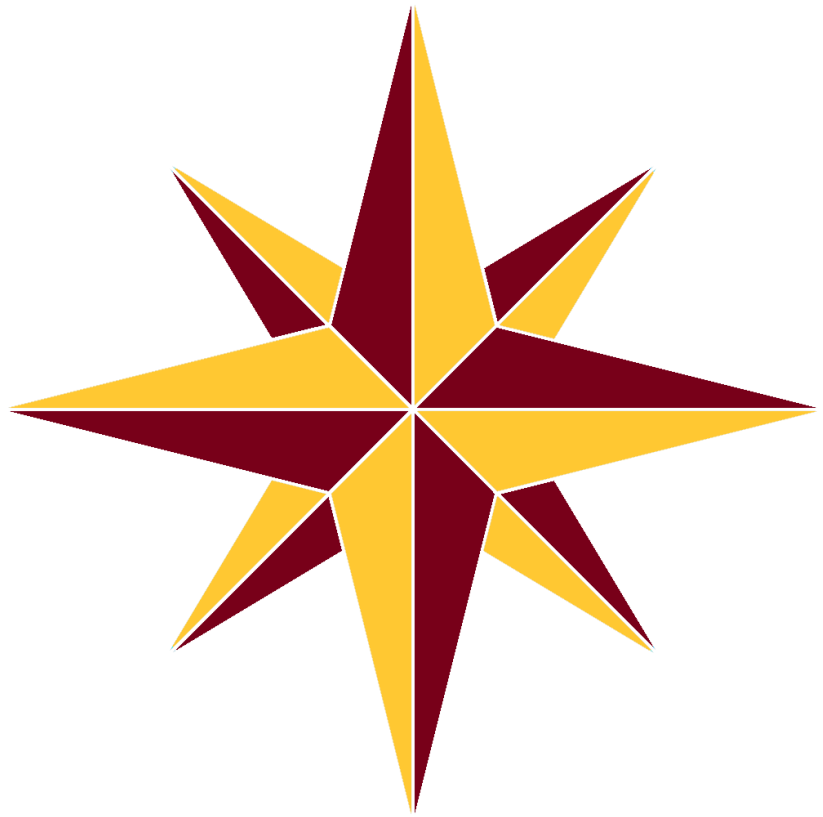


# **Department of Experimental and Clinical Pharmacology 2024 Annual Report**



**Department of Experimental and  
Clinical Pharmacology  
7-115 Weaver-Densford Hall  
308 Harvard Street SE  
Minneapolis, MN 55455  
[pharmacy.umn.edu/ECP](https://pharmacy.umn.edu/ECP)**

# Table of Contents

## **About**

### **Letter From The Department Head**

### **New Faculty & Promotions**

### **Department Members**

Faculty

Adjunct Faculty

Staff

Postdocs, Fellows, & Visiting Scholars

### **New & Continuing Graduate Students**

Phd Program

Masters Program

### **Research**

Annual Performance And Year-To-Year Trends

New Externally Funded Projects With ECP Faculty

New Intramural Projects With ECP Faculty

Ongoing Externally Funded Projects With ECP Faculty

Ongoing Intramural Projects With ECP Faculty

### **Publications**

Journal Articles By ECP Faculty

Other Publications By ECP Faculty

### **Teaching**

### **Service**

### **ECP Graduate Program**

ECP Graduate Program-Related Metrics

ECP Doctoral Graduates

Fellowships And Awards For Graduate Students

ECP Research Emphasis Track Graduates

Publications By Graduate Students & Postdocs

Presentations By Graduate Students & Postdocs

ECP Research Seminar (ECP 8100)

# About

## **ECP Mission**

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. ECP will educate students of pharmacy, post-graduate trainees, and others for careers in pharmacy and health care with the ultimate goal of improving health. The ECP faculty and staff actively engage in teaching and conduct research pertaining to experimental and clinical pharmacology and patient outcomes to identify and promote the use of the best therapies. Together, ECP strives to advance the science of human pharmacology and therapeutics, while maintaining the highest standards of ethics in research and education.

## **Data Collection**

**Note that financial data is reported by fiscal year (2024: July 2023-June 2024). All other data uses the calendar year. These parameters continue to be the standard since 2019.**

## **University Of Minnesota Mission**

The University of Minnesota, founded in the belief that all people are enriched by understanding, is dedicated to the advancement of learning and the search for truth; to the sharing of this knowledge through education for a diverse community; and to the application of this knowledge to benefit the people of the state, the nation and the world. The University's threefold mission of research and discovery, teaching and learning, and outreach and public service is carried out on multiple campuses and throughout the state.

## **Equal Opportunity Statement**

The University of Minnesota shall provide equal access to and opportunity in its programs, facilities, and employment without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression.

Inquiries regarding compliance may be directed to the Director, Office of Equal Opportunity and Affirmative Action, University of Minnesota, 274 McNamara Alumni Center, 200 Oak Street S.E., Minneapolis, MN 55455, (612) 624-9547, eoaa@umn.edu. Website: [eot.umn.edu/home](https://eot.umn.edu/home)

This publication/material is available in alternative formats upon request. Please contact Zack McGough, Experimental and Clinical Pharmacology, 612-626-4677.

## **Disability Access Statement**

This publication/material is available in alternative formats upon request. Direct requests to Zack McGough, Experimental and Clinical Pharmacology, 612-626-4677.

# Letter From The Department Head

Dear Colleagues and Friends,

In this 2024 annual report, we take pride in highlighting the numerous achievements by members of our Department of Experimental and Clinical Pharmacology (ECP).

Our ECP department affirms its commitment to the research, education, and service missions of our college in spite of growing challenges facing us all. Adapting to the ever-changing environment has always been built into our department's strategic plan and it will no doubt be expected going forward. This report specifically reflects upon our continued success to execute on mission related activities consistent with our strategic investments in high quality faculty, staff, and trainees. As we tackle meaningful research questions and educational needs of the state of Minnesota and the world, the challenges facing healthcare of our society and support for higher education continue to grow. These are indeed significant undertakings which we pursue with a dedication and passion for conducting quality research, innovative educational approaches, and valued service to our profession and the broader community. We pursue these challenges while respecting the importance of self-care fairness for all members of our community. As always, our key strengths remain the quality of our faculty, students, and staff and leveraging our collaborations with others to achieve our collective successes.

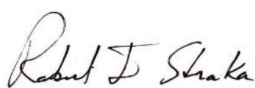
The efforts and commitments made by ECP faculty, staff, and students over the 2024 calendar year are reflected by our strong performance research metrics:

- sponsored award expenses remained consistent from 2023 numbers at ~\$4 million in 2024
- an increase to 24% faculty salary offset in 2024 (up from 23% previous two years)
- 69 peer-reviewed articles were published by ECP faculty in 2024
- a continuance of new grants received ~36 which is slightly above our average since 2015

Since our 2023 report, key personnel changes in our department include the arrival of Dr. Shen Cheng, a former Ph.D. graduate from our own program joining as a tenure track assistant professor working in the space of pharmacometrics. We also look forward to our new Dean of the College, Dr. Kip Guy, beginning mid-summer 2025. ECP continues to look ahead to meet new challenges and create opportunities as they arise. Personally, I am already excited for the next year's progress and very confident you will agree after reading this report that our department's contributions to the mission of our College are significant and meaningful. I take great personal pride in sharing this report as testimony to what our faculty, students, and staff have accomplished to advance the science of our discipline and support a new generation of students from our ECP graduate program.

Finally, I wish to acknowledge and thank all alumni, donors, and friends of the department for their continued generous support, engagement, and ongoing pride for the things we do for our global community.

With warm regards,



Robert J. Straka  
Department Head

## New Faculty & Promotions



**Jeffrey R. Bishop, PharmD, MS, BCPP, FCCP**, was promoted to Professor with tenure. He conducts psychopharmacology and pharmacogenomics research with a focus on examining genetic relationships with symptom improvement, side effects, and cognitive effects of medications. Dr. Bishop has published 171 peer-reviewed manuscripts, of which he is first or senior author on 79. He has additionally published eight book chapters, and 15 non peer-reviewed letters, case reports, or editorials and has delivered over 100 platform presentations. Since starting his independent academic career, he has had 15 grants as PI or MPI, 11 additional as a co-investigator, and served as a primary advisor on 18 grants, awards, or contracts specifically supporting trainees or their projects. Dr. Bishop plays an exemplary role, especially in psychiatric pharmacogenomics education at both the national and international levels. He has mentored or advised over 60 trainees at various levels of training and has served on numerous collegiate, national and international committees.



**L'Aurelle Johnson, PhD**, was promoted to Associate Professor (term). Her primary area of research, teaching, and service has included Pediatric Drug Metabolism and Disposition and Diversity Equity and Inclusion. Since joining the faculty in 2007, Dr. Johnson has contributed to the literature with numerous peer-reviewed articles, four book chapters, and has been a guest editor for a special edition of the American Journal of Pharmaceutical Education. Dr. Johnson teaches both professional and graduate students across different disciplines and has served as our department's associate director of graduate education. She began serving in the diversity equity and inclusion space in different capacities since 2015 and has been able to integrate that area of expertise into her teaching assignments within the discipline of experimental and clinical pharmacology. Dr. L'Aurelle Johnson is more than a teacher, researcher, and administrator. She is a committed leader working collaboratively to achieve personal, professional, and institutional goals. She is admired by students, respected by colleagues, and a valued member of our College.



**Michael Kotlyar, PharmD**, was promoted to Professor with tenure. His research focuses on evaluating various aspects of tobacco dependence including topics relevant to tobacco regulatory science, assessing medications to assist in smoking cessation and assessing the role of stress on smoking behavior. Dr. Kotlyar currently has 47 publications and is the first or senior author on 31 of those. Thirty-five publications describe the results of original research of which 29 have been published since being promoted to Associate Professor. Since his promotion in 2006, he has served as a Principal Investigator on more than \$2.4M in research grants from external sources. His teaching contributions are also significant and include serving as a long-standing course director for one of the key required courses within the professional program. In this role, he has consistently received positive reviews on student and peer evaluations. Mike's recognition on a national and international basis in the field of tobacco dependence continues to grow through invited speaking engagements and service commitments at the College of Pharmacy and beyond.

# Department Members

## Faculty

**Angela K. Birnbaum, PhD, FAES**

Professor

**Jeffrey Bishop, PharmD, MS, BCPP, FCCP**

Professor

**Scott A. Chapman, PharmD**

Professor

**Shen Cheng, PhD**

Assistant Professor

**James C. Cloyd, PharmD, FCCP**

Professor, Weaver Endowed Chair in Orphan  
Drug Development

**Lisa Coles, PhD**

Research Assistant Professor

**Jeannine M. Conway, PharmD, BCPS**

Associate Professor; Interim Pharmacy Program  
Director

**Elizabeth Hirsch, PharmD, BCPS**

Associate Professor

**R. Stephanie Huang, PhD**

Distinguished Professor, Associate Department  
Head (As of July 1, 2024)

**Pamala A. Jacobson, PharmD, FCCP**

Distinguished Professor; Associate Department  
Head

**L'Aurelle A. Johnson, PhD**

Associate Professor; Associate Dean for C.A.R.E.

