

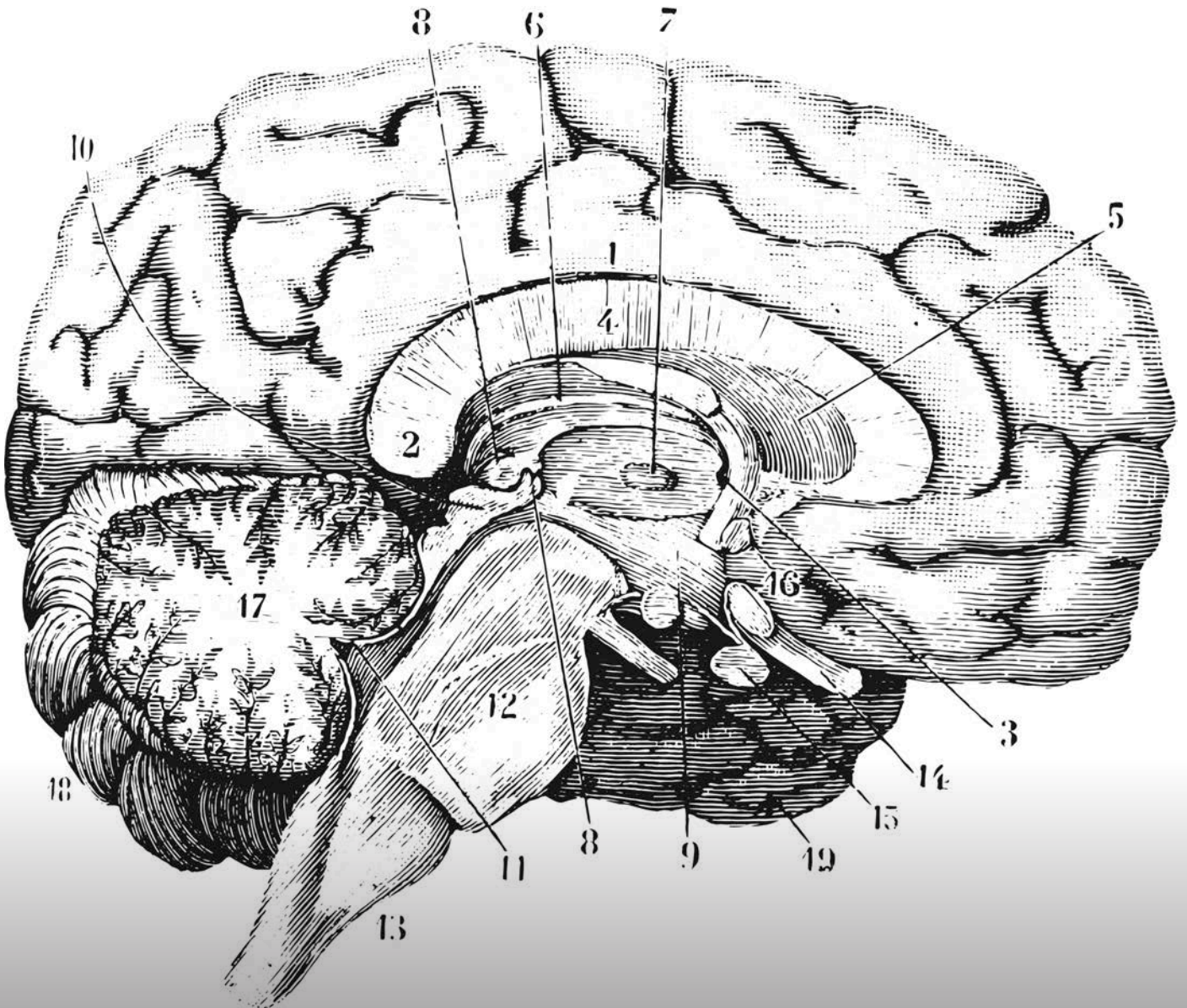
PHARMACY ALUMNI ASSOCIATION
& SCHOOL OF PHARMACY NEWS

DAWG SCRIPTS

FALL 2018

IN-DEPTH:

ALZHEIMER'S DISEASE, DEMENTIA, & EPILEPSY



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, GradImages, Sarah C.B. Guthrie, Matt Hagen, Alex Levine, Clare McLean

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

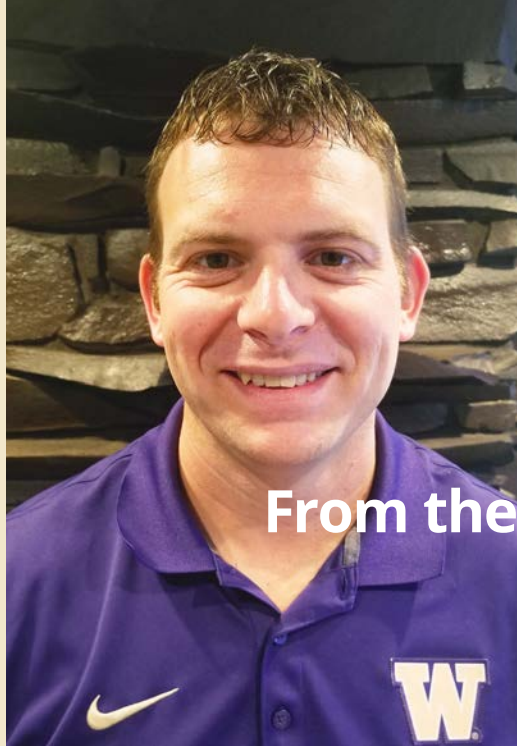
 www.linkedin.com*

 @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: Middle and anterior-posterior section of the brain, vintage engraved illustration. Usual Medicine Dictionary by Dr Labarthe, 1885. Copyright Patrick Guenette.



From the PAA President

Thank you for the opportunity to serve our community of alumni! As the incoming President for the Pharmacy Alumni Association, I could not be more excited about the future for us as alumni of the best School of Pharmacy, bar none.

For those who don't know me, I am the Chief Operating Officer of the Kelley-Ross Pharmacy Group and a proud member of the PharmD class of 2003. I've been a member for many years and served on the PAA Board since 2016. I am honored for the chance to serve our School, PAA, and our alumni. Please join with me in thanking **Gary Harris** for his service to the School and for his leadership as PAA President. I'd also like to thank **Dean Sullivan** for his support of PAA and the important role PAA plays in keeping us all connected.

In the past year, we have seen fantastic—often sold out—events which gave us all new ways to connect and network with members of our community. The PAA #HuskyPharmacist team was the largest at last year's Alaska Airlines Dawg Dash. We established new traditions, like the Husky Basketball Tailgate in February, the PAA Tailgate on Rainier Vista held at the September 22nd game against Arizona State, and more that we will continue this year.

Not surprisingly, all of these lively events meant we saw unparalleled growth in our membership as many of you renewed, rejoined, or joined PAA for the first time. Thank you! We are so glad you are part of PAA.

Team #HuskyPharmacist will be leading the pack again at the Alaska Airlines Dawg Dash on Sunday, October 14th—be sure to register your whole family for fun and special swag!

I encourage each of you to get involved with PAA! Email RXalumni@uw.edu and let's talk about how you can support PAA, whether it's on the Board or serving on a committee or volunteering. You'll get a chance to make a difference for your school, share your leadership skills, and connect with alumni friends who are passionate about the UW and Pharmacy.

I look forward to seeing you at an upcoming event. GO DAWGS!

Scott Herzog, '03, President, Pharmacy Alumni Association

To register for one of these upcoming Pharmacy Alumni Association (PAA) events, please go to:

sop.washington.edu/events



From the Dean

IN THIS ISSUE, WE ARE GOING IN-DEPTH TO HIGHLIGHT ON OUR WORK IN ALZHEIMER'S DISEASE, DEMENTIA, AND EPILEPSY.

One of the hallmarks of the UW School of Pharmacy is our collaborative approach to problem-solving, whether in the classroom or research lab. Throughout this issue, we will tell this story by looking across disciplines to showcase how faculty, staff, and students are working together to improve the lives of patients, families and communities struggling with epilepsy and Alzheimer's disease and related dementias (ADRD). The need for innovative solutions is urgent. Every sixty-five seconds, someone is diagnosed with Alzheimer's disease. One in 10 people age 65 and older has Alzheimer's disease. Almost two-thirds of Americans with Alzheimer's disease are women. Fifty million people are living with dementia worldwide. And, one in 26 people will develop epilepsy at some point in their lifetime. Through our collaborative work, we hope to find solutions and new approaches to managing and preventing these devastating and costly diseases. Addressing the myriad problems faced by patients and families with these diseases takes a multi-faceted approach. In the School of Pharmacy, we have researchers working to find new ways to diagnose and treat these conditions. And importantly, the research we do impacts how we train our student pharmacists and graduate researchers who work alongside our faculty on their research. Research and teaching are synergistic and complementary – something we are very proud of at the UW.

In the Fall of 2019, we roll out a new PharmD curriculum, designed to train our students to be health care practitioners and leaders on an interprofessional health care team. We have always led in Interprofessional Education and the new curriculum expands this direction. Even our instructional methods to teach our students will be different. Integrated foundational science and clinical therapeutics instruction in an active learning environment will characterize the new curricular model. Read more about the new curriculum in these pages.

This Autumn marks 124 years since the School was founded in 1894 in Denny Hall. We have a host of great events, lectures, and gatherings to connect and inspire you. Thank you for your continued support and I look forward to seeing you at an event in the near future!

Thank you and go DAWGS!



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

UPCOMING EVENTS

Dean's Club Fall Harvest Wine Tasting **Sold Out**

October 10, 6 p.m.

The Estates Wine Room
Seattle, WA

Alaska Airlines Dawg Dash

Register for Team #HuskyPharmacist

October 14, 9 a.m.

UW Seattle, WA

Phil and Sandra Nudelman Endowed Lecture

October 24, Doors open 5 p.m.
Lecture begins at 5:30 p.m.

