

CURRICULUM VITAE

KIM L. ROWSE BROUWER, PHARM.D., PH.D.**PERSONAL INFORMATION:**

Business Address: Division of Pharmacotherapy and Experimental Therapeutics
 UNC Eshelman School of Pharmacy
 C.B. #7569, #100L Beard Hall
 The University of North Carolina at Chapel Hill
 Chapel Hill, NC 27599-7569

Business Telephone: (919) 962-7030

Pharmacy Licensure: Kentucky

EDUCATION:

1973-1978 - B.S., Pharmacy (Magna Cum Laude), Oregon State University

1978-1981 - Pharm.D., Pharmacy (With Highest Distinction)
 - Pharmacy Residency (3-year, ASHP accredited) Director: Dr. Paul F. Parker
 University of Kentucky, College of Pharmacy

1978-1983 - Ph.D., Pharmaceutical Sciences Committee Chairman: Dr. H.B. Kostenbauder
 University of Kentucky, College of Pharmacy Co-advisor: Dr. Robert A. Blouin

1983-1986 - Postdoctoral Fellow, Department of Pharmacology
 University of Kentucky, College of Medicine Advisor: Dr. Mary Vore

FELLOWSHIPS AND SCHOLARSHIPS:

1978 - National Rho Chi Graduate Scholarship

1978-1979 - National Alpha Lambda Delta Alice Crocker Lloyd Graduate Fellowship

1980 - Dr. B. Olive Cole Graduate Educational Grant, Lambda Kappa Sigma

1981-1982 - American Foundation for Pharmaceutical Education Fellowship

1982-1983 - SmithKline Beckman-AFPE Pharmaceutics/Biopharmaceutics Fellowship

HONORS AND AWARDS:

1976-1978 - Oregon State University Scholarship/Leadership Award

1978 - American Association of University Women Outstanding Senior Woman Award, Oregon State University

1978 - Lambda Kappa Sigma Ethel Jay Heath Key

1978 - Lilly Achievement Award, Oregon State University School of Pharmacy

1979 - Outstanding Young Women of America

1981 - Who's Who among Students in American Colleges and Universities

1993 - 3/5 Student's "Best Professor" Nominee

1995-1997 - Hollingsworth Faculty Scholar, UNC School of Pharmacy

1998 - Fellow, American Association of Pharmaceutical Scientists

2001 - Pharmaceutical Manufacturer's Association Foundation Award in Excellence in Pharmaceutics

2004-2009 - George H. Cocolas Distinguished Professorship

2006 - University of Kentucky Inaugural Outstanding Graduate Program Alumni Award

2007 - University of Kentucky Paul F. Parker Award

2009-present - William R. Kenan, Jr., Distinguished Professorship, University of North Carolina at Chapel Hill

2010 - Oregon State University Alumni Fellow

2012 - University of Kentucky Rho Chi Alpha Xi Outstanding Alumni Award

2014 - Keynote Speaker, Drug Metabolism Gordon Research Conference

2016 - Chair, Drug Metabolism Gordon Research Conference

2016 - Icons of Pharmacy Award, Oregon State University

2017 - John C. Krantz, Jr. Distinguished Lecturer, University of the Sciences, Philadelphia, PA

2018 - American Society for Clinical Pharmacology and Therapeutics - FDA William B. Abrams Award

2019 - Keynote Speaker, Multidrug-Efflux Systems Gordon Research Conference

2019 - University of North Carolina Inventor of the Year

PROFESSIONAL BACKGROUND:**University of Kentucky, Lexington, Kentucky:**

1978-1981 Hospital Pharmacy Resident, Albert B. Chandler Medical Center
 1978-1983 Graduate Teaching/Research Assistant, College of Pharmacy
 1983-1986 Postdoctoral Fellow, College of Medicine, Department of Pharmacology

University of North Carolina, Chapel Hill, North Carolina:

1986-1992 Assistant Professor, Division of Pharmaceutics, School of Pharmacy
 1987-1992 Assistant Professor, Curriculum in Toxicology, School of Medicine
 1992-1997 Associate Professor, Division of Pharmaceutics, School of Pharmacy
 1992-1997 Associate Professor, Curriculum in Toxicology, School of Medicine
 1997-2004 Professor, Division of Drug Delivery and Disposition, School of Pharmacy
 1997-present Professor, Curriculum in Toxicology, School of Medicine
 1994-2004 Director of Graduate Studies, Division of Drug Delivery and Disposition, School of Pharmacy
 1996-2004 Director of Graduate Studies, School of Pharmacy
 2004-present Distinguished Professor (William R. Kenan, Jr., 2009-present; George H. Cocolas, 2004-2009)
 2004-2015 Chair, Division of Pharmacotherapy and Experimental Therapeutics, UNC Eshelman School of Pharmacy
 2015-present Associate Dean for Research and Graduate Education, UNC Eshelman School of Pharmacy

PROFESSIONAL ORGANIZATIONS:**AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY (AACP)**

Chair, Research and Graduate Affairs Committee (1993-1994)
 Member, Research and Graduate Affairs Committee (1994-1995)
 Chair, Volwiler Research Achievement Award Committee (Chair, 1993-1994; Member, 1994-1995)
 Member, Nominating Committee (2007-2008)

AMERICAN ASSOCIATION OF PHARMACEUTICAL SCIENTISTS (AAPS)

Chair, Ad Hoc Committee on Graduate Student Affairs (1989-1990)
 Chair, Professional/Graduate Student Affairs Committee (1991)
 Past Chair, Graduate and Undergraduate Education Committee (1992)
 Member, Task Force on Academic Pharmaceutics: The Challenge of Excellence (1989-1990);
 Implementation Subcommittee (1990-1991)
 Member, Pharmacokinetics, Pharmacodynamics and Drug Metabolism (PPDM) Section Strategic Planning
 Committee (1989-1990)
 Member, Awards Committee (1991)
 Member, PPDM Section Nominations Committee (1994)
 Member, Information Management Committee (1995-1996)
 Member, Meritorious Manuscript Award Selection Committee (1995, 1996)
 Chair, Short Course Committee (1997, 1998); Member, Short Course Committee (1999)
 Member, Programming Task Force (1998)
 Member, Southeast Regional Meeting Planning Committee (1993, 1999)
 Member, Transport Focus Group Steering Committee (1999-2002)
 PPDM Section Fellows Selection Committee (Vice-Chair, 2000; Chair, 2001-2003; Member, 2013)
 Fellows Selection Committee (Chair, 2003-2004; Past-Chair, 2004-2005)
 Member, Journal Program Review Team (2003-2004)
 Member, Membership Strategic Oversight Committee (2004-2007)

AMERICAN COLLEGE OF CLINICAL PHARMACY (ACCP)

Member, Fellowship Review Committee (1992-1995)
 Participant, Strategic Planning Retreat (2005)

AMERICAN SOCIETY FOR CLINICAL PHARMACOLOGY AND THERAPEUTICS (ASCPT)

Member, Steering and Search Committee, *CPT: Pharmacometrics & Systems Pharmacology* Editor (2012)
 Member, Board of Directors (2013-2017)
 Chair, Steering and Search Committee, *Clinical and Translational Science* Editor (2014-2015)
 Co-Vice Chair, International Transporter Consortium Community (2015-2017)
 Member, Awards Selection Task Force (2018)
 Strategic Planning Committee (2018-present)

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS (ASPET)

Member, Selection Committee for Drug Metabolism and Disposition Best Paper Award (2000)

AMERICAN SOCIETY FOR HEALTH-SYSTEM PHARMACISTS (ASHP)**INTERNATIONAL SOCIETY FOR THE STUDY OF XENOBIOTICS (ISSX)****LAMBDA KAPPA SIGMA (LKS)**

Cora E. Craven Grant Committee (Chair, 1986-1988; Member, 1982-1986)

PROFESSIONAL ORGANIZATIONS (continued):

NORTH CAROLINA ASSOCIATION OF PHARMACISTS
PHI KAPPA PHI HONOR SOCIETY
RHO CHI HONOR SOCIETY

Member, Rho Chi, Schering-Plough, AFPE First-Year Graduate Scholarship Committee (2006)

PROFESSIONAL ACTIVITIES:

Member, Pharmacy Practitioner Advisory Council

Oregon State University, College of Pharmacy (1992-1997)

Member, Board of Visitors

University of Pittsburgh (1992-1995)

American Foundation for Pharmaceutical Education (AFPE) Clinical Pharmacy Post-Pharm.D. Fellowship in the Biomedical Research Sciences Advisory Committee
Chair (2006-2008), Member (1993-1994; 1995-2006)

Member, Evaluation Team (1997-2000)

American Council on Pharmaceutical Education

Co-Founder and Chair, Scientific Advisory Board (2003-2012)

Qualyst Transporter Solutions (formerly Qualyst, Inc.; UNC School of Pharmacy Biotechnology Spin-off Co.)

Member, International Transporter Consortium (2006-present); Steering Committee Member (2012-present)

Co-Chair: Intracellular Concentration Working Group (2012-2013)

Co-Chair: Methods for Transfected Systems and Hepatocytes Working Group (2012-2013)

Member, Scientific Advisory Board

The Hamner Institutes of Health Sciences (2006-2015)

Chair, External Review Team

Pharmaceutical Sciences Graduate Program, University of Maryland, Baltimore (2009)

Member, External Review Team

College of Pharmacy, University of Washington (2009-2010)

Member, External Examiner in Pharmacy

The Chinese University of Hong Kong, School of Pharmacy, Faculty of Medicine (2009-2010; 2016)

Member, External Review Team

Uppsala University Quality and Renewal 2011 (KoF11), Pharmacy Panel (2011)

Member, Quantitative Systems Pharmacology (QSP) Working Group (2010-2012)

Academic and industry scientists prepared a QSP white paper for NIH/NIGMS

Co-Chair, NIH/NICHD Pediatric Transporter Working Group (2012-2015)

Academic and industry scientists prepared a transporter ontogeny white paper for NIH/NICHD

Member, International Life Sciences Institute (ILSI), Health and Environmental Sciences Institute (HESI) Working Group Liver Imaging Workstream Team, Imaging Project Committee (2012-2017)

Globalization of Pharmaceutics Education Network (GPEN), UNC Faculty Representative (2012-present)

Executive Committee (2016-present)

Member, External Advisory Committee, University of Chicago Joint T32 Fellowship Training Programs

Clinical Therapeutics and Basic Medical Research in Oncology Training Programs (2016-present)

Member, External Advisory Board, Johns Hopkins Clinical Pharmacology T32

Johns Hopkins University School of Medicine (2016-present)

Member, External Review Team,

Faculty of Pharmaceutical Sciences, University of British Columbia (2017)

Member, Pharmacy and Poisons Board Reccreditation Panel/Visiting Team

Bachelor of Pharmacy Program, The University of Hong Kong (2018)

PROFESSIONAL ACTIVITIES (continued):

- External Reviewer, Proposed Ph.D. Program in Pharmaceutical Sciences at Texas A&M University (2019)
- Member, T32 Pediatric Clinical Pharmacology Advisory Board, Children's Mercy Hospital, Kansas City (2019-present)

INTERNATIONAL CONFERENCE ORGANIZER

- Member, Planning Committee
Second AAPS Frontier Symposium: Membrane Transporters and Drug Therapy;
Bethesda, Maryland (1999)
- Chair, Drug Transport Session
Drug Metabolism Gordon Research Conference; Plymouth, New Hampshire (2000)
- Co-Chair, Transporters Symposium
11th North American ISSX Meeting, Orlando, Florida (2002)
- Co-Chair, Transporter-Based Clinically Significant Drug Interactions Symposium
AAPS Annual Meeting, Toronto, Canada (2002)
- Member, Workshop Planning Committee and Co-Chair, Session on *In Vivo* Consequences of Expression of Transporters in the Liver, Kidney and Placenta,
AAPS Workshop on Drug Transport: From the Bench to the Bedside; Peachtree City, Georgia (2003)
- Chair, Session on *In Vitro* Approaches to Study Transport Proteins: What Can These Model Systems Tell Us About *In Vivo* Drug Disposition?
Drug Metabolism Gordon Research Conference; Plymouth, New Hampshire (2003)
- Co-Chair, Coordinate Activity of Drug Metabolizing Enzymes and Transport Proteins Symposium
AAPS Annual Meeting, Salt Lake City, Utah (2003)
- Co-Chair, Session on Role of Transporters in Hepatotoxicity, Toxicology Forum; Aspen, Colorado (2006)
- Member, Scientific Program Committee
4th World Conference on Drug Absorption, Transport and Delivery; Kanazawa, Japan (2007)
- Chair, Session on Drug Transporters: Structure, Function, Regulation and Clinical Translation
Drug Metabolism Gordon Research Conference; Plymouth, New Hampshire (2008)
- Member, Workshop Planning Committee (NIH-sponsored)
Quantitative & Systems Pharmacology Workshop; Bethesda, Maryland (2008)
- Member, Workshop Planning Committee
FDA Critical Path Transporter Workshop; Bethesda, Maryland (2008)
- Chair, GPEN Short Course: Transporters – Implications in the Design, Delivery, and Safety of Medicines
Globalization of Pharmaceutics Education Network, Chapel Hill, North Carolina (2010)
- Scientific Advisory Board
XX Helsinki Drug Research Conference, "Tools for ADMET and Pharmaceutical Nanotechnology";
Helsinki, Finland (2011)
- Member, Workshop Planning Committee
International Transporter Consortium Workshop 2; Bethesda, Maryland (2012)
Chair, Session on Tools to Study Drug Transporters
- Co-Chair, Session on Imaging Studies of Drug Transport and Response
ASCPT Annual Meeting, National Harbor, Maryland (2012)
- Co-Chair, GPEN Short Course: Transporters as Mediators of Drug Disposition in Health and Disease
Globalization of Pharmaceutics Education Network, Melbourne, Australia (2012)
- Moderator, Clinical Pharmacology and Translational Research Section Open Forum
"Whither Transporters in Drug Development"
AAPS Annual Meeting, Chicago, Illinois (2012)

INTERNATIONAL CONFERENCE ORGANIZER (continued)

- Co-Chair, Systems Pharmacology PreConference
American Society for Clinical Pharmacology and Therapeutics, Indianapolis, Indiana (2012-2013)
Abstract Reviewer for ASCPT Systems Pharmacology PreConference (2013)
- Co-Chair AAPS Roundtable: “Of Organs & Chips: Innovative Tools for Disease Modeling and Drug Development in Barrier Epithelia”
AAPS Annual Meeting, San Antonio, Texas (2013)
- Member, Workshop Program Committee
AAPS/International Transporter Consortium Joint Workshop; Baltimore, Maryland (2015)
Co-Chair, Session 6: System Considerations to Enable Predictive Translation of Transporter Data
- Chair, 2016 Drug Metabolism Gordon Research Conference: “The Precision Medicine Revolution: New Frontiers for Scientists in Drug Metabolism, Transport and Pharmacokinetics”, Plymouth, New Hampshire (2016);
Raised \$110,121 to support this conference (Chair-Elect, 2015)
- Member, Workshop Program Committee
AAPS/International Transporter Consortium Joint Workshop; Baltimore, Maryland (2016)
Co-Chair, Session X: Developmental, Genetic, and Disease Effects on Drug Transporters
- Member, Workshop Program Committee
International Transporter Consortium Joint Workshop 3/ASCPT Pre-Conference; Washington, DC (2017)
Co-Chair, Session I: Membrane Transporters in Human Health and Pathobiology: From Biomarkers to Therapy
- Member, Workshop Program Committee
International Transporter Consortium Joint Workshop 4/ASCPT 2021 Pre-Conference; Washington, DC (2018-present)

COMMITTEES:THE UNIVERSITY OF NORTH CAROLINA

- Administrative Board, The Graduate School (1997-2003)
Educational Policy Committee (1997-2003)
Summer Pre-Graduate Research Experience Program Review (1998)
Graduate Student Appeals Committee (1999)
Creativity Hubs Advisory Committee (2019-present)
Graduate Student Advising & Mentoring Task Force (1997-1998)
NC Translational and Clinical Sciences (TraCS) Institute
Study Section Member (2008-2018); Research Navigator (2012-2013)
Translational Science Advisory Board (2013-2015)
Search Committee for Chief Operating Officer, NCTraCS (2015)
NIH Roadmap Task Force (2004)
NIH Roadmap Executive Committee (2004-2006)
Office of Sponsored Research Faculty Advisory Committee (2015-2017; 2018-present)
Parking Appeals Committee (1991-1997)
Policy on Patent and Copyright Procedures Committee (2006-2008)
Research Deans Committee (2015-present)
Search Committee for:
Director, Curriculum in Toxicology (1991; 2011)
Dean, School of Pharmacy (1991-1992; 2002-2003)
Vice Chancellor for Research and Graduate Studies (1993-1994)

UNC SCHOOL OF MEDICINE

- Administrative Board, School of Medicine (1992-1998)
Building Interdisciplinary Research Careers in Women’s Health Advisory Committee (2015-present)
Clinical Translational Research Center Advisory Board (formerly GCRC) (1997-2012)
Multidisciplinary Clinical Research Career Development (K12;KL2) Advisory Committee (2005-2016)
Major Challenges in Clinical Medicine; An Overview for Basic Scientists Short Course
Faculty Mentor (2005-2007)
Search Committee for Chair, Department of Pharmacology (2015-2016)
T32 Training in Epidemiology and Clinical Trials Program Internal Advisory Board (2016)
UNC-Duke T32 Training Program in Pediatric Therapeutic Development Internal Advisory Board (2017)
UNC Kidney Center Internal Advisory Board (2005)

UNC CURRICULUM IN TOXICOLOGY

Doctoral Written Exam Committee (1992-1994; 2007)
 Executive Committee (1992-1995; 1996-1999; 2001-2004)
 Admissions Committee (1994-1996; 2001-2004)

UNC SCHOOL OF DENTISTRY

Chair, Search Committee for Associate Dean for Research (2018-2019)

UNC SCHOOL OF PHARMACY

Animal Use Committee (1989-1993)
 Campbell Mentoring Program Mentor (2007-present)
 Cancer Experimental Therapeutics Committee (2004-2006)
 Community Pharmacy Advisory Committee (2004-2007)
 Conflicts of Interest Committee, Chair (2015-present)
 Curriculum Committee (1987-1989; 1993-1994; 2009-2010)
 Dean's Advisory Committee (2004-2009)
 Dean Evaluation Committee (1997)
 Executive Committee (2004-present)
 Faculty Research Awards Committee (1986-1987)
 Faculty Search Committee:
 Chair, Division of Pharmaceutics (1993-1994)
 Division of Pharmacy Practice (1997)
 Division of Pharmacotherapy and Experimental Therapeutics (2006-2007; 2015-2016)
 Assistant Dean for Innovation and Strategy (2015-2016)
 Faculty Seed Grant Committee (1993-1994)
 Faculty Salary Policy Committee (2001-2003)
 Ferguson Lecture Committee (1992, 1995, 1996, 1998)
 Full Professors' Committee (1997-present)
 Graduate Education and Research Committee (1994-2004; Chair, 1996-2004)
 Graduate Program Visionary Committee (Chair, 2017-present)
 Honors Program Committee (1987-1995; Chair, 1993-1994; 2013-2015)
 Inaugural Pharmaceutical Sciences Research Conference Planning Committee (2003)
 Masters of Science in Hospital Pharmacy Committee (2005-2006)
 Nominations Committee (member, 2014-2015; co-Chair, 2015-present)
 Partnership in Patient Care Steering Committee (2018-present)
 Pharmaceutical Sciences Graduate Program (1989-1990)
 Pharmaceutical Sciences GLP Laboratory; Member, Technical Advisory Committee (1994-1999)
 PharmAlliance, UNC Research Domain Leader (2015-present)
 PharmAlliance Research Symposium (PARS) Co-Coordinator (2015-2017; 2020)
 Pharm.D. Advisory Committee (1987-1990)
 Pharm.D./Ph.D. Task Force (Co-Chair; 1998-1999)
 Progressions Committee (2003-2004)
 Research Committee (1988-1989)
 Retreat Planning Committee, Chair (1997, 1998)
 Senior Leadership Committee (2004-2005)
 Strategic Planning Committee (1990-1991)
 Task Force on Pharm.D. Curriculum and Specialized Programs (1986-1987)
 Task Force on Pharmacokinetics (GLP) Laboratory (Co-Chair; 1993-1994)
 Vanguard Committee (1997-2001)

EXECUTIVE EDITOR:

Advanced Drug Delivery Reviews (2000-2003)

Theme Issues Commissioned:

Pharmacogenetics of CYP Enzymes and Drug Transporters. *Adv. Drug Deliv. Rev.* **54**(10):1241-1355, 2002.

Current Concepts on the Pathophysiology and Drug Development in Cystic Fibrosis. *Adv. Drug Deliv. Rev.* **54**(11): 1357-1531, 2002.

Drug Efflux Transporters. *Adv. Drug Deliv. Rev.* **55**(1):1-167, 2003.

Drug Excretion in Breast Milk: Mechanisms, Models and Drug Delivery Implications for the Infant. *Adv. Drug Deliv. Rev.* **55**(5):615-697, 2003.

Nuclear Transport: An Emerging Opportunity for Drug Targeting. *Adv. Drug Deliv. Rev.* **55**(6):699-755, 2003.

Pharmaceutical Aerosol Technology and Clinical Application to Asthma Therapy. *Adv. Drug Deliv. Rev.* **55**(7):777-927, 2003.

Drug Transfer in the Choroid Plexus. Multiplicity and Substrate Specificities of Transporters. *Adv. Drug Deliv. Rev.* **56**(12):1693-1890, 2004.

GUEST EDITOR:

Journal of Pharmaceutical Sciences Dedicated Issue for Professor Leslie Z. Benet (2012-2013)

EDITORIAL ADVISORY BOARDS:

AAPS PharmSci (1999-present)

Clinical and Translational Science (2015-present)

Clinical Pharmacology: Advances and Applications (2009-2015)

Clinical Pharmacology & Therapeutics (2008-present)

CPT: Pharmacometrics & Systems Pharmacology (2012-present)

Current Drug Metabolism (1999-2003)

Drug Metabolism and Disposition (2001-2011)

Journal of Biopharmaceutics and Drug Disposition (1999-2008)

Journal of Pharmaceutical Sciences (2001-2007)

Pharmaceutical Research (2000-2005)

SCIENTIFIC REVIEWER:

International Grant Application Reviewer:

Fund for Scientific Research – Flanders (Belgium) (2001)

Katholieke Universiteit Leuven Research Council (2001, 2007)

Swiss National Science Foundation (2006)

Japan Society for the Promotion of Science (2009)

Medical Research Council-UK (2009)

Austrian Science Fund – Erwin-Schrödinger Fellowship (2010)

National Institutes of Health Grant Application Reviewer:

Geriatrics and Rehabilitative Medicine Study Section Ad Hoc Reviewer (1996)

Pharmacology Study Section Member (1998-2002)

Special Emphasis Panel ZRG1 Temporary Member (2003)

NIGMS Postdoctoral Institutional T32 Special Emphasis Panel Study Section Reviewer (2014)

Challenge Grant Reviewer (2009)

Xenobiotic and Nutrient Disposition and Action Study Section Ad Hoc Reviewer (2007, 2010, 2012)

NIGMS Council Ad Hoc Member (2015)

American College of Clinical Pharmacy:

Reviewer for Research Institute Awards (1997)

Private Foundation Grant Application Reviewer:

Indiana 21st Century Research & Technology Fund Proposal Reviewer (2009)

Books:

Concepts in Clinical Pharmacokinetics (American Society of Hospital Pharmacists, 1988, 1995)

Peptide-Based Drug Design: Controlling Transport and Metabolism (American Chemical Society, 1993)

Abstract Reviewer for National Meetings:

American Association of Pharmaceutical Scientists (PPDM Section) (1990, 1996)

American College of Clinical Pharmacy (1991, 1992, 1993, 1994, 1995, 1997)

Pharmaceutical Sciences World Congress (2004)

External Examiner, Doctoral Dissertation Defense:

Elin Matsson, *In Vivo* Pharmacokinetics of Two New Thrombin Inhibitor Prodrugs: Emphasis on Intestinal and Hepatobiliary Disposition and the Influence of Interacting Drugs, Uppsala University, Department of Pharmacy, Uppsala, Sweden (June 11, 2010)

Melina Malinen, Development of Organotypic Liver Cell Cultures in Three-Dimensional Biomaterial Hydrogels, University of Helsinki, Centre for Drug Research, Division of Pharmaceutical Biosciences, Faculty of Pharmacy, Helsinki, Finland (September 1, 2014)

Anna Vildhede, *In Vitro* and *In Silico* Predictions of Hepatic Transporter-Mediated Drug Clearance and Drug-Drug Interactions *In Vivo*, Uppsala University, Department of Pharmacy, Uppsala, Sweden (February 27, 2015)

Journal Reviewer:

American Journal of Physiology (since 1998)
 Biopharmaceutics and Drug Disposition (since 1986)
 BMC Nephrology (since 2019)
 British Journal of Pharmacology (since 2001)
 Clinical Pharmacology and Therapeutics (since 2002)
 CPT:Pharmacometrics and Systems Pharmacology (since 2012)
 Comprehensive Physiology (since 2013)
 Drug Metabolism and Disposition (since 1988)
 Environmental Health Perspectives (since 1995)
 European Journal of Pharmaceutical Sciences (since 2010)
 Expert Opinion on:
 Drug Metabolism and Toxicology (since 2012)
 Therapeutic Targets (since 2015)
 Gastroenterology (since 2001)
 Hepatology (since 2010)

International Journal of Pharmaceutics (since 1987)
 Journal of Biological Chemistry (since 2003)
 Journal of Drug Targeting (since 1995)
 Journal of Pharmaceutical and Biomedical Analysis (since 1997)
 Journal of Pharmaceutical Sciences (since 1987)
 Journal of Pharmacology and Experimental Therapeutics (since 1992)
 Laboratory Animal Science (since 1993)
 Life Sciences (since 1989)
 Molecular Pharmaceutics (since 2010)
 Molecular Pharmacology (since 1998)
 Pharmaceutical Research (since 1990)
 Proceedings of the National Academy of Sciences (since 2013)
 Toxicology and Applied Pharmacology (since 2009)

INVENTION DISCLOSURES / PATENTS:

Patent No.: US 6,780,580 B2 **Date Issued:** Aug. 24, 2004

Method of Screening Candidate Compounds for Susceptibility to Biliary Excretion

Inventors: Edward L. LeCluyse, **Kim L. R. Brouwer** and Xingrong Liu.

