



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

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Dear Friends and Colleagues:

We recently had the pleasure of welcoming the 152 members of the class of 2019 to our college with white coat ceremonies in Spokane and Yakima. They are an impressive group of young professionals, and we are glad that they chose to pursue the next step of their education at Washington State University.

The 2015-16 academic year is a milepost in the life cycle of our program for several reasons:

- We are in the first year of our eight-year accreditation cycle. It is always encouraging to receive the endorsement of the accrediting body, and we were obviously pleased to receive ACPE's review of our program.
- We are in the final year of the three-year roll-out of our competency-based approach to assessing student performance. The rationale for adopting this approach was to ensure alignment between competency-based approach for delivering the curriculum (an expectation of ACPE) and assessing how students perform in the curriculum. An additional benefit of this approach is that, by measuring student performance against an external standard (competency statements) instead of against the other students in the class, we have developed a culture in which students help each other as opposed to competing against each other.
- Our faculty have adopted an active and collaborative learning model, as opposed to traditional lecture, for the delivery of our professional curriculum. This year is the first step in a three-year phase-in of this new approach to curricular delivery, which we believe is among the most innovative approaches in academic pharmacy. The success of a collaborative learning model hinges on, well, collaboration among students, which is facilitated by our approach to grading student performance.
- Finally, we have launched the extension of our Doctor of Pharmacy program to the campus of Pacific

Northwest University of Health Sciences in Yakima this year. Our 30-member inaugural class is both robust and talented, and we are looking forward to great things from them as pioneering members of our college.

With best wishes for the new academic year,



Gary M. Pollack  
Dean  
Washington State University College of Pharmacy

## Pharmacy research identifies cancer biomarkers

### *Genetic tests to be offered for prostate, breast cancer*

By: Lorraine Nelson, WSU Health Sciences Spokane

The research laboratory of Grant Trobridge, Ph.D., has identified genes that are biomarkers for predicting prostate cancer survival and breast cancer recurrence. The knowledge has been licensed to an India-based genetic testing company, which will make available tests for prostate cancer survival and breast cancer recurrence.



Dr. Grant Trobridge

Ultimately, the goal is to validate the accuracy of the genetic tests and create the best treatment plans for patients based on their individual expression of the genes. Identification of these biomarkers is another in a series of scientific advancements made in the Trobridge lab.

“Genes express differently in each individual, and so each person has a different genetic profile or signature,” Trobridge said. “The clinical data will be analyzed for patterns to see what treatment best fits each of the profiles.”

Trobridge’s lab identified 16 genes as biomarkers for predicting prostate cancer survival and four genes as biomarkers for predicting breast cancer recurrence after treatment. The work was supported by a grant from the National Cancer Institute

and follows years of progressive development by the lab of viruses that successfully transfer genetic materials to genes and red blood cells.

The prostate cancer work began about two years ago after the lab developed a technique that showed promise for identifying genes involved in the cancer’s progression. The researchers used a virus to cause mutations in the genes to find out which mutations resulted in the progression of cancer. That work was led by Arun Nalla, a postdoctoral research associate.

The breast cancer work used a virus that normally causes leukemia but has the ability to insert its DNA into the genome of a human cell. This allowed the researcher to “tag” those genes believed to be involved in breast cancer metastasis and follow them to learn how they were involved. That work was led by Victor Bii, a Ph.D. student who has been studying with Trobridge for several years.

Trobridge worked with the WSU Office of Commercialization to establish the partnership and negotiate licensing agreements with Datar Genetics Ltd. in India. Datar was among companies in Europe, Asia, Canada, and the U.S. identified as potential partners.

As part of the agreement, Datar will continue to conduct validation studies to assess the efficacy of the test. Datar will work alongside patients and clinicians in India to determine how to utilize the technology in developing individualized treatment plans. License agreements with additional companies outside of India are expected once the validation studies are complete.

Trobridge earned his Ph.D. in microbiology from Oregon State University. Prior to coming to WSU in 2010, he was a staff scientist at the Fred Hutchinson Cancer Research Center in Seattle and a research assistant professor in the University of Washington’s Department of Medicine.



## Dr. Kimberly McKeirnan

### *WSU pharmacy faculty joins national scholars program*



Dr. Kimberly McKeirnan

Kimberly McKeirnan, Pharm.D., has been selected for the National Association of Chain Drug Stores (NACDS) Foundation Faculty Scholars program.

McKeirnan will receive a \$2,500 research grant from NACDS and is currently working on a research proposal that involves expanding the clinical services provided by pharmacists in chain pharmacies.

