



UNIVERSITY OF MINNESOTA

College of Pharmacy

# DEPARTMENT OF EXPERIMENTAL AND CLINICAL PHARMACOLOGY

2012 Annual Report





DEPARTMENT OF  
EXPERIMENTAL AND CLINICAL PHARMACOLOGY

2012 Annual Report

## Contents

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<b>2</b>	Letter from the Department Head
<b>4</b>	Department Members
<b>6</b>	Research
<b>20</b>	Teaching
<b>22</b>	Service
<b>24</b>	Graduate Program

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*The mission of the Department of Experimental and Clinical Pharmacology (ECP) is to discover, disseminate, and apply new knowledge related to safe, effective, and economical medication use in patients.*

## DEAR COLLEAGUES AND FRIENDS,

In July 2012, following a national search by the College, I was honored to be offered a new position as head of the department that has been my professional home for 25 years. (I had accepted the reins on a temporary basis in April from interim department head Dr. Cynthia Gross.) By that time in the year, ECP faculty had already celebrated several new grants, not to mention numerous published articles in national and international journals and invitations to present research findings at conferences worldwide, and the department had held a successful conference on geriatrics, “Pharmacotherapy for the Elderly,” honoring our colleague Dr. David Guay upon his retirement.

Thanks to Dr. Gross’s strong interim leadership, ECP was also prepared for new growth. In July, Dr. Susan Marino joined our faculty as assistant professor (and almost immediately secured a NIH Ro1 grant for her work in drug effects on cognition). At a summer department retreat, faculty and staff articulated a shared vision for the department and its graduate program, and a plan to build upon the existing expertise of our renowned faculty and advance our mission of research, teaching, practice, and service with two new tenure-track faculty hires in the areas of human pharmacology and therapeutics. We have moved forward with that plan, and as we bring this annual report to press, we are conducting national searches for these positions.

Meanwhile, we continued to provide an excellent education for the College’s graduate and professional students—as well as gifted undergraduates interested in experimental and clinical pharmacology. During the summer of 2012, three graduate/professional students and one undergraduate were mentored by ECP faculty on ongoing research projects as part of a competitive new program of the Clinical and Translational Science Institute (CTSI). In addition, ECP’s five undergraduate Melendy Scholars were exclusively aligned with the CTSI program and allowed to participate in the structured learning activities offered by CTSI. In Fall 2012, five new students entered the ECP graduate

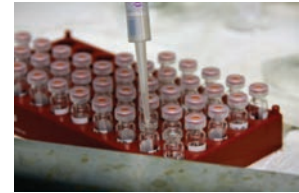
program, joining our 14 continuing students. Faculty also contributed significantly throughout 2012 to the design of the College's new Pharm.D. curriculum, which begins with our first-year students in the fall of 2013.

As 2012 came to a close, we were proud to see our colleague Dr. John Rotschafer receive the Russell R. Miller Award from the American College of Clinical Pharmacy in recognition of his decades of significant publications and contributions to the literature. Dr. Rotschafer's level of accomplishment in research, his service to the field, and his thoughtful training of clinical scientists of tomorrow is representative of the bedrock our department builds upon as we move into 2013 and beyond.

I am pleased and proud to share with you this 2012 Annual Report, which highlights developments and achievements within the department in the previous year. I invite you to look through its pages and consider the groundbreaking work being conducted here. From my 25 years as a member of ECP and from the perspective I now hold as department head, it is clear to me that the positive relationship between faculty and staff has been integral to pursuing our mission. That relationship—along with the expertise of our faculty, and the capabilities and commitment of students and staff—has allowed us to create one of the top experimental and clinical pharmacology programs in the country today. I look forward to the work we will accomplish together in 2013.



Robert J. Straka, Pharm.D.  
Professor and Department Head



## FACULTY

Angela K. Birnbaum, Ph.D.  
*Associate Professor*

Richard C. Brundage, Ph.D.,  
Pharm.D.  
*Professor*

Scott A. Chapman, Pharm.D.  
*Associate Professor*

James C. Cloyd, Pharm.D.  
*Professor; Weaver Endowed Chair;  
Director, Center for Orphan  
Drug Research*

Jeannine M. Conway, Pharm.D.  
*Assistant Professor; Director of  
Applied Learning*

Esam El-Fakahany, Ph.D.  
*Professor; Associate Dean for  
Research and Graduate Studies*

Cynthia R. Gross, Ph.D.  
*Professor*

David R. Guay, Pharm.D.  
*Professor Emeritus*

Pamala A. Jacobson, Pharm.D.  
*Associate Professor*

L'Aurette A. Johnson, Ph.D.  
*Assistant Professor*

Mark N. Kirstein, Pharm.D.  
*Associate Professor*

Michael Kotlyar, Pharm.D.  
*Associate Professor*

Jatinder Lamba, Ph.D.  
*Associate Professor*

Vishal Lamba, Ph.D.  
*Assistant Professor*

Ilo E. Leppik, M.D.  
*Professor*

Ling Li, Ph.D.  
*Professor; VFW Endowed Chair*

Henry J. Mann, Pharm.D.  
*Professor Emeritus*

Susan E. Marino, Ph.D.  
*Assistant Professor*

William S. Oetting, Ph.D.  
*Professor*

Marnie L. Peterson, Ph.D., Pharm.D.  
*Associate Professor*

John C. Rotschafer, Pharm.D.  
*Professor*

Shellina Scheiner, Pharm.D.  
*Assistant Professor*

Leo J. Sioris, Pharm.D.  
*Professor*

Debra J. Skaar, Pharm.D.  
*Assistant Professor*

Robert J. Straka, Pharm.D.  
*Professor; Department Head*

## ADJUNCT FACULTY

Andrew Behm, Pharm.D., CGP  
*Assistant Professor*

Greg Beilman, M.D.  
*Professor*

Dongfeng Cao, Ph.D.  
*Assistant Professor*

Kristin Engebretsen, Pharm.D.  
*Assistant Professor*

Dean T. Filandrinos, Pharm.D.  
*Assistant Professor*

Mary E. Foss, Pharm.D.  
*Assistant Professor*

John F. Gualtieri, Pharm.D.  
*Assistant Professor*

Nitin Kaila, Ph.D.  
*Assistant Professor*

Daniel E. Keyler, Pharm.D.  
*Professor*

Robert Kriel, M.D.  
*Professor*

Smita Kshirsagar, Ph.D.  
*Instructor*

Marie D. Kuker, R.Ph.  
*Assistant Professor*

Stephen H. LeMaster, Pharm.D.  
*Assistant Professor*

Len Lichtblau, Ph.D.  
*Associate Professor*

Ramaiah Muthyala, Ph.D.  
*Associate Professor*

Patrick J. Parks, M.D., Ph.D.  
*Associate Professor*

David Parra, Pharm.D.  
*Associate Professor*

Pamela A. Pawloski, Pharm.D.  
*Associate Professor*

Mark Robbins, R.Ph.  
*Assistant Professor*

Kelly M. Sioris, Pharm.D.  
*Assistant Professor*

Catherine I. Starner, Pharm.D.  
*Assistant Professor*

Catherine St. Hill, D.V.M., Ph.D.  
*Associate Professor*

John V. St. Peter, Pharm.D.  
*Associate Professor*

Jeanine Utz, Pharm.D.  
*Assistant Professor*

Chester B. Whitley, M.D., Ph.D.  
*Professor*

*Rank and appointment as of 12/31/2012.*

## Research and Administrative Staff

Michele Anderson, Ph.D.	Senior Research Associate, Peterson Lab
Marcia Brott	Assistant Scientist, Oetting Lab
Rebecca Brown	Study Coordinator, Jacobson Research Program
Carol Ann Dickinson	Associate Administrator
Tanya Feldberg	Assistant Scientist, Lamba Lab
James Fisher	Technical Director, CPAS Laboratory
Kathy Fox	Study Coordinator, Birnbaum Lab
Laurie Baeker Hovde	Coordinator, MTRF Laboratories
Dede Johnston	Associate Administrator
Reena Kartha, Ph.D.	Research Associate, Cloyd Lab
Brett M. Kistner	Junior Scientist, Birnbaum Lab
Frank N. Konstantinides	Director, CPAS Laboratory
Kyle LeBlanc	Junior Scientist, Li Lab
Erin McGonagle	Executive Office & Administrative Specialist
Annie Mills	Study Coordinator, Kotlyar Research Program
Usha Mishra	Assistant Scientist, Center for Orphan Drug Research
John O. Rarick	Study Coordinator, Birnbaum Lab
Maryanne Reilly-Spong, Ph.D.	Psychologist, Gross Research Program
Brent Williams	Scientist, CPAS Laboratory

## Continuing Graduate Students—Fall 2012

Mariam Ahmed, B.S.	Advisor: Richard C. Brundage, Ph.D., Pharm.D.
Suresh Agarwal, M.S.	Advisor: Richard C. Brundage, Ph.D., Pharm.D.;
	Advisor: James C. Cloyd, Pharm.D.
Gavin Bart, M.D.	Advisor, Richard C. Brundage, Ph.D., Pharm.D.
Neha Bhise, B.Pharm.	Advisor: Jatinder Lamba, Ph.D.
Manoj Chincy, M.Pharm.	Advisor: LAurelle A. Johnson, Ph.D.
Caroline Baum, B.S.	Advisor: Carolyn Fairbanks, Ph.D.
Aaron Gillman, B.S.	Advisor: Marnie L. Peterson, Ph.D., Pharm.D.
Mary Holmay, R.N.	Advisor: James C. Cloyd, Pharm.D.
Krista Johnson, B.S.	Advisor: James C. Cloyd, Pharm.D.
Jia Kang, M.S.	Advisor: Richard C. Brundage, Ph.D., Pharm.D.
Taraswi Mitra Ghosh, M.Sc.	Advisor: Jatinder Lamba, Ph.D.
Kinjal Sanghavi, B.Pharm.	Advisor: Vishal Lamba, Ph.D.
Harrison Tam, B.S.	Advisor: LAurelle A. Johnson, Ph.D.
Jie Zhou, M.S.	Advisor: James C. Cloyd, Pharm.D.

