Pills & Poisons

Pharmacology & Toxicology
2021 Annual Newsletter
It is hard to believe that it has been a year since I stepped in to serve as Interim Chair of Pharmacology and Toxicology. The year has been humbling and inspiring. I have certainly learned a lot about the internal workings of MSU, and my time management skills have been tested.

I am inspired by the resilience and strength of our faculty, staff, and students. It has been an interesting year where things were nowhere near normal. Still, we all got used to working in masks and smiling to let people know we were happy to see them. We continued to do outstanding research and to get our work published and our grants funded. The Department experienced a significant increase in publication numbers during Dr. Neubig’s tenure as Chair (see graph); I am pleased to say that trend continued in 2021, with 125 publications from the Department listed in PubMed. I hope that with new faculty on board and a growing department this pattern will continue. We also continued to grow our undergraduate minor under its new leadership. Dr. Watts leads the charge on the minor, and she is aided by Dr. Tykocki. Together they have enhanced the student onboarding process and have extended the reach of our program across the campus.

As in any year, they have been some comings and goings from the Department. Dr. Keith Lookingland and Dr. Bill Atichson both retired and will be missed. We also had the opportunity to bring some new faces to the Department. Dr. Sachi Horibata joined us this summer. Sachi is our first faculty member to be associated with the MSU Precision Health Program, and we are thrilled to have her and to be able to help her grow her research program. We also hired a new director for our MS programs; Dr. Isola Brown will join us this March and I will share more information in future newsletters.

This year also saw the renewal of our T32 grant that supports our Integrative Pharmacological Sciences Training Program. This grant, funded by NIGMS, is full of new initiatives. Through the grant, we will be enhancing mentor training and evaluation. We will also be expanding our students’ training in rigor and reproducibility.

This year also saw significant developments that will impact the Department and MSU. The biggest of these is the partnership that has been formed between MSU and the Henry Ford Health System in Detroit. This association will enhance research collaboration and provide increased opportunities for clinical research for our department faculty. It will also provide enhanced learning opportunities for our medical students and PhD students.

I look forward to leading the Department until a permanent Chair is identified. The additional time in this position will allow me to finish some projects that I started this year. These include restructuring the department office to better align functions and clarify reporting lines. We are also in the midst of a website remodel that should be completed within the next few months. We contracted with an external company to give our site a complete refresh and ensure it is fully accessible and easy to navigate.

I wish you and your families all the very best for 2022.
Department Updates

Dr. Sachi Horibata: New Tenure-Stream Faculty Hire

What made you want to come to Michigan State University?

People. MSU has many talented people who are also incredibly kind. I deeply care about community and collegiality and felt that MSU was where I could further develop as a scientist. I enjoyed all the faculty members I met during the interview and loved the leadership styles of Dr. Anne Dorrance and Dr. Anna Moore. After the interview, it was so clear to me that this was the place. So, I canceled every single job interview I had afterward.

Tell us about your current research?

Our main research goals are to understand how cancer progresses and why some cancer patients do not respond to chemotherapy. We want to know the how and why. If we can figure out what is causing it, we can design an agent that targets it as a new therapy. Specifically, we will use genome-wide sequencing to characterize the evolution of cancer progression to understand the disease landscape. Our goal is personalized treatment.

What do you most look forward to in 2022?

I am looking forward to filling up my lab and getting it up and running!

Tell us a unique fact about yourself that we wouldn’t know otherwise?

Because my expertise is in genomics and sequencing, I did whole-genome sequencing on myself and characterized every single mutation in my DNA. I used this information to predict what type of diseases I could get and understand how my body responds to environmental changes. I then use this information to help craft my lifestyle.