Alder Auditorium, Alder Hall
UW Seattle

UWSOP Scholarship Reception

February 26, 2019

UW Seattle, WA

Plein Center Research Day

March 21, 2019

Center for Urban Horticulture
UW Seattle, WA

OUR IMPACT: Alzheimer's Disease, Dementia, and Epilepsy

Faculty at the UW School of Pharmacy are conducting transformative research into the causes of and treatment for Alzheimer's disease (AD) and epilepsy. Advances being made today will likely contribute to the identification of disease specific biomarkers and new therapies that will hasten diagnosis and lessen the impact of Alzheimer's disease and related dementias (ADRD) and decrease the

burden of epilepsy. Declining cognitive function is a growing population health challenge in AD, chronic epilepsy and other neurodegenerative diseases and researchers working with colleagues across all departments in the School of Pharmacy and the UW Health Sciences, are poised to make breakthroughs that will improve the lives of patients, their families, and their communities.



Working towards a therapy for Alzheimer's doesn't always follow a direct path. Learn what happens when a leading drug transport expert's team hits a wall and has to find a new way.

Jash Unadkat—Page 11
Milo Gibaldi Endowed Professor, Pharmaceutics



A missed dose of medication may be one of the most under-reported reasons for an unexpected seizure. Read about this innovative research that could change how clinicians and pharmacists address this issue.

H. Steve White—Page 15
Professor & Chair, Pharmacy



Abhi and his team continue their work to find ways to diagnose Alzheimer's and other cognitive degenerating diseases, along with testing drugs already on the market as possible therapies.

Abhinav Nath—Page 10
Assistant Professor, Medicinal Chemistry



The number of Alzheimer's patients having seizures is on the rise, but there is little research in this area. Melissa's findings show why clinicians should ask their ADRD patients about seizures.

Melissa Barker-Haliski—Page 8
Research Assistant Professor, Pharmacy



What if there was a new way to diagnose Alzheimer's Disease and Related Dementias? What if a review of your drug and health history could yield clues? Doug Barthold is working on it.

Doug Barthold—Page 17
Research Assistant Professor, Pharmacy



Zach Marcum's work looks at medication non-adherence as a potential clue for earlier detection of ADRD. He is also searching for already approved drugs that can be repurposed as a dementia prevention strategy.

Zachary Marcum—Page 16
Assistant Research Professor, Pharmacy



At Era Living, Leigh Ann Mike and Jennifer Wilson-Norton and serve as faculty preceptors to UWSOP PharmD students. Together the UWSOP team educate the older adult residents, making progress in preventing flu.

Leigh Ann Mike Clinical—Page 14
Associate Professor, Pharmacy and Jennifer Wilson-Norton, '93
Clinical Associate Professor, Pharmacy



The impact of epilepsy,

60M

People worldwide with epilepsy and other seizure disorders

People worldwide with uncontrolled epilepsy and other seizure disorders

20M

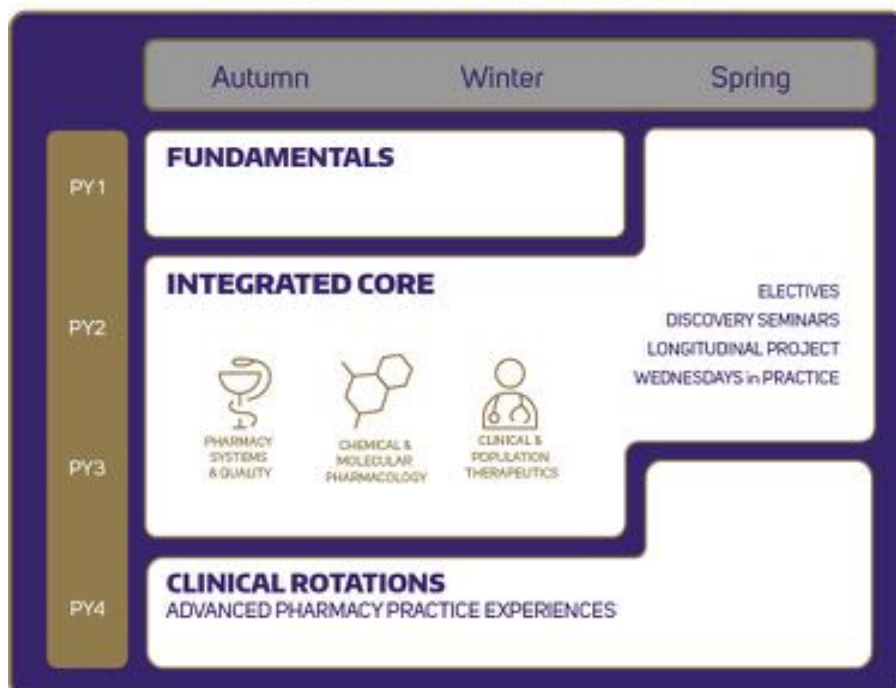
Curricular Innovation: Preparing the next generation of Husky Pharmacists

As more chronic illnesses—including dementia and Alzheimer’s disease—become treatable with medications, the role and the importance of the pharmacist on the health care team continues to grow. Our student pharmacists are well-prepared for this growing role, as evidenced by the leadership and successes of our alumni. To continue the tradition of the successful Husky Pharmacist, the School of Pharmacy leadership and faculty decided to build for the future, working openly and collaboratively with our external partners, alumni, and students to develop a curriculum that will keep us ahead of the curve as health care continues to evolve in the coming decades. Much of this need was revealed through the inclusive Strategic Planning process the School undertook several years ago. To achieve the benchmark of an unparalleled education, there was a call to “Strengthen interprofessional and patient-centered training in

“Our curriculum is already in the forefront among schools of pharmacy. That said, to hold our place as a global leader in pharmacy training, we knew that if we didn’t review and innovate now, that ten years from now, we would be behind.”

PEGGY ODEGARD, ASSOCIATE DEAN, PHARMACY EDUCATION

CURRICULUM FRAMEWORK



alignment with emerging, integrated health care models.” Now the project has shifted to the next critical phase: course design and development as

our faculty work out the details of the refreshed approach. Elements of the new Husky Pharmacist curriculum that are now confirmed: increased Experiential Education

time through a new “Wednesdays in Practice” series, which runs from the beginning of the program through the fall of the third year, two 3-week Introductory Pharmacy Practice Experiences, and eight Advanced Pharmacy Practice Experiences spanning 48 weeks. The integrated core curriculum will allow focused learning in a coordinated sequence of topic areas. The full updated curriculum will be implemented starting in the fall of 2019. Aspects of the curriculum, including leadership development and enhanced alignment of the core curriculum will begin this Fall 2018.

Alzheimer’s Disease and related dementias

16.1M

People, often family members, provide unpaid care for people living with Alzheimer’s disease and related dementias

Every 65 seconds

Someone in the U.S. develops Alzheimer’s disease

In 2018, Alzheimer’s disease and other dementias will cost the nation

\$277 Billion

Elements of the Husky Pharmacist Curriculum: Looking ahead to Autumn 2019

What's emerging is a curriculum that elevates the best of what's already working so well at UWSOP.

- We will increase our experiential education training from 42 to 54 weeks, comprised of two 3-week Introductory Pharmacy Practice Experience (IPPE) rotations and six 8-week Advanced Pharmacy Practice Experience (APPE) rotations over 48 weeks.
- A new "Wednesdays in Practice" series, that runs from the start of the program through the fall of the 3rd year, will create more experiential learning opportunities.
- Our classes remain small so our students can form close connections with their faculty and peers.
- We hire world-class faculty. We are consistently ranked in the Top 10 world wide for pharmacy, based on our faculty's productivity.
- The Puget Sound region stands out in health care systems, not just because of the University of Washington, but also our partners at Fred Hutch, Seattle Cancer Care Alliance, the Bill and Melinda Gates Foundation, and more.
- Pharmacists in Washington state practice at the top of their license. We train our students to be prepared for providing that level of care.
- We are national leaders in Interprofessional Education. Our students benefit from our close ties and collaborative training with 5 other health sciences: medicine, nursing, dentistry, public health, and social work.

In the new curriculum, students will begin with a learning foundation, followed by continuous development of

concepts and skills in an integrated, sequenced, 6-quarter core curriculum culminating in a formalized Provider Readiness Experience course prior to transition APPEs.

- The curricular foundation: An introductory, 2-quarter fundamentals foundation starts in the first year to transition students to the rigors of the professional program, with a core foundation in areas of patient care, pharmaceutical and therapeutics sciences, professionalism, evidence-based medicine, and communication.
- A chance to practice and reflect: A skills learning lab, evidence-based case conference, and Wednesdays in Practice will track with students throughout the program to support their development from a beginner level to advanced level of readiness for APPEs
- The core learning continuum: Three major components highlight an integrated core curriculum that begins after the fundamentals and continues until the APPEs
 - Pharmacy systems and quality – a series dedicated to learning about health systems, quality and safety, population health, law, ethics, and the evidence basis of treatments;
 - Chemical and molecular pharmacology – an integrated sequence of medicinal chemistry, pharmacology, and pharmaceuticals aimed to provide students with the foundational sciences to be an effective pharmacist provider; and
 - Clinical and population therapeutics – a core series designed to support learners with both a patient-centered and population-level understanding of the treatment and prevention of illness.



A student perspective on the Husky Pharmacist Curriculum

As part of the open planning process, members of the Dean's Advisory Council of Students were very involved. We asked Calan Eyley, '18, for his perspective on the new curriculum.

Q: What are you excited about in the new curriculum?

A: I'm excited about the integration of practice throughout the early portion of the program. As students in our first year, we didn't always understand why we were learning certain things. By our second year when therapeutics began, we began to piece the puzzle together. More links between classroom learning and what happens in practice will solidify the information in students' minds. Another part of the curriculum that I'm particularly excited about is

the additional weeks that students get to spend in rotation; it will be beneficial in cementing what's learned.

Q: How is the new curriculum different from what you see at other Schools of Pharmacy?

A: The addition of the Wednesdays in Practice, along with the expansion of the 4th year rotations (APPEs), are what really distinguish our curriculum from other schools.

