

August 2021

MESSAGE FROM THE DEAN

Dear Friends and Colleagues,

Welcome back to the start of the fall 2021 semester. We are finally in person, and I thank faculty and staff for making this transition back to in-person work seamlessly. For me, this is a particular milestone. Since I joined as dean of the college in July 2020, I haven't had the great privilege of seeing our students don their white coats for the first time as they will during the upcoming white coat ceremonies in [Yakima](#) and [Spokane](#), nor have I had the chance to see students roaming the halls or to run into faculty and staff on campus to chat with them about their latest projects. I cherish these in-person connections and look forward to resuming a sense of normalcy as we all return safely back to campus. There will be many firsts as we come back to campus, and I look forward to taking it all in.



Speaking of firsts, I am looking forward to my first in-person [Pharmacy Homecoming Weekend](#) as dean of the college this October 8-9. This year in particular, Homecoming Weekend is an opportunity for us all to come together and celebrate as members of the College of Pharmacy and Pharmaceutical Sciences community.

As you know, we announced back in May that Vice Dean of External Relations Linda Garrelts MacLean would be retiring at the end of June. I'm pleased to announce that coming in to fulfill some of Linda's duties is Julie Akers, who has been appointed Associate Dean for External Relations. I am also excited to announce that Salah-uddin Ahmed has accepted the position of Executive Director of Graduate Programs. I know that the work done by Julie and Salah will reflect very positively on the college and I can't wait to watch them develop in these positions.

As the summer winds to an end, I want to take a moment to recognize some of the highlights of my summer:

- We held a superb, inaugural meeting of our Industry Advisory Board in June. We had representatives from thirteen industry partners, from around the country and one in Basel, Switzerland. I have a very good feeling about our future with this group and where these efforts will lead. We will most certainly enhance the career development of our graduate and PharmD students.
- I recently learned that the technician vaccination training program that was stood up by Kim McKeirnan, Linda Garrelts MacLean, Taylor Bertsch, Kyle Frazier, and Jennifer Miller, in collaboration with APhA, has now trained over 90,000 pharmacy technicians in this country. I am stunned by the magnitude of that number—you only have to have basic math skills to realize that those 90K technicians have probably collectively vaccinated millions of people against many things, including COVID-19. These efforts have helped to beat back a 100-year pandemic and these efforts are truly saving the planet.
- We have had a record number of [ASPET Summer Undergraduate Research Fellowship \(SURF\)](#) and [Summer Research Fellowship \(SRF\)](#) students running around the building this summer. We're grateful to the Jim

and Diann Robbers Fellowship for helping to fund this expansion. I am looking forward to their research presentations at the annual CPPS Research Day next week.

- I had the privilege of being able to meet some of our alumni across the country in person this summer as we got on the road again. It was an inspiring experience to meet so many people who are so enthusiastic in their support of the college and I look forward to the chance to get to know all of them better and meet many more alumni in the months and years ahead.

Thank you all as we all safely resume back to a new normal for all of us.

Sincerely,



Mark Leid, Professor and Dean
WSU College of Pharmacy and Pharmaceutical Sciences

Top Stories

Pandemic becomes once-in-a-lifetime lesson for pharmacy student

Though it has been a difficult year of remote learning, fourth-year pharmacy student Trevor Schultz did not miss a beat. Passionate about working with rural and underserved communities, Schultz teamed up with class of 2009 alumni Tyler Fischback at Confluence Health in Wenatchee to support COVID-19 mass immunization efforts in a largely rural and agricultural area serving the Chelan, Douglas, Grant, and Okanogan counties in Washington state.

“I’m really passionate about giving back and serving the community. This pandemic needs to be taken seriously. It’s inspiring me because it’s a beacon of hope to end this thing. I want to educate the public about this vaccine and aspire to be a leader in the profession and help us get to the end of this,” said Schultz who hopes to work in rural and medically underserved communities after pharmacy school.

Schultz began interning at Confluence Health in May 2020. Fischback, Clinical Pharmacy Manager and Residency Program Director for Confluence Health, mentored Schultz, teaching him what most pharmacists don’t see in a lifetime: how to work with the National Guard, law enforcement, public health departments, and community volunteers to roll out a mass immunization clinic. Schultz and Fischback dove into their work as Washington state began vaccinating Phase 1a population, which included first responders and high-risk workers. In this initial phase, Schultz and a team of health care workers vaccinated over 3,500 individuals, or roughly 300-400 vaccines per day. Soon after completing Phase 1a of vaccinations, the clinic was told that they would need to work with the National Guard and other community pharmacies to establish a mass vaccination clinic at the Town Toyota Center in Wenatchee.

“Tyler presented this opportunity and I leaned in as much as possible,” said Schultz when his mentor approached him about extending his internship to help with the mass immunization clinic.

Working with fellow WSU pharmacy students and nurses, Schultz and the team helped in every step of the process from beginning to end, ramping up vaccinations to 800-900 shots per day. Duties included processing patients, reconstituting the Pfizer vaccines, and ensuring that patients did not experience any immediate side effects from the vaccine.



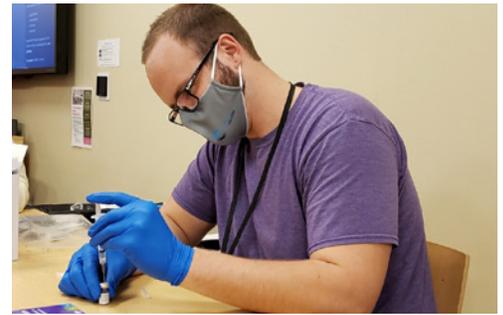
Fourth-year pharmacy student Trevor Schultz (second from right) poses with his mentor, Tyler Fischback (third from right) and the US National Guard at the mass immunization clinic in Wenatchee, Washington.

“I became confident in my ability to run a smaller clinic, but also became overwhelmed with the idea of the mass immunization clinic,” said Schultz of the experience. “I also learned a lot about storage, handling, and processing patients and knowing how to educate patients about these vaccines.”