## New Graduate Students—Fall 2012

David Hottman, B.S.	Advisor: Ling Li, Ph.D.
Janice Lee, Pharm.D.	Advisor: Angela K. Birnbaum, Ph.D.
Chay Ngee Lim, B.Sc.	Advisor: Angela K. Birnbaum, Ph.D.
Malek Okour, B.S.	Advisor: Richard C. Brundage, Ph.D., Pharm.D.
Youssef Roman, Pharm.D.	Advisor: Robert J. Straka, Pharm.D.

## New and Continuing Post-Docs, Fellows, and Residents

Laura Breshears, Ph.D.	Advisor: Marnie L. Peterson, Ph.D., Pharm.D.
Shaowu Cheng, Ph.D.	Advisor: Ling Li, Ph.D.
Lisa Coles, Ph.D.	Advisor: James C. Cloyd, Pharm.D.
Darcy Flora, Ph.D.	Advisor: Richard C. Brundage, Ph.D., Pharm.D.
Yogita Ghodke, Ph.D.	Advisor: Jatinder Lamba, Ph.D.
Amit Kumar Mitra, Ph.D.	Advisor: Jatinder Lamba, Ph.D.

*One testimony to the impact of our faculty's research is the honor received this year by Dr. John Rotschafer. He was presented with the prestigious Russell R. Miller Award by the American College of Clinical Pharmacy for his decades of substantial contributions to the literature of clinical pharmacy.*

## RESEARCH

Groundbreaking and critical research is conducted in the Department of Experimental and Clinical Pharmacology. Faculty research programs focus on oncology, transplantation, infectious diseases, genomics, geriatrics, critical care, neuroscience, cardiovascular diseases, pediatrics, integrative therapies and outcomes, and psychiatry. ECP is home to the Lawrence C. Weaver Endowed Chair in Orphan Drug Development and the VFW Endowed Chair in Geriatric Pharmacotherapy. In addition, ECP's state-of-the-art, CLIA-certified Clinical Pharmacology Analytical Services Laboratory has provided an important research resource to both University researchers and external customers for nearly a decade.

Our 23 faculty members regularly present important research findings at national and international conferences, lecture and collaborate across the country, serve as reviewers and editorial board members of international journals, hold leadership positions in national organizations, and serve on National Institutes of Health and other granting agencies' review committees.

### In 2012:

- New grants received by ECP faculty = 10
- Peer-reviewed articles published by ECP faculty = 62
- Books and chapters published by ECP faculty = 6
- Department expenditures on sponsored projects (exclusive of salaries/fringe) = \$1,262,572
- Department salaries/fringe offset by sponsored projects in 2012 = \$1,790,479
- Percentage of total department salaries/fringe offset by sponsored projects in 2012 = 29%



## Research Centers and Groups within ECP

- Center for Forecasting Drug Response, led by Dr. Richard Brundage
- Center for Orphan Drug Research, led by Dr. Jim Cloyd
- Center for Clinical and Cognitive Neuropharmacology, led by Dr. Susan Marino
- Center for Excellence in Critical Care, led by Dr. Greg Beilman
- Center for Translational Excitatory Neurotherapeutics, led by Dr. Ilo Leppik
- Pathway-Driven Pharmacogenomics University of Minnesota Alliance, led by Dr. Jatinder Lamba

## Newly Funded Projects (Sponsored or Intramural) by ECP Faculty in 2012

Faculty	Project Description	Sponsor
Angela K. Birnbaum (Co-I)	Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs	NIH National Institute of Neurological Disorders and Stroke
Richard C. Brundage (PI)	Metrum Pharmacometrics Traineeship	Metrum Research Institute
James C. Cloyd (PI)	The Human Epilepsy Project	Epilepsy Study Consortium
Jeannine M. Conway (PI)	A Pharmacy Coordinated Program to Enhance Medication Use in Chronic Cardiovascular Disease in a Rural Minnesota Community	MN Department of Health
Mark N. Kirstein (PI)	Evaluation of Antitumor Efficacy for Imprime PGG + Monoclonal Antibody Combination in Pancreatic Tumor Mouse Model	Biothera
Mark N. Kirstein (Co-I)	Pilot Analysis of Unbound Sorafenib: Relevance to Efficacy and Toxicity in a Phase I Trial and to In-vitro Cytotoxicity	UMN Minnesota Medical Foundation
Jatinder Lamba (PI)	Impact of Genetic Variation on Response to GO Therapy in COG-AML Clinical Trials	NIH National Cancer Institute

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## Newly Funded Projects by ECP Faculty in 2012, continued

Faculty	Project Description	Sponsor
Susan E. Marino (PI), Angela K. Birnbaum (Co-I), Ilo E. Leppik (Co-I)	Characterizing and Predicting Drug Effects on Cognition	NIH National Institute of Neurological Disorders and Stroke
Susan E. Marino (PI)	Professional Fighters Brain Health Study	The Cleveland Clinic
Debra Skaar (Co-I)	Testing the Feasibility of Patient-Controlled Sedation in Ventilated ICU Patients	NIH National Institute of Nursing
Robert J. Straka (PI)	Pharmacogenomic Markers of Lipid Response to Fenofibrate in a Hispanic Population	UMN Institute of Human Genetics
Jeanine Utz (PI)	Placebo Controlled Trial Evaluating Gabapentin for the Treatment of Small Fiber Neuropathic Pain in Patients with Fabry Disease	Genzyme Corporation

## Ongoing Sponsored Projects by ECP Faculty in 2012

Faculty	Project Description	Sponsor
Angela K. Birnbaum (PI), Susan E. Marino (Co-I)	Clinical Impact of Unstable AED Levels in Elderly Nursing Home Epilepsy Patients	NIH National Institute on Aging
Angela K. Birnbaum (PI)	Multivalent Vaccine for Opiate Addiction	Minneapolis Medical Research Foundation
Angela K. Birnbaum (PI)	Preclinical Studies of a Heroin/Morphine Vaccine for Opiate Addiction	Minneapolis Medical Research Foundation

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## Ongoing Sponsored Projects by ECP Faculty in 2012, continued

Faculty	Project Description	Sponsor
Angela K. Birnbaum (PI), Jatinder Lamba (Co-I)	Pharmacogenomics and Pharmacokinetics of Lamotrigine in Early Pregnancy	Epilepsy Foundation of America, Inc.
Angela K. Birnbaum (PI)	Pharsight–University of Minnesota Pharmacometrics Collaboration	Pharsight Corporation
Richard C. Brundage (PI)	Pharmacogenetics and Drug Interactions	NIH National Institute of General Medical Sciences
Richard C. Brundage (Co-I)	University of Minnesota Clinical and Translational Science Institute	NIH National Center for Research Resources
Richard C. Brundage (PI)	Novartis Fellowship in Pharmacometrics	Novartis Pharma AG
Richard C. Brundage (Co- I), Ilo E. Leppik (Co-I)	Genotype-Dependent Drug Interactions	NIH
Richard C. Brundage (PI)	Pfizer Pharmacometrics Traineeship	Pfizer, Inc.
Richard C. Brundage (Co-I)	Drug-Drug Interactions	NIH
James C. Cloyd (Co-PI), Jeanine Utz (PI), Chester Whitley (Co-I)	Development of Pharmacotherapy and Pharmacogenetics of Inherited Metabolic Disease 2-Year Residency	Genzyme Corporation
James C. Cloyd (Co-I), Reena Kartha (Co-I)	Phase II Clinical Trial to Evaluate the Benefits of Post-Conditioning in STEMI	NIH National Heart, Lung, and Blood Institute
James C. Cloyd (Co-I)	Neurophysiologically Based Responsive Pharmacotherapy for Epilepsy	NIH

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## Ongoing Sponsored Projects by ECP Faculty in 2012, continued

Faculty	Project Description	Sponsor
Cynthia R. Gross (Co-I)	Studies of Organ Transplantation in Animals and Man	NIH National Institute of Diabetes and Digestive and Kidney Diseases
Pamala A. Jacobson (Co-I), William S. Oetting (Co-I)	Genomics of Kidney Transplantation	NIH National Institute of Allergy and Infectious Diseases
Pamala Jacobson (Co-I), Mark N. Kirstein (Co-I)	Cancer Center Support Grant	NIH National Cancer Institute
Mark N. Kirstein (PI)	Vitamin D <sub>3</sub> Effects on Musculoskeletal Symptoms with Use of Aromatase Inhibitors	Park Nicollet Institute
Michael Kotlyar (PI)	Medicinal Nicotine for Preventing Stress-Induced Craving and Withdrawal Symptoms	NIH National Institute on Drug Abuse
Jatinder Lamba (PI)	Pharmacogenetics of Ara-C Metabolic Pathway	NIH National Cancer Institute
Vishal Lamba (Co-I)	Genetic and Time-Frequency Aspects of Neural Phenotypes in Schizophrenia	US Department of Veterans Affairs
Ilo E. Leppik (PI), James C. Cloyd (Co-PI)	Canine Status Epilepticus: A Translational Platform for Human Therapeutics Trials	NIH National Institute of Neurological Disorders and Stroke
Ilo E. Leppik (PI)	Open-Label Study to Assess the Safety and Tolerability of Intravenous Carbamazepine as Short-Term Replacement of Oral Carbamazepine in Adult Patients with Epilepsy	Prism Research, LLC
Ilo E. Leppik (PI)	An Open-Label Safety Study of USL261 in the Outpatient Treatment of Subjects with Seizure Clusters	PharmaNet, Inc.