**Reena Kartha, PhD**

Research Associate Professor

**Michael Kotlyar, PharmD**

Professor

**Ilo E. Leppik, MD**

Professor

**Ling Li, PhD, DVM**

Professor, VFW Endowed Chair in  
Pharmacotherapy for the Elderly

**Melanie R. Nicol, PharmD, PhD**

Associate Professor; Director of Graduate  
Studies (As of July 1, 2024)

**Leo J. Sioris, PharmD**

Professor

**Robert J. Straka, PharmD, FCCP**

Professor; Department Head

**Lynda Welage, PharmD, FCCP**

Professor; Dean (Until September, 2024)

**Beshay Zordoky, PhD**

Associate Professor; Associate Director of  
Graduate Studies (As of July 1, 2024)

## Adjunct Faculty

**Mahmoud Al-Kofahi, DDS, PhD**

Assistant Professor

**Josiah Allen, PharmD**

Assistant Professor

**Kyle Baron, PharmD, PhD**

Assistant Professor

**Alexander Berg, PharmD, PhD, FCP**

Associate Professor

**Ashley Brown, PharmD**

Assistant Professor

**Samuel Callisto, PhD**

Assistant Professor

**Jason Chittenden, PhD**

Assistant Professor

**Casey Dorr, PhD**

Assistant Professor

**David Gregornik, PharmD**

Associate Professor

**John Gualtieri, PharmD**

Assistant Professor

**Serge Guzy, PhD**

Professor

**Silvia M Illamola, PharmD, PhD**

Assistant Professor

**Mutaz Jaber, PhD**

Assistant Professor

**John Jancik, PharmD, BCCCP**

Associate Professor

**Jeanine Jarnes, PharmD**

Assistant Professor

**Nitin Kaila, PhD**

Assistant Professor

**Daniel E. Keyler, PharmD**

Professor

**Richard Kingston, PharmD**

Assistant Professor

**Frank N. Konstantinides, MT, MS**

Professor

**George Konstantinides, PharmD**

Assistant Professor

**Edris Kosar, PharmD**

Assistant Professor

**Robert Kriel, MD**

Research Professor

**Smita Kshirsagar, PhD**

Assistant Professor

**Marie D. Kuker, RPh**

Assistant Professor

**Richard L. Lalonde, PharmD, FAAPS, FCP, FCCP**

Professor

**Stephen H. LeMaster, PharmD**

Associate Professor

**Ramaiah Muthyala, PhD**

Associate Professor

**David Parra, PharmD**

Associate Professor

**Pamela A. Pawloski, PharmD**

Assistant Professor

**Cristina Peterson, PhD**

Assistant Professor

**Mark Robbins, PhD, JD**

Associate Professor

**Samuel Roiko, PhD**

Assistant Professor

**Ahmed H. Salem, PhD**

Professor

**Kyriakie Sarafoglou, MD**  
Professor

**Robert J. Schumacher, PhD**  
Assistant Professor

**Catherine Sherwin**  
Associate Professor

**Kelly M. Sioris, PharmD**  
Assistant Professor

**Catherine St. Hill, DVM, PhD**  
Associate Professor

**John V. St. Peter, PharmD**  
Associate Professor

**Sean Stewart, PharmD, BCACP, CLS**  
Associate professor

**Takuto Takahashi, MD, PhD**  
Assistant Professor

**Mary A. Ullman, PharmD**  
Associate Professor

**Brian Van Ness, PhD**  
Professor

**Orly Vardeny, PharmD, BCPS, FHFSA**  
Associate Professor

**Ya-Feng (Jay) Wen, PhD**  
Assistant Professor

## Staff

**Sandra Bowers**

**Lindsey Brewers Collins, MS**

**Breanna Carlson**

**Sheena Dufresne**

**Lori Endsley (Until August, 2024)**

**James Fisher**

**Marianne Grant**

**Silvia M. Illamola, PharmD, PhD**

**Sampreeti Jena, PhD**

**Alyssa Johnson**

**Minwoo Kim**

**Adam M. Lee, PhD**

**Cade Lizotte**

**Zack McGough, MEd**

**Usha Mishra, MS**

**Becky Palapala**

**Marcia Terluk, PhD**

**Josslen Thieschafer**

**Susan Williford, MEd**

Researcher, Birnbaum Research Program

Lab Manager, Nicol Research Program

Communications and Events Coordinator, ECP Office

Study Coordinator, Kotlyar Research Program

MTRF Administrator

Technical Director, CPAS Laboratory

Lab Manager, Zordoky Research Program

Research Associate, Birnbaum Research Program

Research Associate, Huang Research Program

Research Professional, Jacobson Research Program

Researcher, Li Research Program

Research Associate, Bishop Research Program

Researcher, Birnbaum Research Program

Department Administrator, ECP Office

Assistant Scientist, Center for Orphan Drug Research

Projects Specialist, ECP Office

Researcher, Center for Orphan Drug Research

Researcher, Li Research Program

Graduate Program Coordinator, ECP Office



## Postdocs, Fellows, & Visiting Scholars

Israa Gamal Aly Abdelbar

Advisor: R. Stephanie Huang, PhD

Mahmoud ElSherif

Advisor: Beshay Zordoky, PhD

Benu George, PhD

Advisor: Beshay Zordoky, PhD

Mina George

Advisor: Beshay Zordoky, PhD

Vasudeva Reddy Dodda, PhD

Advisor: Ramaiah Muthyala, PhD

Mohamed Fayed, BPharm

Advisor: Lisa Coles, PhD

Robert Gruener, PhD

Advisor: R. Stephanie Huang, PhD

Jaehyeok Roh, PharmD

Advisor: Reena Kartha, PhD

Holly Korthas, PhD

Advisor: Ling Li, PhD

Bushra Sadaf, PhD

Advisor: Beshay Zordoky, PhD

Omar Al Yacoub, PharmD, MSc, PhD

Advisor: Lisa Coles, PhD

## New & Continuing Graduate Students

### PhD Program

Charul Avachat, MS

Advisor: Angela Birnbaum, PhD

Kuber Bajgain, MS

Advisor: Ling Li, DVM, PhD

Adeboye Bamgboye, BPharm

Advisor: Lisa Coles, PhD

Cecilia (Cece) Barajas, BS

Advisor: Carolyn Fairbanks, PhD

Jessica Barry, BS

Advisor: Angela Birnbaum, PhD

Madeline (Lin) Boemer, BS

Advisor: Jeffrey Bishop, PharmD, MS

Morgan Bixby, BS

Advisor: Elizabeth Hirsch, PharmD, RPh; Pamala Jacobson, PharmD

Tiffany Chang, MS

Advisor: Elizabeth Hirsch, PharmD; Melanie Nicol, PharmD, PhD

Mohamed Dabour, MS

Advisor: Beshay Zordoky, PhD

Mary Raphael Daniel, PharmD

Advisor: Beshay Zordoky, PhD

Mohamed Fayed, BPharm

Advisor: Lisa Coles, PhD; James Cloyd, PharmD

Yingbo Huang, MS

Advisor: R. Stephanie Huang, PhD

Alyssa Lantz, BS

Advisor: Melanie Nicol, PharmD, PhD

Chenxu Li, MS

Advisor: Reena Kartha, PhD; Lisa Coles, PhD

Yuhan Long, BS

Advisor: Angela Birnbaum, PhD

Xintian Lyu, BS

Advisor: Angela Birnbaum, PhD

Moataz Mohamed, MS

Advisor: Pamala Jacobson, PharmD

Nathan Phan, BS

Abdelrahman Saqr, MS

Yuting Shan, PharmD

Jason Sriwijaya, MD

Mei-Chi (Judy) Su, MS

Boguang Sun, PharmD

Bovornpat Suriyapakorn, PharmD

Jennifer Vigliaturo, BA, BS

Lilin Wang, BS Pharmacy

Diqin Yan, MPharm

Lusi Zhang, MHI, PharmD

Advisor: Reena Kartha, PhD; James Cloyd, PharmD

Advisor: Pamala Jacobson, PharmD

Advisor: R. Stephanie Huang, PhD

Advisor: Angela Birnbaum, PhD

Advisor: R. Stephanie Huang, PhD; Angela Birnbaum, PhD

Advisor: Robert J. Straka, PharmD

Advisor: Lisa Coles, PhD

Advisor: Angela Birnbaum, PhD

Advisor: R. Stephanie Huang,, PhD

Advisor: Shen Cheng, PhD; Pamala Jacobson, PharmD

Advisor: Jeff Bishop, PharmD, MS

## Masters Program

Mohamed Duklef, BPharm

D'Aaliyah Johnson, BS

Advisor: Reena Kartha, PhD

Advisor: Angela Birnbaum, PhD

# Research

Led by our world-class faculty, research teams conduct groundbreaking and critical research in the Department of Experimental and Clinical Pharmacology. Faculty research programs focus on oncology, transplantation, infectious diseases, pharmacogenomics, geriatrics, critical care, neuroscience, cardiovascular diseases, pediatrics, and psychiatry, among other areas. ECP is home to the Lawrence C. Weaver Endowed Chair in Orphan Drug Development and the VFW Endowed Chair in Pharmacotherapy for the Elderly. 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 20 years, as of the fall of 2023.

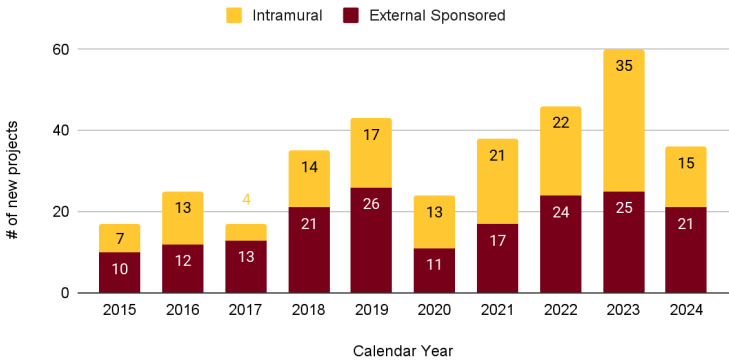
Our faculty routinely present important research at national and international conferences, lecture and collaborate across the country, serve as reviewers and editorial board members of international journals, hold leadership positions in national organizations, and serve on review committees for National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

## Annual Performance And Year-To-Year Trends

➤ Funding for research in ECP comes from both intramural and external sources:

- New Grants Received: 36
  - Intramural: 15
  - External sponsored: 21

New Projects by Type  
2015-2022



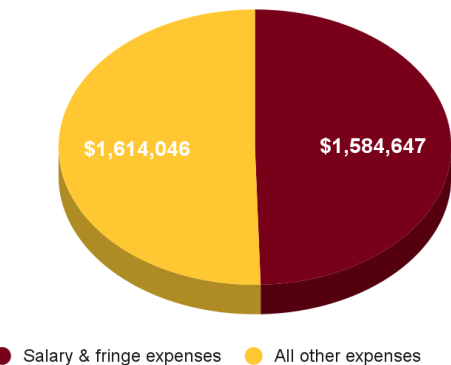
- Research endeavors result in various outputs, including:
- Articles in peer-reviewed publications: 69
  - Books, chapters and other publications: 7

## Financials of Sponsored Projects in FY2024

➤ Expenditures by category

- Salary and Fringe \$1,837,266
- Other Expenses \$2,200,477
  - Total \$4,037,743

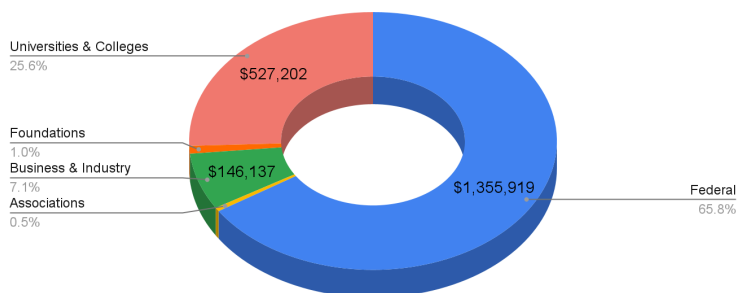
Percent of Expenditures by Category  
\$4,061,683



- Percentage of department faculty salaries supported by sponsored projects: 24.14%
- Salary offset percentage grew to 24% for the year
    - (23% in FY22, 23% in FY23).

