



# The Dean's Newsletter



From  
College of Pharmacy Dean  
Gary Pollack, Ph.D.

April 2015

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- Omega-3 research
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Dear Friends and Colleagues:

I devote most of my comments in this newsletter to issues related to our Doctor of Pharmacy program. The preparation of future pharmacy practitioners is, after all, the defining characteristic of a school or college of pharmacy. Academic programs of course can have impact and add value in all sorts of ways, but in the absence of producing new pharmacists the title “College of Pharmacy” would not be appropriate.

With that said, our college has a bimodal mission, structure, and culture. Given our title, the most visible aspect of our college relates to practitioner preparation and contributions—direct or indirect—to the provision of health care in our region, state, and nation. The second, and equally important component of our mission and identity, is related to the preparation of new pharmaceutical scientists and the creation and dissemination of knowledge through contemporary research. Two recent events related to research and graduate education are, I believe, worthy of mention.

Last month I had the opportunity to report to the American Association of Colleges of Pharmacy (AACP) that our extramural research funding base for fiscal year 2014 was just a whisker shy of \$8 million. This figure represents substantial growth over a very short period of time considering that AACP credited our program with approximately \$600,000 of extramural funding in 2011. While the dollar flow in and of itself may not be a terribly compelling story, extramural funding is used as a surrogate marker for a variety of issues related to research. Presumably, research productivity, the impact of that productivity on society, and the respect afforded to a program based on research contributions are somewhat proportional to the funding base. An imperfect measure, to be sure, but one that is easily communicated and understood. I am tremendously proud of the research accomplishments of our faculty, and our trajectory continues to look promising.

Of course, the value of research funding is in what is accomplished with it, not with the funds themselves. An important use of research funds is in the preparation of the next generation of scientists, in our case largely

through the Doctor of Philosophy in Pharmaceutical Sciences program. This year, Washington State University launched a university-wide “Three Minute Thesis” competition. The basis of this event, which was first established by the University of Queensland in Australia, is for graduate students to explain the entirety of their research project in lay terms within three minutes (a form of the classic “elevator speech”). At WSU, students compete within their own colleges, and then the college-level winners compete for the university award. I was extremely pleased that Emily Johnson, a doctoral student working under the direction of Dr. Susan Marsh in experimental and systems pharmacology, won the university-level competition. It is another indication that students in our college, regardless of the program of study, are receiving outstanding preparation for the next step in their careers.

Best wishes,



Gary M. Pollack  
Dean  
Washington State University College of Pharmacy

## Integration of technology improves engagement, learning

### *Student pharmacists play trivia games online instead of taking pop quizzes*



Dr. Connie Remsberg

The WSU College of Pharmacy is using integration of technology to achieve higher engagement from students during class. These methods increase knowledge retention and overall student success and satisfaction.

Connie Remsberg, pharmacy clinical assistant professor at Washington State University, teaches pharmaceutics and compounding.

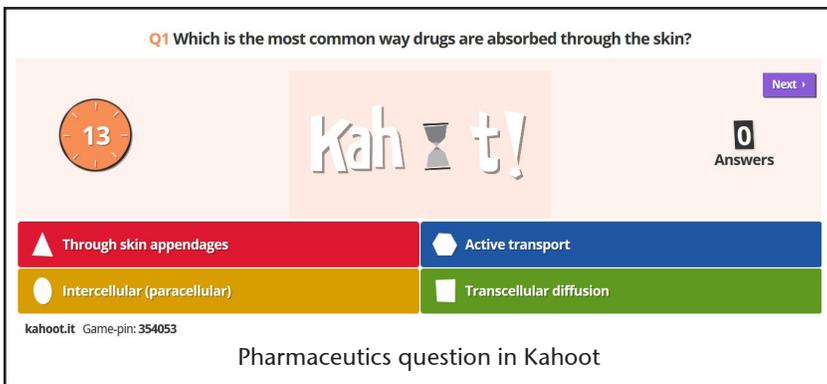
If you related pharmaceutics and compounding to cooking, pharmaceutics would be the weights and measures, chemistry of interacting ingredients, food safety regulations, and technical methodology (add dry ingredients to wet, and not vice versa) that goes along with mixing up the cookie dough and putting it in the oven (compounding).

Traditionally, as a lecture-based and data-heavy course, pharmaceutics is pretty “dry”. But Remsberg has integrated audience response technology into her pharmaceutics lectures to make class time more engaging for her first-year student pharmacists. Think, pharmaceutics lecture meets trivia night.