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## Ongoing Sponsored Projects by ECP Faculty in 2012, continued

Faculty	Project Description	Sponsor
Ling Li (PI)	Modulation of Incretins as a Novel Treatment for Alzheimer's Disease	Alzheimer's Association
Ling Li (PI)	A Novel Role of ApoA-I in Alzheimer's Disease	American Health Assistance Foundation
Ling Li (PI)	Protective Mechanisms of Statins in Alzheimer's Disease	NIH National Institute on Aging
William S. Oetting (Co-I)	Twin Study of ADHD, CD and Substance Abuse	NIH National Institute on Drug Abuse
William S. Oetting (Co-I)	Statistical Model Building for High Dimensional Biomedical Data	NIH National Institute of General Medical Sciences
William S. Oetting (Co-I)	Substance Abuse & Behavioral Disinhibition: Integrating Genes & Environment	NIH National Institute on Drug Abuse
Marnie L. Peterson (PI), William S. Oetting (Co-I)	Staphylococcal Superantigen Interactions with Vaginal Epithelium	NIH National Institute of Allergy and Infectious Diseases
Marnie L. Peterson (Co-I)	Immunological Factors and Risk of Vulvodynia	NIH National Institute of Child Health and Human Development
Marnie L. Peterson (Co-I)	Cardiotoxicity of Streptococcal Pyrogenic Exotoxins	NIH National Institute of Allergy and Infectious Diseases
Marnie L. Peterson (PI)	Biomarker Analysis of Non-Healing Wounds as a Function of Treatment	3M

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## Ongoing Sponsored Projects by ECP Faculty in 2012, continued

Faculty	Project Description	Sponsor
Marnie L. Peterson (PI)	Models for Skin and Wound Infections	3M
Marnie L. Peterson (PI)	Mucosal Models of Infection for Antisepsis	3M
Robert J. Straka (Co-I)	Pretreatment at APOA5 and GCKR Loci and Response to Fenofibrate Therapy	NIH National Institute of Diabetes and Digestive and Kidney Diseases

## Ongoing Intramural Projects by ECP Faculty in 2012

Faculty	Project Description	Sponsor
James C. Cloyd (Co-PI)	Diazepam Prodrugs for the Treatment of Seizure Emergencies	AHC Faculty Development Grant
Mark N. Kirstein (PI)	Optimizing Combination OSI-906 and Chemotherapy	UAB/UMN SPORE in Pancreatic Cancer
Jatinder Lamba (Co-PI)	Generation of Genetically Diverse Liver Cultures from Skin-Derived iPS Libraries	Minnesota Medical Foundation
Jatinder Lamba (Co-PI), Mark N. Kirstein (Co-I)	Genotype Associations with Disease Outcomes	AHC Faculty Development Grant
Vishal Lamba (PI)	Pharmacogenetic determinants of sexually dimorphic CYP3A4 expression	BIRCWH Career Development Award, Deborah E. Powell Center for Women's Health
Vishal Lamba (PI)	Use of HapMap Lymphoblastoid Cell Lines to Identify Pharmacogenetic Predictors of Mycophenolate Tox	UMN Office of the Vice President for Research
Ling Li (PI)	ApoA-I Mimetic Peptides to Enhance Cognitive and Synaptic Function in Alzheimer's Disease	AHC

## Published Articles by ECP Faculty

Pravetoni M, Raleigh MD, Le Naour M, Tucker AM, Harmon TM, Jones JM, **Birnbaum AK**, Portoghese PS, Pentel PR. Co-administration of morphine and oxycodone vaccines reduces the distribution of 6-monoacetylmorphine and oxycodone to brain in rats. *Vaccine*. 2012 Jun 29;30(31):4617-24. doi: 10.1016/j.vaccine.2012.04.101. Epub 2012 May 11. PMID: 22583811 PMCID: PMC3372705

Passey C, **Birnbaum AK**, **Brundage RC**, Schladt DP, **Oetting WS**, Leduc RE, Israni AK, Guan W, Matas AJ, **Jacobson PA**. Validation of tacrolimus equation to predict troughs using genetic and clinical factors. *Pharmacogenomics*. 2012 Jul;13(10):1141-7. doi: 10.2217/pgs.12.98. PMID: 22909204

**Birnbaum AK**, **Conway JM**, Strege MA, **Leppik IE**. Variability of carbamazepine and valproate concentrations in elderly nursing home residents. *Epilepsy Res*. 2012 Aug;101(1-2):22-7. doi: 10.1016/j.epilepsyres.2012.02.014. Epub 2012 Mar 30. PMID: 22464175

Punyawudho B, Ramsay ER, **Brundage RC**, Macias FM, Collins JF, **Birnbaum AK**. Population pharmacokinetics of carbamazepine in elderly patients. *Ther Drug Monit*. 2012 Apr;34(2):176-81. doi: 10.1097/FTD.0b013e31824d6a4e. PMID: 22406657

D'Argenio DZ, Gastonguay MR, **Brundage RC**, Miller R, Tannenbaum SJ, Pfister M. Affiliation between the American Society of Pharmacometrics and the Journal of Pharmacokinetics and Pharmacodynamics. *J Pharmacokinet Pharmacodyn*. 2012 Feb;39(1):3. doi: 10.1007/s10928-011-9237-x. PMID: 22219000

Holman CJ, Karger AB, Mullan BD, **Brundage RC**, Balfour HH Jr. Quantitative Epstein-Barr virus shedding and its correlation with the risk of post-transplant lymphoproliferative disorder. *Clin Transplant*. 2012 Sep-Oct;26(5):741-7. doi: 10.1111/j.1399-0012.2012.01608.x. PMID: 22385033

Khatri A, **Brundage RC**, Hull JM, Williams BW, Yee D, **Kirstein MN**. Pharmacodynamic modeling of sequence-dependent antitumor activity of insulin-like growth factor blockade and gemcitabine. *AAPS J*. 2012 Mar;14(1):1-9. doi: 10.1208/s12248-011-9308-3. Epub 2011 Nov 19. PMID: 22101930 PMCID: PMC3291184

Coles LD, **Cloyd JC**. The role of academic institutions in the development of drugs for rare and neglected diseases. *Clin Pharmacol Ther*. 2012 Aug;92(2):193-202. doi: 10.1038/clpt.2012.83. PMID: 22760003

Radtke KK, Coles LD, Mishra U, Orchard PJ, Holmay M, **Cloyd JC**. Interaction of N-acetylcysteine and cysteine in human plasma. *J Pharm Sci*. 2012 Dec;101(12):4653-9. doi: 10.1002/jps.23325. PMID: 23018672

Hardy BT, Patterson EE, **Cloyd JC**, Hardy RM, **Leppik IE**. Double-masked, placebo-controlled study of intravenous levetiracetam for the treatment of status epilepticus and acute repetitive seizures in dogs. *J Vet Intern Med*. 2012 Mar-Apr;26(2):334-40. doi: 10.1111/j.1939-1676.2011.00868.x. PMID: 22295898

**Conway JM**, Ahmed GF. A pharmacotherapy capstone course to advance pharmacy students' clinical documentation skills. *Am J Pharm Educ*. 2012 Sep 10;76(7):134. doi: 10.5688/ajpe767134. PMID: 23049106 PMCID: PMC3448472

**Conway JM**, **Birnbaum AK**, **Marino SE**, **Cloyd JC**, Rimmel RP. A sensitive capillary GC-MS method for analysis of topiramate from plasma obtained from single-dose studies. *Biomed Chromatogr*. 2012 Sep;26(9):1071-6. doi: 10.1002/bmc.1749. Epub 2012 Jan 4. PMID: 22223467

## Published Articles by ECP Faculty, continued

Jakubík J, Janíčková H, Randáková A, **El-Fakahany EE**, Doležal V. Subtype differences in pre-coupling of muscarinic acetylcholine receptors. *PLoS One*. 2011;6(11):e27732. doi: 10.1371/journal.pone.0027732. PMID: 22110745 PMCID: PMC3218020

Janíčková H, Rudajev V, Zimčík P, Jakubík J, Tanila H, **El-Fakahany EE**, Doležal V. Uncoupling of M<sub>1</sub> muscarinic receptor/G-protein interaction by amyloid  $\beta(1-42)$ . *Neuropharmacology*. 2013 Apr;67:272-83. doi: 10.1016/j.neuropharm.2012.11.014. PMID: 23206502

**Gross CR**, Kreitzer MJ, Reilly-Spong M, Wall M, Winbush NY, Patterson R, Mahowald M, Cramer-Bornemann M. Mindfulness-based stress reduction versus pharmacotherapy for chronic primary insomnia: a randomized controlled clinical trial. *Explore (NY)*. 2011 Mar-Apr;7(2):76-87. doi: 10.1016/j.explore.2010.12.003. PMID: 21397868 PMCID: PMC3077056

Cameron ME, Torkelson C, Haddow S, Namdul T, Prasek A, **Gross CR**. Tibetan medicine and integrative health: validity testing and refinement of the constitutional self-assessment tool and lifestyle guidelines tool. *Explore (NY)*. 2012 May-Jun;8(3):158-71. doi: 10.1016/j.explore.2012.02.002. PMID: 22560754

Kim H, Long-Boyle J, Rydholm N, Orchard PJ, Tolar J, Smith AR, **Jacobson P**, **Brundage R**. Population pharmacokinetics of unbound mycophenolic acid in pediatric and young adult patients undergoing allogeneic hematopoietic cell transplantation. *J Clin Pharmacol*. 2012 Nov;52(11):1665-75. doi: 10.1177/0091270011422814. PMID: 22110162.

