

***Biomedical Simulations Resource
University of Southern California***

Software Short Course On

**SIMULATION AND DATA ANALYSIS IN
PHARMACOKINETICS AND
PHARMACODYNAMICS USING ADAPT**

October 16, 2004

Sponsored by

Biomedical Simulations Resource
University of Southern California
and
Faculty of Pharmacy
University of Toronto

Course Coordinators

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Preface

This Short Course is intended for current and aspiring basic and clinical research scientists who are involved with the application of modeling, simulation and data analysis methods to problems involving drug kinetics and drug response. The Short Course will focus on the use of the ADAPT software package for modeling, simulation and parameter estimation in pharmacokinetics and pharmacodynamics.

The course will include background lectures on mathematical, statistical, and computational aspects of pharmacokinetic/pharmacodynamic modeling and parameter estimation. Case studies will illustrate the application of the ADAPT software, and will involve hands-on computer work cover the following topics: pharmacokinetic/pharmacodynamic modeling; least squares and maximum likelihood estimation; Bayesian estimation; estimation with multiple response models; clinical trial simulation. It is hoped that this Short Course will give the participants a exposure to the broad class of pharmacokinetic/ pharmacodynamic modeling and data analysis problems that can be solved using ADAPT.

ADAPT is made available through the Biomedical Simulations Resource at the University of Southern California, which is supported by the Bioengineering Program of the National Institute for Biomedical Imaging and Bioengineering at the NIH.

David Z. D'Argenio
Los Angeles

ADAPT Short Course Schedule

Saturday, October 16, 2004

9:00	Background: <i>Modeling with ADAPT</i>
10:00	Case Study: <i>Doses and Covariates</i>
10:45	Break
11:00	Background: <i>Parameter Estimation</i>
11:45	Case Study: <i>WLS/ML Estimation</i>
12:30	Lunch Break
1:30	Case Study: <i>Bayesian Estimation</i>
2:00	Case Study: <i>Absorption Delays</i>
2:45	Case Study: <i>Relative Bioavailability</i>
3:15	Break
3:30	Case Study: <i>PD Response Models</i>
4:15	Case Study: <i>Simulation: Fixed vs Weight-Based Dosing</i>
5:00	Closing Remarks