



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

May 2014

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Dear Friends and Colleagues:

As April slides into May, and plants begin to bloom and marmots emerge from hibernation around campus, we think about another consistent aspect of spring: the Chicago Cubs are well on their way to mathematical elimination from pennant contention. Again.

This also is the time of year to think about commencement. More often than not, when May rolls around I recall the graduation ceremony at my small liberal-arts college in Illinois. The commencement speaker was an articulate and successful political activist (and later a failed presidential candidate) from Chicago who said that the key to success was “hope, not dope” (true enough), and implored us to “stay in school!” despite the fact that most of the graduates were ready to embark on their careers. The message did not, as they say, “resonate” with the audience.

Delivering an inspiring or meaningful commencement address is a difficult assignment, in part because commencement speakers typically are outsiders, with little or no prior history with the graduates or their program of study. The lack of familiarity can be an obstacle to the delivery of a heart-felt message that connects with graduates and their families.

As a health-professions college, we have the advantage of being able to invite commencement speakers whose message can connect with the professional aspirations of the majority of our graduates. We have such a speaker joining us for commencement this year: Susan Winckler, President and Chief Operating Officer of the Food and Drug Law Institute and former chief of staff of the US Food and Drug Administration. She will deliver an outstanding address, and we are looking forward to her visit with us.

On behalf of the faculty of the WSU College of Pharmacy, I offer the following comments to our soon-to-be newly-minted alumni:

- Working with you for the past four years has been a privilege. As a group, you made our college better, and we are confident that you will have the same effect on your profession. We were fortunate to have the opportunity to get to know you.
- Stay in touch with us. You have the potential to continue to make this program better, even from a distance. Your former faculty can be helpful to you. All you need do is ask.
- Stay connected with each other. The personal and professional benefits you will realize from friendships you made here will be profound.
- Live happy lives. You deserve that from yourselves.

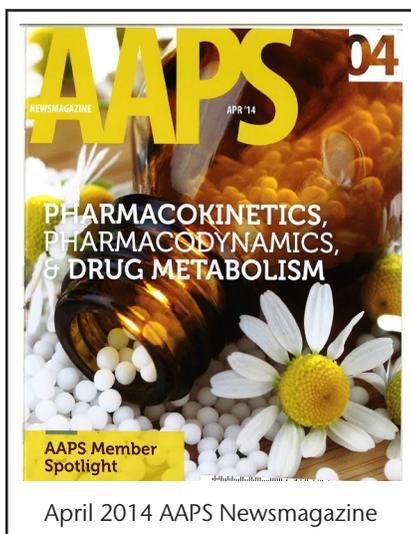
Best wishes from all of us,



Gary M. Pollack
Dean, Washington State University College of Pharmacy

WSU research an AAPS Newsmagazine cover

Research on drug interactions is challenging with herbal products



The cover story of the news magazine published in April by the American Association of Pharmaceutical Scientists came from Mary Paine’s research lab at the WSU College of Pharmacy. The lead author of the five-page article is Brandon Gufford, a Ph.D. student in Paine’s lab.

“I am interested in interactions between dietary and herbal substances and conventional medications,” Paine said. “How can these substances alter blood concentrations of drugs? We know grapefruit juice inhibits the metabolism of certain drugs; could any of these other substances inhibit the metabolism – or some other elimination process – of a drug and cause unwanted effects?”

Paine is senior author on the article which discusses the challenges of studying herbal products, one of which is the different growing conditions and manufacturing processes of the products, leading to large variations in biochemical makeup. Unlike most drug products, one brand is not predictive of all brands.

“The scary thing about these products is they are not regulated like drugs,” Paine said. “Manufacturers don’t have to prove efficacy or safety.”

Clinical trial starting in June

The article steers readers through the three-pronged testing approach used in Paine’s lab: in vitro (petri dish or test tube), in silico (computer modeling) and in vivo (inside a living organism).

For the in vivo, Paine uses healthy human subjects, and has plans for a small clinical trial in June, her first since moving to Spokane almost a year ago from the University of North Carolina at Chapel Hill.