Now entering his fourth year in pharmacy school, Schultz will spend most of his time with Confluence Health as part of his residency preparation program, along with rotations in acute care where he will split his time between the intensive care unit and emergency room. In addition, Schultz will work in ambulatory care as well as working in community pharmacy in the hospital at the outpatient pharmacy and finish out his final year at Genoa Healthcare in Tacoma, Washington at a psychiatric rotation.

“Two of the most important factors to me in deciding where to do residency is finding somewhere rural so I can continue working with underserved populations and somewhere with ease of access to outdoor recreation. Eventually, I would love to settle into a career in a hospital or clinic setting where I could be working with patients and other health care professionals directly,” said Schultz on future plans following graduation.

As he reflects back on his experience, Schultz’s advice to future and current pharmacy students is “to really lean in and try to learn and help out as much as possible. I think this is an excellent learning opportunity and a once-in-a-lifetime opportunity. Anyone who gets involved will just come out better for it.”



Schultz reconstitutes the Pfizer COVID-19 vaccine. Typically a team of 4-6 people are constantly mixing throughout the day. A lead pharmacist oversees the process and the team of nurses, pharmacy technicians and interns.

Q&A with the new associate dean of external relations

Julie Akers, class of 2000, has been named associate dean for external relations at the WSU College of Pharmacy and Pharmaceutical Sciences (CPPS). In her new position, she will be managing and maintaining external relationships of the college while continuing her long-standing legislative and professional advocacy efforts.

Akers first joined the college back in 2013, when the program made the transition from Pullman to Spokane. Since then, she has taught in the Doctor of Pharmacy program, weaving her experiences and stories into class discussion to provide relevance to topics covered in the curriculum. She will also continue to teach in addition to her new role.

The college recently caught up with Akers to learn more about her interests and experience as a Cougar:



Julie Akers, associate dean for external relations

What drew you to the WSU as a student?

Prior to pharmacy school I worked as a technician in a community pharmacy. Several of the pharmacists I worked with were Cougs. While they were extremely knowledgeable, what impressed me most was their ability to connect with patients. Each of them had excellent professional communication skills and said a big part of their time at WSU focused on strong communication skills as well as preparing future community pharmacists as managers and leaders. That is where my passion lied, so I only applied to WSU and was fortunate to be accepted.

What is your favorite part about being a Cougar?

Being a Cougar means being part of a family, both with those you know and complete strangers. It is a great feeling when you are touring a castle in Scotland wearing a Cougar hat and hear “Go Cougs” from someone you have never met. There is an instant connection, conversations about what dorm you stayed in, and just sharing fond memories of Pullman. Even more special is the bond being a part of the Cougar Pharmily. There is a vast network of Cougar pharmacists ready to provide support to anyone in need. It is amazing and something I haven’t seen at other programs. Go Cougs!

What is the best advice you ever received?

The best advice I received was to not allow events in your life to define you, but for you to define how events shape your future. I was in middle school when a mentor gave me this advice and it has guided me through many challenges. Each challenge we face is one we can reflect on and use what we learn from it as a tool to help shape our future. I still use the advice every day. In my office I even have a sign shaped like an arrow with the phrase “Don’t look back, you aren’t going that way.”

Who have been your biggest mentors over the course of your education and career?

During pharmacy school, my biggest mentor was Keith Campbell. Not only was he there for me as a student, but as a person. A lot of personal growth happens during those years, and Keith always pushed me to achieve more while encouraging me to do my best. As I transitioned into working as a pharmacist and getting involved in the Washington State Pharmacy Association (WSPA), Don Downing became a strong mentor. His work and passion are what inspired me to get more involved in policy and advocacy. And, of course, where would I be without Linda Garrelts Maclean. When I was a student, we nicknamed her “Wonder Woman,” because she could do it all. I have truly enjoyed getting to work more closely with her as faculty and realize I have some “high heels” to fill in my new administrative role.

How do you think pharmacy practice and education has changed over the course of the pandemic?

The workflow of pharmacy practice rapidly changed as a result of the pandemic, but the core of the profession, patient care, stayed strong. As other businesses were shutting down, pharmacists ensured patients could access their needed medications. Pharmacists were faced with overwhelming volumes of extremely ill patients in our ICUs, hospitals, and ambulatory clinics. They went to work each day knowing they were putting themselves at risk, but always put the patient first. If in 2019 you told a community pharmacist they would be routinely providing curbside delivery, they would have laughed! However, as they were forced to shut their doors, they found ways to open a window!

I am so proud of how our profession innovated to ensure access to care, how they jumped at the opportunity to perform COVID-19 tests, how they stepped up to immunize our communities. The pandemic also impacted education. Our students and faculty had to adapt to online course delivery. We had to find new ways to connect and build relationships with one another. But something else amazing happened. Our students sought opportunities to use their training to help combat this horrible pandemic. They volunteered at countless testing and immunization events. They developed networks to support classmates struggling with isolation. They attended countless town hall meetings, sharing their thoughts on how our college could best adapt through this new normal. I hope we never see a pandemic like this again in my lifetime, but I am confident the pharmacy profession will be ready to innovate and adapt quickly.

What do you believe to be the future of pharmacy?

The future is an advancement toward less focus on a product and more on services. More and more pharmacists are providing clinical services in health systems, ambulatory care clinics, community pharmacies, and more. As companies enter the pharmacy market who excel at product distribution, we need to empower pharmacists to step away from the counting tray and spatula and to innovate.

What we are teaching today, is how to make strong clinical decisions, to critically evaluate a patient case and recommend solutions based on evidence that take the patient’s views into account.

What are you most looking forward to about the fall semester?

I am a people person and love the energy students bring to campus. I can’t wait to meet our incoming first year students, meet the second-year students that I have only known online, and to see those third-year students that I have missed visiting with. We have the absolute best faculty and staff, and we are all anxious to be walking the halls with one another after such a long year and a half. It will also be great to transition into the external relations role, get back to traveling to conferences, networking, and advancing the vision and mission of the college.