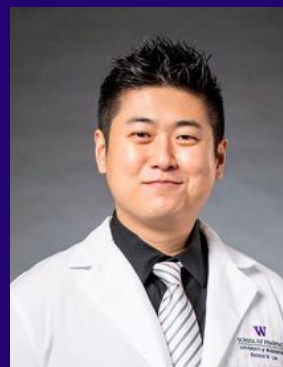
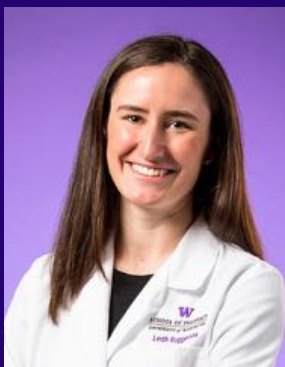
Q: How do you see these changes benefiting our students, the pharmacy profession, and patients' access to care?

A: Students will get pharmacy practice experience right away, which will supplement the learning in the classroom, leading to the "Husky Pharmacist"—a competent and confident health care provider who encompasses patient care, leadership, and service to the public.

Leah Ruggone, '18, and PY3 student **Richard Lee** were both selected for the UW Husky 100 from the School of Pharmacy this year. Each year, the Husky 100 recognizes 100 UW undergrad and grad students who are making the most of their time at the UW.

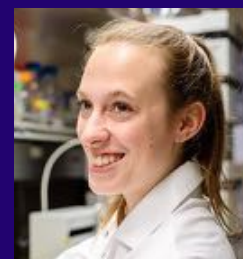
Leah grew up in Kenmore, WA, and attended UW as an undergrad, majoring in biology and spent summers working with fisherman in a small Alaskan town. The 12-14 hour days, 7-day workweek prepared her for a career in the health sciences: "I learned a lot about hard work and communicating with diverse people." For Leah, Pharmacy brings together the chance to care for people and her love of chemistry. She's worked as an Educational Assistant with PY1 pharmacy students, volunteered at Kiwanis Camp Casey for kids with physical disabilities, and served in several leadership roles at UWSOP. Her Advanced Pharmacy Practice Experience (APPE) rotations brought experiences working with HIV patients, NICU infants, and older adults at Era Living. She learned to understand how different patient populations may struggle with their medications. "My advice to other students is to really get involved and take part in as many outreach events as you can," she shared.

Richard applied to be an undergrad at the UW by candle light and paper forms after a typhoon devastated his community on the island of Guam. He was interested in pharmacy to help support his father



who is battling cancer. A UW Global Brigades trip to Panama in 2013 changed his life's work. Serving as campus chairperson he leads multiple brigade teams annually. He realized people in developing countries couldn't afford EpiPens and there is no 911 to call in remote towns. After vetting the idea of a low-cost autoinjector, he began the EpiForAll project, a low-cost EpiPen with UW Engineering colleagues. They have since won multiple business development awards, been issued a utility patent, and are expanding a patent portfolio. Richard shared, "My uncle pioneered liver transplant surgery, conducting the first German liver transplant in 1969. His accomplishments motivate me to have a wider impact on the world. My father's service for those in need has driven me to helping the underserved, domestically and globally."

Medicinal Chemistry graduate student **Eleanor Vane** recently completed a 12-week internship at Seattle Genetics. "It was a great experience. My time at Seattle Genetics showed me how the techniques I use in lab are applicable to the real world," said Eleanor. During her internship Eleanor worked on characterizing therapeutic proteins—a change of gears from her dissertation research with **Abhi Nath** on antimicrobial peptides. Internships, often arranged through partners on the UWSOP Corporate Advisory Board, provide unique opportunities for students to broaden their skill sets and gain first-hand experience of non-academic careers.



Second year Pharmaceutics PhD student **King Yabut** is among this year's cohort awarded a two-year pre-doctoral T32 NIH training grant through the Pharmacological Sciences Training Program. Based in **Nina Isoherranen's** lab, King is focused on cannabis metabolism and the role of fatty acid binding proteins in directing THC metabolism and pharmacology. **Nathan Alade** in (**Ken Thummel** lab) focuses on diet, genetic variation and hepatic vitamin K status in Alaska Native and Northwest American Indian populations. In Med Chem, **Amy Li** (**Libin Xu** lab) is studying diseases related to cholesterol metabolism and **Hayli Larsen** (co-mentored by **Bill Atkins** and **Abhi Nath**) is studying therapeutic antibodies.

Mark Bounthavong, '18, has been nationally recognized by the U.S. Dept. of Veterans Affairs and was invited to speak about improving medication safety for veterans. Mark's wants to educate providers using unbiased, noncommercial evidence to provide the best care for Veterans. Additionally, Mark and his team were awarded the American Society of Health-System Pharmacy Best Practice Award for their work on using trained clinical pharmacists to engage in academic detailing with Veterans Health Administration providers in order to augment their opioid and naloxone prescribing through behavioral modification.





Melissa is a neuropharmacologist with a passion for understanding how drugs work in the body. Her research is supported by the UW Royalty Research Fund and the UWSOP Plein Fund Endowment. She and her team will present findings in December 2018 at the American Epilepsy Society meeting. Melissa works in a collaboration with Suman Jayadev, associate professor of neurology at UW Medicine and the clinical core director of UW's Alzheimer's Disease Research Center.

Melissa Barker-Haliski's novel research looks at the understudied problem of epilepsy in patients with Alzheimer's

People with Alzheimer's disease can have up to an 87-fold increased risk of seizures. Patients with early-onset Alzheimer's have the highest risk for seizures, but even late onset Alzheimer's disease patients are at high risk. Despite the risks, little is known about how genes associated with Alzheimer's disease may affect a person's susceptibility to seizure across their lifespan. Even less is known about whether anticonvulsant drugs, which, historically, have been tested in young-adult animal models, are effective and well-tolerated in older populations, including those with Alzheimer's. Plein Center researcher Melissa Barker-Haliski hopes to answer this question using preclinical mouse models with Alzheimer's disease-associated genetic risk factors. Melissa is a neu-

ropharmacologist with expertise in preclinical epilepsy models for anticonvulsant drug discovery. In collaboration with neurogeneticist and UW School of Medicine's Suman Jayadev, MD, Melissa and her team are investigating how seizures in these models affect the disease trajectory and cognitive outcomes of mice, as well as how anticonvulsant drugs affect seizure control in mice with these risk genes. Using a mouse model with a mutation in one of the most common early-onset Alzheimer's disease-associated risk genes (presenilin 2 [PSEN2]), they see how age affects the mice's susceptibility to seizures and whether those seizures age-dependently respond to available anticonvulsant medications. Her research shows many of the approved anticonvulsant medications reduce seizures in aged mice that carry the PSEN2 mutation. These findings

suggest that if a patient is having seizures and has an Alzheimer's diagnosis, they can effectively use anticonvulsant therapies to stop their seizures. However, clinical studies in Alzheimer's disease patients are still needed. Melissa's work points to the potential positive impact anticonvulsants have on seizures in adults with Alzheimer's disease, and also may inform anticonvulsant medication usage in the general population of older adults. From a clinical perspective, the good news is Melissa's preclinical research aligns with the few clinical studies demonstrating that anticonvulsant drugs often

"An implication of our findings is that patients with Alzheimer's disease would benefit if clinicians and neurologists examined their patients early in the disease course to determine if they are experiencing seizures."

MELISSA BARKER-HALISKI, RESEARCH ASSISTANT PROFESSOR, PHARMACY

work well in older adults, which may indicate their seizures can be controlled. People with Alzheimer's disease commonly present with seizures that are not the "grand mal" type with generalized tonic-clonic convulsions. Seizures in older adults are often focal or what's historically called complex partial seizures—which can seem like a mild stroke or may be called a "spell"—and may be disoriented afterward. These seizures can be difficult to distinguish from common symptoms of Alzheimer's disease, making it challenging for clinicians, patients, and their families to recognize when and if seizures occur, delaying anticonvulsant use. Some anticonvulsant drugs can even impair cognitive function in patients with epilepsy, so their use in people with Alzheimer's disease is a decision clinicians, patients, and their families should weigh carefully, given their promise to help. Melissa's work provides preclinical evidence that will inform the clinical studies of seizure control in patients with Alzheimer's disease.

UW ranks 4th world-wide in Pharmacology & Toxicology, which includes Pharmacy

in the National Taiwan University (NTU) ranking. Overall the UW is No. 4 in the U.S. & No. 6 world-wide. The ranking is based on scientific papers, reflecting research productivity, impact & excellence.



Pharmacy's **Brian Werth** and Med Chem's **Libin Xu** were awarded a 4-year, \$1.86 million NIH R01 grant, as principal and coinvestigator respectively,

to continue their novel research into antibiotic resistance mechanisms in the superbug, methicillin-resistant *Staphylococcus aureus* (MRSA). With Libin's expertise in ion mobility-mass spectrometry (IM-MS) analysis of lipids and Brian's expertise in antibiotic resistance, they are working to understand the mechanisms of cross-resistance among antibiotics that target the bacterial cell membrane and cell wall. This work could lead to the identification of novel targets for resistance-modifying therapeutics or more sensitive diagnostics to detect resistance.

The 6th annual Summer internship for Indigenous peoples in Genomics (SING) workshop on pharmacogenomics was held at the UW this summer, organized by **Katrina Claw** and cosponsored by NWA-PGRN & Pharmaceuticals.



Pharmaceuticals Professor **Rodney Ho** was honored with the Asian American Science and Engineering Innovation Award at the 2018 Asian American Luminary Awards.



Professor Emerita **Jane Sisk** was elected to the Washington State Academy of Sciences.

