



# M | PHARMACY



INTERACTIONS 2019



**TOP STORY**

# The University of Michigan College of Pharmacy is moving!

The \$121-million, 130,000-square-foot building was approved in May by the Board of Regents. It will be built on the northwest corner of Glen Avenue and East Huron Street, minutes away from the medical campus and other health science schools. Read more about this game – changer for our teaching and research facilities in Dean Dalton’s letter on page 4.

# WELCOME



It's all about building at the University of Michigan College of Pharmacy. We are building future leaders, building new practice models, building innovation, and building a new home! We see this new home as a way to push further the boundaries of our service, education, and research missions. As you will read in the following pages, the College had a great deal to celebrate in 2019. We invite you to share in the successes of our students, faculty, alumni, donors, and friends. The horizon is certainly bright and full of possibility for the Leaders and Best.

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# INTERACTIONS

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## Welcome to the 2019 edition of Interactions. It has been another fantastic year in the College of Pharmacy.

The College is abuzz with news that a new building is on our horizon. The Regents' approval for construction of a \$121M College of Pharmacy building on the corner of East Huron and Glen literally sets the foundation for the future of our College. Construction begins in late 2020 and we will vacate our facilities on Church Street and move to this new facility in early 2023. The new building will be a game-changer for everything that we do. In addition to advanced and expanded classrooms, a pharmacy practice lab, and a sterile compounding room, we will enjoy state-of-the-art research facilities and offices, and share wonderful new community space. With Regents' permission, we will share floor plans and drawings with everyone as they become available.

There are two other stories that I would like to call to your attention. The great benefit that our College enjoys by being

a part of an outstanding academic health center reveals itself in many ways. The Centers for Disease Control (CDC) chose our ambulatory care clinics – led by Associate Dean **Hae Mi Choe** – as the best hypertension management program in the United States (see page 20). This program allows our clinical pharmacists to provide direct care to hypertensive patients, create connections with our community partners (e.g., Meijer), and foster a rich training ground for our students and residents.

Dr. Choe and her team are now working to expand this important work across the State of Michigan, and, in collaboration with Blue Cross Blue Shield of Michigan, have successfully embedded pharmacy care in about half of the state's physician organizations. It should not go unnoticed that Dr. Choe was also recently appointed Chief Quality Officer in U-M Medical Group, positioning her in another unique



role as a clinical pharmacist in our health system and setting the stage for many future pharmacy innovations.

Another highlight is the story regarding the Rho Chi Honor Society (see page 18). Through Dr. **Karen Farris'** efforts, the national offices for Rho Chi returned to Ann Arbor this summer. The timing for this homecoming could not be better.

The Rho Chi Society was founded in 1922 at the University of Michigan College of Pharmacy by a group of students, including a young **Hans Vahlteich**. The Vahlteich name should sound familiar to you. Thanks to the generosity of Dr. Vahlteich and his family, the medicinal chemistry core lab in the College carries his name and Dr. **David Sherman** (Page 22) serves as our Hans W. Vahlteich Professor of Medicinal Chemistry. Hans grew up in Chicago, received a BS degree from UIC in 1918, and a BS in pharmacy and MS in pharmacy from our College in 1920 and 1921, respectively. What better way to celebrate Hans' legacy to pharmacy than to bring the organization that he played a part in founding home for its 100th birthday.

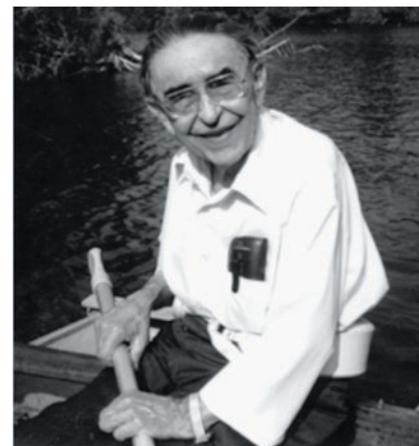
There are also many other highlights that did not make it to this year's edition: our research expenditures have doubled over the last five years and our faculty and

graduate students continue to publish in the very highest quality journals. In addition, our PharmD students have one of the highest success rates in matching for residencies in the country, and our staff remain the heartbeat of the College, making everything from our efforts in diversity to accreditation to alumni engagement tick on a daily basis. On a personal note, I completed my first five-year term as dean and I remain thankful to be a part of such a remarkable College. I hope that you enjoy reading about a few of the accomplishments of our faculty, staff, and students.

Go Blue!



James T. Dalton  
Dean, College of Pharmacy



Dr. Hans Vahlteich



### Pharmacy Postdoc Wins American Heart Association Fellowship

**Simone Brixius-Anderko**, PhD, Medicinal Chemistry Research Fellow, has been awarded an American Heart Association Postdoctoral Fellowship. Dr. Brixius-Anderko hopes the award will support her search for a new way to treat hypertension and associated cardiac disease. "I also hope to continue to train and mentor future scientists and spark enthusiasm for science in individuals from diverse circumstances," explains Dr. Brixius-Anderko. "I want to serve as a role model, particularly for those with non-academic backgrounds with a first career, as I did."



### Pharmacy Students Participate in Mass Interprofessional Education Event

More than 1200 health science students and faculty gathered for the first-ever IPE in Action event last fall. A watershed moment in the interprofessional education (IPE) initiative at U-M, the goal was, and continues to be nothing less than transforming the future of collaborative health care. IPE in Action is part of a series of foundational IPE experiences at U-M designed to further students' abilities to work in teams, with the ultimate goal of improving patient and health system outcomes, as well as population health.



### Student-Led Safe Medication Disposal Event Yields 1,200 lbs

The College hosted its 11th Safe Medication Disposal Event on Tuesday, April 2. For the first time, students collected sharps in addition to over the counter and controlled medication. "We collected a lot more sharps than we expected, which really demonstrates the need for this type of service in our community," explains **Wolfgang Moorhouse**, PharmD'21. The students broke all previous collection totals, taking back over 1,200 lbs of sharps and medication, preventing them from ending up in landfills, our water supply, or the wrong hands.



## The U-M Pre-Pharmacy Student Organization Hosts Great Lakes Pharmacy Conference

The U-M Pre-Pharmacy Student Organization hosted the first Great Lakes Pharmacy Conference to help students explore the field of pharmacy and prepare for the application process. We welcomed nearly 100 students from the Midwest and over 20 U-M PharmD student volunteers, who facilitated the compounding, ethical dilemmas, and interview workshops. The top pharmacy schools in the nation, distinguished pharmacist panelists, as well as the senior director of student affairs from AACP also participated. The event is set to occur annually at U-M, giving students a first-hand view into pharmacy for years to come!



## College Celebrates New BSPS Program's Graduating Class of 2019

On May 3, the U-M College of Pharmacy celebrated a milestone event – the commencement of 21 students from the recently redesigned Bachelor of Science in Pharmaceutical Science (BSPS) program. “Although we jokingly referred to ourselves as the guinea pigs of BSPS, our hard work and feedback is leading the way for future graduates,” mentioned student speaker **Katie Jaje**, BSPS’19, during the commencement ceremony. “I have the utmost confidence that those graduating from the BSPS program will pave the way in their careers moving forward.”

## 2019 Graduating Class Had Another Top 10 ASHP Residency Match Rate

“Not only did over 80% (national average=64%) of our students desiring residencies match, but even more impressive is that over half of the class will be completing residencies,” says **Bruce Mueller**, PharmD, Associate Dean for Academic Affairs. “This combined with seven more graduates who will be completing industry, research, and governmental fellowships, demonstrates the outstanding training our students receive. Our graduates are highly desired by the leaders of these post-graduate opportunities.”



## College of Pharmacy Offers PharmSci 420: the Science and Facts of Cannabis

“Certainly, Michiganders' vote to legalize recreational marijuana indicates that the days of demonizing cannabis are over,” says course coordinator **Gus Rosania**, PhD, Professor of Pharmaceutical Sciences. “We know a lot more today about how drugs work than we did in the early-mid 1900’s. Students want to know the science and facts, which is what we will offer them.”

