Biomedical Simulations Resource
University of Southern California

Software Short Course On

MODELING AND DATA ANALYSIS IN PHARMACOKINETICS AND PHARMACODYNAMICS USING ADAPT

April 6 - 7, 2001

Course Coordinators

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Preface

This Short Course is intended for current and aspiring basic and clinical research scientists who are studying 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 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: modeling with covariates; pharmacodynamic modeling (including direct and indirect response models); 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 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
April 2, 2001

ADAPT Short Course Schedule
Friday, April 6, 2001

10:00   Background: *Modeling with ADAPT*

11:00   Case Study: *Doses and Covariates*

11:45   **Break**

12:00   Background: *Parameter Estimation*

12:45   **Lunch Break**

1:45   Case Study: *WLS/ML Estimation*

2:15   Case Study: *Multiresponse Estimation*

3:00   Case Study: *Bayesian Estimation*

3:30   **Break**

3:45   Case Study: *Direct Response PD Models*

4:30   Case Study: *Indirect Response PD Models*

5:00   Case Study: *More PD Models*

5:30   Summary and a look Ahead

ADAPT Short Course Schedule

Saturday, April 7, 2001

8:30   Case Study: **_PD Model for Tolerance/Rebound_**

9:15   Case Study: **_Absorption Delays_**

10:00   **Break**

10:15   Case Study: **_Relative Bioavailability_**

11:00   Case Study: **_Measured Inputs_**

11:45   **Lunch Break**

12:45   Background: **_Clinical Trial Simulation_**

1:15   Case Study: **_Fixed vs Weight-Based Dosing_**

2:00   Problem Session: **_Individual Modeling Problems_**

3:00   Concluding Remarks