino and Niagara Falls on Monday, May 23, at 5:30 PM.



REGISTRATION FORM: Pharmacokinetic-Pharmacodynamic Modeling, May 22-25, 2005. WinNonlin, May 26-27, 2005. NONMEM®, May 26-28, 2005.

Name _____ Title _____ Organization _____
 Address _____
 City _____ State/Country _____ Postal Code _____
 Telephone _____ Fax _____ Email _____

Opening Reception/Dinner, Sunday, May 22, 6:30 PM: _____ Will Attend _____ Will Not Attend _____ Vegetarian Meal Requested _____
 Excursion to Niagara Falls, Monday, May 23, 5:30 PM: _____ Will Attend _____ Will Not Attend _____
 WinNonlin Course on PK/PD Modeling : _____ Will Attend _____ Will Not Attend _____
 Population (NONMEM®) Course: _____ Will Attend _____ Will Not Attend _____

Signature _____ Date _____

Please return to: PK/PD MODELING, Department of Pharmaceutical Sciences, School of Pharmacy, State University of New York at Buffalo, 519 Hochstetter Hall, Buffalo, NY 14260; phone: (716) 645-2842, ext. 224; fax: (716) 645-3693; Email: wj Jusko@buffalo.edu