

PHARMACY ALUMNI ASSOCIATION
& SCHOOL OF PHARMACY NEWS

DAWG SCRIPTS

SPRING 2019

Welcome Gabriel, the newest family member for Shawn, '09, and Rosemarie Ly, '10, (and prospective member of the PharmD class of 2045)!

W
SCHOOL OF PHARMACY

IN-DEPTH:

FETAL, MATERNAL, & PEDIATRIC HEALTH RESEARCH

W

SCHOOL OF PHARMACY
UNIVERSITY of WASHINGTON

Dawg Scripts

Produced by the UW School of Pharmacy, with support from the Pharmacy Alumni Association (PAA)

Editor and Writer: Sarah C.B. Guthrie
Contributors: Sean D. Sullivan, Erin Bailey-Sun, Claire Forster, Scott Herzog, Danielle Shubat
Designer: Sarah C.B. Guthrie
Photographers: Erin Bailey-Sun, Claire Forster, Sarah C.B. Guthrie, Matt Hagen, Alex Levine

PAA OFFICERS

President: Scott Herzog, '03
Past President: Gary Harris, '72
Secretary/Treasurer: Jenny Arnold, '06

COMMITTEE LEADERS


Alumni Recognition: Judi Mar-Burbidge, '82, '00
Class Representative: Ben Michaels, '97, '11
Katterman: Adam Brothers, '06
Membership & Recruitment: Michael VanLaanen, '11
Mentorship: Christy Weiland, '07
Students: Erica Hecker, '19, Michelle Lan, '20
WSPA: Jeff Rochon, '99


CONTACT PAA


UW School of Pharmacy
Box 357631
Seattle, WA 98195
(206) 616-7613
rxalumni@uw.edu
sop.uw.edu/paa

CONNECT:

 sop.uw.edu

 www.facebook.com/UWSOP

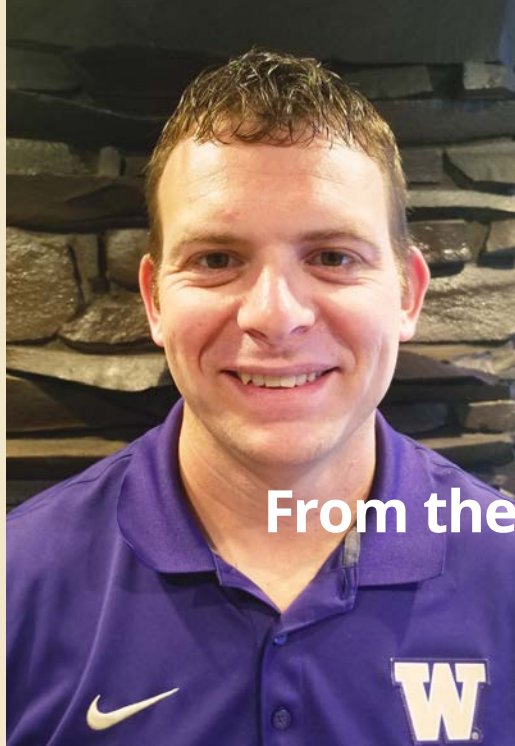
 www.linkedin.com*

 @UW_Pharmacy

 @UW_Pharmacy

*Join our UW School of Pharmacy "Graduate Programs Alumni and Friends" or "Pharmacy Practice Alumni and Friends" LinkedIn group.

On the cover: Welcome Gabriel, the newest family member for Shawn, '09, and Rosemarie Ly, '10, (and prospective member of the PharmD class of 2045)!



From the PAA President

Building on over 40 years of history, the Pharmacy Alumni Association is charged with a special responsibility to support the School of Pharmacy and our alumni. As President, I could not be more

honored to lead a dedicated team of board members to uphold this responsibility. Together we are all very excited about the future of what is, in our opinion, the best School of Pharmacy in the nation.

In my first year as President we continue to host fantastic—sold out—events that deepen our alumni community and connect our members. Not surprisingly, all of this engagement resulted in unparalleled growth in our membership, as many of you renewed or joined PAA. Thank you to the over 350 PAA members!

As you were renewing or joining the organization, you may have seen a refresh of our website, highlighting the connections our alumni make across the globe. Our website will continue to be your digital home base for all things alumni, which aligns with our dedication to sustainability. PAA is moving towards a digital first strategy, where we will continue to reduce the amount of paper used for the organization. We are also launching a new digital version of Dawg Scripts which will hit your inboxes this spring. If you prefer to receive a digital copy of Dawg Scripts, please let us know by emailing rxalumni@uw.edu and make sure we have your preferred email address on file. It feels good knowing we are supporting one of the best schools in the country and doing what we can to protect our environment.

I look forward to seeing you at an upcoming event and thank you for supporting the Pharmacy Alumni Association.

GO DAWGS!

Scott Herzog, '03, President, Pharmacy Alumni Association

To register for the upcoming School of Pharmacy or Pharmacy Alumni Association events on page 3, please email rxevents@uw.edu or go to:

sop.washington.edu/events



From the Dean

The cover of this Spring 2019 issue includes a picture of **Gabriel Ly** (class of 2045!) in full UW attire. Gabriel is the happy and healthy son of two UWSOP alumni—**Shawn** and **Rosemarie Ly**—who enthusiastically agreed to let us put his picture on the front cover of DAWG Scripts to highlight the School's collaborative work to improve the health of newborns. In this issue, we feature the impactful work of our students and faculty engaged in fetal, maternal and pediatric health research.

The need for accurate and reliable information about how pregnancy impacts the pharmacology and pharmacokinetics of medications in the bodies of mother and child is both acute and vital. We are fortunate in our School to have researchers who approach the problem in multiple ways to find solutions to improve drug dosing and outcomes for this vulnerable population. There is a lot we don't know, but there is excitement in knowing that researchers like **Mary Hebert**, **Qingcheng Mao**, and **Libin Xu** are finding new ways to study medications in fetal, neonatal and maternal tissues so we can better predict safety and effectiveness. These projects benefit from the collaborative nature of our work at UWSOP and across UW Health Sciences, along with other research centers around Seattle.

Throughout this issue, you will see excellence and collaboration at work - from the challenging job of figuring out how we send 24 microphysiologic systems lined with fragile kidney cells to outer space (page 4) to multiple projects designed to improve drug safety for pregnant women and their babies (pages 6, 8, and 9) to an innovative project that promises to significantly improve the care for cancer survivors (page 11).