Report of Invention Filed 10/05/98; Patent filed 3/17/00

In Vitro Hepatocyte Culture System as a Screen for Biliary Excretion (OTD 99-0036).

Patent No.: US 7,604,934 **Date Issued:** Oct. 20, 2009

Method of Screening Candidate Compounds for Susceptibility to Biliary Excretion by Endogenous Transport Systems (high-throughput screening embodiment)

Inventors: Edward L. LeCluyse, **Kim L. R. Brouwer** and Xingrong Liu.

Divisional patent of US 6,780,580 filed 3/17/00

Patent No.: US 7,601,494 **Date Issued:** Oct. 13, 2009 **European Patent 1773989 Date Issued:** Jan. 20, 2016

Declaration for Utility or Design Patent Application for U.S. Patent Application Number: 10/842,404

Inventors: Xianbin Tian, Peijin Zhang, and **Kim L. R. Brouwer**.

Report of Invention Filed 5/10/04; Continuation-in-part Filed 3/10/05

Application of siRNA to Knock-down Transport Proteins when Screening Candidate Compounds for Susceptibility to Biliary Excretion

Patent No.: US 7,682,781 **Date Issued:** March 23, 2010

Inventors: Edward L. LeCluyse, **Kim L. R. Brouwer**, and Xingrong Liu.

Method of Screening a Metabolite of a Parent Candidate Compound for Susceptibility to Biliary Excretion

U.S. Patent Application Number: 10/855,085 filed 5/27/04

Patent No.: US 8,367,630 B2 **Date Issued:** Feb 5, 2013

Inventors: Xianbin Tian, Peijin Zhang, **Kim L. R. Brouwer**

Method for Inhibiting Expression of a Protein in a Hepatocyte

U.S. Patent Application Number 12/550,109 filed 8/28/09 receipt date: 3/27/12

INVENTION DISCLOSURES / PATENTS (continued):

Report of Invention: OTD06-0061 **Date Issued:** Feb. 15, 2006
Pulsing of Bile Compartments in Sandwich-Cultured Hepatocytes
Inventors: Kim L. R. Brouwer, Xianbin Tian, Peijin Zhang and Keith Hoffmaster.

Report of Invention: OTD02-0084 **Date Issued:** Feb. 28, 2002
Method to Quantitate Biliary Excretion of Xenobiotics in Humans
Inventors: Kim L. R. Brouwer and Susan Ford.

Report of Invention: OTD04-0008 **Date Issued:** Aug. 19, 2003
Device and Method to Quantitate Biliary Excretion of Xenobiotics in Humans
Inventors: Kim L. R. Brouwer, Giulia Ghibellini, Brendan Johnson, William Heizer and John Dent.

PUBLICATIONS:**I. Monographs**

Pollack, G.M. and **Brouwer, K.L.R.:** Maternal-Fetal Pharmacokinetics of Methanol. Health Effects Institute, Cambridge, MA; pp 1-48, 1996.

II. Book Chapters

- Brouwer, K.L.R.,** Dukes, G.E. and Powell, J.R.: Influence of Liver Function on Drug Disposition. Evans, W.E., Schentag, J.J. and Jusko, W.J. (eds.), in: *Applied Pharmacokinetics: Principles of Therapeutic Drug Monitoring*. 3rd edition. Vancouver: Applied Therapeutics Inc.; pp 6:1-59, 1992.
- Brouwer, K.L.R.** and Thurman, R.G.: Isolated Perfused Liver. Borchardt, R.T., Smith, P.L. and Wilson, G. (eds.), in: *Model Systems for Biopharmaceutical Assessment of Drug Absorption and Metabolism*. New York: Plenum Press; pp 161-192, 1996.
- Vore, M. and **Brouwer, K.L.R.:** Cholestatic Properties of Steroid Glucuronides. In: *Toxicology of the Liver*, 2nd edition. Taylor and Francis, Publishers; pp 323-346, 1997.
- Zamek-Gliszczynski, M.J. and **Brouwer, K.L.R.:** *In Vitro* Models for Estimating Hepatobiliary Clearance. Borchardt, R.T., Kerns, E.H., Lipinski, C.A., Thakker, D.R. and Wang, B. (eds.), in: *Pharmaceutical Profiling in Drug Discovery for Lead Selection*. Arlington: AAPS Press, pp 259-292, 2004.
- Kashuba, A.D.M., Park, J.J., Persky, A.M. and **Brouwer, K.L.R.:** Drug Metabolism, Transport, and the Influence of Hepatic Disease. Burton, M.E., Shaw, L.M., Schentag, J.J. and Evans, W.E. (eds.), in: *Applied Pharmacokinetics & Pharmacodynamics: Principles of Therapeutic Drug Monitoring*. 4th edition. Baltimore: Lippincott Williams & Wilkins, pp121-164, 2005.
- Annaert, P., Swift, B., Lee, J.K. and **Brouwer, K.L.R.:** Drug Transport in the Liver. You, G. and Morris, M.E. (eds.), in: *Drug Transporters: Molecular Characterization and Role in Drug Disposition*. John Wiley & Sons, Inc., pp 359-410, 2007.
- Rizwan, A.N. and **Brouwer, K.L.R.:** Absorption Models to Examine Bioavailability and Drug-Drug Interactions in Humans. Pang, K.S., Rodrigues, A.D. and Peter, R.M. (eds.), in: *Enzymatic and Transporter-Based Drug-Drug Interactions: Progress and Future Challenges*. Springer, pp 343-370, 2010.
- Yang, K., Köck, K. and **Brouwer, K.L.R.:** Analysis of Hepatic Transport Proteins. Sugiyama, Y. and Steffansen, B. (eds.), in: *Transporters in Drug Development*. Springer, pp 201-233, 2013.
- Ferslew, B.C., Köck, K. **Brouwer, K.L.R.:** Drug Transport in the Liver. You, G. and Morris, M.E. (eds.), in: *Drug Transporters: Molecular Characterization and Role in Drug Disposition*. 2nd edition, John Wiley & Sons, Inc., pp 245-271, 2014.
- Yang, K., Woodhead, J.L., Shoda, L.K., Yang, Y. Watkins, P.B., **Brouwer, K.L.R.**, Howell, B.A. and Siler, S.Q.: Chapter 9: Mechanistic Modeling of Drug-Induced Liver Injury (DILI). Urban, L., Patel, V.F. and Vaz, R.J. (eds.), in: *Anti-Targets and Drug Safety*. Wiley-VCH, pp 173-198, 2015
<http://onlinelibrary.wiley.com/doi/10.1002/9783527673643.ch09/summary>

III. Review Articles (including Invited Reviews) and White Papers

1. Chandra, P. and **Brouwer, K.L.R.**: The Complexities of Hepatic Drug Transport: Current Knowledge and Emerging Concepts. *Pharm. Res.* **21**:719-735, 2004. [Listed on the Journal's home page for several months as the most viewed article from the journal]
2. Tian, X., Zhang, P. Zamek-Gliszczynski, M.J. and **Brouwer, K.L.R.**: Knocking Down Transport: Applications of RNA Interference in the Study of Drug Transport Proteins. *Drug Metab. Rev.* **37**:705-723, 2005.
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VI. Dissertation

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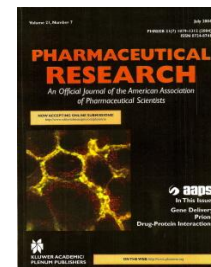
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VIII. Published Abstracts (*) Manuscripts detailing this work are in preparation.

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- 182.^g Yan, Z., Paine, M.F., Tidwell, R.R., Hall, J.E. and **Brouwer, K.L.R.**: Characterization of the Hepatobiliary Disposition of the Anti-parasitic Prodrug, Pafuramidine, in Isolated Perfused Rat Livers Provides a Mechanistic Explanation for the Prolonged Hepatic Accumulation of the Active Metabolite Furamidine. *Drug Metab. Rev.*, **41** (Supplement 3):67 (#137), 2009.
- 183.^g Marion, T.L., Perry, C., St. Claire, R.L. and **Brouwer, K.L.R.**: Effect of Troglitazone on the Disposition of Bile Acids in Rat Sandwich-Cultured Hepatocytes. *The Toxicologist CD- An official Journal of the Society of Toxicology*, **114** (Abstract ID #2399), 2010.
- 184.^g Paul, K.B., Hedge, J.M., DeVito, M.J., **Brouwer, K.L.R.** and Crofton, K.M.: Triclosan Disrupts Thyroxine: Contribution of Hepatic Transport to the Mode of Action. *The Toxicologist CD- An official Journal of the Society of Toxicology*, **114** (Abstract ID #2104), 2010. [Ms. Paul won a Leon Goldberg Memorial Travel Award to attend the 2010 Annual Meeting of the Society of Toxicology for this research]
- 185.^{g,f} Swift, B., Nebot, N., Proctor, W., Thakker, D., Lang, D., Radtke, M., Gnoth, M. and **Brouwer, K.L.R.**: Hepatic Uptake and Excretion of Sorafenib and its Metabolites. *The AAPS Journal*, **12(S2)**:T3381, 2010.
- 186.^g Yan, Z.G., Wang, M., Hall, G., Pollack, G., **Brouwer, K.L.R.** and Paine, M.: Prediction of the Hepatic Disposition of Two Antiparasitic Agents in Humans from Preclinical Models. *The AAPS Journal*, **12(S2)**:R6452, 2010.
- 187.^f Yue, W., Köck, K. and **Brouwer, K.L.R.**: Regulation of Organic Anion Transporting Polypeptide (OATP) 1B3 Function by Protein Kinase C. *The AAPS Journal*, **12(S2)**:R6452, 2010.
- 188.^g Marion, T.L., Perry, C., St. Claire, R.L. and **Brouwer, K.L.R.**: Effect of Troglitazone on Endogenous Bile Acid Disposition in Rat and Human Sandwich-Cultured Hepatocytes. *The Toxicologist CD- An Official Journal of the Society of Toxicology*, **120 S2** (Abstract ID #1080), 2011. [Abstract selected for a SOT Graduate Student Travel Award]
- 189.^g Ferslew, B.C., Gu, X., Swift, B., Manautou, J.E. and **Brouwer, K.L.R.**: Effects of Seeding Density and Days in Culture on Bile Acid Transport and Mrp4 Expression in Sandwich-Cultured Mouse Hepatocytes are not a Result of Oxidative Stress. *The Toxicologist CD- An official Journal of the Society of Toxicology*, **120 S2** (Abstract ID #1081), 2011. [Abstract selected for a SOT Graduate Student Travel Award]
- 190.^{g,f} Yang, K., Yue, W., Köck, K. and **Brouwer, K.L.R.**: Interaction of Troglitazone Sulfate with Hepatic Basolateral and Canalicular Transport Proteins. *The AAPS Journal*, **13(S2)**: M1301, 2011.

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- 192.^{f,g} Köck, K., Ferslew, B.C., Yang, K. and **Brouwer, K.L.R.**: Inhibition of the Hepatic Bile Acid Transporter MRP4: A Potential Risk Factor for Cholestatic Drug-Induced Liver Injury. *The Toxicologist CD- An official Journal of the Society of Toxicology*, **126** (Abstract ID #495), 2012.
- 193.^f Pene Dumitrescu, T, Anic-Milic, T., Oreskovic, K., Padovan, J., **Brouwer, K.L.R.**, Zuo, P. and Schmith, V.D.: Azithromycin Model to Describe Blood and Plasma Concentrations Over Time in Healthy Subjects. *Clin. Pharmacol. Ther.* **91(S1)**:S5 (PT-12), 2012. [**Dr. Dumitrescu received an ASCPT Presidential Trainee Award for this outstanding abstract.**]
- 194.^{f,g} McNeely, E.B., Hull, J.H., Adams, K.F., Talameh, J., Simmons, B., Henry, J., **Brouwer, K.L.R.** and Patterson, J.H.: Comparison of the Relative Bioavailability of Tolvaptan Administered via Nasogastric Tube to Tolvaptan Tablets Swallowed Intact. *Pharmacotherapy*, **32** (5):e114, 2012.
- 195.^g Yang, K. and **Brouwer, K.L.R.**: Pharmacokinetic Modeling and Simulation Study to Predict the Impact of Troglitazone on the Hepatobiliary Disposition of Taurocholate in Rat Sandwich-Cultured Hepatocytes. *The AAPS Journal*, **14**:M1324, 2012.
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- 197.^g Han, T., Everett, R.S., Proctor, W.R., Ng, C.M., Costales, C.L., **Brouwer, K.L.R.**, and Thakker, D.R.: Organic Cation Transporter 1 (OCT1/Oct1) is Localized to the Apical Membrane in Caco-2 Cell Monolayers and Intestinal Epithelium of Mouse and Human. *The AAPS Journal*, **14**:M1305, 2012.
- 198.^{g,f} Ferslew, B.C., Köck, K. and **Brouwer, K.L.R.**: Transport of Enalaprilat, the Active Metabolite of Enalapril, Across the Hepatic Basolateral Membrane is Mediated by MRP4 and Inhibited by Rosuvastatin and MK-571. *Drug Metab. Rev.*, **44(S1)**:P231, 2012.
- 199.^{f,g} Köck, K., Ferslew, B.C., Netterberg, I., Yang, K., Urban, T.J., Stewart, P.W. and **Brouwer K.L.R.**: Inhibition of the Hepatic Basolateral Bile Acid Transporter MRP4 Predicts Cholestatic Drug-Induced Liver Injury (DILI). *Hepatology*, **56**:1530A (LB-22), 2012.
- 200.^f Mayer, C.L., Lauffenburger, J.C., Farley, J.F. **Brouwer K.L.R.**, Fried, M.W. and Hawke, R.L.: Medication Use in Patients with Chronic Hepatitis C (HCV) from a U.S. Commercial Claims Database: Inadequacy of Prescribing Information for Assessment of Potential Drug Interactions. *Hepatology*, **56** (S1):260A-261A (136), 2012. [**Abstract was selected for a podium presentation.**]
- 201.^g Yang, K., Woodhead, J.L., St. Claire, R., Watkins, P.B., Siler, S.Q., Howell, B.A. and **Brouwer, K.L.R.**: Quantitative Relationship Between Intracellular Lithocholic Acid and Hepatotoxicity in Rat Sandwich-Cultured Hepatocytes; Incorporation into a Mechanistic Model of Drug-Induced Liver Injury. *The Toxicologist*, **132** (Abstract ID #1059), 2013.
- 202.^g Woodhead, J.L., Yang, K., **Brouwer, K.L.R.**, Watkins, P.B., Siler, S.Q. and Howell, B.A.: Mechanistic Modeling Illuminates the Most Important Unknowns in Bile Acid Mediated DILI. *The Toxicologist*, **132** (Abstract ID #881), 2013.
- 203.^g Ferslew, B.C. and **Brouwer, K.L.R.**: Drug-Induced Lysosomal Enlargement Indicative of Phospholipidosis in Sandwich-Cultured Rat Hepatocytes Alters Transport of the Anionic Probe Substrates Taurocholate and Rosuvastatin. *The Toxicologist*, **132** (Abstract ID #2630), 2013 [**Society of Toxicology Drug Discovery Toxicology Specialty Section, Student Poster Competition Finalist.**]
- 204.^f Sampson, M.R., Pene Dumitrescu, D., **Brouwer, K.L.R.** and Schmith, V. Population Pharmacokinetic Model for Azithromycin in Blood, Peripheral Blood Mononuclear Cells, and Polymorphonuclear Cells of Healthy Adults. *J. Pharmacokinet. Pharmacodyn.* **40**:S53(M-049), 2013.

- 205.^g Pfeifer, N.D. and **Brouwer, K.L.R.**: Impact of Hepatic Transporter Multiplicity and Loss-of-Function on Hepatocellular Distribution and Excretion of Drugs. *The AAPS Journal*, **15**:R6348, 2013. [This work was competitively judged as outstanding and was selected for presentation at the AAPS Graduate Student Symposium in Pharmacokinetics, Pharmacodynamics, Drug Metabolism and Clinical Pharmacology and Translational Research].
- 206.^{f,g} Johnston, C., Ferslew, B.C., Barritt, A.S. and **Brouwer, K.L.R.**: Mathematical Modeling of Systemic and Hepatic Disposition of Morphine and Morphine Glucuronides in Nonalcoholic Steatohepatitis (NASH) to Inform Study Design. *The AAPS Journal*, **15**:T3196, 2013.
- 207.^f Meng, X., Köck, K., Li, J., **Brouwer, K.L.R.** and Yue, W: Protein Kinase C Activation Rapidly Down-Regulates OATP1B3 Transport Function in Primary Human Hepatocytes. *The AAPS Journal*, **15**:W4351, 2013.
- 208.^g Yang, K., Woodhead, J.L., Watkins, P.B., Howell, B.A. and **Brouwer, K.L.R.**: Mechanistic Modeling of Drug-Induced Liver Injury Predicts Species Differences in Bile Acid-Mediated Troglitazone Hepatotoxicity. *Clin. Pharmacol. Ther.* (late breaking abstract for ASCPT 2014 Annual Meeting, Atlanta, GA, March 18-22; Abstract #744), 2014. [This abstract was selected for a platform presentation.]
- 209.^{g,f} Ferslew, B.C., Johnston, C.K., **Brouwer, K.L.R.** and Barritt, A.S.: Altered Hepatic Transport in Patients with Non-Alcoholic Steatohepatitis (NASH) Increases Morphine Glucuronide Systemic Concentrations. *Clin. Pharmacol. Ther.* (late breaking abstract for ASCPT 2014 Annual Meeting, Atlanta, GA, March 18-22), 2014.
- 210.^{f,g} Hardwick, R.N., Snellings, M., Ferslew, B.C. and **Brouwer, K.L.R.**: Inhibition of MRP4- and BCRP-Mediated Transport by Tyrosine and Aurora Kinase Inhibitors. *The Toxicologist*, **138** (Abstract ID #1626), 2014.
- 211.^f Swaan, P.W., Köck, K., Welch, M. Urban, T.J. and **Brouwer, K.L.R.**: Computational Modeling of MRP4 and BSEP Substrates and Inhibitors. *FASEB J.* Abstract ID# 14-8571-EB, 2014.
- 212.^g Yang, K., Woodhead, J.L., Watkins, P.B., Howell, B.A. and **Brouwer, K.L.R.**: Systems Pharmacology Modeling Predicts Hepatotoxic Potential of Troglitazone and Pioglitazone. *ISSX Online Abstracts*, Supplement **9**(2), P292, 2014.
- 213.^f Lu, Y., Nakanishi, T., Hosomi, A., Komori, H., **Brouwer, K.L.R.** and Tamai, I.: Uremic Toxins Enhance BCRP-Mediated Intestinal Urate Secretion in Caco-2 Cells. *ISSX Online Abstracts*, Supplement **9**(2), P525, 2014.
- 214.^g Guo, C., Brouwer, K.R., Yang, K., St. Claire, R. and **Brouwer, K.L.R.**: Prediction of Altered Bile Acid Disposition by Drugs Using an Integrated Approach: Sandwich-Cultured Human Hepatocytes, Mechanistic Modeling and Simulation. *ISSX Online Abstracts*, Supplement **9**(2), P534, 2014.
215. **Brouwer, K.L.R.**: Mechanistic Modeling of Bile Acid-Mediated Drug-Induced Liver Injury. *ISSX Online Abstracts*, Supplement **9**(2), S1, 2014.
- 216.^f Welch, M.A., Köck, K., Urban, T.J., **Brouwer, K.L.R.** and Swaan, P.W.: Bayesian and Pharmacophore-Based Modeling of MRP4 and BSEP Substrates and Inhibitors. *The AAPS J.*, Poster presentation at the 2014 AAPS Annual Meeting and Exposition; November 2-6, 2014; San Diego, CA. Poster R6345.
- 217.^{g,f} Ferslew, B.C., Johnston, C.K., Tsakalozou, E., Su, M., Xie, G., Jia, W., **Brouwer K.L.R.** and Barritt, A.S.: Altered Fasting and Postprandial Serum Bile Acids in Patients with Non-Alcoholic Steatohepatitis (NASH). *Hepatology*, **60** (S1):831, 2014.
- 218.^{g,f} Lu, Y., Slizgi, J.R., Brock, W., Pan, M. and **Brouwer, K.L.R.**: Inhibition of BSEP- and NTCP-Mediated Taurocholate Transport by Tolvaptan and Metabolites. *The Toxicologist*, Supplement to *Toxicological Sciences*, **144**:153 (Abstract ID #717), 2015.
- 219.^f Tsakalozou, E., Sampson, M., Wang, M.Z. and **Brouwer, K.L.R.**: Development of a Human Whole-Body Physiologically-Based Pharmacokinetic Model of Lovastatin Lactone and Carboxylate (Acid) to Predict Hepatic Concentrations. *Clin. Pharmacol. Ther.* **97**(S1):S10 (QP-26), 2015.

- 220.^g Autmizguine, J., Cohen-Wolkowicz, M., **Brouwer, K.L.R.**, Benjamin, D.K. Jr, and Watt, K.M. Pharmacokinetics of Micafungin in Infants Supported with Extracorporeal Membrane Oxygenation (ECMO). *Clin. Pharmacol. Ther.* **97**(S1):S98 (PW-10), 2015.
- 221.^g Watt, K.M., Cohen-Wolkowicz, M., Williams, D., Bonadonna, D., Cheifetz, I.M., Benjamin, D.K. Jr. and **Brouwer, K.L.R.**: Antifungal Extraction by the Extracorporeal Membrane Oxygenation (ECMO) Circuit *Ex Vivo*. *Clin. Pharmacol. Ther.* **97**(S1):S16 (PT-16), 2015. [Dr. Watt received an ASCPT Presidential Trainee Award for this outstanding abstract.]
222. Woodhead, J.L., Brock, W., Roth, S., **Brouwer, K.L.R.**, Siler, S.Q., Church, R.C., Watkins, P.B., Shoaf, S.E., Howell, B.A. and Shoda, L.K.M.: Quantitative Systems Modeling Provides Biological Plausibility for Potential Mechanisms of Tolvaptan-Induced Hepatotoxicity. *J. Pharmacokinet. Pharmacodyn.*, **42** (Issue 1 Supplement): #M-48, 2015.
- 223.^f Pierre, V., Johnston, C.K., Ferslew, B., **Brouwer, K.L.R.** and Gonzalez, D.: Population Pharmacokinetics of Morphine in Patients with Non-Alcoholic Steatohepatitis and Healthy Adults. *J. Pharmacokinet. Pharmacodyn.*, **42** (Issue 1 Supplement): #T-08, 2015.
- 224.^g Guo, C., Yang, K. and **Brouwer, K.L.R.**: Prediction of Hepatic Efflux Transporter-Mediated DDIs: When Does Variability in IC₅₀ or Intracellular Unbound Fraction of Inhibitors Matter? *ISSX Online Abstracts*, Supplement **10** (2): P108, 2015. [Abstract selected for travel award and podium presentation]
- 225.^g Wells, M.A., Vendrov, K.C., Edin, M.L., Ferslew, B.C., **Brouwer, K.L.R.**, Barritt, A.S., Zeldin, D.C. and Lee, C.R.: Translational Evaluation of the Relationship Between Biomarkers of Cytochrome P450-Mediated Eicosanoid Metabolism and Non-Alcoholic Steatohepatitis. *Clin. Pharmacol. Ther.* **99**(S1):PII-026, 2016.
- 226.^g Slizgi, J.R., Su, M., Jia, W., **Brouwer, K.L.R.**, and Brock, W.J.: Bile Acids as Biomarkers to Assess Liver Impairment in Polycystic Kidney Disease. 2016 American College of Toxicology Annual Meeting; November 6-9, 2016.
- 227.^{g,v} Ito, K., Ali, I., Stieger, B. and **Brouwer, K.L.R.**: Impact of the p.V444A Polymorphism on Bile Salt Export Pump (BSEP/ABCB11) Transporter Function; Normalization of Uptake Based on LC-MS/MS Protein Expression Analysis. *AAPS Published Meeting Abstracts*, <http://abstracts.aaps.org/Published/Browse.aspx>; Poster 10M0300; 2016 AAPS Annual Meeting and Exposition; November 13-17, 2016.
- 228.^g Slizgi, J.R. and **Brouwer, K.L.R.**: Effect of Liver Disease-Mediated Alterations in Hepatic Transporter Function on the Pharmacokinetics and Hepatobiliary Disposition of Drugs. *AAPS Published Meeting Abstracts*, <http://abstracts.aaps.org/Published/Browse.aspx>; Poster 17T1030; 2016 AAPS Annual Meeting and Exposition; November 13-17, 2016. [Selected to receive the 2016 AAPS Graduate Student Research Award in Pharmacokinetics, Pharmacodynamics, Drug Metabolism and Clinical Pharmacology and Translational Research].
- 229.^f Kaullen, J.D., Owen, J.S., **Brouwer, K.L.R.**, Heerd, P., Lien, C.A., Savarese, J.J. and Schmith, V.D.: Pharmacokinetic/Pharmacodynamic Model of CW002, an Investigational Intermediate Neuromuscular Blocking Agent, in Healthy Volunteers. *Clin. Pharmacol. Ther.* **101**(S1):S69 (PII-061), 2017.
- 230.^g Slizgi, J., Kaullen, J.D., Ali, I., Stewart, P., Barritt, A. and **Brouwer, K.L.R.**: Hepatic Disposition of ^{99m}Techneium-Mebrofenin is Altered in Patients with Non-Alcoholic Steatohepatitis. *Clin. Pharmacol. Ther.* **101**(S1):S88 (PII-130), 2017.
- 231.^f Hockings, P., Karageorgis, A., Lenhard, S., Yerby, B., Forsgren, M., Liachenko, S., Johansson, E., Peterson, R., Yang, X., Williams, D., Ungersma, S., Morgan, R., **Brouwer, K.L.R.** and Jucker B.: A Multicenter *In Vivo* Study to Evaluate Gadoxetate DCE-MRI as a Preclinical Biomarker of Liver Function. *Proceedings of the International Society for Magnetic Resonance in Medicine*, April, 2017.
- 232.^{g,f} Beaudoin J.J., Bezençon J., Cao Y., Roth S., Brock W., Mizuno K. and **Brouwer K.L.R.**: Polycystic Kidney Disease Alters the Hepatobiliary Disposition of Tolvaptan and Metabolites. *ISSX Online Abstracts*, Supplement **12** (2): P60, 2017.
- 233.^{*v} Ito K. and **Brouwer K.L.R.**: LXR/FXR Agonist Alters Transporter Expression in Sandwich-Cultured Human Hepatocytes; Proteomics-Driven PBPK Modeling Implicates a Drug-Drug Interaction with Metformin. *ISSX Online Abstracts*, Supplement **12** (2): P206, 2017.

