

## Curriculum Vitae

### PHILIP CHARLES SMITH, Ph.D.

#### Address

Division of Pharmacoengineering and Molecular Pharmaceutics  
Eshelman School of Pharmacy, CB #7571  
The University of North Carolina at Chapel Hill  
Chapel Hill, NC 27599-7360  
(919) 962-0095  
*pcs@email.unc.edu*

#### Education

1978-3/85	University of California, San Francisco, CA	Ph.D. Pharmaceutical Chemistry, 3/85
	Thesis title: <i>Disposition and covalent binding of acyl glucuronides: studies with zomepirac glucuronide.</i>	
	Thesis mentor: Leslie Z. Benet, Ph.D.	
1974-78	University of Illinois, Chicago Medical Center, IL	B.S. Pharmacy, Honors, 12/77
1973-74	Northern Illinois University, DeKalb, IL	

#### Positions Held

7/95-	Division of Pharmacoengineering Molecular Pharmaceutics, School of Pharmacy, and the Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC	Associate Professor
7/92-6/95	Division of Pharmaceutics, School of Pharmacy and the Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC	Assistant Professor
8/88-7/92	Division of Pharmaceutics, College of Pharmacy, University of Texas at Austin, Austin, TX	Assistant Professor
6/87-8/88	Laboratory of Physical and Theoretical Biology, National Institute for Child Health and Human Development, NIH, Bethesda, MD	National Research Council Fellow
12/85-5/87	Laboratory of Human Carcinogenesis, National Cancer Institute, NIH, Bethesda, MD	Postdoctoral Research Associate
3/85-11/85	Liver Center, School of Medicine, U. of California, San Francisco	Visiting Research Scientist
1978-3/85	Dept. Pharmacy, U. of California, San Francisco, CA	Research Associate
1978	Ravenswood Hospital, Chicago, Illinois	Staff Pharmacist

#### Honors and Awards

2003	Edward Kidder Graham Award for Undergraduate Studies and Teaching, UNC Chapel Hill
1990-93	Faculty Development Award in Pharmacology/Toxicology, Pharmaceutical Manufacturers Association Foundation
1986-88	National Research Council Fellow, National Institute for Child Health and Human Development
1985-86	Halls-Shields Fellow, National Cancer Institute
1980-83	Merck Pharmaceuticals Fellow, American Foundation for Pharmaceutical Education
1977	Rho Chi Society

## Professional Membership

1990- International Society for the Study of Xenobiotics  
1978 Registered Pharmacist, Illinois  
1978 Registered Pharmacist, California

## Professional Service

3/2020 Reviewer, NCCIH, Preclinical Screening for Natural Product Drug Interactions  
6/2019 External Reviewer, Promotion and Tenure, Department of Pharmacy, Faculty of Science, National University of Singapore, Republic of Singapore  
11/2014 Reviewer, NCCAM Botanical Dietary Supplement Research Centers  
7/2014 Reviewer, Research Grants Council of Hong Kong  
10/2009 Reviewer, NCCAM Supplement Grants  
8/2009 Reviewer, NCCAM Botanical Center Grants  
6/2009 Reviewer, NIH Challenge Grants  
1/2009 External Thesis Reviewer, Flinders University, Australia (Andrew Roland)  
10/2008 Reviewer, NCCAM Special Emphasis Study Section, NIH  
10/2007-7/2008 Conference Organizing Committee, 12<sup>th</sup> International, UGT and Glucuronidation Workshop, Quebec, Canada, July 24-27, 2008.  
3/2007 Reviewer, NCCAM Special Emphasis Study Section, NIH  
9/2006-8/2008 Chair, Research Triangle Park Drug Metabolism Discussion Group  
7/2006, 3/2002, Reviewer, NIDA Medications Development Research Study Section, NIH  
7/2003, 3/2001, 6/2001  
10/2005-2009 Member, Council of the International Society for the Study of Xenobiotics  
9/2005-2009 Member, Dietary Supplements: Bioavailability, Expert Committee, United States Pharmacopeia  
1/2005 Member, Scientific Advisory Board, Development Core, UNC Center for AIDS Research  
1/2005 Member, Delegate from UNC School of Pharmacy, US Pharmacopial Convention  
2/2004-2008 Member-At-Large, Pharmaceutical Sciences Section, AAAS  
8/2001 Member, Grant Selection Committee for Keck Foundation Candidate, UNC-CH  
10/2000 Reviewer, NIH Shared Instruments, Mass Spectrometry  
2/2000-2004 Member, Electorate Nominating Committee, Pharmaceutical Sciences Section, AAAS  
6/99- Member, Editorial Advisory Board, J. Pharmacology and Experimental Therapeutics  
6/98 External Reviewer, Pharmacology Study Section, General Medical Sciences, NIH  
3/98 Reviewer, NIDA Special Emphasis Panel, NIH  
2/97 Reviewer, Geriatrics and Rehabilitation Medicine Study Section, NIH  
2/96 Reviewer, Geriatrics and Rehabilitation Medicine Study Section, NIH  
1996-1997 Co-Chair, Program Committee, ISSX Meeting of 1997, Hilton Head, SC  
1996 Short Course Committee, ISSX Meeting of 1996, San Diego, CA  
10/95 Reviewer, Geriatrics and Rehabilitation Medicine Study Section, NIH  
3/94-1/2000 Reviewer, Small Business Innovation and Research Grants, National Institute on Drug Abuse  
1993-94 Program Committee, ISSX Meeting of 1994, Raleigh, NC  
1992 Member-at-Large, Texas Association of Clinical Pharmacology  
1992 Chairman, Rho Chi Lecture Award Committee  
7/1991 Study Section Reviewer, National Institute on Drug Abuse  
5/1991 Meeting Organizer, Texas Association of Clinical Pharmacology  
1991 Chairman, Undergraduate Student Affairs Committee, American Assoc. Pharmaceutical Scientists  
1990-93 Member, Editorial Advisory Board, Drug Metabolism and Disposition  
1990-91 Chairman, Ad Hoc Rho Chi Committee to Establish a Rho Chi/AAPS Research Internship  
1990-91 Member, Rho Chi Lecture Award Committee

**Journal Reviewer (past 5 years):**

Drug Metabolism and Disposition  
Journal of Pharmacology and Experimental Therapeutics  
Drug Metabolism Reviews  
Chemical Research in Toxicology  
Analytical Chemistry  
Journal of Proteome Research  
Biochemical Pharmacology  
Pharmaceutical Research  
Journal of Pharmaceutical Sciences  
Xenobiotica  
Journal of the American Society for Mass Spectroscopy  
Journal of Agriculture and Food Chemistry  
Journal of Pharmaceutical and Biomedical Analysis  
Molecular Pharmacology  
Current Drug Metabolism

## Thesis Committee Membership, Current

### Student

Natalie Jasiewicz (DPMP)  
Emily Bonacquisti (DPMP)  
Ava Vargason (DPMP)  
Kunyu Qi (DPMP)  
Wulin Jiang (DPMP)

### Role on the Committee

Administrative Chair  
Administrative Chair  
Committee Member  
Administrative Chair  
Administrative Chair

## Graduate/Undergraduate Students, Postdoctoral Fellows and Visiting Scientists Supervised

### Graduate Students

- Marta Castillo, M.S., Ph.D. Ph.D. in Pharmaceutics, U. Texas at Austin, 12/96  
Graduate student, 1/90 - 12/96; Ph.D. candidacy at UT Austin, 7/92.  
Ph.D. thesis: *Comparison of the disposition and reactivity of the acyl glucuronides of ibuprofen and three analogs in vitro and in vivo.*
- Cristina Marquez, M.S., Ph.D. Ph.D. in Pharmaceutics, U. Texas at Austin, 5/95  
Graduate student, 9/90 - 5/95; Ph.D. Candidacy at UT Austin, 7/92.  
Ph.D. thesis: *Peptide analysis by mass spectrometry: Applications to pharmacokinetic analysis of opioid peptides.*
- Daphne Da, M.S. M.S. in Pharmacy, U. North Carolina at Chapel Hill, 5/98  
Graduate student, 9/93 - 5/98 (with a leave of absence); M.S. candidacy 6/96.  
M.S. thesis: *Studies of acebutolol transport in the intestine: Role of the P-glycoprotein (MDR) pump.*
- Jian H. Liu, M.S. M.S. in Pharmacy, U. North Carolina at Chapel Hill, 7/98  
Lab assistant, 3/90 - 12/93; Graduate student, 1/94-7/98; M.S. Candidacy at UNC Chapel Hill, 3/97  
M.S. thesis: *Predicting the pharmacokinetics of acyl glucuronides and their parent compounds in disease states.*
- Lei (Lilly) Zhang, M.S. M.S. in Pharmacy, U. North Carolina at Chapel Hill, 7/98  
Graduate student, 9/94 - 7/98; M.S. candidacy at UNC Chapel Hill, 7/97  
M.S. thesis: *Opioid peptide metabolism and disposition studies using liquid chromatography/mass spectrometry: Studies with DSLET.*
- Yi-Jin Chiou, Ph.D. Ph.D. in Pharmaceutical Sciences, U. North Carolina at Chapel Hill, 7/99  
Graduate student, 9/91 - 5/99; Ph.D. Candidacy at UNC Chapel Hill, 5/94.  
Ph.D. thesis: *Effect of glycation by acyl glucuronides on protein function.*
- Kamonthip Wiwattanawongsa, M.S. M.S. in Pharmaceutical Sciences, U. North Carolina at Chapel Hill, 12/99  
Graduate student, 9/94 - 12/99; Ph.D. candidacy at UNC Chapel Hill, 5/98  
M.S. thesis: *Effects of antibiotics on the disposition of mycophenolic acid and its glucuronide conjugate in the guinea pig.*
- Jennifer Q. Dong, Ph.D. Ph.D. in Pharmaceutical Sciences, U. North Carolina at Chapel Hill, 6/2000  
Graduate student, 9/95-6/2000; Ph.D. candidacy at UNC Chapel Hill, 1/98.  
Ph.D. thesis: *Use of in vitro studies to estimate relative covalent binding of reactive acyl glucuronides to proteins in vivo.*
- Liyun Ni, M.S. M.S. in Pharmaceutical Sciences, U. North Carolina at Chapel Hill, 6/2001  
Graduate student, 9/98-6/2001; M.S. Candidacy at UNC Chapel Hill, 10/2000.  
M.S. Thesis: *Glucuronidation of SN-38 by intestinal uridine diphosphate glucuronosyltransferases.*
- Brendan Bender, M.S. M.S. in Pharmaceutical Sciences, U. North Carolina at Chapel Hill, 5/2002  
Graduate student, 9/98-5/2002; MS Candidacy at UNC Chapel Hill, 8/2001.  
M.S. Thesis: *Acetaminophen disposition in cystic fibrosis knockout mice.*
- Melanie N. Tallman, Pharm.D, Ph.D. Ph.D. in Pharmaceutical Sciences, U. North Carolina at Chapel Hill, 4/2006  
Graduate student, 1/2003; Ph.D. candidacy at UNC Chapel Hill, 1/2003.  
Ph.D. thesis: *The role of intestinal UDP-Glucuronosyltransferases in 7-ethyl-10-hydroxy-camptothecin (SN-*

38) conjugation and toxicity.

David E. Harbourt, B.S., Ph.D. Graduate student, 9/2005; Ph.D. thesis:	Ph.D. in Toxicology, U. North Carolina at Chapel Hill, 11/2009 Ph.D. Candidate in the Curriculum in Toxicology, UNC Chapel Hill, 1/2008 <i>An investigation into the role of glucuronidation on the disposition and toxicity of mycophenolic acid using targeted quantitative proteomics.</i>
Melanie S. Joy, Pharm.D. Graduate student, 9/2006; Ph.D. thesis:	Ph.D. in Pharmaceutical Sciences, U. North Carolina at Chapel Hill, 1/2010 Ph.D. Candidate in Pharmaceutical Sciences, Division of Molecular Pharmaceutics, 1/2008 <i>Disposition of mycophenolic acid and its glucuronide metabolites in subjects with glomerulonephritis, implications of genotype, and effects on renal outcomes</i>