“NACDS provides opportunities for us to create and implement programs locally to improve patient health through increased access to care,” said McKeirnan. She is hoping that her participation in the Faculty Scholars program will lead to an on-going research relationship with the NACDS, which provides extensive research funding every year nationally, she said.

“Community pharmacy practice as it relates to public health is my primary research interest area,” said McKeirnan. “We are lucky to be part of such a great community here in Spokane which is very supportive of our efforts.”

McKeirnan is a clinical assistant professor in the Department of Pharmacotherapy at the Washington State University College of Pharmacy. She is from Pomeroy, Washington, and joined the faculty at WSU in 2013 after spending the previous five years working as a community pharmacist.

“After working in community pharmacy I wanted the opportunity to put my own stamp on the profession and help train future pharmacists.” That desire is what brought her to WSU, she said.

According to the program outline, each faculty scholar will design and implement a patient-focused research project conducted in a community pharmacy setting.

The NACDS Foundation focuses on community pharmacy and public health research that contributes to improving patient outcomes. The Faculty Scholars program helps new faculty members to get research in this field off the ground, McKeirnan said. She will be working with Linda Garrelts MacLean as her on-site faculty mentor here in Spokane. MacLean is a clinical professor and an associate dean for the WSU College of Pharmacy.

“I am really excited about the collaborative research environment this program will provide. I am looking forward to learning more about community-practice based research and how to implement it locally,” she said.

The NACDS Foundation has provided funding for one other research project at the WSU College of Pharmacy this year that is also focused on providing communities with greater access to health care services.



## Entrepreneurial pharmacy

### *WSU student selected for national pharmacy business training*



Derek Matlock, class of 2017

Derek Matlock, class of 2017, was selected as one of 14 student pharmacists from across the United States to participate in the 2015 Live Oak Pharmacy Student Program this August. The program is a weeklong intensive business training for student pharmacists who want to become pharmacy owners.

“This opportunity gives me the chance to get more specialized training in pharmacy that most students do not get to take advantage of,” said Matlock. “It allows for a more detailed exposure to eventually be a pharmacy owner.”

The program is hosted by Live Oak Bank in Wilmington, North Carolina, and will bring industry experts from across the country who will offer strategies on owning and operating a successful pharmacy, said Matlock. Live Oak Bank is a financial institution that specializes in financing to independent businesses in niche industries including pharmacy, veterinary and dentistry.

“The course is designed to eliminate the fears of owning an independent pharmacy. Pharmacy students often allow these fears to be a barrier of being an owner, when they are more than capable,” said Matlock.

Matlock is from Tucson, Arizona, and completed his undergraduate coursework at the University of Arizona. After completing his Doctor of Pharmacy degree at WSU he plans to work in retail pharmacy for a few years and then become a pharmacy owner.

“I am extremely grateful for the people that have been by my side and pushed me throughout pharmacy school to get me into the position to even be considered for this opportunity,” said Matlock.



# Cardinal Health awards WSU \$100,000

## *College of Pharmacy, students receive scholarship funding*



Jeff Nye and Patrick Stolz, class of 2016

Student pharmacists Jeff Nye and Patrick Stolz at WSU each have been selected to receive a \$5,000 scholarship from Cardinal Health. The award comes with a trip to attend a pharmacy ownership workshop in South Carolina this fall. Associate Dean Linda Garrelts MacLean will be participating in the workshop as a pharmacy business expert.

Washington State University College of Pharmacy was one of 10 pharmacy schools from across the country selected to receive \$100,000 from

the Cardinal Health Pharmacy Scholarships Program this year. The college also received funding from Cardinal Health in 2011, and was awarded \$125,000. The money is intended to support student pharmacists at WSU who wish to pursue independent pharmacy.

“We were among the schools to receive this generous gift because we are recognized as a national leader in educating pharmacists to be successful business people,” said Gary M. Pollack, dean of the WSU College of Pharmacy. The college has also launched a Pharm.D./MBA joint degree program this year to provide opportunity for aspiring pharmacy entrepreneurs to develop greater business acumen.

“Supporting future community pharmacy leaders through this scholarship program is an honor, and we continue to be inspired by the next generation of innovative, patient-focused pharmacy owners as they begin serving their communities,” said Jon Giacomini, chief executive of Cardinal Health’s pharmaceutical segment.

Cardinal Health, a Fortune 500 company, has a long history of supporting WSU student pharmacists. Since 1998, 29 have received Cardinal Health scholarships, 15 of which have been through the Cardinal Health Pharmacy Scholarships Program.