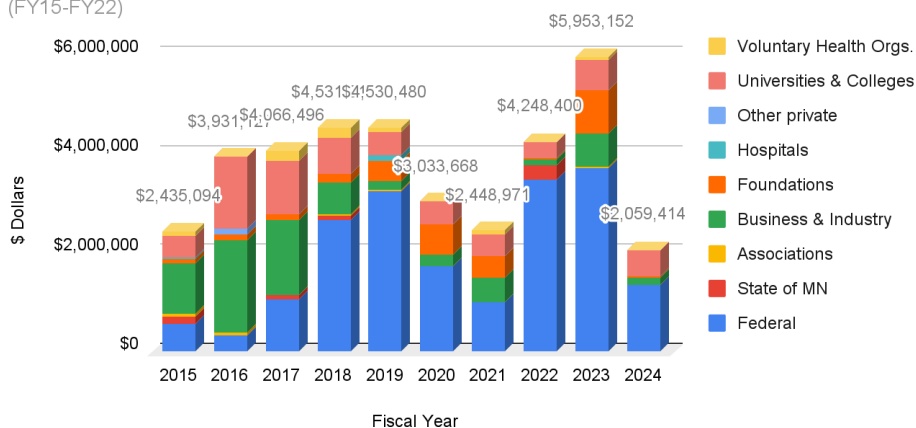
## Sponsored Awards by Source (FY24)

Total: \$2,059,414



## Sponsored Awards by Source

(FY15-FY22)



## A Research-Rich Environment

The College of Pharmacy is ranked 6th among outstanding pharmacy education and research institutions in the world. It is located within one of the largest academic health centers in the U.S., with nationally recognized programs in public health, medicine, nursing, dentistry, and veterinary medicine. Major campus research facilities include a Clinical and Translational Science Institute, the Biomedical Genomics Center, and a comprehensive cancer center. In addition, there are numerous partnerships with affiliated healthcare systems that offer exceptional research and educational programs. The Twin Cities also have a large number of cutting-edge biomedical companies eager to collaborate with the academic community.

## Research Centers Within ECP

- Center for Orphan Drug Research (Dr. James Cloyd, Director)
- Institute for Personalized Medicine (Dr. Pamala Jacobson, Director)
- Center for Clinical and Cognitive Neuropharmacology (Dr. Angela Birnbaum, Director)

## Locations and Facilities

ECP maintains a total of 25,889 square feet of office and laboratory space within four buildings on the East Bank of the University of Minnesota's Twin Cities campus:

- Weaver-Densford Hall 7,332 SF
- McGuire Translational Research Facility 7,696 SF
- Phillips Wangenstein Building 6,915 SF
- 717 Delaware Street SE 3,946 SF

## New Externally Funded Projects With ECP Faculty

| Faculty  | Project Description  | Sponsor   |
|--|--|---|
| Angela Birnbaum (Co-PI)                          | Neurobehavioral Impacts of Medical Cannabis Treatment in Chronic Pain Patients                                     | NIH National Institute on Drug Abuse                    |
| Angela Birnbaum (PI)                             | Neurobehavioral Impacts of Medical Cannabis Use: An Observational Study  | NIH National Institute on Drug Abuse                    |
| Jeffrey Bishop (PI)                              | Proteomic profiling of CNS proteins in brain-derived exosomes in first episode psychosis                           | Olink   |
| Jeffrey Bishop (Mentor)                          | Comorbidity: Substance Use Disorders and Other Psychiatric Conditions  | NIH National Institute on Drug Abuse                    |
| James Cloyd (PI), Usha Mishra, Lisa Coles (Co-I) | Cloyd PrevEp   | Prevep, Inc.  |
| James C. Cloyd (Co-PI)                           | Ketamine Add-On for Established Status Epilepticus Treatment Trial (KESETT)  | National Institute of Neurological Disorders and Stroke |
| Elizabeth Hirsch (Mentor)                        | SIDP / ID Week Travel Scholarship (Jenna Salay)  | Society of Infectious Diseases Pharmacists              |
| Pamala Jacobson (PI)                             | Jacobson UTMB  | University of Texas                                     |
| Pamala Jacobson (PI)                             | Jacobson Israni Gap Funding  | University of Texas                                     |
| Pamala Jacobson (PI)                             | Tacrolimus and Midazolam Concentrations in CYP3A5 CRISPR   | Hennepin Healthcare Research Institute                  |
| Ling Li (Mentor)                                 | Functional Multi-omics of Aging Training Grant   | NIH National Institute on Aging                         |
| Ling Li (Co-I)                                   | Human iPSC-Derived Chimeric Antigen Receptor Macrophages to Modulate Inflammation and Combat Tau-Induced Pathology | National Institutes of Health                           |
| Ling Li (Mentor)                                 | Biostatistics in Genetics and Genomics Training Program  | NIH National Institute of General Medical Sciences      |

|                             |  |   |
|-----------------------------|--|---|
| Melanie Nicol (Consultant)  | Midwest AIDS Training + Education Center Project   | University of Illinois--Chicago                             |
| Melanie Nicol (PI)          | Improving outcomes in HIV-associated opportunistic infections with CNS pharmacokinetics and pharmacodynamics | NIH National Institutes of Health                           |
| Melanie Nicol (Mentor)      | Minnesota-Makerere-Mbarara Neuro-Infectious Disease Research Training Consortium                             | NIH Fogarty International Center                            |
| Melanie Nicol (Co-I)        | Improving Diagnostics and Neurocognitive Outcomes in HIV/AIDS-related Meningitis                             | NIH National Institute on Neurological Disorders and Stroke |
| R. Stephanie Huang (Co-Is)  | Cancer Center Support Grant  | NIH National Cancer Institute                               |
| R. Stephanie Huang (Mentor) | Target of Cancer Training Program  | National Cancer Institute                                   |
| Reena Kartha (PI)           | Translational Pharmacology Research Fellowship   | Sanofi-Aventis US   |
| Beshay Zordoky (PI)         | Role of Immunosenescence in Delayed Cardiac Complications of Chemotherapy                                    | Minnesota Lions Childhood Cancer Foundation                 |

### New Intramural Projects With ECP Faculty

| Faculty   | Project Description  | Sponsor   |
|---|--|---|
| Jeffrey Bishop (PI)   | Brain-derived exosome biomarkers of early course psychiatric illnesses and treatment response            | University of Minnesota Masonic Institute for the Developing Brain (MIDB) |
| Shen Cheng (PI), Pamala Jacobson (Co-I), Melanie Nicol (Co-I) | Evaluate and develop methodologies to incorporate high-dimensional covariates in pharmacometric analysis | University of Minnesota, Clinical and Translational Science Institute     |
| Jeannine Conway (Co-PI), Angela Birnbaum (Co-PI),             | Dosage, Efficacy, and Adverse Events of Medical Cannabis in Minnesota Residents                          | Center for Cannabis Research, University of Minnesota                     |
| Elizabeth Hirsch (Advisor)                                    | Skipped well analysis during fosfomycin susceptibility testing for <i>Escherichia coli</i> (Jenna Salay) | Melendy Research Scholarship  |
| Elizabeth Hirsch (Advisor)                                    | Summer College of Pharmacy Experiences (SCoPE) Program (Aalunya Teso)                                    | University of Minnesota College of Pharmacy                               |

|   |  |   |
|---|--|---|
| R. Stephanie Huang (Co-PI)                | Development of Proteomics-Based Drug Response Model for the Identification and Initial Validation of a Novel Therapeutics for Neuroendocrine Prostate Cancer | University of Minnesota Institute for Prostate and Urologic Cancers (IPUC)-the Prostate and Urologic Cancer Translational Working Group (TWG) |
| R. Stephanie Huang (Co-PI)                | ATM inhibition for the treatment of TP53-altered metastatic prostate cancer: A novel synthetic lethality   | University of Minnesota Masonic Cancer Center   |
| Reena Kartha (PI)                         | Acquisition of a refurbished Agilent Seahorse XFe96 Analyzer for Translational and Clinical Research   | University of Minnesota, Research and Innovation Office   |
| Melanie Nicol, Elizabeth Hirsch (Mentors) | Improving PK/PD of existing antivirals and antibiotics (Tiffany Chang)   | Coin Fellowship, UMN College of Pharmacy  |
| Melanie Nicol (Advisor)                   | Immunohistochemistry to elucidate the role of mucosal TH17 cells in tenofovir distribution (Christopher Olsem)   | University of Minnesota Melendy Fellowship  |
| Beshay Zordoky (PI)                       | The Role of Immunosenescence in Delayed Anthracycline-induced Cardiac Complications  | University of Minnesota Masonic Cancer Center   |
| Beshay Zordoky (Advisor)                  | Advanced Pathways to Research Program Scholarship (Mary Raphael Daniel)  | University of Minnesota Clinical and Translational Science Institute  |
| Beshay Zordoky (Advisor)                  | Pathways to Research Program (Stefanny Ayala)  | University of Minnesota Clinical and Translational Science Institute  |
| Beshay Zordoky (Advisor)                  | Summer College of Pharmacy Experiences (SCoPE) Program (Ian Ahlberg)   | University of Minnesota College of Pharmacy   |
| Beshay Zordoky (Advisor)                  | M-ASCEND: Advancing Science, Enhancing Diversity Program (Yukti Sah)   | University of Minnesota Medical School  |

### Ongoing Externally Funded Projects With ECP Faculty

| Faculty                 | Project Description  | Sponsor  |
|-------------------------|--|--|
| Angela Birnbaum (Co-PI) | Pharmacokinetic/Pharmacodynamic model in pregnant women with depression to guide sertraline dosing | NIH National Institute of Child Health and Human Development |
| Angela Birnbaum (Co-I)  | Development of a monoclonal antibody to reverse overdose from fentanyl and its                     | NIH National Institute on Drug Abuse                         |

|  |  |  |
|--|--|--|
|  | analogs: from manufacturing to clinical trials   |  |
| Angela Birnbaum (PI), Stephanie Huang (Co-I) | Physiological-based Pharmacokinetics Approach to Determine the Extent of Drug Exposure of Antiseizure Medications During Pregnancy and Breastfeeding | NIH National Institute of Child Health and Development       |
| Angela Birnbaum (Co-I)                       | Phase 1a/1b Clinical Trials of Multivalent Opioid Vaccine Components   | NIH National Institute on Drug Abuse                         |
| Angela K. Birnbaum (Co-I)                    | Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs  | NIH National Institute of Neurological Disorders and Stroke  |
| Angela Birnbaum (Co-I)                       | Vaccines for Fentanyl and Its Derivatives: A strategy to reduce illicit use and overdose   | NIH National Institute on Drug Abuse                         |
| Angela Birnbaum (Co-I)                       | Novel Nanovaccines Against Opioid Use Disorder   | NIH National Institute on Drug Abuse                         |
| Angela K. Birnbaum (PI)                      | Pharsight-University of Minnesota Pharmacometrics Collaboration  | Pharsight Corporation  |
| Jeffrey Bishop (Advisor)                     | Developmental Psychopathology T32  | NIH National Institute of Mental Health                      |
| Jeffrey Bishop (Co-I)                        | An Informatics Framework for Discovery and Ascertainment of Drug-Supplement Interactions   | NIH National Center for Complementary and Integrative Health |
| Jeffrey Bishop (Advisor)                     | Comorbidity: Substance Use Disorders and Other Psychiatric Conditions  | NIH National Institute on Drug Abuse                         |
| Jeffrey Bishop (Advisor)                     | Developmental Psychopathology T32  | NIH National Institute of Mental Health                      |
| James C. Cloyd (PI)                          | Licensing Agreement-IV Topiramate  | Ligand Pharmaceuticals                                       |
| James C. Cloyd (Co-PI)                       | Lysosomal Disease Network  | NIH National Institute of Neurological Disorders and Stroke  |
| James C. Cloyd (Co-PI)                       | Development of Intravenous Baclofen  | Allaysis Pharmaceuticals                                     |
| Lisa Coles (Co-I)                            | A Phase IIb Dose Escalation Study of Levetiracetam in the Treatment of Neonatal Seizures of Mild to Moderate Severity                                | USA Food & Drug Administration (FDA)                         |