- 234.^g Guo, C., LaCerte, C., Edwards, J., Brouwer, K.R. and **Brouwer, K.L.R.**: Mechanistic Pharmacokinetic Modeling Revealed Functional Increase in Bile Acid Efflux by the FXR Agonists Obeticholic Acid and Chenodeoxycholic Acid. *J Pharmacokinet Pharmacodyn*, 44 (Issue 1 Supplement): #T-085, 2017.
- 235.^{f,g} Malinen, M.M., Ali, I., Beaudoin, J.J. and **Brouwer, K.L.R.**: Bile Acid and Steroid Transporter OST α/β is Over-Expressed in Liver from Patients with Non-alcoholic Steatohepatitis (NASH) and Primary Biliary Cirrhosis (PBC), and Modulated by Drugs Using a Novel In Vitro Cell System, AASLD Annual Meeting, Washington, D.C., October, 2017.
- 236.^{*g} Guo, C. and **Brouwer, K.L.R.**: Impact of Hepatic Efflux Transporter Modulation on Bile Acid Disposition: Prediction and Evaluation Using Mechanistic Pharmacokinetic Modeling. AAPS Annual Meeting, San Diego, CA, November, 2017. [Selected to receive the 2017 AAPS Graduate Student Research Award in Pharmacokinetics, Pharmacodynamics, Drug Metabolism and Clinical Pharmacology and Translational Research].
- 237.^g Ali, I., Ivanovic, M., Barritt, A., Niemi, M. and **Brouwer, K.L.R.**: Non-Alcoholic Steatohepatitis Patients Have Increased Systemic and Hepatic ^{99m}Tc-Mebrofenin Exposure Due to Reduced Hepatic Uptake and Impaired Biliary Clearance. *Clin. Pharmacol. Ther.*, **103**(S1):S23 (PI-031), 2018.
- 238.^{*v} Ito, K., Cao, Y. and **Brouwer K.L.R.**: Development of a Minimal PBPK Model to Assess Hepatic Disposition of ^{99m}Technetium-Mebrofenin in Non-Alcoholic Steatohepatitis Patients. *Clin. Pharmacol. Ther.*, **103**(S1):S70 (PII-061), 2018.
- 239.^{*v} Ito, K. and **Brouwer, K.L.R.**: Mechanistic Modeling of the Hepatic Disposition of Estradiol-17 β -Glucuronide in Human Sandwich-Cultured Hepatocytes: Importance of Basolateral Efflux. AAPS Annual Meeting, Washington DC, November, 2018.
- 240.^g Ali, I., Khalid, S., Stieger, B. and **Brouwer, K.L.R.**: Effect of a Common Genetic Variant (p.V444A) in the Bile Salt Export Pump on the Kinetics and Inhibition of Bile Acid Transport by Cholestatic Medications. AAPS Annual Meeting, Washington DC, November, 2018.
- 241.^v Fu, D., Cardona, P. and **Brouwer, K.L.R.**: Novel Mechanisms of Valproate Hepatotoxicity: Impaired Trafficking of Apical Transporters and Hepatocyte Depolarization. *Hepatology* **68** (S1):432A (726), 2018.
- 242.^{*f} Sjöstedt, N. and **Brouwer, K.L.R.**: Physiologically-Based Pharmacokinetic Model for Transporter Substrates in Patients with Nonalcoholic Steatohepatitis. *Clin. Pharmacol. Ther.*, 105(S1): PII-105, 2019.
243. Minshew, L.M., McLaughlin, J., Aubé, J., Cox, W., Gonzalez, D., Lamb, K.N., Klus, N.J. and **Brouwer, K.L.R.**: What Employers Want: Identifying Necessary Skills in Pharmaceutical Science Graduates. *Am. J. Pharm. Ed.*, in press, 2019. [Selected as a finalist for the SAS Section Best Poster Award].

IX. Poster/Podium Presentations of Unpublished Abstracts

1. **K.L.R. Brouwer** and J.A. Jones. Altered Hepatobiliary Disposition of Acetaminophen Metabolites Following Phenobarbital Pretreatment and Renal Ligation: Evidence for Impaired Biliary Excretion and a Diffusional Barrier. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July, 1989.
2. S.D. Studenberg and **K.L.R. Brouwer**. Pharmacokinetic Modeling of the Hepatic Disposition of Acetaminophen Glucuronide. N.C. Chapter Society of Toxicology; Research Triangle Park, North Carolina. January, 1990. [Mr. Studenberg won a student travel award to SOT for this work.]
3. **K.L.R. Brouwer** and S.D. Studenberg. Impaired Biliary Excretion of Acetaminophen Metabolites in the Isolated Perfused Rat Liver Following Chronic Phenobarbital Pretreatment. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July, 1990.
4. S.D. Studenberg and **K.L.R. Brouwer**. Altered Hepatobiliary Disposition of Acetaminophen Glucuronide in the Isolated Perfused Rat Liver after Acute and *In Vivo* Phenobarbital Administration. N.C. Chapter Society of Toxicology; Research Triangle Park, North Carolina. February, 1991.

5. S.D. Studenberg and **K.L.R. Brouwer**. Effect of Phenobarbital on the Rates of Formation and Egress of Acetaminophen Metabolites in Isolated Rat Hepatocytes. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July, 1991.
6. S.D. Studenberg, **K.L.R. Brouwer**, D.L. Price-Raybuck and S.E. Unger. Characterization of *p*-Hydroxyphenobarbital Glucuronide Generated from Immobilized Rat Hepatic UDP-Glucuronyltransferase. N.C. Chapter Society of Toxicology; Research Triangle Park, North Carolina. February, 1992.
7. C.L. Booth, K.R. Brouwer, and **K.L.R. Brouwer**. P-Glycoprotein-Mediated Alterations in the Hepatobiliary Disposition of Doxorubicin and Daunorubicin. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July, 1996.
8. Mosley, M.B. Mann, D.D. Nystrom, K.R. Brouwer and **K.L.R. Brouwer**. *In Vitro* Evaluation of the Serum Protein Binding of an Acridone Carboximide Derivative (GW918), a Potent Inhibitor of P-Glycoprotein. American Association of Colleges of Pharmacy Annual Meeting; Reno, Nevada. July, 1996. [**Ms. Mosley was awarded a Merck Undergraduate Research Scholarship to conduct this research.**]
9. X. Liu, E.L. LeCluyse, K.R. Brouwer, L.-S.L. Gan and **K.L.R. Brouwer**. Hepatocytes Cultured in a Sandwich Configuration: A Novel *In Vitro* Model to Study Biliary Excretion. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July, 1997.
10. X. Liu, P.L. Amos, E.L. LeCluyse, K.R. Brouwer, B. Stieger, P.J. Meier and **K.L.R. Brouwer**. Extracellular Matrix Configuration Enhances the Expression and Activity of NTCP and CMOAT in Cultured Rat Hepatocytes. AASLD Basic Research Single Topic Conference: Advances in Hepatic Transport: Molecular Mechanisms, Genetic Disorders, and Treatment; Warrenton, Virginia. June, 1998.
11. C.L. Aquilante, S.P. Letrent, G.M. Pollack, and **K.L.R. Brouwer**. Increased Brain P-Glycoprotein Expression in Morphine Tolerant Rats. American Association of Colleges of Pharmacy Annual Meeting; Boston, Massachusetts. July, 1999. [**Ms. Aquilante was awarded a Merck Undergraduate Research Scholarship to conduct this research.**]
12. P.P. Annaert and **K.L.R. Brouwer**. Utility of Sandwich-Cultured Rat Hepatocytes as an *In Vitro* Model to Study P-glycoprotein-Mediated Biliary Drug Excretion. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July 2000. [Dr. Annaert's poster was selected for a podium presentation.]
13. P. Chandra, G.M. Pollack and **K.L.R. Brouwer**. Taurocholate Alters Fexofenadine Biliary Excretion: Rate-Limiting Processes Influence Hepatobiliary Disposition. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July, 2000.
14. Hoffmaster, K.A., LeCluyse, E.L. and **Brouwer, K.L.R.**: Localization of the Canalicular Transport Proteins MDR1 and MRP2 in Human Hepatocytes Cultured in a Sandwich Configuration. Globalization of Pharmaceuticals Education Network, Ann Arbor, Michigan, November 6-8, 2002.
15. Turncliff, R.Z., LeCluyse, E.L. and **Brouwer, K.L.R.**: Effect of Cell Density and Substratum Matrix on Expression and Function of Bsep, Mdr1a/b, and Mrp2, in Sandwich-Cultured Rat Hepatocytes (SCRH). AAPS Workshop on Drug Transport: From the Bench to the Bedside, Peachtree City, Georgia, February 10-12, 2003.
16. Hoffmaster, K.A. and **Brouwer, K.L.R.**: Impact of P-glycoprotein (P-gp) on the Initial Uptake of [D-Penicillamine_{2,5}]-Enkephalin (DPDPE) in Freshly Isolated Rat Hepatocytes. AAPS Workshop on Drug Transport: From the Bench to the Bedside, Peachtree City, Georgia, February 10-12, 2003.
17. Chandra, P., Zhang, P. and **Brouwer, K.L.R.**: Regulatory Mechanisms of the Multi-Drug Resistance-Associated Protein (MRP3) in Primary Human and Rat Hepatocytes. AAPS Workshop on Drug Transport: From the Bench to the Bedside, Peachtree City, Georgia, February 10-12, 2003. [**Ms. Chandra received a Graduate Student Travel Award for this research.**]
18. Zhang, P., Han, Y.-H., Wang, H. and **Brouwer, K.L.R.**: Peroxisome Proliferator-Activated Receptor Alpha (PPAR γ) Agonists Down Regulate MRP2 *In Vitro*. AAPS Workshop on Drug Transport: From the Bench to the Bedside, Peachtree City, Georgia, February 10-12, 2003. [**Dr. Zhang received a Travel Award for this research.**]

19. Tian, X., Zhang, P., Turncliff, R.Z., Hoffmaster, K.A., Kemp, D.C. and **Brouwer, K.L.R.**: Suppression of Rat Mrp2 Expression and Function in Sandwich-Cultured Rat Hepatocytes with Small Interfering RNA. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July, 2003.
20. Zamek-Gliszczynski, M.J., Hoffmaster, K.A., and **Brouwer, K.L.R.**: Multiple Transport Mechanisms Are Involved in Biliary Excretion of Acetaminophen Sulfate (AS): Role of Abcg2 (Bcrp) and Abcc2 (Mrp2). *Globalization of Pharmaceutics Education Network*, Kyoto, Japan, May 25-28, 2004.
21. Zamek-Gliszczynski, M.J., Hoffmaster, K.A., and **Brouwer, K.L.R.**: Role of Abcg2 (Bcrp) and Abcc2 (Mrp2) in Biliary Excretion of Acetaminophen (APAP) Metabolites. Pharmaceutical Sciences World Congress, Kyoto, Japan, May 29-June 3, 2004.
22. Leslie, E., Kemp, D., Leake, B., Kim, R. and **Brouwer, K.L.R.**: Xenobiotics Inhibit [³H]Taurocholate Uptake by Rat Na⁺-Taurocholate Co-transporting Polypeptide (Ntcp/Slc10a1). AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, Parsippany, New Jersey, March 7-9, 2005.
23. Tian, W., Zhang, P., Swift, B., Mikula, M., Mikulits, W., Brouwer, K.R. and **Brouwer, K.L.R.**: Characterization of Transport Proteins in Immortalized p19^{ARF}-Null (MIM-1-4) Mouse Hepatocytes. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, Parsippany, New Jersey, March 7-9, 2005.
24. Ghibellini, G., Vasist, L., Johnson, B., Hill, T., Heizer, W., Kowalsky, R. and **Brouwer, K.L.R.**: Application of a Technique to Measure Biliary Excretion of Drugs in Healthy Human Volunteers. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, Parsippany, New Jersey, March 7-9, 2005. [**Ms. Ghibellini's poster was selected for a podium presentation and she received a Travel Award for this research.**]
25. Leslie, E.M., Leake, B., Kim, R., Kemp, D. and **Brouwer, K.L.R.**: Species Differences in Bosentan Inhibition of Bile Salt Uptake by the Na⁺-Taurocholate Co-Transporting Polypeptide (NTCP/SLC10A1). American Association for the Study of Liver Diseases 2005 Single Topic Conference: Drug Induced Liver Injury, Atlanta, Georgia, September, 2005. [**Dr. Leslie's poster was selected for a poster presentation and she received a Travel Award for this research.**]
26. Lee, J., Leslie, E.M. and **Brouwer, K.L.R.**: Assessment of Ecteinascidin 743 (ET-743) Hepatotoxicity Using Sandwich-Cultured Rat Hepatocytes. American Association for the Study of Liver Diseases 2005 Single Topic Conference: Drug Induced Liver Injury, Atlanta, Georgia, September, 2005. [**Ms. Lee's poster was selected for a poster presentation and she received a Travel Award for this research.**]
27. Leslie, E.M., Nezasa, K., Ghibellini, G., and **Brouwer, K.L.R.**: Disposition of the Tobacco-Specific Carcinogen 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) in Bile Duct Cannulated Wild-Type and TR⁻ Wistar Rats. *FEBS Special Meeting* p 121 (PP-65), 2006. ATP-Binding Cassette (ABC) 2006 Federation of European Biochemical Societies Special Meeting: From Multidrug Resistance to Genetic Diseases, Innsbruck, Austria, March, 2006.
28. Swift, B. and **Brouwer K.L.R.**: Optimization of Culture Conditions for Assessing Substrate Transport in Sandwich-Cultured Mouse Hepatocytes, #M1029. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, North Bethesda, Maryland, March 5-6, 2007.
29. Lee, J., Abe, K. and **Brouwer K.L.R.**: Gender-Dependent Disposition of Acetaminophen Sulfate and Glucuronide in the In Situ Perfused Mouse Liver, #T2031. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, North Bethesda, Maryland, March 5-6, 2007. [**Ms. Lee received a graduate student Travel Award from the PPDM Section of AAPS for this research**]
30. Marion, T., Leslie, E. and **Brouwer K.L.R.**: Troglitazone and Rosiglitazone Inhibit Bile Acid Transport in Sandwich-Cultured Rat and Human Hepatocytes, #T2034. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, North Bethesda, Maryland, March 5-6, 2007.
31. Gefroh H.A., Wolf K.K., **Brouwer K.L.R.**, Pollack G.M. and Brouwer K.R.: Effect of Albumin on the Hepatobiliary Disposition of Taurocholate in B-CLEAR[®]-RT (Sandwich-Cultured Rat Hepatocytes), #T2027. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, North Bethesda, Maryland, March 5-6, 2007.

32. Wolf, K.K. Vora, S., Webster, L.O., Generaux, G.T., Polli, J.W. and **Brouwer, K.L.R.**: Use of Cassette Dosing in Sandwich-Cultured Rat and Human Hepatocytes to Identify Drugs that Inhibit Bile Acid Transport. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire, July, 2008.
33. Lee, J.K., Abe, K., Lim, C., Pollack, G. and Brouwer, **K.L.R.**: Hepatobiliary Disposition of Troglitazone (TGZ) and Metabolites in Sandwich-Cultured Rat and Human Hepatocytes: Use of Monte Carlo Simulations to Assess Impact of Changes in Biliary Excretion on Substrate Accumulation in Cells versus Culture Medium, #T2014. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside. Baltimore, Maryland, March 30-April 1, 2009.
34. Swift, B., Yue, W. and **Brouwer, K.L.R.**: Evaluation of ^{99m}Tc-Mebrofenin (MEB) and ^{99m}Tc Sestabimi (MIBI) as Specific Probes for Hepatic Transport Protein Function, #M1022. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside. Baltimore, Maryland, March 30-April 1, 2009.
35. Yue, W., Lee, J.K. and **Brouwer, K.L.R.**: Decreased Breast Cancer Resistance Protein (Bcrp) Expression and Function in TR⁻ Rat Livers, #T2023. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside. Baltimore, Maryland, March 30-April 1, 2009.
36. Sun, H., **Brouwer, K.L.R.** and Pang, K.S.: Transporter/Phase II Drug Metabolizing Enzyme Interplay: Impact of Futile Cycling. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire, July, 2009.
37. Yan, Z., Paine, M.F., Tidwell, R.R., Hall, J.E. and **Brouwer, K.L.R.**: Comparison of the Hepatobiliary Disposition of Two Antiparasitic Agents in Sandwich-Cultured Hepatocytes and Isolated Perfused Livers from Rats. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire, July, 2009.
38. Griffin, L.M. and **Brouwer, K.L.R.**: Association of Impaired Hepatic Bile Acid Transport with the Hepatotoxicity of Individual and Combination Antiretroviral Protease Inhibitors. Gordon Research Conference (Membrane Transport Proteins); Biddeford, Maine, August, 2010.
39. Pfeifer, N.D., Goss, S.L., Criste R.M., Swift, B., Heizer, W.D., Gangarosa, L.M. and **Brouwer, K.L.R.**: Effect of Steady-State and Single-Dose Ritonavir on the Hepatobiliary Disposition of ^{99m}Tc-Mebrofenin in Healthy Volunteers, PS-W011. Globalization of Pharmaceuticals Education Network 2010; Chapel Hill, North Carolina, November, 2010.
40. Yue, W., Köck, K. and **Brouwer, K.L.R.**: Regulation of Organic Anion Transporting Polypeptide (OATP) 1B3 Function by Protein Kinase C, PS-F-8. Globalization of Pharmaceuticals Education Network 2010; Chapel Hill, North Carolina, November, 2010.
41. Griffin, L.M. and **Brouwer, K.L.R.**: Association of Impaired Hepatic Bile Acid Transport with the Hepatotoxicity of Individual and Combination Antiretroviral Protease Inhibitors. Globalization of Pharmaceuticals Education Network 2010; Chapel Hill, North Carolina, November, 2010.
42. Yang, K., Yue, W. and **Brouwer, K.L.R.**: Loss-of-Function of Canalicular Transporters, Bcrp and Mrp2, Does Not Influence the Intracellular Accumulation of Troglitazone Sulfate in Sandwich-Cultured Rat Hepatocytes, W3005. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside; Bethesda, Maryland, March 14-16, 2011. [Abstract selected for travel award and podium presentation]
43. Pfeifer, N.D., Goss, S.L., Criste R.M., Swift, B., Heizer, W.D., Gangarosa, L.M. and **Brouwer, K.L.R.**: Effect of Single-Dose and Steady-State Ritonavir on the Hepatobiliary Disposition of ^{99m}Tc-Mebrofenin in Healthy Volunteers, W3017. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside; Bethesda, Maryland, March 14-16, 2011. [Abstract selected for travel award and podium presentation]
44. Griffin, L. and **Brouwer, K.L.R.**: Effect of Lopinavir and Ritonavir, Alone and in Combination, on Taurocholate Transport and Intracellular Concentrations of Protease Inhibitors in Sandwich-Cultured Rat Hepatocytes, T2010. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside; Bethesda, Maryland, March 14-16, 2011.
45. Köck, K., Xie, Y., Yue, W., Hawke, R.L. and **Brouwer, K.L.R.**: Interaction of Silymarin Flavonolignans with Hepatic Organic Anion Transporting Polypeptides (OATP) 1B1, 1B3, and 2B1, T2013. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside; Bethesda, Maryland, March 14-16, 2011.

46. Watt, K.M., Benjamin, D.K., Cheifetz, I.M., Moorthy, G., Wade, K.C., Smith, P.B., Kashuba, A., **Brouwer, K.L.R.**, Capparelli, E., and Cohen-Wolkowicz, M.: Pharmacokinetics of Fluconazole in Infants Supported with Extracorporeal Membrane Oxygenation (ECMO). Interscience Conference on Antimicrobial Agents and Chemotherapy, 2011.
47. Yang, K., Woodhead, J.L., St. Claire, R., Watkins, P.B., Siler, S.Q., Howell, B.A. and **Brouwer, K.L.R.**: Quantitative Relationship Between Intracellular Lithocholic Acid and Toxicity in Rat Sandwich-Cultured Hepatocytes; Incorporation into a Mechanistic Model of Drug-Induced Liver Injury. 2013 Research Triangle Park Drug Metabolism Discussion Group Winter Symposium, Durham, North Carolina, Feb. 28, 2013. [Abstract selected for travel award and podium presentation]
48. Pfeifer, N.D. and **Brouwer, K.L.R.**: A Novel Method to Elucidate the Relative Contributions of Basolateral Efflux Clearance versus Biliary Clearance of Rosuvastatin in the Sandwich-Cultured Hepatocyte Model, M1025. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, Bethesda, Maryland, Mar. 18-20, 2013. [Abstract selected for travel award and podium presentation]
49. Slizgi, J.R., Köck, K., Pfeifer, N.D. and **Brouwer K.L.R.**: Interaction of MRP2 Inhibitors with Hepatic Organic Anion Transporting Polypeptides (OATP) 1B1, 1B3 and 2B1, M1029. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, Bethesda, Maryland, Mar. 18-20, 2013.
50. Yang, K., Pfeifer, N.D., Hardwick, R.N., Yue, W., Stewart, P.W. and **Brouwer, K.L.R.**: Experimental Approaches to Evaluate the Impact of Loss-of-Function of Breast Cancer Resistance Protein and Multidrug Resistance-Associated Protein 2 on the Hepatobiliary Disposition of Model Substrates in Rat Sandwich-Cultured Hepatocytes, M1032. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, Bethesda, Maryland, Mar. 18-20, 2013.
51. Han, T., Everett, R.S., Proctor, W.R., Ng, C.M., Costales, C.L., **Brouwer, K.L.R.** and Thakker, D.R.: Organic Cation Transporter 1 (OCT1/Oct1) is Localized in the Apical Membrane of Caco-2 Cell Monolayers and Human and Mouse Intestinal Epithelia, M1033. AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, Bethesda, Maryland, Mar. 18-20, 2013. [Abstract selected for travel award and podium presentation]
52. Watt, K.M., Benjamin, D.K., **Brouwer, K.L.R.**, Capparelli, E., Barrett, J., Smith, P.B. and Cohen-Wolkowicz, M.: Population Pharmacokinetics of Fluconazole in Children Supported with Extracorporeal Membrane Oxygenation. Pediatric Academic Societies Annual Meeting, Washington, D.C., May 4-7, 2013. [Abstract selected for a CTSA Consortium Child Health Oversight Committee travel grant]
53. Hardwick, R.N., Snellings, M., Ferslew, B.C. and **Brouwer, K.L.R.**: Comparison of MRP4 and BCRP Inhibition by Tyrosine and Aurora Kinase Inhibitors. Gordon Research Conference (Cellular and Molecular Mechanisms of Toxicity), Andover, New Hampshire, August 11-16, 2013. [Abstract selected for a travel grant]
54. Guo, C., Brouwer, K.R., Yang, K. and **Brouwer, K.L.R.**: Impact of Transporter Inhibition at Multiple Sites on Bile Acid Disposition: An Integrated Approach Using Sandwich-Cultured Hepatocytes and Mechanistic Modeling/Simulation. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire, July, 2014.
55. Guo, C., Brouwer, K.R., Yang, K., St. Claire, R. and **Brouwer, K.L.R.**: Prediction of Altered Bile Acid Disposition by Drugs Using an Integrated Approach: Sandwich-Cultured Human Hepatocytes, Mechanistic Modeling and Simulation. RTP Drug Metabolism Discussion Group Winter Symposium, RTP, North Carolina, February, 2015.
56. Lu, Y., Slizgi, J., Brock, W.J., Pan, M., Le, K., Ali, I. and **Brouwer, K.L.R.**: Inhibition of Bile Acid Uptake (NTCP) and Efflux (BSEP, MRP2, MRP4) Transporters by Tolvaptan and Metabolites, #24. AAPS/ITC Joint Workshop on Drug Transporters in ADME, Baltimore, Maryland, April, 2015.
57. Ali, I., Lu, Y., Welch, M.A., Le, K., Köck, K., Urban, T.J., Swaan, P.W. and **Brouwer, K.L.R.**: *In Vitro* Validation of Novel MRP4 Inhibitors Identified Based on Bayesian and Pharmacophore Models, #45. AAPS/ITC Joint Workshop on Drug Transporters in ADME, Baltimore, Maryland, April, 2015.
58. Stolz, A., Long, N., Navarro, V.J., Serrano, J., Fontana, R.J., Chalasani, N., Swaan, P.W., **Brouwer, K.L.R.**, Watkins, P.B. and Urban, T.J.: Genetic Variation in the Hepatobiliary Interactome: Role in Hepatotoxicity Due to Herbal and Dietary Supplements. Liver Injury from Herbal and Dietary Supplements NIH-AASLD Workshop, Bethesda, Maryland, May, 2015.