Dr. Keith Lookingland: Retirement (Authored By Peter Cobbett)

Keith Lookingland arrived at MSU and the Department of Pharmacology & Toxicology in 1982 as a postdoctoral research associate in Ken Moore's lab. He became a faculty member in 1987 with primary appointment in the Department but also, over time, with appointments in the Genetics, Neuroscience, and Integrated Toxicology Programs; he retired last summer after nearly 40 years of service. Keith was primary research advisor for 14 PhD students, principally in the Department but also in the Neuroscience, Genetics, and Biochemistry and Molecular Biology Programs. He also served on the PhD dissertation committee for 36 other students from various departments and he mentored research experiences for numerous undergraduate students. It is his role in the success of all of these students as they progressed through their careers for which he is most proud. Keith also directed the Department’s Graduate (PhD) program for 5 years and served on numerous departmental committees; he also served on leadership committees in the College of Osteopathic Medicine, the Neuroscience Program, and the Biomolecular Sciences Program. Keith taught in and directed courses for doctoral students, undergraduate students, students in MSU's DVM, DO, and MD Programs, and students in professional dual degree programs; most recently he developed and taught two new courses in the Department's online MS programs. Since he retired, Keith has had the opportunity to hone his guitar, cake baking and ice cream making skills, to spend more time reading and discussing favorite issues in history, and to spend more time with his family; he has also continued to watch Spartan football and basketball. We wish him well in these and other activities.
Department Updates

Dr. William Atchison: Retirement (Authored By Norbert Kaminski)

I would like to take this opportunity to congratulate Dr. Bill Atchison on his retirement which began January 1, 2022. For those that did not know Bill very well let me very briefly acknowledge several of his many achievements and contributions during his 39 years of distinguished service to MSU. Bill joined the Department of Pharmacology and Toxicology in 1983 and maintained an extremely active and vibrant research program in the areas of neurotoxicology and neurodegenerative disorders, which was funded by NIH continuously throughout his career. His research and scholarship resulted in over 120 peer reviewed publications. Bill also served as Director of the Neuroscience Program (1992-1998) and played a major role in establishing this program as degree granting. In addition, Bill served as CVM’s Associate Dean for Research and Graduate Studies for several years. Bill also devoted generously of his time and effort to promoting graduate education for underrepresented minority students. Toward this end Bill established the post-bac program dedicated to preparing URM students for Ph.D. programs in biomedical sciences, and 10 years of developing the Bridge to the Ph.D. in Neuroscience program - the foundation for the Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (ENDURE) program. Bill capitalized upon his 15+ years of interaction with the University of Puerto Rico to develop a highly successful NIH, NINDS-funded R25-Diversity Education grant that he has directed since 2005. The grant provides research experiences for Hispanic undergraduates. More recently he also successfully competed for a NIH NIEHS-funded R25 grant to support summer training in toxicology for undergraduate students. In addition to his research and scholarship, Bill was well recognized as an outstanding teacher, lecturer, mentor and colleague. For his many contributions in undergraduate and graduate education, Bill was the recipient of the All University Excellence in Diversity Award in 2010, MSU Distinguished Faculty Award in 2011 and in 2014 the Society of Toxicology Undergraduate Educator Award.

Promotions & Reappointments at Pharmacology & Toxicology

Dr. Jamie Bernard. Promoted from Assistant Professor to Associate Professor with Tenure. Her current research focuses on the mechanisms by which obesity enhances the mutagenicity of environmental chemicals and promotes tumor formation. Many of these earlier steps of carcinogenesis (pre-cancer) are relatively unexplored and hold clues as to what is 1) driving tumor formation and 2) causing an increase in overall cancer burden. The Bernard Laboratory mainly works with models suited to study the progression of triple-negative breast cancer, skin cancer, and the progression of smoldering myeloma to the incurable multiple myeloma. In parallel, they have developed a novel phenotypic high-throughput screen that identifies chemopreventive agents that inhibit malignant transformation. Advantages of this model include using non-tumorigenic cells in anchorage-independent conditions, two characteristics that help distinguish compounds that have little toxicity and mechanisms specific to chemoprevention. The team will be working with the MSU Assay Development and Drug Repurposing Core to use proprietary libraries of compounds from MSU with the goal of identifying potential agents that target the reversible promotional stages of cancer for prevention.

Dr. Karen Liby. Promoted from Associate Professor with tenure to Professor with Tenure. Dr. Liby’s laboratory studies inflammation and cancer and is working to develop and test drugs for the prevention or treatment of this disease. They use relevant mouse models to investigate the role of the immune system in cancer in the lung, pancreas and mammary gland. Their drug discovery projects include synthetic oleanane triterpenoids, RXR agonists, Nrf2 pathway inhibitors and novel formulations of PARP inhibitors, and their overall goal is to contribute to research that changes the lives of patients.
Tell us what becoming a University Distinguished Professor means to you?