|  |  |   |
|--|--|---|
| Lisa Coles (PI)                                | AbbVie-UMN Clinical Pharmacology and Pharmacometrics Fellowship  | AbbVie, Inc.  |
| Lisa Coles (PI)                                | Leveraging innate immunity to prevent post-traumatic epilepsy  | University of California - Los Angeles (UCLA)                         |
| Lisa Coles (PI)                                | Translational platform for epilepsy therapy and biomarker development in post-traumatic epilepsy       | Albert Einstein College of Medicine                                   |
| Elizabeth Hirsch (Co-PI), Melanie Nicol (Co-I) | Assessment of the infectious diseases pharmacist workforce across the U.S.                             | Society of Infectious Diseases Pharmacists                            |
| R. Stephanie Huang (Co-I)                      | AR gene rearrangements and AR signaling in prostate cancer   | NIH National Cancer Institute   |
| R. Stephanie Huang (PI)                        | Towards a TIME-informed digital biospecimen to predict cancer combination treatment                    | NIH NCI Frederick National Laboratory/Leido                           |
| R. Stephanie Huang (Co-I)                      | Targeting early events in prostate cancer lineage plasticity   | NIH National Cancer Institute   |
| R. Stephanie Huang (PI)                        | Drug Repurposing in Breast Cancer  | NIH National Cancer Institute   |
| R. Stephanie Huang (PI)                        | Genetic Mechanisms Underlying Sexual Dimorphism in Cancer and Response to Therapy                      | NIH National Cancer Institute   |
| Pamala Jacobson (PI)                           | Molecular and Cellular Analysis of Allograft Loss in Kidney Transplant Biopsies                        | National Institutes of Health, Hennepin Healthcare Research Institute |
| Pamala Jacobson (PI)                           | Pharmacogenomics Clinical Training Program for Pharmacists in Rural and Underserved Areas in Minnesota | Minnesota Department of Health (MDH)                                  |
| Pamala Jacobson (PI)                           | Gut Microbiota and Effect on Immune Suppressants in Transplantation                                    | NIH National Institute of Allergy and Infectious Disease              |
| Reena Kartha (PI)                              | Extracellular Vesicles as Potential Biomarkers and Therapeutic Target in Gaucher Disease               | Takeda Cambridge, Ltd.  |
| Reena Kartha (PI)                              | Translational Pharmacology Research Fellowship   | Sanofi-Aventis US   |
| Reena Kartha (PI)                              | Magnetic Resonance Spectroscopy Biomarkers in Type 3 Gaucher Disease                                   | Sanofi-Aventis US   |

|                                     |  |   |
|-------------------------------------|--|---|
| Reena Kartha (PI)                   | Dose Optimization of Nervonic Acid-a Potential Therapy to Alleviate Disease Progression in Adrenoleukodystrophy  | NIH National Center for Advancing Translational Science |
| Reena Kartha (PI)                   | Novel Inflammatory Biomarkers Complement 5a and Hepcidin in Patients with Gaucher Disease  | Sanofi-Genzyme  |
| Mike Kotlyar (PI)                   | Center for Chronic Disease Reduction and Equity Promotion  | NIH Center for Minority Health                          |
| Michael Kotlyar (Project Co-Lead)   | Feasibility of Using a Culturally Tailored Conversational Agent for promoting smoking cessation  | NIH National Institute on Minority Health               |
| Michael Kotlyar (Co-I)              | Bupropion for the Prevention of Postpartum Smoking Relapse   | NIH National Institute on Drug Abuse                    |
| Ling Li (Advisory Committee)        | Building Interdisciplinary Careers in Women's Health (BIRCWH) Program  | National Institutes of Health                           |
| Ling Li, Pamala Jacobson (Advisors) | Biostatistics in Genetics and Genomics Training Program  | NIH National Institute of General Medical Sciences      |
| Ling Li (Advisor)                   | Functional Multi-omics of Aging Training Grant   | NIH National Institute on Aging                         |
| Ling Li (PI)                        | Impact of Mitochondrial Lipidomic Dynamics and its Interaction with APOE Isoforms on Brain Aging and Alzheimer's Disease                                   | NIH National Institute on Aging                         |
| Ling Li (Co-I)                      | Detecting synergistic effects of pharmacological and non-pharmacological interventions for AD/ADRD   | NIH National Institute on Aging                         |
| Ling Li (Co-PI)                     | Combined Effects of TBI & Covid19 Developing Alzheimer's   | MN Office of Higher Education                           |
| Ling Li (Co-I)                      | Estimation and inference in directed acyclic graphical models for biological networks  | NIH National Institute on Aging                         |
| Ling Li (PI)                        | Acute and Long-Term Impact of SARS-CoV-2 Infection and its Interaction with APOE on Cognitive Function and Neuropathology in Aging and Alzheimer's Disease | NIH National Institute on Aging                         |
| Ling Li (Co-I)                      | Deep Learning with Neuroimaging Genetic Data for Alzheimer's Disease   | NIH National Institute on Aging                         |

|                            |  |  |
|----------------------------|--|--|
| Ling Li (Co-I)             | Integrating Alzheimer's Disease GWAS with Proteomic and Metabolomic QTL Data                             | NIH National Institute on Aging                                      |
| Ling Li (Co-I)             | Detecting synergistic effects of pharmacological and non-pharmacological interventions for AD/ADRD       | NIH National Institute on Aging                                      |
| Melanie Nicol (Consultant) | Adult human brain tissue cultures to study neuroHIV  | NIH National Institute on Drug Abuse                                 |
| Melanie Nicol (Co-I)       | Enochleated Oral Amphotericin for HIV-related Cryptococcal Meningitis                                    | NIH National Institute of Neurological Disorders & Stroke            |
| Melanie Nicol (Co-I)       | Identifying CMV Retinitis as a Reversible Cause of Vision loss in persons with HIV-associated meningitis | NIH National Eye Institute   |
| Melanie Nicol (Co-I)       | Improving Diagnostics and Neurocognitive Outcomes in HIV/AIDS-related Meningitis                         | NIH National Institute of Neurological Disorders and Stroke          |
| Melanie Nicol (Co-I)       | Enochleated Oral Amphotericin for Cryptococcal Meningitis Trial  | National Institutes of Health (NIH)                                  |
| Robert Straka (Co-I)       | The Long-Life Family Study (LLFS): Pharmacogenetics (PGx) Administrative Supplement                      | NIH National Institute on Aging                                      |
| Beshay Zordoky (Advisor)   | Fulbright Postdoctoral Fellowship (Mina George)  | U.S. Department of State, Bureau of Educational and Cultural Affairs |
| Beshay Zordoky (Advisor)   | Egyptian Government Scholarship (Mohamed Dabour)   | Egyptian Ministry of Higher Education                                |
| Beshay Zordoky (PI)        | Psychosocial Stress Exacerbates Doxorubicin-induced Cardiovascular Aging                                 | NIH National Heart, Lung, and Blood Institute                        |

### Ongoing Intramural Projects With ECP Faculty

| Faculty             | Full Project Name   | Sponsor   |
|---------------------|---|---|
| Jeffrey Bishop (PI) | Pharmacogenetics to guide drug selection in adolescents with depression | UMN STRIDES (Strategic Research Investment for the Development of Early Scientists) Program Grant |

|   |   |  |
|---|---|--|
| Jeffrey Bishop (Advisor)  | Impact and implications of using pharmacogenomic testing to guide medication therapy in patients with depression: a real-world study leveraging electronic health records and artificial intelligence | University of Minnesota  |
| Lisa Coles (Co-I), James C. Cloyd III (Co-I), Usha Mishra (Co-I), Adeboye Bamgboye (Co-I) | Use of PIVO device for Ketamine PK Sampling in Pediatric Patients   | Accelerating Epilepsy Research Fund, University of Minnesota Foundation                              |
| Lisa Coles (Co-I)   | Intranasal Delivery of Cortisol Stress Dosing in Patients with Adrenal Insufficiency  | The Pediatric Device Innovation Consortium (PDIC), University of Minnesota                           |
| Angela Birnbaum (Co-I)  | Neurobehavioral Impacts of Medical Cannabis Treatment in Chronic Pain Patients  | Medical Discovery on Addiction, University of Minnesota  |
| James C. Cloyd (PI)   | Allopregnanolone (ALLO), A Novel Neurosteroid Drug, for Treatment of Status Epilepticus, A Life-threatening Neurological Emergency  | Office of Academic Clinical Affairs (OACA), University of Minnesota                                  |
| James C. Cloyd (Co-PI)  | Development of a Prodrug/Enzyme Nasal Spray for Rapid Delivery of Diazepam for Treatment of Seizure Emergencies   | Committee for Pharmaceutical Development/CTSI ODAT   |
| James C. Cloyd (Co-PI)  | Development of a Prodrug/Enzyme Nasal Spray for Rapid Delivery of Diazepam for Treatment of Seizure Emergencies   | Office of Discovery and Translation (ODAT)   |
| Elizabeth Hirsch (PI)   | Optimization of fosfomycin disk diffusion testing via a mouse model to determine the urinary tract colonizing abilities of inner colonies   | UMN STRIDES (STrategic Research Investment for the Development of Early Scientists) award            |
| R. Stephanie Huang (PI)   | Sex differences in intra-tumor microbiome and their effect in therapeutic outcomes  | Microbiome and Cancer Symposium, University of Minnesota   |
| R. Stephanie Huang (PI)   | Computational-aided drug development to treat castration-resistant prostate cancer  | Office of the Associate Dean for Research, University of Minnesota College of Pharmacy, SURRGE award |
| Pamala Jacobson (PI), Jeff Bishop (Co-I)  | Development of a Participant-Controlled PGx Data Repository for Drug Biomarker Discovery  | Informatics Institute, University of Minnesota   |
| Ling Li (PI)  | HDL Mimetic Peptides to Mitigate SARS-CoV-2 Infection-Induced Neuroinflammation and Cerebrovascular Injury  | SURRGE Program Grant, University of Minnesota College of Pharmacy                                    |

|                     |  |   |
|---------------------|--|---|
| Melanie Nicol (PI)  | Improving outcomes in HIV-associated opportunistic infections with CNS pharmacokinetics and pharmacodynamics | STRIDES (Strategic Research Investment for the Development of Early Scientists) Program Grant<br>University of Minnesota<br>College of Pharmacy |
| Beshay Zordoky (PI) | Deciphering the role of AMPK in carfilzomib-induced cardiovascular dysfunction                               | SURRGE Program Grant,<br>University of Minnesota<br>College of Pharmacy   |

# Publications

## Journal Articles By ECP Faculty

(Key: **ECP Active Faculty**, **ECP Graduate Students**, **Postdocs and Staff**)

### 2024 Journal Articles

**Abdelgawad, I. Y., George, B., Grant MKO, Huang, Y., Shan, Y., Huang, R. S., & Zordoky, B. N.** (2024). Sex-related differences in delayed doxorubicin-induced cardiac dysfunction in C57BL/6 mice. *Archives of toxicology*, 98(4), 1191-1208. [10.1007/s00204-023-03678-y](https://doi.org/10.1007/s00204-023-03678-y)

**Abdul-Mutakabbir, J. C., Saunders, I. M., Bandali, A., Ko, C. L., Nussbaum, B. B., Brown, S. D., & Hirsch, E. B.** (2024). Development and implementation of the ASHP Midyear Travel Award to support racially and ethnically minoritized pharmacy students. *American journal of health-system pharmacy : AJHP : official journal of the American Society of Health-System Pharmacists*. [10.1093/ajhp/zxae304](https://doi.org/10.1093/ajhp/zxae304)

**Ahmed, M. A., Krishna, R., Rayad, N., Albusaysi, S., Mitra, A., Shang, E., Hon, Y. Y., AbuAsal, B., Bakhaidar, R., Roman, Y. M., Bhattacharya, I., Cloyd, J., Patel, M., Kartha, R. V., & Younis, I. R.** (2024). Getting the Dose Right in Drug Development for Rare Diseases: Barriers and Enablers. *Clinical pharmacology and therapeutics*, 116(6), 1412–1432. <https://doi.org/10.1002/cpt.3407>

**Arslan, B., Vasudeva, G., & Hirsch, E. B.** (2024). Public–Private and Private–Private Collaboration as Pathways for Socially Beneficial Innovation: Evidence from Antimicrobial Drug-Development Tasks. *Academy of Management Journal*, 67(2), 554-582. <https://doi.org/10.5465/amj.2021.1260>

**Auger, S. A., Venkatachalapathy, S., Suazo KFG, Wang, Y., Sarkis, A. W., Li, L., & Distefano, M. D.** (2024). Broadening the Utility of Farnesyltransferase-Catalyzed Protein Labeling Using Norbornene-Tetrazine Click Chemistry. *Bioconjugate chemistry*, 35(7), 922-933. [10.1021/acs.bioconjchem.4c00072](https://doi.org/10.1021/acs.bioconjchem.4c00072)

**Barry, J. M., Illamola, S. M., Pennell, P. B., Sherwin, C. M., Meador, K. J., & Birnbaum, A. K.** (2024). Prediction of lacosamide concentrations to support dose optimization during pregnancy. *Epilepsia*. <https://doi.org/10.1111/epi.18184> [10.1111/epi.18184](https://doi.org/10.1111/epi.18184)

**Bishop, J. R.** (2024). Pharmacogenomic testing in depression treatment decision making: Clinical pearls for everyday practice. *Journal of Family Practice*, April, 1-10.