**Previous Laboratory Staff Supervised:**

John Fallon, Ph.D.	Postdoctoral fellow, 9/2005 – 9/2007; Research Associate, 2011-present
Rani Qasem, Ph.D.	Visiting Scientist, Summers of 2016, 2017, 2018, 2019, 2021
Bernard Lanoue, MS	Research Associate, 9/2011 - 7/2012
Zhiming Wen, Ph.D.	Postdoctoral fellow, 11/2003 – 3/2008
Zhiqing Qiao, M.S.	Research Technician, 1/2007 – 1/2008
Shazia Ali, B.S.	Research Technician II, 8/2003 – 12/2007
Melanie Tallman, Pharm.D., Ph.D.	Pharm.D./Ph.D. graduate student, 2/2000 – 4/2006
Kathryn Gillis, Pharm.D.	Postdoctoral fellow, 9/2004 – 2006
Stephan Stern, Ph.D.	Postdoctoral fellow, 11/2001 – 1/2005
Xun Song, Ph.D.	Postdoctoral fellow, 8/2003 – 1/2004
Hongjun Liu, Ph.D.	Postdoctoral fellow, 9/2001 – 12/2002
Mayur Patel	Undergraduate research, 2/2002 – 5/2003
Phillip Sprinkle	Undergraduate research, 6/2002 – 9/2002
Brendan Bender, MS.	Graduate student, 9/98 – 5/2002
Heather Puett, B.S.	Undergraduate research, 3/2001 – 12/2001
Swarupa Kulkarni, Ph.D.	Postdoctoral fellow, 9/97 – 3/99, Research Associate, 3/99 – 6/2001
Liyun (Lily) Ni, M.S.	Graduate student, 9/98 – 6/2001.
Steve Hege, M.S.	Graduate student, 1/97 – 6/2001
Thomas Urban	Undergraduate research, 1/99 – 6/2001
Erin Heinzen	Undergraduate research, 1/99 – 12/2000
Daniel Kemp	Graduate student, Toxicology, 6/2000- 5/2001
Charles DiTusa, Ph.D.	Postdoctoral fellow, 9/99 – 12/2000
Allison Wood	Undergraduate research, 1/99 – 5/2000
Natasha McMillan	Undergraduate research, 5/99 – 5/2000
Rachel Turner	Undergraduate research, 1/98 – 5/99
Byran Campbell	Undergraduate research, 3/98 – 5/99
Zhiwei (David) Zhang, M.S.	Graduate student, 9/97 – 5/99
Anita Pegram	Undergraduate research, 1/97 - 6/98
Bradley Glasscock	Undergraduate research, 1/97 - 6/98
Shannon Bailey, B.S.	Undergraduate research, 1/97 - 8/97
Mohammad Banawan	Undergraduate research, 1/95 - 12/96
Jason Dura	Undergraduate research, 5/96 - 8/96
Elke Stahl, Ph.D.	Postdoctoral fellow, 5/93 - 11/94
Christina Seugling	Undergraduate research, 1/94 – 12/94
James Whisnant, III	Undergraduate research, 1/93 - 12/94
Chyoan Wang, Ph.D.	Research Assistant Professor, 9/93 - 2/95; Postdoctoral fellow, 3/90 - 8/93
Kalpana Krishnaswami, M.S.	Visiting scientist, 3/93 - 5/94
Oluwatoyin Sofowora, B.S.	Graduate student, 2/93 - 6/94
Mu-Lan Lee, B.S.	Graduate student, 9/90 - 7/92
Rosita Rodriguez, B.S.	Graduate student, 9/91 - 7/92
Jie Wang, B.S.	Visiting scientist, 5/91 - 4/92
Claudia Senekowitsch, Ph.D.	Postdoctoral fellow, 10/91 - 7/92

Undergraduates supervised for undergraduate research at the University of Texas at Austin from 7/88-7/92:  
Michael Laubach, '89; Roger Pinón, '89; Rosita Rodriguez, '90; Kathy Anderson, '90; Joann Gee, '90;  
Rebecca Schuhmacher Malone, '91; Tahn Lien '91; Michael Reynolds, '91; Debra Baggett, '91; Hollie Stallings, '92.

## University Service

2016-	Research and Scholarship in Pharmacy
2014-2018	Executive Committee, Curriculum in Toxicology
2014-	Member, Conflict of Interest Committee, Eshelman School of Pharmacy
2013-2014	Member, Curriculum Transformation Oversight Committee
2013-2014	Member, Council on Healthcare, Education, Leadership, Practice Committee, HELPRx
2013-2014	Member, Committee to Revise School Faculty Governance Document
2013-	Admissions Committee, Biological and Biomedical Sciences Program
2012-	Assistant Chair, Division of Molecular Pharmaceutics, Eshelman School of Pharmacy, UNC-CH
2012- 2016	Member, Curriculum Assessment Committee, Eshelman School of Pharmacy
2009-	Member, Graduate Education Committee, Eshelman School of Pharmacy
2009-	Director of Graduate Studies, DPMP, Eshelman School of Pharmacy, UNC-CH
2009-4/2010	Chair, Administrative Review Committee for the Director of the Office of Animal Care and Use
2007 - 2012	Chair, Advisory Committee: Strategic Planning and Internationalization, School of Pharmacy, UNC-CH
2005 – 2007	Member, PharmD/PhD Advisory Committee, School of Pharmacy, UNC-CH
1993-2008	Member, Institutional Animal Care and Use Committee, UNC Chapel Hill
1994-2007	Organize the UNC/Glaxo Smith Kline Seminar in Clinical Pharmacology
1/2005-2006	Member, Scientific Advisory Board, Development Core, UNC Center for AIDS Research
11/2001	Member, Seed Grant Review Committee, School of Pharmacy, UNC Chapel Hill
Fall, 2001	Member, UNC Selection Committee for the Keck Scholar
12/1999	Reviewer, NSF Major Research Instrumentation Proposals, UNC Chapel Hill
1996-99	Member, Mass Spectrometry Advisory Board, UNC Chapel Hill
1995-98	Member, Curriculum Committee, School of Pharmacy, UNC Chapel Hill
1993-95	Member, Search Committee for Chair of Pharmaceutics, School of Pharmacy, UNC Chapel Hill
1990-92	Member, Library Committee, College of Pharmacy, The University of Texas at Austin
1990-92	Faculty Advisor, Nu Chapter, Rho Chi Honor Society in Pharmacy, The University of Texas at Austin
1988-92	Member, Curriculum Committee, College of Pharmacy, The University of Texas at Austin

## Teaching

### Instructor for organized didactic classes in the Eshelman School of Pharmacy, University of North Carolina at Chapel Hill:

<u>Academic Yr.</u>	<u>Semester</u>	<u>Course number and title (*indicates yr in lab for professional students)</u>
2021-2022	F	TOXC442/ENVR442
	F	PHCY 725, Research and Scholarship in Pharmacy 2
	Sp	DPMP 815, Drug Metabolism Module (course coordinator)
	Sp	DPET 817, Making Medicines: The Process of Drug Development Module Block 1. (course coordinator, primary instructor) Module Block 2 (course coordinator)
	Sp	PHCY 624, Research and Scholarship in Pharmacy 1
	Sp	PHCY 726, Research and Scholarship in Pharmacy 3
2020-2021	F	TOXC442/ENVR442
	F	PHCY 725, Research and Scholarship in Pharmacy 2
	Sp	DPMP 815, Drug Metabolism Module (course coordinator)
	Sp	DPET 817, Making Medicines: The Process of Drug Development Module Block 1. (course coordinator, primary instructor) Module Block 2 (course coordinator)
	Sp	PHCY 624, Research and Scholarship in Pharmacy 1
	Sp	PHCY 726, Research and Scholarship in Pharmacy 3
2019-2020	F	TOXC442/ENVR442
	F	PHCY 725, Research and Scholarship in Pharmacy 2
	Sp	DPMP 815, Drug Metabolism Module (course coordinator)
	Sp	DPET 817, Making Medicines: The Process of Drug Development Module Block 1. (course coordinator, primary instructor) Module Block 2 (course coordinator)
	Sp	PHCY 624, Research and Scholarship in Pharmacy 1

	Sp	PHCY 726, Research and Scholarship in Pharmacy 3
2018-2019	F F F Sp Sp Sp	PHAR 801, Ethical Dilemmas in Research TOXC442/ENVR442 PHCY 725, Research and Scholarship in Pharmacy 2 DPMP 815, Drug Metabolism Module (course coordinator) PHCY 624, Research and Scholarship in Pharmacy 1 PHCY 726, Research and Scholarship in Pharmacy 3
2017-2018	F, Sp F F F Sp Sp Sp	Pharmacy 480, Honors Seminar (course coordinator) PHAR 801, Ethical Dilemmas in Research TOXC442/ENVR442 PHCY 725, Research and Scholarship in Pharmacy 2 PHCY 512, Pharmaceutics and Drug Delivery Systems MOPH 890, Drug Metabolism Module (course coordinator) DPET 817, Making Medicines: The Process of Drug Development Module Block 2. (course coordinator)
2016-2017	Sp Sp F F F Sp Sp	PHCY 624, Research and Scholarship in Pharmacy 1 PHCY 726, Research and Scholarship in Pharmacy 3 Pharmacy 480, Honors Seminar (course coordinator) MOPH 810, Drug Metabolism PHAR 801, Ethical Dilemmas in Research TOXC442/ENVR442 MOPH 890, Drug Metabolism (course coordinator) DPET 817, Making Medicines: The Process of Drug Development Module Block 2. (course coordinator)
2015-2016	Sp Sp Su F, Sp F F F	PHCY 624, Research and Scholarship in Pharmacy 1 MOPH 890, Pharmacokinetics and Drug Metabolism in Drug Delivery Pharmacy 500, Applied Math Module Pharmacy 480, Honors Seminar (course coordinator) MOPH 810, Drug Metabolism PHAR 801, Ethical Dilemmas in Research TOXC442/ENVR442
2014-2015	Sp F F F F	Pharmacy 412, Pharmacodynamics (course coordinator) Pharmacy 480, Honors Seminar (course coordinator) MOPH 810, Drug Metabolism PHAR 801, Ethical Dilemmas in Research TOXC442/ENVR442
2013-2014	Sp F F Sp, F F	Pharmacy 412, Pharmacodynamics (course coordinator) MOPH 810, Drug Metabolism PHAR 801, Ethical Dilemmas in Research Pharmacy 480, Honors Seminar (course coordinator) TOXC442/ENVR442
2012-2013	Sp F Sp, F F	Pharmacy 412, Pharmacodynamics MOPH 810, Drug Metabolism Pharmacy 480, Honors Seminar TOXC442/ENVR442
2011-2012	Sp F Sp, F F	Pharmacy 412, Pharmacodynamics MOPH 810, Drug Metabolism Pharmacy 480, Honors Seminar TOXC442/ENVR442
2010-2011	Sp Sp F Sp, F F	Pharmacy 412, Pharmacodynamics Pharmacy 850, Pharmaceutical Analysis MOPH 810, Drug Metabolism Pharmacy 480, Honors Seminar TOXC442/ENVR442
2009-2010	Sp Sp F F	Pharmacy 412, Pharmacodynamics Pharmacy 850, Pharmaceutical Analysis MOPH 810, Drug Metabolism TOXC442/ENVR442

2008-2009	Sp	Pharmacy 412, Pharmacodynamics
	Sp	Pharmacy 850, Pharmaceutical Analysis
2007-2008	Sp	Pharmacy 412, Pharmacodynamics
	Sp	Pharmacy 850, Pharmaceutical Analysis
	F	Pharmacy 840, Biopharmaceutics
	F	Pharmacy 855, Drug Metabolism
2006-2007	Sp	Pharmacy 412, Pharmacodynamics
	Sp	Pharmacy 850, Pharmaceutical Analysis
2005-2006	Sp	Pharmacy 68, Pharmacodynamics
2004-2005	Sp	Pharmacy 68, Pharmacodynamics
2004-2005	Sp	DDDD 155, Drug Metabolism
2004-2005	F	DDDD 191, Pharmaceutical Analysis
2003-2004	Sp	Pharmacy 68, Pharmacodynamics
2002-2003	F	DDDD 191, Pharmaceutical Analysis
2002-2003	Sp	DDDD 155, Drug Metabolism
2002-2003	F	Pharmacy 72, Biopharmaceutics and Pharmacokinetics
2001-2002	F	Pharmacy 72, Biopharmaceutics and Pharmacokinetics
2000-2001	F	Pharmacy 72, Biopharmaceutics and Pharmacokinetics
2000-2001	Sp	DDDD 155, Drug Metabolism
2000-2001	F	DDDD 191, Pharmaceutical Analysis
1999-2000	F	Pharmacy 72, Biopharmaceutics and Pharmacokinetics
1999-2000	F	Pharmacy 156, Principles of Pharmacokinetics
1998-99	F	Pharmacy 72, Biopharmaceutics and Pharmacokinetics
1998-99	F	Pharmacy 191, Pharmaceutical Analysis
1998-99	Sp	Pharmacy 82, Clinical Pharmacokinetics
1998-99	Sp	Pharmacy 172, Drug Metabolism
1997-98	F	Pharmacy 191, Pharmaceutical Analysis
1997-98	F	Pharmacy 72, Biopharmaceutics and Pharmacokinetics
1997-98	Sp	Pharmacy 82, Clinical Pharmacokinetics
1997-98	Sp	Pharmacy 172, Drug Metabolism
1996-97	F	Pharmacy 191, Pharmaceutical Analysis
1996-97	F	Pharmacy 72, Biopharmaceutics and Pharmacokinetics
1996-97	Sp	Pharmacy 82, Clinical Pharmacokinetics
1995-96	F	Pharmacy 54, Biopharmaceutics and Pharmacokinetics
1995-96	Sp	Pharmacy 182, Clinical Pharmacokinetics
1995-96	Sp	Pharmacy 256, Advanced Pharmacokinetics
1994-95	F	Pharmacy 54, Biopharmaceutics and Pharmacokinetics
1994-95	Sp	Pharmacy 182, Clinical Pharmacokinetics
1993-94	Sp	Pharmacy 182, Clinical Pharmacokinetics
1993-94	Sp	Pharmacy 256, Advanced Pharmacokinetics
1993-94	F	Pharmacy 361, Seminar in Pharmaceutics
1993-94	F	Pharmacy 54, Biopharmaceutics and Pharmacokinetics
1993-94	F	Pharmacy 191, Pharmaceutical Analysis
1992-93	F	Pharmacy 54, Biopharmaceutics and Pharmacokinetics
1992-93	Sp	Pharmacy 182, Clinical Pharmacokinetics
1992-93	Sp	Pharmacy 165, Drug Metabolism

