



THE STUDENT PHARMACIST

www.cphs.wayne.edu/pharmd

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SPDC Student Pharmacists Diversity Council

Student Pharmacists Diversity Council (SPDC) is a WSU organization focused on cultural competency within pharmacy and diversity within healthcare. We promote the values of cultural competency and diversity through health fairs and seminars that we have throughout the school year. This past year, we partnered with other organizations within the pharmacy school to put on two health fairs; we had one health fair at the Midwest Buddhist Mediation Center and another health fair at the Sikh Society of Michigan. We were able to learn about their cultures and provide patients with health screening services, point-of-care testing, and education on common disease states.

We also hosted several seminars for pharmacy students. In the fall, guest speaker Jay Johnson discussed how a diverse group of people creates a better work environment and how being culturally competent makes you a better practitioner. In the winter, we had our P1 Outreach Committee presentation, a scenario-based discussion about intergroup interactions in healthcare. Participants were asked to identify areas of cultural conflict and propose possible alternative approaches. We also had presentations aimed at other audiences; last summer and this summer, we have and will present to the girls who live at Vista Maria Home and School about access to healthcare. We also presented at Community Apple Days to high school students where we focused on how biases in healthcare affect different populations.

One of our biggest accomplishments is the Student Pharmacists Inclusion Network (SPIN), which is our mentorship program. We work with underrepresented pre-pharmacy students at Wayne State University. These pre-pharmacy students are paired with current pharmacy students where they attend workshops and meetings together. Their mentor is available to help with their pre-pharmacy questions and concerns. Through this program, we are able to increase diversity within our pharmacy community and create a network within pharmacy.



SPIN Graduation, including (L-R) Dr. Commissaris, Renee Bookal, Hannah Scharboneau, Ashley Blanchette, and presenter Ron Coleman



P1 Committee Seminar on Diversity in Pharmacy, including (L-R) Dr. Pitts, Dr. McConachie, Nicholas Panecaldo, Kimia Shahidi, Faezeh Azizi, Emily Reich, Ryan Mac, and Josh Joy

Kappa Psi

Kappa Psi has had a great year! One of our achievements was raising \$1,000 for relief of the damages done by Hurricane Florence. We also participated in obtaining coats and other winter clothing articles to be donated to St. Vincent de Paul Society. During our Winter Retreat weekend, we volunteered at the Cathedral Church of St. Paul to help with their Homeless Memorial Service Coat Drive. Kappa Psi also had the opportunity to help the Eugene Applebaum College of Pharmacy and Health Sciences set up their table at the celebration of Wayne State University's 150th anniversary and the Pivotal Moments campaign. Four new brothers were initiated from the Pharmacy Year 1 class: Hussein Safaoui, Fadi Manuel, Daniel Frederick and Steven Conway. At the annual May PharmPhest, we invited all the incoming students, as well as current pharmacy organization leaders, to our house for a barbecue. We are also hosting a province assembly in Detroit for the Great Lakes Province in October 2019. This is an event where pharmacy students at colleges in our region, whom are a part of their respective Kappa Psi chapters, come to one of the colleges of pharmacy to vote on a new executive board, decide by-laws and ordinances, learn about parliamentary procedure, participate in philanthropic efforts, as well as network with other pharmacy students and current pharmacists. We are excited to host such an event and look forward to entertaining our fellow brothers and advancing our pillars of industry, fellowship, sobriety, and high ideals.



Gleaners Food Bank
Zachary Mueller (Left) and Ryan Caputo (Right)



Homeless Memorial Coat Drive
Ryan Caputo (Front Left), Steven Conway (Back Left),
Brian Randall (Back Right) and David Bermudez (Front Right)

Phi Lambda Sigma (PLS)

Phi Lambda Sigma is a pharmacy organization that recognizes leaders and fosters leadership development. This year, Phi Lambda Sigma created an awards committee and was able to recognize two faculty members for their leadership nationally. Dr. Doug Miller was nominated for the Proctor & Gamble National Leadership Award and Dr. Sheila Wilhelm was nominated for the PLS Advisor of the Year Award. Both were selected for their respective awards and were invited to present at the APhA Annual Meeting this year. We also initiated non-student members into our chapter for the first time. Dianne Malburg (B.Pharm, Michigan Pharmacist Association), Dr. Sheila Wilhelm, Dr. Lynette Moser, Dr. Mary Beth O'Connell, and Dr. Brittany Stewart were all inducted into our chapter, alongside our student members. Events to look forward to from PLS this year in the fall include our Interview Seminar and our Letter of Intent and CV Seminar. We will also be hosting a Mac and Cheese Bar Fundraiser and a Parfait Bar Fundraiser. We look forward to being able to provide these events to our fellow pharmacy students at EACPHS and also to another successful year for all of us.