**Bishop, J. R., Schneiderhan, M. E., Butler, T., Carpentier, R. M., Heins, K. R., & Formea, C. M.** (2024). Pharmacogenomics to support mental health medication therapy management: Clinical practice considerations and a conceptual framework to enhance patient care. *Journal of the American College of Clinical Pharmacy*, 7(2), 160-170. <https://doi.org/10.1002/jac5.1892>

---

**Bishop, J. R.**, Zhou, C., Gaedigk, A., Krone, B., Kittles, R., Cook, E. H., . . . Stein, M. A. (2024). Dopamine Transporter and CYP2D6 Gene Relationships with Attention-Deficit/Hyperactivity Disorder Treatment Response in the Methylphenidate and Atomoxetine Crossover Study. *Journal of Child and Adolescent Psychopharmacology*, 34(10), 458-469. 10.1089/cap.2024.0069

---

**Bixby, M. L.**, Daley, E. C., **Collins, L. B.**, Salay, J. M., Bryson, A. L., & **Hirsch, E. B.** (2024). Skipped wells and scientific error during fosfomycin agar dilution and broth microdilution lead to inconsistent minimal inhibitory concentrations and may be cause for reevaluating testing methods for *Klebsiella pneumoniae*. *Microbiology spectrum*, 12(8), e0420523. 10.1128/spectrum.04205-23

---

**Bixby, M. L.**, Zheng, D., & **Hirsch, E. B.** (2024). Long Story Short: Establishing Breakpoints for Antimicrobials and 2023 Updates. *Current Infectious Diseases Reports*.

---

Camara, E., Safri, A., Ko, C. L., Abdul-Mutakabbir, J. C., Bandali, A., Brown, B. R., **Hirsch, E. B.**, & on behalf of the PharmGradWishlist Leadership Team (2024). The implications of data aggregation on propagating racial and ethnic disparities within the healthcare landscape: actionable recommendations and consideration for pharmacists. *J Am Pharm Assoc*(S1544-3191(23)), 00324-2.

---

Cao, R., Schladt, D. P., Dorr, C., Matas, A. J., Oetting, W. S., **Jacobson, P. A.**, Israni, A., Chen, J., & Guan, W. (2024). Polygenic risk score for acute rejection based on donor-recipient non-HLA genotype mismatch. *PloS one*, 19(5), e0303446. <https://doi.org/10.1371/journal.pone.0303446>

---

**Cheng, S.**, Al-Kofahi, M., Leeder, S. J., & Brown, J. J. (2024). Population Pharmacokinetic Analysis of Atomoxetine and its Metabolites in Children and Adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD). *Clinical Pharmacology and Therapeutics*, 115(5), 1033-1043. <https://ascpt.onlinelibrary.wiley.com/doi/full/10.1002/cpt.3155> 10.1002/cpt.3155

---

Cohen, M. J., Meador, K. J., Loring, D. W., Matthews, A. G., Brown, C., Robalino, C. P., **Birnbaum, A. K.**, Pennell, P. B. (2024). Behavioral Outcomes and Neurodevelopmental Disorders Among Children of Women With Epilepsy. *JAMA neurology*, 81(1), 19-29. 10.1001/jamaneurol.2023.4315

---

Collins, K. E., Gilbert, E., Mauduit, V., Benson, K. A., Elhassan, E. A. E., O'Seaghdha, C., Hill, C., McKnight, A. J., Maxwell, A. P., van der Most, P. J., de Borst, M. H., Guan, W., **Jacobson, P. A.**, Israni, A. K., Keating, B. J., Lord, G. M., Markkinen, S., Helanterä, I., Hyvärinen, K., Partanen, J., . . . Conlon, P. J. (2024). Donor genetic burden for cerebrovascular risk and kidney transplant outcome. *Journal of nephrology*, 37(6), 1643–1652. <https://doi.org/10.1007/s40620-024-01973-0>

---

**Dabour, M. S.**, **Abdelgawad, I. Y.**, **Sadaf, B.**, **Daniel, M. R.**, **Grant, M. K.O.**, Seelig, D., & **Zordoky, B. N.** (2024). Losmapimod ameliorates doxorubicin-induced cardiotoxicity through attenuating senescence and inflammatory pathways. *Biomedicine & Pharmacotherapy*, 179, 117288. <https://doi.org/10.1016/j.biopha.2024.117288> 10.1016/j.biopha.2024.117288

---

- 
- Dabour, M. S.**, Blaes, A. H., Ramu, B., & **Zordoky, B. N.** (2024). SGLT2 Inhibitors in Mitigating Cancer Therapy-Related Cardiac Dysfunction: Expanding the Evidence. *JACC: CardioOncology*, 6(6), 876-878. <https://doi.org/10.1016/j.jaccao.2024.10.005> 10.1016/j.jaccao.2024.10.005
- 
- Dabour, M. S.**, **George, M. Y.**, **Daniel, M. R.**, Blaes, A. H., & **Zordoky, B. N.** (2024). The Cardioprotective and Anticancer Effects of SGLT2 Inhibitors. *JACC: CardioOncology*, 6(2), 159-182. <https://doi.org/10.1016/j.jaccao.2024.01.007> 10.1016/j.jaccao.2024.01.007
- 
- El-Sawaf, E. S.**, El Maraghy, N. N., El-Abhar, H. S., Zaki, H. F., **Zordoky, B. N.**, Ahmed, K. A., . . . Mohamed, A. F. (2024). Melatonin mitigates vincristine-induced peripheral neuropathy by inhibiting TNF- $\alpha$ /astrocytes/microglial cells activation in the spinal cord of rats, while preserving vincristine's chemotherapeutic efficacy in lymphoma cells. *Toxicology and applied pharmacology*, 492, 117134. 10.1016/j.taap.2024.117134
- Evanoff, N. G., Dengel, D. R., Stockelman, K. A., Fandl, H., DeSouza, N. M., Greiner, J. J., **Dufresne, S. R.**, **Kotlyar, M.** Garcia, V. P. (2024). Circulating extracellular microvesicles associated with electronic cigarette use increase endothelial cell inflammation and reduce nitric oxide production. *Experimental physiology*, 109(9), 1593-1603. 10.1113/EP091715
- 
- George, M. Y.**, **Dabour, M. S.**, Rashad, E., & **Zordoky, B. N.** (2024). Empagliflozin Alleviates Carfilzomib-Induced Cardiotoxicity in Mice by Modulating Oxidative Stress, Inflammatory Response, Endoplasmic Reticulum Stress, and Autophagy. *Antioxidants*, 13(6), 671. <https://doi.org/10.3390/antiox13060671> 10.3390/antiox13060671
- 
- Grandizoli Saletti, P., Casillas-Espinosa, P. M., Panagiotis Lisgaras, C., Bi Mowrey, W., Li, Q., Liu, W., **Cloyd, J.**, **Coles, L.**,... Galanopoulou, A. S. (2024). Tau Phosphorylation Patterns in the Rat Cerebral Cortex After Traumatic Brain Injury and Sodium Selenate Effects: An Epibios4rx Project 2 Study. *Journal of neurotrauma*, 41(1-2), 222-243. 10.1089/neu.2022.0219
- 
- Huang, Y.**, **Shan, Y.**, Zhang, W., Printzis, C., Pesce, L., Maeser, D., . . . **Huang, R. S.** (2024). Sex differences in the molecular profile of adult diffuse glioma are shaped by IDH status and tumor microenvironment. *Neuro-oncology*. 10.1093/neuonc/noae207
- 
- Jackson, S. K., Rugari, A., & **Kartha, R. V.** (2024). Rare Disease Difference Maker® program. *Molecular Genetics and Metabolism*, 141(2), 107898. <https://doi.org/10.1016/j.ymgme.2023.107898> 10.1016/j.ymgme.2023.107898
- 
- Krishna, V. D., Chang, A., **Korthas, H.**, Seelig, D. M., Low, W. C., **Li, L.**, & Cheeran, M. C. (2024). Impact of age and sex on neuroinflammation following SARS-CoV-2 infection in a murine model. *Frontiers in microbiology*, 15, 1404312. 10.3389/fmicb.2024.1404312
- 
- Lantz, A. M.**, Kiweewa Matovu, F., Johnson, R., Isingel, E., Nakalega, R., Kabwigu, S., . . . **Nicol, M. R.** (2024). Female Genital Tract Host Factors and Tenofovir and Lamivudine Active Metabolites. *The Journal of infectious diseases*, 230(6), 1434-1443. 10.1093/infdis/jiae372
- 
- Lee, A.**, Thuras, P., Baller, J., Jiao, C., Guo, B., Erbes, C. R., . . . **Bishop, J. R.** (2024). Serotonin Transporter (SLC6A4) and FK506-Binding Protein 5 (FKBP5) Genotype and Methylation Relationships with Response to Meditation in Veterans with PTSD. *Molecular Neurobiology*, 61(11), 9608-9622. 10.1007/s12035-024-04096-6
-