59. Slizgi J.R. and **Brouwer, K.L.R.**: Time-Dependent Effect of Amiodarone-Induced Phospholipidosis on Hepatic Transporter Function in Sandwich-Cultured Rat Hepatocytes. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire, July, 2015.
60. Slizgi, J.R., Su, M., Roth, S., Brock, W.J., Jia, W. and **Brouwer, K.L.R.**: Bile Acids Associate with Liver Disease Severity in a Rodent Model of Autosomal Dominant Polycystic Kidney Disease (ADPKD). UNC PharmSci Retreat, Chapel Hill, North Carolina, April, 2016.
61. Welch, M.A., Ali, I., Lu, Y., **Brouwer, K.L.R.** and Swaan, P.W.: Development and *In Vitro* Validation of a Computational Model to Predict MRP3 Inhibitors. AAPS/ITC Joint Workshop on Drug Transporters in ADME, Baltimore, Maryland, April, 2016. [Abstract selected for travel award and podium presentation]
62. Karageorgis, A., Lenhard, S.C., Yerby, B., Forsgren, M.F., Liachenko, S., Johansson, E., Peterson R.A., Williams, D.P., Ungersma, S.E., Morgan, R.E., **Brouwer, K.L.R.**, Jucker B.M. and Hockings, P.D.: A Robust, Non-Invasive, *In Vivo* Technique Using DCE-MRI to Assess the Inhibition of Hepatic Transporters, Oatp1 and Mrp2, in Rats. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire, July, 2016.
63. Ali, I., Welch, M.A., Swaan, P.W. and **Brouwer, K.L.R.**: Identification of Novel MRP3 Inhibitors Based on Computational Models and Verification Using an *In Vitro* Membrane Vesicle Assay. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire, July, 2016. [Abstract selected for travel award and podium presentation]
64. Guo, C., Yang, K. and **Brouwer, K.L.R.**: Selection of the Optimal Type of Inhibitor Concentration to Predict Hepatic Efflux Transporter-Mediated Drug Interactions. Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire, July, 2016.
65. Guo, C., Yang, K. and **Brouwer, K.L.R.**: Is it Necessary to Measure Intracellular Unbound Fraction of Inhibitors to Predict Hepatic Efflux Transporter-Mediated DDIs? Globalization of Pharmaceuticals Education Network 2016; Lawrence, Kansas, November, 2016. [Abstract selected for podium presentation]
66. Ali, I., Ivanovic, M., Barritt, A.S. and **Brouwer, K.L.R.**: Pharmacokinetic Modeling of ^{99m}Tc-Mebrofenin Blood and Liver Scintigraphy Data in Patients with Nonalcoholic Steatohepatitis (NASH) and Healthy Subjects. International Transporter Consortium (ITC) Workshop 3 - Transporters in Drug Development Pre-conference; Washington, D.C., March, 2017.
67. Malinen, M.M., Beaudoin, J., Ali, I. and **Brouwer, K.L.R.**: Characterization of Organic Solute Transporter Alpha/Beta (OST α/β) Function and Identification of Drug Transport Interactions. International Transporter Consortium (ITC) Workshop 3 - Transporters in Drug Development Pre-conference; Washington, D.C., March, 2017.
68. Guo, C., Edwards, J., LaCerte, C., Freeman, K.M., Brouwer, K.R. and **Brouwer, K.L.R.**: Functional Increase in Bile Acid Efflux after Treatment of Sandwich-Cultured Human Hepatocytes with the FXR Agonists Chenodeoxycholic Acid and Obeticholic Acid. International Transporter Consortium (ITC) Workshop 3 - Transporters in Drug Development Pre-conference; Washington, D.C., March, 2017.
69. Ali, I., Ivanovic, M., Barritt, A., Niemi, M. and **Brouwer, K.L.R.**: Impaired Biliary Excretion of ^{99m}Tc-mebrofenin, a MRP2 Probe, in Patients with Nonalcoholic Steatohepatitis (NASH); Evaluation Using Population Pharmacokinetic (PopPK) Modeling. Controlled Release Society Nordic Chapter Meeting and 30 Years of Drug Delivery Research Conference, Kuopio, Finland, June, 2017.
70. Malinen, M.M., Beaudoin, J.J., Ali, I. and **Brouwer, K.L.R.**: Identification of OST α/β -mediated Drug-Bile Acid Interactions Using a Novel, Organic Solute Transporter Alpha/Beta (OST α/β) Overexpressing Cell Line, Controlled Release Society Nordic Chapter Meeting and 30 Years of Drug Delivery Research Conference, Kuopio, Finland, June, 2017.
71. Malinen, M.M., Ali, I., Beaudoin, J.J. and **Brouwer, K.L.R.**: Organic Solute Transporter OST α/β (SLC51A/B) is Over-Expressed in Non-alcoholic Steatohepatitis (NASH) and Primary Biliary Cirrhosis (PBC), and Modulated by Drugs Associated with Cholestatic Liver Injury, Drug Metabolism Gordon Research Conference, Plymouth, New Hampshire, July, 2017.

72. Kauttonen, A., Malinen, M.M., Cirulli, L., Honkakoski, P. and **Brouwer, K.L.R.**: Characterization of Organic Solute Transporter Alpha/Beta (OST α/β) Function and Identification of Novel OST α/β -mediated Drug, Steroid, and Bile Acid Interactions, Drug Metabolism Gordon Research Conference, Plymouth, New Hampshire, July, 2017.
73. Bezençon, J., Beaudoin, J.J., Fu, D., Ito, K., Roth, S., Brock, W. and **Brouwer, K.L.R.**: Polycystic Kidney Disease Alters Hepatic Transporter Expression in Rats. 10th Biomedical Transporter Conference: SLC Transporters and Ion Channels in Drug Discovery and Preclinical Development, Lausanne, Switzerland, August, 2017.
74. Beaudoin, J.J., Malinen, M.M., Kauttonen, A.S., Sjöstedt, N., Honkakoski, P. and **Brouwer, K.L.R.**: Interactions of Bile Acids and Liver Injury-associated Drugs with Organic Solute Transporter α/β . AAPS/FDA Workshop on Drug Transporters in ADME; From the Bench to the Bedside, Herndon, VA, April, 2018.
75. Ali, I., Khalid, S., Stieger, B. and **Brouwer, K.L.R.**: Effect of a Common Genetic Variant (p.V444A) in the Bile Salt Export Pump on the Kinetics of Bile Acid Transport. AAPS/FDA Workshop on Drug Transporters in ADME; From the Bench to the Bedside, Herndon, VA, April, 2018.
76. Bezençon, J., Saran, C., Beaudoin, J.J., Fu, D., Roth, S.E., Brock, W.J. and **Brouwer, K.L.R.**: Altered Hepatic and Renal Drug Transporter Expression and Endogenous Coproporphyrin I and III Concentrations in Serum and Urine of Polycystic Kidney Rats. AAPS/FDA Workshop on Drug Transporters in ADME; From the Bench to the Bedside, Herndon, VA, April 2018.
77. Bezençon, J., Saran, C., Beaudoin, J.J., Fu, D., Roth, S.E., Brock, W.J. and **Brouwer, K.L.R.**: Polycystic Kidney and Liver Disease in Rats Alters Expression and Function of Hepatic and Renal Drug Transporters. Drug Metabolism Gordon Research Conference, Holderness, NH, July 2018.
78. Sjöstedt, N. and **Brouwer, K.L.R.**: Physiologically-based Pharmacokinetic Modeling of Morphine and Morphine-3-glucuronide in Patients with Nonalcoholic Steatohepatitis. Drug Metabolism Gordon Research Conference, Holderness, NH, July, 2018.
79. Ali, I., Guidone, D., Nicolazzo, J.A. and **Brouwer, K.L.R.**: Factors that Influence Concentrations of Digoxin, a P-glycoprotein (P-gp) Substrate, in Patients with Alzheimer's Disease and/or Dementia. Alzheimer's Association International Conference, Chicago, IL, July, 2018.
80. Malinen, M.M., Kauttonen, A.S., Beaudoin, J.J., Sjöstedt, N., Honkakoski, P. and **Brouwer, K.L.R.**: Interactions of Drugs with Organic Solute Transporter Alpha/Beta (OST α/β): Influence of Preincubation and Physicochemical Properties of Compounds on OST α/β inhibition. Vienna, Austria, September, 2018.
81. Malinen, M.M., Kauttonen, A.S., Bezençon, J., Beaudoin, J.J., Sjöstedt, N., Ali, I., Honkakoski, P. and **Brouwer, K.L.R.**: Muuttaako rasvamaksa lääkeaineiden kuljetinproteiinien esiintymistä? Farmasian Päivät 2018, Helsinki, Finland, November, 2018.
82. Saran, C., Kang, H.E., Malinen, M.M., Honkakoski, P. and **Brouwer, K.L.R.**: Modified HuH-7 Cell Culture: An Improved *In Vitro* Model to Study Bile Acid Transporter Function. Drug Metabolism Gordon Research Conference, Holderness, NH, July, 2019.
83. Beaudoin, J.J., Sjöstedt, N., Welch, M.A., Swaan, P.W., Malinen, M.M., Honkakoski, P. and **Brouwer, K.L.R.**: Identification of Critical Amino Acids in Organic Solute Transporter Alpha/Beta (OST α/β ; *SLC51A/B*): Impact on Bile Acid Transport. Drug Metabolism Gordon Research Conference, Holderness, NH, July, 2019.

INVITED PRESENTATIONS:

1. "Clinical Pharmacokinetics of Lithium and Tricyclic Antidepressants"
ASHP Clinical Pharmacokinetics Institute; Cleveland, Ohio. August, 1982.
2. "Evidence for Multiple Carriers in the Uptake of a Glucuronide Conjugate (Estradiol-17 β -D-Glucuronide) in Isolated Rat Hepatocytes"
Pharmaceutical Sciences Post-Graduate Research Conference; Lexington, Kentucky. October, 1986.
3. "Phenobarbital Impaired Biliary Excretion of Acetaminophen Metabolites in Rats"
Pharmaceutical Sciences Post-Graduate Research Conference; Lexington, Kentucky. October, 1988.
4. "Bioequivalence and FDA Testing of Drugs"
North Carolina Society of Hospital Pharmacists; High Point, North Carolina. February, 1990.
5. "Disease State Alteration of Drug Disposition: Hepatic Disease"
American College of Clinical Pharmacy Annual Meeting; San Francisco, California. August, 1990.
6. "Mechanism(s) of Phenobarbital-Induced Alterations in the Hepatobiliary Disposition of Acetaminophen Metabolites"
Pharmaceutical Sciences Post-Graduate Research Conference; Lexington, Kentucky. October, 1990.
7. "Investigative Studies with Liver Perfusion"
ICI Pharmaceuticals Group; Wilmington, Delaware. December, 1990.
8. "Drug Transport in the Hepatobiliary System: Drug Interactions and Pharmacokinetic Implications" American Association of Pharmaceutical Scientists Southeastern Regional Meeting; Wilmington, North Carolina. April, 1992.
9. "Mechanisms of Phenobarbital-Impaired Hepatobiliary Disposition of Acetaminophen Glucuronide" Oregon State University College of Pharmacy; Corvallis, Oregon. April, 1992.
10. "Effect of Phenobarbital and p-Hydroxyphenobarbital Glucuronide on Acetaminophen Metabolites in Isolated Rat Hepatocytes: Use of a Kinetic Model to Examine the Rates of Formation and Egress"
Pharmaceutical Sciences Post-Graduate Research Conference; Lexington, Kentucky. October, 1992.
11. "Drug Effects in the Elderly"
WGTE-TV Goldsboro, North Carolina. October, 1993.
12. "Will the Family-Career Balancing Act Continue in the 90's"
Fireside Chat, AAPS Annual Meeting; Orlando, Florida. November, 1993.
13. "Application of Pharmacokinetic Principles in Clinical Practice and Drug Development"
Oregon State University College of Pharmacy; Corvallis, Oregon. January, 1994.
14. "Mechanisms of Aberrant Ranitidine Absorption from the GI Tract"
28th Annual Higuchi Research Seminar; Lake Ozark, Missouri. March, 1995.
15. "Mechanisms of Aberrant Ranitidine Absorption from the GI Tract"
Department of Pharmacy and Pharmaceutics, Medical College of Virginia, Virginia Commonwealth University; Richmond, Virginia. September, 1995.
16. "Mechanisms of Aberrant Ranitidine Absorption from the GI Tract"
Oregon State University, College of Pharmacy; Corvallis, Oregon. October, 1995.
17. "Is All That Pharmacokinetic Stuff Really Useful? Application of Pharmacokinetic Principles in Clinical Practice and Drug Development"
Oregon State University, College of Pharmacy; Corvallis, Oregon. October, 1995.
18. "PPDM Scientists of the Future: What Science Will We Do?"
PPDM Open Session, AAPS Annual Meeting; Miami Beach, Florida. November, 1995.

19. "Scientific Collaboration"
Fireside Chat, AAPS Annual Meeting; Miami Beach, Florida. November, 1995.
20. "Methods for Determining Regional Differences in Drug Absorption from the Human Gastrointestinal Tract"
Zeneca Pharmaceuticals; Wilmington, Delaware. November, 1996.
21. "Rat Hepatocytes Cultured in a Collagen Sandwich Configuration; A Novel Model for Investigating Hepatobiliary Transport of Xenobiotics"
Zeneca Pharmaceuticals; Wilmington, Delaware. November, 1996.
22. "Rat Hepatocytes Cultured in a Collagen Sandwich Configuration; A Novel Model for Investigating Hepatobiliary Transport of Xenobiotics"
Dupont-Merck; Wilmington, Delaware. December, 1996.
23. "Model Systems for Predicting the Hepatic Uptake and Biliary Excretion of Drug Candidates"
Glaxo Wellcome, Inc.; Research Triangle Park, North Carolina. February, 1997.
24. "Hepatobiliary Disposition of MDL 16455 in the Isolated Perfused Rat Liver"
Hoechst Marion Roussel, Inc.; Kansas City, Missouri. March, 1997.
25. "Drug Transporters and Metabolic Enzymes: Synergistic Forces to Limit Xenobiotic Access. The Liver"
Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July, 1997.
26. "Hepatobiliary Transport: Model Systems for Predicting the Hepatic Uptake and Biliary Excretion of Drug Candidates"
North Jersey ACS Drug Metabolism Discussion Group Mini-Symposium: "Drug Transporters in Drug Metabolism and Drug Disposition"; Somerset, New Jersey. June, 1998.
27. "Sandwich-Cultured Rat Hepatocytes: A Novel In Vitro Model to Study Hepatobiliary Disposition and Predict Biliary Excretion of Substrates In Vivo"
University of Washington, School of Pharmacy; Seattle, Washington. May, 1999.
28. "Hepatobiliary Drug Disposition: An In Vitro Model to Predict Biliary Excretion of Substrates In Vivo"
Innovative Techniques for ADME, Institute for International Research; San Diego, California. December 1999.
29. "Phenobarbital-Associated Alterations in Hepatobiliary Transport of Organic Anions"
University of Michigan, College of Pharmacy, Ann Arbor, Michigan. March, 2000.
Department of Toxicology, North Carolina State University; Raleigh, North Carolina. May, 2000.
30. "Sandwich-Cultured Hepatocytes: An In Vitro Model to Predict Biliary Excretion of Drugs and Metabolites In Vivo"
Parke-Davis Pharmaceutical Research Laboratories; Ann Arbor, Michigan. March, 2000.
31. "From Grapefruit Juice and Herbal Products to Prescription Medications; Can We Predict Drug Interactions?"
Carolina CASE Media Fellowship 2000; Chapel Hill, North Carolina. June, 2000.
32. "Fostering Collaborative Research: Opportunities for Basic Scientists in Clinical and Translational Research"
University of New Mexico, College of Pharmacy; Albuquerque, New Mexico. July, 2000.
33. "Sandwich-Cultured Rat Hepatocytes: An In Vitro Model to Predict Biliary Clearance and Study Mechanisms of Drug Interactions in Hepatobiliary Transport"
Pfizer Inc.; Groton, Connecticut, August, 2000.
34. "Use of Sandwich-Cultured Hepatocytes to Predict In Vivo Biliary Drug Clearance"
10th North American ISSX Meeting, Invited Symposium Presentation; Indianapolis, Indiana, October, 2000.
35. "Mechanisms of Altered Hepatobiliary Transport of Organic Anions by Phenobarbital"
Vanderbilt University School of Medicine; Nashville, Tennessee, November, 2000.
36. "Hepatobiliary Drug Transport: Mechanisms, Model Systems and Implications for Drug Design and Development"
Invited Symposium Presentation, IUPAC World Chemistry Congress; Brisbane, Australia, July, 2001.

37. *"Hepatobiliary Transport Systems: Mechanisms, Model Systems and Implications in Drug Development"*
DuPont Pharmaceuticals; Newark, Delaware, September, 2001.
38. *"Utility of Sandwich-Cultured Hepatocytes as an In Vitro Tool to Predict Hepatobiliary Disposition of Drug Candidates"*
Society for Biomolecular Screening Annual Meeting, Invited Symposium Presentation; Baltimore, Maryland, September, 2001.
39. *"Hepatobiliary Transport Systems: Mechanisms, Model Systems and Implications for Drug Development"*
Invited Symposium Presentation, Pharmacia Fall Symposium on Transporters in ADME and Toxicology; Kalamazoo, Michigan, October, 2001.
40. *"In Vitro Cellular Models for Examining the Function and Regulation of Hepatobiliary Transport Systems"*
American Association of Pharmaceutical Scientists Annual Meeting, Invited Symposium Presentation; Denver, Colorado, October, 2001.
41. *"Hepatobiliary Transport: Mechanisms, Model Systems and Implications in Drug Development"*
Merck Research Laboratories; Westpoint, Pennsylvania, January, 2002.
42. *"Hepatobiliary Transport: Mechanisms, Model Systems and Implications for Drug Development"*
Janssen Pharmaceutica N.V.; Beerse, Belgium, March, 2002.
43. *"Hepatobiliary Transport: Mechanisms, Model Systems and Implications for Drug Development"*
3-Dimensional Pharmaceuticals; Exton, Pennsylvania, May, 2002.
44. *"Graduate Student Involvement in Clinical Research"*
NIGMS Pharmacological Sciences Training Grants Meeting: "What IS Training in the Pharmacological Sciences?"; Washington, D.C., August, 2002.
45. *"Role of Hepatic Transporters"*
Fifth Annual Land O'Lakes Conference on Drug Metabolism/Applied Pharmacokinetics; Merrimac, Wisconsin, September, 2002.
46. *"Principles of Biopharmaceutics and Pharmacokinetics"*
FDA Symposium on Controlled Release of Solid Oral Dosage Forms; Rockville, Maryland, September, 2002.
47. *"Membrane Vesicles and Sandwich-Cultured Hepatocytes as In Vitro Models to Evaluate Drug Transport"*
American Association of Pharmaceutical Scientists Workshop on Drug Transport: From the Bench to the Bedside, Invited Symposium Presentation; Atlanta, Georgia, February, 2003.
48. *"What Will Be Your Role in The Pharmacy Profession in 2030? How Will You Get The Training You Need For That Job You Are Dreaming Of?"*
Oregon State University College of Pharmacy; Corvallis, Oregon. April, 2003.
49. *"Preparing the Next Generation of Pharmaceutical Scientists: Case Studies of Mechanisms and Model Systems in Hepatobiliary Transport"*
Keynote Address, Oregon State University College of Pharmacy Research Retreat; Corvallis, Oregon. April, 2003.
50. *"In Vitro Models for Estimating Hepatobiliary Clearance"*
American Association of Pharmaceutical Scientists Workshop on Pharmaceutical Profiling in Drug Discovery for Lead Selection, Invited Symposium Presentation; Whippany, New Jersey, May, 2003.
51. *"Hepatic Transport and Hepatotoxicity: Mechanisms, Model Systems and Implications in Drug Development"*
GlaxoSmithKline; Research Triangle Park, North Carolina, May, 2003.
52. *"Use of Sandwich-Cultured Hepatocytes to Predict Biliary Excretion of Drugs, Evaluate Alterations in Hepatic Drug Transport, and Define Mechanisms of Interaction"*
Gordon Research Conference (Drug Metabolism); Plymouth, New Hampshire. July, 2003.
53. *"Membrane Vesicles and Sandwich-Cultured Hepatocytes as In Vitro Models to Evaluate Drug Transport"*
14th North American ISSX Meeting, Invited Short Course Speaker; Providence, Rhode Island, October, 2003.

54. *“Use of Sandwich-Cultured Hepatocytes to Evaluate Mechanisms of Hepatic Transport and Hepatotoxicity”*
Washington State University College of Pharmacy; Pullman, Washington, November, 2003.
55. *“Role of Transporters in Hepatic Uptake and Clearance”*
Drug Metabolism Discussion Group; Research Triangle Park, February, 2004.
56. *“Hepatic Transport Proteins: Model Systems of Hepatobiliary Transport and Relevance in Drug Development”*
Keynote Speaker, Transporter Jamboree, Pfizer, Inc.; Ann Arbor, Michigan. April, 2004.
57. *“Coordinated Pharm.D. and Ph.D. Programs: Building Bridges from the Bench to the Clinic”*
ASPET Teaching Institute, FASEB Annual Meeting; Washington, D.C., April, 2004.
58. *“Isolated Perfused Liver and Hepatocyte Sandwich Culture to Predict Biliary Excretion”*
European Federation for Pharmaceutical Sciences Conference on Drug Transporters: Integrative Approaches in ADME Research; Copenhagen, Denmark, April, 2004.
59. *“Application of Pharmacogenetics in Clinical Practice and Therapeutic Drug Monitoring”*
Pharmaceutical Sciences World Congress (PSWC2004); Kyoto, Japan, May 2004.
60. *“Hepatobiliary Transport and Hepatotoxicity: Mechanisms, Model Systems and Relevance in Drug Development”*
Delaware Valley Drug Metabolism Discussion Group Rozman Symposium; Bucks County, Pennsylvania, June, 2004.
61. *“Role of Transport Proteins in Hepatobiliary Excretion”*
8th World Congress on Clinical Pharmacology and Therapeutics (CPT2004); Brisbane, Australia, August, 2004.
62. *“Methods to Study the Functional Effects of Efflux Pumps in Biomembranes”*.
Post-Graduate Course in *Computational, Cell Culture and Physicochemical Methods in Preclinical Pharmacokinetics* organized by the Finnish Graduate School for Pharmaceutical Research and Graduate School ESPOM; Helsinki, Finland, December, 2004.
63. *“Hepatic Transporters”*.
Post-Graduate Course in *Computational, Cell Culture and Physicochemical Methods in Preclinical Pharmacokinetics* organized by the Finnish Graduate School for Pharmaceutical Research and Graduate School ESPOM; Helsinki, Finland, December, 2004.
64. *“Hepatic Cell Model Systems”*.
Post-Graduate Course in *Computational, Cell Culture and Physicochemical Methods in Preclinical Pharmacokinetics* organized by the Finnish Graduate School for Pharmaceutical Research and Graduate School ESPOM; Helsinki, Finland, December, 2004.
65. *“Transporters (Phase III): Outline of Transporters and Role in Human Xenobiotic Processing”*
“Human Metabolism of Public Health-Related, Deployment-Related, Industrial and Agricultural Chemicals” Short Course organized by North Carolina State University; Raleigh, North Carolina, January, 2005.
66. *“In Vitro Models for Estimating Hepatobiliary Clearance”*
ADMET-2 Conference; San Diego, California, February, 2005.
67. *“Hepatotoxicity and Drug Transporters”*
AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside; Parsippany, New Jersey, March, 2005.
68. *“The Role of Biliary Clearance in Drug Elimination”*
37th Annual Pharmaceutics Graduate Student Research Meeting; Lawrence, Kansas, June, 2005.
69. *“Modulation of Bile Acid Transport by Drugs with Hepatotoxic Potential”*
2nd Annual North American Hepatocyte Research Association Meeting, Satellite Symposium of the North American ISSX Meeting; Maui, Hawaii, October, 2005.
70. *“Utility of Sandwich-Cultured Hepatocytes to Identify Drugs with Hepatotoxic Potential and Explore Mechanisms of Hepatotoxicity”*
Safety Assessment, GlaxoSmithKline, Inc.; Research Triangle Park, North Carolina, January, 2006.