**Jacobson PA**, Schladt D, Israni A, **Oetting WS**, Lin YC, Leduc R, Guan W, **Lamba V**, Matas AJ; DeKAF Investigators. Genetic and clinical determinants of early, acute calcineurin inhibitor-related nephrotoxicity: results from a kidney transplant consortium. *Transplantation*. 2012 Mar 27;93(6):624-31. doi: 10.1097/TP.0b013e3182461288. PMID: 22334041 PMCID: PMC3299910

**Jacobson PA**, Schladt D, **Oetting WS**, Leduc R, Guan W, Matas AJ, Israni A. Lower calcineurin inhibitor doses in older compared to younger kidney transplant recipients yield similar troughs. *Am J Transplant*. 2012 Dec;12(12):3326-36. doi: 10.1111/j.1600-6143.2012.04232.x. PMID: 22947444 PMCID: PMC3513646

**Jacobson PA**, Schladt D, **Oetting WS**, Leduc R, Guan W, Matas AJ, **Lamba V**, Mannon RB, Julian BA, Israni A; DeKAF investigators. Genetic determinants of mycophenolate-related anemia and leukopenia after transplantation. *Transplantation*. 2011 Feb 15;91(3):309-16. doi: 10.1097/TP.0b013e318200e971. PMID: 21107304

Abecassis M, Bridges ND, Clancy CJ, Dew MA, Eldadah B, Englesbe MJ, Flessner MF, Frank JC, Friedewald J, Gill J, Gries C, Halter JB, Hartmann EL, Hazzard WR, Horne FM, Hosenpud J, **Jacobson P**, Kasiske BL, Lake J, Loomba R, Malani PN, Moore TM, Murray A, Nguyen MH, Powe NR, Reese PP, Reynolds H, Samaniego MD, Schmader KE, Segev DL, Shah AS, Singer LG, Sosa JA, Stewart ZA, Tan JC, Williams WW, Zaas DW, High KP. Solid-organ transplantation in older adults: current status and future research. *Am J Transplant*. 2012 Oct;12(10):2608-22. doi: 10.1111/j.1600-6143.2012.04245.x. Epub 2012 Sep 7. PMID: 22958872 PMCID: PMC3459231

Jensen K, **Johnson LA**, **Jacobson PA**, Kachler S, **Kirstein MN**, **Lamba J**, Klotz KN. Cytotoxic purine nucleoside analogues bind to A<sub>1</sub>, A<sub>2A</sub>, and A<sub>3</sub> adenosine receptors. *Naunyn-Schmiedeberg's Arch Pharmacol*. 2012 May;385(5):519-25. doi: 10.1007/s00210-011-0719-6. PMID: 22249336

**Johnson LA**, Malayappan B, Tretyakova N, Campbell C, MacMillan ML, Wagner JE, **Jacobson PA**. Formation of cyclophosphamide specific DNA adducts in hematological diseases. *Pediatr Blood Cancer*. 2012 May;58(5):708-14. doi: 10.1002/pbc.23254. PMID: 21793181 PMCID: PMC3204332



## Published Articles by ECP Faculty, continued

**Johnson LA**, Tretyakova N, **Jacobson PA**. Obesity effects on cyclophosphamide-induced DNA damage in hematopoietic cell transplant recipients. *In Vivo*. 2012 Sep-Oct;26(5):853-7. PMID: 22949601

Mitra AK, **Kirstein MN**, Khatri A, Skubitz KM, Dudek AZ, Greeno EW, Kratzke RA, **Lamba JK**. Pathway-based pharmacogenomics of gemcitabine pharmacokinetics in patients with solid tumors. *Pharmacogenomics*. 2012 Jul;13(9):1009-21. doi: 10.2217/pgs.12.81. PMID: 22838949

Moen M, **Lamba J**. Assessment of healthcare students' views on pharmacogenomics at the University of Minnesota. *Pharmacogenomics*. 2012 Oct;13(13):1537-45. doi: 10.2217/pgs.12.139. PMID: 23057552 PMCID: PMC3562085

Brown KC, Hosseinipour MC, Hoskins JM, Thirumaran RK, Tien HC, Weigel R, Tauzie J, Shumba I, **Lamba JK**, Schuetz EG, McLeod HL, Kashuba AD, Corbett AH. Exploration of CYP450 and drug transporter genotypes and correlations with nevirapine exposure in Malawians. *Pharmacogenomics*. 2012 Jan;13(1):113-21. doi: 10.2217/pgs.11.132. Epub 2011 Nov 23. PMID: 22111602 PMCID: PMC3292264

**Lamba J**. Paths to precise prescriptions. *International Innovation Healthcare* [ISSN: 2041-4552]. 2012;13:49.

Kohli M, Riska SM, Mahoney DW, Chai HS, Hillman DW, Rider DN, Costello BA, Qin R, **Lamba J**, Sahasrabudhe DM, Cerhan JR. Germline predictors of androgen deprivation therapy response in advanced prostate cancer. *Mayo Clin Proc*. 2012 Mar;87(3):240-6. doi: 10.1016/j.mayocp.2011.09.009. PMID: 22386179 PMCID: PMC3538410

Thirumaran RK, **Lamba JK**, Kim RB, Urquhart BL, Gregor JC, Chande N, Fan Y, Qi A, Cheng C, Thummel KE, Hall SD, Schuetz EG. Intestinal CYP3A4 and midazolam disposition in vivo associate with VDR polymorphisms and show seasonal variation. *Biochem Pharmacol*. 2012 Jul 1;84(1):104-12. doi: 10.1016/j.bcp.2012.03.017. Epub 2012 Mar 30. PMID: 22484315

**Lamba J**, Hebert JM, Schuetz EG, Klein TE, Altman RB. PharmGKB summary: very important pharmacogene information for CYP3A5. *Pharmacogenet Genomics*. 2012 Jul;22(7):555-8. doi: 10.1097/FPC.0b013e328351d47f. PMID: 22407409

Ghodke Y, Anderson PL, Sangkuhl K, **Lamba J**, Altman RB, Klein TE. PharmGKB summary: zidovudine pathway. *Pharmacogenet Genomics*. 2012 Dec;22(12):891-4. doi: 10.1097/FPC.0b013e32835879a8. PMID: 22960662

Pakhomov S, McInnes BT, **Lamba J**, Liu Y, Melton GB, Ghodke Y, Bhise N, **Lamba V**, **Birnbaum AK**. Using PharmGKB to train text mining approaches for identifying potential gene targets for pharmacogenomic studies. *J Biomed Inform*. 2012 Oct;45(5):862-9. doi: 10.1016/j.jbi.2012.04.007. Epub 2012 May 4. PMID: 22564551 PMCID: PMC3438361

**Leppik IE**, Walczak TS, **Birnbaum AK**. Challenges of epilepsy in elderly people. *Lancet*. 2012 Sep 29;380(9848):1128-30. doi: 10.1016/S0140-6736(12)61517-7. PMID: 23021270

Kou J, Song M, Pattanayak A, Lim JE, Yang J, Cao D, **Li L**, Fukuchi K. Combined treatment of A $\beta$  immunization with statin in a mouse model of Alzheimer's disease. *J Neuroimmunol*. 2012 Mar;244(1-2):70-83. doi: 10.1016/j.jneuroim.2012.01.008. Epub 2012 Feb 11. PMID: 22326143

**Li L**, Zhang W, Cheng S, Cao D, Parent M. Isoprenoids and related pharmacological interventions: potential application in Alzheimer's disease. *Mol Neurobiol*. 2012 Aug;46(1):64-77. doi: 10.1007/s12035-012-8253-1. Epub 2012 Mar 15. PMID: 22418893

## Published Articles by ECP Faculty, continued

**Li L**, Li S, Jones MK, Segrest JP. Rotational and hinge dynamics of discoidal high density lipoproteins probed by interchain disulfide bond formation. *Biochim Biophys Acta*. 2012 Mar;1821(3):481-9. doi: 10.1016/j.bbali.2011.10.013. Epub 2011 Oct 19. PMID: 22063273

Mans RA, McMahon LL, **Li L**. Simvastatin-mediated enhancement of long-term potentiation is driven by farnesyl-pyrophosphate depletion and inhibition of farnesylation. *Neuroscience*. 2012 Jan 27;202:1-9. doi: 10.1016/j.neuroscience.2011.12.007. Epub 2011 Dec 13. PMID: 22192838

Loring DW, **Marino SE**, Parfitt D, Finney GR, Meador KJ. Acute lorazepam effects on neurocognitive performance. *Epilepsy Behav*. 2012 Nov;25(3):329-33. doi: 10.1016/j.yebeh.2012.08.019. Epub 2012 Oct 24. PMID: 23103305

Cirulli ET, Urban TJ, **Marino SE**, Linney KN, **Birnbaum AK**, Depondt C, Attix DK, Radtke RA, Goldstein DB. Genetic and environmental correlates of topiramate-induced cognitive impairment. *Epilepsia*. 2012 Jan;53(1):e5-8. doi: 10.1111/j.1528-1167.2011.03322.x. Epub 2011 Nov 16. PMID: 22091778 PMCID: PMC3253145

**Marino SE**, **Birnbaum AK**, **Leppik IE**, **Conway JM**, Musib LC, **Brundage RC**, Ramsay RE, Pennell PB, White JR, **Gross CR**, Rarick JO, Mishra U, **Cloyd JC**. Steady-state carbamazepine pharmacokinetics following oral and stable-labeled intravenous administration in epilepsy patients: effects of race and sex. *Clin Pharmacol Ther*. 2012 Mar;91(3):483-8. doi: 10.1038/clpt.2011.251. Epub 2012 Jan 25. PMID: 22278332

**Marino SE**, Pakhomov SV, Han S, Anderson KL, Ding M, Eberly LE, Loring DW, Hawkins-Taylor C, Rarick JO, **Leppik IE**, Cibula JE, **Birnbaum AK**. The effect of topiramate plasma concentration on linguistic behavior, verbal recall and working memory. *Epilepsy Behav*. 2012 Jul;24(3):365-72. doi: 10.1016/j.yebeh.2012.04.120. Epub 2012 May 30. PMID: 22658432