**Instructor for organized classes in the College of Pharmacy, The University of Texas at Austin:**

<u>Academic Yr.</u>	<u>Semester</u>	<u>Course number and title</u>
1988-92	F,Sp,Su	Pharmacy 160, 260, 360, Pharmaceutical Problems for undergraduates Pharmacy 277K, 377K, Advanced Problems in Basic Pharmaceutical Sciences (Michael Laubach, '89; Roger Pinón, '89; Rosita Rodriguez, '90; Kathy Anderson, '90; Joann Gee, '90; Rebecca Schuhmacher Malone, '91; Tahn Lien '91; Michael Reynolds, '91; Debra Baggett, '91; Hollie Stallings, '92)
1988-89	F	Pharmacy 345, Biopharmaceutics and Pharmacokinetics
1988-89	F	Pharmacyt 145K, Pharmaceutics III Laboratory
1988-89	Sp	Pharmacy 345, Biopharmaceutics and Pharmacokinetics
1988-89	Sp	Pharmacyt 145K, Pharmaceutics III Laboratory
1989	Su	Pharmacy 345, Biopharmaceutics and Pharmacokinetics
1989-90	F	Pharmacy 345, Biopharmaceutics and Pharmacokinetics
1989-90	F	Pharmacyt 145K, Pharmaceutics III Laboratory



1989-90	F	Pharmacy 296A, Seminar in Pharmaceutics
1989-90	Sp	Pharmacy 682MA, Advanced Biopharmaceutical Analysis
1989-90	Sp	Pharmacy 679H, Pharmacy Honors Tutorial (1 student)
1989-90	Su	Pharmacy 345, Biopharmaceutics and Pharmacokinetics
1990-91	F	Pharmacy 345, Biopharmaceutics and Pharmacokinetics
1990-91	Sp	Pharmacy 383P, Advanced Pharmacokinetics
1990-91	Su	Pharmacy 345, Biopharmaceutics and Pharmacokinetics
1990-91	Sp	Pharmacy 679H, Pharmacy Honors Tutorial (2 students)
1990-91	Su	Pharmacy 345, Biopharmaceutics and Pharmacokinetics
1991-92	F	Pharmacy 345, Biopharmaceutics and Pharmacokinetics
1991-92	F	Pharmacy 145K, Pharmaceutics III Laboratory
1991-92	Sp	Pharmacy 345L, Clinical Pharmacokinetics
1992-93	F	Pharmacy 54, Pharmacokinetics
1992-93	Sp	Pharmacy 345L, Clinical Pharmacokinetics

1982 Invited instructor for the Basic Pharmacokinetic Workshop, Division of Clinical Pharmacology  
Carl-Korth Institut for Cardiovascular Research, U. Erlangen-Nuremburg, West Germany, Sept. 6-10.

### Book Chapters

Philip C. Smith, *Pharmacokinetics of Drug Metabolites*, In: Handbook of Drug Metabolism, Ed. P.G. Pearson, L. Weinkers, Marcel Dekker, New York, 2019, pp. 17-59.

Philip C. Smith, *Pharmacokinetics of Drug Metabolites*, In: Handbook of Drug Metabolism, Ed. P.G. Pearson, L. Weinkers, Marcel Dekker, New York, 2008, pp. 17-59.

Philip C. Smith, *Pharmacokinetics of Drug Metabolites*, In: Handbook of Drug Metabolism, Ed. T.F. Woolf, Marcel Dekker, New York, 1999, pp. 1-47.

### Webinar

Philip C. Smith, *Quantitative Targeted Absolute Proteomics (QTAP): Methods and Applications for Studies of Proteins that Modulate Xenobiotic Disposition*, Webinar, International Society for the Study of Xenobiotics, October 26, 2017.  
<https://www.youtube.com/watch?v=W7Ah6kNiPRg&feature=youtu.be>

### Publications (Refereed Articles) h-Index (Scopus) = 36

1. MJ Haney, Y Zhao, JK Fallon, W Yue, SM Li, EE Lentz, D Erie, PC **Smith**, EV Batrakova. Extracellular vesicles as drug delivery system for treatment of neurodegenerative disorders: optimization of the cell source. *Adv Nanobiomed Res.* 2021, 1(12):2100064. doi: 10.1002/anbr.202100064. Epub 2021 Jun 29. PMID: 34927169.
2. BL Morse, LH Chen, JT Catlow, JK Fallon, PC Smith, KM Hillgren. Expansion of Knowledge on OCT1 Variant Activity *In Vitro* and *In Vivo* Using Oct1/2<sup>-/-</sup> Mice. *Front Pharmacol.* (2021) PMID: 33658943.
3. L Cuko, Z Duniec-Dmuchowski, EA Rondini, A Pant, JK Fallon, EM Wilson, NJ Peraino, JA Westrick, PC Smith, TA Kocarek. Negative regulation of human hepatic Constitutive Androstane Receptor by cholesterol synthesis inhibition: Role of sterol regulatory element binding proteins. *Drug Metab Dispos.* 2021 49(8):706-717. doi: 10.1124/dmd.120.000341. Epub 2021 May 19. PMID: 34011532.
4. BL Morse, JK Fallon, A Kolar, AT Hogan, PC Smith, KM Hillgren. Comparison of hepatic transporter tissue expression in rodents and interspecies hepatic OCT1 activity, *AAPS J* (2021). *AAPS J.* 2021; 23(3):58. doi: 10.1208/s12248-021-00583-z. PMID: 33903987.
5. A Hammid, JK Fallon, T Lassila, G Salluce, PC Smith, A Tolonen, A Sauer, A Urtti, P Honkakoski. Carboxylesterase activities and protein expression in rabbit and pig ocular tissues. *Mol Pharm.* 18(3):1305-1316 (2021). PMID: 33595329.
6. J Bezençon, C Saran, Hussner, JJ Beaudoin, Y Zhang, H Shen, JK Fallon, PC Smith, HE Meyer Zu Schwabedissen, KLR Brouwer. Endogenous Coproporphyrin I and III are Altered in Multidrug Resistance-Associated Protein 2-Deficient (TR(-)) Rats. *J Pharm Sci.* 110 (1):404-411. (2021). PMID: 33058892.
7. RJ Qasem, JK Fallon, M Nautiyal, M Mosedale, PC Smith. Differential detergent fractionation of membrane protein from small samples of hepatocytes and liver tissue for quantitative proteomic analysis of drug metabolizing enzymes and transporters. *J Pharm Sci.* 2021 Jan;110(1):87-96. doi: 10.1016/j.xphs.2020.10.037. Epub 2020 Oct 22. PMID: 33148403.

8. R Khatri, N Kulick, RJB Rementer, K Fallon, C Sykes, AP Schauer, MM Malinen, M Mosedale, PB Watkins, ADM Kashuba, KA Boggess, PC Smith, KLR Brouwer, CR Lee. Pregnancy-Related hormones increase nifedipine metabolism in human hepatocytes by inducing CYP3A4 expression. *J Pharm Sci.* 110(1):412-421 (2021) PMID: 32931777.
9. M Nautiyal, RJ Qasem, JK Fallon, KK Wolf, J Liu, D Dixon, PC Smith, M Mosedale, Characterization of primary mouse hepatocyte spheroids as a model system to support investigations of drug-induced liver injury. *Toxicology In Vitro* 2021 70: PMID: 33022361.
10. A Devanathan, JF Fallon, N White, A Schauer, B Van Horne, K Blake, C Sykes, M Kovarova, L Adamson, L Remling-Mulder, P Luciw, JV Garcia, R Akkina, J Pirone, PC Smith, and ADM Kashuba. Antiretroviral penetration and drug transporter concentrations in the spleens of three preclinical animal models and humans. *Antimicrob Agents Chemother.* 64(10): 1384-1320. (2020). PMID: 32661005.
11. BL Morse, A Kolar, LR Hudson, AT Hogan, LH Chen, RM Brackman, GA Sawada, JK Fallon JK, PC Smith, KM Hillgren. Pharmacokinetics of Organic Cation Transporter 1 (OCT1) Substrates in Oct1/2 Knockout Mice and Species Difference in Hepatic OCT1-Mediated Uptake. *Drug Metab Dispos.* 48: 93-105 (2020) PMID: 31771949.
12. JE Speer, Y Wang, JK Fallon, PC Smith, NL Allbritton, Evaluation of human primary intestinal monolayers for drug metabolizing capabilities. *J Biol Eng.* 13:82 (2019). PMID: 31709009.
13. S Fontaine, A Santi, R Reid, PC Smith, G Ashley, D Santi, PLX038: A PEGylated prodrug of SN-38 independent of UGT1A1 activity, *Cancer Chemother Pharmacol* 85: 225-229 (2020). PMID: 31707444.
14. E Burgunder, JK Fallon, N White, AP Schauer, C Sykes, L Remling-Mulder, M Kovarova, L Adamson, P Luciw, JVGarcia, R Akkina, PC Smith, ADM Kashuba Antiretroviral drug concentrations in lymph nodes: a cross-species comparison of the effect of drug transporter expression, viral infection, and sex in humanized mice, nonhuman primates, and humans. *J Pharmacol Exper Ther.* 370: 360-368 (2019). PMID: 31235531,.
15. B Prasad, B Achour, P Artursson, CE Hop, Y Lai, PC Smith, J Barber, KR Wisniewski, D Spellman, Y Uchida, M Zientek, JD Unadkat, A Rostami-Hodjegan. Towards a consensus on applying quantitative LC-MS/MS proteomics in translational pharmacology research: A White Paper *Clin Pharmacol Ther.* 106: 525-543 (2019). PMID: 31175671.
16. R Khatri, JK Fallon, RJB Rementer, NT Kulick, CR Lee, PC Smith. Targeted quantitative proteomic analysis of drug metabolizing enzymes and transporters by nano LC-MS/MS in the sandwich cultured human hepatocyte model, *J Pharmacol Toxicol Methods.* 98: 106590 (2019) PMID: 31158457.
17. JE Speer, DB Gunasekara, Y Wang, JK Fallon, PJ Attayek, PC Smith, CE Sims, NL Allbritton, Molecular transport through primary human small intestinal monolayers by culture on a collagen scaffold with a gradient of chemical cross-linking. *J Biological Eng* 27: 13:36 (2019). PMID: 31061676.
18. S Dubaisi, JA Caruso, R Gaedigk, CA Vyhldal CA, PC Smith, RN Hines, TA Kocarek, M Runge-Morris M, Developmental expression of the cytosolic sulfotransferases in human liver, *Drug Metabol Dispos* 47: 592-600 (2019). PMID: 30885913.
19. JP Émond, A Labriet, S Desjardins, M Rouleau, L Villeneuve, H Hovington, H Brisson, L Lacombe, D Simonyan, P Caron, M Périgny, B Têtu, JK Fallon, K Klein, PC Smith, UM Zanger, C Guillemette, E Lévesque. Factors affecting interindividual variability of hepatic UGT2B17 protein expression examined using a novel specific monoclonal antibody. *Drug Metab Dispos* 47: 444-452, (2019). PMID: 30819787.
20. DB Gunasekara, J Speer, Y Wang, DL Nguyen, MI Reed, NM Smiddy, JS Parker, JK Fallon, PC Smith, CE Sims, ST Magness, NL Allbritton. A monolayer of primary colonic epithelium generated on a scaffold with a gradient of stiffness for drug transport studies. *Anal Chem.* 90:13331-13340 (2018). PMID: 30350627.
21. JK Fallon, N Houvig, CL Booth-Genthe, PC Smith. Quantification of membrane transporter proteins in human lung and immortalized cell lines using targeted quantitative proteomic analysis by isotope dilution nanoLC-MS/MS. *J Pharm Biomed Anal.* 154: 150-157 (2018). PMID: 29544106.
22. P Shi, M Liao, BC Chuang, R Griffin, J Shi, M Hyer, JK Fallon, PC Smith, C Li, CQ Xia. Efflux transporter breast cancer resistance protein dominantly expresses on the membrane of red blood cells, hinders partitioning of its substrates into the cells, and alters drug-drug interaction profiles. *Xenobiotica*, 1648: 1173-1183 (2018). PMID: 29098941.
23. B Achour, A Dantonio, M Niosi, JJ Novak, JK Fallon, J Barber, PC Smith, A Rostami-Hodjegan, TC Goosen. Quantitative characterization of major hepatic UDP-glucuronosyltransferase enzymes in human liver microsomes: Comparison of two proteomic methods and correlation with catalytic activity. *Drug Metab Dispos*, 4: 1102-1112 (2017). PMID: 28768682.

