

Sunny Chapel, Ph.D.

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- Strategic application of modeling and simulation to efficient quantitative drug development from early clinical development through registration to post-marketing.
 - Leading modeling and simulation projects for regulatory submissions to agencies worldwide.
 - Proficiency in population modeling including PK, dose-response, PKPD, adverse events, meta-analysis, drop-out models, compliances, etc.
 - Expertise in clinical trial simulations.
 - Leading “big pictures” of drug development by effectively collaborating with project clinicians and statisticians.
 - Seeking novel ways to cost-cutting, early decision making, early termination, i.e., adaptive trials, interim analyses, usage of meta-analyses, evaluation of viable designs for proof-of-non-viability.
 - Expertise in conduct of thorough QTc trials and data analysis as well as other clinical pharmacology trials.
 - Excellent programming skills in Splus, Nonmem, and SAS.
 - Automation of computer intensive parts of modeling, i.e., nonparametric bootstrapping, posterior predictive check, stepwise covariate selection, numerous Splus functions for Nonmem post-processing.
 - Proficient in mechanistic PKPD modeling.
 - Experienced in development of biologics as well as small molecules.
 - Managing CROs.
 - Internal/External training of colleagues.
 - Teaching at University of Michigan.
 - Supervising post-docs and summer interns.
 - Strong troubleshooting skills. Solid track records of success.
 - High level of initiative and self-reliance, ability to learn and adapt quickly.
 - Effective rapport with project team members, colleagues, supervisors, and managers.
 - Effective written and verbal communication skills.
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EDUCATION

- Ph.D. in Pharmacokinetics, University of Iowa (1997 ~ 2001)
Thesis: Erythropoiesis and Pharmacokinetics/Pharmacodynamics of Erythropoietin
Supervisor: Dr. Peter Veng-Pedersen, Professor of Pharmacokinetics
GPA: 3.93
- M.S. in Statistics, University of Iowa (1998 ~ 2000)
GPA: 3.93
- Enrolled in Pharm.D. Program, University of Iowa (1996 ~ 1997)
- M.S. in Pharmacy (Analytical Chemistry), Seoul National University, Korea (1992 ~ 1995)
Thesis: A New Classification Method for Herbal Drugs Using Multivariate Statistical Analysis and Pyrolysis-GC-Mass Spectrometer.
GPA: 4.00
- B.S. in Pharmacy, Seoul National University, Korea (1988 ~ 1992)

PROFESSIONAL EXPERIENCE

Associate Director, Pfizer Inc (Jul. 2006 ~ Present)

- Clinical pharmacology rep for schizophrenia/bipolar and rheumatoid arthritis projects.
- Modeling and simulations for regulatory submission in neuroscience (schizophrenia and bipolar): population PK, exposure-response analysis, analyses of compliance issues, effect of drop-out patterns on the efficacy outcome, prediction of efficacy outcome for the future trials via clinical trial simulations, adverse events analyses.
- Strategic applications of modeling and simulations to drug development
 1. Design evaluations for proof-of-non-viability studies for rheumatoid arthritis portfolio within 4 weeks.
 2. Meta-analyses for schizophrenia and rheumatoid arthritis to utilize competitors' information.
 3. Longitudinal interim analyses for early decision making.
 4. Clinical trial simulations to evaluate various head-to-head post-marketing trials for epilepsy and post herpetic neuralgia.
- Dose-response analysis of Lyrica for post herpetic neuralgia with a high impact on labeling, i.e. the BID regimen approval and the approval of 600 mg daily dose.
- Plan, design, analyze, and report clinical pharmacology studies.

Manager, Pfizer Inc. (Jun. 2004 ~ Jul. 2006)

- Evaluation of QTc statistical analysis methods in the E14 guidance via simulations: Estimate of bias and false positive rates per study design. Participated in the private discussion between industry and the FDA about the QTc analyses issues in Rockville, MD. The FDA adopted the presented method.
- Exposure-response analysis of QTc data in early development and thorough QTc trials.
- Conduct of thorough QTc trials.
- Part of clinical project teams mostly in CNS drug development from the first in humans to regulatory submission.
- Plan, design, analyze and report pharmacokinetic and pharmacodynamics studies.
- Apply novel pharmacokinetic and pharmacodynamics approaches that will lead to more efficient clinical drug development.
- Participate in the leadership of the department.

Scientist, Amgen Inc. (Jul. 2003 ~ May 2004)

- Designing, implementing, and executing PK, PK/PD, and TK studies. Analyzing PK, PK/PD, and TK datasets. Report writing.
- Modeling and simulations for various purposes including inter-species scaling, dose determination (FIH and clinical doses), describing mechanisms, predictions for future pre-clinical, clinical, and toxicokinetic studies.