## Medicinal Chemistry Graduate Plays Instrumental Role in Promising Cancer Research

**B**efore graduating with his doctorate in medicinal chemistry from the College of Pharmacy last August, **Brandt Huddle**, PhD, played an instrumental role in the development of a new therapeutic compound for cancer, CM39. The compound inhibits the ability of a key enzyme, aldehyde dehydrogenase (ALDH), to promote chemotherapy resistance in a small pool of cells linked to ovarian cancer.

For women diagnosed with ovarian cancer, the mortality rate is high, due to this cell pool's hardness against chemo, helped by the ALDH enzyme, which allows it to recur and metastasize.

"We were able to get a crystal structure of the enzyme with our lead compound, which is like a picture of the drug binding with the protein we're targeting," says Dr. Huddle, who published his findings in the *Journal of Medicinal Chemistry*

(in collaboration with Magee-Womens Research Institute in Pittsburgh and Indiana University Medical School). "So, based on that picture, we were able to make modifications to our compound that made it bind better to the target. In theory, that should make [CM39] more effective as a treatment for chemoresistant cancer."

Dr. Huddle, who is now a research chemist at Weill Cornell Medical College in Manhattan, credits much of his research success to his then-thesis advisor, **Scott Larsen**, PhD, Joseph Burckhalter Collegiate Research Professor of Medicinal Chemistry and Co-director of the Vahlteich Medicinal Chemistry Core. "Dr. Larsen ran a fantastic group, and all his projects were of high impact," says Dr. Huddle. "He gave me a pretty long leash to do what I wanted, but was always available if I had a question. Or if he noticed me going in a wrong direction, he

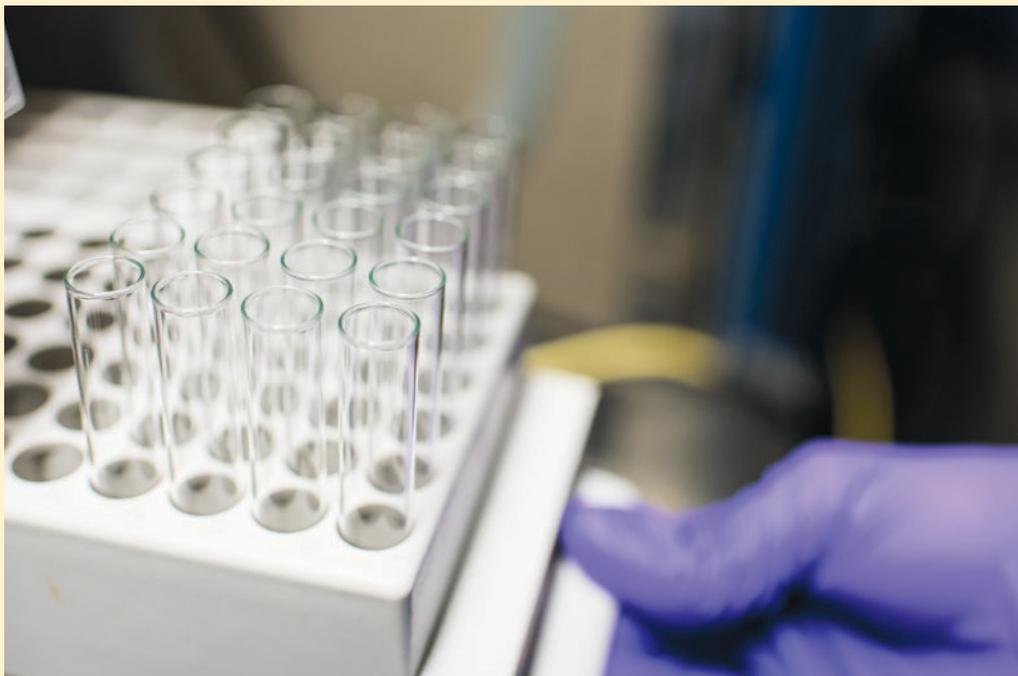


**Brandt Huddle**

would correct course on that. I received really great training from him, and I'm very grateful for that."

The Vahlteich Medicinal Chemistry Core, where Dr. Huddle did his graduate work, is uniquely suited for such highly specialized research projects.

"In most academic labs, a professor is running a bunch of their own research projects, and all the projects are related, so the professor can be the expert on all those projects," says Dr. Larsen.

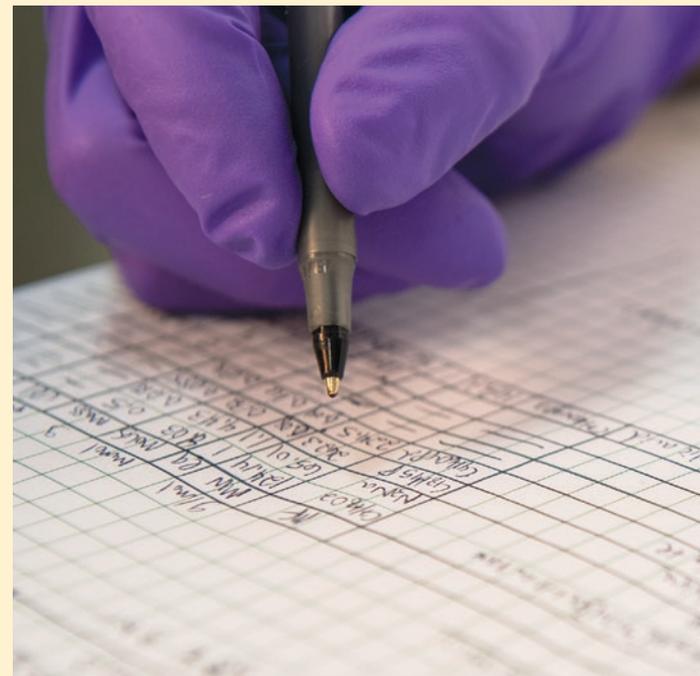


"Whereas here, because we have this core lab, there are so many different projects being run in different therapeutic areas, and there's no way one professor can be an expert on all of those. So I tell my students that they're going to know more about their project than I do by the time they leave here. Brandt really took that to heart and very much became the expert on that project."

A cure for ovarian cancer is still years away, but the CM39 target opens the door to further research for more potent,

selective inhibitors. "Preparations for mouse studies are underway and the project team at the Vahlteich Medicinal Chemistry Core continues to optimize compounds for in vivo exposure," says Dr. Huddle, whose work is still primarily concerned with therapeutics for cancer.

According to Dr. Larsen, Brandt Huddle represents exactly what is expected from his graduate students. "My students should already be trained to be project leaders by the time they leave here," he says. "Brandt is certainly in that camp. He



basically did everything on that project, working directly with the biologist, analyzing the data, designing the compounds. So it's really exciting that he got this job with a prestigious institution like Cornell."

## Student Leaders Effect Change at the College

In 2005, **Fred**, BS'57, and **Dee**, BA'57, **Lyons** came to the College with a challenge. Fred, a retired Chairman of Hoechst Marion Roussel (now known as Aventis Pharmaceuticals, Inc.) disliked the lack of clinical training among decision makers who affect patients' lives (e.g., insurance leaders, government agencies, hospital executives, etc.). For example, when formulary decisions are made on a "unit" basis – not on a patient basis – the human element becomes secondary to dollars and cents.

Fred and Dee challenged the College to grow clinically-trained leaders who could become patient-centered decision makers and provided funding for the first Leadership Scholarship at the College: The Fred and Dee Lyons Leadership Scholarship.

From that challenge, the Leadership Scholars Program (LSP) grew into a co-curricular educational program to which pharmacy students apply. Selection is based on student leadership activities, academic records, and a rigorous interview process. The LSP supplements traditional leadership activities embedded in the curriculum and student organizations by using a variety of learning approaches. Senior College of Pharmacy administrators serve as mentors for the program. Since its inception, there have been 135 students selected for LSP.

Among the program's challenges, the scholars tackle projects straight from the desks of the College's leadership. The students have from early May to mid-June to research, design solutions,



Leadership Scholar Krystal Holmes, PharmD'19, at the College's Community Connect day.

and prepare a presentation for the June Alumni Board of Governors meeting.

"The LSP projects have transformed the College, mostly in a 'behind the scenes' kind of way," explains associate dean for academic affairs **Bruce Mueller**. "Most faculty and students probably don't know the genesis of our dual degree programs with the School of Public Health and the Ross School of Business. It was an LSP project. The basis of our new bachelors program in pharmaceutical science? LSP. How the Pharmacy 'Phamilies' grew into such an important part of our curriculum? LSP."