“Compared to other question and answer software, Kahoot is much more game-like and makes the activity much more enjoyable,” said Haleigh Miller, first-year student pharmacist at WSU. “Students are excited to use Kahoot even after sitting through a two-hour lecture, which is far different than my experience with a more traditional style of Q&A.”

These types of teaching methods were strategically selected to better engage millennials, said Remsberg. “Making it as entertaining as possible is helpful.”



Remsberg opens the online “quiz” on Kahoot.com during class, and students log in from their smart phone, tablet or laptop to participate. They are rated on selecting the correct answer, and also on how much time it takes them to respond.

Instructors can also address any knowledge gaps in real time. If everyone gets the same

question wrong, it can be addressed right then, said Remsberg. “It’s a great way to give informative feedback and to break up class time.”

Studies have shown that the more engaged students are with course material, the higher the rate of retention they experience, which translates into better understanding and application, said Remsberg.

Sylvia Sim, a second-year student pharmacist, has also used the platform this year. “A lot of us found Kahoot particularly helpful in Q&A and patient safety because we get immediate feedback on how we did as an individual or as a class, which allows a smooth transition into discussion if a lot of us got the question wrong or if there was an unexpected split in answers,” she said.

Remsberg starting using the Kahoot platform this semester after learning about it at a conference focused on teaching practices and innovations. Pharmacy professors Brenda Bray and Shannon Panther have also started using Kahoot in their classrooms.

“This [Kahoot] is just one of many audience response technologies,” said Remsberg. Other professors use the online tools Socrative.com and also Piazza.com during class time to increase student participation, promote higher learning, and cultivate deeper understanding of course material, said Remsberg.

This kind of integration of technology into curriculum delivery and student evaluation is just one example of how the College of Pharmacy is committed to improving teaching and learning excellence throughout its professional and graduate programs.



# Researchers show how fatty acids can fight prostate cancer

## *Mechanism points way to more effective drug treatment*

By: Eric Sorenson, Washington State Magazine



Dr. Kathryn Meier

Washington State University researchers have found a mechanism by which omega-3 fatty acids inhibit the growth and spread of prostate cancer cells. The findings, which are at odds with a 2013 study asserting that omega-3s increase the risk of prostate cancer, point the way to more effective anti-cancer drugs.

Scientists have long known that omega 3s reduce inflammation and have anti-diabetic effects, and some recently discovered how this happens.

“But we’re the first to show that they work this way in cancer,” said Kathryn Meier, a professor of pharmacy at WSU Spokane. “The attention has mostly been on inflammation and diabetes but there has always been an interest in cancer, and we were the first to show this mechanism in any cancer cell at all. And we’re using prostate cancer, which is the most controversial subject in omega 3s.”

A 2013 study in the Journal of the National Cancer Institute found that men with higher levels of omega-3 fatty acids in their blood had a greater risk of developing prostate cancer. It was not clear if the fatty acids came from food—certain fish, seeds and nuts are high in omega 3s—or supplements like fish oil.

Working with prostate cell cultures, Meier and two students, Ze Liu and Mandi Hopkins, found the fatty acids bind to a receptor called FFA4, for “free fatty acid receptor 4.” Rather than stimulating cancer cells, the receptor acts as a signal to inhibit growth factors, suppressing proliferation of the cancer cells.

“This kind of knowledge could lead us to better treat or prevent cancer because now we know how it works,” Meier said. The study also found that a drug mimicking the action of omega 3s can work as well or better than

fatty acids in suppressing the cancer cells.

The study appears in the Journal of Pharmacology and Experimental Therapeutics.

Meier said it is still unclear if the effect can be obtained by taking dietary supplements like fish oil. Some people don’t tolerate fish oil very well, she said. Moreover, the effect of fish oil could fade as it is digested, while data from this study suggest that an omega-3 drug needs to be in a cancer cell all the time to have an effect.

“It’s very difficult in dietary studies to tell how much



A WSU student on the Health Sciences campus in Spokane works at a research bench.

to take or what form to take,” Meier said. “Should you be eating fish? Should you be taking pills? But now we have a potential drug. Once you have a drug you can test very precisely whether it works or not in a certain disease and you would know exactly how much to give people.”



## Former surgeon general to speak at commencement

*Dr. Richard Carmona to deliver 2015 commencement ceremony keynote*



Dr. Richard Carmona

Richard Carmona, former surgeon general of the United States, will be the keynote speaker at the commencement ceremony of the Washington State University College of Pharmacy at 2 p.m. Thursday, May 7, at Martin Woldson Theater at the FOX.