Dr. Mary Paine

Paine became interested in this line of research while doing a postdoctoral fellowship at the University of Michigan, where she went primarily to learn a particular cell culture model in the laboratory of Dr. Paul Watkins. He was one of the pioneers in the grapefruit juice research, and when he relocated two years later to direct the clinical research center at UNC Chapel Hill, he asked Paine to move with his research lab there. She did, after which she managed the lab for about five years. Fortunately for her, Watkins decided to shift his research to drug-induced liver injury, opening the door for her to pursue further the grapefruit juice research and expand to other natural products.

By then she had discovered a love of everything about clinical research, from interacting with the subjects and professional colleagues to analyzing the data collected. It reminded her of the three years she worked as a hospital pharmacist in Portland, Ore., between graduating from pharmacy school at Oregon State University and pursuing a Ph.D. in pharmaceuticals at the University of Washington.



Mary Paine and her research staff in front of the Pharmaceutical and Biomedical Sciences building. From left: postdoctoral student John Barr, Doctor of Pharmacy honors student Hope Tran, Assistant Research Professor Vanessa Gonzalez-Perez, doctoral student Brandon Gufford, Associate Professor Mary Paine, and Research Associate Garrett Ainslie. All but John and Hope moved with Paine from North Carolina to Spokane.

When Watkins shifted direction, Paine got her own grant funding and lab and became an assistant professor at UNC. She was doing that when former UNC colleague Gary Pollack recruited her to the WSU College of Pharmacy, where he serves as dean.

Research lab moved from North Carolina

In addition to grapefruit juice, Paine’s lab is currently studying the popular herbal product milk thistle. Three of her lab members – two Ph.D. students and a postdoctoral fellow now on faculty in the College – moved with her from North Carolina to Spokane, and she has since attracted another postdoc to her lab as well as a Doctor of Pharmacy honors student just finishing her first year of the program.

Interacting with these talented people is what she

enjoys most about her job, although she is looking forward to the clinical trial.

Paine was in high school when she decided to go into pharmacy, although she cannot explain why. She was sitting on a hill on her family's Christmas tree farm outside of Corvallis, where her father was a professor of forestry at OSU, pondering the question, "What do I want to do . . . I like chemistry and math." Out of the blue, "pharmacy" popped into her head. She tried out the idea on her parents and they liked it, so she followed it. Many of her other life's decisions were made the same way.

"I think if you plan too much for the future you miss out on unforeseen opportunities," Paine said.

When she was recruited to leave North Carolina for Spokane, she kept thinking that she was doing "fine, just fine" in North Carolina, but maybe a new challenge would be good, especially one where she could be a part of building up the College of Pharmacy after it relocated from Pullman to Spokane.

"It's exciting to be a part of what is happening in this College."

NSF awards fellowships to two graduate students

Ph.D. students to receive stipends for pharmaceutical sciences, pharmacology research



The National Science Foundation has awarded research support of \$32,000 per year for three years to doctoral students Kari A. Gaither and Elizabeth R. Duenwald in the College of Pharmacy.

Gaither's research focuses on the mechanisms with which chronic diseases – including cancer – impair the functions of specific T cells that are important to inhibiting the progression of disease. Her research also examines the interactions between alcohol and cancer that is

related to the dysfunction of those T cells. She is pursuing her work in the research lab of Drs. Gary Meadows and Hui Zhang.

Duenwald is conducting her research in Dr. Susan Marsh's lab, where the overall focus is to better understand how the heart responds to exercise, diabetes and diet. Her current research project looks at how altering gene regulation of proteins in the heart affects endurance capacity and physical activity.

"Part of being a researcher involves finding funding to perform your work," Gaither said. "I was particularly

interested in the NSF Fellowship because the NSF supports worthwhile research in all realms of sciences and I wanted to show that my research has broad significance and application to other areas.”

Gaither has a bachelor’s degree in biology from The Evergreen State College and began her Ph.D. program in 2102.