#### 2019 Leadership Scholars

Back row left to right — Rachel Raneses, Elani Sanders, Melanie Johnson, Rachel Chiou

Center row left to right — Jenae Robertz, Melinda Lee, Ibtihal Makki, Roxanna Dumitrache

Front row left to right — Madeleine Davies, Michelle Azar, Christina Avery

Not pictured — Colin Finley

“These are important, real life needs of the College,” states **Peter Niedbala**, executive director of pharmacy advancement and a founding mentor to the program. “The students take great pride when their ideas and hard work are adopted by the College.”

One of the most impactful LSP projects was developing an opioid abuse

awareness and prevention campaign, which included creating a poster, brochure and handouts/slides for training students to deliver the campaign messages. Over 250 PharmD students, assigned in small teams, went to local community pharmacies during our Pharmacy Community Connect Day and they used these materials.

Of this project, associate dean for student affairs **Nancy Mason**, PharmD’ 81, said: “Through this public outreach project, pharmacy students provided messaging about the dangers of opioids. I am very proud of the LSP project development team, who did an excellent job creating these materials and training their fellow students for this important work.”

The very first project, in 2008, was to redesign the student lounge. Other projects through the years transformed the College’s P1 orientation, helped create multi-school promotional plans, and planned the curriculum for a course on entrepreneurship.

Lyons Scholar **Colin Finley**, PharmD’20, reflects on the students’ perspective about the projects: “The LSP project requires us to think critically and to develop cohesive ideas and solutions that will have a real impact on the College of Pharmacy. The projects push us both creatively and intellectually. Seeing our hard work make a difference is extremely rewarding.”

# Incoming Class Profile

## PharmD Class of 2023 (entering 2019)

Admits	133	
Matriculants	86	
Male	26	30%
Female	60	70%

**91%** of the incoming class have or will have a bachelor's degree.

### Pre-Pharmacy Study:

U-M Ann Arbor	17	20%
Non-U-M	69	80%

## PhD 2019 Entering PhD Students

Admits	34	
Matriculants	16	
Male	6	38%
Female	10	62%

### Department Enrollments

Medicinal Chemistry	3
Pharmaceutical Sciences	8
Clinical Pharmacy	5

## BS 2019 Entering Students

Admits	44	
Matriculants	42	
Male	13	31%
Female	29	69%

## Fall 2019 Total Enrollment All Students (projected)

PharmD	340
PhD	88
BS	75

## 2019-2020 Scholarships All Students

PharmD	230
PhD	75
BS	0



## ACADEMICS AT U-M

Michigan's academic vigor offers excellence across disciplines and around the globe. We are recognized as a leader in higher education due to the outstanding quality of our 19 schools and colleges, internationally-recognized faculty, and departments with 263 degree programs.

- 19 schools and colleges
- 263 degree programs
- 79 majors and more than 100 minors
- Nearly 2,000 classes available each semester
- 15:1 student/faculty ratio
- More than 200 study-abroad programs on 6 continents
- #5 in the nation for students studying abroad
- More than 600 global initiatives worldwide



**102**  
top ten graduate programs

*U.S. News & World Report 2018*

**#1**  
best college towns in the U.S.

*Forbes 2018*

**#3**  
best colleges for your money

*Money Magazine 2018*

**#2**  
top public colleges in the U.S.

*Forbes 2018*

**#1**  
public research university in the U.S.

*National Science Foundation*

**#3**  
college of pharmacy

*U.S. News & World Report 2018*

**#8**  
most innovative schools

*U.S. News & World Report 2018*

**#18**  
best global university

*U.S. News & World Report 2019*

**#15**  
world reputation

*Times Higher Education 2018*

**#9**  
best colleges for veterans

*U.S. News & World Report 2019*

# 2019-20 College of Pharmacy Faculty

## CLINICAL PHARMACY

Cesar Alaniz	Vicki L. Ellingrod	Corey A. Lester	Amy Pasternak	Burgunda V. "Gundy" Sweet
Frank J. Ascione	Steven R. Erickson	Jasmine A. Luzum	Jason M. Pogue	Amy N. Thompson
Emily J. Ashjian	Gregory A. Eschenauer	Nancy A. Mason	Kimberly A. Redic	Sarah E. Vordenberg
Jolene R. Bostwick	Karen B. Farris	Varsha B. Mehta	Randolph E. Regal	Deborah S. Wagner
Peggy L. Carver	David G. Frame	Beatriz M. Mitrzyk	Jian Shi	Paul C. Walker
Hae Mi Choe	Daniel L. Hertz	Rima A. Mohammad	Michael A. Smith	Kristen Ward
John S. Clark	Stanley S. Kent	Bruce A. Mueller	James G. Stevenson	Trisha D. Wells
Antoinette B. Coe	Kristin C. Klein	Amy Barton Pai	Kathleen A. Stringer	Haojie Zhu
Heidi L. Diez	Michael D. Kraft	Manjunath P. "Amit" Pai	Janice L. Stumpf	
Michael P. Dorsch	Shawna L. Kraft	Jeong Mi "Jamie" Park		

## MEDICINAL CHEMISTRY

Mustapha A. Beleh	George A. Garcia	Henry I. Mosberg	Jonathan Z. Sexton	Shaomeng Wang
Heather A. Carlson	Amanda L. Garner	Nouri Neamati	David H. Sherman	Andrew D. White
Timothy Cernak	Roland D. Kersten	Irina D. Pogozheva	Hollis D. H. Showalter	
Martin C. Clasby	Scott D. Larsen	Soma Samanta	Richard D. Smith	
Bikash Debnath	Andrei L. Lomize	Emily E. Scott	Ashootosh Tripathi	

## PHARMACEUTICAL SCIENCES

Gordon L. Amidon	Wei Cheng	Nair Rodriguez-Hornedo	David E. Smith	Peter M. Tessier
Gregory E. Amidon	James T. Dalton	Gustavo R. "Gus" Rosania	Sejin Son	Hebao Yuan
Joseph P. Burnett	Kyung-Dall Lee	Anna A. S. Schwendeman	Duxin Sun	
Hongwei Chen	James J. Moon	Steven P. Schwendeman	Jie Tang	

**4:1**  
STUDENT  
FACULTY  
RATIO

**40**  
REGULAR  
INSTRUCTIONAL  
FACULTY

**30**  
CLINICAL  
FACULTY

**17**  
RESEARCH  
FACULTY

# NOTABLE FACULTY AWARDS

A college's reputation and success is dependent on the quality of its faculty. At the University of Michigan College of Pharmacy, we have world-class researchers and educators. We're proud of our faculty and their achievements – as evidenced by some of the awards bestowed upon our faculty over the last year.



**Mustapha Beleh**  
Teaching Excellence Award,  
University of Michigan  
College of Pharmacy



**James Moon**  
Emerging Leader Award,  
American Association of  
Pharmaceutical Scientists



**Gustavo "Gus" Rosania**  
Fellow,  
American Association of  
Pharmaceutical Scientists



**James Stevenson**  
International Pharmaceutical  
Federation Fellow,  
FIP (International  
Pharmaceutical Federation)



**Burgunda "Gundy" Sweet**  
Faculty Award for IPE  
Innovation and Excellence,  
Michigan Center for  
Interprofessional Education