24. CG Thompson, JK Fallon, M Mathews, P Charlins, L Mulder, M Kovarova, L Adamson, N Srinivas, A Schauer, C Sykes, P Luciw, JV Garcia, R Akkina, PC Smith, ADM Kashuba. Multimodal analysis of drug transporter expression in gastrointestinal tissue. *AIDS*. 31: 1669-1678 (2017). PMID: 28590331.
25. JK Fallon, PC Smith, CQ Xia, MS Kim. Quantification of four efflux drug transporters in liver and kidney across species using targeted quantitative proteomics by isotope dilution nanoLC-MS/MS. *Pharmaceut Res* 33: 2280-2288 (2016). PMID: 27356525.
26. GN Asher, JK Fallon, PC Smith. UGT concentrations in human rectal tissue after multidose, oral curcumin. *Pharmacol Res Perspect*. 23;4(2) (2016). PMID: 27069633.
27. KM Knights, SM Spencer, JK Fallon, N Chau, PC Smith, JO Miners. Scaling factors for the in vitro-in vivo extrapolation (IV-IVE) of renal drug and xenobiotic glucuronidation clearance. *Br J Clin Pharmacol*. 81: 1153-1164 (2016) PMID: 26808419.
28. G Margaillan, M Rouleau, K Klein, JK Fallon, P Caron, L Villeneuve, PC Smith, UM Zanger, C Guillemette. Multiplexed targeted quantitative proteomics predicts hepatic glucuronidation potential. *Drug Metab Dispos*. Sep;43(9):1331-1335. (2015). PMID: 26076694.
29. G Margaillan, M Rouleau, JK Fallon, P Caron, L Villeneuve, V Turcotte, PC Smith, MS Joy, and C Guillemette. Quantitative profiling of human renal UDP-glucuronosyltransferases and glucuronidation activity: A comparison of normal and tumoral kidney tissues, *Drug Metab Dispos* 43:611-619, (2015) PMID: 25650382.
30. JW Higgins, JQ Bao, AB Ke, JR Manro, JK Fallon, PC Smith, MJ Zamek-Gliszczynski. Utility of Oatp1a/1b-knockout and OATP1B1/3-humanized mice in the study of OATP-mediated pharmacokinetics and tissue distribution: case studies with pravastatin, atorvastatin, simvastatin, and carboxydichlorofluorescein. *Drug Metab Dispos*. 42:182-92 (2014). PMID: 24194513.
31. JK Fallon, H Neubert, TC Goosen, PC Smith. Targeted precise quantification of 12 human recombinant UGT1As and -2Bs using nanoUPLC-MS/MS with selected reaction monitoring, *Drug Metab Dispos* 41:2076-2080 (2013). PMID: 24046331.
32. JK Fallon, H Neubert, TC Goosen, PC Smith. Targeted quantitative proteomics for the analysis of 14 UGT1As and -2Bs in human liver using nanoUPLC-MS/MS with selected reaction monitoring, *J Proteome Res*. 12:4402-4413 (2013), PMID: 23977844
33. DE Harbourt, JK Fallon, S Ito S, T Baba, JK Ritter, GL Glish, PC Smith. Quantification of human uridine-diphosphate glucuronosyl transferase 1A isoforms in liver, intestine, and kidney using nanobore liquid chromatography-tandem mass spectrometry. *Anal Chem*. 84(1):98-105. (2012). PMID 22050083.
34. SJ Schrieber, RL Hawke, Z Wen, PC Smith, R Reddy, AS Wahed, SH Belle, NH Afdhal, VJ Navarro, CM Meyers, E Doo, MW Fried. Differences in the disposition of silymarin between patients with non- alcoholic fatty liver disease and chronic hepatitis C. *Drug Metab. Dispos*. 39: 2182-2190, (2011). PMID: 21865319
35. MS Joy, T Boyette, Y Hu, J Wang, SL La M, Hogan, PW Stewart, RJ Falk, MA Dooley, PC Smith. Effects of uridine diphosphate glucuronosyltransferase 2B7 and 1A7 pharmacogenomics and patient clinical parameters on steady-state mycophenolic acid pharmacokinetics in glomerulonephritis. *Eur J Clin Pharmacol*. 66:1119-1130, (2010), PMID: 20567810.
36. RL Hawke, SJ Schrieber, TA Soule, Z Wen, PC Smith, KR Reddy, AS Wahed, SH Belle, NH Afdhal, VJ Navarro, J Berman, QY Liu, E Doo, MW Fried; SyNCH Trial Group. Silymarin ascending multiple oral dosing phase I study in noncirrhotic patients with chronic hepatitis C. *J Clin Pharmacol*. 50:434-449 (2010). PMID: 19841158.
37. JQ Dong, PC Smith. Glucuronidation and covalent protein binding of benoxaprofen and flunoxaprofen in sandwich-cultured rat. *Drug Metab Dispos*. 37:2314-2322 (2009). PMID: 19773537.
38. MS Joy, T Hilliard, Y Hu, SL Hogan, J Wang, RJ Falk RJ, PC Smith. Influence of clinical and demographic variables on mycophenolic acid pharmacokinetics in antineutrophil cytoplasmic antibody-associated vasculitis. *Ann Pharmacother*. 43:1020-1027 (2009). PMID:19491317.
39. AH Harrill, PB Watkins, S Su, PK Ross, DE Harbourt, IM Stylianou, GA Boorman, MW Russo, RS Sackler, SC Harris, PC Smith, R Tennant, M Bogue, K Paigen, C Harris, T Contractor. T Wiltshire, I Rusyn, DW Threadgill. Mouse population-guided resequencing reveals that variants in CD44 contribute to acetaminophen-induced liver injury in humans. *Genome Res*. 19:1507-1515 (2009). PMID: 19416960.
40. MS Joy, T Hilliard, Y Hu, SL Hogan, MA Dooley, RJ Falk, PC Smith. Pharmacokinetics of mycophenolic acid in patients with lupus nephritis. *Pharmacotherapy*. 29: 7-16 (2009). PMID: 19113793

41. MZ Wang, JQ Wu, JB Dennison, AS Bridges, SD Hall, S Kornbluth, RR Tidwell, PC Smith, RD Voyksner, MF Paine, JE Hall. A gel-free MS-based quantitative proteomic approach accurately measures cytochrome P450 protein concentrations in human liver microsomes. *Proteomics*. 8:4186-4196 (2008).
42. SJ Schrieber, Z Wen, M Vourvahis, PC Smith, MW Fried, AD Kashuba, RL Hawke. The pharmacokinetics of silymarin is altered in patients with hepatitis C virus and nonalcoholic Fatty liver disease and correlates with plasma caspase-3/7 activity. *Drug Metab Dispos*. 36(9):1909-1916 (2008). PMID:18566043
43. SR Miranda, JK Lee, KL Brouwer, Z Wen Z, PC Smith, RL Hawke. Hepatic metabolism and biliary excretion of silymarin flavonolignans in isolated perfused rat livers: role of multidrug resistance-associated protein 2 (Abcc2). *Drug Metab Dispos*. Nov;36(11): 2219-2226 (2008). PMID: 18687803
44. ST Stern, MNTallman, KK Miles, JK Ritter, PC Smith. Androgen regulation of renal UGT1A1 in rats, *Drug Metab Dispos*. 36:1737-1739 (2008).
45. JK Fallon, DE Harbourt, SH Maleki, FK Kessler, JK Ritter, PC Smith. Absolute quantification of human uridine-diphosphate glucuronosyl transferase (UGT) enzyme Isoforms 1A1 and 1A6 by tandem LC-MS, *Drug Metab Letters* 2: 210-222 (2008). PMID:19356096
46. Z. Wen, TE Dumas, SJ Schrieber, RL Hawke, MW Fried, PC Smith. Pharmacokinetics and metabolic profile of free, conjugated, and total silymarin flavonolignans in human plasma after oral administration of milk thistle extract. *Drug Metab Dispos*. 36: 65-72 (2008). PMID:17913795
47. HL Tappouni, J Rublein, BJ Donovan, SB Hollowell, HC Tien, SS Min, D Theodore, NL Rezk, PC Smith, MN Tallman, RH Raasch, AD Kashuba. The effect of omeprazole on the plasma concentrations of indinavir when given alone and in combination with ritonavir. *Am J Health Syst Pharm*. 65, 422-428 (2008).
48. CA Stoddart, P Joshi, B Sloan, JC Bare, PC Smith, GP Allaway, CT Wild, and DE Martin. Potent Activity of the HIV-1 Maturation Inhibitor Bevirimat in SCID-hu Thy/Liv Mice. *PLoS ONE*. Nov 28;2(11):e1251 (2007).
49. M. Suzuki, D. Yu, S.L. Morris-Natschke, P.C. Smith and K. H. Lee, "Anti-AIDS Agents 66. Syntheses and Anti-HIV Activity of Phenolic and Aza 3',4'-Di-/O/-(-)-Camphanoyl-(+)-/Cis/-Khellactone (DCK) Derivatives," *Bioorg. Med. Chem*. 15: 6852-6858 (2007).
50. DE Martin, R Blum, J Wilton, J Doto, H Galbraith, GL Burgess, PC Smith, C Ballow. Safety and pharmacokinetics of Bevirimat (PA-457), a novel inhibitor of human immunodeficiency virus maturation, in healthy volunteers. *Anitmicrob Agents Chemother* 51: 3063-3066 (2007).
51. Z Wen, MN Tallman, SY Ali and PC Smith. UDP-glucuronosyltransferase 1A1 is the principal enzyme responsible for etoposide glucuronidation in human liver and intestinal microsomes: Structural characterization of phenolic and alcoholic glucuronides of etoposide and estimation of enzyme kinetics. *Drug Metab. Dispos*. 35:371-380 (2007).
52. Z Wen, DE Martin, P Bullock, KH Lee and PC Smith. Glucuronidation of anti-HIV drug candidate bevirimat: identification of human UDP-glucuronosyltransferases and species differences. *Drug Metab Dispos* 35:440-448 (2007).
53. ST Stern, MN Tallman, KK Miles, JK Ritter, RE Dupuis and PC Smith. Gender-related differences in mycophenolate mofetil-induced gastrointestinal toxicity in rats. *Drug Metab. Dispos*. 35:449-454, (2007). PMID:17172313
54. MN Tallman, K Miles, F Kessler F, J Neilson, X Tian, JK Ritter, PC Smith. The contribution of intestinal UDP-glucuronosyltransferases in modulating 7-ethyl-10-hydroxy-camptothecin (SN-38)-induced gastrointestinal toxicity in rats. *J Pharmacol Exp Ther*. 320:29-37 (2007). PMID: 17003228
55. K.K Miles, F.K. Kessler, L.J. Webb, P.C. Smith and J.K. Ritter, Adenovirus-mediated gene therapy to restore expression and functionality of multiple UDP-glucuronosyltransferase 1A enzymes in Gunn rat liver *J. Pharmacol. Exp. Ther*. 318(3):1240-1247 (2006). PMID: 16763095
56. K.K Miles, F.K. Kessler, P.C. Smith and J.K. Ritter. Characterization of rat intestinal microsomal UDP-glucuronosyltransferase activity towards mycophenolic acid. *Drug Metab Dispos*. 34:1632-1639 (2006). PMID:16790558
57. Z. Wen, S.T. Stern, D.E. Martin, K.H. Lee and P.C. Smith, Structural characterization of anti-HIV drug candidate PA-457 [3-O-(3',3'-dimethylsuccinyl)-betulinic acid] and its acyl glucuronides in rat bile and evaluation of in vitro stability in human and animal liver microsomes and plasma. *Drug Metab Dispos*. 34(9):1436-1442 (2006).
58. J.H. Liu and PC Smith, Predicting the pharmacokinetics of acyl glucuronides and their parent compounds in disease states, *Current Drug Metab*. 7: 147-163 (2006). PMID: 16472105
59. KK Miles, ST Stern, PC Smith, FK Kessler, S Ali, JR Ritter, An investigation of human and rat liver microsomal mycophenolic acid glucuronidation: Evidence for a principle role of UGT1A enzymes and species differences in UGT1A

- specificity, *Drug Metab. Dispos.* 33: 1513-1520 (2005). PMID:16033946
60. J.Q. Dong, J.H. Liu, P.C. Smith, Role of benoxaprofen and flunoxaprofen acyl glucuronides in covalent binding to rat plasma and liver proteins in vitro, *Biochemical Pharmacol.* 70(6):937-948 (2005).
  61. M Suzuki, YT Li, PC Smith, JA Swenberg, DE Martin, SL Morris-Natschke, K.H. Lee, Investigation of the in vitro oxidative metabolism of 3',4'-di-O-(O)-camphanoyl-(+)-cis-khellactone (DCK) derivatives as potent anti-HIV agents. *Drug Metab. Dispos.* 33: 1588-1592 (2005).
  62. M.N. Tallman, J. K. Ritter, and P.C. Smith, Differential rates of glucuronidation for 7-ethyl-10-hydroxy-camptothecin (SN-38) lactone and carboxylate in human and rat microsomes and recombinant UGT isoforms, *Drug Metab. Dispos.* 33(7): 977-983 (2005). PMID: 15833930
  63. O.J. Naderer, R. E. Dupuis, E.L. Heinzen, K. Wiwattanawongsa, M.W. Johnson, P. C. Smith, The influence of norfloxacin and metronidazole on the disposition of mycophenolate mofetil. *J. Clin. Pharmacol.* 45: 219-226 (2005). PMID:15647415
  64. L. Xie, D. Yu, C. Wild, G. Allaway, J. Turpin, P.C. Smith and K.H. Lee, Anti-AIDS Agents. 52. Synthesis and anti-HIV activity of hydroxymethyl (3'R,4'R)-3',4'-di-O-(S)-camphanoyl-(+)-cis-khellactone derivatives. *J. Med. Chem.* 47: 756-760 (2004).
  65. M.N. Tallman, S.Y. Ali SY, P.C. Smith, Altered pharmacokinetics of omeprazole in cystic fibrosis knockout mice relative to wild-type mice. *Drug Metab Dispos*32(9):902-905 (2004).
  66. K. Wiwattanawongsa, E.L. Heinzen, D.C. Kemp, R.E. Dupuis and P.C. Smith, Determination of mycophenolic acid and its phenol glucuronide metabolite in human plasma and urine by high-performance liquid chromatography. *J Chromatogr B.* 763: 35-45 (2001).
  67. S.G. Kulkarni, A.A. Pegram, P.C. Smith: Disposition of acetaminophen and indocyanine green in cystic fibrosis knockout mice. *PharmSci 2: Article 18, 2000.*
  68. J.Q. Dong, L.Y. Ni, C.S. Scott, G.Z. Retsch-Bogart and P.C. Smith, Pharmacokinetics of ibuprofen enantiomers in children with cystic fibrosis. *J Clin Pharmacol* 40: 861-868 (2000).
  69. DW Paquette, HP Lawrence, GB McCombs, R Wilder, TA Binder, E Troullos, M Annett, M Friedman, PC Smith, S Offenbacher, Pharmacodynamic effects of ketoprofen on crevicular fluid prostanoids in adult periodontitis. *J Clin Periodontol.* 27(8):558-566 (2000).
  70. J.Q. Dong, A.S. Ethiridge and P.C. Smith: Effect of selective Phase II enzyme inducers upon glucuronidation of benoxaprofen in rats. *Drug Metabol. Dispos.* 27: 14283-1428 (1999).
  71. Y.J. Chiou, K.B. Tomer and P.C. Smith: Effect of nonenzymic glycation of albumin and superoxide dismutase by glucuronic acid and suprofen acyl glucuronide on their functions in vitro. *Chemico Biological Interact.* 121: 141-159 (1999).
  72. C.S. Scott, G.Z. Retsch-Bogart, R.P. Kustra, K.M. Graham, B.J. Glasscock and P.C. Smith: The pharmacokinetics of ibuprofen suspension, chewable tablets and tablets in children with cystic fibrosis. *Pediatrics*, 134: 58-63 (1999).
  73. H.P. Lawrence, D.W. Paquette, P.C. Smith, G. Maynor, R. Wilder, G.L. Mann, T. Binder, E. Troullos, M. Annett, M. Friedman and S. Offenbacher, Pharmacokinetic and safety evaluations of ketoprofen gels in subjects with adult periodontitis. *Dental Research*, 77: 1904-1912 (1998).
  74. J.H. Liu, C.D. Marquez, S.T. Weintraub and P.C. Smith, Reaction of acyl glucuronides with insulin in vitro: Identification of an imine mechanism by electrospray ionization mass spectrometry. *Pharmaceut. Res.* 15: 343-346 (1998).
  75. C.D. Marquez, S.T. Weintraub and P.C. Smith, Quantitative analysis of two opioid peptides in plasma by liquid chromatography-electrospray ionization tandem mass spectrometry. *J. Chromatogr. B*, 694: 21-30 (1997).
  76. C.D. Marquez, M.-L. Lee, S.T. Weintraub and P.C. Smith, Quantitative analysis of exogenous peptides in plasma using immobilized enzyme cleavage and gas chromatography-mass spectrometry with negative ion chemical ionization. *J. Chromatogr. B.* 700: 9-21 (1997).
  77. J.H. Liu, R.S. Malone, H. Stallings and P.C. Smith: Influence of renal failure in rats on the disposition of salicyl acyl glucuronide and covalent binding of salicylate to plasma proteins. *J. Pharmacol. Exp. Ther.* 278: 277-283 (1996).
  78. J.H. Liu and P.C. Smith: Direct analysis of salicylic acid, salicyl acyl glucuronide, salicyluric acid and gentisic acid in human plasma and urine by high-performance liquid chromatography. *J. Chromatogr.* 675: 61-70 (1996).
  79. M. Castillo and P.C. Smith: Disposition and reactivity of ibuprofen and ibufenac acyl glucuronides in vivo in the Rhesus monkey and in vitro with human serum albumin. *Drug Metab. Dispos.* 23: 566-572 (1995).
  80. M. Castillo, Y.F. Lam, M.A. Dooley, E. Stahl and P.C. Smith: Disposition and covalent binding of ibuprofen and its acyl