2018-2019 Executive Board members (L-R)
Derek Volgyi (President-Elect), Jessica Andrews
(Historian), Stephanie Gryebet (Secretary),
Katherine Chuong (Treasurer), and Ashley Semma
(President), alongside guest speaker Rony Foumia

Rho Chi

This year, the Rho Chi Alpha Chi chapter entered its 46th year since its inception at Wayne State University in 1953. Our chapter's rich history of tradition – recognizing and promoting intellectual scholarship and serving our local Detroit community and fellow student body – was continued through our chapter's activities and engagement. Our chapter conducted numerous events to foster academic success. For instance, chapter members provided tutoring for all first-year courses. We also held two student workshops. The first workshop was our mock interview event, where P3s participated in simulated interviews in preparation for their APPE interviews. Additionally, we hosted mock practicals, where first-year students practiced patient consultations and physical exams in preparation for their patient care lab OSCEs. We were fortunate to have amazing support from the pharmacy faculty, and we would like to thank all those who made these events possible!

Moreover, our chapter functioned to support the underserved Detroit community. On the second Tuesday of each month, Rho Chi members and our faculty adviser – Dr. Lynette Moser – staffed the Saint Frances Cabrini Clinic. At the clinic, we met with patients to discuss their medications and educate them on their health conditions. Finally, our chapter hosted the annual Roland T. Lakey Lecture in conjunction with our new initiates banquet. Dr. Robert Blouin was the distinguished speaker and winner of the Lakey Award. Dr. Blouin has had an illustrious career at the University of North Carolina, where he currently serves as the Executive Vice Chancellor and Provost. Dr. Blouin's rousing lecture – "A Call to Leadership" – was attended by over two-hundred students, faculty, and guests. Following the lecture, twenty-eight new student-members and faculty-member Dr. Arun Iyer, were welcomed into Rho Chi.

Our chapter is extremely happy with the successes we achieved this year and are excited to see our chapter continue to evolve.



New P2 Rho Chi Initiates at our 2019 induction ceremony



Dr. Robert A. Blouin (right) receiving the Roland T. Lakey Award at the annual Roland T. Lakey Lecture



2018-2019 Rho Chi Eboard: (left to right) Ryan Caputo (president), Zied Shammout (historian), Nicolette Santilli (Vice President), Banibrata Das (Secretary), Alex Petrovici (Treasurer)

Student College of Clinical Pharmacy (SCCP)

It has been another successful year for SCCP in advancing student pharmacists' clinical skills and pharmacotherapy through educational support. We hosted the ACCP Clinical Pharmacy Challenge, as well as the Clinical Research Challenge, to allow students to participate in team-based competition focusing on literature analysis and pharmacotherapy questions. Our community service event this year at the Gary Burnstein Health Fair Clinic was a success. Student pharmacists provided blood pressure and blood glucose screening, as well as medication consultation to over 40 patients in the Pontiac area. We will continue this event during the upcoming year in July. As part of our organization, third-year pharmacy students led PPS exam review sessions that focused on literature analysis and the management of electrolyte disorders.

SCCP will be holding new events this upcoming year to enhance student professionalism. We will be bringing back SCCP's Spotlight on Specialties event in the Fall, where a panel of specialty pharmacists will be presenting about their careers and how students can seek tracks of their interest in specialty areas. We also hope to hold a Residency Panel, where residents from various health systems will be available to answer student pharmacists' questions on pursuing a PGY1 and PGY2.



SCCP members volunteering at the Gary Burnstein Health Fair Clinic 2018
Included (L-R) Wasym Mando, Bianca Kastaw, Bianca Aprilliano, Griffin Calme, Hilda Kasmikha, and Chrissy Malloy.



Christian Pharmacists Fellowship International (CPFI), also known as Pharmacists in Christ (PIC) had another great year in 2018-2019! The goal of the organization is to provide fellowship among like-minded professionals, challenge and promote spiritual growth, encourage the advancement of knowledge and ethics in the practice of pharmacy, encourage evangelism and the integration of faith into practice, and provide support and opportunity for service in both home and foreign missions.

The organization held monthly meetings where board members would lead biblically centered discussions that would aim to encourage pharmacy students to consider the importance of integrating faith, alongside the pursuit of pharmacy practice. CPFI also focused its efforts on serving the local community. In March, we partnered with UNIFY Detroit to provide education on diabetes and heart health at a local health fair in Detroit.

We are excited to grow this coming year, encouraging fellow pharmacy students as well as serving our local community!