# Notable Faculty Publications

## CLINICAL PHARMACY

- **Lester, C.A.**, Kessler, J.M., Modisett, T., Chui, M.A. (2018). A Text Mining Analysis of Medication Quality Related Event Reports from Community Pharmacies. *Research in Social and Administrative Pharmacy*.
- **Patel, T.S., Carver, P.L., Eschenauer, G.A.** (2019). Are In Vitro Susceptibilities to Azole Antifungals Predictive of Clinical Outcome in the Treatment of Candidemia? *Journal of Clinical Microbiology*, 56(12).
- **Platt, K.D., Thompson, A.N.**, Lin, P., Basu, T., Linden, A., Fendrick, A.M. (2019). Assessment of Self-Monitoring of Blood Glucose in Individuals With Type 2 Diabetes Not Using Insulin. *JAMA Internal Medicine*, 179(2), pp. 269-72.
- **Ward, K.M., Yeoman, L.**, McHugh, C., Kraal, A.Z., Flowers, S.A., Rothberg, A.E., Karnovsky, A., Das, A.K., **Ellingrod, V.L., Stringer, K.A.** (2018). Atypical Antipsychotic Exposure May Not Differentiate Metabolic Phenotypes of Patients with Schizophrenia. *Pharmacotherapy*, 38(6), pp. 638-50.
- **Wells, T.**, Rockafellow, S., Holler, M., **Coe, A.B.**, Yoo, A., **Choe, H.M., Thompson, A.N.** (2018). Description of Pharmacist-Led Quality Improvement Huddles in the Patient-Centered Medical Home Model. *Journal of the American Pharmacists Association*, 58(6), pp. 667-672.
- **Berinstein, J.A., Steiner, C.A., Regal, R.E.**, Allen, J.I., Kinnucan, J.A.R., Stidham, R.W., Waljee, A.K., Bishu, S., Aldrich, L.B., Higgins, P.D.R. (2019). Efficacy of Induction Therapy With High-Intensity Tofacitinib in 4 Patients With Acute Severe Ulcerative Colitis. *Clinical Gastroenterology and Hepatology*, 17(5), pp. 988-990.
- **DasGupta, R., Alaniz, C., Burghardt, D.** (2019). Evaluation of Intravenous Phenytoin and Fosphenytoin Loading Doses: Influence of Obesity and Sex. *The Annals of Pharmacotherapy*, 53(5), pp. 458-463.
- **Salgado, T.M., Fedrigo, A., Riccio Omichinski, D., Meade, M.A., Farris, K.B.** (2018). Identifying Medication Management Smartphone App Features Suitable for Young Adults With Developmental Disabilities: Delphi Consensus Study. *JMIR mHealth and uHealth*, 6(5), pp. e129.
- **Bhatt-Mehta, V.**, Richards, J., Sturza, J., Schumacher, R.E. (2019). Impact of In-utero Exposure to Selective Serotonin Reuptake Inhibitors and Opioids on Neonatal Opioid Withdrawal Syndrome. *Journal of Addiction Medicine*, 13(3), pp. 227-234.
- **Pai, A.B., Pai, M.P.**, Meyer, D.E., Bales, B.C., Cotero, V.E., Zheng, N., Jiang, W. (2018). In Vitro and in Vivo DFO-Chelatable Labile Iron Release Profiles Among Commercially Available Intravenous Iron Nanoparticle Formulations. *Regulatory Toxicology and Pharmacology*, 97, pp. 17-23.
- **Farris, K.B., Mitrzyk, B.M.**, Batra, P., Peters, J., **Diez, H.L.**, Yoo, A., McKay, K., Friend, K., Danko, L., Waber, R., Marshall, V.D., **Choe, H.M.** (2019). Linking the Patient-Centered Medical Home to Community Pharmacy via an Innovative Pharmacist Care Model. *Journal of the American Pharmacists Association*, 59(1), pp. 70-78.
- **Tang, S.S., Bostwick, J.R., Wells, T., Kraft, S.** (2018). Mothers in Academic Pharmacy. *Currents in Pharmacy Teaching and Learning*, 10(9), pp. 1168-70.
- **Hertz, D.L.**, Kidwell, K.M., Vangipuram, K., Li, F., **Pai, M.P.**, Burness, M., Griggs, J.J., Schott, A.F., Van Poznak, C., Hayes, D.F., Lavoie Smith, E.M., Henry, N.L. (2018). Paclitaxel Plasma Concentration after the First Infusion Predicts Treatment-Limiting Peripheral Neuropathy. *Clinical Cancer Research*, 24(15), pp. 3602-10.
- **Luzum, J.A.**, Peterson, E., Li, J., She, R., Gui, H., Liu, B., Spertus, J.A., Pinto, Y.M., Williams, L.K., Sabbah, H.N., Lanfear, D.E. (2018). Race and Beta-Blocker Survival Benefit in Patients With Heart Failure: An Investigation of Self-Reported Race and Proportion of African Genetic Ancestry. *Journal of the American Heart Association*, 7(10).
- **Crass, R.L., Rodvold, K.A., Mueller, B.A., Pai, M.P.** (2019). Renal Dosing of Antibiotics: Are We Jumping the Gun? *Clinical Infectious Diseases*, 68(9), pp. 1596-1602.
- **Chaffee, B.W., Lander, M.J., Christen, C., Redic, K.A.** (2019). Surface Contamination of Counting Tools After Mock Dispensing of Cyclophosphamide in a Simulated Outpatient Pharmacy. *Journal of Oncology Pharmacy Practice*, 25(1), pp. 85-93.

282 Total Faculty Publications for 2018

## MEDICINAL CHEMISTRY

- McDonnell, K.J., Chemler, J.A., Bartels, P.L., O'Brien, E. Marvin, M.L., Ortega, J., Stern, R.H., Raskin, L. Li, G.M., **Sherman, D.H.**, Barton, J.K., Gruber, S.B. (2018). A Human MUTYH Variant Linking Colonic Polyposis to Redox Degradation of the [4Fe4S](2+) Cluster. *Nature Chemistry*, 10(8), pp. 873-80.
- Godamudunage, M.P., Grech, A.M., **Scott, E.E.** (2018). Comparison of Antifungal Azole Interactions with Adult Cytochrome P450 3A4 versus Neonatal Cytochrome P450 3A7. *Drug Metabolism and Disposition: the Biological Fate of Chemicals*, 46(9), pp. 1329-37.
- Shergalis, A., Bankhead, A., Luesakul, U., Muangsin, N., **Neamati, N.** (2018). Current Challenges and Opportunities in Treating Glioblastoma. *Pharmacological Reviews*, 70(3), pp. 412-45.
- Clark, J.J., Benson, M.L., Smith, R.D., **Carlson, H.A.** (2019). Inherent Versus Induced Protein Flexibility: Comparisons Within and Between Apo and Holo Structures. *PLOS Computational Biology*, 15(1).
- Gesmundo, N.J., Sauvagnat, B., Curran, P.J., Richards, M.P., Andrews, C.L., Dandliker, P.J., **Cernak, T.** (2018). Nanoscale Synthesis and Affinity Ranking. *Nature*, 557(7704), pp. 228-32.
- Uehling, M.R., King, R.P., Krska, S.W., **Cernak, T.**, Buchwald, S.L. (2019). Pharmaceutical Diversification via Palladium Oxidative Addition Complexes. *Science*, 363(6425), pp. 405-8.
- Huddle, B.C., Grimley, E., Buchman, C.D., Chtcherbinine, M., Debnath, B., Mehta, P., Yang, K., Morgan, C.A., Li, S., Felton, J., **Sun, D.**, Mehta, G., **Neamati, N.**, Buckanovich, R.J., Hurley, T.D., **Larsen, S.D.** (2018). Structure-Based Optimization of a Novel Class of Aldehyde Dehydrogenase 1A (ALDH1A) Subfamily-Selective Inhibitors as Potential Adjuncts to Ovarian Cancer Chemotherapy. *Journal of Medicinal Chemistry*, 61(19), pp. 8754-73.
- Nastase, A.F., Griggs, N.W., Anand, J.P., Fernandez, T.J., Harland, A.A., Trask, T.J., Jutkiewicz, E.M., Traynor, J.R., **Mosberg, H.I.** (2018). Synthesis and Pharmacological Evaluation of Novel C-8 Substituted Tetrahydroquinolines as Balanced-Affinity Mu/Delta Opioid Ligands for the Treatment of Pain. *ACS Chemical Neuroscience*, 9(7), pp. 1840-48.
- Kaur, T., Menon, A., **Garner, A.L.** (2019). Synthesis of 7-Benzylguanosine Cap-Analogue Conjugates for eIF4E Targeted Degradation. *European Journal of Medicinal Chemistry*, 166, pp. 339-50.

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# Rho Chi Honor Society National Office Returns to Michigan

Nearly 100 years after its founding at the University of Michigan College of Pharmacy, the Rho Chi Society's National Offices will be relocated to Michigan.

**Karen Farris**, PhD, Charles R. Walgreen III Professor of Pharmacy Administration and Chair, Department of Clinical Pharmacy, has also been named the organization's Executive Vice President and Treasurer.