- glucuronide in the elderly. *Clin. Pharmacol Ther.* 57: 636-644 (1995).
81. P.C. Smith and J.H. Liu: Covalent binding of suprofen to renal tissue of rats correlates with excretion of its acyl glucuronide. *Xenobiotica* 25: 531-540 (1995).
  82. K. Krishnaswami, A. Tropsha and P.C. Smith: Semi-empirical calculations of intramolecular acyl transfer in cis-enols of O-aroyl acetylacetones. *Theochem* 332: 85-91 (1995).
  83. L.H. Wang, R.M. Fielding, P.C. Smith and L.S.S. Guo: Comparative tissue distribution and elimination of amphotericin B colloidal dispersion (Amphocil<sup>®</sup>) and Fungizone<sup>®</sup> after repeated dosing in rats. *Pharmaceut. Res.* 12: 275-283 (1995).
  84. C.D. Marquez, S.T. Weintraub and P.C. Smith: Femtomole detection of amino acids and dipeptides by gas chromatography/negative ion chemical ionization-mass spectrometry following alkylation with pentafluorobenzyl bromide. *J. Chromatogr.* 658: 213-221 (1994).
  85. P. C. Smith and J.H. Liu: Covalent binding of suprofen acyl glucuronide to proteins in vitro. *Xenobiotica* 23: 337-348 (1993).
  86. M. Castillo and P.C. Smith: Direct determination of ibuprofen and ibuprofen acyl glucuronide in plasma by high-performance liquid chromatography using solid phase extraction. *J. Chromatogr.* 614: 109-116 (1993).
  87. L.H. Wang, P.C. Smith, K.L. Anderson and R.M. Fielding: High performance liquid chromatographic analysis of amphotericin B in plasma, blood, urine and tissues for pharmacokinetic and tissue distribution studies. *J. Chromatogr.* 579: 259-268 (1992).
  88. P.C. Smith, R.J. Rodriguez and W.Q. Song: Covalent binding of etodolac acyl glucuronide to albumin in vitro. *Drug Metab. Dispos.* 20: 962-965 (1992).
  89. P.C. Smith and C. Wang: Nonenzymic glycation of albumin by acyl glucuronides in vitro: Comparison of reactions with reducing sugars. *Biochem. Pharmacol.* 44: 1661-1668 (1992).
  90. R.M. Fielding, P.C. Smith, L. Wang, J. Porter and L.S.S. Guo: Comparative pharmacokinetics of amphotericin B after administration of a novel colloidal delivery system, ABCD, and a conventional formulation to rats. *Antimicro. Agents and Chemother.* 35: 1208-1213 (1991).
  91. P.C. Smith, L.Z. Benet and A.F. McDonagh. Covalent binding of zomepirac glucuronide to proteins: Evidence for a Schiff base mechanism. *Drug Metab. Dispos.* 18: 639-644 (1990). PMID: 1981713
  92. P.C. Smith, A.F. McDonagh and L.Z. Benet: The effect of esterase inhibition on the disposition of zomepirac glucuronide and its covalent binding to plasma proteins in the guinea pig. *J. Pharmacol. Exp. Ther.* 252: 218-224 (1990).
  93. Munafo, A.F. McDonagh, P.C. Smith and L.Z. Benet: Irreversible binding of tolmetin glucuronic acid esters to albumin in vitro. *Pharmaceutical Res.* 7: 21-27 (1990). PMID: 2300531
  94. M.L. Hyneck, P.C. Smith, A. Munafo, A.F. McDonagh and L.Z. Benet: Disposition and irreversible plasma protein binding of tolmetin in humans. *Clin. Pharmacol. Ther.* 44: 107-114 (1988). PMID: 3390998
  95. M.L. Hyneck, P.C. Smith and L.Z. Benet: High performance liquid chromatographic determination of tolmetin, tolmetin glucuronide and its isomeric conjugates in plasma and urine. *J. Chromatogr.* 420: 349-356 (1987).
  96. P.C. Smith and L.Z. Benet: Characterization of the isomeric esters of zomepirac glucuronide by proton NMR. *Drug Metab. Dispos.* 14: 503-505 (1986).
  97. P.C. Smith, A.F. McDonagh and L.Z. Benet: Irreversible binding of zomepirac to plasma proteins in humans. *J. Clin. Invest.* 77: 934-939 (1986). PMID: 3949982
  98. P.C. Smith, P.N.J. Langendijk, J.A. Bosso and L.Z. Benet: Effect of probenecid on the formation and elimination of acyl glucuronides: studies with zomepirac. *Clin. Pharmacol. Ther.* 38: 121-127 (1985).
  99. P.C. Smith, J Hasegawa, PNJ Langendijk and LZ Benet: Stability of acyl glucuronides in biological fluids: studies with zomepirac. *Drug Metab. Dispos.* 13: 110-112 (1985).
  100. PNJ Langendijk, P.C. Smith, J. Hasegawa and L.Z. Benet: Simultaneous determination of zomepirac and its major metabolite zomepirac glucuronide in plasma and urine. *J. Chromatogr.* 307: 371-379 (1984).
  101. PC Smith and L.Z. Benet: Liquid chromatographic method for the determination of indomethacin and its two primary metabolites in urine. *J. Chromatogr.* 306: 315-321 (1984).
  102. J Hasegawa, P.C. Smith and L.Z. Benet: Apparent intramolecular acyl migration of zomepirac glucuronide. *Drug Metab. Dispos.* 10: 469-473 (1982). PMID: 6128195

## Presentations and Abstracts

- H Fusek, JB Tiley, P Pendt, JK Fallon, PC Smith, AR Ivin, HH, Ashley, N Battarbee, PW Stewart, KLR Brouwer, K Boggess, TL Whigham, Effect of sampling location and diabetes on transport proteins in human placenta measured by quantitative proteomic analysis. 24<sup>th</sup> North American ISSX Meeting, September 2021, Virtual.
- C Saran, H Ho, JK Fallon, PC Smith, PHonkakoski, KLR Brouwer, Characterization of Modified HuH-7 Human Hepatoma Cell Cultures: Proteomic Analysis and Optimized Biliary Excretion Index, AAPS Workshop, March 2020.
- M Nautiyal, SU Vorrink, RJ Qasem, JK Fallon, KK Wolf, P. C. Smith, M. Ingelman-Sundberg, M. Mosedale, Gene Expression Analysis, Quantitative Proteomics, and Chronic Toxicity Studies in Primary Mouse Hepatocyte Spheroids Support the Development of an In Vitro Collaborative Cross Platform for the Evaluation of Genetic Susceptibility Factors Associated with DILI. SOT meeting, March 2020. Los Angeles, CA.
- RJ Qasem, JK Fallon, M Nautiyal, M Mosedale, PC Smith Protein recovery and quantification of drug metabolizing enzymes and transporters in membrane extracts prepared by differential detergent fractionation: Comparison with established methods. ISSX Portland, OR. July 2019.
- R Khatri, JK Fallon, RJB Rementer, NT Kulick, R Lee, PC Smith, Targeted Quantitative Proteomic Analysis of Drug Metabolizing Enzymes and Transporters by NanoLC-MS/MS in the Sandwich Cultured Human Hepatocyte Model, RTP Drug Metabolism Discussion Group, RTP, NC. February 2019.
- PC Smith, *Targeted SIL-peptide based Proteomics*, ISSX Workshop: Towards Reaching a Consensus on Using Quantitative LC-MS/MS Proteomics in Translational DMPK/PD, Boston, MA, September 27, 28, 2018. Invited speaker.
- JK Fallon, PC Smith, *MRM Quantification of Transporter*, ISSX Workshop: Towards Reaching a Consensus on Using Quantitative LC-MS/MS Proteomics in Translational DMPK/PD, Boston, MA, September 27, 28, 2018. JKF Speaker.
- PC Smith, *Quantitative Targeted Absolute Proteomics (QTAP): Methods and Applications for Studies of Proteins that Modulate Xenobiotic Disposition*, China Pharmaceutical University, Nanjing, China, May 11, 2018. Invited Speaker.
- JK Fallon, P Shu, CQ Xia, PC Smith, Transporter profile in red blood cells (RBC) across species by isotope dilution targeted proteomics. 6<sup>th</sup> Asian Pacific Meeting of ISSX. Hongzhou, China, May 2018.
- E Burgunder, JK Fallon, N White, A Schauer, C Sykes, L Adamson, P Luciw, PC Smith, ADM Kashuba Effect of sex, SHIV, and drug transporters on lymph node antiviral penetrations. 2018 Conference on Retroviruses and Opportunistic Infections, Boston, March 2018.
- N Srinivas, J Fallon, C Sykes, N White, A Schauer, L Adams, M Matthew, P Luciw, PC Smith, and A Kashuba, SHIV infection and drug transporters influence brain tissue concentrations of efavirenz. NeuroHIV in the HAART Era, October, 2017, Rockville, Maryland.
- N Srinivas, J Fallon, C Sykes, N White, A Schauer, L Adams, M Matthew, P Luciw, PC Smith, and A Kashuba, SHIV infection and drug transporters influence brain tissue concentrations of efavirenz. International AIDS Society, July 2017, Paris, France.
- CG Thompson, Prince HA, Fallon JK, Rosen E, Sykes C, Mathews M, Arora S, Dellon E, Peery A, Shaheen N, Gay C, Luciw PA, Akkina R, Garcia JV, Smith PC, Kashuba ADM Differential Antiretroviral Localization and Drug Transporter Expression Within Gut-Associated Lymphoid Tissue of HIV+ Subjects: Comparison to Pre-Clinical Species, International AIDS Society, Paris, France, July 2017.
- JK Fallon, P Shi, PC Smith, C Xia, Targeted Quantification of BCRP/Bcrp in Red Blood Cell (RBC) 'Ghost' Fractions from Humans and Four Preclinical Species by Isotope Dilution NanoLC-MS/MS, AAPS Meeting, Denver, CO, November, 2016.
- AM Norris, CW Emerson, CG Thompson, JK Fallon, P Charlins, L Mulder, M Kovarova, L Adamson, P Luciw, JV Garcia, R Akkina, PC Smith, and ADM Kashuba, 17th International Workshop on Clinical Pharmacology of HIV and Hepatitis Therapy June 2016, Washington DC, USA
- AM Norris, Emerson CW, Thompson CG, Fallon JK, Charlins P, Mulder L, Kovarova M, Adamson L, Akkina R, Garcia JV, Luciw PA, Smith PC, Kashuba ADM. Differential Drug Transporter Expression in the Female Genital Tract of Animal Models for HIV Prevention. Submitted to 2nd HIV Research for Prevention Conference. Chicago, IL, October 2016.
- CG Thompson, Fallon JK, Charlins P, Mulder L, Kovarova M, Adamson L, Akkina R, Garcia JV, Luciw PA, Smith PC, Kashuba ADM. Quantitative Proteomic Analysis of Drug Transporter Expression in the GI Tract of Multiple Animal Models of HIV Infection. 17<sup>th</sup> International Workshop on Clinical Pharmacology of HIV and Hepatitis C; Washington, D.C., June 2016.