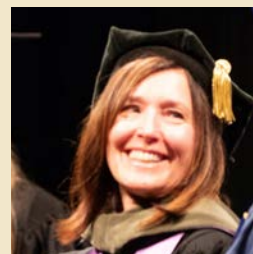
Congratulations to **Jash Unadkat**, the Milo Gibaldi Endowed Professor of Pharmaceuticals, named Outstanding Faculty Mentor at this year's

Commencement. The Outstanding Mentor Award recognizes and encourages outstanding mentorship of graduate students by our School's faculty. The criteria for this Award include extraordinary commitment and effectiveness as a mentor and demonstrated commitment to creating an environment supportive of graduate students' success. A graduate student wrote, "Jash truly inspires me to be inquisitive and ask questions, think broadly, read widely, pay attention to detail and never for-



get the passion for science I first brought with me....Jash is an outstanding example of dedication to his calling. His contagious enthusiasm and voracity for knowledge has been passed onto many generations of students."

Congratulations to Associate Dean **Peggy Odegard**, '85, '90, who received the Gibaldi Excellence in Teaching Award at this year's UWSOP Commencement Ceremony. The award is presented by Pharmacy graduates to a member of the faculty in recognition of outstanding efforts to enhance student learning.



Jenny Bacci, Peggy Odegard, and the team at Project VACCINATE won the Immunization Champion Award at the National Adult and Influenza Immunization Summit in Atlanta, GA!

In an interview with The UW Daily student paper, **Peggy Odegard** told the UW Board of Regents that the new Health Sciences Education building will "offer the flexibility & adaptability necessary to allow health care professionals to work together as teams."

CHOICE Institute Assistant Professor **Aastha Bansal** was awarded a seven-year Method to Extend Research in Time (MERIT) (R37) award from the National Cancer Institute to develop a dynamic decision-making framework for identifying personalized risk-adaptive surveillance strategies for cancer survivors.



Nath lab makes progress against neurodegenerative conditions

Last fall, we talked with **Abhi Nath** and his lab team about their work to improve the diagnosis and treatments of neurodegenerative conditions, including Alzheimer's, Parkinson's, and Chronic Traumatic Encephalopathy (CTE). We revisited them

to learn about their progress. The team hopes to discover improved diagnostic tools and therapies by learning how brain proteins such as Tau, β -Amyloid and α -Synuclein start

misbehaving in these diseases. The challenge is that proteins like Tau are very flexible moving targets, almost like Jell-O™, making it hard to use traditional tools of structural biology. One of their long-term goals is to develop new small molecules that can either slow down protein aggregation, or bind to particular types of aggregates to act as a tracer. Such tracers or tags can currently be used to detect protein aggregates in brain scans, but struggle to distinguish which particular proteins are involved, or whether aggregates are harmful or benign. "Newer, more specific tracers could enable earlier, more accurate diagnosis of conditions like Alzheimer's and Parkinson's," said Abhi, "and ultimately improve outcomes for patients and their families." Graduate student **David Baggett**'s computer models can screen millions of compounds to identify molecules capable of binding proteins like Tau, and either detecting or stopping the

"Different dementias can share symptoms, pathologies and mechanisms, making them hard to distinguish. By understanding more about their similarities and differences at the molecular level, we might even discover treatment options that work for multiple conditions."

ABHI NATH, ASSISTANT PROFESSOR OF MEDICINAL CHEMISTRY AND PLEIN CENTER FOR GERIATRIC PHARMACY RESEARCHER

aggregation process. As they learn more about how these compounds recognize Tau, they can perhaps engineer more effective, safer variants that could serve as the basis for new treatment and diagnosis strategies. A new industry partnership with Takeda

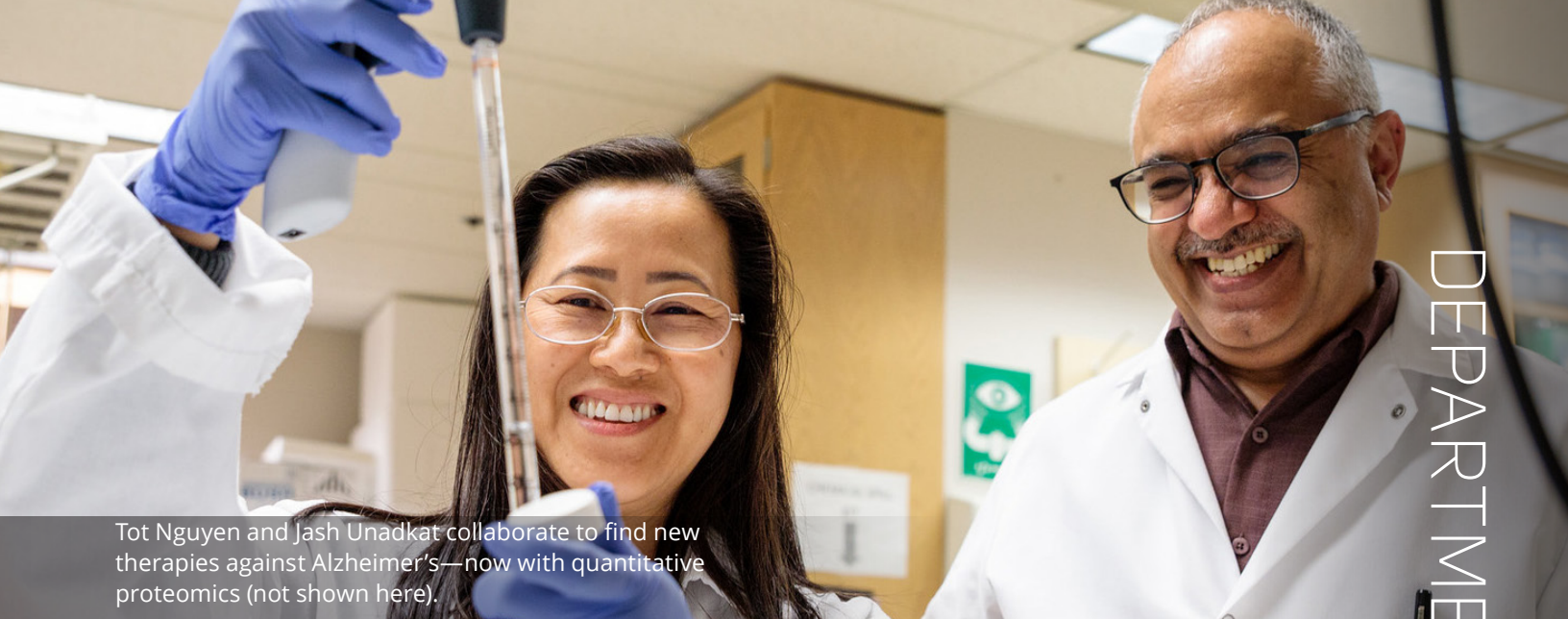
Pharmaceutical Co. will accelerate their research.

"The Takeda award provides us with support and resources to work on designing, synthesizing, and testing new molecules—derivatives of

ones that David found," shared Abhi. "We will also use his methods to identify other novel molecules with similar activity." Hope Barnes Fellow and graduate student **Hannah Baughman** continues to discover more about molecular chaperones, which are natural defenders against protein aggregation. The NIH recently elected to support this work under a special program for Alzheimer's disease and related dementias. "If we can turn up the right sort of activity for the right type of chaperone, that may advance our ability to treat Alzheimer's, Parkinson's, and CTE," said Abhi. "My vision is to use the advances that have been made in protein biophysics over the past 10–15 years to find new ways to diagnose these conditions early and improve treatments and outcomes for patients. Given how much we have learned about Tau and similar proteins, and our partnerships in academia and industry, I am very excited about our prospects."

Hope Barnes Fellow and graduate student Hannah Baughman continues to discover more about molecular chaperones and their potential in treating Alzheimer's.





Tot Nguyen and Jash Unadkat collaborate to find new therapies against Alzheimer's—now with quantitative proteomics (not shown here).

Undaunted by setbacks, Jash Unadkat and his lab team search for new therapies to fight Alzheimer's

It's called an experiment for a reason. The secret in science—what world-class researchers know—is that you don't let the failures stop you. You think of the failures as more data, part of your larger body of work. For scientists as creative and productive as **Jash Unadkat**, learning to move past the failures, to learn from them and continue to what's next, is a key skill that he encourages in his graduate students, post docs, and staff. "We have to pick ourselves up, dust ourselves off, and march on—like a child learning to walk," he reminds them. A few years ago he and his lab team thought they

had a big break through in a novel approach to treating Alzheimer's disease. In the brain, there is a key transporter protein (P-glycoprotein) that keeps drugs

from getting through the blood brain barrier. "It acts like a bouncer at a nightclub," said Jash. "It keeps some drugs from getting in, but it also ejects β -amyloid from the brain." He continued, "We hypothesized a number of years ago that maybe the reason you get Alzheimer's is due to an accumulation of β -amyloid in brain and they clump and form plaques." They thought further that perhaps one of the reasons β -amyloid builds up in the brain is because the "bouncer" P-glycoprotein is compromised, and not able to kick enough of the β -amyloid out of the so-called Brain Club. The team decided to introduce a drug, Rifampin, that increases the amount of P-glycoprotein in the intestine to see if it would do the same in the brain and improve

"We were so optimistic that we had a solution that could lead to using an already approved drug in a new way to treat Alzheimer's disease. Our findings were disappointing, but our work continues with new methods."

JASH UNADKAT, MILO GIBALDI ENDOWED PROFESSOR OF PHARMACEUTICS

the protein's ability to remove β -amyloid. To their disappointment they found that Rifampin did not increase the activity level of P-glycoprotein in the brain. Although the team published the research and (then) graduate student **Li Liu** received a Best Paper Award in DMD, they were now back to square one in the riddle. They knew that drug didn't work and didn't know if the lower level of P-glycoprotein was a cause or effect of Alzheimer's disease. Well, or maybe square two. Although that drug did not work, it did advance the research and led to an award-winning paper for **Anand Deo**, one of Jash's

post doc fellows at the time. A few years have passed and the team is taking a new approach with quantitative proteomics to investigate the effect of Alzheimer's disease on P-glycoprotein

levels in the human brain by using liquid chromatography and mass spectrometry and to see if they can measure the difference in P-glycoprotein using this other approach. They are looking to other proteins that may be important in the process. Proteomics will help by giving insight into the mechanisms in the cells that can change the P-glycoprotein activity levels. There is comfort in the negative results of their initial study. "It means that if someone is taking Rifampin they are not going to increase P-glycoprotein activity in brain, which is particularly important if they are taking a drug for their central nervous system disease, like depression or epilepsy. They know they can safely take the drug because of this study," said Jash.