Scientist, Aventis Pharmaceuticals (Jan. 2002 ~ Jul. 2003)

- Performed a meta PK/PD analysis of an anti-infective agent (Ketek) and wrote a regulatory technical report to fulfill a request by the FDA for labeling purposes.
- Support of an anti-infective pediatric development program: Provided PK/PD and Modeling and Simulation support. Provided guidance on pediatric dose recommendation for phase III program. Performed a meta-analysis of Ketek pediatric population PK data from phase I & II studies and authored the report for pre-phase III US IND.
- Support global regulatory filing: Updated documents including IB, CDP, briefing document, and IND for the anti-infective pediatric program.
- PK support of an anti-infective high profile adult program: Provided PK and QTc-exposure analysis for drug interaction studies and co-authored those clinical study reports.
- Supported Erythropoietin drug development program: Initiated antibody assay project to meet the requirement from the authorities regarding samples from hypo-responders.

Prepared steady-state PK study in the elderly protocol. Reviewed and commented the BLA package.

- Coordinated on-site population PK (Nonmem) training sessions given by an expert.

Research Assistant (1997 ~ 2001): Pharmaceutics and Pediatrics, University of Iowa (NIH PPG Program Project #1, "Erythropoietin Physiology and Pharmacology in Infants")

- Development and Interpretation of PK/PD models
- Data Management and Statistical Analysis
- Participation in Designing and Conducting Experiments
- Manuscript Preparation

Dissertation Work (1997 ~ 2001): Mentor - Peter Veng-Pedersen

- Study of Mechanisms governing Erythropoietin's PK/PD and Physiology. Focused on Metabolic Site(s), Nonlinearity, and Time-Varying Properties.
- Insulin PK/PD Study - Model Development Based on Glucose Tolerance Test
- Growth Hormone Releasing Peptide PK/PD Study - Model Development
- Participation in Development of a New Curve Fitting Method for Population PK and Stochastic Simulation Studies for comparison between the New Method and NONMEM

Research Assistant (1996 ~ 1997): Clinical Pharmacy and Administration, University of Iowa (Various Projects from WHO)

- Development of Assay Methods
- Analysis of Biological Samples using HPLC and GC

Teaching at LG Software Institute (12/94 - 12/95) - C++, Windows Application Programming with Microsoft Software Development Kit and Object Windows Libraries.

Pharmacy Practice (7/92 - 1/95): Joong-Won Pharmacy, Yong-In, Korea

Research Assistant (1992 ~ 1995): Pharmaceutical Analytical Chemistry, College of Pharmacy, Seoul National University, Korea

- Pattern Recognition Methods for Herbal Drug Classification using Pyrolysis-GC-MS and Multivariate Statistical Analysis
- Isolation of Calmodulin from Bovine Brain Tissue for NMR Protein Binding Studies
- Quantification of heavy metal elements in Orange Juice using AA and ICP.
- Alkaloid Ionophore Study using UV, ORD and CD

PUBLICATIONS

Chapel S, Hutmacher M, Haig G, Bockbrader H, deGreef H, Agin M, Lalonde R, Exposure-response analysis to assess the effect of asenapine, quetiapine (Seroquel®), or placebo administration on the QTc interval in patients with schizophrenia (2007, Manuscript in preparation for CPT)

Hutmacher M, **Chapel S**, Agin M, Lalonde R, Performance characteristics of the analysis method for “thorough QT” studies in ICH E-14 (2007, Manuscript in preparation for CPT).

Chapel S, Hutmacher M, deGreef H, Agin M, Lalonde R, A simulation study for comparison between exposure-response analysis and the E14 statistical analysis for thorough QTc study results (2007, Manuscript in preparation for CPT).

Shi J, **Chapel S**, Montay G, Hardy P, Barrett JS, Sica D, Swan SK, Noveck R, Leroy B, and Bhargava VO. Effect of ketoconazole on the pharmacokinetics and safety of telithromycin and clarithromycin in older subjects with renal impairment. *Int J Clin Pharmacol Ther* 43: 123-133, 2005.

Shi J, Pfister M, Jenkins SG, **Chapel S**, Barrett JS, Port RE, and Howard D. Pharmacodynamic analysis of the microbiological efficacy of telithromycin in patients with community-acquired pneumonia. *Clin Pharmacokinet* 44: 317-329, 2005.