I also want to share with you some great news that we just learned as we went to press. The UW AMCP student P&T competition team brought home the first place trophy this year (more on page 5)! Additionally, I am proud to share that the PharmD Class of 2018 earned a 98.8% pass rate on the NAPLEX exam—one of the highest rates in the nation! Congratulations to everyone in the class. You worked so hard. As Dean, and on behalf of our faculty, I want you to know we are very proud of you.

In closing, I offer a reminder that we are at the very beginning of an exciting time at the UW School of Pharmacy. Next academic year marks multiple milestones—including our 125th Anniversary as a school. Be on the lookout for many opportunities to reconnect with your friends and colleagues during the celebration.

In the meantime, we need your help compiling 125 stories of our legendary alumni. Who is an UWSOP Alumni Legend to you? Please take a few minutes and submit their names and info to bit.ly/AlumniLegends.

Thank you, enjoy the springtime and go DAWGS!



Sean D. Sullivan, BScPharm, PhD
Professor and Dean, UW School of Pharmacy

UPCOMING EVENTS

To register for these events, please visit: sop.washington.edu/events or email rxevents@uw.edu.

Don B. Katterman Memorial Lecture & Dean's Recognition Reception
May 8, 5 pm
HUB Lyceum and North Ballroom
UW Seattle Campus

The CHOICE Institute Reception at the 2019 Annual ISPOR Conference
May 20, 5:30 pm
The Chicory
New Orleans, LA

ICYMI: Medications Update for 2019
May 23, 5 pm
Foegen Auditorium
UW Seattle Campus

Class of 1969 50th Reunion
June 8, 11 am
Waterfront Activities Center
UW Seattle Campus

2019 Graduate Research Symposium
June 19, 8:30 am-6 pm
Kane Hall
UW Seattle Campus

Dean's Club Night at the Mariners
By invitation only
July 23, 6 pm
T-Mobile Park
Seattle

UWSOP Reception at ISSX 2019
July 29, 5:30 pm
Crown Plaza Hotel
Portland, OR

Portland Alumni and Friends Reception
July 30, 6 pm
Coopers Hall
Portland, OR

OUR CHIPS ARE GOING TO SPACE!

What does it take to send delicate kidney cells into space to be studied by astronauts wearing big, clunky gloves who may, or may not, have a background in biochemistry? We popped into the lab to talk to Ed Kelly and Cathy Yeung to find out.

Dawg Scripts: Why did you put kidney cells on a chip?

Associate Professor Ed Kelly: As a Toxicologist, we talk about the “Three Rs” when it comes to our research: reduce, refine, and replace. That means we are looking for ways to reduce animal testing, refine processes, and—where we can—replace animal testing. With Kidney on a Chip, we have a better model than testing kidney cells on plates under the microscope, in petri dishes, or with animals. The tubules—about the size of a human hair—housing the cells in the chip mirror the tubules in the kidney in the body and, like the kidney in the body, we can move fluid through the tubules and have more information than we would otherwise. For example, we did some testing using a powerful antibiotic. We knew the antibiotic was toxic but we didn’t know why. By using Kidney on a Chip, we were able to identify the biomarkers of toxicity, showing that the antibiotic was indeed toxic to renal tubular cells.

DS: So then why send chips to space?

Research Assistant Professor Cathy Yeung, '05: Kidney disease can take years to develop. Microgravity accelerates kidney disease or dysfunction, and other conditions in astronauts, so the goal is to see the impact low gravity will have on the cells in the microphysiological chips. We anticipate learning more about how kidney stones, osteoporosis, and

proteinuria (an abnormally high amount of protein in urine which indicates kidney damage) begins and develops. There aren’t many effective treatments for kidney stones currently. Last year, the main “recommendation” for treatment was to ride a roller coaster in hopes of dislodging the stone (we don’t recommend this course of treatment). Instead, we hope to gain some insights into how they develop that may lead to improved therapies.

DS: What can you tell us about the cell samples you are using?

CY: The kidney cells used come from two men and two women so we will be able to see gender differences, which is important for diseases like osteoporosis which has a higher incidence among women. All of this research is important for people on Earth, as well as the future of missions to Mars when people will be in microgravity for years. We have questions about how kidneys process Vitamin D and hope to gain insight about osteoporosis and how to prevent it from this research.

DS: What are some of the challenges of sending the chips to space?

EK: We’ve had a lot of logistical challenges. First of all, we have to make the level of science very easy for astronauts who will be working with large gloves. Some of the astronauts have advanced degrees in science, but we had to make sure that whoever is running the

experiment that day could do the work needed. Another challenge was taking the 50 cubic feet of space we use to run the experiments in our lab down to a box about the size of a microwave to fit in the rocket and space station, which is why we partnered with BioServe Space Technologies at University of Colorado Boulder.

“We are planning for failure, even though that’s not an option.”

ED KELLY, ASSOCIATE PROFESSOR OF PHARMACEUTICS

DS: Will there be a lab in space?

CY: There will be experiments running at precisely the same time on the ground as in the Space Station while the Chips are in space. Our team of faculty and graduate students will be on site at Kennedy Space Center in Florida running the experiments on Earth. So we have to create labs that will go to space and also recreate our lab in Florida. The box going to space with the chips has to be specially designed to handle the stressors of coming in and out of atmosphere, the vibrations in breaking the sound barrier, and dropping to Earth on its return. The kidney cells have to be kept at a constant 37 degree C temperature, which requires three different power sources from the time the chips are built on the lab on Earth, transferred to the rocket, and launched into space. We don’t know what will happen and we are doing our best, working with our BioServe partners, to anticipate as many obstacles as possible.

DS: What’s special about this project?

EK: We are proud that the University of Washington is the only university with two projects launching to the International Space Station as part of this nationwide Organ on a Chip project funded by the NIH and CASIS. Our project will be the first to launch and the Heart on a Chip by Deok-Ho Kim in Bioengineering will be the second.

Pharmaceutics PhD student Kendan Jones-Isaac will be at the Kennedy Space Center running chip experiments in sync with astronauts in the International Space Station (Kendan, left, pictured with Arthur Barriault from BioServe, reflected, center.)

