Biomedical Simulations Resource
University of Southern California

Software Short Course On

MODELING AND ANALYSIS IN PHARMACOKINETICS AND PHARMCODYNAMICS USING ADAPT 5

October 25-26, 2010

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 estimation in pharmacokinetics and pharmacodynamcs.

The course will include background lectures on mathematical, statistical, and computational aspects of pharmacokinetic/pharmacodynamic modeling, with an emphasis on the theory and application of individual and population analysis methods. 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; population modeling; covariate model building. It is hoped that this Short Course will give the participants an exposure to the broad class of pharmacokinetic/ pharmacodynamic modeling 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 (P41-EB001978).

David Z. D'Argenio
Los Angeles
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ADAPT Short Course Schedule

Monday, October 25, 2010

9:00   Background: ***Modeling with ADAPT***

10:00   Case Study: ***Model Building and Inputs*** **(SIM)**

10:30   **Break**

10.45   Background: ***Parameter Estimation: The Individual***

11:30   Case Study: ***WLS/ML Estimation*** **(ID)**

12:00   **Lunch Break**

1:30   Case Study: ***Direct Response PD Model*** **(ID)**

2:00   Case Study: ***Indirect Response PD Model*** **(ID)**

2:30   **Break**

2:45   Background: ***Population Analysis: The Basic Ideas***

3:30   Case Study: ***Drug Absorption*** **(MLEM)**

4:00   Adjourn

ADAPT Short Course Schedule

Tuesday, October 26, 2010

9:00   Case Study: ***Bioavailability Crossover Study* (NPD)**

9:30   Background: ***Population Modeling with Covariates***

10:00   **Break**

10:15   Case Study: ***Covariate Modeling* (MLEM)**

10:45   Case Study: ***Indirect Response PD Model* (MLEM)**

11:30   Case Study: ***Target Mediated Drug Disposition* (SIM)**

12:15   **Lunch Break**

1:15   Case Study: ***Target Mediated Drug Disp.* (MLEM)**

1:45   Case Study: ***Tumor Xenograft Modeling* (MLEM)**

2:30   Discussion: ***Other Program Features and Q&A***

3:00   Adjourn