

ECP Gazette

Spring 2023



COLLEGE OF PHARMACY

UNIVERSITY OF MINNESOTA

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ECP Gazette

FACULTY

Robert J. Straka, PharmD

Department Head; Professor

Angela K. Birnbaum, PhD

Professor; Director of Graduate Studies

Jeffrey Bishop, PharmD, MS

Associate Professor

Scott A. Chapman, PharmD

Professor

James C. Cloyd, PharmD

Professor; Weaver Endowed Chair; Director,
Center for Orphan Drug Research

Lisa Coles, PhD

Assistant Professor

Jeannine M. Conway, PharmD

Associate Professor; Associate Dean for
Professional Education

Elizabeth Hirsch, PharmD

Associate Professor

R. Stephanie Huang, PhD

Professor

Pamala A. Jacobson, PharmD

Professor; Director, Institute of
Personalized Medicine

L'Aurelle A. Johnson, PhD

Assistant Professor; Associate Director
of Graduate Studies

Reena Kartha, PhD

Associate Professor

Michael Kotlyar, PharmD

Associate Professor

Ilo E. Leppik, MD

Professor

Ling Li, PhD

Professor; VFW Endowed Chair

Susan E. Marino, PhD

Associate Professor; Director, Center for Clinical and
Cognitive Neuropharmacology

Melanie R. Nicol, PhD, PharmD

Associate Professor

Leo Sioris, PharmD

Professor

Lynda Welage, PharmD

Professor; Dean, College of Pharmacy

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DEAR FRIENDS,

Spring and summer invite a sense of renewed energy and excitement, both personally and professionally. As the 2023 academic year nears to its close, we look forward to spring and summer weather as we take stock and reflect on ECP's research, teaching and service accomplishments. Our upcoming end-of-academic-year event is a time to reflect on past successes and look forward to new opportunities that motivate our drive to balance these missions.

The college's fall 2023 accreditation visit serves to remind us that our contributions to the professional program are paramount in our roles as leading pharmacy educators, and reimagining our new professional curriculum remains the focus of much of our attention while we maintain the highest quality of instruction for current students. Our graduate program continues to advance highly trained leaders whose accomplishments serve as testimony to our commitment to training the next generation of leaders in the field of experimental and clinical pharmacology, and we are very excited to initiate a new search for a new tenure-track faculty member in the field of pharmacometrics.

Finally, current news events remind us of the ongoing challenges to reconcile the appropriate roles of judicial and government regulatory agencies to guide optimal healthcare for members of our society. Our ECP department prides itself on contributing to the education of future leaders to advance new knowledge through discovery and expertise, through education and practice, to help inform society of the optimal use of medications for the health and wellbeing of members of our community.

Our faculty's accomplishments can only be possible through the continued support of outstanding laboratory staff and scientists, as well as dedicated graduate students and post-doc trainees. Our department is especially grateful for the administrative support afforded us by competent individuals including Zack McGough, Becky Palapala, Katherine Goffin, Susan Williford and Lori Endsley.

I hope you enjoy our ECP Spotlight write-up, fellowship/research/grant listings, references to this year's Rare Disease Day event and other news, and I invite you to collaborate with us in building and sustaining our hard-earned reputation as one of the most recognized departments of clinical pharmacology in the country.

I bid you all a safe, healthy, and productive spring and summer season as we share our stories within this newsletter.

A handwritten signature in dark ink that reads "Robert J. Straka". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Robert Straka, PharmD
Professor and Department Head

RECENT PROMOTIONS



R. STEPHANIE HUANG, PHD



SCOTT A. CHAPMAN, PHARM D

R. Stephanie Huang, PhD, was promoted to Professor with tenure. Dr. Huang's research and scholarship achievements are highly impressive. They have included 98 referred research publications, many as first or senior author in high-impact journals and numerous national and regional grants, including two RO1 grants as well as foundation grants in support of her work in investigating genomic biomarkers that predict response to anticancer therapies. Her work in repurposing commercially available drugs for anticancer therapeutics has significant translational implications and as such has earned her high praise from her referees supporting her promotion. Dr. Huang is an active educator of both the professional and graduate students in the College of Pharmacy and has a very active role in graduate education in two other programs. At times mentoring and advising more than nine graduate students, she has been formally recognized for her skills as a mentor by way of receiving a COGS (Council of Graduate Students) Outstanding Advisor Award in 2020. She has served at the NIH and various other national committees, and holds leadership roles in supporting our college's pharmacogenomic and precision medicine initiatives.