Target protein identified for improving heart attack treatment

By Judith Van Dongen, WSU Health Sciences Spokane Office of Research

SPOKANE, Wash. – A new study led by researchers at Washington State University has identified a protein that could be the key to improving treatment outcomes after a heart attack.

Published in the [Journal of Biological Chemistry](#), the research suggests that protein kinase A (PKA) plays a role in heart muscle cell necrosis, a major type of cell death that commonly occurs after reperfusion therapy, the treatment used to unblock arteries and restore blood flow after a heart attack.

“Our study has found that turning off a gene that controls this protein activity increased necrotic cell death and led to more heart injury and worse heart function following heart attack in a rodent model,” said study author Zhaokang Cheng, an assistant professor in the WSU College of Pharmacy and Pharmaceutical Sciences. “With further research, this discovery could ultimately lead to the development of a small-molecule drug that could intervene in that pathway to limit or prevent heart muscle cell death after reperfusion therapy.”

Such a drug could help reduce heart injury and increase the survival and lifespan of heart attack victims, Cheng said. Every year, about 800,000 people in the U.S. have a heart attack, which amounts to one heart attack occurring every 40 seconds.

Reperfusion therapy, which uses clot-dissolving drugs or mechanical means to unblock clogged arteries, has long been the most effective treatment for heart attack. Though it significantly reduces heart damage, patients treated with this therapy still experience some damage, about half of which actually results from the treatment itself. This is because the rapid restoration of blood flow into oxygen-deprived heart tissues can lead to a swift rise in free radicals. When left unchecked, this surge of free radicals induces oxidative stress, which can cause heart muscle cell death and heart injury as part of a condition known as ischemia/reperfusion injury.

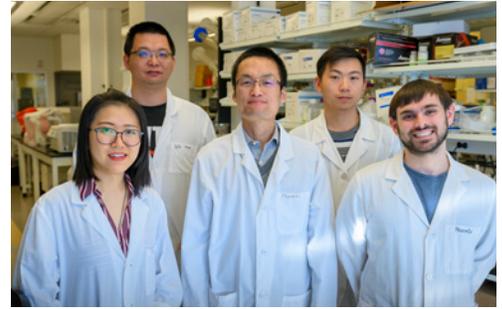
Though scientists have long considered necrosis to be a passive, unavoidable form of cell death, recent studies have suggested that some forms of it happen in a highly regulated manner that could potentially be targeted for treatment. Little has been known about how this type of cell death is regulated, however, which is what prompted Cheng to take a closer look.

He and his team had previously screened more than 20,000 genes to look for ones that appeared to either suppress or promote necrotic cell death. One gene that stood out to them as warranting further study was *PRKAR1A*, which helps regulate PKA activity by encoding a protein known as PKA regulatory subunit R1alpha.

So the researchers conducted a series of experiments to validate whether the R1alpha protein can regulate necrotic cell death in a rodent model. They found that turning off the *PRKAR1A* gene increased cell death, both in cultured cells and in mice. Mice lacking the gene also had more heart injury and worse heart function after heart attack, as compared to wild-type mice.

Cheng explained that, under normal circumstances, the rapid increase of free radicals after heart attack treatment triggers the heart to launch its antioxidant defense system, the built-in protective mechanism that helps keep free radicals in check. What their new study findings suggest is that the antioxidant defense system cannot be launched as effectively when the R1alpha protein is removed from the heart, resulting in more oxidative stress, which leads to cell death and heart injury.

He explained that the R1alpha protein binds to another type of protein known as PKA catalytic subunits to keep PKA activity in check. When R1alpha is removed, the catalytic subunits are uncontrolled and PKA activity increases, which Cheng believes is what prevents the activation of the antioxidant defense system. This suggests that use of a small-molecule compound that selectively inhibits PKA activity could potentially block necrotic cell death and lead to better outcomes after heart attack treatment.



From left to right, study authors Yuening Liu, Peng Xia, Zhaokang Cheng, and Jingrui Chen and graduate student Joshua Gallo.

Though Cheng said he hoped their research would eventually allow them to test such a compound in an animal model, the next step they are pursuing is to determine whether there are other mechanisms by which PKA regulates necrotic cell death aside from the antioxidant defense system.

In addition to Cheng, study authors included Cheng's Ph.D. student Yuening Liu and postdoctoral fellows Jingrui Chen and Peng Xia of the WSU College of Pharmacy and Pharmaceutical Sciences and Constantine Stratakis of the Section on Endocrinology and Genetics at the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development.

Funding for the study came from the National Heart, Lung, and Blood Institute; the WSU College of Pharmacy and Pharmaceutical Sciences, and the intramural program of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development.

A NOTE FROM JULIE AKERS

Dear Friends and Colleagues,

I am beyond excited to be serving our college as the Associate Dean of External Relations. I can't thank Linda Garrelts MacLean enough for her mentorship over the past 25 years. Her drive, energy, passion, and determination has directly impacted students, alumni, faculty and staff over the years. Instead of big shoes, I've got some "high heels" to fill!

Even though Linda's officially retired, I know she'll be around, spreading the cougar spirit, and making things happen in the world of pharmacy. In fact, a little bird tells me she'll be joining us for the Crimson Gala this fall!

Each year we come together as Coug Pharmily and recognize the achievements of one of our own, bestowing them with the R. Keith Campbell Lifetime Achievement Award. We look forward to hosting this event in person Friday, October 8 and to, safely, reconnect with each of you. This year's awardee is John Oftebro, class of 1965, who has worked in pharmacy for over 40 years, serves on the college's Dean's Advisory Council, and is a staple at our alumni events. You can learn more about Pharmacy Homecoming Weekend, John's career, and register for the Crimson Gala and the Pharmacy Homecoming Tailgate through our [Pharmacy Homecoming Weekend webpage](#). We can't wait to see you, and, in the meantime, I hope you're all practicing the fight song! I know our new students will be hearing a lot of it when they join us on campus in a couple of weeks for Pharmacy Prep Week and orientation.