The administrative functions of the national office will transition to the U-M College of Pharmacy in summer 2019, following thirty years at the University of North Carolina. The primary goal of the National Office is to facilitate member chapters in their pursuit of the mission and vision of the society – to advance pharmacy through sustained intellectual leadership.

"Students' membership in the Rho Chi academic honor society is an achievement and an indication of the talent for one's future career," explains Dr. Farris. "Hosting the national office signifies U-M Pharmacy's commitment to academic and intellectual leadership."

"We welcome the return of the Rho Chi Society to its original home, as we have a history of excellence to support such an auspicious organization. In 1876, we became the first pharmacy program in a public university and Rho Chi was first chartered in the state of Michigan in 1922."

The Rho Chi Society has its origins at the University of Michigan, where the local honor society within the Pharmaceutical Department was known as the Aristolochite Society since 1908. The society expanded in 1919 to the University of Oklahoma and what is now Oregon State University. The Aristolochite Society changed its name to the Rho Chi Society and was granted a charter by the State of Michigan on May 19, 1922. The American Conference of Pharmaceutical Faculties recognized Rho Chi as "the Honor Society of Pharmacy" in 1922. As of 2018, there were 128 active chapters with 113,646 members.

"We are pleased to continue the tradition of the Rho Chi Honor Society and house its national office, as the



College of Pharmacy recognizes the critical importance of this mission wherein we also seek to revolutionize pharmacy practice and healthcare through interdisciplinary education and research," says Dr. Farris. In this role, Dr. Farris will oversee the activities of the Society's National Office and work closely with its national officers, regional councilors, chapter advisors and officers and alumni.

Dr. Farris is the Charles R. Walgreen III Professor of Pharmacy Administration at the University of Michigan College of Pharmacy. She is Chair of the Department of Clinical Pharmacy, Director of the



**Karen Farris, PhD. Rho Chi Honor Society Executive Vice President and Treasurer.**

Clinical Pharmacy Translational Sciences Postdoctoral Fellowship and Graduate Programs, and is also Faculty Lead of Digital Education at the Institute for Healthcare Policy and Innovation (IHPI). Dr. Farris studies medication adherence and reasons for non-adherence. She is currently working with the Michigan

Oncology Quality Consortium to improve how medication adherence to oral oncolytics is assessed in oncology practices and how medication and symptom self-management can be improved.

Dr. Farris has over 135 peer-reviewed publications and has given numerous invited talks at national and international venues. She has obtained over \$7 million in PI/co-PI grants and over \$8 million as co-investigator on other grants, all involving pharmacists and their impact on health and health outcomes or medication adherence. Dr. Farris is a Fellow of the American Pharmacists Association, serves as a mentor in MeRIT and FIT for the American College of Clinical Pharmacy, and she was recognized in 2016 as a MICHR Distinguished Clinical and Translational Research Mentor. In 2017, she was a University of Michigan Interprofessional Leadership Fellow. She was inducted into the Rho Chi Society at the University of Tennessee Health Science Center College of Pharmacy

in 1985, and she comes to this position having been a chapter advisor for the Alpha Chapter at the University of Michigan College of Pharmacy and a Regional Councilor of the Society from 2014-2018. Consistent with the strategic plan of the Rho Chi Society, Dr. Farris is excited to increase the visibility of the member's professional achievements and grow the use of the Alumni Honor Roll to recognize sustained intellectual leadership.



**Rho Chi**  
THE HONOR  
SOCIETY  
OF  
**PHARMACY**

# CDC to Model U-M Medical Group Hypertension Program

By Laura Bailey, Michigan News

**H**igh blood pressure causes a slew of health problems, and physicians, pharmacists and researchers are always seeking new ways to control it.

Recently, the Centers for Disease Control recognized University of Michigan Medical Group as having the top hypertension control program in the country that incorporates team-based pharmacy care. For the next two years, the CDC will evaluate the program, with the goal of sharing a replicable model nationally. UMMG hypertension program was chosen for the CDC partnership from 39 nominations around the country.

Roughly 40,000 patients today at U-M clinics have hypertension, and for years, only 72 percent met their blood pressure targets, said **Hae Mi Choe**, UMMG chief quality officer and associate dean of U-M College of Pharmacy. The goal of most health systems is 75 percent.

Then, 18 months ago, Michigan Medicine implemented a team-based approach to lowering hypertension, and the number of patients meeting their blood pressure targets rose to 78 percent, said Choe, also

the director of pharmacy innovations and partnerships for the UMMG.

“If you think about it, there are 40,000 patients in our system who have hypertension, and improving blood pressure control by one percent is 400 patients. Budging that many patients by six percent is quite an accomplishment,” she said. “I think all clinicians and payers would agree it’s important.”

At the core of the program are the pharmacists embedded in the 14 primary care clinics, who work together with physicians to help patients manage high blood pressure. Patients who need extra help are referred to a clinic pharmacist, and they meet with them just like they meet with their primary care physician.

The CDC also liked the partnership between the clinics and Meijer, in which patients can visit a specially trained pharmacist in one of three Meijer pharmacies, and avoid a longer trip to their primary care physician. Those selected pharmacists have access to the patient’s medical records and can document important updates to those

charts. In this way the primary care physician and pharmacists are always in sync with the treatment plan.

Other components of the program include rechecking blood pressure by the medical assistants if the initial patient reading is high, and about 30 percent of the readings are normal the second time, Choe said. If the second reading is still high, the patient is scheduled for a follow up blood pressure appointment.

Also, an interactive phone system prompts patients to take their own blood pressure, and if their levels aren’t on target, a clinic pharmacist follows up by calling the patient at home.

UMMG started embedding pharmacists in clinics in 1999, said Choe, who built the first pharmacist-driven clinic. In 2009, they replicated the model and put pharmacists in every primary care clinic.

Dr. Choe is now working to expand this model to physician practices across the State of Michigan.



Hae Mi Choe, PharmD, UMMG chief quality officer and associate dean at the U-M College of Pharmacy.

Alan Tanabe, PharmD, pharmacist with Meijer and U-M Pharmacy adjunct clinical instructor for over 19 years.

# Collaborative Research Offers Hope to Dialysis Patients

A translational team of clinicians and scientists from Michigan Pharmacy, Medicine, and Biomedical Engineering, among others, are collaborating on a groundbreaking redesign of dialysis catheters—a technology that has seen no improvements for some thirty years. Such an innovation has the potential to profoundly reduce vascular access infections caused by dialysis catheters. These infections often result in life-threatening complications and costly hospitalizations in both the peritoneal dialysis (PD) and hemodialysis (HD) populations. This is because a matrix of various bacteria, called biofilm, forms on the surface of catheters, putting patients at risk for infection.

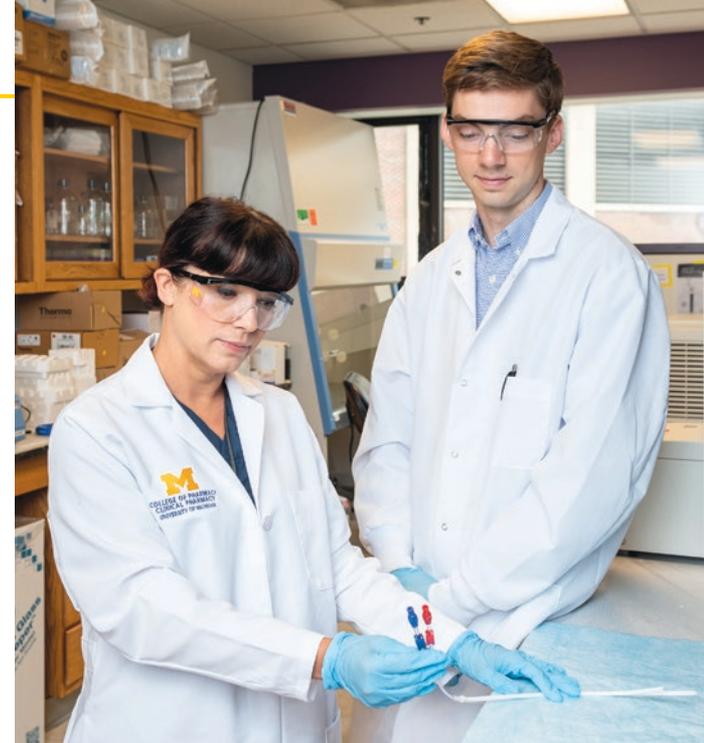
“Catheter use is associated with a high mortality rate,” says **Amy Barton Pai**, PharmD, MHI, Associate Professor of Pharmacy in the Department of Clinical Pharmacy, and Co-Leader of the team. “Every time a patient is hooked up for dialysis, some of this biofilm is essentially ‘sheared off’ the catheter and can enter the body and cause infection or inflammation.”