Scott A. Chapman, PharmD, was promoted to Professor (term). His clinical expertise and research accomplishments are focused in the field of critical care medicine, specifically in areas related to coagulation and anticoagulation. Related areas of his scholarship and teaching include the management of electrolytes in acute care settings and bleeding events for transplant patients. Dr. Chapman has also leveraged his extensive experience as a clinical practitioner in this field to publish works related to the scholarship of experiential learning and assessment during pharmacy practice experiences leading to a white paper titled, "Striving for Excellence in Experiential Education." Dr. Chapman continues his research through engagement in the Collaborative Analytics for EHR and Real-World Data, as part of an NIH sponsored initiative. He has served on various national committees with ACCP and has contributed to various service roles with the Society of Critical Care Medicine and has also played a significant recent role in the college by serving as the co-director of Experiential Education and various other collegiate committees.

RARE DISEASE DAY 2023



The eleventh annual Rare Disease Day at the University of Minnesota was co-hosted by the Center for Orphan Drug Research and the Stem Cell Institute on Thursday, March 2, 2023. Nearly 200 people attended, either virtually or in person at the McNamara Alumni Center, for “Diversity in the Rare Disease Community: Challenges for Newborn Screening and Early-life Genetic Testing Equity.” The program featured Amy Gaviglio, MS, CGC as the keynote speaker. The keynote was followed by a panel that included participants who serve underrepresented communities. We were honored to have University of Minnesota President, Joan TA

Gabel, provide recorded remarks for the program as well.

Thank you to everyone who presented posters, hosted tables, sponsored the event, and joined us for the program. Congratulations as well to the Rare Disease Day Research Award recipients: Crystal Chang, Medical School graduate student; Dante Rogers, MINDS Scholar; and Jaehyeok Roh, ECP post doc.

ECP SPOTLIGHT: RESEARCH



SILVIA M. ILLAMOLA WITH ECP SINCE: JUNE 2018

Briefly describe your current role and the professional path that led you to ECP. What made you choose the UMN College of Pharmacy?

I am currently Research Associate and Director of the Clinical Neuropharmacology Laboratory, working on Dr. Birnbaum's group. I am also developing my own research in special populations, including cystic fibrosis, antidepressants in pregnancy and pediatrics, using pharmacometric tools and clinical pharmacology.

After finishing my Fellowship in Clinical Pharmacology at the Department of Pediatrics at the University of Utah under the direction of Dr. Sherwin, I wanted to pursue research in maternal-fetal and neonatal pharmacology. I chose the UMN College of Pharmacy as it offers one of the best programs in the nation, with a reputation of using pharmacometrics in research.

What are some of your current projects (funded or unfunded)? What drove you towards those topics/areas?

From the beginning, my research has been focused on special populations, such as pediatrics, and maternal-fetal, with a special focus on anti-infectives. I am also interested in looking to improve therapeutic options for those with cystic fibrosis. I want to contribute to improving therapies options in these groups of individuals. This means undertaking research that includes vulnerable individuals, regardless of the disease or condition, to give the opportunity to provide individualized treatment to ensure efficacy while minimizing toxicity.

I am currently the PI of a funded project through the Cystic Fibrosis Foundation that aims to characterize the relationship between vancomycin exposure and

nephrotoxicity. This project includes researchers from the UMN, Minnesota Cystic Fibrosis Center, and Leiden University.

I am also co-PI of a project funded by the NIH, in collaboration with the University of Wisconsin. The goal of this project is to quantify the contribution of sertraline pharmacokinetics exposure to maternal health and obstetrical/neonatal outcomes.

I have developed strong collaborations with the Department of Pediatrics at the UMN. I am currently the PI of a project with the Division of Blood and Marrow Transplantation to study the influence of patient-specific covariates involved in drug metabolism or distribution that may influence drug clearance in the pediatric hematopoietic cell transplantation. Additionally, I am PI on a project in collaboration with the Division of Neonatology, also from the Department of Pediatrics at the UMN, to validate the current Bayesian vancomycin dosing approach used in extremely premature neonates using pharmacometric simulations.

Past projects include the development of a population pharmacokinetic model of busulfan in individuals with inherited metabolic disorders, in collaboration with the Department of Pediatrics at the UMN and the University of California San Francisco (UCSF). I also participated in the development of a PK/PD model of topiramate, an antiepileptic drug, to characterize the effect of topiramate blood concentrations on the severity of topiramate-related cognitive deficits.

Which projects are you most proud of (past or current)? What types of projects or efforts would you like to be a part of in the future?