I can't believe it is already August, and the beginning of the fall semester is only weeks away! After working from my basement since March 16, 2020, it is wonderful to be back on campus and anticipating the energy that comes with students. Not only do we have first year students joining us for the first time, but we also have a second-year cohort on both campuses who have never sat in a pharmacy classroom! This is definitely going to be a unique year and hopefully in a completely different way from the previous.

In particular, I'm looking forward to our first and second years having the opportunity to don their white coats at our White Coat Ceremonies in [Yakima on Thursday, August 19](#) and [Spokane on Friday, August 20](#). This ceremony is a longstanding tradition to signify entry of the student to the professional ranks and I can't wait to see them take this first step into the pharmacy profession in person.

With my best and, as always, Go Cougs!



Julie Akers, Associate Dean of External Relations
WSU College of Pharmacy and Pharmaceutical Sciences



Spotlight on Success

First time on campus – class of 2024 returns for Spring 2021 in-person training

After spending most of the first year of their pharmacy education at a distance, last May class of 2024 Washington State University student pharmacists ventured onto campus in Spokane and Yakima, Washington for four days of in-person instruction and testing. These four days laid the final groundwork to prepare the students for their second year, which will be taking place in-person starting August 23.

During the 2020-21 academic year, classes were conducted from a distance with students tuning in weekly via Zoom for live instruction and completing compounding and lab assignments from home using supplies shipped by college staff to WSU pharmacy students across the country. However, some compounding and patient practice trainings could not be completed from a distance.

“We were unable to send drugs or lab glassware to our PY1 students which they use in the lab to compound the drug products,” explained Pharmaceutical Sciences Assistant Professor Ayesha Ahmed who serves as the Spokane instructor of record for Pharmaceutics Lab. “PY1 students coming to the campus allowed us to provide the required training related to this course in a timely way, when they actually learned how to make the drug products.”

Ahmed worked with the Yakima Pharmaceutics Lab instructor of record, Pharmacotherapy Assistant Professor Damianne Brand as well as Pharmaceutical Sciences Associate Professor Connie Remsberg to organize the compounding portions of the in-person instruction.

“I loved seeing the seeing the students face to face. Though I got to know them through Zoom, it was nice to be able to evaluate their understanding in real time and correct habits,” said Brand.

To help students gain hands-on skills in sterile compounding, they practiced the steps required to handwash and garb (putting on the protective clothing in the correct order to enter a cleanroom) and the proper technique to clean a horizontal laminar airflow workbench. While working within a mock hood, students compounded multiple sterile preparations using a process known as aseptic technique during which they try to prevent any contamination. These simulation activities allowed students to get a feel for what it is like to work in a real compounding facility. Students also had to prepare inpatient order labels for each product. For non-sterile compounding activities, students prepared two products, performed quality control tests on their products, completed compounding records and filled out transcribed prescription forms.

In addition to compounding activities, students also practiced designing patient case treatment plans and counseling as well as testing cholesterol and blood sugar.

“Typically, students will provide [cholesterol and blood sugar testing] as a free service at health screening events,” said Pharmacotherapy Assistant Professor Taylor Bertsch who serves as the Spokane instructor of record for the first year of Applied Patient Care. “[When students were on campus] was the first time that they were able to practice this skill, so we trained them how



Pharmacy student Eric Carne tests cholesterol of classmate Matthew Daubel.



College staff prepared and shipped over 250 boxes to students across the country with supplies they would need for the spring semester. Left-right: Sarah Kohler, Barb King



Pharmacy student Coleen Dean prepares an IV bag as part of the in-person compounding activities.



Applied Patient Care lab Spokane support staff, left to right: Abby Parsons, Jill Morin, Pilar Heredia-Middleton, Hannah Royball

to properly glove up, sanitize, use lancets and pipettes, and provide feedback to patients based on their testing results.”

Bertsch worked with the Yakima APC instructor of record, Christina Buchman, to ensure students learned the practical skills they would need going into their second year and for future patient care.

The compounding team, back row left-right: pharmaceutical sciences students Victoria Oyanna, Deepak Ahire, and Paul Panipinto, and Assistant Professor Ayesha Ahmed; center: Assistant Professor Connie Remsberg; front row l-r: pharmaceutical sciences students Keti Bardhi, Shelby Coates

The four days of in-person activities were made possible by the support of faculty and staff from across the College of Pharmacy and Pharmaceutical Sciences. Beyond the instructors of record for these courses, college administration, business services, lab techs, additional faculty and teaching assistants from other courses, and even one faculty member’s spouse contributed their time to making it possible to have students on campus safely to learn these hands-on skills.

“It required a team of instructors, staff support, and teaching graduate assistants who did an awesome job of helping throughout the semester and especially during the in-person training week so that this could be carried out successfully on campus,” said Ahmed. “Without their help it would have been very difficult.”



The compounding team, back row left-right: pharmaceutical sciences students Victoria Oyanna, Deepak Ahire, and Paul Panipinto, and Assistant Professor Ayesha Ahmed; center: Assistant Professor Connie Remsberg; front row l-r: pharmaceutical sciences students Keti Bardhi, Shelby Coates

Arthritis researcher applies his expertise to COVID-19

When Pharmaceutical Sciences Assistant Professor Anil Singh was invited to give a talk about inflammation at the start of the pandemic, he could not have known it would lead to new COVID-19 research.

While reading about the disease mechanism of COVID-19 in preparation for his talk, Singh noticed that many treatments used for COVID-19 are medications used to treat rheumatoid arthritis. When he dug a little deeper, Singh learned that the inflammation of the lungs during COVID-19 is clinically similar to the inflammation of synovial joints in rheumatoid arthritis.

“I made the connection over and over, and since my work is so closely tied into this kind of inflammation, I just wanted to explore it,” said Singh.

Singh assembled a team of researchers from Regeneron, Cornell University and Amity University to help him further investigate the connection and how it may lead to future COVID-19 therapeutics.

The team evaluated epigallocatechin-3-gallate (EGCG), a catechin found in green tea. Green tea has been widely researched in various pathologies and EGCG has previously been shown to have anti-inflammatory and antioxidant properties. One of the key strengths of catechins is their power to bind multiple proteins that may suppress the immune system response.