Arab American Pharmacist Association (AAPA)

The WSU Student Chapter of the Arab American Pharmacist Association (AAPA) is a community-oriented, non-profit organization that provides services to the community throughout numerous professional, community, and cultural health fair events throughout the academic year. Any money raised through fundraisers is directly donated to a charity or underserved clinic or community. This year, we chose to donate to the HUDA Clinic, a community health center in Detroit that provides free and low-cost health services for the uninsured and underinsured.

During the 2018-2019 academic year, the organization's success was achieved through students' efforts to provide high quality healthcare services to the community. Throughout the past summer, AAPA was proactive and hosted multiple events at local community fairs to encourage healthy living and antibiotic stewardship via the Michigan Antibiotic Resistance Reduction (MARR) program. This continued during both the fall and winter semesters, where we shifted gears and adjusted our teaching style to target elementary and middle school students. This year, AAPA expanded its educational initiatives by hosting a variety of events at local youth shelters, such as Alternatives for Girls (AFG) and Vista Maria. The representatives at the organizations returned great feedback about our sessions and invited us to host again next year.

Furthermore, AAPA strives to build a healthier community by hosting various free flu clinics during the flu season. This year, in affiliation with CVS Pharmacy, AAPA was able to successfully host two flu clinics with the collaboration of HYPE Athletics Center in Dearborn Heights and McCollough-Unis Middle School in Dearborn. This provided our pharmacy students with an opportunity to strengthen their patient communication and interaction skills with a hands-on learning experience of administering immunizations.

AAPA continues to host the annual "Culture and Medicine" seminar in which a healthcare provider shared his insight on cultural adversities he had faced in his career and ways to overcome them. A new seminar, the "Independent Pharmacy" seminar, was initiated to showcase the realm of independent pharmacy through the eyes of two local pharmacists who shared their individual and differing experiences with the audience. These seminars allowed students to learn from and network with active leaders in our community.



HYPE Flu Clinic (L-R): Zied Shammout, Mohamad Chahrour, Nadeen Berry, Sonia Baydoun, Dena Berri, Iman Bazzi, Zeinab Hak Saad



AAPA 2018-2019 Executive Board (L-R): Ahmad Abbas, Mohamad Chahrour, Chima Nwamba, Zied Shammout, Dena Berri, Nada Emara, Fatima Khalife, Amina Ammar

FACULTY SPOTLIGHT: Anna B. Moszczynska, PhD

How did your interest in research begin? Describe how it led to your current research path.

I started my academic career as an electrical and then chemical engineering student in Poland. After I received my MSc degree in Chemical Engineering from Technical University in Lodz, I knew I was not going to work in industry, even though I studied enzymology and protein function. It was industry-focused research and I was not as passionate about this field as I once thought. Once I moved to Canada, I began volunteering in a lab studying adhesion of epithelial cells in the eye, with an aim to prevent or cure retinal detachment. My experience there sparked my interest in cellular biology, which was more closely related to medicine as opposed to industry. Shortly after receiving my second MSc degree in Anatomy and Cell Biology, I began a PhD degree program in Neurochemistry at the Center for Addiction and Mental Health, University of Toronto, Canada. This experience really sparked my interest and I became very passionate about studying the workings of the brain. I researched methamphetamine neurotoxicity, which is a consequence of chronic use of this psychostimulant, in postmortem human brain, as well as oxidative stress in heroin addicts. This was a hot topic at the time and was starting to really develop. In terms of research, I wanted to conduct research that could help people, in a continually developing field. I truly believe that you cannot perform and excel in wet lab research, clinical research, or academia without passion. Towards this goal, I completed three postdoctoral fellowships in different disciplines within neuroscience, namely molecular neurobiology, population genetics, and pharmacology. All these varied experiences led me to choose to develop my area of research as an independent investigator in neuropharmacology and neurotoxicity of methamphetamine addiction.



What has been the most challenging aspect in your field?

In terms of my research, translational and mechanistic barriers have been challenging. Logistics between humans and animal models are an issue when you study drug abuse. The models of treatment and experimentation are not always easily translatable between two species. Even though humans and rodents, as well as lower level species, do get addicted to methamphetamine, the findings from animal studies often do not apply to clinical trials. We know that with humans, mechanistically, it gets more complicated. During my PhD, I studied case histories and quickly learned that drug abuse, in and of itself, is highly variable. Drug abuse occurs at different doses and frequencies, and multiple drugs of abuse may be used at once. Even though we attempt to account for genetic differences and comorbid disease states and potential drug-drug interactions while studying anti-abuse mechanisms in the brain in humans, drugs in clinical trials are not effective in a subgroup of drug users. Ethical considerations are always extremely important to comply to when studying multiple *in vivo* models.

Currently, there is no specific pharmacotherapy against abuse of methamphetamine, and other drugs, instead behavioral therapy is most often used. There are promising anti-addiction drugs, but are currently of low efficacy, and this is why we are constantly researching potential drug targets to better understand and help those affected by abuse of addictive substances.