Various studies indicate that biofilm collects on catheters within 24 hours and, once there, is incredibly hard to get rid of. Traditional antibiotics cannot readily penetrate the biofilm, and even if they could, some bacteria within the biofilm are very resistant to such antibiotics.

“Biofilm forms inside and outside of the dialysis catheter entry point due to colonization from skin flora [Staphylococcus species], but we don’t know exactly what other kind of bacteria live on the catheter,” says Dr. Pai. “So there may be a lot of other organisms involved that can’t be cultured using traditional methods.”

## A cutting-edge approach

To identify and characterize these organisms that can’t be cultured, the team will obtain catheters removed from PD and HD patients and then sequence the genome of every microbe found on each device. The method is called metagenomic sequencing, a state-of-the-art approach that has not been reported in the literature for catheter biofilms. After this genomic sequencing stage is complete, the team will know the entire



Dr. Amy Pai with Michael Dean, clinical research assistant.



“microbiome” of this collective catheter environment.

“Metagenomics is an inexpensive and very effective way to determine the composition of these biofilms,” says **David H. Sherman**, PhD, Hans W. Vahlteich Professor of Medicinal Chemistry, who co-leads the team with



**Dr. David Sherman**  
 Photograph by Leisa Thompson  
 Photography, courtesy of the U-M Life  
 Sciences Institute.

Underwater photograph by Amy Fraley.

Dr. Pai. “Based on what organisms we find on these catheters, the next goal is to work with our bioengineers to either redesign a catheter out of a novel material that can fight off the biofilm, or to integrate novel antibacterial agents that would inhibit the biofilm from forming in the first place.”

Dr. Sherman scuba dives on coral reef habitats all over the world, sampling microorganisms from these marine environments to discover new molecules that come from nature. These “natural products” have become a very successful source of human pharmaceuticals over recent years and could help enable discovery of new biofilm inhibitors for catheters.

“We can redesign a new polymer coating, for example, that will allow existing, or novel, biofilm inhibitors to attach to the catheter itself to kill or inhibit harmful

bacteria that can cause infections or chronic inflammation,” says Dr. Pai.

Because over 80-percent of dialysis patients rely on Medicare, the redesign will be mindful of carryover costs to them. And by sharply reducing infections, such innovation will also reduce the tremendous cost of hospitalizations, and alleviate the anxiety and stress of these patients who currently live in constant fear of serious complications from dialysis catheter use.

### **Accelerating discovery to delivery**

Initially funded by the College’s team science initiative, the interdisciplinary, collaborative aspect of this project will allow the redesign to be taken from discovery to delivery in patient populations “in a much faster manner,” according to Dr. Pai. “Having a multidisciplinary team really

accelerates the innovation. It also helps that we have outstanding scientists across every unit on campus.”

Dr. Sherman concurs: “The culture here is very collaborative, so it’s rare that you find an investigator who is just doing solo science work. Our culture at the University of Michigan is to create teams that involve different disciplines. That’s when the big breakthrough discoveries happen, when you get teams of interdisciplinary scientists working together.”

On that note, the catheter redesign represents one of many exceptional research opportunities for students. “I’ve had students involved with this project since its inception, undergrads as well as PharmD students,” says Dr. Pai. “If they start early, they can be encouraged not only to pursue research careers, but perhaps pharmacy as a domain of interest.”

## Using Robotics to Expand Whole Patient Care in Community Pharmacy



**Bridget Stoyk, PharmD'04, JoAnn Sanborn, BSP Pharm'77, Grant Brown, BSP Pharm'80, PharmD'83, Austin Brown, PharmD'17**

The College continued its efforts to create value for pharmacists throughout their range of practice. With robust programs that expand the role of ambulatory care pharmacists, paradigms are changing – in both specific ambulatory clinics and in community practice. Students are prepared to shape the changing career landscape, and through unprecedented partnerships, we've proven the value of the pharmacist in managing patients with diabetes and hypertension. These come with a promise to improve other disease states. In short, we are educating our students to be patient-centered rather than only medication-centered.

Technology is creating new opportunities for pharmacists to step up their clinical practice – no matter the site. Robots now handle the “count, pour, lick, and stick” portion of the pharmacists’ day, and technicians, in some models, have increased skills that contribute to verification and other traditional pharmacist roles.

The College was the first to include ambulatory care practice experiences for students and our ambulatory care faculty has expanded significantly. This has not only given students exposure to novel patient-based practices, but has created partnerships with Blue Cross of Michigan and the Centers for Disease Control

– which recognized the University of Michigan as having the top hypertension control program in the country that incorporates team-based pharmacy care. Our students gain hands-on experiences as part of their experiential training.

College alumnus **Grant Brown**, BSP Pharm'80, PharmD'83, third generation pharmacist (and father of fourth generation pharmacist **Austin Brown**, PharmD'17, who is married to fellow pharmacist **Erika Brown**, PharmD'17, entering practice) argues, “Pharmacists can never relinquish our distribution responsibility. We constantly need to find ways to do it as efficiently as possible, but the core of our profession is the safe



Hudson Pharmacy's new dispensing robot has freed up pharmacists' time for more patient-centric care.

delivery of medications to our patients, no matter the setting.”

Brown, in partnership with **Mike and JoAnn**, BSPharm'77, **Sanborn**, have introduced advanced practices in their community pharmacies. In Hudson, Michigan, the Sanborns have operated a community pharmacy for 37 years. After merging operations with Brown's Jackson, Michigan, pharmacies, the partners decided to upgrade the Hudson pharmacy.

Hudson, a town of 1,500 within a county just shy of 100,000, is not an expected hotbed of pharmacy innovation. Nevertheless, a new dispensing robot that will fill 50% of their orders was

part of a recent major renovation that included adding a private space for counseling and a reconfigured OTC retail area. This huge commitment in infrastructure is a very public commitment to the community that Hudson Pharmacy is here for the long term.

JoAnn explains, “Relationships in a small town are critical – our patients know that we are committed to whole patient care. By remodeling our space, adding the dispensing robot, and upgrading other technology, we have made our workflow more efficient - allowing our technicians to work at the top of their license and not bog down in the rote processes so often associated with their role.

“Of course, this, in turn, frees the pharmacist's time for counseling, immunizations and other patient-centric care. In a small town like Hudson, the community doesn't have as many local options for healthcare and our pharmacy has a major role to fill that we are happy to provide.”

## College Names Two Distinguished Alumni Lifetime Achievement Award Winners

**Frank J. Ascione, BSPharm'69, PharmD'73, MPH'77, PhD'81 and Patricia Jahns Bush, BSPharm'54, MSci, PhD received the awards for their significant career achievements.**



**D**r. Bush received great applause when, in her remarks she stated, “the first people I should thank are my parents. In the Depression, they came from Illinois to teach in Saginaw, Michigan. When it became time for me to go to college, they said, ‘Pat, now you’re going to university, you should major in something you can do anywhere, do part-time, and make as much money as a man!’ So that’s why I went to this College of Pharmacy.”

Dr. Bush earned her Bachelor of Pharmacy degree in 1954 from the University of Michigan, a Master’s Degree in Medical Sociology from the University of London in 1972, and a PhD in Social and Administrative Pharmacy from the University of Minnesota in 1978. Her academic career included positions as Assistant Professor at Christopher Newport Junior College, Howard University, University of Southern California, the Medical University of South Carolina, and she became only the third woman tenured professor at Georgetown University School of Medicine.

Dr. Bush is a professor emeritus at Georgetown. She served on the executive councils of the American Public Health Association and the International Pharmaceutical Federation. She was named Honorary President of The Coalition for Rational and Safe Use of Medicines and held a NIH Fogarty Center Fellowship at the World Health Organization in Geneva. Dr. Bush was awarded the Sklifosovsky medal in Moldova in 2007.