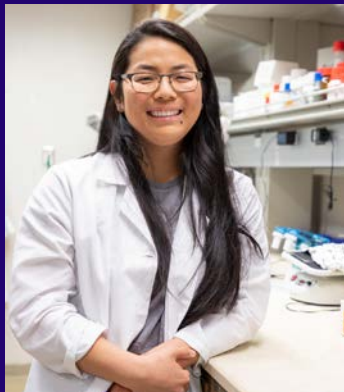




Congratulations to PharmD students, **Michael Sporck**, '20, **Eunice Kim**, '20, **Hanna Kleiboeker**, '20 and **Erin Ichinotsubo**, '21, on their first place win at the highly competitive Academy of Managed Care Pharmacy (AMCP) Foundation 19th Annual National Student Pharmacist Pharmacy & Therapeutics (P&T) Competition. The team's advisors were UWSOP faculty **David Veenstra** and **Pete Fullerton**. **John Watkins** of Premera served as external advisor. "After months of studying and hard work, the team emerged at the top of a record number of competitors. Congratulations Erin, Eunice, Hanna, and Michael on your outstanding achievement and we thank their advisors, Dave, Pete, and John for their support," said Dean **Sean D. Sullivan**.



Lauren Strand was named the UWSOP Magnuson Scholar for 2019-2020. Lauren is a third-year PhD student in the CHOICE Institute. Her dissertation focuses on understanding the impact of policies that target the opioid epidemic, specifically opioid use disorder, have in Washington state. Her work draws insight and methods from biostatistics, epidemiology, econometrics, and cost-effectiveness modeling. She hopes her findings inform future initiatives in Washington. Originally interested in studying opioids from the public health perspective, Lauren's become interested in the economic underpinnings, including the relationship between opioid prescribing, outcomes, and economic despair. Having grown up in New Hampshire, Lauren has seen first hand how a small, mostly rural state can have some of the country's worst opioid-related outcomes, as a result of rampant prescribing, low funding for treatment programs, and relatively poor economic conditions. Magnuson Scholars receive \$30,000 to support their reeseearch, education, and training.



Congratulations to Medicinal Chemistry PhD student **Amy Li** of **Libin Xu**'s lab on her poster presentations. At the 14th Annual Conference of the Metabolomics Society here in Seattle she presented and volunteered. She traveled to San Diego for the 66th American Society for Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Allied Topics to present her poster,

"Lipidomics analysis of cultured human fibroblasts from individuals with autism spectrum disorders".



Enrique Saldarriaga, PhD student in the CHOICE Institute, worked with the United Nations in Peru to analyze the situation and public policies for adolescents and youth in the country. The report, "Challenges and Priorities: Peruvian policy in adolescents and youth," was published in 2018. Enrique was a research assistant for the project in general, and team leader for the data analysis portion. The study aimed to analyze and identify improvements for youth and adolescents in Peru. The team focused on education, employment, sexual and reproductive rights, violence, protection, mental health, and civic participation. They found several bottlenecks, including budget distribution problems and unmatched targets and actions. The team was able to provide some specific solutions, and general guidance. The United Nations in Peru is using the study to advocate for changes in policies and guide future interventions.



Congratulations to Pharmaceutics PhD student **Weize Huang** (front row, far right) and the other UW Health Sciences Magnuson Scholars who were celebrated at the annual lunch to wrap up their scholarship year. At the lunch the scholars had the opportunity to meet Senator Magnuson's daughter Juanita Garrison, his granddaughter Leslie Garrison, as well as several of the Senator's staff.

BRAIN CHOLESTEROL, SLOS, & AUTISM

The UW Medicinal Chemist studied neural chemistry and biology to understand the underlying mechanism that cause birth defects, behavioral problems, and autism

You probably know about good and bad cholesterol as it relates to your heart—but did you know that your brain needs cholesterol too? The brain's cholesterol is essential to fetal development—a lack of which can lead to birth defects and conditions like Smith-Lemli-Opitz syndrome (SLOS), a disorder caused by mutations in the last step of cholesterol biosynthesis, DHCR7. SLOS has a high correlation with autism: over 70% of children diagnosed with SLOS also display an autism spectrum disorder. It also tends to be underdiagnosed due to fetal lethality or takes years to be diagnosed as some mild cases show up as behavioral problems, not physical defects.

But getting more cholesterol to the brain isn't as simple as taking a supplement. The brain makes its own cholesterol and cholesterol in the peripheral tissues or blood does not cross the blood-brain barrier. Any therapies for SLOS must be able to pass through the blood-brain barrier to be effective.

Assistant Professor **Libin Xu** and his team want to understand the molecular mechanisms underlying SLOS so they can test treatments that can get to the brain. Understanding the mechanisms behind SLOS could also lead to treatments for autism due to the strong correlation between SLOS and autism. There are two causes the team are looking at: genetic mutations in DHCR7 that result in a build up of a reactive cholesterol precursor, 7DHC, that negatively affects brain development, as well as inhibition of the same enzyme by environmental molecules or drugs, such as benzalkonium chloride, a common ingredient in hand wipes and disinfectants like Clorox and Lysol, and some antipsychotic and antidepressant

drugs—such as Abilify and Haldol. Simply put, the team is exploring how these common environmental compounds and prescription medications cause the same biochemical defects observed in SLOS, aiming to minimize damages of such exposure on embryonic and brain development and develop treatments.

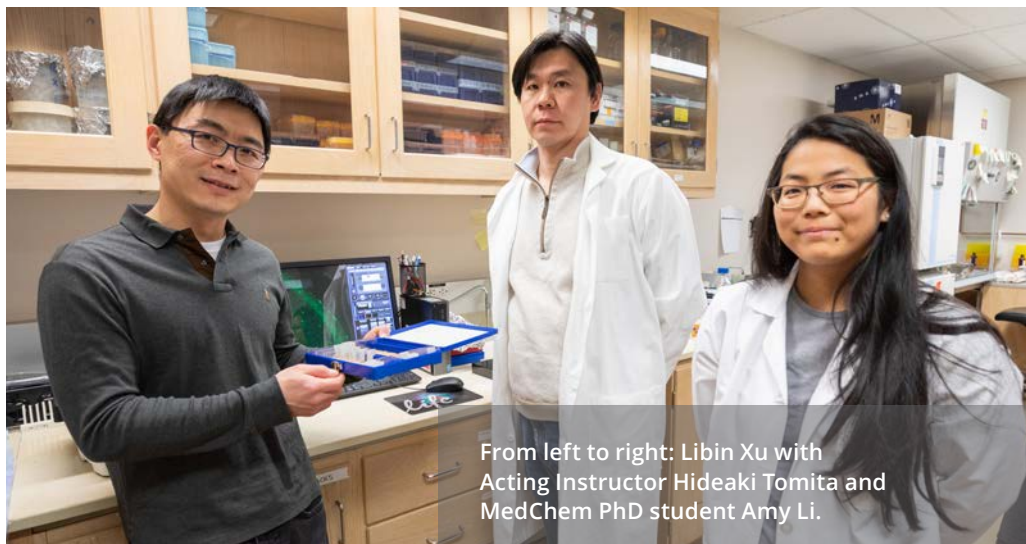
The team is using a combination of mass spectrometry and mouse models to study the disease and what happens when the reactive cholesterol precursor, 7DHC, builds up. They want to find a way to inhibit the formation of toxic metabolites of 7DHC or inhibit their downstream detrimental effects using small molecules. Libin sees some promise in identifying combination therapies that mitigate the risk of SLOS-like symptoms in the case of mothers taking antidepressants or antipsychotics. Women who are