Carmona is an advocate of health literacy and prevention as effective means to improve public health and reduce healthcare costs. He served as surgeon general under President George W. Bush 2002-06, during which he issued the landmark Surgeon’s General Report about the dangers of second-hand smoke and warnings about obesity in America.

A Special Forces Vietnam veteran, he earned a degree from the University of California Medical School in San Francisco; served as surgeon and deputy sheriff at the Pima County Sheriff’s Department in Tucson, Arizona, and completed a master’s degree in public health policy and administration.

Carmona’s interest in public health stemmed from the realization that most of his patients’ illnesses were preventable. As surgeon general, he focused on prevention, preparedness, health disparities, health literacy and global health.

He is chief executive officer and vice chairman of the health and wellness company Canyon Ranch. He serves as president of the nonprofit Canyon Ranch Institute and is a distinguished professor of public health at the University of Arizona.



# Other College News

## FACULTY SCHOLARSHIP

### Publications

- Pharmacotherapy Chair and Professor **John R. White, Jr.** published, “Empagliflozin, an SGLT2 inhibitor for the treatment of Type 2 diabetes mellitus: A review of the evidence,” in the peer-reviewed journal *Annals of Pharmacotherapy*, e-pub ahead of print [available online](#) on February 23, 2015.
- Pharmacotherapy Professor and Associate Dean for External Professional and Continuing Education **Danial E. Baker**, Pharmacotherapy Clinical Professor **Terri L. Levien** and one co-author published, “Drug Evaluation—Paritaprevir, Ritonavir, Ombitasvir, and Dasabuvir (Viekira Pak),” in *Wolters Kluwer Health’s The Formulary Monograph Service (FMS)* in March 2015. 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.
- Pharmacotherapy Research Associate and Specialty Resident in Drug Information **Anne P. Kim** and **Danial Baker** published, “Drug Evaluation—Meningococcal B bivalent recombinant lipoprotein 2086 vaccine (Trumenba)” in the FMS in March 2015.
- **Danial Baker**, **Terri Levien** and one co-author published, “Drug Evaluation—Ceftolozane/Tazobactam (Zerbaxa),” in the FMS in March 2015.
- Pharmacotherapy Research Associate and Specialty Resident in Drug Information **Ross J. Bindler** and **Danial Baker** published, “Drug Evaluation—Alembtuzumab (Lemtrada)” in the FMS in March 2015.
- **Terri Levien** and **Danial Baker** published, “Drug Evaluation—Peramivir (Rapivab): Updated monograph,” in the FMS in March 2015.
- **Danial Baker** published, “Drug Utilization Evaluation—Peramivir (Rapivab),” in the FMS in March 2015.
- Pharmaceutical Sciences Research Intern **Miles Olszko** and Pharmaceutical Sciences Associate Professor **Grant D. Trobridge** co-authored with seven others the article, “Foamy viral vector integration sites in SCID-repopulating cells after MGMP140K-mediated in vivo selection,” published in *Gene Therapy*, a nature publishing group journal (2015 Mar 19. doi: 10.1038/gt.2015.20.)

### Presentations

- United States Transuranium & Uranium Registries (USTUR) Associate Research Professor **Sergei Tolmachev** presented, “United States Transuranium and Uranium Registries and Research,” at the 2015 Department of Energy (DOE) Annual Occupational Medicine Workshop and Webinar at the DOE Headquarters in Washington, D.C., March 16-17, 2015.
- Pharmacotherapy Associate Professor **Joshua J. Neumiller** presented, “Medication-taking practices and preferences of older persons with multiple chronic medical conditions: Steps for dissemination,” to the Patient-Centered Outcomes Research Institute (PCORI) Pilot Projects Learning Network via webinar on March 16, 2015.
- **Joshua Neumiller** presented, “New and emerging medications for the treatment of diabetes” at the Washington Association of Diabetes Educators (WADE) 2015 Annual Conference on March 21, 2015, in Redmond, Washington.

- **Sergei Tolmachev** presented USTUR research findings at the 2015 International Workshop on Sample/Tissue Archiving of Radiobiology (STAR2015) in Kyoto, Japan, May 24-25, 2015.

## Service

- **Joshua Neumiller** served as a 2015 ad hoc grant reviewer for Diabetes UK. Diabetes UK is a leading charity and one of the largest funders of diabetes research in the United Kingdom.
- **Grant Trobridge** served as a reviewer for the AIDS Immunology and Pathogenesis (AIP) study section for the National Institutes of Health.
- Pharmaceutical Sciences Associate Professor **Salah-uddin Ahmed** served as a reviewer on the special emphasis panel of Musculoskeletal, Oral and Skin Sciences (MOSS), Division of Translational and Clinical Sciences at the National Institutes of Health, Bethesda, Maryland.