This day was doubly memorable for Dr. Ascione. In addition to receiving the Distinguished Alumni Lifetime Achievement Award, he joined five of his classmates returning for the 50th anniversary of their graduation from the College of Pharmacy. All six were welcomed into the University of Michigan Emeritus Society. Dr. Ascione remarked, "It is a wonderful honor, especially receiving the award in front of my classmates from the Class of 1969."

Dr. Ascione is Professor of Clinical and Social and Administrative Sciences, University of Michigan College of Pharmacy. Concurrently, he is the Director of the University's Center for Interprofessional Education. He was Dean of the College from 2004-14 and has been a faculty member there since 1977. Dr. Ascione was director of the American Pharmacists Association (APhA) program that produced the second edition of *Evaluation of Drug Interactions*. He is also the author of *Principles of Drug Information* and *Scientific Literature Evaluation: Critiquing Clinical Drug Trials*. His research interests included evaluating models of medication therapy management, consumer medication-taking behavior, and the use of technology in pharmacy practice. Dean Ascione's current research focuses on issues related to drug policy, and he teaches a course on issues in regulatory science.

During the ceremony, Dean James Dalton pointed out that the College's excellent reputation was due to the individual accomplishments of its alumni. Our two award recipients have upheld the long tradition of excellence and service that characterize a U-M degree and embody the U-M motto: **Leaders and Best.**

## College of Pharmacy Alumni Board of Governors

The members of the University of Michigan College of Pharmacy Alumni Board of Governors are elected to three-year terms. The roles of the Board are to foster communication between the College and its alumni, to take leadership roles in College activities, and to offer counsel to assure that the College's traditions of excellence remain intact.

**Margo Bowman**, PharmD '12  
Zeeland, MI  
margo.Bowman@spectrumhealth.org

**Megan L. Cadiz**, PharmD '10  
Rochester, MI  
megan.cadiz@gmail.com

**Jennifer L. Campagna**, PharmD '00  
Chicago, IL  
jlsnooker@yahoo.com

**Ira Cohen**, PharmD '78  
Ann Arbor, MI  
cohenira@umich.edu

**Jamie Connarn**, PhD '15  
Hoboken, NJ  
connarnj@gmail.com

**Kevin H. Fantich**, PharmD '08  
Bloomfield Hills, MI  
kfantich@ehimrx.com

**Ryan W. Foster**, PharmD '05  
Ada, MI  
foster.rw@gmail.com

**Justin Gatwood**, PhD '05  
Nashville, TN  
jgatwood@uthsc.edu

**Morgan Giles**, PhD '18  
Weehawken, NJ  
morgan.b.giles@gmail.com

**Jenna Holzhausen**, PharmD '10  
Milford, MI  
jenna.holzhausen@beaumont.org

**J. Max Mazzara**, PhD '16  
Kalamazoo, MI  
jmaxmazzara@gmail.com

**Shannon Hough**, PharmD '10  
Dexter, MI  
shannon.m.hough@gmail.com

**Alexandra Tungol Lin**, PharmD '11  
West Bloomfield, MI  
alin@bcbsm.com

**Rachel Lebovic McDevitt**, PharmD '14  
Novi, MI  
rlebovic@umich.edu

**James T. O'Donnell**, PharmD '71  
Barrington Hills, IL  
jim@pharmaconsultantinc.com

**Barima Opong-Owusu**, PharmD '11  
Novi, MI  
bopong38@gmail.com

**Paru Patel**, PharmD '91  
Plymouth, MI  
ppatel.pharmdcpps@gmail.com

**Omye Phillips**, PharmD '11  
Troy, MI  
omye@o@gmail.com

**Kelly Procailo**, PharmD '09  
New Hudson, MI  
kprocailo@diplomat.is

**Nabeel Qureshi**, PharmD '13  
Windsor, Canada  
qureshi.nabeel@gmail.com

**Michael Rudoni**, PharmD '12  
Broadview Heights, OH  
mrudoni.jr@gmail.com

**Kiela Samuels**, PharmD '87  
Ypsilanti, MI  
ksamuels@med.umich.edu

**Jerome Stevens**, PharmD '09  
Ypsilanti, MI  
jerome.Stevens@stjoeshealth.org

**Stephen Stout**, PharmD '07  
Ann Arbor, MI  
smstout@umich.edu

**Lenore Tominna**, PharmD '06  
Troy, MI  
ltominna@gmail.com

**Shea B. Van Vuuren**, PharmD '97  
Manchester, MI  
shea.vanvuuren@provide.net

### U-M Alumni Association Liaisons

**Susan C. Lignell**, PharmD '94  
Ann Arbor, MI  
slignell@umich.edu

**Paulette Najarian-Knight**, BSP Pharm '80  
Clarkston, MI  
qdp@umich.edu

**JoAnn Sanborn**, BSP Pharm '77  
Hudson, MI  
mjsanborn@tc3net.com





**Rachel Lebovic McDevitt,**  
PharmD, BCOP

Clinical Pharmacist Specialist and  
Ambulatory Oncology Clinical Team  
Lead, University of Michigan Rogel  
Cancer Center

Adjunct Clinical Instructor, University  
of Michigan College of Pharmacy

**W**hen I was graduating from high school, my former elementary school teacher asked if I would give the graduation speech to the current 5th grade class. Thinking about what I would say and reflecting on my time in elementary school made me realize how well my elementary education set me up for future success. Based on this reflection, I decided to speak about how elementary school gave me a tool kit of teamwork, communication, and perseverance skills that helped me succeed in middle school and high school. Similarly, after completing pharmacy school, pharmacy residency, and moving back to Michigan to start my post-residency position, I reflected on my time in pharmacy school and how well the University of Michigan College of Pharmacy (U-M COP) developed my tool kit and prepared me for my pharmacy career. Therapeutic knowledge, leadership, and critical thinking skills honed by the U-M COP have become my “hammer and nails” and allowed me to be successful in my early career as a pharmacist. Therefore, like many graduates, I decided to look for ways to give back.

First, I started precepting IPPE and APPE students. I find this work incredibly rewarding, but I am only able to contribute to the learning of a handful of students per year. I volunteered to be a Pharmacy Family Advisor and mentor to pharmacy interns and residents, but still found myself looking for ways to give back to the U-M COP on a larger scale. Then, the opportunity to join the U-M COP Alumni Board of Governors presented itself. Serving on the Alumni Board of Governors allows me to provide broader input to the U-M COP including feedback on programs and initiatives and the design of the new building. Having diverse members on the Alumni Board of Governors is important, and I would encourage any alumna or alumnus interested in serving the U-M COP to apply. While a minimal time commitment, this is an excellent opportunity to give back on a larger scale and help current and future U-M COP students sharpen the tools in their tool kits.

# 2019 Endowment Update

**\$128M**  
TOTAL  
ENDOWMENT



Last year, I reported that we had met our “Victors for Michigan” fundraising goal – the campaign officially ended at the end of 2018 and I’m proud to thank so many of you who helped us reach nearly \$25 million to support students, faculty, research, programs, and – for the first time in years – facilities.

A real pride point is that more than \$11 million was added to our endowment to support scholarships and fellowships at the College. Before expected growth, that \$11 million will generate more than \$500,000 to support our students annually.

Usually, at the end of a successful campaign, the College gets to take a breath and look toward future campaigns coming in a few years.

Not this time.

Just as we were nearing the end, we got word that we could be receiving University dollars to build a new facility. As we waited for the Regents’ approval, we started a quiet campaign for the building before the “Victors” campaign ended. At this writing, we have about \$3 million committed to the new building.

We are seeking \$8-10 million in private support for this enterprise. This amount allows us to fund the entire building budget without decimating the College’s cash reserves. The reserves are critical to provide our students with the extras expected of a Michigan education and to continue to recruit and retain our leading faculty members.

We need your help. Please consider supporting our efforts to construct this new home for the College of Pharmacy. On page 32 you will read the various reasons some of our building donors have made pledges. These may resonate with you – or you may have a very different motivation. Please contact me at 734-764-7350 or [niedbala@umich.edu](mailto:niedbala@umich.edu) for more information about naming opportunities. For other ways to help, consider a gift on the last page. All gifts will make a big impact.