expecting may want to speak with their doctor if they are taking such drugs or using products containing benzalkonium chloride during pregnancy and lactation. However, there are adverse side effects of untreated depression, including low birthweight and preterm labor, which may outweigh the risk to the fetus' development, so stopping medication without a provider's guidance is not recommended.

This five-year National Institutes of Health R01 grant (R01HD092659) was funded in 2017 for \$1.3M.

“The marriage of chemistry and biology gives me a unique way to look at molecules and the impact small molecules have in disease pathology.”

LIBIN XU, ASSISTANT PROFESSOR OF MEDICINAL CHEMISTRY



From left to right: Libin Xu with Acting Instructor Hideaki Tomita and MedChem PhD student Amy Li.

1 IN 20,000

BABIES ARE BORN WITH SLOS

OVER 70%

OF CHILDREN WITH SLOS HAVE AUTISM SPECTRUM DISORDER

25% OF CHOLESTEROL

IN THE HUMAN BODY IS IN THE BRAIN



Congratulations to Assistant Professor **Brian Werth** who received this year's Young Investigator Award from the Society of

Infectious Diseases Pharmacists (SIDP). The prestigious award is given to a young investigator who shows research promise in the broad area of infectious diseases. Brian has demonstrated tremendous research productivity over the past 5 years at the University of Washington School of Pharmacy. His multidisciplinary, translational research program has focused on antimicrobial dosing strategies that optimize efficacy and prevent or overcome resistance in multidrug resistant pathogens. He has made significant contributions to infectious diseases research through education, mentorship, and service. Since beginning his academic appointment, he has published 22 peer-reviewed papers and received research support from SIDP, pharmaceutical industry, and the National Institutes of Health. He was recently awarded a 4-year, \$1.86 million NIH R01 grant as principal investigator, with Co-Investigator **Libin Xu**.

Recently named the recipient of the UWSOP Faculty Innovation Fund Award, Professor **Allan Rettie** is leading a team that includes Co-Investigators



Pharmaceutics Assistant Professor **Bhagwat Prasad** and **Shreeram Akilesh** of Pathology to find new personalized ways to slow the progression of the development of breast cancer by focusing in on an enzyme that can go rogue. The team hopes to identify inhibitors of a gene, CYP4Z1, which codes for a cytochrome P450 enzyme that is strongly associated with progression of the disease, a breakthrough that could lead to improved therapies that are personalized for a patient's particular type of breast cancer. Given the early stages of this research, it can be hard to gain NIH or other funding, which is where the Faculty Innovation Fund Award comes in. The award seeks to advance research

that is interdisciplinary and has great promise for impact. Past recipients include Pharmacy's **Brian Werth**, Med Chem's **Libin Xu**, Med Chem's **Abhi Nath**, '08, and CHOICE's **Beth Devine**, Pharmacy's **Jennifer Wilson Norton**, '93, Pharmaceutics' **Isabelle Ragueneau-Majlessi**, '10.

We are so proud to learn that Professor **Rodney Ho** has been named the recipient of the American Association of Colleges of Pharmacy (AACP) Volwiler Research Achievement Award. The research prize in academic pharmacy was established in honor of the late Ernest H. Volwiler, former president and research director of Abbott Laboratories. Each year, the Award honors an individual within the ranks of pharmacy education who is recognized by his or her peers as one of the leading researchers in a given area of the pharmaceutical and clinical sciences, pharmacy practice and the social and administrative sciences, and for outstanding contributions to the respective disciplines. This award consists of a gold medal and a \$5,000 prize which are presented to the Award winner. Rodney is the second UWSOP faculty member to receive this prestigious award. In 2011, UWSOP Dean Emeritus **Sidney Nelson**, '68, received the Volwiler Award.

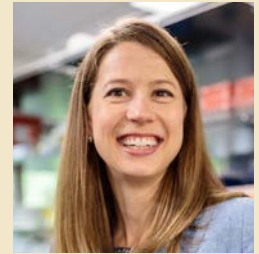


Katrina Claw was honored with a service award at this year's UW Health Sciences Martin Luther King, Jr. Tribute. Katrina's research has focused on pharmacogenomics and the ethical implications of genomic research in Indigenous communities. Her current projects focus on hepatic variation, tobacco pharmacogenomics, and perceptions of genetic research in American Indian communities. Katrina is finishing up her postdoc this academic year and will be joining the University of Colorado School of Medicine as an Assistant Professor in the Department of Medicine, Division of Biomedical Informatics & Personalized Medicine,

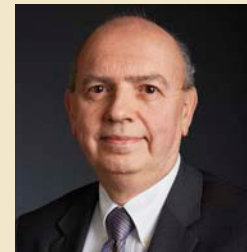


Colorado's Center for Personalized Medicine at the University of Colorado Anschutz Medical Campus.

Research Assistant Professor **Melissa Barker-Haliski** is one of three Institute of Translational Health Sciences (ITHS) KL2



Multidisciplinary Clinical Research Career Development Program Scholars. The KL2 program combines the support and dedication of an individualized program with the benefits of multi-disciplinary cohort to build on translational knowledge. Now Melissa can spend more than half her time working directly with several Alzheimer's disease models to determine how chronic seizures, and their treatment with antiseizure medication, may age-dependently impact the progression of Alzheimer's disease-associated behavioral and nervous system deficits. Prior UWSOP KL2 Scholars include Associate Professor **Yvonne Lin** and Assistant Professor **Cathy Yeung**.



Associate Dean **Andy Stergachis** was appointed to a committee of the National Academies of Sciences, Engineering,

& Medicine to conduct a study sponsored by the Veterans Administration, to assess the long-term health effects of antimalarial drugs used by adults, in particular mefloquine, for the prophylaxis of malaria.

