Biomedical Simulations Resource
University of Southern California

Software Short Course On

MODELING AND DATA ANALYSIS IN PHARMACOKINETICS AND PHARMACODYNAMICS USING ADAPT

August 5 - 6 1998

Ritz Carlton Hotel
Tysons Corner, Virginia

Sponsored by

Biomedical Simulations Resource
and
National Institutes of Health

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Preface .

       This Short Course is intended for basic and clinical research scientists who are actively involved in the application of modeling, computational 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 simulation, parameter estimation, and design of experiments in pharmacokinetics and pharmacodynamcs. The course will include background lectures on mathematical, statistical, and computational aspects of pharmacokinetic/pharmacodynamic modeling and simulation, parameter estimation, error analysis, design of experiments and model validation.

       Case studies will illustrate the application of the ADAPT software for solving a variety of modeling, estimation and experiment design problems. The case studies involve hands-on computer work and will cover the following topics: modeling with covariates; pharmacodynamic modeling (including direct and indirect response models); least squares and maximum likelihood estimation; Bayesian estimation; estimation with multiple response models; sample schedule design; population simulation. It is hoped that this Short Course will give the participants a thorough exposure to the broad class of pharmacokinetic/pharmacodynamic modeling and data analysis problems that can be solved using ADAPT.

David Z. D'Argenio
Los Angeles
August 1998

ADAPT Short Course Schedule
Wednesday, August 5, 1998

8:30   Background: *Modeling with ADAPT*

9:30   Case Study: *Doses and Covariates*

10:15   **Break**

10:30   Case Study: *Absorption Delays*

11:15   Background: *Parameter Estimation*

11:45   Case Study: *Multiresponse Estimation*

12:30   **Lunch Break**

1:30   Case Study: *WLS/ML/GLS Estimation*

2:15   Case Study: *Bayesian Estimation*

3:00   **Break**

3:15   Background: *Pharmacodynamic Modeling*

3:45   Case Study: *Direct Response Models*

4:15   Case Study: *Indirect Response Models*

5:00   Summary Remarks

ADAPT Short Course Schedule
Thursday, August 6, 1998

8:30   Case Study: *More PK/PD Models*

9:30   Case Study: *Sample Schedule Design*

10:15   **Break**

10:30   Case Study: *Relative Bioavailability*

11:15   Case Study: *Measured Inputs*

12:00   **Lunch Break**

1:00   Problem Session 1: *Shared Modeling Problems*

2:30   **Break**

2:45   Problem Session 2: *Individual Modeling Problems*

4:00   Concluding Remarks