Koutlas IG, Forsman CL, Kyrkanides S, **Oetting WS**, Petryk A. Autosomal dominant mesomandibular fibro-osseous dysplasia: a self-resolving inherited fibro-osseous lesion of the jaws. *Front Physiol*. 2012;3:458. doi: 10.3389/fphys.2012.00458. Epub 2012 Dec 6. PMID: 23230423 PMCID: PMC3515761

Irons DE, Iacono WG, **Oetting WS**, McGue M. Developmental trajectory and environmental moderation of the effect of ALDH2 polymorphism on alcohol use. *Alcohol Clin Exp Res*. 2012 Nov;36(11):1882-91. doi: 10.1111/j.1530-0277.2012.01809.x. Epub 2012 May 7. PMID: 22563891 PMCID: PMC3416945

**Oetting WS**. Exome and genome analysis as a tool for disease identification and treatment: the 2011 Human Genome Variation Society scientific meeting. *Hum Mutat*. 2012 Mar;33(3):586-90. doi: 10.1002/humu.22018. Epub 2012 Jan 31. PMID: 22213110

Fang G, Haznadar M, Wang W, Yu H, Steinbach M, Church TR, **Oetting WS**, Van Ness B, Kumar V. High-order SNP combinations associated with complex diseases: efficient discovery, statistical power and functional interactions. *PLoS One*. 2012;7(4):e33531. doi: 10.1371/journal.pone.0033531. Epub 2012 Apr 19. PMID: 22536319 PMCID: PMC3334940

**Oetting WS**, Guan W, Schladt DP, Leduc RE, **Jacobson PA**, Matas AJ, Chinnakotla S, Schröppel B, Murphy BT, Israni AK. Donor polymorphisms of toll-like receptor 4 associated with graft failure in liver transplant recipients. *Liver Transpl*. 2012 Dec;18(12):1399-405. doi: 10.1002/lt.23549. PMID: 22987288 PMCID: PMC3518641

Breshears LM, Schlievert PM, **Peterson ML**. A disintegrin and metalloproteinase 17 (ADAM17) and epidermal growth factor receptor (EGFR) signaling drive the epithelial response to Staphylococcus aureus toxic shock syndrome toxin-1 (TSST-1). *J Biol Chem*. 2012 Sep 21;287(39):32578-87. Epub 2012 Jul 25. PMID: 22833676 PMCID: PMC3463354

## Published Articles by ECP Faculty, continued

Anderson MJ, Lin YC, Gillman AN, Parks PJ, Schlievert PM, **Peterson ML**. Alpha-Toxin Promotes Staphylococcus aureus Mucosal Biofilm Formation. *Front Cell Infect Microbiol*. 2012;2:64. doi: 10.3389/fcimb.2012.00064. Epub 2012 May 9. PMID: 22919655 PMCID: PMC3417397

Spaulding AR, Satterwhite EA, Lin YC, Chuang-Smith ON, Frank KL, Merriman JA, Schaefer MM, Yarwood JM, **Peterson ML**, Schlievert PM. Comparison of Staphylococcus aureus strains for ability to cause infective endocarditis and lethal sepsis in rabbits. *Front Cell Infect Microbiol*. 2012;2:18. doi: 10.3389/fcimb.2012.00018. Epub 2012 Feb 21. PMID: 22919610 PMCID: PMC3417574

Schaefer MM, Breshears LM, Anderson MJ, Lin YC, Grill AE, Panyam J, Southern PJ, Schlievert PM, **Peterson ML**. Epithelial proinflammatory response and curcumin-mediated protection from staphylococcal toxic shock syndrome toxin-1. *PLoS One*. 2012;7(3):e32813. doi: 10.1371/journal.pone.0032813. Epub 2012 Mar 14. PMID: 22431984 PMCID: PMC3303796

Schlievert PM, **Peterson ML**. Glycerol monolaurate antibacterial activity in broth and biofilm cultures. *PLoS One*. 2012;7(7):e40350. doi: 10.1371/journal.pone.0040350. Epub 2012 Jul 11. PMID: 22808139 PMCID: PMC3394780

Spaulding AR, Lin YC, Merriman JA, Brosnahan AJ, **Peterson ML**, Schlievert PM. Immunity to Staphylococcus aureus secreted proteins protects rabbits from serious illnesses. *Vaccine*. 2012 Jul 20;30(34):5099-109. doi: 10.1016/j.vaccine.2012.05.067. Epub 2012 Jun 9. PMID: 22691432 PMCID: PMC3397198

Aslibekyan S, Kabagambe EK, Irvin MR, **Straka RJ**, Borecki IB, Tiwari HK, Tsai MY, Hopkins PN, Shen J, Lai CQ, Ordovas JM, Arnett DK. A genome-wide association study of inflammatory biomarker changes in response to fenofibrate treatment in the Genetics of Lipid Lowering Drug and Diet Network. *Pharmacogenet Genomics*. 2012 Mar;22(3):191-7. doi: 10.1097/FPC.ob013e32834fdd41. PMID: 22228203 PMCID: PMC3275691

Kraja AT, Borecki IB, Tsai MY, Ordovas JM, Hopkins PN, Lai CQ, Frazier-Wood AC, **Straka RJ**, Hixson JE, Province MA, Arnett DK. Genetic Analysis of 16 NMR-Lipoprotein Fractions in Humans, the GOLDN Study. *Lipids*. 2013 Feb;48(2):155-65. doi: 10.1007/s11745-012-3740-8. PMID: 23192666

Frazier-Wood AC, Aslibekyan S, Borecki IB, Hopkins PN, Lai CQ, Ordovas JM, **Straka RJ**, Tiwari HK, Arnett DK. Genome-wide association study indicates variants associated with insulin signaling and inflammation mediate lipoprotein responses to fenofibrate. *Pharmacogenet Genomics*. 2012 Oct;22(10):750-7. PMID: 22890011

Trottier J, Białek A, Caron P, **Straka RJ**, Heathcote J, Milkiewicz P, Barbier O. Metabolomic profiling of 17 bile acids in serum from patients with primary biliary cirrhosis and primary sclerosing cholangitis: a pilot study. *Dig Liver Dis*. 2012 Apr;44(4):303-10. doi: 10.1016/j.dld.2011.10.025. Epub 2011 Dec 9. PMID: 22169272

Aslibekyan S, An P, Frazier-Wood AC, Kabagambe EK, Irvin MR, **Straka RJ**, Tiwari HK, Tsai MY, Hopkins PN, Borecki IB, Ordovas JM, Arnett DK. Preliminary evidence of genetic determinants of adiponectin response to fenofibrate in the Genetics of Lipid Lowering Drugs and Diet Network. *Nutr Metab Cardiovasc Dis*. 2012 Nov 10. pii: S0939-4753(12)00189-5. doi: 10.1016/j.numecd.2012.07.010. PMID: 23149075

Irvin MR, Zhang Q, Kabagambe EK, Perry RT, **Straka RJ**, Tiwari HK, Borecki IB, Shimmin LC, Stuart C, Zhong Y, Hixson JE, Arnett DK. Rare PPARA variants and extreme response to fenofibrate in the Genetics of Lipid-Lowering Drugs and Diet Network Study. *Pharmacogenet Genomics*. 2012 May;22(5):367-72. doi: 10.1097/FPC.ob013e328351a486. PMID: 22336959 PMCID: PMC3325369

## Published Articles by ECP Faculty, continued

Frazier-Wood AC, Ordovas JM, **Straka RJ**, Hixson JE, Borecki IB, Tiwari HK, Arnett DK. The PPAR alpha gene is associated with triglyceride, low-density cholesterol and inflammation marker response to fenofibrate intervention: the GOLDN study. *Pharmacogenomics J*. 2012 May 1. doi: 10.1038/tpj.2012.9. PMID: 22547144 PMCID: PMC3410976

Shen J, Arnett DK, Parnell LD, Lai CQ, **Straka RJ**, Hopkins PN, An P, Feitosa MF, Ordovas JM. The effect of CYP7A1 polymorphisms on lipid responses to fenofibrate. *J Cardiovasc Pharmacol*. 2012 Mar;59(3):254-9. doi: 10.1097/FJC.0b013e-31823de86b. PMID: 22075751

Aslibekyan S, Goodarzi MO, Frazier-Wood AC, Yan X, Irvin MR, Kim E, Tiwari HK, Guo X, **Straka RJ**, Taylor KD, Tsai MY, Hopkins PN, Korenman SG, Borecki IB, Chen YD, Ordovas JM, Rotter JI, Arnett DK. Variants identified in a GWAS meta-analysis for blood lipids are associated with the lipid response to fenofibrate. *PLoS One*. 2012;7(10):e48663. doi: 10.1371/journal.pone.0048663. Epub 2012 Oct 31. PMID: 23119086 PMCID: PMC3485381

## Published Books and Chapters by ECP Faculty

**Conway JM, Leppik IE, Birnbaum AK**. Antiepileptic drug therapy in children. In: Swaiman KF, Ashwal S, Ferriero DM, Schor NF, eds. *Swaiman's Pediatric Neurology: Principles and Practice*. 5th ed. Philadelphia, PA: Elsevier; 2012:811-836.

**Conway JM**, Henry TR. Antiepilepsy drugs: mechanisms of action and pharmacokinetics. In: *Hospital Physician Epilepsy Board Review Manual*. Vol. 1, part 5. Wayne, PA: Turner White Communications; 2012.

**Conway JM**, Henry TR. Antiepilepsy drugs: pharmacodynamics and principles of drug selection. In: *Hospital Physician Epilepsy Board Review Manual*. Vol. 1, part 6. Wayne, PA: Turner White Communications; 2012.

Allredge BK, Corelli RL, Ernst ME, Guglielmo BJ, **Jacobson PA**, Kradjan WA, Williams BR, eds. *Applied Therapeutics: The Clinical Use of Drugs*. 10th ed. New York, NY: Lippincott Williams & Wilkins; 2012.