I was in 7th heaven when I became the first person in PHM/TOX to be recognized by the MSU Office of the Provost with the title of University Distinguished Professor. I am also the first woman in the College of Human Medicine to be named a UDP. What an honor! I am forever indebted to my dear colleagues Greg Fink and Stephanie Watts for taking the lead on the nomination process. I also need to thank Interim Dean Aron Sousa for being willing to have me be the nominee from CHM and the others who took the time to write supporting letters for my nomination. Thanks a million to friends and colleagues Kim Barrett, Jason Carter, Anne Dorrance, Romina Gonzalez Pons, Sandy Hewett, Ashley McPeek, Kurt Varner, and Erica Wehrwein. Each has been an important part of my career-long achievements. I could not have reached this milestone without them as my cheerleaders. I have been so lucky to have a career as rewarding as mine has been. Being a UDP is like “frosting on the cake”!

What do you most enjoy about being an MSU PharmTox Professor?

When I came to MSU on Halloween 1975, I planned to stay for 2 years. I immediately was welcomed by the members of the department. Our department has not had the revolving door of many other departments, where faculty come and go. We establish roots and grow together as a family. I think that is pretty special. It means us old folks stick around maybe too long, but the young folks have so many role models to help them become a UDP in the future!

If you weren’t a scientist, what do you think you would have done?

I used to tell people, if my high school counselor had not encouraged (forced) me to go to college, I would probably be “flipping hamburgers at McDonalds.” When she got me to apply to college, I decided I would become a pediatrician. My role model was a character on a soap opera “The Doctors;” Dr. Maggie Fielding was a pediatrician and married to the Chief of Staff Dr. Matt Powers. When I entered Loyola University as a Biology major with most of my cohorts wanting to become doctors, I realized my motivation to get an MD was very different than theirs. Luckily, Loyola hired a physiologist in my senior year. He became my first mentor who recognized I loved physiology and suggested I apply to grad schools to get a PhD in physiology.

If you could say anything to the Faculty members who rejected your grad school application, what would it be?

I was certainly taken aback when I found “Reject – Female problem” written in big red letters across
my application for admission to the physiology program at Loyola University. I suspect the application was placed in my view intentionally...by someone who disagreed with that review. I think the statement was made because they had so few women in the program to make a comparison, and it included a woman who really struggled. She was their main role model. If I met those faculty today, I would merely say thanks for accepting me despite your initial concern and I hope you are now proud of a woman who has consistently worked hard, loves training the next generation of biomedical scientists, and whose career has been a success story.

What’s next for Dr. Barman?

As long as I enjoy what I am doing, I will stay a member of PHM/TOX. I was amazed how easily I transitioned from doing what I truly loved...research on the sympathetic nervous system...to being more involved in important committees and teaching, particularly small group learning venues. For over 40 years, I have gotten a thrill out of having a grant funded or a paper accepted. Today, I love having a faculty member thank me for a speedy review of their IACUC protocol or undergraduate students tell me my course is their favorite. But I still say my favorite student evaluation is from a med student many years ago who said, “The only thing faster than the speed of light is the speed by which Dr. Barman speaks...she covers more content in one lecture than most do in two or more.”

What is a unique fact about yourself that most of us wouldn’t know?

Even though I had no thoughts of being a scientist, I designed my first experiment at the age of 9. I spent the summer testing “my hypothesis” that “If Ivory soap can float, others should be able to float too.” I made my dad, who was a produce manager of a very small grocery store, bring home a different bar of soap each week. I tried unsuccessfully to “teach” them to float in the bathtub.

---

Dr. Neera Tewari-Singh
Dr. Neera Tewari-Singh received the Society of Toxicology’s Ocular Toxicology Specialty Section Ocular Toxicology I2 Award (Innovation & Impact) which is sponsored by Biomere. This award recognizes innovations and/or scientific advances that impact the field of ocular toxicology based on papers published. Dr. Tewari-Singh’s paper award paper was titled “A Supersaturated Oxygen Emulsion for the Topical Treatment of Ocular Trauma”, published in Military Medicine.