RECOGNIZING *our donors*

We gratefully acknowledge the many generous alumni, faculty, staff, students, corporations, foundations, and friends that made gifts and pledges to our School between July 1, 2017 - June 30, 2018. Giving remains strong, with 12% of our alumni giving back, making UWSOP #1 at UW in the percentage of alumni giving back to their School. Your gifts truly have an impact for our students, faculty, and programs. Thank you!

INDIVIDUALS

\$25,000+

Eli & Rebecca Almo
Louise Baxter
Bryan (D) & Elizabeth (D) Wallace
Gary & Carrol Harris
Mitchell & Mandy Higashi
Phillip & Sandra Nudelman
Peggy & David Odegard
Elmer (D) & Joy Plein

\$10,000-\$24,999

Jack Babcock Sr. (D)
David & Anita Bailey
Janet & Douglas Black
Florence Gibaldi
Dana Hurley & Matthew Thomlinson
Wayne & Carolyn Kradjan
Susan Miriam & Thomas Rowe
Janet & Gregg Schade
David & Julie Veenstra

\$5,000-\$9,999

Timothy Carlson & Luann Aki
Daryl & Michelle Connell
Jake Connell
Ryan & Keli Hansen
Mark & Pamela Holzemer
Ronald & Cherie Klein
Stephen & Kathy Kushner
Rene & Beloria Levy
Joan Nelson
Teresa & Donal O'Sullivan
Tom & Pamela Szkutak
Arvind Thakkar

\$2,000-4,999 (President's Club)

Evelyn Arrigoni
Thomas & Kathleen Baillie
Anirban & Kranthi Basu
John & Gayle Bittinger
Nancy Bittner
Herbert Bridge (D) & Edith Hilliard
Weichao & Sandy Chen
Beth Devine
Christopher & Maureen Endres
Claire & Andrew Forster
Louis & Frances Garrison Jr.
John Harrelson & Shiela Lesh
Sallie & Brett Hartnett
Paul & Chana Hiranaka
Rodney Ho & Lily Hwang-Ho
Kathleen Kaa
Edward and Janet Kelly

Armen Khachatourian & Katherine Wolf
Mark Holodniy & RoseAnn Kushner
Virginia Leland
Malcolm & Diane McCallum
Donavon & Nicole McConn II
Danny & Barbara Shen
Dennis Shibata
Andy & JoAnn Stergachis
Kenneth & Peggy Thummel
Virginia Leland
H. Steve & Kathryn White
Chris & Gail Whitley
Larry & Margaret Wienkers
Donald & Arda Williams
Raymond Wilson & Cheryl Wright-Wilson

\$1,000-\$1,999 (Dean's Club)

Kimberly Adkison
Michael Alwan
Richard & Teresa Austin
Josh Carlson
Theresa Ciez
Cynthia Clegg
My Dang
Bonnie & Walter Davison
Karan & James Dawson
Donald & Anne Downing
Michael & Margaret Faulkner
Jackie Gardner & Gary Elmer
Thomas Hazlet
Shiu-Lok Hu
Lorraine Humm
Christene & Anthony James
David & Becky Johnson
Brenda & Jess Kelly
Paul & Mary Kuehn
Linda & James Lang
Sze Lau
Randall & Lori Legg
Albert & Sheila Linggi Jr.
Soraya Madani & Jon Eisenberg
Sumit Mahajan & Sarika Ogale
Douglas & Yvonne Mendenhall
Michael Mohutsky
William Nichols & Patricia Richards
Larry & Ellen Oliver
Teresa & John Osborn
Marla & Patrick Osinski
Mary Paine
Gregory & Gloria Pollock
Richard Ramsey & Shirley Scott
Shelby & Steve Reed
James & Diann Robbers
Michael Serbin
Julia Slejko
Shabir & Salma Somani

Allan Rettie & Shannon Stewart
Bettie Tomchalk
Stephen Toon
John & Wanda Watkins
Jennifer Wilson-Norton & Laurence Norton
Mary Wingate
Roger & Marlene Woolf

\$500-\$999

Lorraine & Bernardo Alonzo
Gail & Arnold Anderson
Erin Bailey-Sun
Kathleen & Ronald Beil
George Benson
Susan & Steven Boyer
Kathryn & Michael Brown
Richard Coar
William & Janet Corrison
Karen Craddick
Michael Cundari
Jamie Dunning
Tamara & Stephen Eide
Cameron Fosterling & Harry Schnepf II
Vivian & Jeffrey Hiroo
Christopher & Patricia Hoey
John & Maureen Horn
Gayle Hudgins & Tim Edwards
Bradley Kerr & Caroline Lee
Bojan Lalovic
Joseph & Yue Lam
Minja & Young Lee
Luke Lightning
Susan & Timothy McAllister
Richard & Kathleen McPoland
Miroslava & Ricardo Orozco
Joshua Pearson
James & Patricia Ramseth
L. Douglas & Diane Ried
Robert & Martha Satterthwaite
Gary & Dalrene Smith
Ian Templeton & Allison Cougan
Victor & Ann Warner
Daniel Wendt
Charles & Sarah Westergard
John Wilson & Jane Dahl

Every effort has been made to represent the names of our donors accurately. We apologize for any errors or omissions. Please send any corrections to rxalumni@uw.edu.

CORPORATIONS & FOUNDATIONS

\$50,000+

Allergan, Inc.
Amgen
Bayer AG
Bill & Melinda Gates Foundation
City of Hope National Medical Center
Eli Lilly and Company
Era Living
GlaxoSmithKline
Kaiser Permanente
Magee-Womens Research Institute and Foundation
Mallinckrodt Pharmaceuticals
Pfizer Inc.
PhRMA Foundation
Robert Wood Johnson Foundation
Roche Holding AG
Southcentral Foundation
Washington Research Foundation

\$25,000-\$49,999

Bristol-Myers Squibb Company
Novartis International AG
The Max Foundation

\$10,000-\$24,999

GAPPS
Walgreens

\$2,500-\$9,999

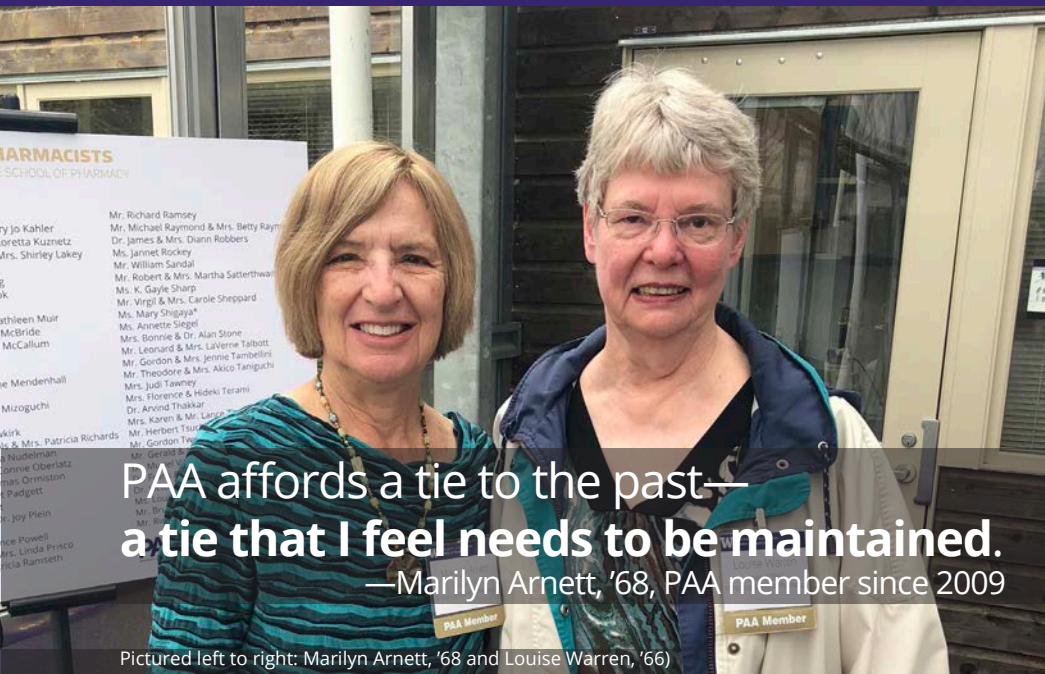
Electronic Arts, Inc.
Eli Lilly and Company
Merck & Company, Inc.
Rite Aid Headquarters Corporation
Takeda California
Tansna Therapeutics, Inc.
The Hearthstone
The Kroger Co.
Washington State Pharmacy Foundation
William L.E. Dussault, P.S.
YourCause

\$500-\$2,500

Abbott Laboratories
AHF Pharmacy
Albertsons Stores Charitable Foundation, Inc.
AstraZeneca PLC
Bank of America Corporation
Bob Johnson's Pharmacy
The Boeing Company
Community Foundation of Snohomish County
CVS Caremark
Gilead Sciences, Inc.
InFaith Community Foundation
National Community Pharmacists Association Foundation
Network for Good
Odessa Drug
Pacific Real Estate LLC
PhRMA Foundation
Premera Blue Cross
Scholarship Foundation of Northshore
Starbucks Coffee Company
State of Washington

BE PROUD

BE A MEMBER



PAA affords a tie to the past—
a tie that I feel needs to be maintained.
—Marilyn Arnett, '68, PAA member since 2009

Pictured left to right: Marilyn Arnett, '68 and Louise Warren, '66



2018 Highlights

Hosted

5

alumni
celebrations

Over

300

active members

Funded

3

scholarships

Join PAA today

giving.uw.edu/PAA

Preceptors Kim and Atienza recognized for their excellence in clinical training of our students at 2018 UWSOP Commencement Ceremony

Daniel Kim, '10, of the Safeway in Pinehurst/Lake City was named Introductory Pharmacy Practice Experiences (IPPE) Preceptor of the Year for 2018. **Kate Atienza**, '05, of QFC in Kirkland was named Advanced Pharmacy Practice Experiences (APPE) Preceptor of the Year for 2018 by the UW School of Pharmacy. Of Daniel Kim, one of our students said: "Daniel was instrumental to my learning as a student pharmacist. Not only was he well-informed and patient, but he also cared deeply about my education. On many occasions, he would approach me and request me to counsel on

medication that I had never seen before; he first had me counsel him on the medication, then filled in any knowledge gaps I may have had about the medication before allowing me to counsel the patient. This took me a bit out of my comfort zone at first, but was instrumental in my continued learning of medication counseling." One student praised Kate Atienza, "Kate always challenged me with questions and real life scenarios happened at a community



pharmacy to stimulate my thoughts and practice what I learned at school. I really appreciated her calculation worksheet, which allowed me to practice on day supply, dosing, quantity dispensed, etc. for tablets, solutions, or suspensions."