Congratulations to our very own Dean **Sean D. Sullivan**



who has been named an Icon of Pharmacy by his alma mater, Oregon State University. The award honors those who have demonstrated dedication to OSU College of Pharmacy and distinguished themselves with sustained, meritorious contributions to pharmacy throughout their careers. Well done, Dean Sullivan!

LICIT & ILLICIT DRUGS AND MATERNAL HEALTH

Qingcheng Mao collaborates with colleagues across UWSOP to gain insight into how pregnancy affects drug disposition in expectant mothers and their fetuses

About 80% of pregnant women take at least one medication to treat everything from high blood pressure to depression to diabetes and more. The risks for mother and child vary from drug to drug. With almost 12,000 drugs on the market, it's very hard to test all the drugs, how they interact, and how pregnancy can affect the drugs' impact on the body. And it's virtually impossible to test the effect illicit drugs have on expectant mothers and their babies.

For fifteen years, Associate Professor **Qingcheng Mao** has made it his life's work to find another way to predict how licit and illicit drugs affect the mother and fetus. "The mechanisms are still not well understood, leaving these populations vulnerable," he shared. "I want to develop a thorough understanding of the mechanisms by which pregnancy alters how drugs affect the body and particularly the fetus. There is a lot of work we can do in this very important and promising area of research."

First, Qingcheng needed a reliable model to study the mechanisms of drugs and how they impact pregnant women and their babies. Working with UWSOP researchers Professors **Mary Hebert** and **Jash Unadkat**, he was one of the first to demonstrate that the way drugs are metabolized and cleared in pregnant women can be replicated in mice. He then looked at glyburide, a

drug used to treat gestational diabetes that is increasingly prescribed as it is easier to take than insulin. The danger is that babies born to mothers who take glyburide face a number of complications, including respiratory distress, low blood sugar, and more. Qingcheng found one transporter protein that can limit fetal exposure to glyburide by returning the drug back into the mother's circulation, making it safe for the baby. Misuse of licit and illicit drugs, including opioids, can double or triple the risk of stillbirth and cause withdrawal symptoms (neonatal abstinence syndrome or NAS). Buprenorphine and methadone are commonly used to curb the abuse of prescription opioids and heroin, but little was known about their effect on fetuses and infants. Qingcheng was the first to find a mechanism that could induce a protective protein (breast cancer resistance protein [BCRP]) to limit fetal exposure to these drugs, making them safer for the baby when mothers take them to tackle their addiction during pregnancy. Qingcheng's findings have the potential to improve drug safety for mothers and their babies. He plans to continue his research and hopes to look at the effect of cannabis, which is widely used and little studied. His knowledge of these mechanisms increases the ways in which drug safety can be analyzed—saving the lives and health of these vulnerable populations.

7.4% TO 64%

increase in glyburide use for gestational diabetes from 2000 to 2011

2014 UNIVERSITY OF NORTH CAROLINA - DUKE UNIVERSITY STUDY

1 IN 20

pregnant women use marijuana.

CENTERS FOR DISEASE CONTROL AND PREVENTION

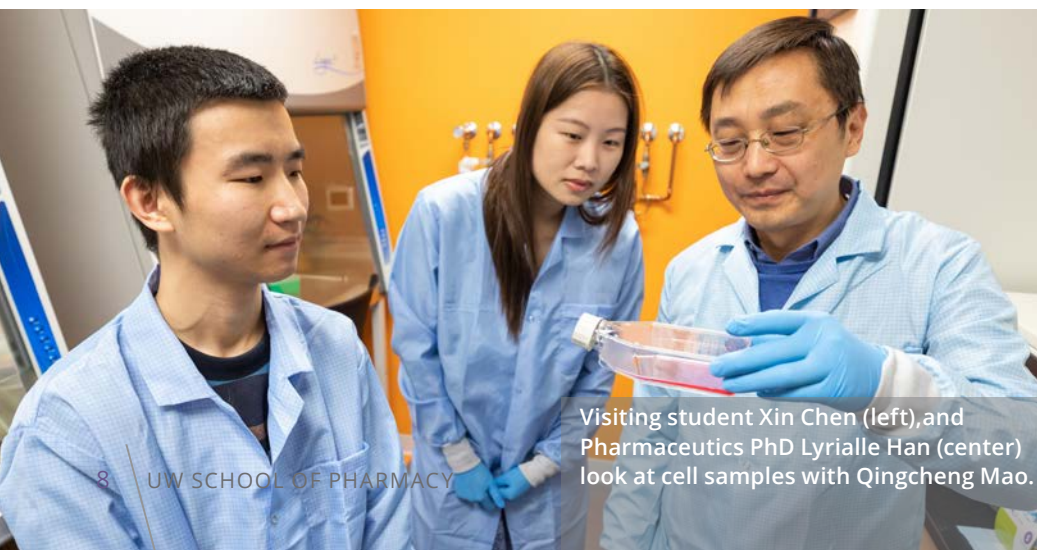
5-FOLD

increase in babies born with withdrawal symptoms (NAS).

NATIONAL INSTITUTE ON DRUG ABUSE (NIDA)

"It's neither ethically feasible nor desirable to conduct clinical studies in pregnant women for ALL drugs. Instead, we look at how pregnancy alters the mechanisms for how the body handles drugs to gain insight into their safety and efficacy."

QINGCHENG MAO, ASSOCIATE PROFESSOR, PHARMACEUTICS



Visiting student Xin Chen (left), and Pharmaceutics PhD Lyrielle Han (center) look at cell samples with Qingcheng Mao.

BUT IS IT SAFE FOR MY BABY?

Mary Hebert and the Obstetric-fetal Pharmacology Research Unit (OPRU) team are exploring how to optimize care for pregnant and lactating women

How do medications for high blood pressure, depression, and even cancer affect pregnant women and their babies? Mothers and health care providers face a daunting challenge of making health care decisions about these vital medications with limited data.

Mary Hebert knows this dilemma first hand. Years ago when she was pregnant, she was faced with a complicated pregnancy herself and was rather frustrated at the lack of data available on the medications she needed. "I thought by the time I was pregnant the second time, there would be more information. But there wasn't," she shared. Given her background as a clinical pharmacist and researcher focusing on medications used in the management of solid organ transplantation, Mary knew she had to do something. Years later, her work on the impact of medications on maternal, fetal and neonatal health continues through two Federal grants.