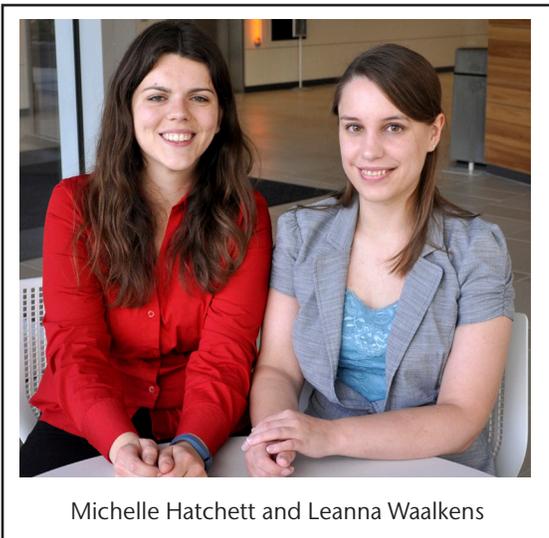
Duenwald said receiving an NSF fellowship opens the door for her to apply for support from the U.S. Agency for International Development so she can do research in developing countries.

“Together, NSF and USAID have a mission ‘to end extreme poverty and to promote resilient, democratic societies while advancing our security and prosperity’,” Duenwald said. “It would be humbling to have even a small role in their challenging goals.”

Duenwald has a bachelor’s degree in nutrition and exercise physiology from WSU and began her Ph.D. program in 2013.

Student pharmacists volunteer with Hearts in Motion

Spring break in Guatemala a good choice for these two students



During spring break in April, Doctor of Pharmacy students Michelle Hatchett and Leanna Waalkens went to Zacapa, Guatemala, with other health sciences students from WSU. Each day the team set up a temporary medical clinic in a different town and provided care to hundreds of people. Hatchett and Waalkens were in charge of the pharmacy during these clinics.

Hatchett went on this trip because she has always wanted to work abroad in underprivileged areas and was considering working with Doctors Without Borders once she graduated, but thought she should try something that required less than a nine-month commitment first. She plans on going back in the future.

Waalkens went on the trip because she thought it was a great chance to put into practice what she had learned in pharmacy school and to learn how pharmacy was practiced in a different culture. The experience provided several unique challenges that had to be overcome such as illiterate patients, no Internet or running water, and a general lack of knowledge of medications and disease states. She thought it was a great personal and professional experience.

The group did their work through Hearts in Motion, a nonprofit organization that serves Central and South America. The students also visited the Hearts in Motions Nutrition Center, and spent a day working in the local hospital where surgeries for cleft palates and lips were being done.

2014 Commencement keynote speaker Susan Winckler:

Commencement speaker accomplished in pharmacy, law



Susan Winckler, R.Ph.

The WSU College of Pharmacy strives to bring in thought leaders who are caring for patients in new and different ways, and are leading innovation in the profession of pharmacy. The graduating class of 2013 had the privilege to hear from Rear Admiral Scott Giberson, who is now the acting United States deputy surgeon general.

This year Susan C. Winckler, R.Ph., will be the commencement speaker for the class of 2014 on May 8. Winckler is the president and CEO of The Food and Drug Law Institute, a nonprofit organization in Washington, D.C., committed to providing a marketplace for discussing global food and drug law issues through conferences, publications and member interaction.

Winckler's biography includes:

- Previously was a law partner and managing director of the medical products practice of Leavitt Partners, a law practice founded by Michael O. Leavitt, the former U.S. Health and Human Services Secretary and EPA administrator.
- Previously was chief of staff for the U.S. Food and Drug Administration.
- Previously was staff counsel for the American Pharmacists Association, where she also held other management positions.
- Previously was employed with the Iowa Pharmacy Association and a community pharmacy in Iowa.
- She is a registered pharmacist in Iowa.
- She is a graduate of University of Iowa College of Pharmacy and a graduate of Georgetown University Law Center.

Other College News

FACULTY SCHOLARSHIP

Publications

- Boeing Distinguished Professor and Pharmaceutical Sciences Chair **Phil Lazarus**, Experimental and Systems Pharmacology Associate Professor **Mary Paine** and two co-authors published a paper titled, "Predicting Pharmacokinetic Herb-Drug Interactions: Overcoming Hurdles That Extend Beyond Drug-Drug Interactions," in the April 2014 issue of the American Association of Pharmaceutical Scientists (AAPS) Newsmagazine. [read more](#)
- Pharmacotherapy Research Associate and Specialty Resident in Drug Information Practice **Kyle Ingram** and one co-author published, "Major Drug Introductions," in the Elsevier Reference Module in Chemistry, Molecular Sciences and Chemical Engineering (21-Mar-2014 Article 02461: Electronic Offprint).