What has been the most rewarding aspect in your field?

My lab primarily studies heavy methamphetamine abuse in rats and although it has its challenges, it is also very exciting and rewarding to study a more focused, complicated and intense form of drug abuse. Studying this model is harder than intermittent model of methamphetamine abuse because of the confounding effect of methamphetamine neurotoxicity, that is high levels of oxidative stress and brain tissue damage, psychomotor impairments, and more. There is very little attention to heavy methamphetamine use, but at the end, it is very rewarding to study this specialized field and discover novel drug targets for combating methamphetamine addiction and neuroadaptations that could possibly make people prone to addiction. Moreover, research such as this requires specialized skills, high levels of organization, and planning to accomplish your experiments. It is always rewarding to teach these skills to my students, and watch their abilities and passion in research evolve and grow. The success of my students is my success! This is true for students in my laboratory and also students in the EACPHS PharmD program. I strive to provide pharmacy students with a mechanistic understanding of drug action within the brain and how this relates to the clinical outcomes in pharmacy. A fully translational approach from bench research to clinical research and patient outcomes will make for the most knowledgeable pharmacists or researchers and educating students to support this goal is one of my top priorities.

I recently received funding through the Career Development Chair Award from Wayne State University together with Sabbatical Leave, which was very fortunate. This funding will allow us to conduct preliminary studies on the role of the Parkin protein in abuse of other drug classes, in addition to methamphetamine, and acquire new skills in other research laboratories. We hope to focus on the role of Parkin in cocaine and morphine abuse. It is important to understand parkin-mediated molecular events in rodents self-administering these drugs because some of these events may be a common connecting pathway in drug abuse. This is of particular interest to me because while I was doing my PhD, there was abuse epidemic involving methamphetamine and cocaine in North America; while now, we have an opioid epidemic on our hands, and cocaine abuse is still high. This is a great opportunity to devote my time to new independent research avenues and learn new methods of research, such as single-cell technologies.

How do you see your focus and your laboratory progressing in the field?

We study Parkin, which is a degradative protein involved in Parkinson's Disease and in methamphetamine neurotoxicity. It was recently discovered that human methamphetamine users are at risk for developing Parkinson's Disease. Overexpression of Parkin in certain brain areas is neuroprotective and, importantly, Parkin has attenuating effect on methamphetamine abuse in rats. Consequently, one of my future directions will be to determine if Parkin protein can decrease abuse of other stimulants, e.g. cocaine, as well as abuse of opioids, which is in a different drug class, but we have evidence to believe that it might work, i.e. Parkin will attenuate morphine abuse. We hope to discover that high levels of active Parkin will be beneficial in psychostimulant and opioid addiction. We hypothesize that Parkin binds and degrades a subset of its substrates, which causes a decrease in addictive cravings. We are most interested in which substrates specifically are being down regulated and why this decreases addictive potential.

We plan to perform proteomic studies in different brain regions in our animal models and hope to identify these substrates. As the field progresses, we have come to understand that there are several locations in the brain which contribute to addictive behavior (addiction network) and we hope to explore and compare proteomes and genomes between these centers, with a focus on Parkin substrates. Molecular tools which allow us to study and manipulate the levels or activity of Parkin in the brain of animal models of addiction are critical and their application will allow us to specifically focus on the most contributory regions of addiction. We also plan to use nanotechnology and nanodeliver Parkin-encoding transfer vectors to the brain in order to achieve consistent and reliable overexpression of Parkin in the brain.

There is also a secondary area of research that we wish to focus on, namely the effects psychostimulants and opioid on Parkin function in the enteric nervous system and blood. Parkin is a ubiquitous protein; therefore, drugs may cause its deficit not only in the brain, but also in other organs. We would like to understand where Parkin expression is altered and by which drug of abuse. We would also like to know which substrates Parkin is interacting with peripherally, outside of the brain, in the presence of psychostimulants or opioids. Finally, in order to assess whether our data from animal models of methamphetamine or opioid abuse translate to humans, we plan to utilize postmortem brain and colon tissues, as well as blood, from human users in our future studies. My third research interest are transposons, which are non-coding pieces of DNA that move within the genome, and their role in addiction. I have plans to expand this research area in the near future.

What advice do you have for prospective students and how do you recommend they get involved in research or teaching?

I think it is important for students to start with a directed study with a professor, especially if students may have an interest in the Research Scholars track. In this way, students have the opportunity to learn in a specialized field with some independence. There are many opportunities in the laboratories here at EACPHS. If you have an interest in research or simply want to observe to better understand what happens in day to day research, just ask! There are many avenues for student involvement in research and professors like myself are here to foster the academic success of students.