71. *“Transporters (Phase III): Outline of Transporters and Role in Human Xenobiotic Processing”*
Human Metabolism of Public Health-Related, Deployment-Related, Industrial and Agricultural Chemicals Short Course, North Carolina State University; Raleigh, North Carolina, January, 2006.
72. *“Hepatic Transport and Hepatotoxicity of Drugs: From the Chemistry-Biology Interface to the Patient”*
Department of Chemistry and Biochemistry, UNC Greensboro; Greensboro, North Carolina, February, 2006.
73. *“Use of Sandwich-Cultured Hepatocytes to Study ABC Proteins: Expression, Localization and Role in Xenobiotic Disposition and Hepatotoxicity”*
FEBS Advanced Lecture Course. ATP-Binding Cassette (ABC) 2006 Federation of European Biochemical Societies Special Meeting: From Multidrug Resistance to Genetic Diseases; Innsbruck, Austria, March, 2006.
74. *“Sandwich-Cultured Hepatocytes: An In Vitro Tool to Predict Biliary Clearance of Drugs, Drug-Transport Interactions, and Hepatotoxicity”*
Delaware Valley Drug Metabolism Discussion Group Rozman Symposium; Bucks County, Pennsylvania, May, 2006.
75. *“Use of Probe Compounds to Assess Hepatobiliary Transport Function in Humans: Comparison of In Vivo and In Vitro Biliary Clearance Estimates”*
International Society for the Study of Xenobiotics 9th European Meeting; Manchester, United Kingdom, June, 2006.
76. *“Hepatic Transporters and Hepatotoxicity”*
32nd Annual Summer Meeting of the Toxicology Forum; Aspen, Colorado, July, 2006.
77. *“Species Differences in Hepatic Transport: Implications for Selecting Predictive Models”*
NIH Roadmap Meeting on Predictive Models for Drug Safety Assessment; Bethesda, Maryland, August, 2006.
78. *“In Vitro and In Vivo Knockout Models to Evaluate Hepatic Drug Transport”*
European Federation for Pharmaceutical Sciences 2006 Conference on Membrane Drug Transporters: Impact on Drug Discovery, Development, Regulation and Usage; Copenhagen, Denmark, September, 2006.
79. *“Responding to the Impending Crisis: A Roadmap to Navigate the Opportunities and Challenges for Developing PharmDs as Translational Scientists”*
NIH Special Conference on Pharmacy Research: PharmD Pathways to Biomedical Research; Bethesda, Maryland, December, 2006.
80. *“Probing Hepatobiliary Drug Clearance in Humans: Translating from the Bench to the Bedside”*
University of Tennessee Graduate Seminar Series; Memphis, Tennessee, February, 2007.
81. *“The Role of Hepatic Transport Proteins in Biliary and Sinusoidal Excretion”*
AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside; North Bethesda, Maryland, March, 2007.
82. *“From the Bench [to the Bedding] to the Bedside: The Complexities of Hepatobiliary Transport”*
Eli Lilly and Co.; Indianapolis, Indiana, March, 2007.
83. *“Development of Novel Bench-to-Bedside Tools for Studying Hepatobiliary Drug Transport: From the Bluegrass of Kentucky to the Blue Skies of Carolina”*
University of Kentucky Postgraduate Conference; Lexington, Kentucky, April, 2007.
84. *“The Effect of Hepatic Transporters on Drug Disposition and Hepatotoxicity”*
Roche Palo Alto; Palo Alto, California, June, 2007.
85. *“The Role of Hepatic Transport Proteins in Drug Disposition and Hepatotoxicity”*
Daiichi-Sankyo Company Limited; Tokyo, Japan, June, 2007.
86. *“‘Of Mice and Men’: Exploring the Complexities of Hepatobiliary Drug Transport”*
Department of Molecular Pharmacokinetics, Graduate School of Pharmaceutical Sciences, The University of Tokyo; Tokyo, Japan, June, 2007.
87. *“The Role of Hepatic Transport Proteins in Drug Disposition and Hepatotoxicity”*
Shionogi Pharmaceutical Company; Osaka, Japan, June, 2007.

88. *“The Role of Hepatic Transport Proteins in Drug Disposition and Hepatotoxicity”*
Takeda Pharmaceutical Company; Osaka, Japan, June, 2007.
89. *“Imaging Hepatobiliary Drug Disposition in Humans with Gamma Scintigraphy”*
4th World Conference on Drug Absorption, Transport and Delivery; Kanazawa, Japan, June, 2007.
90. *“Use of Knockout (In Vivo) and Knockdown (In Vitro RNAi) Models to Probe Hepatobiliary Drug Transport”*
10th Annual Land O’Lakes Conference on Drug Metabolism/Applied Pharmacokinetics;
Merrimac, Wisconsin, September, 2007.
91. *“Translating from the Bench (to the Bedding) to the Bedside: In Vitro/In Vivo Correlations for Hepatobiliary Drug Transport”*
Department of Pharmaceutics, Ernest Mario School of Pharmacy, Rutgers University; Piscataway, New Jersey, September, 2007.
92. *“Translating from the Bench (to the Bedding) to the Bedside: In Vitro-In Vivo Correlations for Hepatobiliary Drug Clearance”*
Amgen, PKDM; Cambridge, Massachusetts, September, 2007.
93. *“From the Bench to the Bedside: The Complexities of Hepatobiliary Transport”*
Albert Einstein College of Medicine, Marion Bessin Liver Research Center; Bronx, New York, February 2008.
94. *“Use of Sandwich-Cultured Hepatocytes to Evaluate the Role of Transport Proteins in Hepatobiliary Disposition of Drugs/Metabolites and Drug Interactions in Hepatic Transport”*
Pfizer; Sandwich, United Kingdom, May, 2008.
95. *“Application of Nuclear Imaging to Evaluate Hepatobiliary Drug Disposition”*
10th European Regional ISSX Meeting; Vienna, Austria, May, 2008.
96. *“Sandwich-Cultured Hepatocytes: An In Vitro Tool to Predict Biliary Clearance of Drugs and Evaluate Hepatobiliary Transporter-Based Drug Interactions”*
Solvo Transporter Symposium and Training; Budapest, Hungary, May, 2008.
97. *“Use of Sandwich-Cultured Hepatocytes to Evaluate the Role of Transport Proteins in Hepatobiliary Disposition of Drugs/Metabolites and Drug Interactions in Hepatic Transport”*
Novartis; Boston, Massachusetts, June, 2008.
98. *“Education and Training: Status and Future Needs; Programs in Pharmacometrics”*
NIH Workshop on Quantitative and Systems Pharmacology; Bethesda, Maryland, September, 2008.
99. *“Imaging and Modeling Techniques: Essential Quantitative Tools for the Drug Transport Scientist”*
FDA Critical Path Transporter Workshop; Bethesda, MD, October, 2008.
100. *“Imaging Hepatobiliary Drug Disposition in Humans Utilizing Gamma Scintigraphy”*
15th North American Regional ISSX Meeting; San Diego, CA, October, 2008.
101. *“Use of Sandwich-Cultured Hepatocytes to Evaluate the Role of Transport Proteins in Hepatobiliary Disposition of Drugs/Metabolites and Drug Interactions in Hepatic Transport”*
Hepatocyte Expert Program, CellzDirect; Research Triangle Park, NC, November, 2008.
102. *“From the Bench to the Bedside: The Complexities of Hepatobiliary Transport”*
University of Minnesota, College of Pharmacy; St. Paul, Minnesota, November, 2008.
103. *“Predicting Hepatobiliary Disposition by In Vitro Methods”*
Orion Corporation, ORION PHARMA; Helsinki, Finland, January, 2009.
104. *“Sandwich-Cultured Hepatocytes: An In Vitro Tool to Assess Systemic Exposure, Hepatic Accumulation and Biliary Excretion of Generated Metabolites”*
Hepatocyte Users Symposium; Copenhagen, Denmark, January, 2009.
105. *“Hepatic Transporters and Hepatotoxicity”*
The Hamner Institutes for Health Sciences; Research Triangle Park, North Carolina, February, 2009.

106. *“Responding to the Impending Crisis: A Roadmap to Navigate the Opportunities and Challenges for Developing PharmDs as Translational Scientists”*
University of Houston College of Pharmacy; Houston, Texas, March, 2009.
107. *“From the Bench to the Bedside: The Complexities of Hepatobiliary Drug Transport”*
University of Houston College of Pharmacy; Houston, Texas, March, 2009.
108. *“Imaging Techniques and Pharmacokinetic Modeling Simulation: Useful Quantitative Tools for the Drug Transport Scientist”*
North Jersey ACS Drug Metabolism Discussion Group, Somerset, New Jersey, April, 2009.
109. *“Role of Canalicular and Basolateral Transport Proteins in Determining Hepatocyte Exposure and Excretory Routes of Phase II Conjugates: A Kinetic Analysis”*
Gordon Conference, Holderness School, New Hampshire, July, 2009.
110. *“Tools to Predict Hepatobiliary Drug Disposition and Transporter-Based DDIs; From the Bench to the Bedside”*
AstraZeneca Research and Development; Södertälje, Sweden, September, 2009.
111. *“Sandwich-Cultured Hepatocytes: An In Vitro Tool to Assess Hepatobiliary Disposition of Drugs/Metabolites, Predict Biliary Clearance, and Evaluate Transporter-Based DDIs”*
ADME Roseno Meeting; Stockholm, Sweden, September, 2009.
112. *“Sandwich-Cultured Hepatocytes: An In Vitro Tool to Assess Hepatobiliary Disposition of Drugs/Metabolites, Predict Biliary Clearance, and Evaluate Transporter-Based DDIs”*
Uppsala University, Department of Pharmaceutical Biosciences; Uppsala, Sweden, September, 2009.
113. *“Sandwich-Cultured Hepatocytes: An In Vitro Tool to Assess Hepatobiliary Disposition of Drugs/Metabolites, Predict Biliary Clearance, and Evaluate Transporter-Based DDIs”*
UCSF Department of Pharmaceutical Sciences and Pharmacogenomics; San Francisco, California, October, 2009.
114. *“Sandwich-Cultured Hepatocytes: An In Vitro Tool to Assess Systemic Exposure, Hepatic Accumulation and Biliary Excretion of Generated Metabolites”*
Hepatocyte Research Association; Baltimore, Maryland, October, 2009.
115. *“Core Competencies, Training Requirements and Dissertation Requirements”*
Clinical Scientist Summit; Los Angeles, California, November, 2009.
116. *“Hepatic Transporters and Implications for Drug Development”*
American College of Veterinary Pathology Plenary Session; Monterey, California, December, 2009.
117. *“Tools to Predict Hepatobiliary Drug Disposition and Transporter-Based DDIs: From the Bench to the Bedside”*
Abbott Laboratories; Chicago, Illinois, December, 2009.
118. *“Tools to Predict Hepatobiliary Drug Disposition and Transporter-Based DDIs; From the Bench to the Bedside”*
University of Maryland School of Pharmacy; Baltimore, Maryland, February, 2010.
119. *“Impaired Hepatic Bile Acid Transport and Drug-Induced Hepatotoxicity: Mechanisms and Model Systems”*
Society of Toxicology 49th Annual Meeting; Salt Lake City, Utah, March, 2010.
120. *“A Renaissance in Pharmacy Education”*
Chinese University of Hong Kong, Hong Kong, China, May, 2010.
121. *“From the Bench to the Bedside: Tools to Predict the Impact of Altered Hepatic Drug Transport”*
Chinese University of Hong Kong, Hong Kong, China, May, 2010.
122. *“Introduction to Hepatic Transport: Relevance to Drug Delivery”*
Peking University, Beijing, China, May, 2010.
123. *“Guidelines for Drug Development: The Challenge of Drug Transporters. Summary of the Report from the International Transporter Consortium with a Focus on Tools to Evaluate Hepatobiliary Drug-Drug Interactions in Humans”*
Uppsala University, Department of Pharmacy; Uppsala, Sweden, June, 2010.

124. *“Sandwich-Cultured Hepatocytes: An In Vitro Tool to Predict Hepatic Exposure of Drugs/Generated Metabolites and Hepatotoxicity”*
Ninth Annual World Pharmaceutical Congress: Preclinical Developments to Better Predict Outcomes, Drug Safety Summit, Philadelphia, Pennsylvania, June, 2010.
125. *“Hepatobiliary Drug Disposition: Tools to Predict Transporter-Based Drug-Drug Interactions and Hepatotoxicity”*
National University of Singapore Pharmacy Medicinal Chemistry Symposium, Singapore, September, 2010.
126. *“Modulating Intracellular Concentrations of Drugs and Metabolites: Impact of Transport Proteins”*
Thirteenth Annual Land O’Lakes Conference on Drug Metabolism/Applied Pharmacokinetics, Merrimac, Wisconsin, September, 2010.
127. *“Pharmacokinetic Applications in Drug Development: Drug (or Food)-Drug Interactions in the Intestine and Liver”*
Oregon Health & Science University, Portland, Oregon, October, 2010.
128. *“From the Bench to the Bedside: Tools to Predict the Impact of Altered Hepatic Drug Transport”*
Oregon State University, Corvallis, Oregon, October, 2010.
129. *“What Will Be Your Role in The Pharmacy Profession in 2030?”*
Oregon State University, Corvallis, Oregon, October, 2010.
130. *“Drug-Induced Hepatotoxicity: Mechanisms and Model Systems”*
Globalization of Pharmaceuticals Education Network, Chapel Hill, North Carolina November, 2010.
131. *“Glucuronidation, Sulfation and Efflux: Synergy in Presystemic Elimination”*
AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside; Bethesda, Maryland, March, 2011.
132. *“Drug-Induced Liver Injury: Role of Hepatic Transporters and Hepatocellular Concentrations of Drugs/Metabolites and Bile Acids”*
FDA Office Clinical Pharmacology, CDER, US FDA; Silver Springs, Maryland, April, 2011.
133. *“Hepatic Transport: Modeling and Simulation to Predict Intracellular Concentrations”*
Helsinki, Finland, September, 2011.
134. *“Overview of Hepatobiliary Drug Transporters with a Focus on Hepatic Uptake Assays”*
Orion Corporation, ORION PHARMA, Espoo, Finland, September, 2011.
135. *“Hepatobiliary Drug Disposition and Implications in Drug Development: Mechanisms, Model Systems and IVIVC”*
Eli Lilly and Company, Indianapolis, Indiana, September, 2011.
136. *“Role of Hepatobiliary Transport Proteins in Drug Disposition, DDI’s and Hepatotoxicity: Implications for Drug Development”*
Hoffman – LaRoche, Nutley, New Jersey, October 2011.
137. *“Drug-Induced Hepatotoxicity and Impaired Hepatic Bile Acid Transport: Mechanisms and Model Systems”*
Delaware Valley Drug Metabolism Discussion Group Rozman Symposium; Bucks County, Pennsylvania, November, 2011.
138. *“Role of Hepatic Efflux Transporters in Regulating Systemic and Hepatocyte Exposure to Xenobiotics: Past, Present and Future”*
International Symposium on PPF Molecular Pharmacokinetics (Yuichi Sugiyama Retirement Symposium), University of Tokyo, Tokyo, Japan, January, 2012.
139. *“B-CLEAR Hepatocytes and Other Qualyst Technologies: Tools to Evaluate Drug Transport in Drug Discovery and Development”*
ReproCELL, Inc., Yokohama, Japan, January, 2012.
140. *“Intracellular Concentrations of Drugs and Metabolites: Measurement, Interpretation and Implications”*
International Transporter Consortium Workshop 2, National Harbor, Maryland, March, 2012.

141. *“Technetium-Labeled Probes to Assess Hepatic Transporter Activity and Drug-Drug Interactions in Humans”*
ASCPT Annual Meeting, National Harbor, Maryland, March, 2012.
142. *“Prepare to Be a Leader and Plan to Have an Impact”*
Rho Chi Award Dinner, University of Kentucky, Lexington, Kentucky, March, 2012.
143. *“An Exciting Era for Pharmacy: New Opportunities in Translational Sciences for Clinical Pharmacists and Pharmaceutical Scientists”*
College of Pharmacy Convocation, University of Kentucky, Lexington, Kentucky, March, 2012.
144. *“From the Bench to the Bedside: Tools to Predict Hepatobiliary Drug Disposition and Transporter-Based Drug-Drug Interactions”*
Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, Alberta, April, 2012.
145. *Tools to Predict Hepatobiliary Drug Disposition, Intracellular Concentrations and Hepatotoxicity”*
High Throughput-ADME 2012, The Boston Society, Langhorne, Pennsylvania, June, 2012.
146. *“Drug-Induced Liver Injury and Impaired Hepatic Bile Acid Transport”*
DILI-sim Initiative Partners Meeting, The Hamner-UNC Institute for Drug Safety Sciences, September, 2012.
147. *“Mentoring Issues: Advantages and Limitations”*
Meeting of the NICHD T32 Trainees, Bethesda, Maryland, September, 2012.
148. *“Use of ^{99m}Tc-Mebrofenin as a Probe to Assess Hepatic Transporter-Mediated Drug-Drug Interactions in Humans: A Case Study with Ritonavir”*
Janssen Research & Development, Lambertville, Pennsylvania, September, 2012.
149. *“Transporters as Mediators of Drug Disposition in Health and Disease”*
Globalization of Pharmaceutics Education Network, Melbourne, Australia, December, 2012.
150. *“Role of Transporters in Mediating Hepatobiliary Clearance of Drugs”*
Joint ASCEPT-APSA 2012 Scientific Conference, Sydney, Australia, December, 2012.
151. *“Quantitative Systems Pharmacology: An Integrating Framework for Translational Medicine”*
ASCPT Pre-conference Workshop, Indianapolis, Indiana, March, 2013.
152. *“Assessment of Intracellular Unbound Concentrations: Implications for Hepatic Efflux of Drugs and DDIs”*
AAPS Workshop on Drug Transporters in ADME: From the Bench to the Bedside, Bethesda, Maryland, March, 2013.
153. *“Quality Mentoring for Successful Academic Careers in Clinical Pharmacology”*
NICHD/NIH Pediatric Clinical Pharmacology Webinar, April, 2013.
154. *“Drug-Induced Liver Injury: The Role of Impaired Hepatic Bile Acid Transport”*
Otsuka Pharmaceutical Co., Rockville, Maryland, May, 2013.
155. *“Intracellular Drug Concentrations: Measurement and Implications for Hepatic Drug Transport and DDIs”*
16th International Conference on Drug-Drug Interactions, Seattle, Washington, June, 2013.
156. *“Sandwich-Cultured Hepatocytes - An In Vitro Model to Evaluate Hepatobiliary Drug Disposition and Transporter-Based Drug-Drug Interactions”*
University of Greifswald, Department of Clinical Pharmacology 40th Anniversary, Greifswald, Germany, September, 2013.
157. *“^{99m}Technetium-Mebrofenin and ^{99m}Technetium-Sestamibi: Clinical Probes to Assess Hepatobiliary Transport”*
University of Greifswald, Department of Clinical Pharmacology 40th Anniversary, Greifswald, Germany, September, 2013.
158. *“In Vitro Tools and Integration of Transporter Data to Answer Key Questions in Drug Discovery and Development”*
Delaware Valley Drug Metabolism Discussion Group Rozman Symposium; Bucks County, Pennsylvania, November, 2013.

159. *“Transporters in Drug Development: A Deep Dive into the 2013 ITC White Papers”*
AAPS Open Forum Panelist; 2013 AAPS Annual Meeting, San Antonio, Texas, November, 2013.
160. *“The Importance of Basolateral Efflux Transporters in Hepatic Drug Disposition”*
University of Sydney, Faculty of Pharmacy, Sydney, Australia, April, 2014.
161. *“Hepatobiliary Transporter Evaluation in Drug Discovery and Development: Why, How and When?”*
Monash University, Faculty of Pharmacy and Pharmaceutical Sciences, Melbourne, Australia, April, 2014.
162. *“Maintaining the Balance: Family-Work-Life”*
Monash University, Faculty of Pharmacy and Pharmaceutical Sciences, Melbourne, Australia, April, 2014.
163. *“Postdoctoral Fellowship Programs: The University of North Carolina at Chapel Hill”*
Monash University, Faculty of Pharmacy and Pharmaceutical Sciences, Melbourne, Australia, April, 2014.
164. *“Methods and Models to Assess Hepatobiliary Drug Transport Processes”* in Transporter Short Course
Pharmaceutical Sciences World Congress PSWC2014, Melbourne, Australia, April, 2014.
165. *“Drug Interactions in Hepatobiliary Transport: Mechanisms and Clinical Relevance”*
Pharmaceutical Sciences World Congress PSWC2014, Melbourne, Australia, April, 2014.
166. *“Integrating Knowledge to Predict Drug Disposition and Toxicity: Is a Broader Perspective Needed?”*
Keynote Lecture, Gordon Research Conference (Drug Metabolism), Holderness, New Hampshire, July, 2014.
167. *“Intracellular Drug Concentrations: Measurement and Implications for Hepatic Drug Transport and DDIs”*
Orion Corporation, ORION PHARMA, Espoo, Finland, August, 2014.
168. *“Novel Applications of the Sandwich-Cultured Hepatocyte Model for Transporter Investigations”*
Globalization of Pharmaceutics Education Network, Helsinki, Finland, August, 2014.
169. *“Mechanisms of DILI: Bile Acid Transporters”*
Otsuka Pharmaceuticals Research Forum, Philadelphia, Pennsylvania, September, 2014.
170. *“Novel Applications of the Sandwich-Cultured Hepatocyte Model for Transporter Investigations”*
12th Annual Discovery on Target Conference, Boston, Massachusetts, October, 2014.
171. *“Mechanisms, Modeling and Prediction of Bile Acid-Mediated Drug-Induced Liver Injury”*
Plenary Lecture, 19th North American ISSX/29th JSSX Meeting, San Francisco, California, October, 2014.
172. *“Novel Applications of the Sandwich-Cultured Hepatocyte Model for Transporter Evaluation in Drug Discovery and Development”*
Advances and Applications of Functional Hepatocytes (AAFH) Symposium, Shanghai, China, October, 2014.
173. *“In Vitro Hepatic Systems to Predict In Vivo Hepatobiliary Drug Disposition”*
AAPS Annual Meeting Short Course, San Diego, California, November, 2014.
174. *“Contemporary Approaches to Assessing Hepatotoxicity: Case Studies”*
AAPS Annual Meeting PPDM Open Forum, San Diego, California, November, 2014.
175. *“In Vitro Tools and Integration of Hepatic Transporter Data in Drug Discovery and Development”*
AstraZeneca, Gothenburg, Sweden, February, 2015.
176. *“Altered Hepatobiliary Drug Transport in Non-alcoholic Steatohepatitis: Clinical Impact and Innovative Approaches for Measurement and Prediction”*
Uppsala University, Department of Pharmaceutical Biosciences, Uppsala, Sweden, February, 2015
177. *“Maintaining the Balance: Family-Work-Life”*
Uppsala University, Uppsala, Sweden, February, 2015
178. *“Altered Hepatobiliary Drug Transport in Disease: Clinical Impact and Innovative Approaches for Measurement and Prediction”*
Featured Speaker, ASCPT Annual Meeting, New Orleans, Louisiana, March, 2015