Schlievert P, **Peterson M**. Staphylococci: abscesses and toxin-mediated diseases. In: Engleberg NC, DiRita V, Dermody TS, eds. *Schaechter's Mechanisms of Microbial Disease*. 5th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2012.

Ullman MA, **Rotschafer JC**. Antimicrobial prophylaxis in surgery. In: Chisholm-Burns MA, Schwinghammer TL, Wells BG, Malone PM, Kolesar JM, DiPiro JT, eds. *Pharmacotherapy Principles and Practice*. 3rd ed. Baltimore, MD: McGraw-Hill; 2013.

## Other Publications and Reports by ECP Faculty

**Birnbaum AK.** Pharmacokinetic issues in elderly patients: are there clinical consequences? [multimedia presentation online]. In: "The Pharmacology of Aging: Why Age Matters" eBriefing. New York Academy of Sciences Web site. <http://www.nyas.org/Publications/EBriefings/Detail.aspx?cid=a9d258f3-ba48-44bd-b217-2ofadd6750f3>. May 3, 2012. Accessed March 11, 2013.

Weber-Main AM, **El-Fakahany EE**, Shanedling J, Huibregtse G. Optimizing the practice of mentoring: An online curriculum for the professional development of research mentors [online course]. Clinical and Translational Science Institute Web site. <http://www.ctsi.umn.edu/education/Mentoring/index.htm>. 2012. Accessed March 11, 2013.

Puranik YG, Thorn CF, **Lamba JK**, Song W, **Birnbaum AK**, Leeder S. Valproic acid pathway, pharmacodynamics [pathway diagram]. PharmGKB Web site. <http://www.pharmgkb.org/pathway/PA165959313#>. August 15, 2012. Accessed March 11, 2013.

Sanghavi K, Sangkuhl K, **Lamba V**. Mycophenolic acid pathway, pharmacokinetics [pathway diagram]. PharmGKB Web site. <http://www.pharmgkb.org/pathway/PA165964832>. August 1, 2012. Accessed March 11, 2013.

**Oetting WS.** Ocular albinism. In: Rare Disease Database [database online]. Danbury, CT: National Organization for Rare Disorders; 2012. <http://www.rarediseases.org/rare-disease-information/rare-diseases/byID/457/viewFullReport>. Accessed March 11, 2013.

**Oetting WS.** Oculocutaneous albinism. In: Rare Disease Database [database online]. Danbury, CT: National Organization for Rare Disorders; 2012. <http://www.rarediseases.org/rare-disease-information/rare-diseases/byID/42/viewFullReport>. Accessed March 11, 2013.

*With more than two dozen faculty and adjunct faculty and a dedicated administrative and research staff, ECP trains professional, graduate, and post-graduate students of the highest caliber while advancing a widely respected research program.*

## TEACHING

The College of Pharmacy consistently ranks among the top three pharmacy schools in the nation. In 2012, ECP faculty provided 1,856.5 hours of didactic education to 167 pharmacy students per class year, as well as students in dentistry, nursing, public health, geriatrics, and genetics. Instruction to pharmacy students included experiential education in acute care, geriatric patient care, pediatric infectious disease, and clinical toxicology. It also included teaching and directing in the pharmacotherapy series and the pharmaceutical care skills course sequence, and teaching other elective courses. In addition, ECP members participated in journal clubs throughout the University in their areas of interest and with research collaborators.

In 2012, ECP faculty mentored:

- 13 Melendy or Undergraduate Research Opportunities Program students
- 4 undergraduate students
- 12 professional students
- 3 graduate students in non-ECP programs

In 2012, ECP faculty:

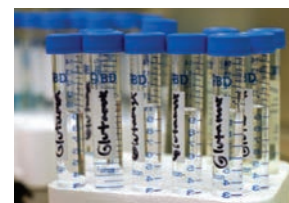
- offered laboratory experience to 12 students
- served as advisors or readers on thesis projects to 95 pharmacy students

## Innovations in Teaching

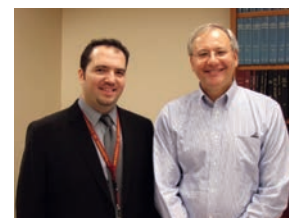
**Angela Birnbaum** expanded ECP 5220 (Regulatory Issues in Drug Research) from a 1 credit course to a 2 credit course, allowing for more in-depth group discussions and cases.



**Esam El-Fakahany** helped develop the curriculum for an online professional development course in mentoring for the Clinical and Translational Science Institute. “Optimizing the Practice of Mentoring” is designed to prepare faculty from a range of disciplines to be effective research mentors for junior faculty, post-doctoral fellows, and graduate students.



**L'Aurelle Johnson** incorporated a new assignment into PHAR 5205 (Obesity: More than Just a Prescription) that is designed to improve students' understanding of social interactions and potential biases when delivering care to obese subjects. She also expanded the focus on scientific writing in ECP 8992 (Directed Readings in Experimental and Clinical Pharmacology), specifically the writing of abstracts and specific aims pages and how to compare to supportive and alternative views in the literature.



**Mark Kirstein** developed exercises for ECP 8900 (Advanced Topics in Experimental and Clinical Pharmacology) to advance graduate students' skills in writing specific aims pages, giving and receiving critique, and incorporating feedback into revisions. Students were also given a clinical protocol to practice developing a research hypothesis and writing together as a group; a future draft of the work may be submitted to regulatory bodies for approval to conduct a clinical observational study.

**Jatinder Lamba**, with a fourth-year pharmacy student, surveyed health care students across several colleges at the University (Pharmacy, Nursing and Medicine) about their views on pharmacogenomics. The results of this study indicated that although a huge majority healthcare students consider pharmacogenomics to be an important area of clinical practice, they acknowledge that it has not been an important part of their curriculum.

**Vishal Lamba, William Oetting, Marnie Peterson, and Robert Straka** implemented an interinstitutional approach to graduate teaching with ECP 8992 (Directed Readings in Experimental and Clinical Pharmacology), working with the University of Pittsburgh and the University of North Carolina at Chapel Hill to provide students at all three programs with course content that was synchronous and shared via live videoconferencing.

**Susan Marino** implemented a new interdisciplinary undergraduate Honors College seminar, “A Pill for Every Problem or Problem Pills.”

**Marnie Peterson** traveled to the United Kingdom to develop an international collaborative Ph.D. student research program between her lab, and the University of Birmingham and Queens Hospital.

The hours of service by ECP faculty and staff enhance the standing of the College in the profession and in the community, and are an opportunity to develop collaborations nationally and internationally.

## SERVICE

In addition to their college teaching and research, many ECP faculty discover opportunities for service both within the University and with outside organizations and companies. The immeasurable hours they spend offering expertise and guidance are a way to give back to the community, peers and students, and the field.

Faculty cited service to 16 national committees in 2012, including NIH study section committees, abstract review committees, and program planning committees for national organizations. Faculty served on 27 University and AHC committees including the Faculty Senate, search committees, advisory groups, the Graduate Education Council, facilities planning, clinical protocol review, and others. They also had a total of 53 service commitments to committees within the College of Pharmacy and 22 within ECP.

Five faculty members had appointments on boards of directors or professional advisory boards of research organizations; others had appointments on standards and education committees with health providers in Minnesota such as HealthPartners, Regions, and Fairview.

In 2012, faculty served on the editorial boards of *Diagnostic Microbiology and Infectious Disease*, *Frontiers in Cellular and Infection Microbiology*, *Frontiers in Neurodegenerative Diseases*, *Frontiers in Pharmacogenetics and Pharmacogenomics*, *Human Mutation*, *International Scholarly Research Network – Pharmacology*, *Pharmacogenomics*, and the *Scientific World Journal*. In addition, they served as manuscript reviewers for 55 journals; as proposal reviewers for 14 funding bodies including the National Science Foundation, the Alzheimer's Association, and the Italian Ministry of Health; and as reviewers of faculty promotion documents for institutions across the country and around the world.



## Highlights in Service

In April 2012, ECP presented “Pharmacotherapy for the Elderly: Challenges and Solutions,” a half-day conference that brought together several expert speakers to explore issues within the field. Topics included the economic challenges of caring for the aging adult population in the U.S., past and present pharmacological treatment of Alzheimer’s and the current state of research into the disease, drug use in the elderly population and “cognitive aging,” Medicare, and the goals of palliative/hospice care. More than 90 participants from the College of Pharmacy, the School of Nursing, and the School of Medicine registered; the event was open to professional students as well. The conference director was **Shellina Scheiner**, department faculty who delivered lectures included **Ling Li** and **Susan Marino**.

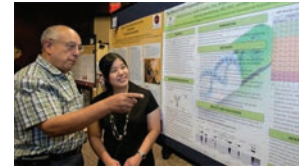
**Jeannine Conway** served as pharmacist for Camp Oz, a program of the Epilepsy Foundation of Minnesota that offers a traditional camping experience for youth with epilepsy.

**Jim Cloyd** worked with the Child Neurology Foundation on the Young Brain Carnival, a special event at the Mall of America/Nickelodeon Universe for families with children affected by brain disorders.

**Cynthia Gross** spoke at the Connecting Parents to Educational Opportunities (CPEO) program graduation at Elizabeth Hall Elementary School in Minneapolis. CPEO is a part of the University’s College Readiness Consortium.

**Pamala Jacobson** was co-coordinator of the Twin Cities Oncology Pharmacist group, a bimonthly meeting of Twin Cities hematology/oncology pharmacists.

**Robert Straka** was a contributing member of the Institute for Clinical Systems Integration’s Healthcare Guidelines Committee for Congestive Heart Failure.