One other thing: typically, we publish our honor roll of donors in this publication. This year, we have made the honor roll an online feature of our website. Please see [www.pharmacy.edu/honorroll](http://www.pharmacy.edu/honorroll) to review the honor roll and, if there are any inaccuracies, please contact the Pharmacy Advancement office at 734-764-7350.

**Peter C. Niedbala**

Executive Director

Pharmacy Advancement and External Relations

## Dean's Advisory Committee

The Dean's Advisory Committee meets annually to help the College leadership assess the overall strategic direction of the College and to act as a sounding board for potential future plans. Additionally, this committee serves as the College's Campaign Steering Committee when the University is actively in a fundraising campaign.



**Ilisa B. Bernstein**, PharmD'87, J.D.  
Deputy Director, Office of Compliance  
Center for Drug Evaluation and Research  
U.S. Food and Drug Administration\*

**Grant H. Brown**, BS'80, PharmD'83  
CEO, Advanced Care Pharmacy Services  
Brown's Advanced Care Pharmacy Services  
& Medical Supplies  
Country Market Pharmacies

**Frederick M. Brubaker**, BS'62, MBA'64  
Retired Vice President  
Bristol-Myers Squibb Company

**Dr. Ronnie M. Cresswell**  
Retired Senior Vice President, Warner  
Lambert Co.  
Retired Chairman, Parke-Davis  
Pharmaceutical Research  
Professor of Medicinal Chemistry  
University of Michigan

**Timothy M. Cunniff**, PharmD'89  
Executive Vice President, Research &  
Development  
Marathon/Paragon Pharmaceuticals

**Gayle Crick Fischer**, BS '74, MM '84  
Principal  
Strategic Pharma Solutions, LLC

**Madurai G. Ganesan**, Postdoc'83  
Co-founder & Chief Executive Officer  
Sanja Pharmaceuticals Company

**Chung-Chiang (Larry) Hsu**, PhD'81  
Chairman & CEO  
Lifemax Laboratories, Inc.

**D. Kevin Kwok**, PharmD'86  
Head of Talent Acquisition and Strategy  
Theravance

**Peter M. Labadie**, BSPharm'79  
Retired CEO  
Williams-Labadie, LLC

**Robert A. Lipper**, PhD'78  
President  
Back Cove Pharma, LLC

**Fred W. Lyons, Jr.**, BS'57  
Retired Chairman  
Hoechst Marion Roussel, Inc.

**Mr. John E. Osborn**  
Senior Advisor  
Hogan Lovells US LLP

**Dinesh C. Patel**, PhD '79  
Patel Family Investments

**Dr. Ara G. Paul**  
Dean Emeritus and Professor Emeritus of  
Pharmacognosy  
University of Michigan College of  
Pharmacy

**Michael L. Ryan**, PharRes'81  
Senior Vice President, U.S. Value, Access  
and Policy Bristol-Myers Squibb New York,  
New York

**Frederick E. Schmid**, BS'68  
Retired President  
Dexter Pharmacy, Inc.

**Christopher M. Sinko**, MS'86, PhD'89  
Sr. Vice President & Head, Pharmaceutical  
Development  
Bristol-Myers Squibb

**Donald G. Therasse**, BS'78, MD'82  
President  
Therasse Pharma Consulting, LLC  
Vice President, Global Patient Safety and  
Bioethics  
Eli Lilly and Company (retired)

**Norris G. Turner**, PharmD'90, PhD  
Vice President, Strategic Alliances and  
Measure Implementation  
Pharmacy Quality Alliance

**Sharon M. Watling**, PharmD'87  
Owner and Clinical Development  
Consultant  
Watling Clinical Development

**David S. Zaccardelli**, PharmD'88  
President and Chief Executive Officer  
Dova Pharmaceuticals Inc.

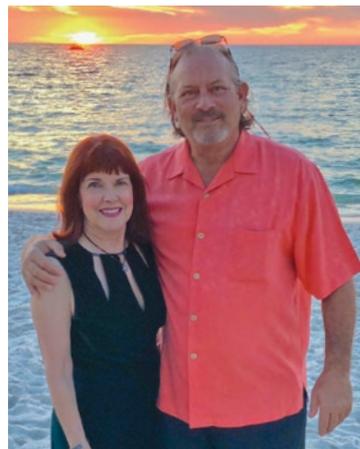
\*Dr. Bernstein serves in her  
personal capacity



## Why I Give

I am in my 30th year here at the College of Pharmacy and for that entire time our physical space (labs, classrooms, offices etc.) have been an issue. While improvements have been made, we have long since outgrown the capacity of our current site. I am delighted to contribute to our new building so that the next generation of faculty, students and staff have a state-of-the-art facility in which to thrive and grow.

**George A. Garcia, PhD,**  
Professor and Chair of  
Medicinal Chemistry



We can think of no better way to invest than in the education of talented students, dedicated to the health and well-being of others. The College of Pharmacy was the jumping off point for me, and now we have come full circle. We are honored to play a small role in the building of so many bright futures.

**Gayle, BSP Pharm '74,**  
**MManagement '84, and**  
**Tom Fischer**



My parents and my husband and I are supporting the new U-M COP building as an acknowledgment of the impact that this College has had on my professional career. My dad and I are both pharmacists – albeit practicing in different ways – and this is one, small way that we can pay it forward to many generations of student pharmacists and pharmaceutical scientists.

**Karen Farris, PhD '93,**  
Charles R. Walgreen III Professor  
of Pharmacy Administration  
Chair, Department of Clinical  
Pharmacy





U-M COP was on the cutting edge of pharmacy practice when I attended in 1970-71 for my PharmD. It was the best thing that happened to me. I enjoyed a long and exciting and interesting career. U-M COP continues to be on the cutting edge. Alumni support helps guarantee maintaining that edge.

**James T. O'Donnell,**  
PharmD'71



My father was so proud to have received his pharmacy degree from Michigan and I really believe that helping to continue the opportunity for others to become pharmacists at Michigan would be something very high on his to do list. Therefore this is in honor of a wonderful father and dedicated pharmacist.

**Linda and George Wehrle**



I made a financial contribution to the College of Pharmacy building project as I firmly believe that Michigan should have facilities for students, faculty, and researchers that are truly exceptional. Science, technology, and even the way various disciplines interact and collaborate has changed dramatically and a state-of-the-art building that brings together our College will help Michigan maintain its preeminent position among pharmacy schools in the nation.

**Timothy M. Cunniff,**  
PharmD'89



I am not a U-M alumnus, but I have lectured at the Ross School and served on the leadership council of the Life Sciences Institute for many years. As a biopharmaceutical industry executive, I have great respect for the essential professional role of pharmacists and the importance of interdisciplinary research that is fostered by the U-M. Also, my great-uncle Frank graduated from U-M Pharmacy in 1908, so that's reason enough to support the new building project!

**John E. Osborn,**  
U-M College of Pharmacy  
Dean's Advisory Committee  
member

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**Prescott Society Celebration**  
Sunday, September 29, 2019

**White Coat Ceremony**  
Wednesday, October 2, 2019

**Annual Pharmacy Lectures**  
Friday, October 4, 2019

**Homecoming Tailgate & U-M Football Game**  
Saturday, October 5, 2019

**Board of Governors Fall Meeting**  
Friday, October 11, 2019

**Career Gateway**  
Wednesday, November 6, 2019

**AAPS Conference**  
November 3-6, 2019

**ASHP Mid-Year Meeting**  
November 3-6, 2019

**Research Forum**  
Friday, February 14, 2020

**MPA Annual Convention**  
February 21-23, 2020

**APhA Conference**  
March 20-23, 2020

**Commencement Banquet**  
Friday, April 24, 2020

**Commencement**  
Saturday, April 25, 2020

"Science, technology, and even the way various disciplines interact and collaborate has changed dramatically and a state-of-the art building that brings together our College will help Michigan maintain its preeminent position among pharmacy schools in the nation."  
- Timothy M. Cunniff, PharmD'89



COLLEGE OF  
**PHARMACY**  
UNIVERSITY OF MICHIGAN

**Office of Pharmacy Advancement  
& External Relations**

College of Pharmacy  
University of Michigan  
428 Church Street  
Ann Arbor, Michigan 48109-1065  
(734) 764-7350  
pharmacy.umich.edu

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