179. *“Sandwich-Cultured Hepatocytes: A Screening Tool to Assess Hepatobiliary Drug Transport, Transporter-Based Drug-Drug Interactions and Hepatotoxicity”*
Gordon Research Conference on Multidrug-Efflux Systems, Lucca (Barga), Italy, April, 2015
180. *“From Residency Training to Translational Research: Tips for a Successful Career Path”*
UNC Eshelman School of Pharmacy Research in Education and Practice Symposium, Chapel Hill, North Carolina, May, 2015
181. *“Preparing to be a Leader in the Pharmaceutical Sciences – What You Really Need to Learn in Graduate School”*
Keynote Speaker, 47th Pharmaceuticals Graduate Student Research Meeting, Lexington, Kentucky, June, 2015
182. *“Human Ontogeny of Drug Transporters: Review and Recommendations of the Pediatric Transporter Working Group”*
NICHD-NIGMS T32 Pediatric Clinical Pharmacology Trainees Meeting, Rockville, Maryland, September, 2015
183. *“Why Basolateral Efflux Transporters Matter”*
20th North American ISSX Meeting, Orlando, Florida, October, 2015
184. *“Jayhawks, Tarheels and Sandwich-Cultured Hepatocytes”*
Borchardt Retirement Symposium, University of Kansas, Lawrence, Kansas, October, 2015
185. *“Contemporary Approaches and Challenges in Assessing Drug-Induced Hepatotoxicity”*
AAPS Annual Meeting Short Course “Quantitative Translational Safety-Assessing DILI”, Orlando, Florida, October, 2015
186. *“Systems Pharmacology Modeling to Predict Drug-Induced Liver Injury – Hype or Hope”*
The Research Triangle Park Drug Metabolism Discussion Group, Durham, North Carolina, November, 2015
187. *“In Vitro Models for Quantitative Prediction of Hepatobiliary Clearance”*
National Toxicology Program Interagency Center for the Evaluation of Alternative Toxicological Methods and the U.S. Environmental Protection Agency “IVIVE for High-Throughput Prioritization and Decision Making” Workshop, Durham, North Carolina, February, 2016
188. *“Role of Hepatic Transporters in DILI”*
Society of Toxicology 2016 Annual Meeting Continuing Education Course “Approaches to Investigate and Assess Risks Associated with Drug-Induced Liver Injury (DILI)”, New Orleans, Louisiana, March, 2016
189. *“Role of MRP3 and MRP4 in Drug-Induced Liver Injury”*
AAPS/FDA/ITC Joint Workshop on Drug Transporters in ADME: From the Bench to the Bedside, Baltimore, Maryland, April, 2016
190. *“Systems Pharmacology Modeling to Predict Drug-Induced Liver Injury: Hype or Hope”*
The Great Lakes Drug Metabolism Discussion Group, Chicago, Illinois, May, 2016
191. *“Preparing to be a Leader in the Pharmaceutical Sciences: What You Really Need to Learn as a Graduate Student or Postdoctoral Fellow”*
OSU/OHSU College of Pharmacy, Portland, Oregon, May, 2016
192. *“In Vitro Assays to Assess BSEP Inhibition: Strengths, Limitations and the Importance of Intracellular Concentrations”*
Predictive Safety Testing Consortium (PSTC), Critical Path Institute, Webinar, June, 2016
193. *“Key Considerations in Selection of a Predictive Hepatic Clearance Model for Drug Discovery and Development”*
Qualyst Transporter Solutions Webinar, July, 2016
194. *“Mechanistic Modeling of Drug-Induced Cholestasis: Clinical Relevance”*
EUROTOX 2016, Seville, Spain, September, 2016
195. *“Beyond P-gp: The Importance of MRP3 and MRP4 in the Development of Safe and Effective Anticancer Drugs”*
Celebrating 30 Years of Research on Multidrug Resistance and ABC Transporters
National Cancer Institute, NIH, Bethesda, Maryland, September, 2016

196. *“Preparing to be a Leader in the Pharmaceutical Sciences: What You Really Need to Learn in Graduate School”*
AAPS Duquesne - University of Pittsburgh - West Virginia University Student Chapters
Graduate Student Pharmaceutical Sciences Research Symposium, Pittsburgh, Pennsylvania, October, 2016
197. *“Utility and Challenges of In Vitro Systems and Modeling Approaches in Prediction of Biliary Clearance”*
ISSX Workshop, Boston, Massachusetts, October, 2016
198. *“Hepatic Clearance Predictions Based on Human-Relevant In Vitro Data”*
AAPS Annual Meeting and Exposition Dialogue and Debate Session: Getting Clearance for Takeoff
Denver, Colorado, November, 2016
199. *“Altered Drug and Bile Acid Disposition in Patients with Non-alcoholic Steatohepatitis (NASH)”*
San Diego Drug Metabolism Discussion Group, San Diego, California, December, 2016
200. *“Imaging Studies with the Transporter Probe ^{99m}Tc-Mebrofenin Reveal Altered Hepatic Exposure in Patients with Non-Alcoholic Steatohepatitis (NASH)”*
International Transporter Consortium Workshop #3, Washington, D.C., March, 2017
201. *“Preparing our Future Leaders to be Effective Communicators”*
American Society for Clinical Pharmacology and Therapeutics Annual Meeting, Washington, D.C., March, 2017
202. *“Advancing Precision Medicine with the Science of Drug Transporters”*
2017 John C. Krantz, Jr. Distinguished Lecture, University of the Sciences, Philadelphia, Pennsylvania, April, 2017
203. *“Hepatic Transporters and Drug-Induced Liver Injury: Novel Mechanisms and Tools to Improve Predictions”*
Genentech, Inc., San Francisco, California, April, 2017
204. *“Altered Hepatic Transport in Patients with Non-Alcoholic Steatohepatitis (NASH) Affects Drug and Bile Acid Disposition: Clinical Implications”*
SOLVO Biotechnology Meet the Experts: Transporter Conference, San Francisco, California, April, 2017
205. *“Altered Hepatic Transport in Patients with Non-Alcoholic Steatohepatitis (NASH) Affects Drug and Bile Acid Disposition: Clinical Implications”*
AAPS UCSF Student Chapter, San Francisco, California, April, 2017
206. *“Bile Acids, Hepatic Transporters and Drug-Induced Liver Injury: Mechanisms and Tools to Improve Predictions”*
Orion PHARMA, Espoo, Finland, June, 2017
207. *“Hepatic Efflux Transporters: Relevance to Drug-Drug Interactions and Drug Toxicity”*
Drug-Drug Interactions-2017, Seattle, Washington, June, 2017
208. *“Cellular Models for Assessing the Role of Transporters in Drug-Induced Liver Injury”*
BioMedical Transporters 2017 Conference, Lausanne, Switzerland, August, 2017
209. *“The Role of Hepatic Transporters in Drug Disposition and Elimination”*
ISSX Annual Meeting, Providence, Rhode Island, September, 2017
210. *“Career Path Exploration in Academia for Young Investigators”*
ISSX Annual Meeting, Providence, Rhode Island, September, 2017
211. *“Ontogeny of Drug Transporters”*
NIH NICHD Webinar, October, 2017
212. *“Mechanistic Modeling of Cholestasis: Clinical Relevance”*
Society of Toxicology 2018 Annual Meeting, San Antonio, Texas, March, 2018
213. *“Altered Hepatic Transport Due to Liver Disease and Drug Interactions: Implications for Drug Development”*
ASCPT-FDA William B. Abrams Award Lecture, Silver Spring, MD, May, 2018

214. *“Altered Hepatic Transport Due to Liver Disease: Implications for Drug Development”*
Delaware Valley Drug Metabolism Discussion Group Rozman Symposium, Bucks County, Pennsylvania, June, 2018
215. *“Novel In Vitro and In Silico Approaches to Predict Hepatic Bile Acid Transporter-Mediated Drug-Drug Interactions and Drug-Induced Hepatotoxicity”*
Gordon Research Conference (Drug Metabolism), Holderness, New Hampshire, July, 2018
216. *“Transporters and Drug-Induced Liver Injury”*
22nd North American ISSX Meeting, Montreal, Canada, July, 2018
217. *“Mentoring – The Art of Showing the Way”*
NIGMS-NICHD, NIMH-NICHD, and NICHD T32 Programs in Pediatric Clinical Pharmacology: Meeting of the T32 Trainees, Bethesda, MD, August, 2018
218. *“Mechanistic Modeling to Evaluate Bile Acid-mediated Drug-induced Liver Injury and Hepatic Transporter Interactions”*
Globalization of Pharmaceuticals Education Network Short Course, Singapore, September, 2018
219. *“Accurately Predicting Bile Acid Transporter-Mediated DILI: Are We There Yet?”*
Merck Research Laboratories, Blue Bell, PA, November, 2018
220. *“Mechanisms and Clinical Significance of Hepatic Drug-drug Interactions Involving Efflux Drug Transporters”*
Inaugural Asian Conference on Drug-Drug Interactions, Hong Kong, December, 2018
221. *“Bile Acid and Biomarker Profiling in Liver Disease”*
PharmAlliance Research Symposium 2019, Melbourne, Australia, February, 2019
222. *“Cellular Models for Assessing the Role of Transporters in Drug-Induced Liver Injury”*
University of New Hampshire, Durham, New Hampshire, March, 2019
223. *“Research, Innovation and the Qualyst Journey”*
Wildcatalyst Seminar, University of New Hampshire, Durham, New Hampshire, March, 2019
224. *“The Ins and Outs of an Overlooked Bile Acid Transporter, OST α/β ”*
Plenary Speaker, The Boston Society Transporter Workshop, Cambridge, Massachusetts, April, 2019
225. *“Altered Hepatic Efflux Transporters in Liver Disease: Implications for Precision Medicine”*
Keynote Speaker, Gordon Research Conference on Multidrug-Efflux Systems, Lucca (Barga), Italy, April, 2019
226. *“Altered Hepatic Transporters in Liver Disease: Are These a Prelude to DILI?”*
AASLD/FDA Drug-Induced Liver Injury (DILI) Conference, Hyattsville, Maryland, May, 2019
227. *“Research, Innovation and the Qualyst Journey”*
University of North Carolina, Chapel Hill, North Carolina, May, 2019
228. *“Clinical and Mechanistic Evidence for Associations between Drug-Transporter Interactions and DILI: BSEP and Beyond”*
Drug-Drug Interactions-2019, Seattle, Washington, June, 2019
229. *“Transporters in Polycystic Kidney Disease”*
12th International ISSX Meeting, Portland, Oregon, July, 2019

INVITED SHORT COURSE: Designing Drugs with Optimal *In Vivo* Activity After Oral Administration

“Use of Preclinical Pharmacokinetics and In Vitro Models to Assess Problems of Poor Oral Bioavailability” and *“Role of Biliary and Renal Clearance in Drug Elimination: Chemical Strategies Designed to Minimize Kidney and Liver Clearance”*

Residential School on Medicinal Chemistry; Drew University, Princeton, New Jersey. July, 1997; June, 2000; June, 2001; June, 2002; June, 2003; June, 2004; June, 2005; June, 2006
Chiron Corporation; Emeryville, California, December, 2000
Guilford Pharmaceuticals; Baltimore, Maryland, April, 2001

Roche Biosciences; Palo Alto, California, May, 2001
Eli Lilly & Company; Indianapolis, Indiana, November, 2001
Albany Molecular Research, Inc.; Albany, New York, November, 2001
3-Dimensional Pharmaceuticals, Inc.; Exton, Pennsylvania, January, 2002
Pfizer Inc.; Ann Arbor Michigan, January, 2002
Pfizer Inc. (Agouron Pharmaceuticals); La Jolla, California, February, 2002
Gilead Sciences, Inc.; Foster City, California, February, 2002
Bristol-Myers Squibb Company; New Brunswick, New Jersey, April, 2002
Aventis Pharmaceuticals; Bridgewater, New Jersey, April, 2002
Hoffman-LaRoche; Nutley, New Jersey, April, 2002
Serono Pharmaceutical Research Institute; Geneva, Switzerland, July, 2002
Aventis Pharma; Frankfurt, Germany, July, 2002
Globalization of Pharmaceutics Education Network Meeting; Ann Arbor, Michigan, November, 2002
Quorex, Biota, and Celgene; San Diego, California, June, 2003
Genomic Institute of the Novartis Research Foundation; San Diego, California, June, 2003
Millennium Pharmaceuticals; Cambridge, Massachusetts, June, 2004
AstraZeneca Pharmaceuticals; Waltham, Massachusetts, June, 2004
Neurocrine; San Diego, California, June, 2004
Abbott Laboratories; North Chicago, Illinois, September, 2004
ICOS Corporation; Seattle, Washington, February, 2005
Biogen-Idec; Cambridge, Massachusetts, February, 2005
Genzyme; Cambridge, Massachusetts, March, 2005
Sunesis; San Francisco, California, May, 2005
Scios, Inc.; Newark, California, May, 2005
Genentech; South San Francisco, California, June, 2006
Nektar Therapeutics; San Carlos, California, Huntsville, Alabama, February, 2007
Bayer HealthCare AG; Wuppertal Germany, January, 2008
Sepracor; Boston, July, 2008

MENTOR**Faculty Mentor**

<u>School of Pharmacy Campbell Mentoring Program</u>	<u>Mentor for K23 Award Recipients:</u>
Lynn Dressler (2007-2012)	Melanie Joy (2005-2010)
Stacie Dusetzina (2014-2017)	Matt Laughon (2011-2015)
Yanguang Cao (2016-present)	Kevin Watt (2014-2019)
Gauri Rao (2016-present)	Danny Gonzalez (2015-present)
<u>School of Medicine</u>	<u>Mentor for K01 Award Recipient:</u>
Natasha Snider (2015-present)	Klarissa Jackson (2019-present)

GRADUATE, POST-GRADUATE, AND UNDERGRADUATE MENTOR**Ph.D. Students in Pharmaceutical Sciences (Pharmaceutics; Drug Delivery and Disposition; Pharmacotherapy and Experimental Therapeutics), Pharmacology or Toxicology: Major Advisor**

- Scott D. Studenberg, Ph.D., 1992 (Toxicology): Mechanism(s) of Phenobarbital Impaired Hepatobiliary Disposition of Acetaminophen Glucuronide (position: Toxicologist, DABT, CSS-Dynamac Corp.; former Investigator, GSK)
- A. Benjamin Suttle, Ph.D., 1993 (Pharmaceutics): The Gastrointestinal Absorption Characteristics of Ranitidine: The Influence on the Double Peak Phenomenon (position: Principal Consultant, qPharmetra; former Director of Clinical Pharmacokinetics (Epizyme), Nonclinical and Clinical Pharmacology (Salix Pharmaceuticals), Clinical Pharmacology Modeling and Simulation (GlaxoSmithKline))
- Allen E. (Jo) Cato III, Ph.D., 1994 (Pharmaceutics): Age-Dependent Enterohepatic Recirculation of Valproic Acid in the Rat (position: Managing Director, Cato Research, Ltd.)
- Lisa Carlton, Ph.D., 1995 (Pharmaceutics; AFPE Fellow): Pharmacokinetic Drug Interactions with Epoprostenol: Potential Mechanisms and Clinical Significance (position: Senior Director, Regulatory Affairs, REGENXBIO, Inc.; former Manager, Regulatory Affairs, Otsuka America Pharmaceuticals, Inc.)
- E. Stacy (Hall) Ward, Ph.D., 1996 (Toxicology): Mechanisms of Hepatobiliary Disposition of Organic Anions (position: Research Scientist: Absorption Systems)
- Kenneth C. Turner, Ph.D., 1996 (Pharmaceutics): Mechanisms of Probenecid-Associated Perturbations in the Hepatobiliary Disposition of Acetaminophen Glucuronide (position: Pharmacokineticist, Bristol-Myers Squibb Pharmaceutical Research Institute)
- Kathryne Brewington, 1997 (co-advisor with Dr. Gary Pollack; Pharmaceutics): Protein Binding of Valproic Acid (deceased)
- Catherine L. Booth, Ph.D., 1998 (Pharmaceutics): Alterations in Hepatobiliary Disposition of Chemotherapeutic Agents by Multidrug Resistance Modulators (position: Global Head DMPK Project Reps, GlaxoSmithKline)
- Xingrong Liu, Ph.D., 1998 (Pharmaceutics): Sandwich-Cultured Rat Hepatocytes: A Novel *In Vitro* Model to Study Hepatobiliary Disposition of Substrates (position: Senior Director, Biogen)
- Stephen P. Letrent, Pharm.D., Ph.D., 1998 (Pharmaceutics; AFPE Fellow): P-Glycoprotein-Mediated Disposition of Morphine in the Central Nervous System (position: Director, Clinical Oncology, Site Head for Oncology Translational Medicine and Clinical Leader for Signal Transduction in Oncology, Pfizer Global Research and Development)
- Hao Xiong, Ph.D., 2001 (Drug Delivery and Disposition): Roles of Mrp2 and Mrp3 in the Hepatobiliary Disposition of Acetaminophen Glucuronide (position: Group Leader, Department of Clinical Pharmacokinetics, Abbott Laboratories)
- Chee Ng, Pharm.D., Ph.D., 2002 (Drug Delivery and Disposition): Novel Cation-Sensitive Mechanisms for Intestinal Absorption and Secretion of Famotidine and Ranitidine: Potential Clinical Implications (position: Associate Professor, Department of Pharmaceutical Sciences, College of Pharmacy, University of Kentucky)

- Ryan Z. Turncliff, Ph.D., 2004 (Drug Delivery and Disposition): Expression and Function of Transport Proteins and CYP3A in Sandwich-Cultured Hepatocytes: Application to the Hepatobiliary Disposition of Drugs and Generated Metabolites (position: Vice President, Clinical Development, Tolmar Pharmaceuticals)
- Keith A. Hoffmaster, Ph.D., 2004 (Drug Delivery and Disposition): Role of Multiple Transport Proteins in the Hepatobiliary Disposition of [D-Penicillamine^{2,5}]enkephalin (position: Global Head, Translational Clinical Oncology, Global Program Management, Novartis Institutes for BioMedical Research)
- Daniel C. Kemp, Ph.D., 2004 (Toxicology): Evaluation of the Hepatotoxic Potential of Xenobiotics: Troglitazone and Bosentan Inhibit the Hepatobiliary Transport of Taurocholate (position: Development Leader, Senior Director, Precision BioSciences, Inc.)
- Priyamvada Chandra, Ph.D., 2005 (Drug Delivery and Disposition): Modulation of Hepatic Transport Proteins: Impact on the Hepatobiliary Disposition of a Model Organic Anion (position: Director, NGM Biopharmaceuticals)
- Cornelia Smith, Ph.D., 2005 (Drug Delivery and Disposition; co-advisor with Dr. Ed LeCluyse and Dr. Hongbing Wang): Regulation of UGT1A1 Expression in Human Hepatocytes (position: Regulatory Writer II, Synchrogenix)
- Mary Peace McRae, Ph.D., 2005 (Pharmacotherapy and Experimental Therapeutics; AFPE Fellow; advisor, Dr. Angela Kashuba, Pharmacotherapy): Understanding the Hepatotoxicity of Antiretroviral Drugs in the Treatment of HIV/AIDS (position: Assistant Professor, Department of Pharmacotherapy and Outcomes Sciences, Virginia Commonwealth University)
- Maciej J. Zamek-Gliszczynski, Ph.D., 2006 (Drug Delivery and Disposition): Mechanisms of Hepatic Transport of Sulfate and Glucuronide Metabolites (position: Senior Fellow and Director, Quantitative Drug Disposition, GlaxoSmithKline)
- Giulia Ghibellini, Ph.D., 2006 (Drug Delivery and Disposition; AFPE Fellow): *In Vitro* and *In Vivo* Methods to Determine Biliary Clearance of Drugs in Humans (position: Director, Clinical Pharmacology, Teva Pharmaceuticals)
- Patrick Roberts, Ph.D., 2007 (Pharmacotherapy and Experimental Therapeutics; Advisor, Dr. Channing Der; Committee Chair: Dr. Kim Brouwer): Targeting Ras and Rho Family GTPases for the Treatment of Cancer Through Inhibition of CAAX-Signaled Modifications and the ERK MAPK Pathway (position: Scientist, In Silico Biosciences, Inc.)
- Jin Kyung Lee, Ph.D., 2009 (Pharmacotherapy and Experimental Therapeutics): Role of Hepatic Transport Proteins in Drug Disposition and Drug-Induced Liver Injury [Awarded \$2K NCTraCS grant) (position: Scientist, Green Cross Pharma, South Korea)
- Brandon Swift, Ph.D., 2010 (Pharmacotherapy and Experimental Therapeutics): Investigation of Probe Substrates to Assess Hepatic Transport Function (position: Director, Clinical Pharmacology, Metavant Sciences)
- Tracy Marion, Ph.D., 2011 (Toxicology): Role of Bile Acids and Compensatory Hepatic Transport Proteins in Troglitazone-Mediated Hepatotoxicity (position: Scientist II, SAGE Therapeutics)
- Zhixia (Grace) Yan, Ph.D., 2011: (Pharmacotherapy and Experimental Therapeutics; co-advisor with Dr. Mary Paine): Integration of Preclinical and Clinical Data with Pharmacokinetic Modeling and Simulations to Characterize the Disposition of Orally-Active Antiparasitic Prodrugs and Metabolites: Prediction of the Dose-Exposure Relationship in Humans (position: Pharmacokinetics Reviewer, FDA)
- Latoya Poole Griffin, Ph.D., 2012: (Pharmacotherapy and Experimental Therapeutics): Interactions of Antiretroviral Protease Inhibitors with Hepatic Transport Proteins: Mechanisms of Drug-Induced Liver Injury (position: Instructor; Wake Technical Community College)
- Nathan Pfeifer, Pharm.D., Ph.D., 2013: (Pharmacotherapy and Experimental Therapeutics): Impact of Hepatic Transporter Multiplicity and Loss-of-Function on Hepatocellular Distribution and Excretion of Drugs (position: Senior Scientist, Theravance Biopharma, Inc.)
- Kyunghee Yang, M.S., Ph.D., 2014: (Pharmacotherapy and Experimental Therapeutics): Mechanisms of Drug-Induced Liver Injury (DILI): The Role of Hepatic Transport Proteins (position: Scientist, DILIsym Services, Inc.)