- Allen I. White Endowed Professor and Experimental and Systems Pharmacology Chair **K. Michael Gibson** co-authored a paper titled, “Defects in GABA Metabolism Affect Selective Autophagy Pathways and are Alleviated by mTOR Inhibition,” published on April 1 in the journal EMBO Molecular Medicine.
- **K. Michael Gibson** co-authored a paper titled, “Taurine Trial in Succinic Semialdehyde Dehydrogenase Deficiency and Elevated CNS GABA,” published in the March issue of *Neurology*, the journal of the American Academy of Neurology.
- **K. Michael Gibson** co-authored a paper titled, “Pharmacologic Inhibition of L-tyrosine Degradation Ameliorates Cerebral Dopamine Deficiency in Murine Phenylketonuria (PKU)” published in the *Journal of Inherited Metabolism Disorders* (Epub ahead of print February 3, 2014).
- **K. Michael Gibson**, with three co-editors, edited the book *Physician’s Guide to the Diagnosis, Treatment, and Follow-Up of Inherited Metabolic Diseases*, Springer, 2014.
- Pharmaceutical Sciences Associate Professor **Grant Trobridge** and seven co-authors published, “No Evidence of Clonal Dominance after Transplant of HOXB4-Expanded Cord Blood Cells in a Nonhuman Primate Model,” in *Experimental Hematology*, a peer-reviewed journal from The Society for Hematology and Stem Cells.

Presentations

- Pharmaceutical Sciences Associate Professor **David Liu** presented, “Surprises from a Transcription Factor: Roles of ATF4 in the Biogenesis and Function of the Centrosome,” as part of the Washington State University College of Pharmacy Research Seminar Series, on April 2.
- Pharmaceutical Sciences Associate Research Professor **Hui Zhang** and Pharmaceutical Sciences Professor **Gary Meadows**, along with laboratory assistant **Zhaohui Zhu** and Ph.D. graduate student **Faya Zhang**, presented a research poster titled, “Chronic Alcohol Consumption Inhibits iNKT Cell Activation-induced Antitumor Response in B16BL6 Melanoma-bearing Mice,” at the AACR annual meeting in San Diego, Calif., on April 8.
- **Grant Trobridge** and Pharmaceutical Sciences Postdoctoral Research Associate **Arun K. Nalla** presented their research findings at the 2014 International Symposium: Systems Biology & Cancers, Big Data to Personalized Treatment in Seattle, Wash., on April 13.
- **Arun Nalla** presented a poster titled, “Identification of Genes Involved in Androgen-independent Prostate Cancer Using a High-throughput Shuttle Vector Approach,” at the 2014 International Symposium: Systems Biology & Cancers held at Institute for System Biology in Seattle, Wash., on April 13.
- Pharmacotherapy Associate Professor **Joshua J. Neumiller** presented, “Polypharmacy – When to Refer for a Medication Review,” at the Washington State Residential Care Council on April 25 in Spokane, Wash.
- Experimental and Systems Pharmacology Associate Professor **Sue Marsh** and Ph.D. graduate student **Heidi Medford** co-chaired the symposium, “Novel Mechanisms of Transcriptional Regulation in Cardiac Hypertrophy,” at the Experimental Biology 2014 Meeting in San Diego, Calif., on April 29.
- **Sue Marsh** presented a paper titled, “Posttranslational Signaling and Transcriptional Regulation of Cardiac Hypertrophy,” at the Experimental Biology 2014 Meeting in San Diego, Calif., on April 29.
- **Joshua Neumiller** and one co-presenter presented two sessions of the APhA webinar, “Managing Insulin Therapy,” on April 10 and April 30.

Service

- **Joshua Neumiller** served as a member of the Speaker/Writing Committee for the American Diabetes Association (ADA) Chronic Kidney Disease and Diabetes Consensus Conference held March 20-22 in Chicago, Ill.
- **Joshua Neumiller** was interviewed for the Patient-Centered Outcomes Research Institute website, talking about his experience asking patients how they feel about being asked to take a new prescription drugs.