# Other College News

## FACULTY SCHOLARSHIP

### Publications

- Pharmacotherapy Professor and Associate Dean for External Professional and Continuing Education **Danial E. Baker** published, “What is your institution’s position going to be on biosimilars products?” in the independent, peer-reviewed journal Hospital Pharmacy (2015;50(6):435-436).
- **Danial Baker**, Pharmacotherapy Clinical Professor **Terri L. Levien** and one co-author published, “Ceftolozane/Tazobactam,” in Hospital Pharmacy (2015;50(6):526-533).
- **Danial Baker** published, “Approvals, submission, and important labeling changes for U.S. marketed pharmaceuticals,” in Hospital Pharmacy (2015;50(6):537-542). The article presents information on new drugs and indications as well as dosage forms and safety-related changes in labeling or use approved by the U.S. FDA.
- Pharmacotherapy Research Associate and Specialty Resident in Drug Information **Anne P. Kim** and **Danial Baker** published, “Drug evaluation – Panobinostat (Farydak),” in The Formulary Monograph Service (FMS) in June 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.
- **Danial Baker** and one co-author published, “Drug evaluation – ceftazidime-avibactam (Avycaz),” in the FMS in June 2015.
- **Danial Baker** and one co-author published, “Drug evaluation – LCZ696: preliminary evaluation,” in the FMS in June 2015.
- **Danial Baker** and two co-authors published, “Drug evaluation – levodopa-carbidopa intestinal gel (Duopa),” in the FMS in June 2015.
- **Terri Levien**, **Danial Baker** and one co-author published, “Drug evaluation – isavucononium sulfate (Cresemba): updated evaluation,” in the FMS in June 2015.
- **Anne Kim** and **Danial Baker** published, “Drug evaluation – idarucizumab: preliminary evaluation,” in the FMS in July 2015.
- **Danial Baker** and one co-author published, “Drug evaluation – patiomer: preliminary monograph,” in the FMS in July 2015.
- **Anne Kim** and **Danial Baker** published, “Drug evaluation – dinutuximab (Unituxin),” in the FMS in July 2015.
- Pharmacotherapy Research Associate and Specialty Resident in Drug Information **Ross Bindler** and **Danial Baker** published, “Drug evaluation – ivabradine (Corlanor): updated evaluation,” in the FMS in July 2015.
- **Danial Baker** published, “Drug evaluation – glycopyrronium bromide / indacaterol (Ultibro): preliminary evaluation,” in the FMS in July 2015.
- **Danial Baker** published, “Drug utilization evaluation – ivabradine (Corlanor),” in the FMS in July 2015.
- **Terri Levien** and **Danial Baker** published, “Drug evaluation – fentanyl iontophoretic transdermal system (IONSYS),” in the FMS in August 2015.
- **Danial Baker** published, “Drug evaluation – eluxadoline (Viberzi),” in the FMS in August 2015.
- **Terri Levien** and **Danial Baker** published, “Drug evaluation – tiotropium bromide / olodaterol inhalation spray (Stiolto Respimat),” in the FMS in August 2015.

- **Ross Bindler** and **Danial Baker** published, “Drug evaluation – parathyroid hormone (1-84) (Nutpara),” in the FMS in August 2015.
- **Ross Bindler** and **Danial Baker** published, “Drug evaluation – alirocumab (Praluent): preliminary evaluation,” in the FMS in August 2015.
- **Danial Baker** published, “Drug utilization evaluation – tiotropium/olodaterol (Stiolto Respimat),” in the FMS in August 2015.
- **Danial Baker** and one co-author published, “Edoxaban,” in Hospital Pharmacy (2015;60(7):619-634).
- **Danial Baker** published, “Approvals, submission, and important labeling changes for U.S. marketed pharmaceuticals,” in Hospital Pharmacy (2015;50(7):638-643).
- Allen I. White Distinguished Professor and Experimental and Systems Pharmacology Chair **K. Michael Gibson** and 11 co-authors published, “Highly stable and sensitive fluorescent probes (LysoProbes) for lysosomal labeling and tracking,” in the online, open access journal Scientific Reports, a journal from the publishers of Nature, in February 2015. [read abstract](#)
- Experimental and Systems Pharmacology Postdoctoral Research Associate **Kara R. Vogel**, Experimental and Systems Pharmacology Postdoctoral Research Associate **Garrett R. Ainslie**, **K. Michael Gibson**, and two co-authors published, “Torin 1 partially corrects vigabatrin-induced mitochondrial increase in mouse,” in the journal Annals of Clinical and Translational Neurology, a publication of the American Neurological Association, in June 2015. [read article](#)
- **Kara Vogel**, **Garrett Ainslie**, **K. Michael Gibson**, and four co-authors published, “Physiological competition of brain phenylalanine accretion: initial pharmacokinetic analyses of aminoisobutyric and methylaminoisobutyric acids in Pahenu2<sup>-/-</sup> mice,” in the open-access journal Molecular Genetics and Metabolism Reports in June 2015. [read abstract](#)
- **K. Michael Gibson** and two co-authors published, “Clinical use of CSF neurotransmitters,” in the peer-reviewed journal Pediatric Neurology in June 2015. [read abstract](#)
- **K. Michael Gibson** was a co-author with 11 others on the article, “Natural history of Succinic Semialdehyde Dehydrogenase Deficiency through adulthood,” published in the August 2015 issue of the journal Neurology. [read abstract](#)
- **K. Michael Gibson** and three co-authors published, “Targeted fluorescent probes for detection of oxidative stress in the mitochondria,” in the journal Bioorganic & Medicinal Chemistry Letters in September 2015. [read abstract](#)