Collaboration with UWSOP results in health benefits against flu for Era Living residents

Last year's flu season was one of the worst in nearly a decade. The people most susceptible to the flu are our most vulnerable people: infants and children, older adults, and people who are chronically ill or have suppressed immune systems. As alarming reports about how virulent last year's virus was, Era Living, a top-rated group of local senior living communities, turned to their trusted partners at UWSOP for solutions. Through a program of training and education, UWSOP's initiatives meant that Era Living avoided an outbreak and stayed open for most of the flu crisis. Era Living communities are active and have many life-long learners as residents, including retired UW faculty. UWSOP and Era Living have a partnership designed to support residents' health and create learning opportunities for our student pharmacists, under the mentorship of our faculty. Students and faculty regularly give well-attended talks on different subjects to empower the staff and residents in their own care. Topics include what to do to prevent contagious illnesses like pneumonia, whooping cough, and more. The team pivoted and focused in on giving talks

about the important adult vaccinations including for the flu: covering the importance of the vaccination, the difference it makes when more people who can get the flu shot get it, and that even if you get the flu, it's milder if you've had the flu shot. The talks improved the vaccination rates as the SOP team reminded staff that flu shots and other vaccinations are a covered benefit, helped them understand the health benefits not just to themselves, but to their communities, and engaged the community in a little peer pressure (for the sake of good health) by reminding other residents and their families to get their shots and how it benefits everyone, particularly those who are sick, very young or old, or immune-compromised. Taking care of older adults calls for some cautious steps to be taken from time to time. For example, it's not unusual in the height of flu season for independent and assisted living communities to close to outside visitors, to protect the health of residents who may be vulnerable to these illnesses. During last year's flu season, which was one of the worst in a long time, Era Living facilities had to close very rarely to



Premier Residential Retirement Since 1987

visitors—which surprised our faculty and students. When they did some research into why the communities were healthier, they found it went back to a series of talks given by the faculty and students on the importance of vaccinations. Era Living staff are invited to the talks as well, which led to a significant improvement during the last flu season. It turned out staff were in those presentations and it led to an increase in all staff getting flu shots, who regularly come in close contact with residents. Other protocols that were taught also helped the community stay strong, such as having residents stay in their apartment if they are sick. The audience is wider than just the people in the room—it extends to their families, too. By staying up to date on their flu shots and other vaccinations residents protect their children, grandchildren, and great grandchildren when they visit. The work of UW health providers and Era Living residents and staff shows that when people collaborate and actively learn how to improve their health, great results emerge.

H. Steve White's research demonstrates the importance of medication adherence for managing seizure disorders

Worldwide, it's estimated there are about 20 million people with epilepsy who have seizures that are not well controlled—making this an understudied population health issue. **H. Steve White** is a leader in the discovery of drug therapies to treat and manage epilepsy. Over the last 30+ years, Steve and his collaborators have contributed to the early identification of several new drugs for epilepsy. The impact of this work for the global treatment of adults and children with epilepsy has been profound. Yet the need for better therapies remains high and the search

for solutions to manage seizures continues. Many patients with epilepsy display poor medication adherence, so Steve initiated a novel preclinical approach to study how poor adherence affects seizures. Their findings underscore the need for providers to recognize and address poor adherence. Working with a rat model of acquired epilepsy and a novel drug delivery system, they looked at what happened when a seizure medication was taken only 50% of the time. To mimic a 50% adherence pattern, one group of animals received half their dose in their food for seven weeks. To achieve this, they programmed a computer algorithm so that the interval of skipped doses closely mimicked a human adherence pattern. A second group received the same dose of their drug 100% of the time. The dose of the third group's medication was increased without addressing poor adherence (as often happens clinically). As expected, they found the seizure burden of rats with poor adherence increased and seizure control improved when poor adherence was corrected. However, the team was surprised by the significant relationship between the time of a missed dose and a seizure that could not be explained purely by the pharmacokinetics of the drug: a dose missed 36 hours earlier put the animal at risk of a seizure, for example. Also,

H. Steve White's novel study approach resulted in a recommendation that clinicians and providers recognize and address poor medication adherence. A missed dose three or four days earlier may result in a seizure.

"There are different types of epilepsy. It is a chronic disease, most commonly managed with medications, just as for high blood pressure, diabetes, and high cholesterol. Medication adherence is as important for people with epilepsy as for people with hypertension—poor adherence can have profound effects including injury, hospitalization, even unexpected death."

H. STEVE WHITE, PROFESSOR & CHAIR, DEPARTMENT OF PHARMACY

doubling the dose of the seizure medication did not improve seizure control. If anything, the higher dose, non-adherent group had less seizure control. The implications of these findings are significant. Often when patients have a seizure, providers ask if they took their medications the day of and the day before a seizure. If patient says they have not missed a dose in the last two days, frequently their dose is increased. Increasing the dose without knowing if a patient missed any dose in the days to weeks leading up to a seizure puts the patient at risk for unwanted side effects, further cognitive decline, and more seizures. Something as simple as addressing adherence issues may improve seizure control for people with epilepsy. The pharmacist is in the perfect position to address the issue of medication adherence with their patients with seizure disorders.



Zach Marcum takes a multi-prong approach toward developing a dementia prevention strategy

The prospect of developing dementia is terrifying for most people, particularly for those with family members who have had the disease. Many wonder what they can do to prevent the onset of dementia—which is where the research of the Plein Center for Geriatric Pharmacy has some answers. Experts know there are healthy habits that will make a difference—exercising regularly, managing heart

health, staying intellectually challenged and being connected socially, are among those habits. Zach Marcum surveyed Kaiser Permanente Washington (KPW) members (1661 total) to learn more about their attitudes

and beliefs toward health habits and what they could do to ward off the onset of dementia. Of the survey respondents, most believed that it is possible to improve brain health and reduce their risk of dementia, but one-third lacked confidence that they could take action to reduce their risk. Health habits like managing mid-life hypertension, socializing, and keeping the mind sharp with learning, new activities, and exercise make a difference. Zach's study is looking at what the experts say and what the public knows to understand what the gaps are between public and expert knowledge. By understanding the gaps, he anticipates being able to improve public health communications and care recommendations.

“Dementia is not an inevitable part of the aging process. There are steps people can take right now to reduce the risk of the disease—and it’s never too late to start. We are investigating repurposing medications as a dementia prevention strategy.”

ZACH MARCUM, PLEIN CENTER ASSISTANT DIRECTOR OF RESEARCH AND BAILEY FACULTY FELLOW AND ASSISTANT PROFESSOR OF PHARMACY

Additionally, it's been shown that the earlier Alzheimer's Disease and related dementias (ADRD) are diagnosed, the better the outcomes are for the patient, making it important to find new ways to detect undiagnosed dementia. Using the KPWHRI data, he looked at the historic patterns of chronic medication use in patients who are later diagnosed with dementia, prior to that diagnosis. He found

that patients with sub-optimal adherence to taking anti-hypertensives were more likely to develop dementia. Moreover, one of the most promising areas for dementia prevention is managing mid-life cardiovascular risk.

One such risk factor is cholesterol. Zach is using the KPW data to examine how cholesterol levels from mid-life onward are associated with late-life dementia. He found both low and high levels of non-HDL (“bad cholesterol”) were associated with an increased risk of future dementia. “It makes sense that high levels of bad cholesterol would increase the risk of dementia,” notes Zach, “but it’s not as clear why the low levels of bad cholesterol do.” In addition, Zach is looking at medications that might be repurposed to ward off or delay the onset of dementia. This approach aims to investigate the repurposing of blood pressure medications as a dementia prevention strategy.



“Like so many people, I’ve seen first-hand the effect Alzheimer’s disease has on patients and their family members—and that motivates me to find solutions,” said Zach Marcum.



“Economists have a knack for identification strategies—using data in innovative ways to isolate the role of one specific drug and separate it from other confounders that may affect the outcome of interest,” said Doug (pictured right, with CHOICE PhD graduate student Erik Landaas).

Using economics methods to improve dementia diagnosis and treatment plans across race, ethnicity, and sex

The newest researcher in The CHOICE Institute at UWSOP, Doug Barthold is taking a couple of approaches that use data and economic modeling to find potential treatments and trends in care of people with Alzheimer’s disease and related dementias (ADRD). At press time, there are no known drugs that can prevent or delay the onset or progression of Alzheimer’s, so some

researchers, including several at UWSOP, are examining the repurposing of existing drugs to help mitigate or delay the onset of Alzheimer’s. Doug is looking at data on patient prescription drug

use to find patterns that may suggest which drugs are protective and which may lead to dementia. “It’s important to know how drugs affect ADRD risk, both positively and negatively. Sometimes, we find protective drugs,” said Doug. Similar to Zach Marcum, Doug has been researching anti-hypertensives, using Medicare claims and the Adult Changes in Thought study (ACT), which is currently administered in the Kaiser Permanente Washington health care system. The ACT data goes back to the 1970s and is useful

for identifying mid-life risk factors for late life dementia. In using the Medicare claims data, Doug partnered with a neuroscientist to examine AD risk for users of the four most popular statin molecules, by sex, race, and ethnicity. For example, he found decreased AD risk in African-American women who used simvastatin. In addition to studying drug repurposing options, Doug’s research looks at

“Overall, it’s vital to understand long term effects of different drug molecules for people of different race, ethnicity, and sex. Using econometric tools and methods in large and diverse samples of data can offer clinical implications for care that can improve patient outcomes.”