I am very proud of the project funded by the Cystic Fibrosis Foundation. Besides being my first funded project as PI at the UMN, this project is the result of successfully developing new inter- and intra-departmental collaborations. One of my goals when moving to UMN was to contribute to research efforts for those with cystic fibrosis. Particularly important, it is the partnership with Minnesota Cystic Fibrosis Center, one of the largest centers in the US.

I would like to continue my research focused on special populations from a multidisciplinary perspective. I really believe that interdisciplinary research is key and working with those with different expertise allows for a diverse and successful approach in research.

Have you had any major field or focus changes since beginning your career? How have collaborations in ECP affected your interests?

My PhD dissertation was focused on research involving neonates. I have always been passionate about pediatrics, seeing this population as a vulnerable population that requires more attention.

The collaborations I have established with ECP have helped me to grow as a researcher. I believe that research becomes less challenging when a team approach is taken.

What does career satisfaction and success mean to you? What drives you in your work?

Career satisfaction and success means being happy to wake up every morning and do your job. It means being enthusiastic, feeling part of a team, and feeling your job is contributing to society.

Much of my work is focused on the advancement of precision medicine approaches to improve treatment of diseases in special populations (i.e., cystic fibrosis, maternal-fetal, and pediatrics). I am passionate about my work as I see it as contributing to improve treatment options in these sometimes “forgotten” populations.

Reflecting on your experiences so far, what advice could you offer new or hopeful pharmacological researchers or students of pharmacy?

I would say “be curious, passionate and persistent while keeping yourself flexible.” I think being curious drives researchers to find innovative solutions. It helps you to discover yourself, and helps you to find your career (and personal) pathway. Be passionate about what you do, as you are going to spend a lot of time on that. And finally, persistence will definitely drive you to the point you want, but keep yourself flexible, as the road to get there is not always straight but the journey is worth it.



FACULTY NEWS



Jeffery Bishop



R. Stephanie Huang



Beshay Zordoky



Ramaiah Muthyala



Elizabeth Hirsch



Reena Kartha



Ilo Leppik

GRANTS

Jeffrey Bishop is a co-investigator on a newly funded RO1 grant titled “A Translational Informatics Framework to Mine Efficacy and Safety of Dietary Supplements” (Rui Zhang, PI).

Elizabeth Hirsch was awarded a \$40,000 research grant from the Society of Infectious Diseases Pharmacists for the project entitled “Assessment of the infectious diseases pharmacist workforce across the U.S.” The research team is led by two Co-PIs, Dr. Betsy Hirsch and Dr. David Mott (University of Wisconsin-Madison School of Pharmacy). The team will be supported by additional co-investigators from both institutions; these include Drs. Caroline Gaither, Jon Schommer, and Melanie Nicol from UMN, and Drs. Warren Rose and Mary Hayney from UW. The project will also be supported by in-kind collaboration from an advisory panel representing investigators from the Midwest Pharmacy Workforce Consortium.

R. Stephanie Huang was awarded an NIH/NCI Innovation Pilot Project. This was an outcome from her recent participation in a NIH/IBM IDEAS lab focus on drug combination therapy design. She is to lead a group of PIs from 6 different institutions (UNC, U Pitt, U Arkansas, U Alabama and IBM) to generate preliminary data to support future major grant applications on this topic. Dr. Huang is also a co-I on a recent new NIH/NCI RO1 award (CA27053, PI: Scott Dehm), titled, “Targeting early events in prostate cancer lineage plasticity.”

Reena Kartha Received an educational grant from Sanofi to support the Translational Pharmacology Fellowship program at CODR. This is the 4th year of funding. Dr. Kartha also received an investigator-initiated pilot study grant titled “Magnetic Resonance Spectroscopy Biomarkers in Type 3 Gaucher Disease” from Sanofi.

Beshay Zordoky is the PI on a new Pediatric Cancer Research Grant entitled “Leveraging Senotherapeutics to Combat Doxorubicin-induced Immunosenescence” from the Childhood Cancer.

AWARDS AND RECOGNITION

Reena Kartha was invited to be on the Scientific and Medical Advisory Board of INADcure Foundation, a 501c3 nonprofit charity whose mission is to support the development of treatments, including a cure, for Infantile Neuroaxonal Dystrophy (INAD) and other forms of PLA2G6-related neurodegeneration.

Ilo Leppik received a Founders Award from the Epilepsy Foundation of Minnesota. The award recognizes “individuals across the state who make a difference in the epilepsy community. From advocates to doctors, youth, and adults, the Torchbearer Honors recognizes and celebrates those who make an impact in improving the lives of people with epilepsy.”