## STUDENT ACHIEVEMENT

### Doctor of Philosophy (Ph.D.) students

- **Emily Johnson** (Marsh lab, experimental and systems pharmacology) won the WSU 3-Minute Thesis competition in Pullman, Washington, on March 26, 2015. First place received a \$3,000 travel award from the Office of the Provost to attend a professional conference.
- **Solomon Agere** (Ahmed lab, pharmaceutical sciences) received a Health Professional Research Preceptorship Award from the Rheumatology Research Foundation to do research in rheumatic disease under the mentorship of **Salah-uddin Ahmed**. This award includes a \$3,500 stipend to the graduate student and a \$1,000 travel award to attend the American College of Rheumatology Annual meeting Nov 6-11, 2015, in San Francisco, California. Solomon will also be recognized at the luncheon hosted by the Rheumatology Research Foundation during the meeting.
- **Sabrina Fechtner** (Ahmed lab, Pharmaceutical Sciences) received James and Dianne Robbers Student Research Award in Clinical and Translational Research. She will receive \$4,000 in support for her proposed research on evaluating the anti-inflammatory activities of different catechins present in green tea on the selected target proteins in the cytokine signaling network.
- **Emily Johnson** presented the poster, “Exponential modeling of VO<sub>2</sub> kinetics in endurance-trained diabetic mice,” and won the Doctoral Poster Presentation Award at the 2015 American College of Sports Medicine Northwest Conference in Bend, Oregon, from February 27-28, 2015. Additional authors: Johnson EJ, Dieter BP, Maricelli J, Rodgers BD, Marsh SA. .
- **Solomon Agere** will present, “RANTES/CCL5 chemokine in tissue remodeling in rheumatoid arthritis: Novel mechanism and therapeutic regulation,” at 12:10 p.m. on April 3, 2015, in PBS 101 (Walgreens Auditorium) as part of the College of Pharmacy Graduate Program Seminar Series.
- **Kyle Morris** (Wang lab, pharmaceutical sciences) will present, “Cell-derived membrane coated nanoparticles: A novel drug delivery platform,” at 12:10 p.m. on April 10, 2015, in PBS 101 (Walgreens Auditorium) as part of the College of Pharmacy Graduate Program Seminar Series.
- **Xiaomeng Jiang** (Pollack lab, pharmaceutical sciences) will present, “Disease progression models for Huntington’s disease,” at 12:10 p.m. on April 17, 2015, in PBS 101 (Walgreens Auditorium) as part of the College of Pharmacy Graduate Program Seminar Series.

- **Dunxin Shen** (Padowski lab, pharmaceutical sciences) will present, “Database construction for preparing modeling Alzheimer’s Disease progression X,” at 12:10 p.m. on April 24, 2015, in PBS 101 (Walgreens Auditorium) as part of the College of Pharmacy Graduate Program Seminar Series.

#### Doctor of Pharmacy (Pharm.D.) students

- **Madison Block, Amanda Hack** and **Stephanie Lind** received the “Teamwork Award” and placed sixth overall at the national Student Pharmacist Compounding Competition at the University of Florida in Gainesville on March 21-22, 2015.
- **Ryan Nottingham** represented WSU at the National Association of Chain Drug Stores (NACDS) RxIMPACT day on Capitol Hill March 25-26, 2015.
- **James Leonard**, with faculty co-authors **Danial Baker** and **Terri Levien**, published, “Drug Evaluation – Paritaprevir, Ritonavir, Ombitasvir, and Dasabuvir (Viekira Pak),” in the FMS in March 2015.
- **Pierce Robledo** and **Karl Nacalaban** were elected by the Associated Students of WSU Spokane (ASWSUS) as president and vice president, respectively, for 2015-16.
- Current ASWSUS president **Jared Kavanaugh** was elected to the student body senate for 2015-16.

## Coming Events

- April 15, 2015  
**Salah-uddin Ahmed** will present, “Synovial fibroblasts in inflammatory arthritis: passive responders or active mediators of joint destruction,” at 12:10 p.m. in PBS 101 (Walgreens Auditorium) as part of the College of Pharmacy Research Seminar Series.
- April 17, 2015  
The College of Pharmacy will host the 2015 annual **Donor Appreciation and Awards Night** from 4:30-6:30 p.m. on the WSU Health Sciences campus in Spokane.
- May 7, 2015  
The College of Pharmacy will host the 2015 Commencement Ceremony from 2:00-4:30 p.m. at the Martin Woldson Theater in downtown Spokane, Washington. [event details](#)



College of Pharmacy

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