DOUG BARTHOLD, RESEARCH ASSISTANT PROFESSOR OF PHARMACY AND PLEIN CENTER RESEARCHER

patterns of care after dementia diagnoses, and what might affect the disease’s progression, including the management of comorbidities. By looking at diagnoses and

treatment practices, he examines if there are racial disparities in the types of care that affect long term patient health. For example, patients that see a specialist for their Alzheimer’s care generally receive treatments that lead to better outcomes. Using Medicare data, Doug is assessing various health system characteristics that might contribute to these disparities. Understanding those trends can raise awareness of the steps that health care providers, patients, and their families can take to manage the disease optimally.

Remembering Dean Emeritus Jack Orr

It is with sadness we report that Dean Emeritus Jack Edward Orr passed away peacefully on Sunday, May 6, 2018, surrounded by his family. Born in Delphi, Indiana in 1918, Jack's father and grandfather were both pharmacists. Like so many of our alumni, he began his pharmacy career dusting shelves and sweeping the floor of the family pharmacy. He followed in his father's and brother's footsteps, attending Purdue University School of Pharmacy. He was a pharmacist (BS Pharm, Purdue University) and a Medicinal Chemist (PhD, University of Wisconsin). Jack served on the faculty of Pharmacy at Ohio State University and the University of Utah before accepting an offer in 1952 to become Dean of the University of Montana College of Pharmacy. In 1956, Jack became Dean of the UW School of Pharmacy succeeding Dean Forest Goodrich. At the UW, he served 22 years as our Dean and was succeeded by **Milo Gibaldi** in 1978. While in service as Dean, Jack led the school's growth to double the number of faculty and staff and the curriculum shift to include a clinical approach with patient care at its center, along with other changes that laid the groundwork for the Doctor of Pharmacy Program. Support of research grew, along with federal research funding. Pharmacy services started being offered in Hall Health, culminating in the Rubenstein Memorial Pharmacy. In 1976, Jack asked UWSOP alumnus **Ted Taniguchi**, '49, to establish the UW Pharmacy Alumni Association (PAA). The Distinguished Alumni Award was also established while Jack served as Dean. Outside of his work at the UW, Jack was heavily involved in the American Association of the

Colleges of Pharmacy (AAPC) for 13 years, including as President (1964-1965) and chair of the Executive Committee (1968-1973). He retired from the School of Pharmacy in 1983 and had lived in the Puget Sound area since his retirement. In 1994, Jack wrote

"Dean Orr left an indelible mark on the UW School of Pharmacy and the practice of pharmacy. His leadership grew the school and had a direct, positive impact on our students, alumni, and the advancement of pharmaceutical science and research."

SEAN D. SULLIVAN, DEAN OF UW SCHOOL OF PHARMACY

The First Century, A History of The University of Washington School of Pharmacy, 1894-1994, on the 100th anniversary of the founding of the UWSOP. The history brings to life the many storied accomplishments of our faculty, alumni, and students. A number of talented faculty

leaders joined the School during his tenure, including: **Lynn Brady, Wendell Nelson, Joy Plein, Frank Vincenzi, Dale Christensen, John Horn, Wayne Kradjan, Bill Trager, Rene Levy, Bill Campbell** and **Sid Nelson**. Three went on to become Deans, themselves (Kradjan at Oregon State, Campbell at UNC, and Nelson at the UW). Dean Orr helped create a phenomenal academic legacy. Jack was married to and preceded in death by Maxine Kennard. They had one daughter, Judy, and two grandsons. Dean **Sean D. Sullivan** shared, "When I last saw Jack, he mentioned to me his wish to see his 100th birthday. He came very close! Jack requested that no memorial be held, just a big party."

In honor of his memory, Jack's family has asked that gifts be made to the Jack Orr Endowed Fund at the UW School of Pharmacy.



PAA Past President Gary Harris remembers Dean Emeritus Orr

As some of you know, I was the first of my family to have any post high school education. I was a little frightened about attending the UW School of Pharmacy because I didn't really understand what the expectations were for a student or a future pharmacist. I'm not sure when the first time was that I met **Dean Orr**, but I do remember that I was welcomed into the "pharmacy family." I was nervous about being away from home (in Everett) and my desire to do well with this opportunity. As the quarters rolled by, one or another of my professors would occasionally say to me as I left class, "Go by the Dean's office in the next day or two." At first, I was alarmed, but, as I quickly found out, the request was merely so he could tell me personally that I had made the Dean's list again and he was proud I was doing well. On one of my visits to his office, he handed me a \$100 scholarship, given by a pharmacy in my home town. At that time, tuition was about \$125 a quarter. I was living quarter to quarter so this \$100 was made it possible for me to stay in school for another quarter. It also planted a seed and became a basis for my current giving philosophy. Thank you, Dean Orr, for being part of the human side of my excellent professional education at UWSOP.

Gary Harris, '72, PAA Past President

Jean (Hammarlund) Home, '49

Jean (Hammarlund) Home passed peacefully March 30, 2018, at the age of 90, with her devoted husband of 70 years and loving family at her side. Jean was born in Seattle to Mr. and Mrs. Edwin Hammarlund in 1927. She married Ensign Morton (Jerry) Home in 1947. After the war, they both completed their degrees at UW. She was selected into Phi Beta Kappa and graduated Cum Laude in Pharmacy in 1949. Jean was the 8th pharmacist in her family, including her grandfather (former Dean of UWSOP, **Charles "CW" Johnson**) and her brother, former Pharmaceutics faculty member **Roy Hammarlund**, '44, '49, '52. Jean was nominated for Woman of the Year in Lakewood for her leadership and community service. Her husband Jerry served in the Navy towards the end of World War II and was Executive



Officer to **Herb Bridge** for a time. In retirement, Jean and Jerry traveled the world and thoroughly enjoyed life. She is survived by her loving husband, Jerry, son Robert (Dianna), daughter Debbie (Jerry), 6 grandchildren, and 8 great-grand-daughters.

David A. Havlovic, '85

David A. Havlovic, 58, entered into eternal rest on July 13, 2017 at his home in New Berlin, Wisc. He was born June 18, 1959 in Lincoln to Robert and Mary Ann (Rezac) Havlovic. David attended high school in Fridley, Minn. He graduated from Creighton University in Omaha with a degree in pharmacy and received his Doctorate of Pharmacy from the UW in 1985. David worked as a pharmacist in Illinois, Texas, Colorado, New Mexico and Wisconsin. He is survived by his mother, Mary Ann Havlovic of Lincoln; and many cousins and friends. He was preceded in death by his father, Robert Havlovic.



Herb Bridge

Herb Bridge, longtime friend and supporter of UWOSP, who built a jewelry empire while advocating for downtown Seattle and other civic causes while earning the rank of rear admiral in the U.S. Navy, died April 2, 2018. He was 93. When Herb and his wife, **Shirley Bridge**, '45, celebrated their 50th wedding anniversary in 1998, they invited several hundred people to a "nonparty," remembered their son, Jon Bridge. Everyone was sent a blank \$100 check signed by the couple and encouraged to donate to the charity of their choosing. "It exemplified everything that we felt was part of my Dad and Mother's life," Jon said. Herb leaves a legacy of military service, business accomplishment, civic leadership and philanthropy. He was born March 14, 1925, at Virginia Mason, and into the jewelry business run by his father and mother, Ben Bridge and Sally Silverman Bridge. Herb helped start what became the Downtown Seattle Association to promote and improve the central city. He is survived by sons Jon (Bobbe) and Dan (Simcha Shtull), four grandchildren, five great-grandchildren, and partner Edie Hilliard.



9 THINGS YOU DIDN'T KNOW ABOUT DEANNA KROETZ

1. I learned a lot from **Milo Gibaldi**, particularly about writing scientifically. He used to return my papers full of red marks, but took the time to sit down and walk me through them. He said that I should read sentences and see how many words I can get rid of. If I can delete them, without changing the meaning, then I don't need them—and that's what I teach my students.
2. Bill Evans and his team at St Jude Children's Hospital have done beautiful work in pharmacogenetics in childhood leukemia. Bill was a PharmD trained researcher back when that was not common. Thanks to his team's work, the 5-10 year survival rate is more than 90% through the optimization of drugs.
3. I take my coffee strictly black with nothing added. The darker roast the better—one big cup in the morning.
4. If I had unlimited funding, I would get more clinical samples to do the genomics, proteomics, and metabolomics analyses needed to understand the variability of drug toxicity in my current research.
5. My favorite board game is Settlers of Catan.
6. My favorite movie is *The English Patient*.
7. Our family has a list of where we want to travel to—and we keep adding to it. One of my favorites was to Vietnam and Cambodia.
8. I like baseball and cheer for the San Francisco Giants.
9. My favorite place to be is in the mountains—skiing, backpacking, hiking, and camping. I have my years in Seattle at the UW to thank for my love of the mountains.



Deanna Kroetz with Ken Thummel, our Milo Gibaldi Pharmaceutics chair, after receiving her Distinguished Alumni Award for Pharmaceutical Science and Research

Deanna Kroetz and Tim Lynch receive PAA Distinguished Alumni Awards

FOR DEANNA KROETZ, '90, her interest in a career in pharmaceutical science began when she was in pharmacy school in Ohio. She worked on a faculty research project and found she loved thinking about scientific problems, how to analyze

them, and how to test hypotheses. Her advisor, Dick Reuning, suggested she apply for graduate school here at UWSOP. She looked

at other schools also but in the end loved the friendly, collaborative environment that was and is part of our culture—plus the opportunity to work with **Bill Trager, Rene Levy, and Tom Baillie**. In Pharmaceutics, Deanna was energized by the work and to her faculty and peers. "I loved the camaraderie of the two basic science departments," she recalled. Deanna worked in Rene's lab: "To this day, I know I can call him in a heart beat for anything."