When a virus enters the human body, cells release interferon to tell the body to react and inhibit the viral replication. However, when the COVID-19 virus enters the human body, it dampens the body’s initial immune response.

“Your body does not realize it’s foreign,” explained Singh. “The virus hijacks the human immune system and goes into stealth mode.”

Once the virus is inside the cells, viral papain-like protease protein (PLPro) programs cells to interfere with the interferon response and prevent the body from mounting an antiviral response.



Pharmaceutical Sciences Assistant Professor Anil Singh

“The cells are literally hypnotized to make the viral proteins instead of interferon,” explained Singh.

The researchers used computer simulated experiments to evaluate various catechins and observed that EGCG showed a stronger binding affinity to PLPro, making it more effective in inhibiting PLPro protein activity. Their discovery was published as a peer-reviewed paper in the special issue of *Catechins in Human Health 2020* of the journal *Molecules* of MDPI group, in February 2021. This proof of concept is a vital step in the development of clinical trials, several of which are now underway, paving the way to make EGCG a possible therapeutic option for COVID-19 prevention and treatment.

“It’s like the saying, ‘A journey of a thousand miles begins with a single step,’” said Singh, “it’s just a step and there are many now.”

With the emergence and rapid spread of new and potent variants of the virus and on-going challenges in the availability of vaccines worldwide, the development of additional therapeutics to combat the virus remains of the utmost importance to Singh.

“While we know vaccines are the best way to prevent serious risk of COVID-19, this study provides the rationale for development of small molecule inhibitors which could work as adjunct therapy along with vaccination as a way to treat COVID-19,” said Singh. “I thought it was my responsibility to let the world know what I know.”

Outreach in Wapato

Nestled in the lower Yakima Valley, located on the Yakima Indian Reservation just a twenty-minute drive south of Yakima, Washington lies the town of Wapato with a population of just over 5,000. Originally a railway station, Wapato has grown into an agricultural community with most residents of the predominantly Hispanic/Latino town working on family-owned farms and orchards.

This March, a group of third-and fourth-year Yakima pharmacy students visited this small town to lend their hands and expertise to the COVID-19 vaccination outreach effort.

“I feel proud to be amongst the countless health care professionals working towards protecting our community and way of life,” said class of 2022 Yakima pharmacy student Romeo Do.

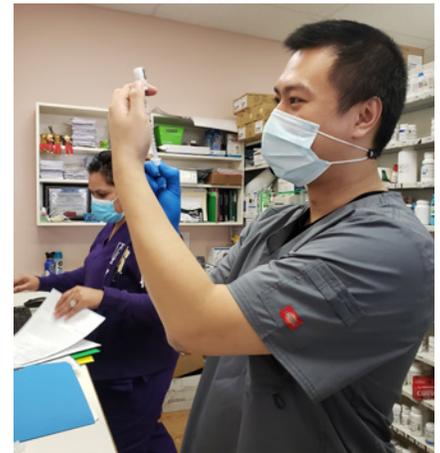
He and fellow pharmacy students volunteered their time at Horizon Pharmacy in Wapato after the local pharmacy reached out to the WSU College of Pharmacy and Pharmaceutical Sciences Yakima extension to help vaccinate the community in an effort overseen by Dr. Deepka Dhruva, PharmD.

Such outreach events allow for increased access to COVID vaccines in medically underserved communities which have a shortage of primary health care services. Student pharmacist volunteers helped to prepare and administer the vaccinations, and counselled the patients following their vaccine.

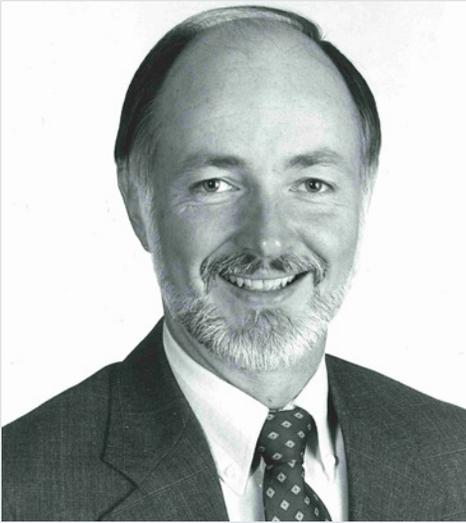
“I was only able to give one vaccination, but even in that moment, I felt like I was a part of something much larger. I felt like I was potentially saving that person’s life,” said Kara Partridge, class of 2021. “I also felt like I was able to help out the pharmacy staff by drawing up vaccines and filing paperwork.”

In total, approximately 150-200 Pfizer vaccines were administered per day to the Wapato community—many of whom received their second dose of the vaccine.

“Witnessing those happy moments from community members who finally completed their COVID vaccine was simply an invaluable experience,” said Tuyen Van, class of 2022.



Romeo Do, class of 2022



PHILANTHROPY FOCUS

Some good news to share on the philanthropy front...thanks to a gift from **Rusty and Sheri Crawford** (class of 1987 and 1988 respectively), the Larry Simonsmeier Conference Room has become a reality and the official plaque is on the wall. This space is located on the first floor of the Pharmaceutical and Biomedical Sciences building—the college’s home since 2014—on WSU’s Health Sciences Campus in Spokane. You may recall that Dean Emeritus Simonsmeier was honored at the 2018 Crimson Gala, and funds are still being raised for the Dean Emeritus Larry Simonsmeier Memorial Naming Fund. The gift from the Crawford’s helped ensure the minimum threshold was met to name the conference room in Larry’s memory.

For information on naming opportunities at the college, please email Kelly Sylvester at Kelly.sylvester@wsu.edu or call 509-368-6675.

Alumni News

Congratulations are in order for **Brandy Seignemartin**, class of 2019, who has been permanently hired after a residency with the Washington State Pharmacy Association. You may remember we featured Brandy in an article last year. Brandy’s new job title is Director of Policy in Practice. You can reach her at brandy@wsparx.org. Congratulations, Brandy and GO COUGS!