Lodise TP, Preston S, Bhargava V, Bryskier A, Nusrat R, **Chapel S**, Rangaraju M, and Drusano GL. Pharmacodynamics of an 800-mg dose of telithromycin in patients with community-acquired pneumonia caused by extracellular pathogens. *Diagn Microbiol Infect Dis* 52: 45-52, 2005.

Shi J, Montay G, **Chapel S**, Hardy P, Barrett JS, Sack M, Marbury T, Swan SK, Vargas R, Leclerc V, Leroy B, and Bhargava VO. Pharmacokinetics and safety of the ketolide telithromycin in patients with renal impairment. *J Clin Pharmacol* 44: 234-244, 2004.

Bechensteen, A. G., S. Chapel, et al. (2004). "Posttransfusion recovery of stored red blood cells in very low birth weight infants using a hemoglobin balance model." *Transfusion* 44(7): 1019-24.

Rohatagi S, **Chapel S**, Kirkesseli S, Newman S, Zhang J, Paccaly D, Randall L, Wray H, Wellington S, Shah B, and Jensen BK. Pharmacoscintigraphic comparison of HMR 1031, a VLA-4 antagonist, in healthy volunteers following delivery via a nebulizer and a dry powder inhaler. *Am J Ther* 11: 103-113, 2004.

Veng-Pedersen P, **Chapel S**, Al-Huniti NH, Schmidt RL, Sedars EM, Hohl RJ, and Widness JA. Pharmacokinetic tracer kinetics analysis of changes in erythropoietin receptor population in phlebotomy-induced anemia and bone marrow ablation. *Biopharm Drug Dispos* 25: 149-156, 2004.

Veng-Pedersen P, **Chapel S**, Al-Huniti NH, Schmidt RL, Sedars EM, Hohl RJ, and Widness JA. A differential pharmacokinetic analysis of the erythropoietin receptor population in newborn and adult sheep. *J Pharmacol Exp Ther* 306: 532-537, 2003.

Veng-Pedersen P, **Chapel S**, **Schmidt RL**, Al-Huniti NH, Cook RT, and Widness JA. An integrated pharmacodynamic analysis of erythropoietin, reticulocyte, and hemoglobin responses in acute anemia. *Pharm Res* 19: 1630-1635, 2002.

Chapel, S., P. Veng-Pedersen, et al. (2001). "Changes in erythropoietin pharmacokinetics following busulfan-induced bone marrow ablation in sheep: evidence for bone marrow as a major erythropoietin elimination pathway." *J Pharmacol Exp Ther* **298**(2): 820-4.

Chapel, S. H., P. Veng-Pedersen, et al. (2000). "A pharmacodynamic analysis of erythropoietin-stimulated reticulocyte response in phlebotomized sheep." *J Pharmacol Exp Ther* **295**(1): 346-51.

Chapel, S. H., P. Veng-Pedersen, et al. (2001). "Receptor-based model accounts for phlebotomy-induced changes in erythropoietin pharmacokinetics." *Exp Hematol* **29**(4): 425-31.

Veng-Pedersen P, **Hong SS***, Widness JA and Schmidt RL (1998) Correction for non-ideal tracer pharmacokinetic disposition by disposition decomposition analysis (DDA). *Pharmaceutical Research* 15:1469-1473.

Chapel S, Cowan L, Tocker J, Gerson J, Fitzpatrick D, Smith J, Bussiere J, Melara R, and Wang D, Serum and bronchioalveolar lavage (BAL) pharmacokinetics and pharmacodynamics of chimeric 4-3 (AMG 317 murine surrogate), an anti-IL-4R antibody, in female BALB/c mice after intravenous, subcutaneous, or intraperitoneal administration and with or without IL-4 intranasal challenge. (2005) (Manuscript in Preparation)

Chapel S, Cantalloube C, Leroy B, and Pfister M, Penetration of telithromycin into middle-ear fluid in children with acute otitis media or otitis media with effusion. (2005) (Manuscript in Preparation)

*maiden name

PODIUM/POSTER PRESENTATIONS

- A 1.5 Day Workshop at the 2006 MUF PADA Meeting (Ann Arbor, MI): Splus Programming in Pharmacometrics.
- Meta Analysis of dose-response data: A Comparison Using Study-Level Data and Patient-Level Data (Late breaking abstract submitted to ASCPT for 2007 annual meeting).
- Performance Characteristics of the Analysis Method for "Thorough QT" Studies in ICH E-14 (Mar, 2006), ASCPT Annual Meeting, Baltimore, MD (Podium).
- Pregabalin Exposure-Response Analysis in Patients with Postherpetic Neuralgia (Mar, 2005), ASCPT Annual Meeting, Orlando, FL (Top abstract award).