- Brian Ferslew, Pharm.D., Ph.D., 2014: (Pharmacotherapy and Experimental Therapeutics): Importance of Hepatic Transporters, Including Basolateral Efflux Proteins, in Drug Disposition: Impact of Phospholipidosis and Non-Alcoholic Steatohepatitis (NASH) (position: Associate Director, Clinical Pharmacology, Astellas Pharma)
- Kevin Watt, M.D., Ph.D., 2016: (Pharmacotherapy and Experimental Therapeutics): Physiologically-Based Pharmacokinetics in Critically Ill Children (position: Associate Professor of Pediatrics, University of Utah School of Medicine)
- Jason Slizgi, Ph.D., 2016: (Pharmacotherapy and Experimental Therapeutics): Hepatic Transporter Function in Liver Disease: Impact on Hepatobiliary Disposition and Pharmacokinetics (position: Clinical Scientist, Quora)
- Cen Guo, M.S., Ph.D., 2018: (Pharmacotherapy and Experimental Therapeutics): Prediction and Evaluation of Hepatic Bile Acid Transporter-Mediated Drug Interactions using *In Vitro* Tools and Pharmacokinetic Modeling (position: Clinical Pharmacologist, Pfizer)
- Izna Ali, Pharm.D., (Ph.D. Student; Pharmacotherapy and Experimental Therapeutics): Functional Impact of Genetic Variants, Medications, and Disease on Hepatic Bile Acid Transporters (position: ORISE Fellow, FDA)
- James Beaudoin, M.S., (Ph.D. Student; Pharmacotherapy and Experimental Therapeutics): Mechanisms of Drug-Induced Liver Injury (anticipated graduation, May 2020)
- Tom Krajl (Ph.D. Student; Monash University; co-advisor with Dr. Darren Creek): A Systems Toxicology Approach Using Metabolomic and Lipidomic Profiling in Advanced Hepatocyte Culture Models to Predict Drug-Induced Liver Injury (anticipated graduation, December 2020)
- Chitra Saran, M.S., (Ph.D. Student; Pharmacology): Novel Mechanism of Drug-Induced Hepatotoxicity: Altered Transporter Phosphorylation (anticipated graduation, May 2021)

M.S. Students in Pharmaceutics: Major Advisor and/or Committee Chairman

- James D. Whisnant, M.S., 1999 (Pharmaceutics; AFPE Fellow): Hepatobiliary Disposition of Fexofenadine
- Sarah Ida Josef Netterberg, M.S., 2012 (Uppsala University): High-throughput *In Vitro* Screening of MRP3- and MRP4-Inhibition: Is There an Association with Cholestatic Drug-Induced Liver Injury and BSEP Inhibition?
- Antti Kauttonen, M.S., 2017 (University of Eastern Finland): Identification of Substrates and Inhibitors of the Hepatic Bile Acid Transporter OST α/β
- Phil Pendt, M.S., 2019 (University of Basel): Biomarkers for Disease-Mediated Alterations in Hepatic Transport Proteins

Advisory Committee Member

School of Pharmacy:	School of Pharmacy:
Division of Drug Delivery & Disposition:	Division of Pharmacotherapy & Exp. Therapeutics:
Mary Beth Dorr (Ph.D., 1989)	Howard Peckman (M.S., 1993)
Linda J. Haberer (Ph.D., 1991)	Scott Brantley (Ph.D., 2013; Committee Chair)
Tonya L. Horton (M.S., 1989; Ph.D., 1993)	Nicole Zane (Ph.D., 2015; Committee Chair)
Mei-Jen Liu (Ph.D., 1991)	Hao Cai (Ph.D., 2016; Committee Chair)
Danielle Ouellet (Ph.D., 1994)	Nithya Srinivas (Ph.D., 2018; Committee Chair)
Pamela Golden (Ph.D., 1996)	Christine Lee (2016-present; Committee Chair)
Cuiping Chen (Ph.D., 1997)	
Tori L. (Elliott) Arens (M.S., 1997)	
Mark Bush (Ph.D., 1999)	Division of Medicinal Chemistry:
Jessica Smith-Beaver (M.S., 1989; Ph.D., 2001)	Kiho Lee (Ph.D., 2000)
Claude Dagenais (Ph.D., 2001)	
Jian Zong (Ph.D., 2002)	
Chris Matheny (Ph.D., 2004)	School of Medicine:
Erin Heinzen (Ph.D., 2004)	
Steve Hege (M.S., 2004)	Curriculum in Toxicology:
Candace Graff (Ph.D., 2005)	Paula Adams (Ph.D., 1994)
David Bourdet (Ph.D., 2005)	Robert Perkins (Ph.D., 1995)
Cory Kalvass (Ph.D., 2006)	Keith Ward (Ph.D., 1995)
Tim Tippin (Ph.D., 2006)	Teresa Leavens (Ph.D., 1996)
	Chris Hurst (Ph.D., 1999)
Division of Molecular Pharmaceutics:	Stephen Elmore (Ph.D., 2000)
Xin Ming (Ph.D. 2008)	Scott Baros (Ph.D., 2003)
Melanie Joy (Ph.D. 2010)	Jeannie Padowski (Ph.D., 2008)
Will Proctor (Ph.D. 2010)	Katie Paul (Ph.D., 2011; Committee Chair)
Tianxiang “Kevin” Han (Ph.D., 2013)	Vicki Richardson (Ph.D., 2013)
John Prybylski (Ph.D., 2019; F32 mentor)	Brett Winters (Ph.D., 2019)

Postdoctoral Fellows, Research Faculty, and Visiting Scholars

Patricia Slattum, Pharm.D., Ph.D. (1992-1994, Postdoctoral Fellow; co-advisor with Dr. Gary Pollack): Models of Hepatobiliary Xenobiotic Disposition in Aging (position: Emeritus Professor, School of Pharmacy, Medical College of Virginia, Virginia Commonwealth University)

Timothy P. Bradshaw, Ph.D. (1992-1993, Postdoctoral Fellow; co-advisor with Dr. Dhiren Thakker): Uptake of Thyrotropin-Releasing Hormone in Isolated Rat Hepatocytes (position: Executive Director, Global Drug Development, PRA Health Sciences)

David Taft, Ph.D. (1993-1994, Postdoctoral Fellow; co-advisor with Dr. Gary Pollack): Morphine Binding in the Isolated Perfused Rat Liver (position: Professor and Dean Emeritus, Pharmaceutics, Arnold & Marie Schwartz College of Pharmacy and Health Sciences)

Arno Nolting, Ph.D. (1995-1997, Postdoctoral Fellow): Hepatic Processing and Disposition of Antisense Oligonucleotides (position: Clinical Reviewer/Pharmacokinetics, Swissmedic)

Nita Patel, Ph.D. (1998-2000, Postdoctoral Fellow): Mechanisms of Phenobarbital-Associated Alterations in Hepatic Mrp2 Function (position: Senior Research Advisor, Eli Lilly and Company)

Pieter Annaert, Ph.D. (1998-2000, Postdoctoral Fellow; co-advisor with Dr. Dhiren Thakker): Evaluation of the Sandwich-Cultured Rat Hepatocyte Model as a Screening Tool for Hepatobiliary Drug Disposition (position: Professor, Faculty of Pharmaceutical Sciences, Head, Subdivision of Preclinical Pharmacokinetics, Catholic University of Leuven, Belgium)

Yong-Hae Han, Ph.D. (2001-2002, Postdoctoral Fellow): Nuclear Hormone Receptors and Hepatobiliary Transport (position: Research Scientist, Bristol-Myers Squibb Pharmaceutical Research Institute)

- Peijin Zhang, M.D., Ph.D. (2000-2003, Postdoctoral Fellow): Altered Hepatic Disposition of Anionic Drugs: Mechanisms (position: Director, Clinical Pharmacology, Receptos Inc.)
- Ken-ichi Nezasa, Ph.D. (2004-2005, Visiting Scholar, Shionogi Pharmaceuticals): Comprehensive Characterization of Abcc2^{-/-} and Abcg2^{-/-} Mice with Molecular Biology and Pharmacokinetic Approaches (position: Senior Scientist, DMPK, Shionogi Pharmaceuticals, Japan)
- Xianbin Tian, Ph.D. (2003-2004, Postdoctoral Fellow; 2004-2006, Research Assistant Professor): Application of siRNA in Sandwich-Cultured Rat Hepatocytes; Development of an *In Vitro*, Moderate Throughput Screening Assay to Predict Hepatobiliary Disposition of Drug Candidates; Examination of Hepatobiliary Drug Disposition in Transporter Knockout Mice (position: Senior Fellow, Novartis Institutes for BioMedical Research, Inc.)
- Elaine Leslie, Ph.D. (2004-2006, Postdoctoral Fellow): Mechanisms of Drug-Induced Hepatotoxicity; Hepatobiliary Transport of the Tobacco-Specific Carcinogen 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) (position: Associate Professor of Physiology and Laboratory Medicine and Pathology, Membrane Protein Research Group, University of Alberta, Edmonton, Canada)
- Dan Bow, Ph.D. (2006-2007, Postdoctoral Fellow): Trafficking of Transport Proteins and Xenobiotics in Sandwich-Cultured Hepatocytes (position: Senior Principal Research Scientist, AbbVie)
- Mikko Koskinen, Ph.D. (May – August, 2007, Visiting Scholar): Predicting Hepatobiliary Disposition of Entacapone and Tolcapone Using Sandwich-Cultured Hepatocytes (position: Head, Quantitative Clinical Pharmacology, R&D, Orion Corporation ORION PHARMA, Espoo, Finland)
- Koji Abe, Ph.D. (2006-2008, Visiting Scholar, Drug Metabolism and Pharmacokinetics, Daiichi Sankyo Co., LTD, Japan): Gender-Dependent Differences in Hepatobiliary Disposition of Bcrp Substrates; Use of Sandwich-Cultured Hepatocytes to Predict Hepatobiliary Drug Disposition *In Vivo* (position: Senior Director, Daiichi Sankyo Co., LTD, Japan)
- Kristina Wolf, Ph.D. (2006-2009, Postdoctoral Fellow): Effect of Albumin on the Biliary Clearance of Compounds in Sandwich-Cultured Hepatocytes; Use of Cassette Dosing in Sandwich-Cultured Hepatocytes to Identify Drugs that Inhibit Bile Acid Transport (position: Research Scientist, LifeNet Health, Inc.)
- Wei Yue, Ph.D. (2006-2007, Postdoctoral Fellow; 2007-2012, Research Assistant Professor): Use of siRNA Delivered with Viral-Based Vectors to Knock Down Transport Proteins in Sandwich-Cultured Hepatocytes; Function and Regulation of OATP1B1 and OATP1B3 [Awarded NIH R01 grant as PI 7/11-6/16; \$1,636,784 (tot); \$1,125,000 (dir)] (position: Assistant Professor, The University of Oklahoma Health Sciences Center)
- Kathleen Köck, Ph.D. (2010-2011, Postdoctoral Fellow; 2011-2012, Visiting Scholar; Research Assistant Professor, 2012-2013): Role of Transport Proteins in the Hepatic Disposition of Natural Products Used in Patients with Liver Disease [Awarded \$10K NCTraCS grant as PI]; Mechanisms of Drug-Induced Liver Injury: Role and Regulation of Sinusoidal Transport Proteins [Awarded Competitive Grant from the German Research Association (Deutsche Forschungsgemeinschaft)] (position: Pharmacokineticist, IQVIA)
- Rhiannon Hardwick, Ph.D. (2012-2013, Postdoctoral Fellow): Effects of Tyrosine Kinase Inhibitors on Efflux Transporter Regulation and Function (position: Senior Scientist, Organovo)
- Yang Lu, Ph.D. (2014-2016, Postdoctoral Fellow): Mechanisms of Altered Hepatic Disposition of Anionic Drugs; Tolvaptan-Mediated Inhibition of Bile Acid Transport as a Mechanism of Drug-Induced Liver Injury (position: Faculty Scientist, China Pharmaceutical University).
- Paavo Honkakoski, Ph.D. (2014-2015; 2018-present, Visiting Scholar): Mechanisms of Bile Acid-Mediated Regulation of Hepatic Transport Proteins (position: Professor in Biopharmacy, Vice Dean for Faculty of Health Sciences, Director of Doctoral Program in Drug Research, University of Eastern Finland)
- Melina Malinen, Ph.D. (2015-2018, Postdoctoral Fellow): Trafficking and Regulation of Hepatic Drug Transport Proteins; Hepatic Expression and Function of OST α/β (position: Marie Skłodowska-Curie Fellow, University of Eastern Finland)

- Nilay Thakkar, Ph.D. (2015-2016, Postdoctoral Fellow; co-advisor with Dr. Danny Gonzalez): BioGears®; Physiologically Accurate Community-Based Framework for Training Systems; Hepatic Expression of MRP1 in Patients with Liver Disease (position: Clinical Pharmacologist, GlaxoSmithKline).
- Anastassia Karageorgis, Ph.D. (2014-2017, Postdoctoral Fellow; co-advisor with Dr. Constanze Hilgendorf, AstraZeneca R&D, Mölndal, Sweden): Gadoxetate and Hepatic Imaging via MRI to Evaluate Drug-Drug Interactions and Drug-Induced Liver Injury (initial position: AstraZeneca, Sweden)
- Katsuaki Ito, Ph.D. (2016-2017, Visiting Scholar): Absolute Quantification of Hepatobiliary Transporters by LC-MS/MS and Disposition of Probe Substrates in Sandwich-Cultured Hepatocytes (position: DMPK Research Scientist, Teijin Pharma Limited, Tokyo, Japan)
- Hee-Eun Kang, Ph.D. (2016-2017; Visiting Scholar): Effect of Estrogens on Hepatic Transport Proteins; Development of *In Vitro* Models to Assess Disease-Mediated Alterations in Hepatic Transport (position: Associate Professor, College of Pharmacy, The Catholic University of Korea)
- Jacqueline Bezençon, Ph.D. (2016-present; Postdoctoral Fellow): Mechanisms of Disease-Mediated Alterations in Hepatic Transport Proteins
- Dong Fu, Ph.D. (2017-present, Research Assistant Professor): Mechanisms of Altered Trafficking and Function of Hepatic Transport Proteins
- Noora Sjöstedt, Ph.D. (2018-present, Postdoctoral Fellow): Development of Physiologically-Based Pharmacokinetic Models for Morphine and Morphine Glucuronide Disposition in Adult and Pediatric Patients with Nonalcoholic Steatohepatitis

Clinical Research Fellows

- Betty Hussey, Pharm.D. (1987-1988; co-advisor with Dr. George Dukes): Concurrent Administration of Intravenous Diazepam and ACC-9653, a Phenytoin Prodrug, to Healthy Male Volunteers; Alterations in Protein Binding and Plasma Disposition (position: Vice President, Clinical Pharmacology and Pharmacokinetics, Nuventra Pharma Sciences)
- Patricia E. (Warner) Jacob, Pharm.D. (1991-1993): Evaluation of the Anatomic Site of Absorption of Sumatriptan (position: Director, Managed Care Scientific)
- Margaret R. Britto, Ph.D. (1992-1994): Evaluation of the Effects of Enzyme Inducers on Ondansetron Disposition (position: Senior Research Pharmacokineticist, IQVIA)
- Kellie L. Schoolar, Pharm.D. (1992-1994): Effect of Echthiophate on the *In Vitro* Plasma Protein Binding of Model Compounds; Effect of Pancreatico-Biliary Secretions on the Absorption of Ranitidine (position: Deputy Director-Clinical Pharmacology, US Food & Drug Administration)
- Katherine H.P. Moore, Pharm.D. (1993-1995): Pharmacokinetics of 3TC in Combination with Trimethoprim and Sulfamethoxazole; The Stability of Trimethoprim and Sulfamethoxazole after Heat Treatment (position: Global Head, Clinical Pharmacology, ViiV Healthcare)
- Stephen P. Letrent, Pharm.D. (1993-1995): Development of an HPLC Method to Analyze Morphine and Metabolite Concentrations in Human Serum; Pharmacokinetic Studies with Carboplatin (position: Head of Development, Kyowa Hakko Kirin Co., Ltd.)
- Mary Beth Mann, Pharm.D. (1994-1996): Pharmacokinetic Assessment of Chemotherapy Administered as Standard Clinical Dosing Regimens. VAD, Doxorubicin, Paclitaxel (position: Pharmacokineticist, GlaxoSmithKline)
- Elizabeth MacDonald Migoya, Pharm.D. (1995-1997): Effects of Enzyme Inducers on the Pharmacokinetics of 5-Hydroxytryptamine₃ - Receptor Antagonists; Morphine Kinetics/Dynamics; Effect of Administration Route (position: Vice President, Early Clinical Development & Clinical Pharmacology, Myovant Sciences)
- Yazdi K. Pithavala, Ph.D. (1995-1997): P-Glycoprotein Content and Affinity in the Gastrointestinal Tract and Liver; Use of a Remote Control Capsule to Examine Site-Specific Absorption of Ranitidine in the Human GI Tract (position: Senior Director, Clinical Pharmacology, Pfizer)
- Jeffrey D. Fischer, Pharm.D. (1996-1998): Development of an HPLC Assay for Dextromethorphan and Metabolites in Human Plasma and Urine; Comparison of Zafirlukast Absorption After Oral and Colonic Administration (position: Director, Product Services and Support, Pharsight, Inc.)
- Joi (Odishaw) Dunbar, Pharm.D. (1996-1998): Measurement of Intrapleural and Serum 5-Fluorocytosine and 5-Fluorouracil Concentrations After Oral Administration in Cancer Patients; Use of Human Liver Slices and Hepatocytes to Predict Drug Interactions (position: Clinical Pharmacology Consultant, SAGE Therapeutics)
- Kristine M. (Radomski) Crews, Pharm.D. (1996-1998): Pharmacokinetic Studies with Paclitaxel; Effect of Ondansetron on the Pharmacokinetics and Pharmacodynamics of Morphine (position: Director- Translational Research Laboratory, St. Jude Children's Research Hospital)
- Paul Mudd, Pharm.D. (1997-1999): Pharmacokinetic/Pharmacodynamic Studies with Paclitaxel (position: Vice President, Clinical Development, Urovant Sciences, Inc.)
- Min Song, Pharm.D. (1997-1999): Comparison of Zafirlukast Absorption After Oral and Colonic Administration; Evaluation of Infrared Thermography as a Surrogate Marker for Weight Loss in Healthy, Obese Subjects (position: Global Program Executive Director, Novartis Oncology)
- Matthew Lamb, Pharm.D. (1998-2000): Use of Ephedrine Sulfate and Sibutramine to Evaluate Infrared Thermography as a Possible Surrogate Marker for Weight Loss in Healthy, Obese Subjects (position: Vice President, Global Head of Regulatory Affairs - Inflammation & Immunology, Celgene)

- Chee Ng, Pharm.D. (1998-2000): Systemic Pharmacodynamics and Pharmacokinetics of Intranasal Fluticasone Propionate and Intranasal Mometasone Furoate Administered via an Aqueous Nasal Spray in Healthy Subjects (position: Associate Professor of Pharmaceutical Science, University of Kentucky)
- Bindu Murthy, Pharm.D. (1999-2001): Pharmacokinetic and Pharmacodynamic Evaluation of the Contribution of Morphine-6-Glucuronide to Analgesia Following Intravenous Administration of Morphine in Healthy Volunteers (position: Group Director, Clinical Pharmacology and Pharmacometrics, Bristol-Myers Squibb)
- Daphne Williams, Pharm.D., Ph.D. (1999-2001): Validation of a Method to Quantitate Biliary Excretion in Humans (position: Clinical Pharmacologist/Pharmacokineticist, Bristol-Myers Squibb)
- Susan Ford, Pharm.D. (2000-2002): Validation of a Method to Quantitate Biliary Excretion in Humans; Depot vs. Daily Growth Hormone in Turner's Syndrome: Kinetics and Effects on Bone and Cytochrome P450 (position: Clinical Pharmacokineticist, GlaxoSmithKline)
- Seth Berry, Pharm.D. (2000-2002): Evaluation of an Integrated Pharmacokinetic and Pharmacodynamic Model to Assess the Effect of Ephedrine Sulfate on Body Temperature (position: Senior Director, Clinical PK-PD Modeling & Simulation, IQVIA)
- Christine Brandquist, Pharm.D., M.S. (2001-2003): Intestinal Transport of Cationic Hydrophilic Compounds: Effect of Oral Ranitidine on the Gastrointestinal Absorption of Famotidine in Healthy Volunteers (position: Senior Managing Principal Scientist, Clinical Pharmacology, Celerion)
- Adam M. Persky, Ph.D. (2002-2004): Pharmacokinetics and Pharmacodynamics of Ephedrine (position: Clinical Professor, UNC Eshelman School of Pharmacy, University of North Carolina at Chapel Hill)
- Brendan M. Johnson, Ph.D. (2003-2005): Transport Protein Expression in Mrp2-Deficient TR⁻ Rats; Validation of a Method to Quantitate Biliary Excretion in Humans (position: Head, Clinical Pharmacology, Roivant Pharma)
- Lakshmi Vasist, Pharm.D. (2004-2006): Utility of a Method to Quantify Biliary Excretion in Humans for Compounds with Low, Intermediate and High Biliary Clearance Values (position: Clinical Pharmacology Modeling and Simulation, GlaxoSmithKline)
- Todd Dumas, Pharm.D. (2004-2006; advisor: Dr. Roy Hawke): Application of Pharmacokinetic Principles in Drug Development (position: Director, Research Pharmacokinetics PK/PD Modeling and Simulation, IQVIA)
- Amar Mehta, Pharm.D. (2005-2007): Effect of Ritonavir on the Biliary Clearance of Tc-99m Mebrofenin in Healthy Humans (position: Attorney and Partner, Litigation Practice Group, DeCotiis, FitzPatrick, Cole & Gibling, LLP)
- Grant Hogeland, Pharm.D. (2005-2007); co-advisor with Dr. Celeste Lindley): Bupropion as a Probe for CYP2B6 Activity in Humans (position: President, Evimetrics, Pharmacometrics/PKPD/Clinical Pharmacology Consultant)
- Ngoc "Betty" Ngo, Pharm.D. (2006-2008; advisor: Dr. Mary Paine): Cranberry Juice-Drug Interaction Studies in Healthy Human Volunteers and *In Vitro* (position: Pharmacokineticist II, IQVIA)
- Sandra Goss, Pharm.D., Ph.D. (2006-2008): Effect of Ritonavir on ^{99m}Tc-Mebrofenin Hepatic Exposure and Biliary Clearance in Healthy Volunteers (position: Director, Development Design Center, AbbVie)
- Ryan Criste, Pharm.D. (2007-2009): Development of Probe Drugs to Assess Hepatic Transport Function and Drug Interactions in Biliary Clearance in Humans (position: Director Clinical Pharmacology, Amador Bioscience Consulting Services)
- Ahsan Rizwan, Ph.D. (2008-2010): Use of an Intraduodenal Aspiration Technique to Assess the Bioavailability of Oral Pancrecarb[®] Compared to Placebo Control in Patients with Pancreatic Insufficiency (position: Clinical Pharmacologist, Nektar Therapeutics)

- Noelia Nebot, Ph.D. (2009-2011): Evaluation of Sorafenib Hepatobiliary Disposition in Humans (position: Clinical Pharmacokineticist, Clinical Pharmacology, Novartis Oncology)
- Teodora Pene Dumitrescu, Ph.D. (2010-2012): Use of NONMEM to Model the Pharmacokinetic Disposition of a Macrolide Antibiotic in Blood and Plasma of Healthy Volunteers; Lovastatin-Warfarin Pharmacokinetic/ Pharmacodynamic Interaction in Healthy Volunteers (position: Director, Clinical Pharmacology Modeling and Simulation, GlaxoSmithKline)
- Mario Sampson, Pharm.D. (2011-2013): Application of Pharmacometric Principles to Drug Dosing in Pediatrics; Human Cytochrome P450 4F Enzymes and Drug Interactions (position: Pharmacokinetics Reviewer, US Food & Drug Administration)
- Christina Mayer, Pharm.D. (2011-2013; co-advisor with Dr. Roy Hawke): Steady-State Pharmacokinetic Interactions of Silymarin Flavonolignans and Green Tea Catechins in Treatment Naïve Patients with Chronic Hepatitis C Infection (position: Associate Director, Clinical Pharmacology, Integrated Drug Development, Certara)
- Curtis Johnston, Pharm.D. (2012-2014; co-advisor with Dr. Roy Hawke): Systemic and Hepatic Disposition of Morphine and Morphine Glucuronides in Patients with Nonalcoholic Steatohepatitis (position: Senior Scientist II, Metrum Research Group LLC.)
- Daniel Gonzalez, Pharm.D., Ph.D. (2012-2014): Population Pharmacokinetic Analyses of Anti-infective Agents in Pediatric Patients to Optimize Therapy (position: Assistant Professor, UNC Eshleman School of Pharmacy, University of North Carolina at Chapel Hill)
- Eleftheria Tsakalazou, Ph.D. (2013-2015): Physiologically-Based Pharmacokinetic Model of Lovastatin Lactone and Carboxylate to Predict Hepatic Exposure; Population Pharmacokinetic Analysis of Irinotecan in Cancer Patients (position: Science Reviewer, US Food & Drug Administration)
- Vadryn Pierre, Pharm.D. (2014-2016): Population Pharmacokinetic Model for Morphine and Morphine Glucuronide in Patients with Non-Alcoholic Steatohepatitis and Healthy Volunteers (position: Senior Clinical Pharmacokineticist, AstraZeneca)
- Josh D. Kaullen, Pharm.D. (2015-2017): Effect of Non-Alcoholic Steatohepatitis on the Pharmacokinetics of ^{99m}Tc -Mebrofenin, a Probe for Hepatic Transport Function; Pharmacokinetic/Pharmacodynamic Model of CW002, an Investigational Intermediate Neuromuscular Blocking Agent, in Healthy Volunteers (position; Pharmacokineticist, IQVIA)
- Stephen A. Greene, Pharm.D. (2016-2018; co-advisor, Dr. Julie Dumond): Compartmental Pharmacology of Antiretrovirals in the Male Genital Tract; Altered Hepatic Transport in Autosomal Dominant Polycystic Kidney Disease (position: Clinical Pharmacology Manager, SK Life Science, Inc.)
- Panli Zheng, Pharm.D. (2017-2018; co-advisor, Dr. Yanguang Cao): Serum and Urine Endogenous Compound Profiling in Patients with Autosomal Dominant Polycystic Kidney Disease (position: Manager, Clinical Pharmacology and Pharmacometrics, Mallinckrodt Pharmaceuticals)
- Lana Tran, Pharm.D. (2018-present; co-advisor, Dr. Julie Dumond): Serum and Urine Endogenous Compound Profiling in Patients with Autosomal Dominant Polycystic Kidney Disease
- Daniela Vivaldi, DDS (2018-present; co-advisor, Dr. William Maixner): Applications of Clinical Pharmacology in the Treatment of Oral and Maxillofacial Pain

Pharm.D. Rotation Advisor

Beth Israel:	Philadelphia College of Pharmacy and Science (February, 1991)
Susan Johnston:	University of North Carolina, School of Pharmacy (June, 1994)
Elizabeth Schifano:	University of North Carolina, School of Pharmacy (August, 1995)
Robin Ali:	University of North Carolina, School of Pharmacy (February, 1996)
Lisa Hampton:	University of North Carolina, School of Pharmacy (April, 1996)
Chris Matheny:	University of North Carolina, School of Pharmacy (March, 1997)