“Happy Days are Here Again!” **John Oftebro**, class of 1965, sent us the below photos of himself and fellow class of 1965 alum **Gerry Danquist** on a fishing trip this summer with Gerry’s son-in-law Todd Kilgore and John’s neighbor Jeff Cook at the Madison Double R Lodge in Montana. We’re looking forward to seeing John this fall at our Crimson Gala where he will be recognized with the R. Keith Campbell Lifetime Achievement Award.



John Oftebro (left) with Gerry Danquist



L-R: Todd Kilgore, John Oftebro, Jeff Cook, Gerry Danquist



John Oftebro (left) with Gerry Danquist

In our travels to visit with alumni over the summer, we met with **Steven Smith**, class of 1980 and **Natalie Stewart-Smith**, 1981 Master of Arts in History, who shared a very interesting story with us. When they were in Pullman in 1976, they were featured in an article in the Daily Evergreen titled, “The graying of the WSU student body – added stress for the older students,” because they were non-traditional students who were married, “older students” (at the age of 26), and returning to college. They are now past 70 years old, still vibrant, and enjoying life in Prescott, Arizona. They also recently joined us for an alumni event in Scottsdale, Arizona.



L-R: Linda Garrelts MacLean; Lara (Draper) Clower, '95; Dean Leid; Steven Smith; Natalie Stewart-Smith; Kathleen (Cox) Ebel, '93.

IN REMEMBRANCE....

Deepest condolences to the family and friends on the loss of the following Cougar pharmacists:

- **Dick Fowler**, class of 1950
- **Scott Richard Jamieson**, class of 1980

Want to be listed in our alumni updates? Send us your career information or let us know what you've been up to at pharmacy.gocougs@wsu.edu!

On the road again

This summer, Dean Mark Leid and Kelly Sylvester, director of development and alumni relations, had the chance to visit with many alumni and friends of the college. Starting in Reno, Nevada in May, heading south all the way to Tucson, Arizona, with stops in Portland, Oregon and Seattle, Washington in July, it was great to have an opportunity to connect with supporters from all generations, who all have one thing in common: their love for WSU pharmacy. We thought we'd share some of the photos from these visits of Dean Mark Leid with alumni of the college:



Charlie Quaglieri, '06.



Brady, '92, and Tammy Jens in Reno, Nevada.



Craig Urashima, '77, in Reno, Nevada.



Tena (Fischer) Mathers, '91, in Reno, Nevada.



Sue Merk, '76, at her cabin in Easton, Washington.



Shandra Calmes, '05, in Issaquah, Washington.



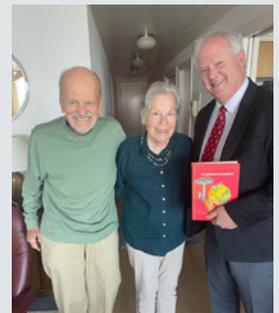
Steve, '84, and Alex Riddle in Edmonds, Washington.



Craig Urashima, '77, in Reno, Nevada.



Merri Kay Alzola, '93, and Kurt Bowen, '13, in Vancouver, Washington.



Leid brought one of his old pharmacy school textbooks on his visit Jim Robbers who wrote the book. Jim and Dianne Robbers, '57.



Former faculty Dr. Arne Martin, '59 and '61, and his wife Kay with Dean Mark Leid (left) and Linda Garrelts MacLean (right) in Tucson, Arizona.



Dean Leid conversing with one his academic heroes, James Robbers, '57.



Portland, l-r: Merrie Kay Alzola, '93; Mark Stuhman, '80; Amanda Norman, '15; Leon Alzola, '91; Dean Leid; and Theresa Stuhman, '80 Education.

Other News

Faculty named leaders, new members of Washington State Academy of Sciences

Associate Dean for Faculty and Student Development and Pharmaceutical Sciences Professor and Interim Chair Kathryn Meier was selected to become a member of the Washington State Academy of Sciences.

[Read more from the WSU Insider](#)

The potential role of ‘junk DNA’ sequence in aging, cancer

Genes influence how cells age and how long humans live, but how that works exactly remains unclear. A new study led by Pharmaceutical Sciences Professor Jiyue Zhu has solved a small piece of that puzzle, bringing scientists one step closer to solving the mystery of aging.

[Read more from Medical Xpress](#)

Meet your 2021–22 APhA–ASP National Executive Committee: Kennedy M. Erickson, National President-elect

Kennedy Erickson, class of 2023, was chosen by her peers across the nation to serve as the 2021-22 American Pharmacists Association – Academy of Student Pharmacists (APhA-ASP) national president-elect.

[Read more from APhA-ASP](#)

Washington 4-H teens to assist with COVID-19 vaccine outreach

Pharmacy students, 4-H teens, and adult mentors in Yakima, Benton, and Franklin counties will be educating their communities about COVID-19 vaccines thanks to dual grants.

[Read more from the WSU Insider](#)

WSU researchers identify protein to help with heart attack recovery

Pharmaceutical Sciences Assistant Professor Zhaokang Chang talked to KXLY 4 News Now about recent research which identified a protein that could be the key to improving treatment outcomes following heart attacks.

[See the full story from KXLY](#)

Pharmacy Times Student Café

Pharmacy Times recently caught up with some class of 2022 pharmacy students to ask them about their experiences at WSU and during the COVID-19 pandemic. See the videos:

- [What drew you to study pharmacy at Washington State University?](#)
- [What opportunities at WSU have you found to be important stepping stones for your career?](#)
- [How has COVID-19 impacted your educational experience at WSU?](#)
- [How has COVID-19 impacted your outlook on pharmacy as a field?](#)
- [Have you been involved in any COVID-19 testing or vaccination efforts?](#)

Cannabis research center established at Washington State University

WSU’s early efforts on cannabis research have now grown into a full, multi-disciplinary research center with nearly 100 scientists working on a diverse range of cannabis-related projects, including Boeing Distinguished Professor of Pharmaceutical Sciences Philip Lazarus.

[Read more from the WSU Insider](#)

Liberty High School senior Greer is dedicated to her education

Madison Greer, featured in this story, hopes to one day become a student at the College of Pharmacy and Pharmaceutical Sciences.