- 
- Li, C., Casillas-Espinosa, P. M., Saletti, P. G., Chi, T., Yamakawa, G., Silva, J., **Cloyd, J.**, **Mishra, U.**, . . . **Coles, L. D.** (2024). Pharmacokinetics and brain uptake of sodium selenate and selenium in naïve rats and a lateral fluid percussion injury rat model. *Pharmacology research & perspectives*, 12(6), e1256. 10.1002/prp2.1256
- 
- Luo, C., Pi, X., Zhang, Q., Hu, N., Xiao, Y., Sweeney, J. A., **Bishop, J. R.**, . . . Lui, S. (2024). A subtype of schizophrenia patients with altered methylation level of genes related to immune cell activity. *Psychological Medicine*, 54(10), 2538-2546. 10.1017/S0033291724000667
- 
- Maeser, D., **Gruener, R. F.**, Galvin, R., **Lee, A.**, Koga, T., Grigore, F. N., . . . **Huang, R. S.** (2024). Integration of Computational Pipeline to Streamline Efficacious Drug Nomination and Biomarker Discovery in Glioblastoma. *Cancers*, 16(9). 10.3390/cancers16091723
- 
- Mahoney, M. V., **Hirsch, E. B.**, & Wright, W. F. (2024). AMRounds: *Achromobacter xylosoxidans* susceptibility—so it goes. *JAC-Antimicrobial Resistance*, 6(5). <https://doi.org/10.1093/jacamr/dlae134> 10.1093/jacamr/dlae134
- 
- Malik, S., Verma, P., Ruaño, G., Al Siaghy, A., Dilawar, A., **Bishop, J. R.**, . . . Namerow, L. B. (2024). Pharmacogenetics in Child and Adolescent Psychiatry: Background and Evidence-Based Clinical Applications. *Journal of Child and Adolescent Psychopharmacology*, 34(1), 4-20. 10.1089/cap.2023.0074
- 
- Meador, K. J., Cohen, M. J., Loring, D. W., Matthews, A. G., Brown, C. A., Robalino, C., **Birnbaum, A. K.**, . . . Pennell, P. B. (2024). Association of Prenatal Exposure to Antiseizure Medications With Creative and Executive Function at Age 4.5 Years. *Neurology*, 102(12), e209448. 10.1212/WNL.0000000000209448
- 
- Meador, K. J., Cohen, M. J., Loring, D. W., Matthews, A. G., Brown, C., Robalino, C. P., **Birnbaum, A. K.**, . . . Pennell, P. B. (2024). Neuropsychological Outcomes in 6-Year-Old Children of Women With Epilepsy. *JAMA Neurology*. <https://doi.org/10.1001/jamaneurol.2024.3982> 10.1001/jamaneurol.2024.3982
- 
- Meyhoefer, I., Sprenger, A., Derad, D., Grotegerd, D., Leenings, R., Leehr, E. J., **Bishop, J. R.** . . . Lencer, R. (2024). Evidence from comprehensive independent validation studies for smooth pursuit dysfunction as a sensorimotor biomarker for psychosis. *Scientific Reports*, 14(1), 13859. 10.1038/s41598-024-64487-6
- 
- Mohamed, M. E.**, Guo, B., Wu, B., Schladt, D. P., Muthusamy, A., Guan, W., Abrahante, J. E., Onyeaghala, G., **Saqr, A.**, Pankratz, N., Agarwal, G., Mannon, R. B., Matas, A. J., Oetting, W. S., Remmel, R. P., Israni, A. K., **Jacobson, P. A.**, DeKAF Genomics and GEN03 Investigators, & Dorr, C. R. (2024). Extreme phenotype sampling and next generation sequencing to identify genetic variants associated with tacrolimus in African American kidney transplant recipients. *The pharmacogenomics journal*, 24(5), 29. <https://doi.org/10.1038/s41397-024-00349-8>
- 
- Mohamed, M. E.**, Nguyen, T. T., Larson, J., Schwake, B., Rivers, Z., Beilman, G., Skaar, D. J., & **Jacobson, P. A.** (2024). Pharmacogenomic variation and sedation outcomes during early intensive care unit admission: A pragmatic study. *Clinical and translational science*, 17(12), e70107. <https://doi.org/10.1111/cts.70107>
-

---

Mohamed, M. E., Saqr, A., Staley, C., Onyeaghala, G., Teigen, L., Dorr, C. R., Rimmel, R. P., Guan, W., Oetting, W. S., Matas, A. J., Israni, A. K., & **Jacobson, P. A.** (2024). Pharmacomicrobiomics: Immunosuppressive Drugs and Microbiome Interactions in Transplantation. *Transplantation*, 108(9), 1895–1910.  
<https://doi.org/10.1097/TP.0000000000004926>

---

O'Dwyer, R., **Leppik, I. E.**, Eads, P., **Long, Y.**, & **Birnbaum, A. K.** (2024). Overview of acute seizure management in US nursing homes. *Epilepsy & behavior : E&B*, 158, 109913. 10.1016/j.yebeh.2024.109913

---

Obayemi, J. E., Callans, L., Nair, N., Gao, H., Gandla, D., Loza, B. L., Gao, S., Mohebnasab, M., Trofe-Clark, J., **Jacobson, P.A.**, & Keating, B. (2024). Assessing the Utility of a Genotype-Guided Tacrolimus Equation in African American Kidney Transplant Recipients: A Single Institution Retrospective Study. *Journal of clinical pharmacology*, 64(8), 944–952. <https://doi.org/10.1002/jcph.2461>

---

Onyeaghala, G. C., Sharma, S., Oyenuga, M., Staley, C. M., Milne, G. L., Demmer, R. T., **Straka, R. J.**, . . . Prizment, A. E. (2024). Effects of aspirin intervention on Inflammation –Lingual Bacteria: A pilot Study from a Randomized Clinical Trial. *Microorganisms*.

---

Paulson, A. L., **Gruener, R. F.**, **Lee, A. M.**, & **Huang, R. S.** (2024). Discovery, Validation and Mechanistic Study of XPO1 Inhibition in the Treatment of Triple-Negative Breast Cancer. *Cancers*, 16(23). 10.3390/cancers16233980

---

Pillai, N. R., & **Kartha, R. V.** (2024). Intravital microscopy: An innovative approach to track real-time muscle integrity and pathology in Pompe disease. *Clinical and Translational Discovery*, 4(4).  
<https://doi.org/10.1002/ctd2.322> 10.1002/ctd2.322

---

Pina-Garza, J. E., Chez, M., **Cloyd, J.**, Hirsch, L. J., Kälviäinen, R., Klein, P., . . . Trinka, E. (2024). Outpatient management of prolonged seizures and seizure clusters to prevent progression to a higher-level emergency: Consensus recommendations of an expert working group. *Epileptic disorders : international epilepsy journal with videotape*, 26(4), 484-497. 10.1002/epd2.20243

---

Prakash, A., Rubin, N., Stately, C., Onyeaghala, G., Wen, Y.-F., Shaukat, A., **Straka, R. J.**, . . . Prizment, A. (2024). Effect of ginger supplementation on the fecal microbiome in subjects with prior colorectal adenoma.

---

**Roh, J.**, **Sahasrabudhe, S.**, **Mishra, U.**, **Terluk, M. R.**, **Cloyd, J.**, **Coles, L.**, & **Kartha, R. V.** (2024). Repeated-dose oral -acetylcysteine in Gaucher disease: Pharmacokinetics summary. *Molecular Genetics and Metabolism*, 141(2), 108020. <https://doi.org/10.1016/j.ymgme.2023.108020> 10.1016/j.ymgme.2023.108020

---

Runge, C. F., Campbell, J., Runge, C. P., & **Kartha, R. V.** (2024). Economics, externalities and rare disease. *Rare*, 2, 100036. <https://doi.org/10.1016/j.rare.2024.100036> 10.1016/j.rare.2024.100036

---

Ryan, K. L., Jeffres, M., Hornback, K. M., Lusardi, K., & **Hirsch, E. B.** (2024). Adding Antimicrobial Stewardship Pharmacists to the ID Compensation Discussion: A More Perfect Union? *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*. 10.1093/cid/ciad722

---

---

Salian, V. S., Tang, X., Thompson, K. J., Curan, G. L., Lowe, V. J., **Li, L.**, . . . Kandimalla, K. K. (2024). Molecular Mechanisms Underlying Amyloid Beta Peptide Mediated Upregulation of Vascular Cell Adhesion Molecule-1 in Alzheimer Disease. *The Journal of pharmacology and experimental therapeutics*, 391(3), 430-440. 10.1124/jpet.124.002280

---

**Sagr, A.**, Al-Kofahi, M., **Mohamed, M.**, Dorr, C., Remmel, R. P., Onyeaghala, G., Oetting, W. S., Guan, W., Mannon, R. B., Matas, A. J., Israni, A., & **Jacobson, P. A.** (2024). Steroid-tacrolimus drug-drug interaction and the effect of CYP3A genotypes. *British journal of clinical pharmacology*, 90(11), 2837–2848. <https://doi.org/10.1111/bcp.16172>

---

Shandra, O., Wang, Y., **Coles, L. D.**, Mowrey, W. B., Li, Q., Liu, W., . . . Galanopoulou, A. S. (2024). Efficacy and tolerability of celastrol and edaravone in the multiple-hit rat model of infantile spasms. *Epilepsy & behavior : E&B*, 162, 110159. 10.1016/j.yebeh.2024.110159

---

Sherman, E. M., Agwu, A. L., Ambrosioni, J., Behrens GMN, Chu, C., Collins, L. F., **Nicol, M. R.**, . . . Badowski, M. E. (2024). Consensus recommendations for use of long-acting antiretroviral medications in the treatment and prevention of HIV-1: Endorsed by the American Academy of HIV Medicine, American College of Clinical Pharmacy, Canadian HIV and Viral Hepatitis Pharmacists Network, European AIDS Clinical Society, and Society of Infectious Diseases Pharmacists: An executive summary. *Pharmacotherapy*, 44(7), 488-493. 10.1002/phar.2921

---

Singh, A., Smedley, G. D., Rose, J. G., Fredriksen, K., Zhang, Y., **Li, L.**, & Yuan, S. H. (2024). A high efficiency precision genome editing method with CRISPR in iPSCs. *Scientific reports*, 14(1), 9933. 10.1038/s41598-024-60766-4

---

Steulet, A., Obura, B., Waitt, C., Laker, E., **Nicol, M. R.**, & Cresswell, F. V. (2024). Clinical pharmacology considerations and drug-drug interactions with long-acting cabotegravir and rilpivirine relevant to sub-Saharan Africa. *British journal of clinical pharmacology*, 90(9), 2079-2091. 10.1111/bcp.16154

---

**Su, M. C.**, **Lee, A. M.**, Zhang, W., Maeser, D., **Gruener, R. F.**, Deng, Y., & **Huang, R. S.** (2024). Computational Modeling to Identify Drugs Targeting Metastatic Castration-Resistant Prostate Cancer Characterized by Heightened Glycolysis. *Pharmaceuticals (Basel, Switzerland)*, 17(5). 10.3390/ph17050569

---

**Sun, B.**, **Thao, T.**, Culhane-Pera, K., Yang, E., Thor, M., Yang, P., . . . **Straka, R. J.** (2024). Genetic polymorphisms in Very Important Pharmacogenes in a California Hmong Cohort.

---

**Sun, B.**, Yew, P., Chi, C.-L., Song, M., Loth, M., Liang, Y., . . . **Straka, R. J.** (2024). Development and validation of the pharmacological statin-associated muscle symptoms risk stratification (PSAMS-RS) score using electronic health record data.

---

Venugopal, N., Naik, G., Jayanna, K., Mohapatra, A., Sasinowski, F. J., **Kartha, R. V.**, & Rajasimha, H. K. (2024). Review of methods for estimating the prevalence of rare diseases. *Rare Disease and Orphan Drugs Journal*, 3(1). <https://doi.org/10.20517/rdodj.2023.39> 10.20517/rdodj.2023.39

---

- 
- Wang, F., Rademeyer, K., Namuju, O. C., Abdusalaamu, K., **Fisher, J.**, Meya, D. B., . . . **Nicol, M. R.** (2024). Postmortem Analysis of Dolutegravir, Tenofovir, Lamivudine, and Efavirenz Penetration in Multiple Central Nervous System Compartments. *The Journal of infectious diseases*, 230(5), 1215-1223. 10.1093/infdis/jiae325
- 
- Wang, Z., Zhong, R., Curran, G. L., Min, P., Lowe, V. J., **Li, L.**, & Kandimalla, K. K. (2024). High-Density Lipoprotein Mimetic Peptide 4F Reduces Toxic Amyloid-Beta Exposure to the Blood-Brain Barrier Endothelium in Alzheimer's Disease Transgenic Mice. *Molecular pharmaceutics*, 21(11), 5661-5671. 10.1021/acs.molpharmaceut.4c00633
- 
- Welty, T. E., **Conway, J. M.**, Bainbridge, J., Park, K., Vossler, D. G., Patel, A. A., & Goldman, A. (2024). The Fundamentals of Antiseizure Medications: A Through Z. *Epilepsy Currents*. <https://doi.org/10.1177/15357597241281838> 10.1177/15357597241281838
- 
- Wu, D., Wu, Q., Li, F., Wang, Y., Zeng, J., Tang, B., **Bishop, J. R.**, Xiao, L., & Lui, S. (2024). Free water alterations in different inflammatory subgroups in schizophrenia. *Brain, behavior, and immunity*, 115, 557–564. <https://doi.org/10.1016/j.bbi.2023.11.006>
- 
- Xia, Y., Ling, A. L., Zhang, W., **Lee, A.**, **Su, M. C.**, **Gruener, R. F.**, **Jena, S.**, **Huang, Y.**, Pareek, S., Shan, Y., & **Huang, R. S.** (2024). A Web Application for Predicting Drug Combination Efficacy Using Monotherapy Data and IDACombo. *Journal of cancer science and clinical therapeutics*, 7(4), 253–258. <https://doi.org/10.26502/jcsct.5079218>
- 
- Zeng, J., Zhang, T., Tang, B., Li, S., Yao, L., **Bishop, J. R.**, . . . Lui, S. (2024). Choroid plexus volume enlargement in first-episode antipsychotic-naïve schizophrenia. *Schizophrenia (Heidelberg, Germany)*, 10(1), 1. 10.1038/s41537-023-00424-2
- 
- Zhang, W., & **Huang, R. S.** (2024). Computer-aided drug discovery strategies for novel therapeutics for prostate cancer leveraging next-generating sequencing data. *Expert opinion on drug discovery*, 19(7), 841-853. 10.1080/17460441.2024.2365370
- 
- Zhang, W., **Lee, A.**, Lee, L., Dehm, S. M., & **Huang, R. S.** (2024). Computational drug discovery pipelines identify NAMPT as a therapeutic target in neuroendocrine prostate cancer. *Clinical and translational science*, 17(9), e70030. 10.1111/cts.70030
- 
- Zhang, W., Maeser, D., **Lee, A.**, **Huang, Y.**, **Gruener, R. F.**, Abdelbar, I. G., **Jena S.** . . **Huang, R. S.** (2024). Integration of Pan-Cancer Cell Line and Single-Cell Transcriptomic Profiles Enables Inference of Therapeutic Vulnerabilities in Heterogeneous Tumors. *Cancer research*, 84(12), 2021-2033. 10.1158/0008-5472.CAN-23-3005
- 
- Zhong, R., Xu, Y., Williams, J. W., & **Li, L.** (2024). Loss of TREM2 diminishes CAA despite an overall increase of amyloid load in Tg-SwDI mice. *Alzheimer's & dementia : the journal of the Alzheimer's Association*, 20(11), 7595-7612. 10.1002/alz.14222
-