*The Graduate Program provides hands-on learning experiences to those who will become tomorrow's leaders in experimental and clinical pharmacology research and teaching.*

## GRADUATE PROGRAM

The ECP Graduate Program is an innovative, interdisciplinary program that trains students to conduct research encompassing methodology from basic and clinical pharmacology perspectives. It was designed specifically for students interested in clinical research with the goal to advance the science of human pharmacology and therapeutics to improve the safe, effective, and economical use of drugs by patients. Students study such topics as experimental pharmacotherapy, drug metabolism, infectious disease, pharmacometrics, and pharmacogenomics. Graduates are prepared for distinguished careers in clinical research.

ECP celebrated the graduation of seven students in 2012 (bringing the total number of program graduates to 34), and had a total of 19 new and continuing students in the program as of Fall 2012.

### New Students—Fall 2012

The department admitted five new students in Fall 2012:

David Hottman, B.S.	Advisor: Ling Li, Ph.D.
Janice Lee, Pharm.D.	Advisor: Angela K. Birnbaum, Ph.D.
Chay Ngee Lim, B.Sc.	Advisor: Angela K. Birnbaum, Ph.D.
Malek Okour, B.S.	Advisor: Richard C. Brundage, Ph.D., Pharm.D.
Youssef Roman, Pharm.D.	Advisor: Robert J. Straka, Pharm.D.

### New Ph.D. Candidates in 2012

Five students became Ph.D. candidates by passing their oral preliminary exams:

Gavin Bart, M.D.  
 Manoj Chiney, M.Pharm.  
 Mary Holmay, R.N.  
 Jia Kang, M.S.  
 Jie Zhou, M.S.

## ECP Ph.D. Graduates in 2012

Graduate	Thesis Title	Advisor	Current Position
Chaitali Passey, Ph.D.	Application of Pharmacometrics for Covariate Selection and Dose Optimization of Tacrolimus in Adult Kidney Transplant Recipients	Angela K. Birnbaum, Ph.D.	Post-Doctoral Associate, Rutgers University
Ghada Ahmed, Ph.D.	Pharmacometric Analyses of Anti-epileptic Drugs in Elderly Patients: Applications to Carbamazepine, Gabapentin and Topiramate	Angela K. Birnbaum, Ph.D.	Abbott Laboratories
Akshanth Polepally, Ph.D.	Pharmacometric Analyses of Lamotrigine in Special Populations: Application to Pregnant Women, Younger Adult and Elderly Epilepsy Patients	Angela K. Birnbaum, Ph.D.	Abbott Laboratories
Azher Arafah, Pharm.D., Ph.D.	Studies Investigating the Impact of Select Genotypes on the Pharmacological Effect of Fenofibrate	Robert J. Straka, Pharm.D.	Assistant Professor, King Saud University, Saudi Arabia
Heather Vezina, Pharm.D., Ph.D.	Application of Pharmacometric Methods to Studies of Antiviral Prophylaxis After Solid Organ Transplantation	Richard C. Brundage, Ph.D., Pharm.D.	Post-Doctoral Fellow, Children's Hospital of Philadelphia
Pornpimol Kijsanayotin, Ph.D.	Association of Genetic Variants in CYP2C19 and Non-Genetic Variant with Phenytoin Response Phenotype	William S. Oetting, Ph.D.	Assistant Professor, Pharmaceutical Sciences, Chulalongkorn University
Katherine Needleman, Ph.D.	Exposure-Response Modeling of QT Prolongation for Clinical Studies	Richard C. Brundage, Ph.D., Pharm.D.	Federal Drug Administration

## Presentations by Graduate Students or Post-Docs

**Agarwal S.** Intranasal therapy and other novel approaches in seizure emergencies. Presented at: Gillette's Third Biennial Pediatric Neurosciences Conference; 2012 May 30; Minneapolis, MN.

Rizk M, **Ahmed G**, Young K, Motyl M, Butters J, Li C, and Wenning L. A semi-mechanistic pharmacokinetic/pharmacodynamic (PK/PD) model for MK-7655, a novel  $\beta$ -lactamase inhibitor (BLI) for use in combination with imipenem/cilastatin. Presented at: International Conference on Antimicrobial Agents and Chemotherapy (ICAAC); 2012 Sep 9-12; San Francisco, CA.

**Arafah A.** Evidence of UGT2B7 as a pharmacogenetic determinant of variability in serum fenofibric acid levels in human subjects. Presented at: American Heart Association's Arteriosclerosis, Thrombosis and Vascular Biology 2012 Scientific Sessions; 2012 Apr 18-20; Chicago, IL.

**Bart G.** Substance use disorders: prevention is effective, treatment works, and people recover. Presented at: The American Center, US Embassy; 2012 Mar 19; Hanoi, Vietnam.

**Bart G.** Clinical strategies to produce optimal outcomes with methadone treatment. Presented at: Substance Use Disorders and HIV in Vietnam; 2012 Mar 17; Hanoi, Vietnam.

**Bart G.** Medicine and addiction: medical model of addiction treatment. Presented at: East Metro Region Prescription Drug Abuse Prevention Forum; 2012 Feb 28; St. Paul, MN.

**Baum C.** Adeno-associated virus (AAV) gene therapy for chronic pain. Presented at: Department of Experimental and Clinical Pharmacology Weekly Seminar, College of Pharmacy, University of Minnesota; 2012 Sep; Minneapolis, MN.

**Bhise N.** Role of hypoxia in development of cellular resistance. Presented at: Department of Experimental and Clinical Pharmacology Weekly Seminar, College of Pharmacy, University of Minnesota; 2012 Apr; Minneapolis, MN.

**Gillman A.** Progress towards a staphylococcal vaccine. Presented at: Department of Experimental and Clinical Pharmacology Weekly Seminar, College of Pharmacy, University of Minnesota; Mar 2012; Minneapolis, MN.

**Johnson K.** Designing and validating bioanalytical methods. Presented at: Department of Experimental and Clinical Pharmacology Weekly Seminar, College of Pharmacy, University of Minnesota; 2012 Apr; Minneapolis, MN.

**Kang J.** Some considerations on pharmacokinetic study and therapies in pregnant women. Presented at: Department of Experimental and Clinical Pharmacology Weekly Seminar, College of Pharmacy, University of Minnesota; Minneapolis, MN.

**Mitra Ghosh T.** Use of HAPMAP lymphoblastoid cell lines as model for pharmacogenomic discovery. Presented at: Department of Experimental and Clinical Pharmacology Weekly Seminar, College of Pharmacy, University of Minnesota; Apr 2012; Minneapolis, MN.

**Sanghavi K.** MicroRNA mediated regulation of drug metabolizing enzymes. Presented at: Department of Experimental and Clinical Pharmacology Weekly Seminar, College of Pharmacy, University of Minnesota; Apr 2012; Minneapolis, MN.

**Tam H.** The effect of obesity on plasma xanthine oxidase and intestinal UGTs. Presented at: Department of Experimental and Clinical Pharmacology Weekly Seminar, College of Pharmacy, University of Minnesota; Nov 2012; Minneapolis, MN.

**Zhou J.** Mitochondria-targeted antioxidants: a potential neuroprotective therapy. Presented at: CODR Journal Club, Center for Orphan Drug Research, College of Pharmacy, University of Minnesota; 2012 Nov 15; Minneapolis, MN.

## Abstracts—Poster Sessions and Presentations by Graduate Students or Post-Docs

**Agarwal S.** A meta-analysis of pharmacokinetic data of diazepam following alternate routes of administration to optimize future bioequivalence trials. Poster presented at: Translating Discoveries into Better Health. CTSI Research Conference; 2012 Sep 12; Minneapolis, MN.

**Ahmed G,** Brundage R, Leppik I, Birnbaum A. Absorption of gabapentin in nursing home elderly patients. Poster presented at: 66th Annual Meeting of the American Epilepsy Society; 2012 Nov 30-Dec 4; San Diego, CA.

Marino S, **Ahmed G,** Brundage R, Leppik I, Pakhomov S, Birnbaum A. Prediction of cognitive response from a model-based simulation of generative verbal fluency scores after a single dose of topiramate in healthy volunteers. Poster presented at: 66th Annual Meeting of the American Epilepsy Society; 2012 Nov 30-Dec 4; San Diego, CA.

**Ghodke Y,** Birnbaum A, Marino S, **Ahmed G,** Cloyd J, Rimmel R, Leppik I, Lamba J. Association of carbamazepine metabolism pathway gene polymorphism and pharmacokinetics in patients with epilepsy. Poster presented at: 18th North American Regional ISSX Meeting; 2012 Oct 14; Dallas, TX.

**Ahmed G,** Rizk M, Young K, Motyl M, Li C, Wenning L. A semi-mechanistic pharmacokinetic/pharmacodynamic (PK/PD) model for imipenem/MK-7655 combination therapy against resistant *Pseudomonas aeruginosa*. Poster presented at: 2012 American Society for Clinical Pharmacology and Therapeutics (ASCPT) Annual Meeting; 2012 Mar 12-17; National Harbor, MD.

**Ahmed G,** Marino S, Brundage R, Pakhomov S, Leppik I, Cloyd J, Clark A, Birnbaum A. Pharmacokinetic/pharmacodynamic (PK/PD) modeling of intravenous and oral topiramate and its effects on phonemic fluency in adult healthy volunteers. Poster presented at: 2012 American Society for Clinical Pharmacology and Therapeutics (ASCPT) Annual Meeting; 2012 Mar 12-17; National Harbor, MD.

**Arafah A,** Guillemette C, Tsai M, Boreen C, Straka R. Evidence of UGT2B7 as a pharmacogenetic determinant of variability in serum fenofibric acid levels in human subjects. Poster presented at: American Heart Association Scientific Sessions 2012; 2012 Nov 3-7; Los Angeles, CA.