[Read more from The Spokesman-Review](#)

Faculty Scholarship

PUBLICATIONS

J. Roberts and Marcia Fosberg Distinguished Regents Professor of Pharmacotherapy and Director of the Drug Information Center **Danial Baker** published, “Drug evaluation – tirbanibulin 1% ointment (Klisyri),” in Wolters Kluwer Health’s The Formulary Monograph Service (FMS) in April 2021. Wolters Kluwer Health is a drug and health information publisher, the FMS is a resource used in the formulary decision making process for hospitals and managed care systems on recently released and investigational drugs.

Jing Wang (PharmD class of 2021), Drug Information Center Resident **Brittany Craft** and **Danial Baker** published, “Drug evaluation – relugolix (Orgovyx),” in the FMS in April 2021.

Brittany Craft and **Danial Baker** published, “Drug evaluation – margetuximab-cmkb (Margenza),” in the FMS in April 2021.

Pharmacotherapy Clinical Professor and Director of Quality Assurance Improvement & Accreditation Preparation **Terri Levien**, **Audrian Santos** (PharmD class of 2021), and **Danial Baker** published, “Drug evaluation – cabotegravir (Vocabira) & cabotegravir and rilpivirine (Cabenuva),” in the FMS in April 2021.

Lee Roy Esposito (PharmD class of 2021), **Brittany Craft** and **Danial Baker** published, “Drug evaluation – vibegron (Gemtesa),” in the FMS in April 2021.

Danial Baker published, “Drug utilization evaluation – vibegron (Gemtesa),” in the FMS in April 2021.

Danial Baker published, “Drug evaluation – bimekizumab: preliminary evaluation,” in the FMS in May 2021.

Brittany Craft and **Danial Baker** published, “Drug evaluation – tepotinib (Tepmetko),” in the FMS in May 2021.

Danial Baker published, “Drug evaluation – evinacumab-dgnb (Evkeeza): Updated Evaluation,” in the FMS in May 2021.

Brittany Craft and **Danial Baker** published, “Drug evaluation – casimersen (Amondys 45),” in the FMS in May 2021.

VNA Resident **Brandon Tabor**, **Brittany Craft** and **Danial Baker** published, “Drug evaluation – umbralisib (Ukoniq),” in the FMS in May 2021.

Danial Baker published, “Drug utilization evaluation – evinacumab-dgnb (Evkeeza),” in the FMS in May 2021.

Brittany Craft, **David Tam** (PharmD class of 2021) and **Danial Baker** published, “Drug evaluation – voclosporin (Lupkynis),” in the FMS in June 2021.

Danial Baker published, “Drug evaluation – sulopenem etzadroxil / probenecid: preliminary evaluation,” in the FMS in July 2021.

Danial Baker published, “Drug evaluation – dasiglucagon (Zegalogue),” in the FMS in June 2021.

Brittany Craft and **Danial Baker** published, “Drug evaluation – trilaciclib (Cosela),” in the FMS in June 2021.

Terri Levien and **Danial Baker** published, “Drug evaluation – inolimomab (Leukotac),” in the FMS in June 2021.

Danial Baker published, “Drug utilization evaluation – voclosporin (Lupkynis),” in the FMS in June 2021.

Pharmacotherapy Assistant Professor **Cheyenne Newsome** and one co-author published, “[Strategies to bring transgender and non-binary health care into pharmacy education](#),” in the American Journal of Pharmaceutical Education in May 2021.

Pharmaceutical Sciences Postdoctoral Research Associate **Jinglong Zhang**, Pharmaceutical Sciences Postdoctoral Research Associate **Fan Zhang**, Pharmaceutical Sciences Associate Professor **Gang Chen**, Boeing Distinguished Professor of Pharmaceutical Sciences **Philip Lazarus**, Pharmaceutical Sciences Associate Professor **Shuwen**

Wang, and Pharmaceutical Sciences Professor **Jiyue Zhu** and eight co-authors published, "[Polymorphic tandem DNA repeats activate the human telomerase reverse transcriptase gene](#)," in the peer-reviewed scientific journal Proceedings of the National Academy of Sciences of the United States of America on June 29, 2021.

Jiyue Zhu and two co-authors published "[The regulatory function of tandem repeat VNTR2-1 in hTERT gene involves helix-loop-helix family transcription factors](#)," in the peer-reviewed journal Environmental Molecular Mutagenesis on June 11, 2021.

Pharmaceutical Sciences Assistant Professor **Senthil Natesan** and two co-authors published "[Membrane-facilitated receptor access and binding mechanisms of long-acting \$\beta_2\$ -adrenergic receptor \(\$\beta_2\$ -AR\) agonists](#)," in Molecular Pharmacology, a peer-reviewed scientific journal from the American Society for Pharmacology and Experimental Therapeutics in August 2021.

PRESENTATIONS

Allen I. White Distinguished Associate Professor of Pharmacotherapy **Joshua Neumiller** presented, "Meeting people with diabetes where they are: lessons learned from the home environment," at the 2021 Oregon & Washington Association of Diabetes Care & Education Specialists (ADCES) Annual Education Conference on April 29, 2021.

Josh Neumiller co-presented the webinar, "Beyond basal: why, when and how to intensify therapy in Type 2 diabetes," for the American Diabetes Association (ADA) Professional Webinar Series on May 11, 2021.

Josh Neumiller presented, "Diabetes update: medication management and adherence," for the Diabetes Alliance of Idaho (DAI) on May 19, 2021.

Josh Neumiller presented, "Diabetes: new treatment recommendations and approaches for 2021," at the 2021 Northwest Pharmacy Convention on June 10, 2021.

Josh Neumiller presented, "Improving outcomes by utilizing antihyperglycemic agents effectively," for the [American Diabetes Association \(ADA\) Diabetes is Primary Certificate Program](#).

Josh Neumiller with two co-presenters delivered the American Pharmacists Association (APhA) webinar, "Optimizing CGM and clinical outcomes: the role of the pharmacist," on June 15, 2021.