Mary and her OPRU team are looking at how and why one of the most important drug-metabolizing enzymes has much higher activity in pregnant women than in non-pregnant people. Understanding this phenomenon is critical for drug dosing during pregnancy and has implications for 15-20% of the drugs used clinically. For example, one expectant mother had an abnormal heart rhythm and fast heart rate before she was pregnant, which was managed by a medication that was eliminated from the body by this enzyme. Mary and her colleagues found that pregnancy made

the activity of this enzyme extremely high. Consequently, when this woman became pregnant, again her heart rate went dangerously high requiring emergency hospitalization and incremental increases in the dosage to manage her heart condition. It worked and she delivered a healthy baby at term.

The team approach, including physicians who specialize in maternal and fetal medicine, nurses, social workers, nutritionists, and pharmacists like Mary, through their research and clinical activities makes a profound difference in the quality of patient care for women with complicated pregnancies. "We were the first to study a number of cancer medications during pregnancy to try to understand how dosing is impacted by pregnancy," Mary said. "Although these pregnancies are considered at high risk for complications, these women delivered healthy infants."

Mary was also invited to partner on a National Institute of Child Health and Human Development (NICHD) study exploring medications in breast milk and their effect on the nursing infant. Initially, they are looking at ten commonly used medications, including labetalol (high blood pressure),

metformin (diabetes), and escitalopram (depression and anxiety).

It's vital that women pursue answers for their medication questions when pregnant, rather than just discontinuing them. "It might surprise you that conditions such as depression are not just associated with issues related to maternal mental health, they are also associated with complications such as pre-term birth and low birth weight infants. Sudden discontinuation of chronic medications is often more dangerous than the potential adverse effects of continuing the medications throughout pregnancy. When considering any medication during pregnancy we need to weigh the risks and benefits taking into consideration the underlying condition. Ultimately our goal is to have healthy mothers and healthy babies."

These two grants include a four-year National Institute of General Medicine Sciences (NIGMS) R01 grant (GM124264-02) was funded in 2017 for \$2.3M. The second is a \$79,000 sub-contract from Duke University for a National Institute of Child Health and Human Development (NICHD) grant funded in 2018; BMS01 contract number HHSN- 2752010000031.

"A healthy pregnancy requires consideration of the mother, fetus, and neonate."

MARY HEBERT, PHARMACY PROFESSOR AND DIRECTOR, UW OBSTETRIC-FETAL PHARMACOLOGY RESEARCH UNIT (OPRU)



Mary Hebert and research nurse Maggie Leahy, RN, meet with an expectant mother as part of their study.

A PLAN TO STOP FALLS

UW School of Pharmacy's Shelly Gray and UW Medicine's Elizabeth Phelan team up and receive \$3M grant to identify ways to prevent falls in older adults.

Shelly Gray and **Elizabeth Phelan's** study, "Reducing Central Nervous System (CNS)-active Medications to Prevent Falls and Injuries in Older Adults (STOP-FALLS)," will identify medication safety improvements to reduce fall-related injuries and other adverse health outcomes.

"Falls in older adults are a significant public health issue, and many older adults are on risky medications that may cause falling because they cause side effects such as dizziness, drowsiness and impaired cognitive abilities," said Shelly.

The Centers for Disease Control and Prevention (CDC) grant provides support to study the effect of reducing the use of medications, such as benzodiazepines and opioids, on preventing falls and other unintentional injuries in older adults. These medications are prescribed for conditions such as pain, anxiety and sleep disorders.

The team will study the impact that deprescribing can have on people's safety and reducing the risk of falling, particularly given the impact multiple medications can have on a person's

physical and cognitive functioning.

"We need practical, patient-centered, and health-system-relevant approaches to curtail unnecessary use of CNS-active medications, and prevent their future use, if we are to ever see sustained reductions in fall-related injury rates and avert the adverse, life-changing consequences that result when an older person is seriously injured from a fall," said Elizabeth Phelan, geriatrician and medical director, Fall Prevention Clinic, Harborview Medical Center, and an Associate Professor of Medicine, UW School of Medicine.

Reducing fall rates is important. In just ten years, from 2007 to 2016, the death rate caused by falls for older adults has increased 30% in the U.S. If rates continue to rise, the CDC says we can expect seven

fall-related deaths every hour by 2030. One in five falls causes a serious injury such as broken bones or head injury and sends about three million older adults to the emergency room every year at a cost of about \$50 billion dollars, most of which is shouldered by Medicare and Medicaid.

This award is one of three extramural research cooperative agreements funded (RFA-CE18-004) to focus on medication management of opioids and benzodiazepines to reduce falls among adults 65 and older.

"This study will help health care providers and patients reduce use of these risky medications, including opioids and benzodiazepines, to prevent falls."

SHELLY GRAY PLEIN CENTER DIRECTOR AND SHIRLEY & HERB BRIDGE ENDOWED PROFESSOR OF PHARMACY





Assistant Professor Aasthaa Bansal's team will look at care for colorectal cancer, prostate cancer, and chronic myeloid leukemia. Their approach will extend to other diseases, including pediatric cancers.

66.9%

of cancer patients survive at least 5 years

National Cancer Institute

SUPPORTING CANCER SURVIVORS

Aasthaa Bansal leads an NIH MERIT award-winning team to develop decision-making frameworks to guide post-treatment care for cancer survivors

Despite receiving effective primary treatment, many cancer survivors remain at risk of relapse and associated morbidity and mortality. Surveillance testing using biomarkers and imaging may detect disease recurrence before clinical symptoms manifest and allow for early treatment.

Current guidelines recommend frequent testing in most cancer settings. However, frequent testing involves trade-offs. Many patients are at low risk of experiencing recurrence, and the complications and costs of frequent tests are not justified for these patients. Experts have cautioned against over-testing and advocated for risk-based strategies using the personal clinical history of each patient to provide better tailored care to cancer survivors. Although there is growing recognition

“As more people beat cancer, providers need better tools to help them understand the relative costs and benefits of alternative surveillance strategies and provide more personalized follow-up care to cancer survivors.”

AASTHAA BANSAL, ASSISTANT PROFESSOR, THE CHOICE INSTITUTE

that a one-size-fits-all strategy of frequent patient visits may be suboptimal, there is ambiguity regarding how best to tailor surveillance to individual cancer survivors.