- Effect of Ketoconazole on the Pharmacokinetics and Safety of Telithromycin and Clarithromycin in Elderly Subjects with Diminished Renal Function (Apr, 2003), ASCPT Annual Meeting, Washington, DC.
- Pharmacokinetics and Safety of Telithromycin after Single and Multiple Doses in Patients with Renal Impairment (Apr, 2003), ASCPT Annual Meeting, Washington, DC.
- Comparison of Erythropoietin Pharmacokinetics before and after bone marrow ablation in sheep (Nov, 1999), AAPS Annual Meeting, New Orleans, LA
- Correction for non-ideal tracer pharmacokinetic (PK) disposition by disposition decomposition analysis (DDA) (Nov, 1998), AAPS Annual Meeting, San Francisco, CA
- A PK model for changes in the clearance of erythropoietin (EPO) after phlebotomy induced EPO stimulus in sheep (Nov, 1998), AAPS Annual Meeting, San Francisco, CA
- Semi-parametric pharmacodynamic (PD) modeling of biocompound stimulation drugs. PD of a new human growth hormone releasing peptide (GHRP) (Nov, 1998), AAPS Annual Meeting, San Francisco, CA
- A pharmacodynamic (PD) model for erythropoietin (EPO) effect on reticulocyte production (Nov, 1998), AAPS Annual Meeting, San Francisco, CA
- Bone marrow cells play a key role in the elimination kinetics of erythropoietin (EPO) (Nov, 1998), AAPS Annual Meeting, San Francisco, CA
- A beta cell-based pharmacokinetic/pharmacodynamic model for glucose-insulin pathophysiology (Nov, 1997), AAPS Annual Meeting, Boston, MA

TEACHING AT WORKSHOP

- The main instructor at the 1.5 Day Workshop at the 2006 MUF PADA Meeting (Ann Arbor, MI): Splus Programming in Pharmacometrics.

ATTENDED WORKSHOPS

- DIA Workshop: The Clinical Evaluation of QT Interval Prolongation and Proarrhythmic Potential for Non-Antiarrhythmic Drugs. (Apr 2005)
- DIA Workshop: The Clinical Evaluation of QT Interval Prolongation and Proarrhythmic Potential for Non-Antiarrhythmic Drugs. (Jan 2003)
- Mixed Effects Models using Splus by Pinheiro (October 2002)
- New Statistical Methods for Dose Finding (Sep 2002)
- Advanced PK/PD modeling by Pharsight (Jul 2002)
- Advanced Methods in Pharmacokinetics/Pharmacodynamics (3/25 ~ 3/30, 2001) by Drs. Sheiner and Rowland, San Francisco, CA
- Advanced Methods of PK/PD System Analysis (June, 2001), Marina Del Ray, CA
- Advanced Methods of PK/PD System Analysis (June, 1999), Marina Del Ray, CA

GRADUATE COURSES TAKEN

- Pharmaceutics Related: Pharmacokinetics and Biopharmaceutics, Advanced Pharmacokinetics, Drug Delivery, Stability of Pharmaceuticals, Diffusion, Solid State

Characterization, Physical Chemistry, Responsible Conduct in Research (Ethics & IRB stuff), Numerical Analysis, Linear System Analysis

- Statistics Related: Statistical Inference I & II, Computer Intensive Statistics, Survival Analysis, Statistical Consulting, Stochastic Processes, Regression, Experimental Design, Applied Linear Models, Statistical Computing, SAS programming

MICELLANEOUS

- Passed FPGE (Foreign Pharmacy Graduate Equivalence Examination) (2/96)
- Trained as a Computer Programmer in BIT institute (2/94 ~ 7/94), Seoul, Korea

AWARDS AND SCHOLARSHIP

- Top abstract award (Mar, 2005): ASCPT Annual meeting.
- Award by Aventis in recognition of the contributions for filing studies, Jun, 2002
- AAPS Graduate Symposium in Pharmacokinetics, Pharmacodynamics and Clinical Sciences Sponsored by Eli Lilly and Company, Oct. 2001.
- Pharmacy Graduate Program Excellence Award, University of Iowa, Jan. 2000
- Pharmacy Graduate Program Excellence Award, University of Iowa, Jan. 1999
- Pharmacy Graduate Program Excellence Award, University of Iowa, Jan. 1998
- Tuition Scholarship (1988 ~ 1995), Seoul National University, Korea

MEMBERSHIP

American Society of Clinical Pharmacology and Therapeutics (2004 ~ Present)

American Association of Pharmaceutical Sciences (1998 ~ Present)

VISA STATUS

Permanent US resident