Josh Neumiller presented the webinar, "Update on the management of diabetic kidney disease (DKD)," for Postgraduate Healthcare Education on June 30, 2021.

Pharmacotherapy Assistant Professor **Cheyenne Newsome** presented the webinar, "Pharmacists taking pride in providing care to patients who are LGBTQ+," for the Washington State Pharmacy Association (WSPA) on June 30, 2021.

United States Transuranium and Uranium Registries (USTUR) Postdoctoral Research Associate **Martin Šefl** presented, "USTUR whole-body case 0680: 53-year follow-up of a Manhattan project worker," at the 66th Annual Meeting of the Health Physics Society (HPS Annual Meeting) in Phoenix, Arizona on July 28, 2021. Faculty co-authors included USTUR Assistant Professor **Maia Avtandilashvili** and USTUR Director and Professor **Sergei Tolmachev**.

USTUR Assistant Professor **George Tabatadze** presented, "Comparison of two methods to estimate skeletal plutonium concentration from limited sets of bones," at the HPS Annual Meeting in Phoenix, Arizona on July 28, 2021. Faculty co-authors included **Maia Avtandilashvili** and **Sergei Tolmachev**.

Maia Avtandilashvili and **Sergei Tolmachev** and one other co-author created the presentation, "Latent bone modeling approach to estimate plutonium activity concentration in human skeleton," which was presented virtually to the HPS Annual Meeting on July 28, 2021.

Sergei Tolmachev virtually presented, "Effect of osteoporosis on latent bone models to estimate plutonium activity concentration in human skeleton," to the HPS Annual Meeting on July 28, 2021. Co-authors included **Maia Avtandilashvili** and one other.

Maia Avtandilashvili and **Sergei Tolmachev** and one other co-author created the presentation, “Uncertainty evaluation of skeleton plutonium activity concentration estimated from a latent bone model,” which was presented virtually to the HPS Annual Meeting on July 28, 2021.

Sergei Tolmachev virtually presented, “Latent bone modeling approach to select best combination of bones for estimating plutonium activity concentration in human skeleton,” to the HPS Annual Meeting on July 28, 2021. Co-authors included **Maia Avtandilashvili** and one other.

Maia Avtandilashvili and **Sergei Tolmachev** and three other co-authors created the presentation, “Analysis of long-term retention of plutonium in the respiratory tract tissues of four workers: bound fraction vs. scar-tissue compartments,” which was presented virtually to the HPS Annual Meeting on July 28, 2021.

GRANTS & AWARDS

Pharmaceutical Sciences Assistant Professor **Boyang (Jason) Wu** has been awarded a five-year, \$1.9 million R01 grant by the National Institutes of Health’s National Cancer Institute.

Pharmaceutical Sciences Assistant Professor **Anil Singh** has been awarded \$100,000 over one year from the Arthritis National Research Foundation for the project titled, “Molecular reprogramming of Rheumatoid arthritis synovial fibroblasts by interleukin 6.”

Pharmacotherapy Associate Professor and Director for the Center for Pharmacy Practice Research **Kimberly McKeirnan** has been awarded \$81,910 over six months from Merck for the project titled, “A nation-wide survey to systematically explore the impact of immunizing pharmacy technicians on community pharmacy immunization program resilience.”

Pharmaceutical Sciences Postdoctoral Research Associate **Jing Wei** has been awarded \$446,467 over two years from the Department of Defense for the project titled, “Targeting TPH1 in neuroendocrine prostate cancer.”

Pharmaceutical Sciences Associate Professor and Director of Industry Engagement **Bhagwat Prasad** has been awarded \$121,000 over two years from Novartis for the project titled, “Proteomics characterization of recombinant UDP-glucuronosyltransferases (UGTs) for in vitro to in vivo extrapolation of drug metabolic clearance in human.”

Philip Lazarus has been awarded \$50,000 over fifteen months from the Washington Research Foundation for the project titled, “Precision tools for drug metabolizing enzyme research and drug development.”

Senthil Natesan received \$50,000 from the Washington Research Foundation for investigating allosteric modulators of opioid and cannabinoid CB1 receptors as potential therapeutics for treating pain and inflammation.

SERVICE

Julie Akers has accepted the position of Associate Dean for External Relations at the WSU College of Pharmacy and Pharmaceutical Sciences, effective July 1, 2021.

Salah-uddin Ahmed has accepted the position of Executive Director of Graduate Programs at the WSU College of Pharmacy and Pharmaceutical Sciences, effective July 1, 2021.

Associate Dean for Faculty and Student Development and Pharmaceutical Sciences Professor and Interim Chair **Kathryn Meier** was [selected as a member of the Washington State Academy of Sciences.](#)

Andrea Lazarus will be continuing in her role as Associate Dean for Research in the college.

Josh Neumiller is serving as a member of the ADCES 2022 Annual Conference Planning Committee.

Josh Neumiller now serves on the [editorial board](#) for the journal *Kidney and Dialysis*.

Josh Neumiller served as chair for the oral abstract session titled, “Novel therapeutic agents and approaches,” at the 81st Scientific Sessions of the ADA on June 28, 2021.

Pharmaceutical Sciences Associate Professor **Sue Marsh** has been appointed as a [Fellow of the American Physiological Society \(FAPS\)](#).

Student Achievement

DOCTOR OF PHILOSOPHY (PHD) STUDENTS

Dr. Tarana Arman (Clarke lab) passed her final defense on July 13, 2021.

Christopher T. Szlenk (pharmaceutical sciences, Natesan lab), with faculty co-authors **Jeevan GC** and **Senthil Natesan**, published "[Membrane-facilitated receptor access and binding mechanisms of long-acting \$\beta\$ 2-adrenergic receptor \(\$\beta\$ 2-AR\) agonists](#)," in *Molecular Pharmacology*, a peer-reviewed scientific journal from the American Society for Pharmacology and Experimental Therapeutics in August 2021.



College of

Pharmacy and Pharmaceutical Sciences

WASHINGTON STATE UNIVERSITY

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