- MS Kim, JK Fallon, CQ Xia and PC Smith. Quantification of Four Efflux Transporters in Kidney across Species Using Targeted Quantitative Proteomic Analysis by Isotope Dilution NanoLC-MS/MS. 20<sup>th</sup> North American ISSX Meeting, Orlando, FL, October 2015.
- JK Fallon, PC Smith. Does Interindividual UGT2B17 Expression and Testosterone Glucuronidation Support the Use of the Testosterone/Epitestosterone (T/E) Ratio? 20<sup>th</sup> North American ISSX Meeting, Orlando, FL, October 2015.
- PC Smith, Quantitative Targeted Proteomics: Methods and Applications in ADME, The New England Drug Metabolism Discussion Group, Summer Symposium, Burlington, MA, June 11, 2015.
- PC Smith, Quantitating Drug Metabolizing Enzymes and Transporters by Using Stable Isotope-Labeled Peptide Standards and Liquid Chromatography-Tandem Mass Spectrometry Invited speaker, Gordon Conference on Drug Metabolism, Holderness School, NH, July 16, 2015.
- JK Fallon, PC Smith, B Ma, Cindy Xia, MS Kim, Targeted Quantitative Proteomic Analysis of Four Transporters in Liver in Humans and Three Preclinical Species by Isotope Dilution NanoLC-MS/MS. Gordon Conference on Drug Metabolism, Holderness School, NH, July 16, 2015.
- JK Fallon, CG Thompson, ADM Kashuba PC. Smith, Targeted Quantitative Proteomic Analysis of UGTs and CYP450s in Rectal, Cervical and Vaginal Tissues and Implications for Xenobiotic Disposition and Treatment of Disease, 19<sup>th</sup> North American ISSX Meeting, San Francisco, CA, October 2014.
- GN Asher, JK Fallon, PC Smith, Comparison of UGT Protein Expression in Human Colon After Multidose, Oral Curcuminoid Administration. 19<sup>th</sup> North American ISSX Meeting, San Francisco, CA, October 2014.
- JW Higgins, JQ Bao, AB Ke, JR Manro, JK Fallon, PC Smith, and MJ Zamek-Gliszczynski, Statin pharmacokinetics and tissue distribution in oatp1a/1b-knockout, OATP1B1- and OATP1B3-humanized mice. Land of Lakes Meeting, Madison, WI, September 2014.
- CG Thompson, JK Fallon, MR Nicol, PC Smith, ADM Kashuba, Quantification of Drug Transporters in Vaginal and Cervical Tissue Using a Novel Targeted Proteomics Approach: Implications for Small Molecule Disposition in Viral Reservoirs, International Aids Society, Melbourne, Australia, July 2014.
- PC Smith, JK. Fallon, MJ. Zamek- Gliszczynski, MA. Mohutsky, Quantitative Targeted Absolute Proteomics (QTAP) for the Measurement of Carboxylesterase 1 and Carboxylesterase 2 in Human Liver and in Three Preclinical Species, Poster, Microsomal Drug Oxidation Meeting, Stuttgart, Germany, May 2014.
- PC Smith, JK Fallon, Targeted Quantitative Proteomics of UGTs in the Elucidation of Glucuronidation Pathways, Invited Speaker, Microsomal Drug Oxidation Meeting, Stuttgart, Germany, May 2014.
- PC Smith, Application of Targeted Quantitative Proteomics to In Vitro-In Vivo Correlation of Glucuronidation, School of Pharmacy, National Taiwan University, Taipei, Taiwan, November 21, 2013.
- G Margailan, K Klein, V Ménard, L Villeneuve, JK Fallon, P Caron, V Turcotte, PC Smith, UM Zanger and C Guillemette Using targeted quantitative proteomics to better understand variability of the glucuronidation pathway. ISSX 10<sup>th</sup> International Meeting, Toronto, Canada, October 2013.
- J Lin, K Lapham, M Niosi, CC Orozco, JK Fallon, H Neubert, PC Smith, R Visswanathan, LY Leung, and TC Goosen, Intersystem Extrapolation Factors (ISEF) for Human UDP-Glucuronosyltransferase (UGT) Activity: Utility to Estimate UGT1A1-Mediated Fractional Clearance. ISSX 10<sup>th</sup> International Meeting, Toronto, Canada, October 2013.
- PC Smith, Quantitative Targeted Absolute Proteomics (QTAP) for the Analysis of UGT1As and UGT2Bs in Tissue Matrices: Methods Development and Applications to ADME. AAPS Short Course: LC-MS/MS Based Targeted Quantification of Membrane Proteins, AAPS Meeting, Chicago, IL, October, 2012.
- JK Fallon, HNeubert, BA Lanoue, TC Goosen and PC Smith. Quantitative Targeted Absolute Proteomics (QTAP) for the Analysis of 12 UGT1As and -2Bs in Commercially Available Human Recombinant Samples using NanoUPLC-MS/MS with Selected Reaction Monitoring, AAPS Meeting, Chicago, IL, October, 2012
- PC Smith, Quantitative Targeted Absolute Proteomics in Biomedical Research: Application to Glucuronidation and ADME, Hamner Institute, RTP, NC, April 25, 2012



- PC Smith, JK Fallon, H Neubert, R Hyland. Quantitative Targeted Absolute Proteomics (QTAP) for the Analysis of UGT1As and UGT2Bs in Human Liver and Intestinal Microsomes using nanoUPLC-MS/MS with Selected Reaction Monitoring. ISSX North American Meeting, Atlanta, GA, October 2011.
- S Thorén, W Krol, M Wallin, PC Smith, M Ribadeneria, D Zhou, P Baranczewski- Improvement of *In Vitro* Approach to Study UDP-Glucuronosyltransferases 1A1 and 1A9 by Comparison of Absolute Protein Quantification and Metabolic Activity Measured Using  $\beta$ -Estradiol and Propofol as Selective Probe Substrates. ISSX International Meeting, Istanbul, Turkey, September 2010.
- PC Smith, Modulation of Toxicity via Glucuronidation, Keio University Pharmacy School, Tokyo, Japan, June 1, 2010.
- PC Smith, The Role of Intestinal Glucuronidation in Modulating GI Toxicity, Tohoku University, Sendai, Japan, June 1, 2010.
- PC Smith, Quantitative Proteomics of Glucuronidation. Gifu University, Gifu, Japan, May 28, 2010.
- PC Smith, The Role of Intestinal Glucuronidation in Modulating GI Toxicity, Gifu University, Gifu, Japan, May 27, 2010.
- PC Smith, Quantitative Proteomics of Glucuronidation, CoChair and Speaker, Symposium: Pharmacoproteomics: Targeted Absolute Quantitative Proteomics in ADME. AAPS Meeting, Los Angeles, CA November 11, 2009.
- PC Smith, Glucuronidation is Complex: Will Quantitative Proteomics Help?, Astra Zeneca, Wilmington, DE, September 22, 2009.
- DE Harbourt, JK Fallon, S Ito, T Baba, JK Ritter, GL Glish, PC Smith, Quantification of Uridine Glucuronosyl Transferases within Human Liver, Intestinal and Kidney using nanoLC Mass Spectrometry. SOT, Salt Lake City, UT, March 2009.
- RL Hawke, Lemmon, C.R.M., Byrd, D.P., Schrieber, S.J., Soule, T.A., Wahed, A.S., Smith, P.C., Afdhal, N.H., Belle, S.H., Navarro, V.J., Reddy, K.R., Berman, J., Doo, E., Liu, Q-Y., Wen, Z., and Fried, M.W. Silymarin (SM) Steady-State Pharmacokinetics (PK) and Influence on HCV Viral Load in Non-Cirrhotic Patients with Chronic Hepatitis C, 13th International Symposium on Viral Hepatitis and Liver Disease, Washington D.C. March, 2009.
- CRM Lemmon, DP Byrd, SJ Schrieber, TA Soule, AS Wahed, Z. Wen, PC Smith, NH Afdhal, SH Belle, VJ Navarro, KR Reddy, J Berman, E Doo, QY Liu, MW Freid, RL Hawke, Silymarin (SM) Steady-State Pharmacokinetics (PK) and Influence on HCV Viral Load in Non-Cirrhotic Patients with Chronic Hepatitis C ASCPT, Washington, D.C., March 2009.
- DP Byrd, CR Lemmon, TA Soule, SJ Schrieber, AS Wahed, Z Wen, PC Smith, NH Afdhal, SH Belle, VJ Navarro, KR Reddy, JM Hoskins, E Doo, Q Liu, MW Fried, RL Hawke; Influence of UGT1A1\*28 polymorphism and plasma caspase-3/7 activity on the single dose pharmacokinetics of silymarin flavonolignans. ASCPT, Washington, DC, March 2009.
- SR Miranda, JK Lee, KLR Brouwer, Z Wen Z, PC Smith and RL Hawke. Role of Mrp2 (*Abcc2*) in the biliary excretion of silymarin flavonolignans and their glucuronide and sulfate conjugates in isolated perfused rat livers. 15<sup>th</sup> North American ISSX National Meeting, San Diego, CA, Oct. 12-16, 2008.
- SR Miranda, JK Lee, Z Wen, KLR Brouwer, PC Smith and RL Hawke. Disposition of silymarin flavonolignans in isolated perfused Gunn rat livers: Role of Phase II metabolism and UGT1A1. 15<sup>th</sup> North American ISSX National Meeting, San Diego, CA, Oct. 12-16, 2008.
- PC Smith. Absolute Quantitative Proteomics of UGTs Using LC-MS, 12<sup>th</sup> International, UGT and Glucuronidation Workshop, Laval University, Quebec, Canada, July 24-27, 2008.
- DE Harbourt, MS Joy, PC Smith, Stability of mycophenolic acid acyl glucuronide in biological matrices and in vivo in rats, Gordon Conference on Drug Metabolism, Holderness, NH, July 2008.
- PC Smith, Role of UGTs in modulating the intestinal toxicity of mycophenolic acid and irinotecan, Dept Pharmacology, Case Western Reserve University, Cleveland, OH, April 15, 2008.
- PC Smith, Role of UGTs in modulating the intestinal toxicity of mycophenolic acid and irinotecan, Dept Pharmacy, University of Illinois Chicago, April 9, 2008.
- DE Harbourt, MS Joy, PC Smith. Stability of mycophenolic acid acyl glucuronide in biological matrices. Society of Toxicology, Seattle, WA, March 2008.

- TA Soule, SJ Schrieber, Z Wen, PC Smith, MW Fried, R Reddy, VJ Navarro, KNH Afdhal, SH Belle, J Berman, Q-Y Liu, E Doo, RL Hawke. Single dose escalation Phase I study to evaluate the pharmacokinetics of silymarin (Legalon®) and the effect of food in patients with chronic hepatitis C. Am. Soc. Clinical Pharmacology and Therapeutics, Orlando, FL, April 2008.
- SJ Schrieber, Z Wen, TE Dumas, M Vourvahis, PC Smith, AD Kashuba, MW Fried, RL Hawke. Silymarin pharmacokinetics is altered in patients with chronic hepatitis C virus and nonalcoholic fatty liver disease and correlates with caspase-3/7 activity. Am Assoc Study Liver Disease, Boston, MA, November 2007.
- PC Smith. Modulation of irinotecan- and mycophenolic acid-induced intestinal toxicity by intestinal UGTs, Kyoritsu University, Tokyo, Japan, October 15, 2007.
- JK Fallon, DE Harbourt, SH Maleki, FK Kessler, JK Ritter, PC Smith. Absolute Quantification of Human Uridine-diphosphate Glucuronosyl Transferase (UGT) Enzyme Isoforms 1A1 and 1A6 By Tandem LC-MS 55<sup>th</sup> American Society of Mass Spectrometry Meeting, Indianapolis, IN, June 2007.
- Zhiming Wen; Zhiqing Qiao; Roy L. Hawke; Philip C. Smith. High-Throughput Analysis of Six Silymarin Flavonolignans in Human Plasma by LC-ESI-MS Combining with a 96-Well Protein Precipitation Plate. 55<sup>th</sup> American Society of Mass Spectrometry Meeting, Indianapolis, IN, June 2007.
- Joy MS, Hilliard T, Falk RJ, Smith PC. Mycophenolic acid pharmacokinetic disposition in ANCA vasculitis. Clin Exp Immunol 2007. 13<sup>th</sup> International Vasculitis and ANCA Workshop, Cancun, Mexico.
- Pharmacokinetics of silymarin in healthy volunteers and patients with viral hepatitis. S. J. Schrieber, Z. Wen, T. E. Dumas, M. V. Vourvahis, P. C. Smith, PhD, A. D. Kashuba, M. W. Fried, R. L. Hawke. American Society for Clinical Pharmacology and Therapeutics, March 2007.
- T.E. Dumas, Z. Wen, R.L. Hawke, P.C. Smith, M. Vourvahis, A.D. Kashuba, K.A. Dougherty, M.W. Fried: Cirrhosis Increases Exposure to Silymarin (SM) Isomers in Patients with Chronic Hepatitis C Virus (HCV). The Liver Meeting, 2006, Boston, MA, October 27-31, 2006.
- M.Z. Wang, Q. Wu, A.S. Bridges, P.C. Smith, S. Kornbluth, R.R. Tidwell, M.F. Paine, J.E. Hall: Constitutive CYP4F enzymes are highly expressed in human liver microsomes: Demonstration of a tandem mass spectrometry-based proteomic approach in the absolute protein quantification. ISSX 14<sup>th</sup> National Meeting, San Juan, Puerto Rico, October 22-26, 2006.
- Z. Wen, T.E. Dumas, R.L. Hawke, M.W. Fried, Philip C. Smith: Characterization of Free, Sulfated and Glucuronidated Silymarin Flavonolignans in Human Plasma after Oral Administration of Milk Thistle Extract. ISSX 14<sup>th</sup> National Meeting, San Juan, Puerto Rico, October 22-26, 2006.
- Z.M. Wen M.N. Tallman, S. Ali and P.C. Smith: Etoposide Glucuronidation is Specifically Catalyzed by Human UGT1A1: Structural Characterization of Glucuronide Conjugates and Estimation of Enzyme Kinetics by LC-ESI-MS 54<sup>th</sup> American Society of Mass Spectrometry Meeting, Seattle, WA June 2006.
- P.C. Smith, Phase II Metabolism: Biology and Clinical Relevance. Research Triangle Park Drug Metabolism Discussion Group, Winter Symposium, February 22, 2006, RTP, NC.
- M.N. Tallman, S.Y. Ali, K.A. Gillis, R.E. Dupuis, K.K. Miles, S.T. Stern, S. Zacks, J.K. Ritter, P.C. Smith: Variability in human UDP-glucuronosyltransferase protein expression and activity in duodenum, jejunum, and colon. ISSX 13<sup>th</sup> National Meeting, Maui, Hawaii, October, 2005.
- S.T. Stern, M.N. Tallman, K.K. Miles, J.K. Ritter, P.C. Smith: Androgen regulation of renal UGT 1A1 in rats. ISSX 13<sup>th</sup> National Meeting, Maui, Hawaii, October, 2005.
- S.T. Stern, M.N. Tallman, K.K. Miles, R.E. Dupuis, J.K. Ritter, P.C. Smith: Gender related differences in mycophenolate mofetil-induced gastrointestinal toxicity in rats. ISSX 13<sup>th</sup> National Meeting, Maui, Hawaii, October, 2005.
- Z.M. Wen, D.E. Martin, K.H. Lee and P.C. Smith: In vitro UGT reaction phenotyping, enzyme kinetics and species differences for glucuronidation of the anti-HIV drug candidate PA-457. ISSX 13<sup>th</sup> National Meeting, Maui, Hawaii, October, 2005.
- Z.M. Wen S.T. Stern, D.E. Martin, K.H. Lee and P.C. Smith: Structural characterization of anti-HIV drug candidate PA-457 and its glucuronide metabolites and evaluation of in vitro stability by LC-ESI-MS. 53<sup>rd</sup> American Society of Mass Spectrometry Meeting, San Antonio, TX June 2005.