Ramaiah Muthyala, Yuk Sham (Med School), and Woo-Shick Shin (Northeast Ohio Medical University) Were issued patent no. 11491146 on 11/08/2022. This is

FACULTY NEWS



R. Stephanie Huang



Robert Straka



Reena Kartha

the first of the group's forthcoming patents addressing drug resistance infections. It is a combination therapy with Metallo beta-lactamase inhibitors (NDM-1 and VIM2) for topical and systemic infections caused by *P. aeruginosa* and other strains. Muthyala also participated in the multi-stakeholder Data Mining and Repurposing (DMR) Task Force of the International Rare Diseases Research Consortium (IRDiRC), set up to examine the potential of applying biomedical data mining strategies to identify new opportunities to use existing pharmaceutical compounds in new ways and to accelerate the pace of drug development for rare disease patients. A two-day workshop (Oct 18-19, 2022) at INSERM (Institut national de la sante et de la recherche medicale) Paris, was organized for the Task Force on Drug Repurposing Guidebook focusing on repurposing approaches, following the same successful methodology used for the Orphan Drug Development Guidebook published previously.

Beshay Zordoky has been appointed as a member of the Internal Advisory Board of the University of Minnesota Clinical and Translational Science Institute (CTSI).

MEDIA AND PUBLICATIONS

R. Stephanie Huang's lab has a new high impact publication on Nature Communications (IF: 17.7) titled, "Deciphering genetic causes for sex differences in human health through drug metabolism and transporter genes." Yingbo Huang, a 4th year PhD student in the ECP program, is the first author of this paper.

Reena Kartha and the Center for Orphan Drug Research team are pleased to announce CSL-Behring published a news article about the College of Pharmacy's Grand Challenge rare disease undergrad course titled, "[Turning Undergrads Into Rare Disease Allies.](#)"

Robert Straka's pharmacogenomics research with a California Hmong Community (part of the Very Important Pharmacogenes in the Hmong - California or VIPH-C project) was featured in an article for the Clinical and Translational Science Institute entitled, "[A stronger dose of community engagement.](#)" The article highlights exciting work by a PD2 Student (Tou Thao) and recipient of a CTSI APreP summer scholarship award who continues to work in the Straka Lab as a key to our engagement of a Hmong community in both Fresno and Sacramento California. It also recognizes the excellent work of ECP PhD student and UMN PharmD alumni Boguang Sun. This work seeks to confirm unique allele frequencies of "Very Important Pharmacogenes" in the Hmong residing in California to validate those findings previously observed in a Minnesota cohort.

STUDENT NEWS



Ibrahim Abdelgawad



Mohamed Dabour



Yingbo Huang



Abdelrahman Saqr



Lusi Zhang



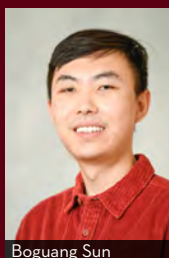
Charul Avachat



Alyssa Lantz



Moataz Mohamed



Boguang Sun



Rui Zhong

Ibrahim Abdelgawad, received Honorary Mention for Best Poster Award at the College of Pharmacy's annual Research Day.

Charul Avachat completed an internship at Gilead Sciences in the summer of 2022. Avachat also received a student/trainee Grant for presenting poster titled "Characterization of the US Food and Drug Administration Post-Marketing Commitments and Requirements for Pregnancy and Lactation" at the ASCPT 2023 Annual Meeting and was appointed as the Vice Chair of ASCPT Student & Trainee (ST) Community.

Mohamed Dabour won second place for Best Poster Award at the College of Pharmacy's annual Research Day.

Alyssa Lantz was the winner of the College of Pharmacy's 3-minute Thesis competition and represented the College of Pharmacy at the University-wide competition on Nov 11th.

Yingbo Huang, a PhD student in Dr. Stephanie Huang's lab, was invited to serve as a moderator to moderate a platform session titled: The Past Matters for Cancer Treatment and Risk at the American Society of Human Genetics (ASHG) Annual Meeting in LA on Oct 29th. Mr. Huang was also the winner of the TA for the Class of 2024 award for the 2022 Fall Semester.

Moataz Mohamed presented a poster at the American College of Clinical Pharmacy (ACCP) meeting in October entitled "Association of Pharmacogenomic (PGx) Variation with Sedation Outcomes During Early Intensive Care Unit (ICU) Admission."

Abdelrahman Saqr was married on January 13, 2023 in Cairo, Egypt. His bride, Basma, hopes to join him in the US in the next few months.