**Arafah A,** Guillemette C, Tsai M, Boreen C, Straka R. Evidence of UGT2B7 as a pharmacogenetic determinant of variability in serum fenofibric acid levels in human subjects. Poster presented at: American Heart Association's Arteriosclerosis, Thrombosis and Vascular Biology 2012 Scientific Sessions; 2012 Apr 18-20; Chicago, IL.

**Gillman A.** Penetration *Staphylococcus aureus* toxic shock syndrome toxin-1 into vaginal mucosa causes pro-inflammatory effects. Poster presented at: 112th General Meeting of the American Society of Microbiology; 2012 June 16-19; San Francisco, CA.

**Johnson K.** Comparison of blood and plasma assay methods for measurement of topiramate concentrations. Poster presented at: Translating Discoveries into Better Health. CTSI Research Conference; 2012 Sep 12; Minneapolis, MN.

Horvath KJ, Rosser BRS, Oakes JM, Konstan J, Danilenko GP, **Vezina H,** Amico KR, Simoni J, Williams ML. Results of an online social support and text reminder ART intervention. Poster presented at: 7th International Conference on HIV Treatment and Prevention Adherence; 2012 June 3-5; Miami Beach, FL.

**Zhou J,** Kartha RV, Basso L, Orchard PJ, Schröder H, Cloyd JC. Heme oxygenase-1 (HO-1) is a possible mediator of cytoprotective effects by N-acetyl cysteine (NAC) in CCALD patients. Poster presented at: 2012 American Society for Clinical Pharmacology and Therapeutics (ASCPT) Annual Meeting; 2012 Mar 12-17; National Harbor, MD.

## Abstracts—Poster Sessions and Presentations by Graduate Students or Post-Docs, continued

**Bart G**, Lenz S, Pentel P, Straka R, Brundage R. Ethnic variation in methadone pharmacokinetics. Poster presented at: College on Problems of Drug Dependence (CPPD) 74th Annual Scientific Meeting; 2012 June 9-14; Palm Springs, CA.

Phillips KA, Epstein DH, Reamer D, **Bart G**, Preston KL. Methadone dose-related increase in QTc without clinically significant prolongation or arrhythmia. Poster presented at: College on Problems of Drug Dependence (CPPD) 74th Annual Scientific Meeting; 2012 June 9-14; Palm Springs, CA.

Cao D, Lu H, **Hottman D**, **Zhang W**, **Cheng S**, Hovde L, Wright T, Pegues M, Szalai A, Li L. Overexpression of human C-reactive protein exacerbates cognitive impairment and neuropathology in a mouse model of Alzheimers disease. Poster presented at: Neuroscience 2012. Society for Neuroscience; 2012 Oct 13-17; New Orleans, LA.

**Cheng S**, Cao D, Wang F, **Hottman D**, Leathley E, **Zhang W**, **Parent M**, Hovde L, Bergo M, Yuan L, Li L. Two protein prenylation pathways exhibit differential effects in a mouse model of Alzheimers disease. Poster presented at: Neuroscience 2012. Society for Neuroscience; 2012 Oct 13-17; New Orleans, LA.

**Polepally AR**, Menon RM, Dutta S. Meta-analyses of viral load decline, dose response and clinical outcomes in treatment-naïve genotype-1 hepatitis C virus (HCV) infected subjects receiving pegylated interferon +/- ribavirin. Poster presented at: 2012 American Society for Clinical Pharmacology and Therapeutics (ASCPT) Annual Meeting; 2012 Mar 12-17; National Harbor, MD.

**Polepally AR**, Chittenden J, Matzuka BJ, Brundage RC, Pennell PB, Birnbaum AK. Comparison of lamotrigine population pharmacokinetics in pregnant women by two non-linear mixed effect modeling software products: NONMEM and Phoenix NLME. Poster presented at: 2012 American Society for Clinical Pharmacology and Therapeutics (ASCPT) Annual Meeting; 2012 Mar 12-17; National Harbor, MD.

## Published Abstracts by Graduate Students or Post-Docs

**Ghodke Y**, Birnbaum AK, Marino SE, **Ahmed G**, Cloyd JC, Rimmel RP, Leppik IE, Lamba JK. Association of carbamazepine metabolism pathway gene polymorphisms and pharmacokinetics in patients with epilepsy [abstract]. 18th North American Regional ISSX Meeting. *Drug Metabolism Reviews*. 2012;44(S1):128.

**Passey C**, Chittenden J, Matzuka BJ, Brundage RC, Jacobson PA, Birnbaum AK. Comparison of dose predictions for tacrolimus by non-linear mixed effects modeling with NONMEM and Phoenix NLME [abstract]. American Society of Clinical Pharmacology and Therapeutics. *Clinical Pharmacology and Therapeutics*. 2012;91(suppl 1):S131, PIII-98, Poster.

**Holmay M**, **Coles L**, Terpstra M, Mishra U, Oz G, Tuite P, Cloyd J, Bower M, Whitley C, Hilbert S, Coler E, Ahlskog M. Feasibility study in Gaucher and Parkinson patients to assess glutathione levels in the brain and red blood cells following intravenous N-acetylcysteine [abstract]. *Mol Genet Metab*. 2012 February; 105(2):S35-S36. doi: 10.1016/j.ymgme.2011.11.078

## Publications by Graduate Students or Post-Docs

Conway JM, **Ahmed GF**. A pharmacotherapy capstone course to advance pharmacy students' clinical documentation skills. *Am J Pharm Educ*. 2012 Sep 10;76(7):134. doi: 10.5688/ajpe767134. PMID: 23049106 PMCID: PMC3448472

## Publications by Graduate Students or Post-Docs, continued

Anderson MJ, Lin YC, **Gillman AN**, Parks PJ, Schlievert PM, Peterson ML. Alpha-toxin promotes *Staphylococcus aureus* mucosal biofilm formation. *Front Cell Infect Microbiol*. 2012;2:64. doi: 10.3389/fcimb.2012.00064. Epub 2012 May 9. PMID: 22919655 PMCID: PMC3417397

**Bhise N**, Anderson PL, Sangkuhl K, Lamba J. Lamivudine Pathway, Pharmacokinetics/Pharmacodynamics. PharmGKB. *Clinical Pharmacology & Therapeutics*. 2012;92(4):414-417.

Subramanian M, Agrawal V, Sandee D, **Tam HK**, Miller WL, Tracy TS. Effect of P450 oxidoreductase variants on the metabolism of model substrates mediated by CYP2C9.1, CYP2C9.2, and CYP2C9.3. *Pharmacogenet Genomics*. 2012 Aug;22(8):590-7. doi: 10.1097/FPC.0b013e3283544062. PMID: 22547083

**Kartha RV**, **Zhou J**, Hovde LB, Cheung BW, Schröder H. Improved detection of hydrogen sulfide in cultured cells using an agar trapping method. *Anal Biochem*. 2012 Apr 1; 423(1):102-8.

Pakhomov S, McInnes BT, Lamba J, Liu Y, Melton GB, **Ghodke Y**, **Bhise N**, Lamba V, Birnbaum AK. Using PharmGKB to train text mining approaches for identifying potential gene targets for pharmacogenomic studies. *J Biomed Inform*. 2012 Oct;45(5):862-9. doi: 10.1016/j.jbi.2012.04.007. Epub 2012 May 4. PMID: 22564551 PMCID: PMC3438361

Radtke KK, **Coles LD**, Mishra U, Orchard PJ, **Holmay M**, Cloyd JC. Interaction of N-acetylcysteine and cysteine in human plasma. *J Pharm Sci*. 2012 Dec;101(12):4653-9. doi: 10.1002/jps.23325. Epub 2012 Sep 27. PMID: 23018672

**Passey C**, Birnbaum AK, Brundage RC, Schladt DP, Oetting WS, Leduc RE, Israni AK, Guan W, Matas AJ, Jacobson PA. Validation of tacrolimus equation to predict troughs using genetic and clinical factors. *Pharmacogenomics*. 2012 Jul;13(10):1141-7. doi: 10.2217/pgs.12.98. PMID: 22909204

**Coles LD**, Cloyd JC. The role of academic institutions in the development of drugs for rare and neglected diseases. *Clin Pharmacol Ther*. 2012 Aug;92(2):193-202. doi: 10.1038/clpt.2012.83. Epub 2012 Jul 4. PMID: 22760003

**Ghodke Y**, Anderson PL, Sangkuhl K, Lamba J, Altman RB, Klein TE. PharmGKB summary: zidovudine pathway. *Pharmacogenet Genomics*. 2012 Dec;22(12):891-4. doi: 10.1097/FPC.0b013e32835879a8. PMID: 22960662

Li L, **Zhang W**, **Cheng S**, Cao D, **Parent M**. Isoprenoids and related pharmacological interventions: potential application in Alzheimer's disease. *Mol Neurobiol*. 2012 Aug;46(1):64-77. doi: 10.1007/s12035-012-8253-1. Epub 2012 Mar 15. PMID: 22418893

**Mitra AK**, Kirstein MN, Khatri A, Skubitz KM, Dudek AZ, Greeno EW, Kratzke RA, Lamba JK. Pathway-based pharmacogenomics of gemcitabine pharmacokinetics in patients with solid tumors. *Pharmacogenomics*. 2012 Jul;13(9):1009-21. doi: 10.2217/pgs.12.81. PMID: 22838949

**Ahmed G**, Noreddin A. Application of Pharmacokinetics/Pharmacodynamics (PK/PD) in Designing Effective Antibiotic Treatment Regimens. In: Noreddin A, ed. *Readings in Advanced Pharmacokinetics: Theory, Methods and Applications*. InTech Publishing; 2012: 111-126.

Noreddin A, **Sawi G**, Elkhatib W, Noreddin E, Shibl A. Inhibition of adhesion and invasion of *Pseudomonas aeruginosa* to lung epithelial cells: a model of cystic fibrosis infection. In: Irusen EM, ed. *Lung Diseases—Selected State of The Art Reviews*. InTech Publishing; 2012: 429-440.



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