## Other Publications By ECP Faculty

### 2024 Other Publications by ECP Faculty

**Coles, L.**, Sarafoglou, K., Al-Kofahi, M., & Brundage, R. FORMULATIONS AND METHODS FOR INTRANASAL DELIVERY OF HYDROCORTISONE.

---

**Conway, J. M.** (Ed.), PSAP 2024 Book 3 Neurology and Chronic Conditions

---

**George, B.**, Dahlquist KJV, **Grant MKO, Daniel, M. R.**, Smith, D. M., Sadak, K. T., . . . **Zordoky, B. N.** (2024). Divergent Immediate and Delayed Effects of Juvenile Exposure to Doxorubicin on the Thymus in C57BL/6 Mice.. bioRxiv : the preprint server for biology. 10.1101/2024.08.21.609003

---

**Kartha, R. V.**, & Orchard, P. J. (2024). Development of Gene Therapies from an Academic Perspective. Development of Gene Therapies: Strategic, Scientific, Regulatory, and Access Considerations. Edited by Avery McIntosh, Oleksandr Sverdlov. Taylor & Francis Group, LLC..

---

Liu, J., Curtin, C., Lall, R., Lane, S., Wieke, J., Ariza, A., **Zordoky, B. N.**, . . . Asnani, A. (2024). Inhibition of Cyp1a Protects Mice against Anthracycline Cardiomyopathy.. bioRxiv : the preprint server for biology. 10.1101/2024.04.10.588915

---

Luettel, D. M., **Terluk, M. R., Roh, J.**, Weinreb, N. J., & **Kartha, R. V.** (2025). Emerging biomarkers in Gaucher disease. Advances in Clinical Chemistry vol. 124, 1-56. Advances in clinical chemistry. 10.1016/bs.acc.2024.11.001

---

Schneiderhan, M. E., Nelson, L. A., **Bishop, J. R.**, & Bauer, S. (2024). Evaluation of Psychiatric Disorders. DiPiro, J. T., Yee, G. C., Posey, L. M., Haines, S. T., Nolin, T. D., & Ellingrod, V. (Eds.), Pharmacotherapy: A Pathophysiologic Approach, 13e. New York, NY: McGraw-Hill Education. <https://accesspharmacy.mhmedical.com/Book.aspx?bookid=3386>

---

# Teaching

The College of Pharmacy consistently ranks among the top three pharmacy schools in the country for the quality of its PharmD program. Faculty fill a variety of roles in the educational process, including course director, lecturer, discussant, seminar participant, and others. In addition to these classroom roles, faculty also serve as mentors and advisors to students, providing them with one-on-one training and counsel as they prepare for their careers.

In 2024, ECP faculty contributed significant, didactic education to PharmD classes. This instruction included teaching and directing the required pharmacotherapy series and the pharmaceutical care skills course sequence, as well as teaching elective courses. Instruction to pharmacy students also included experiential education in acute care, geriatric patient care, pediatric infectious disease, and clinical toxicology. The department also offers a research emphasis track for PharmD students which pairs students with an advisor(s) in the Clinical Pharmacology Research Emphasis program. In addition to coursework, students choose a research topic in experimental, translational, or clinical pharmacology for their PharmD paper project.

ECP faculty also teach graduate program classes. While these are primarily designed to support the department’s own graduate students, the courses also include students in nursing, public health, geriatrics, and genetics, as well as graduate students in other College of Pharmacy programs.

## Teaching-Related Metrics In Ecp

- (unspecified) Students mentored by ECP faculty 41
- Undergraduate students mentored or advised by ECP faculty 13
- Graduate/Professional students mentored or advised by ECP faculty 74

## Reported Student Credit Hours by Course Level

| Course level | Credit hours | # of sections |
|--------------|--------------|---------------|
| 1000         | 54           | 1             |
| 4000         | 68           | 2             |
| 5000         | 20           | 4             |
| 6000         | 3625         | 34            |
| 7000         | 4829         | 24            |
| 8000         | 114          | 73            |

# Service

ECP faculty discover opportunities for service both within and outside the University. The hours spent offering expertise and guidance are a way to give back to students, the community, and the field. In 2024, faculty members served on boards of directors or advisory councils of research organizations and others reviewed grant proposals and/or faculty promotion documents for institutions across the country. While much of the service performed by ECP faculty is performed on behalf of the department, college, and university in which they work, they also support their colleagues and their profession.

## Service-Related Metrics In ECP

|   |     |
|---|-----|
| Service commitments to the discipline or profession           | 243 |
| External and public service commitments                       | 31  |
| Service commitments to the university, college, or department | 215 |
| Mentoring/Career Advising                                     | 72  |

# ECP Graduate Program

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

The ECP Graduate Program is an innovative, interdisciplinary program that trains students to conduct research utilizing methodology from basic and clinical pharmacology perspectives. Designed specifically for students interested in clinical research, the goal of the program is 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, neuropharmacology/neuroscience, and pharmacogenomics. Graduates are prepared for distinguished careers in clinical research.

## ECP Graduate Program-Related Metrics

|                                    |    |
|------------------------------------|----|
| • PhD degrees completed            | 71 |
| • MS degrees completed             | 7  |
| • ECP program graduates            | 6  |
| • Students in ECP graduate program | 24 |

## ECP Doctoral Graduates

| Name                | Advisor  | Thesis Title   |
|---------------------|--|--|
| Charul Avachat, PhD | Angela Birnbaum, PhD                                 | Pharmacokinetic Characterization of Antiseizure Medications at Different Stages of Life in Women with Epilepsy               |
| Morgan Bixby, PhD   | Elizabeth Hirsch, PharmD;<br>Pamala Jacobson, PharmD | Investigation of Klebsiella pneumoniae inner colonies during fosfomycin susceptibility testing                               |
| Yingbo Huang, PhD   | R. Stephanie Huang, PhD                              | Unveil Molecular Underlying Causes of Observed Sex Differences in Human Complex Traits and Cancer                            |
| Alyssa Lantz, PhD   | Melanie Nicol, PharmD, PhD                           | Host Modulators of Tenofovir Exposure and Efficacy in the Female Genital Tract   |
| Mei-Chi Su, PhD     | R. Stephanie Huang, PhD;<br>Angela Birnbaum, PhD     | Identifying Efficacious Therapies for High Glycolysis Metastatic Castration- Resistant Prostate Cancer                       |
| Boguang Sun, PhD    | Robert Straka, PharmD                                | Advancing Precision Medicine: Harnessing Data From Diverse Sources And Individuals To Predict Medication Efficacy And Safety |



## Fellowships And Awards For Graduate Students

| Name                | Fellowships/Awards  |
|---------------------|---|
| Adeboye Bamgboye    | James C. Cloyd Neuropharmacology Fellowship   |
| Cecilia Barajas     | American Foundation for Pharmaceutical Education Regional Grant Fellowship  |
| Jessica Barry       | University of Minnesota Doctoral Dissertation Fellowship, Olsteins Graduate Fellowship  |
| Tiffany Chang       | Coin Fellowship   |
| Mohamed Dabour      | Bighley Graduate Fellowship   |
| Mary Raphael Daniel | CTSI A-PReP Fellowship, Robert J. Straka Fellowship   |
| Chenxu Li           | Cloyd Fellowship, First place College of Pharmacy Rho Chi Research Day Poster Competition   |
| Moataz Mohamed      | Bighley Graduate Fellowship, ECP Fellowship, CTSI Translational Research Development Program (TRDP, 2024-2026)                                |
| Abdelrahman Saqr    | ACoP 2024 Trainee Award   |
| Yuting Shan         | University of Minnesota Doctoral Dissertation Fellowship, Zaske Fellowship, CTSI Translational Research Development Program (TRDP, 2024-2026) |
| Lusi Zhang          | Bighley Graduate Fellowship, Overall Best Poster ACCP 2024 Annual Meeting, CTSI Translational Research Development Program (TRDP, 2024-2026)  |

## ECP Research Emphasis Track Graduates

ECP also provides professional students in the PharmD program an opportunity to specialize in research by participating in the ECP Research Emphasis Track.

| Name          | Advisor            |
|---------------|--------------------|
| Patricia Moua | Ling Li            |
| Mingyi Zhang  | R. Stephanie Huang |

## Publications By Graduate Students & Postdocs

### 2024 Journal Articles

Student Publications are listed in the “Publications” section above on Pages 22-27.

## Presentations By Graduate Students & Postdocs

### 2024 Abstracts, Posters, and Presentations

**Bamgboye, A.** *A Comparison of IV Topiramate Pharmacokinetics in Healthy Participants, Patients with Migraines and Patients with Epilepsy with or without Concomitant Enzyme-Inducing Drugs.* London-Innsbruck Colloquium on Status Epilepticus and Acute Seizures. London, April 2024.

**Bamgboye, A.** *Confounders in Exposure-Response Analyses.* Clinical Pharmacology and Pharmacometrics Intern Presentation, AbbVie Inc. North Chicago, August 2024.

---

**Bamgboye, A.** *Development of an IV Topiramate Population PK Model Utilizing Data from Healthy Participants and Patients.* American Epilepsy Society Annual Meeting. Los Angeles, December 2024.

---

**Dabour MS, Abdelgawad IY, Sadaf B, Daniel MR, Grant MKO, and Zordoky BN.** Leveraging a Multi-Omics Approach to Reveal the Cardioprotective Effect of Losmapimod against Doxorubicin-Induced Cardiotoxicity in C57BL/6 Mice. Presented in the International Society for Heart research (ISHR) in Long Beach, California, August 2024.

---

**Dabour MS, Abdelgawad IY, Sadaf B, Daniel MR, Grant MKO, and Zordoky BN.** Pharmacological Inhibition of p38 MAPK attenuates Doxorubicin-induced Cardiotoxicity, Senescence, and Inflammation in C57BL/6 mice. Presented in the Basic Cardiovascular Sciences Scientific Sessions (BCVS) in Chigaco, Illinois, July 2024.

---

**Daniel MR, Grant MK, Razzoli M, Bartolomucci A, Zordoky BN.** Sub-strain Dependent Vulnerability to Psychosocial Stress Exacerbates Doxorubicin-induced Cardiotoxicity in Adult Male Mice. Basic Cardiovascular Sciences (BCVS) Scientific sessions, American Heart Association, Chicago, Illinois, 2024.