Assistant Professor **Aasthaa Bansal** is leading an interdisciplinary team to carry out research and create tools that seek to shift the paradigm for how routinely-collected patient information is used for clinical management, by innovatively coupling data-adaptive prediction modeling with statistical decision theory. The decision-making framework will evaluate the value of future clinical information and guide patient-level decisions about the optimal frequency of surveillance testing, while taking into account a patient's evolving risk of recurrence. “As a patient's information changes, if they go from low to high risk, for example, their follow-up recommendations will also be updated in this dynamic decision-making framework,” said Aasthaa.

Her team includes CHOICE Professors **Anirban Basu** and **David Veenstra**, as well as researchers from UW Biostatistics and Medicine, Fred Hutch, and Kaiser

Permanente Southern California (KPSC). The framework will be implemented on electronic health record data from KPSC, utilizing rich patient-level information, such as disease history, lab results, and comorbidities in order to inform risk and guide decision-making, which could lead to major advances in personalized medical decision-making. The focus of this grant will be to apply the framework to colorectal cancer, prostate cancer and chronic myeloid leukemia. However, the general methodology developed by the research team could be applied to any disease setting where ongoing surveillance is a major component of patient care. “We are creating an approach that we plan to extend to other diseases, including pediatric cancers, where similar open questions exist,” reflected Aasthaa.

The NIH deemed her project so significant, they granted the team \$2.2M for 5 years and up to 2 additional years of funding through a Method to Extend Research in Time (MERIT) Award. MERIT Awards provide long-term grant support to investigators whose research competence and productivity are distinctly superior and who are highly likely to continue to perform in an outstanding manner, according to the NIH. In 2016 and 2017, only eight MERIT awards were granted each year across all of NIH.

The National Cancer Institute of the National Institutes of Health funded this R37 grant (1R37CA218413-01A1) for \$2.2M.

1894-2019

125

YEARS OF INNOVATION

EVERY MEMBER MATTERS

Over	Hosts	Funds
350	5	2
active	alumni	scholarships
members	celebrations	annually

Join PAA today

giving.uw.edu/PAA

Celebrating
125 years
of
history

Fall 2019



Dawg Scripts is brought to you by the Pharmacy Alumni Association members.

Thank you!

Eileen Patricia (Pat) Tanac, '45

Pat Tanac passed away December 3, 2018 at the age of 96. She was born in 1922 in Snoqualmie, WA. Pat attended 1st and 2nd grade, sporadically. She was diagnosed with Tuberculosis in the 3rd grade, spending 6 months in bed. Her mother taught her through the 8th grade, at home. Pat was home schooled before the word was coined! She entered Tolt High School as a freshman, graduating in 1940. The following year, she was the housekeeper for a family on Queen Anne Hill, and then entered the University of Washington School of Pharmacy. During school, Pat worked part-time at Stoneway Pharmacy and, later, at Hart's Apothecary Shop. After graduating in 1945, she chose to work for L.D. Bracken Pharmacy on 2nd Ave. in Seattle, for 5 years. Pat met **Robert Tanac**, '47, of Everett, WA, in pharmacy school. He left sophomore year to join the Army until he was discharged in 1945. He returned to UW and finished pharmacy school. He and Pat were married February 24, 1946. Pat was one of 2 co-founders of Chi Collegiate Chapter of Lambda Kappa Sigma, the professional fraternity for women in pharmacy. She remained active in the local Chi Alumni Chapter until her death, as well as serving as Grand Secretary and Grand President in the National Organization in the 1960s. Following graduation, Pat worked for L.D. Bracken (attended 1912-1913) and later worked part time at various community pharmacies. She is survived by Robert (Bob), daughter, Joyce Tanac Schroeder, College of Pharmacy Class of '74 and son, Wesley Tanac. She had 4 grandchildren and 3 great grandchildren.



Gordon (Gordy) Tweit, '52

Gordy Tweit, age 92, passed away peacefully on Saturday, December 22nd at Whatcom Hospice House. He was born June 4, 1926 in Bellingham



and worked in Fairhaven Pharmacy as a delivery boy. Gordy graduated from Bellingham High School and served in the U.S. Navy during WWII. In 1952, he earned his degree in Pharmacy at UWSOP. He later owned and operated the Fairhaven Pharmacy from 1962-1991. The business was established in 1889 as D.P. Mason Drug and soon evolved into Fairhaven Pharmacy and was mostly owned by Husky Pharmacists, including **Robin Johansen**, '70, who bought it from Gordy. He loved serving the community in the great tradition of independent pharmacists and was an avid maritime history buff and photographer. Every week, he walked down to the Alaska Ferry to take photos of people coming and going into Fairhaven. Tweit retired in April 2008, but still did odd jobs at the pharmacy. Gordy held a museum-quality collection of early pharmaceuticals, Fairhaven memorabilia, doctors' tools, and other odds and ends filled the pharmacy's basement, attracting tour groups and community members alike—some of those pieces are now on display at UWSOP. Gordy was well-known and well-loved by his family and friends. He was preceded in death by his sister Norma and his niece Linda; his sister Eloise passed on January 7, 2019. Gordy was survived by his nephew Michael Sea (wife Patty), nieces Marilee Richards, Mary Jo Wilkins (husband Clark) and Cindy Rall, ten grandnephews and nieces.

Albert Arthur (Al) James, '55

Albert Arthur (Al) James, adored father, husband, colleague and friend, passed away peacefully after a battle with Alzheimer's disease, on October 3, 2018. Born in 1932, in Seattle, Al graduated from Roosevelt High School in 1950 and served in the Naval Reserves as an aviation radioman. Al worked through college as a journeyman drywall finisher with his father and in 1955 graduated from UWSOP. After a brief stint working at Bartell Drugs, Al joined fraternity brother Oscar Sandberg in building the House of Values discount store chain, which grew to seven stores before being



sold to Payless Drug Stores. The company became known locally for retail innovation and as a pioneer in offering profit sharing to employees. After House of Values, Al's entrepreneurial pursuits included active partnership roles in Alpine Windows, Anthony's Restaurants, and First Western Bank. Al shared his love of skiing with his family (first wife Betty, and children Linda, Mike and Colleen) spending vacations and weekends on the slopes. In later years, Sun Valley was a second home where he skied strong and fast into his 80s with kids, grandkids and great grandkids. When Al married his loving wife of 30 years, Carolyn Patnode James, he welcomed her twin sons Troy and Tracy into his family. Al was an inspirational soul who brought kindness and generosity to his extended family which includes 5 children, 7 grandchildren and 3 great-grandchildren. He never tired of supporting others and encouraging them to be the best they could be.