"Science is bigger than the small problem you are working on at any given time. You need to interact with people in different disciplines to find what is important in your work. Science is collaborative."

DEANNA KROETZ, DISTINGUISHED ALUMNA

That collegiality led to strong collaborations in the lab and the traditional science Friday gatherings at the College Inn Pub. While at UW, Deanna began with drug-drug interactions and became interested in pharmacogenetics—a very new

field in the late 1980s. Encouraged by former Dean **Sid Nelson**, she did a post doc at NIH. She then went to UCSF as a faculty member in 1993. Deanna's research is still related to drug-drug interactions, specifically the variability of drug response and pharmacogenetics. By using genetics to understand drug toxicity, she hopes to improve drug therapy for cancer chemotherapy. Her main advice to current students? "Be open minded. I like to challenge my students once a week to go to a lecture in a different area of research because you never know how it will influence your work."

LEADERS IN HEALTH CARE

TIM LYNCH, '97 '98, fell into a career in pharmacy by accident. When he was getting out of the Navy after six years in the submarine force, he looked at career options, deciding initially to look at accounting and automobile design. His father-in-law had a hardware store located next to a pharmacy—and he suggested to Tim that, with his interest in science

and math, he consider pharmacy. Tim soon realized that it was the right match. He chose the UW for our reputation as a premier educational institution: "I knew I had to

attend the UWSOP to get the best professional education," he shared. His favorite moments here included time spent with his fellow students, many of whom became best friends. "I look back at the members of my class and see that they have become the leaders in our profession," he said. "I continue to be inspired by all of them." Some years after graduation, he hired **Jenny Arnold** as an intern at St. Francis Hospital. She encouraged him to get involved in the Washington State Pharmacy

Association (WSPA) and national pharmacy associations. Tim was part of the final BS Pharm class here at the UWSOP and took advantage of a chance to do additional work to earn his PharmD degree. He decided to apply for a residency, which ultimately led to a career in health system pharmacy. Tim became the first pharmacist in his family but

his daughters continue the Husky tradition. His oldest is a junior in the UW communication program and his middle daughter is a freshman and plans to attend UWSOP. His advice to current

students? "Set your goals beyond where you ever think you could succeed. With persistence, you will surpass what you thought you were capable of. Never say no to an opportunity to learn something new or grow your skills—it may open doors you never thought possible. Get involved and stay involved. There are so many demands for your time, but by connecting with others inside and outside the profession, you find new opportunities and ways to expand your influence."

"Receiving this award was a milestone personally and professionally. I remain very humbled by the award and extremely grateful for the recognition from my peers."

TIM LYNCH, DISTINGUISHED ALUMNUS

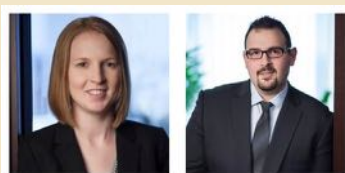
PAA Board member Jenny Arnold, '06, with Tim Lynch, this year's Distinguished Alumni Award for Pharmacy Practice recipient



9 THINGS YOU DIDN'T KNOW ABOUT TIM LYNCH

1. My mentors at the UW were **Terri O'Sullivan** and **Nancy Murphy**. Terri told me she learned by reading literature as a habit and explained how it helped her continue to grow her skills. Nancy always was positive and encouraging and made me feel I had much more knowledge and skill than I thought I had myself.
2. My pharmacy idol is Sara White M.S., FASHP. She is a retired Director of Pharmacy, Stanford Hospital and Clinics. She has served as American Society of Hospital Pharmacists (ASHP) President in 1996, has trained over 100 residents during her career, and received ASHP's Harvey A.K. Whitney Award in 2006.
3. My favorite book is *Dracula*.
4. I like my coffee black and bitter.
5. If I received unlimited funding, I would work to get pharmacists provider status nationally.
6. My favorite movie is National Lampoon's Christmas Vacation, my favorite music is Eurythmics, and my favorite board game is chess.
7. My favorite place to travel to is Cancun.
8. I enjoy a lot of sports, including football, cycling, running, and soccer.
9. For fun I like camping, reading books, and working on cars—I almost went into a career in automobile design.

Congratulations to UWSOP alumni **Carly Rodriguez**, '11, & **Armen Khachatourian**, '11, on their new leadership roles for the Northwest Affiliate of the Academy of Managed Care Pharmacy. Carly is the President & Armen the Vice President. Go Dawgs!



Award from AMCP! John is a Pharmacy Manager for Formulary Development at Premera Blue Cross, and an Affiliate Professor of Pharmacy here at UW School of Pharmacy. (Pictured here receiving the UWSOP **Wayne A. Kradjan** Excellence in Clinical Teaching Award in 2014 from **Terri O'Sullivan**.)



Jonathan Watanabe, '08, '12, was named an Emerging Leader in Health & Medicine by National Academy of Medicine. Emerging Leaders are early- to mid-career professionals from a wide range of health-related fields. Congratulations Jon!

John Watkins, PharmD, MPH, BCPS, '79, '93, '11, was presented the Experiential Education Preceptor



Congrats to UW OLA Simple team, including **Blythe Adamson**, '18, and PY3 student **Richard Lee**, who won the \$2,500 DLA Piper "Best Idea with Global Reach" prize! OLA Simple seeks to be a global leader in cost-effective platform technologies to detect DNA or RNA mutations to revolutionize the diagnosis & treatment of diseases.

John Hoekman co-founded Impel NeuroPharma, a Seattle-based clinical stage biotechnology company, while earning his PhD in Pharmaceuticals, which he completed in 2010. The company is developing multiple clinical stage nasal drug-device combination products stemming from work he started while a graduate student in **Rodney Ho's** lab. The Precision Olfactory Delivery™ (POD™) nasal delivery platform that Impel has developed is intended to improve the biodistribution, bioavailability, and decreased dose-to-dose variability in patients by delivering the dose deep into the nasal cavity, thereby delivering a more consistent, higher concentration of the drug to the brain. The device could significantly improve treatments for neurological disorders such as migraine, Alzheimer's and Parkinson's disease. There has been considerable research related to impaired glucose metabolism in the brain leading to Alzheimer's disease symptoms and progression. Impel is partnering with the National Institutes of Health (NIH) in two separate clinical trials evaluating the use of intranasal insulin to address some of the proposed causes and clinical outcomes of mild cognitive impairment and Alzheimer's disease. The Impel team anticipate their NIH studies will report topline clinical data in 2018.



The discipline, drive, and grit it takes to earn a degree from the UW School of Pharmacy is a hallmark of our alumni, whether or not they end up in careers that are centered in pharmacy. For alumnus **Casey McClellan**, '83, that ultimately meant bringing his scientific and interpersonal skills, and fourth-generation farming background to plant the renowned Seven Hills Vineyard with his father in 1982. He went on to earn an MS from UC Davis, focusing on enology, the study of wines. In 1988, he and his wife, Vicky, founded Seven Hills Winery. Since then, Casey has helped to champion the diversity of the Northwest's most renowned appellations and vineyards, and has developed a style notable for its balance. Casey's wines are recognized as benchmarks for Washington State wine making, with an emphasis on Cabernet Sauvignon, Merlot and Bordeaux-varietal red blends. While growing the winery business, Casey fit in a 25-year career in hospital pharmacy. **We look forward to the next Dean's Club Fall Harvest Wine Tasting featuring and Casey McClellan and members of his class of 1983** at The Estates Wine Room in Seattle's Pioneer Square. We are so proud that our graduates go on to have a lasting impact on their communities, no matter where their passions and talents take them. Cheers to all of our alumni!





Golden Pharmacist Reunion, Celebrating 50+ Years, May 31, 2018

Alumni from the class of 1968 celebrated, joining the Golden Pharmacists Reunion with colleagues from earlier classes. Dean Sullivan led a toast to Dean Emeritus Jack Orr who passed away on May 6.



WSPA Northwest Convention UWSOP Alumni & Student Reception, June 2, 2018

UWSOP PharmD students and alumni gathered to celebrate excellence in pharmacy, network, and (of course) sign the UW fight song. (Pictured center is Best Student Poster winner, PY2 student Sam Miller.)



Dean's Club Night at the Seattle Mariners Baseball Game, July 31, 2018

Gary, '72, and Carrol Harris enjoy a beautiful night at the Mariner's with members of the Dean's Club, catching up with friends and colleagues. Gary was elected to Woodinville City Council this summer.



Class of 1993 25 Year Reunion, July 13-14, 2018, Talaris Center & Waterfront Activity Center

Members of the class of 1993 gathered for a two-day Husky Pharmacist extravaganza with a class dinner and family picnic, over two days this summer. It was so much fun seeing long-time friends and colleagues!



2018 UW School of Pharmacy Commencement Ceremony, June 8, 2018

Dean Sean D. Sullivan, Beau Chiba, '18, and his uncle and past PAA President, Dave Morio, '71, (right) recreate a photo of Beau's great grandfather, Yasukuchi Chiba, class of 1917, and grandfather, Bain Chiba, '37, with Dean CW Johnson (left). Beau is the 6th member of his family to graduate from UWSOP, 101 years after his great-grandfather. Beau's great aunt and uncle, Dave's parents, Mary Shimoda and



Noboru "Nibs" Morio, were students at the UWSOP when World War II broke out. They were sent to internment camps. Nibs later served with the 442nd Japanese -American Infantry Regiment, whose motto was "Go For Broke." He and Mary became honorary UW Husky alumni in 2008 at a special ceremony for the Japanese-American UW students who were interned in camps.

PHIL & SANDRA NUDELMAN ENDOWED LECTURE

HOW TO CHANGE, REINVENT,
AND REIMAGINE HEALTH CARE

October 24, 2018

Doors Open 5:00 PM
Alder Auditorium
UW Seattle Campus
Lecture Followed by Reception

Register Online

events.uw.edu/Nudelman

Questions? Contact rxevents@uw.edu 206.221.2465