Dr. Ana Leal (Left) - Department of Defense Lung Cancer Research Program Career Development Award 2021
Dr. Carolina Restini (Right) - College of Osteopathic Medicine’s Basic Science Faculty Award 2021

Dr. Colleen Hegg (Left) - Honorary Alumni Award 2021. This award is given to a non-alumnus member of the College community who has been both distinctive and distinguished in one or more of the College’s mission areas: Teaching, Research, or Service.
Dr. Jamie Bernard (Right) - Society of Toxicology James A. Swenberg Carcinogenesis Merit Award for Junior Faculty Members

Select Post-Doctoral Awards

Dafna Groeneveld (Luyendyk Lab): CSL Behring Professor Heimburger Award 2021
Yining Jin (Rockwell Lab): Society of Toxicology Sheldon D. Murphy Award & Mitzi and Prakash Nagarkatti Research Award
Select Student Awards

Dawn Kuszynski (Lauver Lab): Poster Award. ASPET Division of Cardiovascular Pharmacology 2021
Meena Sudhakaran (Doseff Lab): Meites Research & Travel Award from the Department of Physiology at MSU 2021
Nicholas Ether (Lauver Lab): Poster & Travel Award. ASPET Division for Translational and Clinical Pharmacology 2021
Jess Moerland (Liby Lab): Barnett Rosenberg Endowed Research Assistantship 2021
Pragya Saxena (Tykocki Lab): Best Poster Award (1st Place) AGEP Student Success Conference 2021
Lyndsey Reich (Liby Lab): Michigan Osteopathic Association DO/PhD Basic Research Award 2021
Laura Chambers (Dorrance Lab): American Heart Association Predoctoral Fellowship 2021
Morteza Sarparastzardroudi (Alan Lab): MSU 2022 Pearl J. Aldrich Award
Alex Roy (Neubig Lab): Poster Award - MSU UURAF 1st prize Pharmacology & Toxicology 2021
Lauren Heine (Harkema Lab): Minority Trainee Development Scholarship - American Thoracic Society 2021

Select Faculty Grants

**Chemoprevention Of Experimental Estrogen Receptor-Negative Breast Cancer**
Awarded to: Karen Liby (Jamie Bernard Co-Investigator)
Sponsor: Breast Cancer Research Foundation $190,000

**Vascular Cognitive Impairment In Hypertension; Identification Of An Age Appropriate Model**
Awarded to: Anne Dorrance (Greg Fink Co-Investigator)
Sponsor: National Institutes of Health $430,375

**Cannabis Use Frequency And Its Impact On Monocyte-Mediated Inflammation In HIV Patients**
Awarded to: Norbert Kaminski
Sponsor: National Institutes of Health $2,570,020

**The Role Of Adipocyte-Secreted Factors In Driving Transcriptional Networks In Progression To Multiple Myeloma**
Awarded to: Jamie Bernard
Sponsor: Cure Multiple Myeloma Corporation $15,000

**Treatment Strategies For Ocular Toxicity From Chloropicrin**
Awarded to: Neera Tewari-Singh
Sponsor: National Institutes of Health $430,375

**Preclinical Testing Of Gene Therapy Agents For GNAO1 Disorders**
Awarded to: Richard Neubig
Sponsor: Bow Foundation $89,334

**Pathway Activation In The Lung Tumor Microenvironment Macrophages**
Awarded to: Ana Mendes Leal
Sponsor: Department of Defense USAMRAA $391,250
Major Department Awards

Kenneth E. Moore Distinguished Alumnus Award

Kenneth E. Moore was one of the original six faculty members of Pharmacology at Michigan State University. Dr. Moore would later become a department chair with Pharmacology & Toxicology and we honor his contributions with the Distinguished Alumnus Award.

2021 Awardee:
Andrew King, DVM, Ph.D.

Chief Scientific Officer
Chinook Therapeutics

Previous Awardees:
2012 Clinton D. Kilts, Ph.D.
2013 Jesus Olivero-Verbel, Ph.D.
2014 John Goudreau, Ph.D.
2015 Aimen Farraj, Ph.D.
2016 Kurt J. Varner, Ph.D.
2017 Leon Bruner, Ph.D.
2018 James P. Luyendyk, Ph.D.
2019 Lyle D. Burgoon, Ph.D.
2020 Cheryl E. Rockwell, Ph.D.