---

**George MY, Dabour MS, Rashad E and Zordoky BN.** The Protective Effects of Empagliflozin in Carfilzomib-induced Cardiotoxicity in Mice: Unveiling the Crosstalk between Oxidative Stress, Inflammation,

---

**Long Y, Barry JM, Lyu X, Sherwin CM, Birnbaum AK.** Effect of Convenience Sampling on Overall Drug Exposure during Pregnancy, American Conference on Pharmacometrics 2024, Nov 2024. (Poster)

---

**Long Y, Lyu X, Barry JM, Sherwin CM, Birnbaum AK.** Characterizing Pharmacokinetics Effects on Measures of Overall Drug Exposure during Pregnancy, American Conference on Pharmacometrics 2024, Nov 2024 (Poster)

---

**Long Y, Pennell PB, Meador KJ, Sherwin CM, Birnbaum AK.** "Effect of Time After Dose on Therapeutic Drug Monitoring During Pregnancy." American Epilepsy Society 2024 Annual Meeting, 2024 Dec (Platform presentation and Poster)

---

**Lyu X, Long Y, Illamola SM, Leppik IE, O'Dwyer R, Birnbaum AK.** "Antiseizure Medication Use in Younger and Older Adults with Epilepsy/Seizure: A Comparative Analysis from a Large Electronic Health Record Database." American Epilepsy Society 2024 Annual Meeting, 2024 Dec. (Poster)

---

**M. Mohamed, A. Saqr, G. Onyeaghala, R. Remmel, C. Staley, C. Dorr, L. Teigen, W. Guan, H. Madden, J. Munoz, D. Vo, B. Sanchez. M. Al-Kofahi, R. El-Rifai, W. Oetting, A. Matas, A. Israni, P. Jacobson (2024).** *Limited Sampling Strategies Fail to Accurately Predict Mycophenolic Acid Area Under the Curve in Kidney Transplant Recipients and the Impact of Enterohepatic Recirculation.* American Transplant Congress 2024 – June 1-5, 2024, Philadelphia, PA, USA

---

---

**M. Mohamed**, L. Hach, **A. Saqr**, G. Onyeaghala, R. Remmel, C. Staley, C. R. Dorr, L. Teigen, W. Guan, H. Madden, J. Munoz, D. Vo, B. B. Sanchez, M. Al-Kofahi, R. El-Rifai, W. Oetting, A. Matas, A. Israni, **P. Jacobson**. *Limited Sampling Strategies Fail to Accurately Predict Mycophenolic Acid Area Under the Curve in Kidney Transplant Recipients and the Impact of Enterohepatic Recirculation*. (2024) Am J Transplant., Volume 24, Issue 6, S310 - S561

---

**M. Mohamed**, L. Hach, **A. Saqr**, G. Onyeaghala, R. Remmel, C. Staley, C. R. Dorr, L. Teigen, W. Guan, H. Madden, J. Munoz, D. Vo, B. B. Sanchez, M. Al-Kofahi, R. El-Rifai, W. Oetting, A. Matas, A. Israni, **P. Jacobson**. *Limited Sampling Strategies Fail to Accurately Predict Mycophenolic Acid Area Under the Curve in Kidney Transplant Recipients and the Impact of Enterohepatic Recirculation*. Transplant Immunosuppression conference, Uni of Minnesota, Sep 18, 2024, MN

---

**Mohamed, M.E; Cheng, S.**; Staley, C; Holtan, S.G; **Jacobson, P.A**. *Factors Influencing Tacrolimus Pharmacokinetics in Hematopoietic Stem Cell Transplantation; The Integration of Microbiome and Pharmacogenomics* - CTSI Translational Science Symposium, University of Minnesota, September 17, 2024, MN, USA

---

Mroz P, **Zhang L**, **Bishop JR**. Evaluation of pharmacogenomics data to enhance the clinical utility of whole-genome sequencing testing. 2024 Association for Molecular Pathology Europe 2024 Congress, Madrid, Spain (06/24/2024).

---

O'Dwyer R, **Leppik IE**, Eads P, **Long Y**, **Birnbaum AK**. "Overview of acute seizure management in US nursing homes." *Epilepsy Behav*, 2024 Sep;158:109913. doi: 10.1016/j.yebeh.2024.109913

---

**Shan, Y**. Deciphering Cancer Sex Differences Through the Lens of Intratumoral Microbiome. Masonic Cancer Center (MCC) Microbiome & Cancer Symposium. 2024, *Minneapolis, MN*.

---

**Shan Y**, **Huang Y**, **Lee A**, **Huang RS**. Deciphering Sex Differences in Cancer Treatment Response and Survival Outcomes by Studying Intratumoral Microbiome-Host Interactions. Cold Spring Harbor Laboratory biological data science conference, 2024, *Cold Spring Harbor, NY*.

---

**X Lyu**, **Y Long**, **SM Illamola**, **IE Leppik**, R O'Dwyer, **AK Birnbaum**, Antiseizure Medication Use in Younger and Older Adults with Epilepsy/Seizure: A Comparative Analysis from a Large Electronic Health Record Database, American Epilepsy Society 2024 Annual Meeting, Dec. 2024

---

**Zhang L**, Borgen Z, Olson C, Kastner J, Wachtl J. Optimizing Medication Outcomes for Cardiometabolic Comorbidities in Vulnerable Adults with Neuropsychiatric Conditions through Long-Term Care Medication Therapy Management. American College of Clinical Pharmacy (ACCP) 2024 Annual Meeting, Phoenix, AZ (10/12/2024).

---

---

**Zhang, L.** “Polygenic interactions with anticholinergic burden impact cognition and brain structure in psychotic disorders. To be presented at the Special Platform Presentations session of the 2024 American College of Clinical Pharmacy (ACCP) 2024 Annual Meeting, Phoenix, AZ, United States (10/14/2024).

---

**Zhang L**, Ivleva EI, Parker DA, Hill SK, Lizano P, Keefe RSE, Keedy SK, McDowell JE, Pearlson GD, Pearlson GD, Clementz BA, Keshavan MS, Gershon ES, Tamminga CA, Sweeney JA, **Bishop JR**. Polygenic interactions with anticholinergic burden impact cognition and brain structure in psychotic disorders. American College of Clinical Pharmacy (ACCP) 2024 Annual Meeting, Phoenix, AZ (10/12/2024). Platform Presentation/Poster/Abstract

---

**Zhang L**, Ivleva EI, Parker DA, Hill SK, Lizano P, Keefe RSE, Keedy SK, McDowell JE, Pearlson GD, Pearlson GD, Clementz BA, Keshavan MS, Gershon ES, Tamminga CA, Sweeney JA, **Bishop JR**. Genetic predisposition for psychiatric disorders and cognitive performance impact anticholinergic burden relationships with cognition and brain structure. International Society for Magnetic Resonance in Medicine (ISMRM)-Endorsed Workshop on MR for Psychiatry, Chengdu, China (7/21/2024).

---

## ECP Research Seminar (ECP 8100)

Both graduate students and postdoctoral associates present at the weekly research seminar.

| Date - Spring 2024 | Title  | Presenter   |
|--------------------|--|---|
| January 24         | Host Modulators of Tenofovir Exposure and Efficacy In The Female Genital Tract   | <b>Alyssa Lantz</b> , ECP PhD student, Dr. Melanie Nicol lab  |
| January 31         | Genomics and Public Health: Precision Medicine Research in the Community   | <b>Pamala Pawloski</b> , PharmD, Health Partners Institute, Clinical Assistant Professor, UMN College of Pharmacy |
| February 7         | Deciphering the Gut Microbiome's Role in Pharmacokinetics: Insights from a Semi-Mechanistic Population Pharmacokinetic Model of Mycophenolate Mofetil in Transplant Recipients | <b>Abdelrahman Saqr</b> , MS, ECP PhD student, Dr. Pamala Jacobson lab  |
| February 14        | Model Informed Drug Development (MIDD) – Past, Present and Future  | <b>Yan Xu</b> , MD, PhD, Section Head, Clinical Pharmacology and Pharmacometrics, Biogen                          |
| February 21        | Optimizing the Identification and Prediction of Statin Intolerance to Improve Statin Adherence Using Natural Language Processing and Machine Learning                          | <b>Boguang Sun</b> , PharmD, ECP PhD student, Dr. Robert Straka lab   |
| March 13           | Sex-Specific Effects of Agmatine on Glial Cell Expression and Function   | <b>Cecilia Barajas</b> , ECP PhD student, Dr. Carolyn Fairbanks lab   |
| March 20           | Recent Biologic Approvals from the US FDA and Case Studies of Controversial Biologics  | <b>Bovornpat Suriyapakorn</b> , PharmD, ECP PhD student, Dr. Lisa Coles lab                                       |
| March 27           | A Conversation on the Current Challenges in Epilepsy Therapy   | <b>James Cloyd</b> , PharmD, Professor ECP, Director of Center for Orphan Drug Research                           |
| April 3            | Diversity in Clinical Trials   | <b>DEI Event</b>  |
| April 10           | Role of the Ancient Signaling Molecule, Hydrogen Sulfide, in Neurodegeneration   | <b>Swati More</b> , PhD, Professor, Center for Drug Design  |
| April 17           | Enterohepatic Recirculation and its Impact on Developing Limited Sampling Strategies for Pharmacokinetic Studies   | <b>Moataz Mohamed</b> , ECP PhD student, Dr. Pamala Jacobson lab  |

| Date - Fall 2024 | Title  | Presenter  |
|------------------|--|--|
| September 11     | ECP Lab Safety Training Seminar  | <b>Becca Cuellar</b> , PhD, STS, College Safety Officer, <b>Eric Derrah</b> , PhD, Lab and Research Safety Manager, UMN Health and Safety, and <b>Nancy Rolstad</b> , MS, Biosafety Specialist |
| September 18     | Vitamin D: The Basic Science, the Clinical Evidence and the Politics Surrounding Official Committee Guidelines Related to the Risks and Benefits of the Sunshine Vitamin | <b>Reinhold Vieth</b> , BSc, MSc, PhD, Faculty of Medicine, University of Toronto<br>Third Annual ECP Toxicology Seminar, Sponsored by the Speedie-SafetyCall Endowment Fund                   |
| September 25     | Protein Prenylation in Alzheimer's Disease: Advances and Future Directions   | <b>Kuber Bajgain</b> , MS, ECP Grad Student  |
| October 2        | Pharmacokinetics Meets Microbiomics: Model-Informed Dosing of Mycophenolate Mofetil Guided by Gut Microbiome Composition   | <b>Abdelrahman Saqr</b> , MS, ECP Grad Student   |
| October 9        | Dose Optimization of Antiseizure Medications During Pregnancy  | <b>Jessica Barry</b> , ECP Grad Student  |
| October 16       | Application of Model-informed Drug Development in Dose Selection and Optimization  | <b>Angela Jeong</b> , PharmD, PhD, Sr. Scientist, Clinical Pharmacology & Pharmacometrics, Johnson & Johnson   |
| October 30       | Applying Real World Patient Data in Clinical Research: The National Covid Cohort Collaborative Conversation with Experts   | <b>Scott Chapman</b> , PharmD, ECP Professor and <b>Sameh Hozayen</b> , MD, Asst. Prof. of Medicine  |
| November 6       | Extracellular Vesicles in Gaucher Disease  | <b>Nathan Phan</b> , ECP Grad Student  |
| November 13      | Barriers to Genetic Diagnosis  | <b>Catherine Long</b> , MS, Senior Medical Science Liaison, Sanofi   |
| November 20      | Quantitative Pharmacology Approaches to Optimize Treatment for Seizure Emergencies   | <b>Adeboye Bamgboye</b> , ECP Grad Student   |
| December 4       | CRISPR Engineered CYP3A Variant Cell Line Model for the Pharmacogenomic Evaluation of Tacrolimus Metabolism and Drug-drug Interactions                                   | <b>Casey Dorr</b> , PhD, MS, Investigator, Hennepin Healthcare Research Institute  |