- P.C. Smith, Modulation of Toxicity via Glucuronidation. FASEB Meeting, San Diego, CA, April 2-6, 2005.
- P. C. Smith, Acyl Glucuronides: Is there a smoking gun? UGT Workshop, Dundee, Scotland, Sept. 4-8, 2004.
- P. C. Smith, Acyl Glucuronides and Toxicity: Smoking Gun or Academic Hypothesis?, Amgen, Inc., Thousand Oaks, CA, July 15, 2004.
- M.N. Tallman, J. K. Ritter, P.C. Smith: Differential rates of glucuronidation for SN-38 lactone and carboxylate. ISSX 7<sup>th</sup> International Meeting, Vancouver, Canada, Aug. 29 – Sept. 2, 2004.
- S.Y. Ali, S.T. Stern, M.N. Tallman, Z.M. Wen<sup>1</sup>, P.C. Smith: The effects of silymarin, curcumin, and piperine on the glucuronidation of azidothymidine and mycophenolic acid. ISSX 7<sup>th</sup> International Meeting, Vancouver, Canada, Aug. 29 – Sept. 2, 2004.
- D.E. Martin, P.C. Smith, C. Wild, G. Allaway: In Vitro and In Vivo Disposition of PA-457, a Novel Inhibitor of HIV-1 Maturation. The 11th Retrovirus Conference Meeting. San Francisco, CA, February 2004.
- Martin DE, Smith PC, Wild C, and Allaway G.: In vitro and in vivo disposition of PA-457, a novel inhibitor of HIV-1 maturation. The 15th International AIDS Conference. Bangkok, Thailand. July 11-16, 2004.
- S.T. Stern, K.K. Miles, J.K. Ritter and P.C. Smith: A rat model of mycophenolate mofetil gi toxicity. 12<sup>th</sup> National Meeting of ISSX, Providence, RI, October, 2003
- P.C. Smith, B.C. Bender, C.T. Wild, G. P.Allaway and D.E. Martin: Disposition of PA-457, A novel inhibitor of HIV-1 maturation, in rats involves extensive biliary excretion of a glucuronide. 12<sup>th</sup> National Meeting of ISSX, Providence, RI, October, 2003.
- H. Liu, M.J. Daniels, and P.C. Smith: Estimation of AUC and Cmax of ibuprofen in children with cystic fibrosis from plasma or urine data. National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Toronto, Canada, November, 2002.
- C.T. Wild, N.R. Kilgore, M.S. Reddick, Y.D. Asfaw, K.D. Salzwedel, J.A. Turpin, L. Xie, K.H. Lee, P.C. Smith, G.P. Allaway and D.E. Martin: Pre-clinical development of the antiviral drug candidate PA-344B. International AIDS Conference, Barcelona, Spain, July 2002.
- C.T. Wild, N.R. Kilgore, M.S. Reddick, K.D. Salzwedel, J.A. Turpin, Y. Kashiwada, K.H. Lee, P.C. Smith, D.E. Martin and G.P. Allaway: In vitro and in vivo pre-clinical analyses of PA-457, a novel betulinic acid derivative that potently inhibits HIV-1 replication. International AIDS Conference, Barcelona, Spain, July 2002.
- B.C. Bender, S.G. Kulkarni and P.C. Smith: Mechanistic studies of acetaminophen (APAP) clearance in cystic fibrosis (CF)-knockout mice. 6<sup>th</sup> International Meeting of the International Society for the Study of Xenobiotics, Munich, October, 2001.
- P.C. Smith, S.G. Kulkarni, B.C. Bender, T.J. Urban and M.N. Tallman: Altered drug disposition in the cystic fibrosis knockout mouse model. Gordon Conference on Drug Metabolism, Plymouth, NH, July, 2001.
- J.Q. Dong, E.L. LeCluyse and P.C. Smith: Glucuronidation and protein adduct formation of benoxaprofen and flunoxaprofen in sandwich-culture rat hepatocytes: In vitro model for estimating covalent binding of reactive acyl glucuronides to hepatic proteins in vivo. Millenium World Congress of Pharmaceutical Sciences, San Francisco, CA, April, 2000.
- A.L. Wood, S.G. Hege, R.E. Dupuis, W.R. Gillespie and P.C. Smith: Development of a pharmacokinetic model for enterohepatic recycling of mycophenolic acid in humans: Effect of antibiotics. Millenium World Congress of Pharmaceutical Sciences, San Francisco, CA, April, 2000.
- T.J. Urban, S.G. Kulkarni, B.C. Bender and P.C. Smith: Disposition of dicloxacillin in cystic fibrosis knockout mice. Millenium World Congress of Pharmaceutical Sciences, San Francisco, CA, April, 2000.
- J.Q. Dong and P.C. Smith: Reversible metabolism of benoxaprofen, flunoxaprofen and their acyl glucuronides in rats. 14<sup>th</sup> National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, New Orleans, November, 1999.
- K. Wiwattanawongsa, E.L. Heinzen, R.E. Dupuis and P.C. Smith: Influence of antibiotics on the disposition of mycophenolic acid in the guinea pig. 14<sup>th</sup> National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, New Orleans, November, 1999.

- R.M. Pope, J.S. Rajagopalan, W.L. Hall and P.C. Smith: Development of a HPLC-MS analysis to quantify an orally active human insulin conjugate in plasma. 14th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, New Orleans, November, 1999.
- S.G. Kulkarni, R.C. Turner and P.C. Smith: Absorption of acebutolol in CF-Knockout mice. 9<sup>th</sup> North American ISSX Meeting, Nashville, TN, October, 1999.
- K. Wiwattanawongsa, E.L. Heinzen and P.C. Smith: Evidence for glucuronidation of mycophenolic acid by intestinal UGT in the guinea pig. 9<sup>th</sup> North American ISSX Meeting, Nashville, TN, October, 1999.
- B.C. Bender, S.G. Kulkarni, T.J. Urban and P.C. Smith: Disposition of acetaminophen in age-matched cystic fibrosis (CF)-knockout mice. 9<sup>th</sup> North American ISSX Meeting, Nashville, TN, October, 1999.
- L. Zhang, R. Voyksner and P.C. Smith: Studies of the disposition of opioid peptide, DSLET, in rats using LC-ESI/MS/MS. 9<sup>th</sup> North American ISSX Meeting, Nashville, TN, October, 1999.
- G.S. Ethiraj, S.G. Hege, P.C. Smith and A. Tropsha: Modeling kinetic rates of acyl migration of  $\beta$ -1-acyl glucuronides metabolites with the k-Nearest Neighbor and Genetic Algorithm-Partial Least Squares QSPR methods. Annual Meeting of the American Chemical Society, New Orleans, LA, August, 1999.
- J.Q. Dong, B.J. Glasscock, C.S. Scott, G.Z. Retsch-Bogart and P.C. Smith: Chiral inversion of ibuprofen in children with cystic fibrosis. 100<sup>th</sup> Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics, San Antonio, TX, March, 1999.
- O.J. Naderer, R.E. Dupuis, K. Wiwattanawongsa, B.J. Campbell, S.J. Hege, P.C. Smith and M.W. Johnson. Reduction of plasma mycophenolic acid (MPA) and its glucuronide (MPAG) concentrations with antibiotic treatment. 100<sup>th</sup> Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics, San Antonio, TX, March, 1999.
- A.A. Pegram, S.G. Kulkarni and P.C. Smith: Disposition of acetaminophen and ICG in CF-Knockout mice. 5<sup>th</sup> International ISSX Meeting, Cairns, Australia, October, 1998.
- P.C. Smith and J.Q. Dong, Induction of benoxaprofen glucuronidation in vivo in rats by N-containing polycyclic aromatic hydrocarbons (N-PAH's). 9<sup>th</sup> International Glucuronidation Workshop, Brisbane, Australia, October, 1998.
- J.H. Liu, W.R. Gillespie and P.C. Smith: Predicting the AUC of acyl glucuronides and their parent compounds in disease states that alter clearance. 12th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Boston, MA, November, 1997.
- C. Scott, G. Retsch-Bogart, R. Kustra, B. Johnson, J. Dong and P.C. Smith: Pharmacokinetics of ibuprofen suspension in young children with cystic fibrosis. North American Cystic Fibrosis Conference, Nashville, TN, October, 1997.
- D.W. Paquette, H.P. Lawrence, R. Wilder, G. Maynor, T. Binder, E. Troullos, M. Annett, M. Friedman, P.C. Smith and S. Offenbacher: Pharmacodynamic effects of ketoprofen on crevicular fluid prostanoids in adult periodontitis. International Association for Dental Research, Orlando, FL, March, 1997.
- H.P. Lawrence, D.W. Paquette, R. Wilder, G. Maynor, T. Binder, E. Troullos, M. Annett, M. Friedman, P.C. Smith and S. Offenbacher: Safety and pharmacokinetic evaluation of ketoprofen in the treatment of adult periodontitis. International Association for Dental Research, Orlando, FL, March, 1997.
- P.C. Smith: The pharmacokinetics and reactivity of the acyl glucuronides of ibuprofen and its isomers in vitro and in vivo. Wyeth Ayerst, July 24, 1996.
- P.C. Smith: The pharmacokinetics and reactivity of the acyl glucuronides of ibuprofen and its isomers in vitro and in vivo. Glaxo Wellcome, June 5, 1996.
- P.C. Smith and M. Castillo: Comparative reactivity of the acyl glucuronides of ibuprofen and three toxic analogs in vitro and in vivo in the Rhesus monkey. Meeting of the Pharmaceutical Research and Manufacturers Association Foundation, Washington, D.C., February, 1996.
- P.C. Smith: The pharmacokinetics and reactivity of the acyl glucuronides of ibuprofen and its analogs in rhesus monkey and rats. Department of Drug Metabolism and Pharmacokinetics, Merck and Company, Rahway, NJ and West Point, PA, April 6,7, 1995.