More on the Kenneth E. Moore Distinguished Alumnus Award

Theodore M. Brody Distinguished Lecturer Award

Theodore M. Brody was the founding chair of Michigan State University’s Pharmacology & Toxicology Department (originally the Department of Physiology and Pharmacology).

2020 Awardee:
Hannah V. Carey, Ph.D.

Professor
University of Wisconsin-Madison

Previous Awardees:
2012 Lynn Wecker, Ph.D.
2013 Palmer Taylor, Ph.D.
2014 William Catterall, Ph.D.
2015 P. Jeffrey Conn, Ph.D.
2016 Lori Isom, Ph.D.
2017 Graeme Milligan, Ph.D.
2018 Quentin Pittman, Ph.D.
2019 Jeffrey L. Benovic, Ph.D.

We did not award a 2021 Theodore M. Brody Distinguished Lecturer due to Covid-19 and travel restrictions

More on the Theodore M. Brody Distinguished Lecturer Award
PharmTox PhD Students

Saamera Awali
Mentor: Dr. Cheryl Rockwell

Rachel Bauer
Mentor: Dr. Courtney Carignan

Maja Blake
Mentor: Dr. Andrea Amalfitano

Allison Boss
Mentor: Dr. Cheryl Rockwell

Sierra Boyd
Mentor: Dr. Alison Bernstein

Laura Chambers
Mentor: Dr. Anne Dorrance

Devon Dattmore
Mentor: Dr. Sing Lee

Nick Ether
Mentor: Dr. Adam Lauver

Olivia Favor
Mentors: Drs. James Pestka / Sing Lee

Taylor Fiolek
Mentor: Dr. Jetze Tepe

Romina Gonzalez-Ponz
Mentor: Dr. Jamie Bernard

Lauren Heine
Mentor: Dr. Jack Harkema

Malique Jones
Mentor: Dr. Nathan Tykocki

Dimitri Joseph
Mentors: Drs. Bin Chen / AJ Robison

Amanda Jurgelewicz
Mentor: Dr. John LaPres

Luca Kaiser
Mentor: Dr. Cheryl Rockwell

Omar Kana
Mentor: Dr. Sudin Bhattacharya

Isha Khan
Mentor: Dr. Norb Kaminski

Dawn Kuszynski
Mentor: Dr. Adam Lauver

Jess Moerland
Mentor: Dr. Karen Liby

Chris Occhiuto
Mentor: Karen Liby

Lyndsey Reich
Mentor: Dr. Karen Liby

Brad Ryvva
Mentor: Dr. Rita Strakovsky

Erika Sarno
Mentor: Dr. AJ Robison

Pragya Saxena
Mentor: Dr. Nathan Tykocki

Sera Sermet
Mentor: Dr. Norb Kaminski

Sophia Staerz
Mentor: Dr. Jetze Tepe

Michelle Steidemann
Mentor: Dr. John LaPres

Anna Stoll
Mentor: Dr. Caryl Sortwell

Jasiel Strubbe
Mentor: Dr. Jason Bazil

Carlye Szarowicz
Mentor: Dr. Kathy Steece-Collier

Nat Yawson
Mentor: Dr. Jamie Bernard

Erin Zaluzec
Mentor: Dr. Lorenzo Sempere

2021 PhD Dissertations

Dr. Jenna Strickland
Mentor: Dr. Bryan Copple
Cytokine Dysregulation Disrupts Macrophage-Mediated Liver Repair, Triggers Hepatic Encephalopathy, and Increases Mortality in Acetaminophen-Induced Acute Liver Failure
Dr. Strickland took a position with Labcorp Drug Development in Madison, WI

Dr. Patricia Perez-Bonilla
Mentor: Dr. Gina Leinninger
Role of Ventral Tegmental Area Neuropeptide Y Receptor-1 Neurons in Energy Balance
Dr. Perez-Bonilla took a position with Pfizer in Boston, MA.
Department Events

Our department had to get very creative in 2021 to bring people together during this continuing Covid-19 pandemic. Luckily our Department is full of creative people and we had no problem finding ways to have fun together!

Snow Tubing at Hawk Island

Ice Cream Social