## Presentations

- **Kara Vogel**, **K. Michael Gibson** and four others co-authored, “Human diseases associated with selective autophagy pathways,” presented at the seventh International Symposium on Autophagy, March 19-23, 2015, in Huangshan, China.
- **Kara Vogel**, **K. Michael Gibson** and three others co-authored, “Time- and region-specific down-regulation of high-affinity GHB binding sites in SSADH knock-out mice,” presented at the Nordic Neuroscience Meeting in, Trondheim, Norway, June 10-12, 2015.
- **Kara Vogel**, **K. Michael Gibson**, and two others co-authored, “Transmission election microscopy of retinal pigment epithelium in vigabatrin-treated mice: enhanced mitochondrial numbers associated with GABA-elevation and homocarnosine-depletion,” presented at the Brain & PET 2015, the twelfth International Conference on Quantification of Brain Function with Pet, in Vancouver, Canada, June 27-30, 2015.
- Pharmacotherapy Professor and Chair **John R. White, Jr.** and Experimental and Systems Pharmacology

Associate Professor **Mary Paine** presented, “Pharmacokinetic analysis and comparison of caffeine administered rapidly or slowly in coffee chilled or hot vs. chilled energy drink in healthy young adults,” at the Toxicology Forum in Colorado Springs, Colorado, on July 16, 2015.

## Service

- Experimental and Systems Pharmacology Associate Professor **Susan A. Marsh** served as a grant reviewer for a National Institutes of Health special emphasis grant review panel, ZRG1 F10A Physiology and Pathobiology of Cardiovascular and Respiratory Systems, in San Francisco, California, on July 30-31, 2015.
- **Susan Marsh** served as a grant reviewer for the U.S. Army Medical Research and Materiel Command’s Office of Congressionally Directed Medical Research Programs (USAMRMC/CDMRP) cardiovascular health section in July, 2015.
- Pharmaceutical Sciences Associate Professor **Grant D. Trobridge** served as a reviewer for the Vascular and Hematology (VH) Study Section for the National Institutes of Health.

## Grants

- Boeing Distinguished Professor and Pharmaceutical Sciences Chair **Philip Lazarus** received \$2,649,758 over five years from the National Institutes of Health for the research project, “The UGT2A and 3A metabolizing enzymes and tobacco-related cancer risk.”
- Pharmacotherapy Clinical Assistant Professor **Julie Akers** received \$62,260 over a one year and five month period from the Community Pharmacy Foundation for the research project, “Increasing access to point-of-care screening for Hepatitis C in community pharmacies.”
- Pharmacotherapy Associate Professor **Joshua Neumiller** received additional funding in the amount of \$49,960 over a four month period from the Patient-Centered Outcomes Research Institute (PCORI) for the research project, “Preserving self: empowering older persons with multiple chronic medical conditions.”

## STUDENT ACHIEVEMENT

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

- Washington State University recently started a student chapter of the College of Psychiatric and Neurologic Pharmacists (CPNP). The student chapter online workspace can be accessed through [cpnp.org](http://cpnp.org).

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

- **James Leonard** and faculty co-author **Danial Baker** published, “Drug evaluation – ceftazidime-avibactam (Avycaz),” in the FMS in June 2015.
- **James Leonard** and faculty co-author **Danial Baker** published, “Drug evaluation – LCZ696: preliminary evaluation,” in the FMS in June 2015.
- **James Leonard**, faculty co-author **Danial Baker** and one other published, “Drug evaluation – levodopa-carbidopa intestinal gel (Duopa),” in the FMS in June 2015.

## JOB

- [Assistant, Associate or Full Professor](#)  
Department of Pharmaceutical Sciences, Spokane, Wash.



College of Pharmacy

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