Undergraduate/Pharm.D. Research Project Advisor

Scott Henson:	The Demonstration and Characterization of Papaverine HCl Precipitate in Physiological Fluids <i>In Vitro</i> and <i>In Vivo</i> (1988-1990)
Bill Koonce:	<i>In Vitro</i> Transdermal Absorption of Temovate (1988-1990)
Anne Spencer:	The Effect of Age on the Intestinal Hydrolysis of Morphine Glucuronide in Rats (co-advisor with Dr. Gary Pollack; 1990-1992)
Lisa Minecci:	An Examination of Age-Related Changes in the Disposition of Valproic Acid in Rats with Intact and Cannulated Bile Ducts (1991-1993)
Amanda Mosley:	<i>In Vitro</i> Evaluation of the Serum Protein Binding of an Acridone Carboxamide Derivative, a Potent Inhibitor of Multidrug Resistance (1994-1996) (Merck Undergraduate Research Scholar)
Sean Boger:	The Effect of GW918, a Modulator of Multiple Drug Resistance, on the Hepatic Metabolism of Doxorubicin (1996-1997)
Monica Johnson:	Development of an HPLC Assay to Quantitate 5-Flucytosine Concentrations in Human Serum and Pleural Fluid (Xavier University of Louisiana, summer student, 1996)
Maisha Kelley:	HPLC Analysis of Paclitaxel and Metabolite Concentrations after a 96-Hour Infusion in Cancer Patients (co-advisor: Dr. Gary Pollack; SPGRE student, Winston-Salem State University, 1996)
Christina Aquilante:	The Role of P-Glycoprotein in Blood-Brain Permeability of Morphine: Implications in the Development of Morphine Tolerance During Chronic Pain Therapy (1998-1999) (Merck Undergraduate Research Scholar)
Mitesh Prajapati:	Mechanism(s) of Induction of Brain P-Glycoprotein (1999-2001) (PhRMA Undergraduate Research Fellow)
Maciej Zamek-Gliszczyński:	Effect of Probenecid on Esterase Activity <i>In Vitro</i> and Biliary Excretion of 5(and 6)-Carboxy-2',7'-Dichlorofluorescein in the Isolated Perfused Rat Liver (1999-2001) (PhRMA Undergraduate Research Fellow)
Natasha Smith:	HPLC Analysis of Acetaminophen and Metabolite Disposition in Autistic Children (co-advisor: Dr. Gary Pollack; SPGRE student, Hampton University)
Sapana Vora:	Evaluation of the Effect of Hepatotoxic Drugs on Bile Acid Transport in Sandwich-Cultured Hepatocytes (2006-2007)
Tracy Rupp:	Intraduodenal Aspiration Study to Assess the Bioavailability of Oral Pancrecarb [®] Compared to Placebo Control in Patients with Pancreatic Insufficiency (2008-2010)

- Jia Huang: Development of MRP2 and MRP3 Over-expressing Stable Cell Lines for High-Throughput Screening (2010- 2011)
- Kevin Harris: Development of Methods to Quantify the Intracellular Distribution of Drugs/Metabolites in Hepatocytes (2011-2013)
- Marina Snellings: Identification of Compounds that Inhibit MRP2- and MRP3-Mediated Transport in Over-expressing Stable Cell Lines (2012- 2013)
- Jenna Wood: Development of a Quantitative Mass Spectrometry-based Assay for d8-Taurocholic Acid (2014-2015)
- Alana Ferrari: Amiodarone-Induced Alterations in Hepatic Transport Protein Expression in Sandwich-Cultured Hepatocytes (2014-2015)
- Alexandra Cervantes: Evaluation of the Effects of Rifampicin on the Hepatic Exposure of the MRI Contrast Agent Gadoxetate in Healthy Volunteers (2015)
- Yi Zeng: Altered Hepatic Disposition of Anionic Drugs: Mechanisms (2015-2018)
- Brandon Phares: Mechanisms of Hepatic Transport (2017)
- Seher Khalid: Effect of a Common Genetic Variant in BSEP on the Kinetics and Inhibition of Bile Acid Transport by Cholestatic Medications (2017-2018)
- Lilly Wong: Organic Solute Transporter Alpha/Beta (OST α/β) Mutagenesis - UNC Biology Undergraduate Research Project (2018)

High School Student Research Advisor

- Arunangshu Chakrabarty Identifying Crucial Amino Acid Residues in OST α/β -Mediated Transport - Eshelman Institute for Innovation: Young Innovators Program (2018)

**RESEARCH SUPPORT:
Grants and Contracts Awarded**

I. Grants Awarded

A. Principal Investigator, Extramural Grants

Title	Funding Agency	Duration & Total Amount	Status
EXTRAMURAL GRANTS:			
Hepatic Drug Metabolism in Hepatobiliary Disease	American Association of Colleges of Pharmacy	11/86-11/87 \$5,000	Funded
Mechanisms of Inhibition of Hepatobiliary Transport Systems	Pharmaceutical Manufacturers Association Foundation	1/87-12/88 \$20,000	Funded
Altered Hepatic Disposition of Anionic Drugs: Mechanisms	National Institutes of Health (NIGMS First Award GM41935-01-05)	4/91-3/97 \$497,907	Funded
Models of Hepatobiliary Xenobiotic Disposition in Aging	National Institute of Environmental Health Sciences (R01)	7/91-6/94 \$316,044	Funded
Hepatic Processing and <i>In Vivo</i> Disposition of Antisense Oligonucleotides	North Carolina Biotechnology Center	7/95-6/97 \$40,000	Funded
Altered Hepatic Disposition of Anionic Drugs: Mechanisms	National Institutes of Health (R01 GM41935-06-09)	7/97-6/01 \$751,749 (tot) \$525,022 (dir)	Funded
Mechanism(s) of Induction of Brain P-glycoprotein (2000 Undergraduate Research Fellowship in Pharmaceutics; Student: M. Prajapati)	Pharmaceutical Research and Manufacturers of America Foundation	1/00-12/00 \$5,000	Funded
Hepatic Transport Mechanisms and Drug Interactions (2001 Undergraduate Research Fellowship in Pharmaceutics; Student: M.Zamek-Gliszczyński)	Pharmaceutical Research and Manufacturers of America Foundation	1/01-12/01 \$5,000	Funded
Altered Hepatic Disposition of Anionic Drugs: Mechanisms (Minority Supplement Student: Daniel Kemp)	National Institutes of Health (R01 GM41935-10-13)	7/01-6/05 \$1,123,599 (tot) \$787,812 (dir)	Funded

I. Grants Awarded (continued)**A. Principal Investigator, Extramural Grants (continued)**

Title	Funding Agency	Duration & Total Amount	Status
Development of a Model to Predict Drug Hepatotoxicity	National Institutes of Health (R21 CA106101-A1)	9/04-8/06 \$262,800 (tot) \$180,000 (dir)	Funded
Altered Hepatic Disposition of Anionic Drugs: Mechanisms	National Institutes of Health (R01 GM41935-14-17)	7/05-6/09 \$1,804,700 (tot) \$1,250,000 (dir)	Funded
- Administrative Supplement (2008)		\$23,760	Funded
- Diversity supplement: Latoya Poole (2008-2009)		\$90,147	Funded
Altered Hepatic Disposition of Anionic Drugs: Mechanisms	National Institutes of Health (2R56 GM41935-18)	7/09-6/10 \$365,043 (tot) \$250,000 (dir)	Funded
Altered Hepatic Disposition of Anionic Drugs: Mechanisms	National Institutes of Health (R01 GM41935-18-21) Priority Score=19; 3%	7/10-6/14 \$1,822,411 (tot) \$1,250,000 (dir)	Funded
MRP4 Structural Features and Polymorphisms In Drug-Induced Liver Injury	National Institutes of Health Administrative Supplement to R01 GM41935	7/11-6/14 \$614,525 (tot) \$494,119 (dir)	Funded
UNC-Duke Collaborative Clinical Pharmacology Postdoctoral Training Program (Co-PIs: Dr. Daniel Benjamin & Dr. Paul Watkins)	National Institutes of Health (1T32 GM086330-01A1) Impact/Priority Score=27	7/11-6/16 \$2,043,611 (tot) \$1,992,280 (dir)	Funded
Human Cytochrome P450 4F Enzymes and Drug Interactions UNC Subcontract PI: K.L.R. Brouwer	National Institutes of Health (R01 GM089994)	8/11-6/14 \$103,814 (dir) \$153,645 (tot)	Funded
Altered Hepatic Disposition of Anionic Drugs: Mechanisms	National Institutes of Health (R01 GM41935-22-26) Priority Score=24; 11%	7/14-8/18 \$3,576,560 (tot) \$2,348,815 (dir)	Funded
2015 Drug Metabolism Gordon Research Conference (Co-PI: Dr. Michael Zientek)	National Institutes of Health (R13 TR001311-01) Impact Score=22 (not percentiled)	4/15-8/15 \$15,000 (tot) \$15,000 (dir)	Funded
2016 Drug Metabolism Gordon Research Conference	National Institutes of Health (R13 TR001691-01)	4/16-8/16 \$27,140 (tot) \$27,140 (dir)	Funded

I. Grants Awarded (continued)**A. Principal Investigator, Extramural Grants (continued)**

Title	Funding Agency	Duration & Total Amount	Status
UNC-Duke Collaborative Clinical Pharmacology Postdoctoral Training Program (Co-PIs: Dr. Daniel Benjamin & Dr. Paul Watkins)	National Institutes of Health (1T32 GM086330-06) Priority Score=10	7/16-6/21 \$2,950,977 (tot) \$2,855,943 (dir)	Funded
Mechanisms of Altered Hepatic Transport: Impact On Drug Therapy	National Institutes of Health (R35 GM122576-01) Impact Score=23 (not percentiled)	4/17-3/22 \$3,145,299 (tot) \$2,119,601 (dir)	Funded
-Administrative Supplement (Equipment)	2018	\$34,978	Funded
Elucidating the Role of Organic Solute Transporter (OST) Alpha/Beta in Bile Acid Transport and Drug Interactions (Graduate Student PI: James Beaudoin)	National Institutes of Health (F31-DK120196-01A1)	2/19-2/21 \$36,560	Funded

A. Principal Investigator, Intramural Grants

Estradiol-17 β -D-Glucuronide Induced Cholestasis: A Model and Probe for Studying Alterations in Hepatic Uptake and Release of Drugs and Metabolites	NIH (BRSF funds, UNC-CH)	6/86-3/87 \$6,432	Funded
Influence of Estradiol-17 β -D-Glucuronide Induced Cholestasis on Hepatic Uptake and Efflux of Xenobiotics	NIH (BRSF funds, UNC-CH)	5/87-3/88 \$764	Funded
Factors Influencing the Hepatic Clearance of Morphine	Pharmacy Foundation N.C., Inc. Faculty Research Award	11/87-12/88 \$1,500	Funded
Hepatic Extraction of Morphine; Implications for Pain Relief in Cancer Patients	UNC-CH Foundation IBM-Jr. Faculty Development Award	1/88-12/88 \$3,000	Funded
Physiologic Kinetic Model of Altered Hepatic Disposition	Pharmacy Foundation N.C., Inc. Faculty Research Award	4/89-12/89 \$3,000	Funded
Mechanism(s) of Inhibition of Hepatobiliary Transport Systems by Probenecid	University Research Council	12/89-11/90 \$3,000	Funded
The Effect of Pancreatico-Biliary Secretions on the Absorption of Ranitidine	Pharmacy Foundation N.C., Inc. Faculty Research Award	10/93-10/94 \$4,671	Funded
Utility of Sandwich-Cultured Human Hepatocytes to Predict Antiretroviral-Induced Hepatotoxicity	UNC Center for AIDS Research	6/03-5/04 \$16,915	Funded
Drug-Drug Interactions in the Liver: Effect of Ritonavir, a Transport Protein Modulator, on the Hepatic Exposure of ^{99m} Tc-Mebrofenin in Healthy Human Volunteers	NC TraCS Institute	3/09-2/10 \$10,000	Funded

I. **Grants Awarded (continued)**B. **Co-Investigator, Extramural Grants**

Title	Funding Agency	Duration & Total Amount	Status
Mechanisms of Hepatobiliary Transport of a Model Therapeutic Polymer: Implications for the Pharmaceutical Development of Polymer Drugs (PI: Dr. C.M. Klech)	Pharmaceutical Manufacturers Association Foundation	1/90-12/91 \$20,000	Funded
Maternal-Fetal Pharmacokinetics of Methanol (PI: Dr. G.M. Pollack)	Health Effects Institute	7/90-6/93 \$323,547	Funded
Biochemical and Pharmacokinetic Studies with Oxaliplatin (PI: Dr. S.A. Bernard)	National Cancer Institute (R01)	9/94-9/95 \$153,773	Funded
<i>In Vitro</i> Evaluation of the Serum Protein Binding of an Acridone Carboxamide Derivative, a Potent Inhibitor of Multidrug Resistance (Student: A.K. Mosley)	Merck Undergraduate Research Scholar Program	7/95-8/96 \$7,000	Funded
Morphine Kinetics/Dynamics: Effect of Administration Route (PI: Dr. E.M. Migoya)	Pharmacy Foundation NC, Inc.	10/96-9/97 \$1,800	Funded
The Role of P-glycoprotein in Blood-Brain Permeability of Morphine: Implications in the Development of Morphine Tolerance During Chronic Pain Therapy (Student: C.M. Aquilante)	Merck Undergraduate Research Scholar Program	7/98-8/99 \$7,000	Funded
P-Glycoprotein Induction: Kinetic/Dynamic Implications (PI: Dr. G.M. Pollack)	National Institutes of Health (R01 GM061191)	4/01-3/06 \$911,325 (tot) \$640,000 (dir)	Funded
North Carolina Collaborative PPRU Network (PI: Dr. R. McKinney)	National Institutes of Health (U10 HD045962)	3/04-12/08 \$107,715 (dir, 2 nd yr)	Funded
Short Course: Integrative and Organ Systems Pharmacology (PI: Dr. G.M. Pollack)	National Institutes of Health (R25 GM074088-1-5)	4/05-3/09 \$766,538 (tot) \$191,484 (dir, 5 th yr)	Funded
UNC Clinical and Translational Science Award (PI: Dr. M. Runge)	National Institutes of Health CTSA (U54 RR024383-01A1)	7/08-6/13 \$77,758,894 (tot) \$58,856,039 (dir)	Funded
Short Course: Integrative and Organ Systems Pharmacology (PI: Dr. M. Paine)	National Institutes of Health (R25 GM074088-6-9)	12/08-11/14 \$861,048 (tot) \$800,000 (dir)	Funded

I. Grants Awarded (continued)**B. Co-Investigator, Extramural Grants (continued)**

Title	Funding Agency	Duration & Total Amount	Status
<i>In Vivo</i> and <i>In Vitro</i> Characterization of the Mode of Action of Triclosan-Induced Hypothyroxinemia in the Rat (Student: K.B. Paul)	Society of Toxicology Colgate-Palmolive Award for Student Research Training in Alternative Methods	3/09-2/10 \$3,500	Funded
Modeling Diabetes, Obesity and Non-Alcoholic Fatty Liver Disease in Mouse Hepatocytes to Aid in Prediction of Drug-Induced Liver Injury (Student: V. More)	Society of Toxicology Colgate-Palmolive Award for Student Research Training in Alternative Methods	11/10-10/11 \$3,500	Funded
Mechanisms of Drug-Induced Liver Injury: Role and Regulation of Sinusoidal Transport Proteins (PI: Dr. K. Köck)	German Research Association (Deutsche Forschungsgemeinschaft)	3/11-2/12 1 yr Postdoctoral Salary Support	Funded
UNC Clinical and Translational Science Award (PI: Dr. M. Runge)	NIH CTSA 1UL1TR001111-04	9/13–4/18 \$7,324,022 (tot)	Funded
UNC BioGears® Partnership Sponsor: Applied Research Associates, Inc. (PI: Dr. A. Tropsha)	Department of Defense (DOD 5042657)	9/14-12/15 \$230,263	Funded
Center for Innovative Trials in Children and Adults (TRIDENT) (PI: Benjamin/UNC Subcontract PI: Corbie-Smith)	NIH NCATS (1 U24 TR001608)	7/16-6/23 \$3,823,626	Funded
Higher Education Student and Staff Mobility Exchange with University of Eastern Finland (PI: Dr. P. Honkakoski)	Erasmus+ Programme	1/16-5/18 4 student/staff visits	Funded
CD73 is a Multi-functional Protein that Regulates Liver Injury (Co-mentor for Diversity Supplement) (PI: Natasha Snider)	National Institutes of Health R01-DK110355-01A1S1	3/17-2/20 \$42,149	Funded
UNC Clinical and Translational Science Award (PI: Dr. Buse)	NIH CTSA 1UL1TR002489	5/18–4/23 \$8,757,478 (FY tot)	Funded
Optimizing Medicine Use in Alzheimer's Disease (co-PIs: Nicolazzo, Brouwer)	BGRF1802	1/18-12/18 \$50,000 AUD	Funded

B. Co-Investigator, Intramural Grants

Altered Drug Disposition and Bile Acid Profiling as Novel Biomarkers to Predict Disease Severity in Patients with Chronic Inflammatory Liver Disease (PI: Dr. A. S. Barritt)	NC TraCS Institute	12/12-11/13 \$50,000	Funded
Solving the Mystery of Highly Variable Drug Disposition in Pregnant Women: Are Unique Drug Metabolizing Enzymes Activated During Pregnancy? (PI: Dr. Craig Lee)	UNC Eshelman Institute for Innovation	1/16-12/17 \$50,000	Funded

I. Grants Awarded (continued)**B. Co-Investigator, Intramural Grants (continued)**

Title	Funding Agency	Duration & Total Amount	Status
Precision Medicine in Alzheimer's Disease: It's Time to Act Together (PI: Dr. Joseph Nicolazzo, Monash University)	PharmAlliance	1/16-12/17 \$100,000	Funded
Development of a Novel Human In Vitro System to Predict Cholestatic Drug-Induced Liver Injury (PI: Dr. Merrie Mosedale)	UNC Eshelman Institute for Innovation	6/18-5/19 \$49,217	Funded
Novel Approach to Predict Drug-Induced Liver Injury Using Metabolomics and Systems Toxicology (PI: Dr. Darren Creek, Monash University)	PharmAlliance	11/18-12/19 \$10,000 USD \$55,000 AUD	Funded
PharmAlliance Collaboration in PharmSci Training (co-PIs: Dr. Amanda Olsen, UNC, Dr. Adam Phillips, UCL)	PharmAlliance	12/18-12/19 \$8,000 USD \$6,838 AUD £6,187 UK	Funded

II. Drug Development Research Contracts Awarded**A. Principal Investigator**

Title	Funding Agency	Duration & Total Amount	Status
Characterization of the Protein Binding of GR-32191, a Thromboxane - Receptor Antagonist	Glaxo Wellcome, Inc.	11/88-3/89 \$6,000	Funded
Effect of Ranitidine on the Pharmacokinetics and Pharmacodynamics of Adinazolam in Healthy Volunteers	The Upjohn Company	7/89-12/90 \$40,000	Funded
Influence of Aberrant Absorption Phenomena and Biliary Recycling on Pharmacokinetic Parameters	ICI Americas, Inc.	1/90-12/91 \$25,000	Funded
Hepatic Disposition of Xenobiotics	ICI Americas, Inc. \$5,000	1/91-12/91	Funded
Effect of Probenecid on the Pharmacokinetics and Pharmacodynamics of Adinazolam	The Upjohn Company	10/91-8/92 \$20,202	Funded
Evaluation of the Effects of Enzyme Inducers on the Metabolite Disposition of Ondansetron in Rat Liver Microsomes	Glaxo Wellcome, Inc.	1/93-5/93 \$4,991	Funded
Effect of Heat Treatment on Trimethoprim/Sulfamethoxazole Serum Concentrations	Glaxo Wellcome, Inc.	10/93-4/94 \$4,970	Funded
Effect of MDR Inhibitors on the Hepatobiliary Disposition of Chemotherapeutic Agents (<i>stipend to support graduate student</i>)	Glaxo Wellcome, Inc.	8/95-8/96 \$15,000	Funded
Disposition of MDL16455 in the Isolated Perfused Rat Liver; Effects of Ketoconazole and Erythromycin	Hoechst Marion Roussel	4/96-3/97 \$18,841	Funded
Comparison of Ranitidine Absorption from Various Sites within the Intestinal Tract	Innovative Devices, LLC; Glaxo Wellcome, Inc.	6/96-9/96 \$50,227	Funded
Effects of Enzyme Inducing Agents on the Pharmacokinetics of 5HT ₃ Receptor Antagonists (<i>Analytical Work Contracted to GLP Laboratory</i>)	Glaxo Wellcome, Inc.	8/96-8/97 \$29,255	Funded
Investigation of Pharmacokinetic/ Pharmacodynamic Alterations in Morphine and Metabolites During Single-Dose Coadministration with Ondansetron	Glaxo Wellcome, Inc.	2/97-1/98 \$40,904	Funded
Comparison of Zafirlukast Absorption After Oral and Colonic Administration in Humans	Zeneca Pharmaceuticals	4/97-7/97 \$36,008	Funded

II. Drug Development Research Contracts Awarded (continued)**A. Principal Investigator (continued)**

Title	Funding Agency	Duration & Total Amount	Status
Effect of MDR Inhibitors on the Hepatobiliary Disposition of Chemotherapeutic Agents (<i>stipend to support graduate student</i>)	Glaxo Wellcome, Inc.	9/96-12/97 \$15,000	Funded
Characterization of an <i>In Vitro</i> Model System to Evaluate the Hepatobiliary Disposition of Xenobiotics (<i>stipend to support graduate student</i>)	Glaxo Wellcome, Inc.	1/97-12/97 \$15,000	Funded
A Pilot Study to Evaluate the Intra-and Inter-Subject Variability of Infrared Thermography In Healthy, Obese Subjects	Glaxo Wellcome, Inc.	8/98-12/98 \$5,954	Funded
A Double Blinded, Randomized, Placebo Controlled, 5-Way Crossover Pilot Study With 3 Doses of Ephedrine Sulfate Followed by an Open-Labeled, 10 mg Dose of Sibutramine to Evaluate Infrared Thermography as a Possible Surrogate Marker for Weight Loss in Healthy, Obese Subjects	Glaxo Wellcome, Inc.	12/98-6/99 \$61,610	Funded
Testing Two Pfizer Compounds in TR ⁻ Rats	Pfizer, Inc.	2/00-11/00 \$19,883	Funded
<i>In Vitro</i> Methods to Examine Hepatobiliary Disposition of BILN 2061 ZW	Boehringer Ingelheim	2/02-1/03 \$19,593	Funded
Development of an <i>In Vitro</i> , Moderate Throughput Screening Assay to Predict Hepatobiliary Disposition of Drug Candidates	Pfizer, Inc.	6/01-5/05 \$378,731	Funded
Comprehensive Characterization of Abcc2 ^{-/-} and Abcg2 ^{-/-} Mice with Molecular Biology and Pharmacokinetic Approaches	Eli Lilly and Company	1/05-1/07 \$69,997 1/07-1/09 \$80,000	Funded
Evaluation of an <i>In Vitro</i> Model to Predict Metabolite Distribution in Humans	GlaxoSmithKline	1/05-6/09 \$180,000	Funded
Intraduodenal Aspiration Study to Assess the Bioavailability of Oral Pancrecarb [®] Compared to Placebo Control in Patients with Pancreatic Insufficiency (Co-PI: Dr. Lisa Gangarosa)	Digestive Care, Inc.	5/08-5/09 \$199,429	Funded
Phase 1 Open-Label, Multiple Dose Study to Evaluate the Pharmacokinetics of TTP488	High Point Clinical Trials Center LLC	9/14 – 9/16 \$88,390	Funded
Pharmacokinetic Modeling of Bile Acid Disposition in Human Hepatocytes and Effects of Modulators	Intercept Pharmaceuticals, Inc.	12/15-8/17 \$25,097	Funded
Characterization of Hepatic Transporter Interactions With Tolvaptan and Metabolites	Otsuka America Pharmaceuticals	1/14-12/18 \$155,000	Funded

II. Drug Development Research Contracts Awarded (continued)**A. Principal Investigator (continued)**

Title	Funding Agency	Duration & Total Amount	Status
Evaluation of Drug Interactions with Human Organic Solute Transporter Alpha/Beta	Gilead Sciences, Inc.	5/18-5/23	Funded
ADPKD-Mediated Alterations in Disposition of Endogenous Transporter Probes	Otsuka Development and Commercialization, Inc.	8/18-7/19 \$150,000	Funded

B. Co-Investigator

Absolute Bioavailability of Phenytoin after Intravenous ACC-9653 Administration to Healthy Male Volunteers	Dupont Critical Care	4/87-5/87 \$48,000	Funded
Evaluation of the Relative Bioavailability of Spironolactone Suspension in Normal Male Volunteers	Carolina Medical Products	6/87 \$25,280	Funded
Evaluation of the Pharmacokinetic Interaction Between Diazepam and ACC-9653 (a Phenytoin Prodrug) in Healthy Male Volunteers	Dupont Critical Care	11/87-2/88 \$66,374	Funded
An Evaluation of the Relative Bioavailability of Rifampin Suspension and Capsules in Normal Volunteers	Carolina Medical Products	2/88 \$26,085	Funded
An Evaluation of the Pharmacokinetic Properties of a Single Intravenous Dose Regimen of GR-C507/75 in Healthy, Adult Male Volunteers	Glaxo Wellcome, Inc.	4/88-5/88 \$14,400	Funded
Evaluation of the Anatomic Site of Absorption of Sumatriptan	Glaxo Wellcome, Inc.	5/92-7/92 \$64,520	Funded
Non-GLP High Performance Liquid Chromatographic Analysis of Paclitaxel in Plasma Samples from Patients with Solid Tumors Refractory to Conventional Chemotherapy Enrolled in a Phase I Trial of Escalating Doses of Paclitaxel (96-Hr Infusion) with Filgrastim Support	Bristol-Myers Squibb	6/96-10/96 \$4,670	Funded
Comparison of the Relative Oral Bioavailability of Tolvaptan Administered via Nasogastric Tube to Tolvaptan Tablets Swallowed Intact	Otsuka America Pharmaceutical, Inc.	2/11-2/12 \$294,523	Funded