Dana Hadfield, '75

On Sunday, December 2, 2018, Dana Hadfield, loving wife and stepmother of two children, passed away at the age of 66. Dana was born in 1952 in Seattle, WA to Walter and Joyce Barnum. She earned a Pharmacy degree from the University of Washington in 1975 and was a practicing Pharmacist for 33 years in the Seattle area. She was prominent at the UW where she began the first Pharmacist-managed anti-coagulation service and initiated the first outpatient clinic Refill Authorization Center. On June 4, 1983 she married Joel Hadfield and helped raise his two children, Brian and Holly. Dana had a passion for music; she enjoyed her time playing cello with her quartet and her time spent at music camp. She loved to travel with Joel and her frequent trips to Mexico with friends and family were always the highlight of her year. She was known for her love of all animals and her kind and compassionate spirit. Dana was preceded in death by her father Walter, mother Joyce and brother Eric. She is survived by her husband Joel, sister Gail, stepson Brian and stepdaughter Holly.





This year over 140 UW community members were at this year's Legislative Day including alumni **Jenny Arnold**, '06, **James Lin**, '16, **Victoria Pham**, '17, **Simeon Roth**, '17, **Jeff Rochon**, '99, and faculty **Don Downing**, '75, and **Jenny Bacci**, along with a large contingent of PharmD students. New this year was the opportunity to meet with two UWSOP alumni—**Vandana Slatter**, '90, and **My-Linh Thai**, '92—who serve as state representatives. (Also, please join us in congratulating **Jeff Rochon** on being named American Pharmacists Association-Academy of Pharmacy Practice and Management's (APhA-APPM) fellow!)

The UW **Pharmacy Alumni Association** recently announced this year's Distinguished Alumni Award recipients. Congratulations to CHOICE Institute alumnus, **Jonathan Watanabe**, PharmD, PhD, '08, '12, who was selected as the DAA Pharmaceutical Sciences and Research recipient and **Timothy Fuller**, BSPHarm, '69, who was selected to receive this year's UWSOP Pharmacy Alumni Association Distinguished Alumni Award for Pharmacy Practice. Jonathan and Tim will be honored at the May 8, 2019, Dean's Recognition Reception, following the annual Don B. Katterman Memorial Lecture. This year's lecture will be a panel discussion about the opioid prescribing and abuse epidemic. To register for the lecture and reception, please go to: events.uw.edu/kldrr19.

Congratulations to **Klarissa Jackson** who joined the faculty at University of North Carolina Eshelman School of Pharmacy. Klarissa was a post doc in former Dean **Sid Nelson** and **Allan Rettie's** Med Chem labs.



WSPA honored numerous UWSOP alumni for leadership, including: **Holly Henry**, Plein Certificate alumna, clinical affiliate faculty member **Ken Kenyon**, **Ryan Oftebro**, '03, **Bev Schaefer**, '70, **Steve Singer**, '81, **Ann Wittkowsky**, '88. New WSPA board members include **Megan McIntyre**, UWSOP clinical affiliate faculty, who will serve as the President Elect and **Jennifer Wilson Norton** has been re-elected Pharmacist Director. Congratulations to the UW 2019 WSPA Board Members: **Jennifer Bacci**, faculty representative, and student board members, **Erin Williams**, PY3, Senior Liaison, and **Kyessa Hudson**, PY2, Junior Liaison.



Welcome to the pharmily Luna Ching (left, daughter of **Diana Lui**, '14, born October 22, 2018) & Lydia Youm (right, daughter of **Louisa Chu** '08, born August 30th, 2018). Louisa and Dianna are close friends & hope their daughters will be too!

CONGRATULATIONS CLASS OF 1969



LOOKING BACK ON 50 YEARS OF IMPACT

Created one of the
FIRST
class endowments at UW

Supported
23
students since 2011

Celebrating
50
years of pride being a
Husky Pharmacist

Tim Fuller is the 4th member of the Class of 1969 to be awarded the Distinguished Alumni Award for Pharmacy Practice.

Prior recipients include Bill Fassett, Gayle Hudgins Cochran, and Dennis Smith.

Share your class memories with rxalumni@uw.edu or call **206.616.7613**



Class of 1988—Celebrating 30 Years

Mamma Melina & UW Seattle, September 21-22, 2018

Alumni from the class of 1988 celebrated by returning to campus for a weekend of celebration including a tour of campus, reunion dinner, and a football tailgate with fellow PAA Members.



Dean's Club Fall Harvest Wine Tasting

Estates Wine Room, Seattle, October 10, 2018

Alum Casey McClellan, '83, brought a selection of wines from his family-owned winery for Dean's Club members to enjoy at the second annual Fall Harvest Wine Tasting Event. (Casey, left, with UWSOP faculty member Don Downing, '75.)



Alaska Airlines Dawg Dash

UW Seattle, October 14, 2018

Team #HUSKYPHARMACIST joined together for the second year to represent the UW School of Pharmacy at the annual UW Alumni Association's Alaska Airlines Dawg Dash.



Phil & Sandra Nudelman Endowed Lecture

UW Seattle, October 24, 2018

Panelists at the 3rd annual Nudelman Endowed Lecture discussed how to change, reinvent, and re-imagine health care. (Pictured above Phil, '64, and Sandra Nudelman with family.)



Dean's Scholarship Reception

UW Seattle, February 27, 2019

"I am a proud second-generation Husky Pharmacist!" said Marissa Craig, PY3, Scholarship Reception Student Speaker, pictured with Dean Sean D. Sullivan, and her mother, Barbara Tolliver-Craig, '87.



Pharmacy Alumni Association Tailgate

UW Seattle, March 9, 2019

Board member Christy Weiland-Hamilton, '07, son Elliott and husband Mitch Hamilton proudly sported their purple Husky gear at the PAA Tailgate and Men's Basketball game.

Go GREEN!

Save paper and get a digital version of Dawg Scripts!
Just email rxalumni@uw.edu and let us know.

125
ALUMNI LEGENDS

Calling all alumni and friends!

To celebrate our 125th anniversary we are collecting nominations for our new Alumni Legends Project, which aims to gather a wide range of stories that show the impact our alumni have on their communities and the world. Stories could range from the community pharmacist who became the anchor of their community, to the multi-generation Husky Pharmacy families, to the trailblazing researchers and advocates who are changing the world.

Nominate someone here:
bit.ly/AlumniLegends

1894 - 2019

125
YEARS OF INNOVATION