Awards

- Pharmacotherapy Professor Emeritus **R. Keith Campbell** received the 2014 Distinguished Service Award from the Washington Association of Diabetes Educators at the association's annual meeting in Seattle, Wash.

STUDENT ACHIEVEMENT

Doctor of Philosophy (Ph.D.) students

- **Kara Vogel** published a paper titled, "Therapeutic Hepatocyte Transplant for Inherited Metabolic Disorders: Functional Considerations, Recent Outcomes and Future Prospects," in the Journal of Inherited Metabolism Disorders in March.
- **Brandon Gufford** and three faculty co-authors published a paper titled, "Predicting Pharmacokinetic Herb-drug Interactions: Overcoming Hurdles that Extend Beyond Drug-drug Interactions," in the April 2014 issue of the American Association of Pharmaceutical Scientists (AAPS) Newsmagazine.
- **Elizabeth Duenwald** was selected to receive a National Science Foundation (NSF) Graduate Research Fellowship Program fellowship. The stipend for 2014-15 is \$32,000 per twelve-month fellowship year. The fellowship period is up to 5 years, with support provided for a maximum of three years.
- **Kari Gaither** was selected to receive a NSF Graduate Research Fellowship Program fellowship for her research, "Mechanistic Roles of STAT3 and CD4+ T Cells in CD8+ T Cell Dysfunction." Beginning June 1, 2014, she will receive a \$32,000 stipend per year for three years.
- **Brandon Gufford** has been selected for renewal of his American Foundation for Pharmaceutical Education (AFPE) Pre-Doctoral Fellowship in the Pharmaceutical Sciences. He will receive a \$6,500 stipend.
- **Kari Gaither** presented a poster titled, "Sunitinib Treatment of Melanoma in a Mouse Model of Alcoholism," at the Inland Northwest Research Symposium on March 7.
- **Alexander Little** presented a poster titled, "Response of the B16BL6 Melanoma-Bearing Mice to Treatment with ALT-803 in a Chronic Alcoholic Model," at the Inland Northwest Research Symposium on March 7.
- **Kari Gaither** was recently elected vice president of the WSU Graduate Research Student Association.

Doctor of Pharmacy (Pharm.D.) students

- **Shurrie Dugas** and **Lindsey Schaffer** received the WSU President's Award for Leadership at a ceremony in Pullman on April 24.

Coming Events

- May 2-6, 2014
The American Association of Immunologists (AAI) has invited **Gary Meadows** and **Hui Zhang** to present their research, “Chronic Alcohol Consumption Decreases the Survival and Compromises the Antitumor Immune Response of Mice Bearing Estrogen Receptor Positive E0771 Breast Cancer,” at the AAI Annual Meeting in Pittsburgh, Pa.
- May 11, 2014
The International Society for the Study of Xenobiotics has invited **Mary Paine** to present, “Predicting Herb-drug Interactions via an Integrated In Vitro-In Silico-In Vivo Approach,” at the 5th Asia Pacific ISSX Meeting in Tianjin, China.
- May 13, 2014
Mary Paine has been invited to present, “Quantitative Prediction of Dietary Substance-Drug Interactions: Challenges and Opportunities,” at the Shanghai Institute of Materia Medica, Shanghai, China.
- May 14, 2014
GlaxoSmithKline Investment Co., Ltd., has invited **Mary Paine** to present the lecture, “Herb-Drug Interactions,” in Shanghai, China.
- May 30, 2014
Sue Marsh has been invited to present a paper titled, “O-GlcNAc and Epigenetics in Cardiac Hypertrophy,” at the American College of Sports Medicine Annual Meeting in Orlando, Fla.
- July 12, 2014
The National PKU Alliance (NPKUA) has invited **K. Michael Gibson** to present at the 2014 NPKUA Conference in Salt Lake City, Utah.
- September 21, 2014
U.S. Transuranium and Uranium Registries Associate Research Professor **Sergei Tolmachev** has been invited to present research findings at the 2014 Radiation Research Society Meeting in Las Vegas, Nev.