Boguang Sun's research proposal "Optimizing the Identification and Prediction of Statin Intolerance to Improve Statin Adherence Using Natural Language Processing and Machine Learning" was accepted to present as a poster at the 2023 AMIA Informatics Summit in Seattle, WA.

Lusi Zhang (Jeff Bishop as mentor/advisor) was awarded a "Defining the Future Grant" from the American Association of Psychiatric Pharmacists entitled, "Real-world Utilization and Impact of Psychiatric Pharmacogenomic Testing in a Large Health System." Dr. Zhang also delivered a travel award presentation "Statewide implementation of pharmacogenomics: community stakeholders' perspectives and knowledge in the state of Minnesota" at the American College of Clinical Pharmacy annual meeting as part of the PK/PD/PG PRN Business Meeting on October 17, 2022. Dr. Zhang was awarded a 2022 Council of Graduate Students (COGS) Conference Grant In January 2023, Dr. Zhang visited their collaborator Dr. Su Lu's Lab at Huaxi MR Research Center (HMRRC) of Sichuan University West China Hospital in Chengdu, the capital of southwestern China's Sichuan province. There, Dr. Zhang gave a talk entitled "Peripheral inflammation, cardiometabolic risk and cognitive function in psychosis: genomic and proteomic analyses" and discussed ongoing collaborative projects and new ideas with HMRRC.

Rui Zhong, a senior PhD graduate student in Ling Li's lab, has successfully completed and received the University of North Carolina at Chapel Hill - Bristol Myers Squibb Clinical Pharmacokinetics/Pharmacodynamics Postdoctoral Fellowship (UNC-BMS PK/PD Postdoctoral Fellowship), starting July 1, 2023.

AROUND THE DEPARTMENT



Kevin Agostinucci, a former postdoctoral fellow in the Zordoky lab, has started a new position as Bioanalytics and Biomarkers Scientist at Regeneron Pharmaceuticals, Inc.

Allison Chang, a 2nd year Neuroscience PhD student in the Li Lab, received the Morris Smithberg Memorial Prize. The award is given annually to the first year student in the Graduate Program in Neuroscience (GPN) with the best performance in core courses and on the comprehensive written exam. Allison was presented with the award at the GPN Colloquium on 10/19/22, which includes a plaque as well as \$2000 to be used for any item of equipment, training, or travel that will improve her graduate career. Chang also won the Co-First Place Poster Competition Award at CoP Research Day on February 7, 2023.

Adam Lee, principal scientist in the ECP pharmacogenomics lab, was selected as a recipient of one of the 2021 College of Pharmacy Meritorious Service Awards. Recipients of these awards “provided exceptional, ongoing service, have gone well beyond the norm on certain projects, or made valuable mission-critical contributions” to their department or the college.

Jaehyeok Roh, postdoc in Reena Kartha’s lab, was one of the recipients of the Uplifting Athletes 2023 Researcher Travel Program. This provided funding for him to attend WORLDSymposium 2023 in February where he presented his research. He was also the recipient of the Rare Disease Day 2023 best poster award.

Mustafa Syed (Senior, Undergraduate) received support under the Undergraduate Research Opportunities Program (URoP) for the period of 01/10/23 to 04/30/2023. The award is for his project, “Synthetic Optimization of Zinc Metallo-Lactamase Inhibitors.”

Laylia Yang (PD2 and ECP research emphasis student) was awarded a registration grant to attend the American Association of Psychiatric Pharmacists (AAPP) 2023 annual meeting in Atlanta, Georgia. Ms. Yang also received the People’s Choice poster award at the 2023 College of Pharmacy Research Day on February 7, 2023

CONGRATULATIONS 2022-2023 FELLOWSHIP RECIPIENTS!



Ibrahim Abdelgawad

Yingbo Huang

Alyssa Lantz

Chenxu Li

Morgan Bixby



Fan Wang

Moataz Mohamed

Abdelrahman Saqr

Lusi Zhang

Boguang Sun

Bighley Graduate Fellowship

Ibrahim Abdelgawad
Yingbo Huang

ECP Fellowship

Yingbo Huang
Moataz Mohamed

Clinical and Translational Science Institute

TL1

Alyssa Lantz

Hadsall-Uden Graduate Fellowship

Morgan Bixby
Abdelrahman Saqr
Lusi Zhang

James C. Cloyd Neuropharmacology Fellowship

Chenxu Li

Robert J. Straka Fellowship

Boguang Sun

Coin Foundation Fellowship

Morgan Bixby

Doctoral Dissertation Fellowship

Ibrahim Abdelgawad
Fan Wang