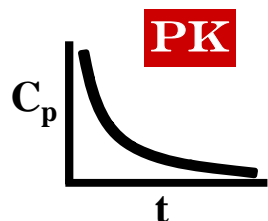


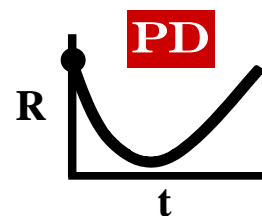
JUNE 25-28, 2006: BUFFALO, NEW YORK

# 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

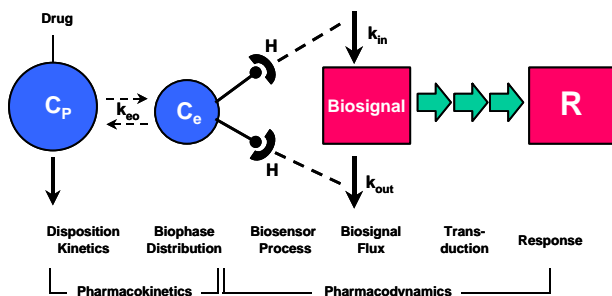
### William J. Jusko, PhD

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 460 publications, consults for the FDA, NIH, and the pharmaceutical industry, and is listed in ISI Most Highly Cited in Pharmacology.



William J. Jusko, PhD

*Special  
Encore  
Presentation  
of our  
Annual  
May  
Course*



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

*Sponsored by  
the UB  
Center for  
Excellence  
in  
Pharmacokinetics  
and  
Pharmacodynamics*

## COURSE PROGRAM

|   |  |   |  |
|---|--|---|--|
| <b>June 25</b><br>6:30-7:00<br>7:00-8:00<br>8:00-9:30   | <b>Sunday</b><br>Registration/Reception<br>Dr. W.J. Jusko: <b>History &amp; Highlights</b><br>Dinner   | 10:00-11:00<br>11:00-12:00<br>12:00-01:00<br>01:00-02:00<br>02:00-03:00<br>03:00-03:15<br>03:15-04:15<br>04:15-05:15  | Dr. W.J. Jusko: <b>Modeling Irreversible Effects</b><br>Dr. A. Forrest: <b>Modeling Chemotherapeutic Effects</b><br>Lunch<br>Dr. W.J. Jusko: <b>Modeling Functional Adaptation</b><br>Dr. W.J. Jusko: <b>Modeling Transduction Processes</b><br>Refreshments<br>Dr. D. Mager: <b>Target-Mediated PK/PD Models</b><br>Dr. W.J. Jusko: <b>Modeling Drug Interactions</b>   |
| <b>June 26</b><br>08:00<br>08:30-08:45<br>08:45-09:45<br>09:45-10:45<br>10:45-11:00<br>11:00-12:00<br>12:00-01:00<br>01:00-02:00<br>02:00-03:00<br>03:00-03:30<br>03:30-04:30 | <b>Monday</b><br>Continental Breakfast<br>Dr. W.J. Jusko: <b>Introductions</b><br>Dr. W.J. Jusko: <b>Basic Pharmacologic Theory</b><br>Dr. D. Mager: <b>Kinetics of Pharmacologic Effects</b><br>Coffee<br>Dr. W.J. Jusko: <b>Modeling Biophase Distribution</b><br>Lunch<br>Dr. W.J. Jusko: <b>Basic Indirect Response Models</b><br>Dr. W. Krzyzanski: <b>Cell Lifespan Models</b><br>Break<br>Dr. W.J. Jusko: <b>Complexities of Indirect Responses</b> | <b>June 28</b><br>08:00<br>08:30-09:45<br>09:45-10:00<br>10:00-11:00<br>11:00-12:00<br>12:00-01:00<br>01:00-02:00<br>02:00-03:00<br>03:00-03:15<br>03:15-04:15<br>04:15-05:15 | <b>Wednesday</b><br>Continental Breakfast<br>Dr. W.J. Jusko: <b>Review &amp; Exercises II</b><br>Coffee<br>Dr. J. Balthasar: <b>Monoclonal Antibodies</b><br>Dr. W.J. Jusko: <b>Animal Scaling in PK/PD</b><br>Lunch<br>Dr. W.J. Jusko: <b>Disease Progression Models</b><br>Pf. J. Fiedler-Kelly: <b>Population PK/PD Models</b><br>Refreshments<br>Dr. W.J. Jusko: <b>Computational Issues in PK/PD</b><br>Dr. W.J. Jusko: <b>Final Discussion and Summary</b> |
| <b>June 27</b><br>08:00<br>08:30-09:45<br>09:45-10:00   | <b>Tuesday</b><br>Continental Breakfast<br>Dr. D. Mager: <b>Review &amp; Exercises I</b><br>Coffee   |   |  |

## 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 \$68/day. **Hotel Deadline: May 21, 2006.**

**Fee:** Individual fee: \$2000. 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 \$1000. US Government rate: \$1500.

**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 May 31, 2006. 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.

**Niagara Excursion:** Cognigen Corporation will sponsor a bus trip to Niagara Casino and Niagara Falls on Monday, June 26, at 5:30 PM.



### REGISTRATION FORM: Pharmacokinetic-Pharmacodynamic Modeling, June 25-28, 2006.

Name \_\_\_\_\_ Title \_\_\_\_\_ Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State/Country \_\_\_\_\_ Postal Code \_\_\_\_\_

Telephone \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

Opening Reception/Dinner, Sunday, June 25, 6:30 PM: \_\_\_\_\_ Will Attend \_\_\_\_\_ Will Not Attend Vegetarian Meal Requested \_\_\_\_\_

Excursion to Niagara Falls, Monday, June 26, 5:30 PM: \_\_\_\_\_ 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. 225; fax: (716) 645-3693; Email: wjjusko@buffalo.edu