- C.M. Seugling, J.H. Liu and P.C. Smith: The influence of acyl glucuronide stability on futile cycling in vivo. 96th Annual Meeting of the Amer. Society for Clinical Pharmacology and Experimental Therapeutics, San Diego, CA, March, 1995.
- J.H. Liu, E. Stahl, M.A. Dooley, Y.W.F. Lam and P.C. Smith: Disposition and covalent binding of salicylic acid and its acyl glucuronide in the elderly. 96th Annual Meeting of the Amer. Society for Clinical Pharmacology and Experimental Therapeutics, San Diego, CA, March, 1995.
- R.L. Peiffer, C.M. Osborne, P.C. Smith, C. Wang and A.L. Weiner: Release of oxytetracycline HCl from a polymer conjunctival drug delivery device in a rabbit model. Assoc. Research in Vision and Ophthalmology, New Orleans, March, 1995.
- P.C. Smith: Peptide analysis by selective enzymic cleavage and GC/MS. Meeting of the Pharmaceutical Research and Manufacturers Association Foundation, Washington, D.C., February, 1995.
- J-H. Liu and P.C. Smith: Influence of renal failure in rats on the disposition of salicyl acyl glucuronide and covalent binding of salicylate to plasma proteins. 6th Meeting of the International Society for the Study of Xenobiotics, Raleigh, NC, October, 1994.
- J.D. Whisnant III, C. Wang and P.C. Smith: *In vitro* stability of ketorolac acyl glucuronides. 9th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, San Diego, CA, November, 1994.
- C.D. Marquez and P.C. Smith: Comparison of peptide quantitative analysis by GC-NICI/MS and CZE-ESI/MS. 9th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, San Diego, CA, November, 1994.
- Y-J. Chiou and P.C. Smith: Effect of glycation of albumin by glucose and glucuronic acid on its reversible ligand binding. 9th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, San Diego, CA, November, 1994.
- M. Castillo and P.C. Smith: Comparative pharmacokinetics of ibuprofen, ibufenac and their acyl glucuronides in rhesus monkeys. 9th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, San Diego, CA, November, 1994.
- M. Castillo, Y.W. Francis Lam, M.A. Dooley, E. Stahl and P.C. Smith: Disposition and covalent binding of ibuprofen and its acyl glucuronide in the elderly. Gordon Research Conference on Drug Metabolism, Plymouth, NH, July, 1994.
- C. Wang and P.C. Smith: Quantification of glycation by acyl glucuronides: Southeast Regional Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Durham, NC, April, 1994.
- K. Krishnaswami, A. Tropsha, L. Bartolotti and P.C. Smith: Semi-empirical calculations of relative rate constants and transition states for intramolecular acyl transfer reactions. Meeting of the Amer. Chemical Society, San Diego, CA, March, 1994.
- C.D. Marquez, M-L. Lee and P.C. Smith: Determination of peptides using immobilized enzymes followed by derivatization for GC/NICI/MS. 8th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Orlando, FL, November, 1993.
- C.D. Marquez, J.H. Liu, S.T. Weintraub and P.C. Smith: Analysis of insulin-acyl glucuronide adducts by electrospray ionization mass spectrometry. 41st Meeting of the Amer. Society for Mass Spectrometry, San Francisco, CA, June, 1993.
- C.D. Marquez, M-L. Lee, S.T. Weintraub and P.C. Smith: Detection of small peptides by GC/NICI/MS following alkylation with PFBBr. 7th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, San Antonio, TX, November, 1992.
- P.C. Smith and J.H. Liu: Covalent binding of suprofen to renal tissue of rats correlates with excretion of the acyl glucuronide. Meeting of the Federation of Amer. Societies for Experimental Biology, Anaheim, CA, April, 1992.
- C. Wang and P.C. Smith: Factors influencing the covalent binding of acyl glucuronides to albumin. 6th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Washington, D.C., November, 1991.
- W.Q. Song, R.J. Rodriguez and P.C. Smith: Direct analysis of etodolac and its acyl glucuronide in plasma by HPLC. 6th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Washington, D.C., November, 1991.
- M. Castillo and P.C. Smith: Direct analysis of ibuprofen acyl glucuronide in plasma by HPLC using solid phase extraction. 6th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Washington, D.C., November, 1991.
- M. Castillo and P.C. Smith: Covalent binding of ibuprofen acyl glucuronide to human serum albumin in vitro. 6th National

- Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Washington, D.C., November, 1991.
- P.C. Smith: Acyl glucuronides: Reactive metabolites in vitro and in vivo. Eisai Co. Ltd., Tsukuba, Japan, June 18, 1991.
- P.C. Smith: Acyl glucuronides: Reactive metabolites in vitro and in vivo. College of Pharmacy, University of Tokyo, Tokyo, Japan, June 19, 1991.
- R. Rodriguez, W.O. Song and P.C. Smith: Covalent binding of etodolac acyl glucuronide to human serum albumin. Meeting of the Federation of Amer. Societies for Experimental Biology, Atlanta, GA, April 1991.
- P.C. Smith and C. Wang: Nonenzymic glycation of albumin by acyl glucuronides: fluorescent products from glucuronic acid. Meeting of the Federation of Amer. Societies for Experimental Biology, Atlanta, GA, April 1991.
- P. C. Smith and J. H. Liu: Indoprofen acyl glucuronide: Stability and covalent binding to human serum albumin in vitro. Annual Meeting of the Gulf Coast Chapter of the Society of Toxicology, Austin, TX, November, 1990.
- P. C. Smith and R. J. Rodriguez: Covalent binding of etodolac acyl glucuronide to human serum albumin in vitro. Annual Meeting of the Gulf Coast Chapter of the Society of Toxicology, Austin, TX, November, 1990.
- L. H. Wang, P. C. Smith and R. M. Fielding: HPLC analysis of amphotericin B in plasma, blood, urine and tissues for pharmacokinetic and tissue distribution studies. 5th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Las Vegas, NV, November, 1990.
- R. M. Fielding, J. Porter, L. H. Wang, P. C. Smith and L. Guo: Pharmacokinetics and tissue distribution of ABCD<sup>®</sup>, a novel lipid-based amphotericin B dosage form. 5th National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Las Vegas, NV, November, 1990.
- P. C. Smith: Covalent binding of suprofen acyl glucuronide to human serum albumin occurs via an imine intermediate. International Symposium on Biological Reactive Intermediates, Tucson, AZ, January, 1990.
- P. C. Smith: Disposition of acyl glucuronides and the mechanism for their covalent binding to albumin. Invited speaker, Ciba-Geigy Pharmaceuticals, Summit, NJ. December, 1989.
- P. C. Smith and A. L. Yergey: Analysis of peptides by thermospray LC/MS using a fused silica lined vaporization probe. 3rd National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Orlando, FL, October, 1988.
- P. C. Smith and A. L. Yergey: Methods to produce less active probe surfaces to minimize the adsorption and catalysis of thermospray probes. Meeting of the Amer. Society for Mass Spectrometry, San Francisco, CA, June, 1988.
- P.C. Smith. The acyl migration of ester glucuronides and their covalent binding to proteins. Invited speaker, Center for Biopharmaceutical Sciences, Leiden University, The Netherlands, October, 1987.
- M.L. Hyneck, P.C. Smith, A.F. McDonagh and L.Z. Benet: Irreversible plasma protein binding of tolmetin in humans. 1st National Meeting of the Amer. Assoc. of Pharmaceutical Scientists, Washington, D.C., November, 1986.
- P.C. Smith, L.Z. Benet and A.F. McDonagh: Evidence that irreversible binding of acyl glucuronides to proteins occurs by formation of an imine via glucuronic acid. Gordon Conference on Drug Metabolism, Plymouth, NH, July, 1986.
- M.L. Hyneck, P.C. Smith and L.Z. Benet. HPLC determination of tolmetin, tolmetin glucuronide and its isomeric conjugates in plasma and urine. 133rd Annual Meeting of the Amer. Pharmaceutical Assoc., San Francisco, CA, March, 1986.
- P.C. Smith, P.N.J. Langendijk, J.A. Bosso and L.Z. Benet: Effect of probenecid on the disposition of zomepirac and zomepirac glucuronide. 86th Annual Meeting of the Amer. Society for Clinical Pharmacology and Experimental Therapeutics, San Antonio, TX, March, 1985.
- P.C. Smith, A.F. McDonagh and L.Z. Benet: Covalent binding of zomepirac acyl glucuronide to albumin in healthy human volunteers. Plenary Session, 35th Annual Meeting of the Amer. Association for the Study of Liver Diseases, Chicago, IL, November, 1984.
- P.C. Smith and L.Z. Benet: Hydrolysis of zomepirac acyl glucuronide in the guinea pig by esterases. 36th National Meeting of the Academy of Pharmaceutical Sciences, Philadelphia, PA, October, 1984.

- P.C. Smith and L.Z. Benet: Covalent binding of zomepirac glucuronide to human serum albumin in vitro. 131th Annual Meeting of the Amer. Pharmaceutical Assoc., Montreal, Quebec, May, 1984.
- P.C. Smith, J. Hasegawa and L.Z. Benet: Control of the stability of acyl glucuronides in biological fluids: studies with zomepirac glucuronide. 35th National Meeting of the Academy of Pharmaceutical Sciences, Miami, FL, November, 1983.
- P.C. Smith and L.Z. Benet: Liquid chromatographic method for indomethacin and its two principle metabolites in urine. 34th National Meeting of the Academy of Pharmaceutical Sciences, San Diego, CA, November, 1982.
- P.N.J. Langendijk, P.C. Smith, J. Hasegawa and L.Z. Benet: Simultaneous determination of zomepirac and its major metabolite zomepirac glucuronide in plasma and urine. 34th National Meeting of the Academy of Pharmaceutical Sciences, San Diego, CA, November, 1982.
- J. Hasegawa, P.C. Smith, and L.Z. Benet: Acyl migration of zomepirac glucuronide. 129th Annual Meeting of the Amer. Pharmaceutical Assoc., Las Vegas, NV, May, 1982.

## Ongoing Research Support

FDA UO1 grant 13323376

7/1/2021 – 6/30/2023

*A physiologically based pharmacokinetic model of human airway epithelia*

PI: Charles Esther, Marsico Lung Institute, UNC Medicine

The goal of this project is to systematically measure the protein concentrations of drug transporters and metabolizing enzymes in human airway epithelia, which can then be used to develop enhanced physiologically based pharmacokinetic (PBPK) models of inhaled drugs.

Role: Collaborator \$850,000 (total, years 1-3)

1R01HD098742-02

04/2020 – 3/2024

PI: Craig Lee

*Mechanisms of Altered Hepatic Drug Metabolism and Transport in Pregnancy*

The QTAP Facility provided preliminary data for this grant and continues to collaborate to provide quantitative proteomics essential to assess the changes occurring in the liver for these experiments. New proteins are being added to the panels over the course of this grant funding.

Role: Collaborator \$1,643,385 (total, years 1-5)

R000 (Smith)

11/01/2021 – 2/28/2022

BioIVT, RTP, NC

*Quantitative Targeted Proteomics Analysis of MARC1 in Hepatocytes*

Goals of this project are to quantify MARC1 protein in human cell cultures.

Role: PI \$26,542 (total)

Wayne State University, Detroit, MI

10/2018 – 10/2022

Subcontract to NIH grant (Kocarek): *Regulation of Hepatic P450s by Anti-Cholesterol Drugs*

The major goals of this collaboration is to measure the levels of oxidative enzymes and P-450 Reductase in livers of genetically modified mice.

Role: PI \$33,072 (total)

1R01ES029275

NIH/NIEHS (Aleksunes, PI, Barrett and Huh, Multiple PI)

09/2020 – 12/31/2022

*Placental Responses to Environmental Chemicals*

Subcontract: Targeted Quantitative Proteomic Analysis of Transporters in Human Placenta

Role: Collaborator \$49,500 (total, Year 1 and 2).

## Completed Research Support (last 3 years)

R000 (Smith)

3/15/2021 – 7/15/2021

Vertex, Cambridge, MA

*Targeted Quantitative Proteomics Analysis of Transporters in Monkey Brain and Nerve Tissues*

Goals of this project are to quantify transporters in specific neurological tissues of the monkey.

Role: PI \$42,476 (total)

R000 (Smith)

4/15/2021 – 10/14/2021

Lilly, Indianapolis, IN

*Lilly QTAP of Human CYPs in Humanize Mice with 15 Mouse Proteins*

Goals of this project are to quantify human proteins in a genetically altered mouse as well as residual mouse Cyp proteins.

Role: PI \$70,440 (total)

R000 (Smith)

6/2020 – 5/31/2021

Eisa, Inc., Cambridge, MA

*Targeted Quantitative Proteomics Analysis of OATPs in HEK Cells and hepatocytes*

The goals of this project are to quantify transporter proteins in cell cultures used in studying drug metabolism.

Role: PI \$14,443 (total)

R000 (Smith)

12/2020 – 12/31/2021



Takeda Pharmaceuticals., Cambridge, MA  
*Measurement of Proteins Abundance of Membrane Transporters in Immune Cells*  
The goals of this project are to quantify transporter proteins in human cells types associated with immune response.  
Role: PI \$74,609 (total)

R000 (Smith) 11/15/2020 – 2/15/2021  
Takeda Pharmaceuticals, Cambridge, MA  
*Targeted Quantitative Proteomics Analysis of Enzymes in Pooled Liver Microsomes*  
The goals of this project are to quantify CYP, UGT and other metabolic enzymes in human liver microsomes.  
Role: PI \$15,799 (total)

R000 (Smith) 11/15/2020 – 3/15/2021  
Takeda Pharmaceuticals, Cambridge, MA  
*Targeted Quantitative Proteomics Analysis of Transporters in Hepatocytes with SLC19A and SLC46A1.*  
The goals of this project are to quantify transporters in human hepatocytes and to develop and validate new QTAP methods for two SLC transporters.  
Role: PI \$24,540 (total)

R000 (Smith) 11/15/2020 – 2/15/2021  
Takeda Pharmaceuticals, Cambridge, MA  
*Targeted Quantitative Proteomics Analysis of Enzymes in Pooled Liver Microsomes*  
The goals of this project are to quantify CYP, UGT and other metabolic enzymes in human liver microsomes.  
Role: PI \$15,799 (total)

R000 (Smith) 6/2017 – 7/2020  
Pfizer, Groton, CT  
*Quantitative Targeted Proteomic Analysis (QTAP) of Human Microsomes for ADME Screening*  
The major goals of this project are to measure the expression of CYPs, UGTs, CES and transporters associated with drug disposition in a library human liver microsomes.  
Role: PI (5%, 0.45 months) \$84,524 (direct) \$114,954 (total)