

# 02 UVA Pharmacology Yearly



Message from the Chair **P.1**

Recent Department Events **P.2**

Featured Faculty **P.9**

Faculty News/ Research Highlights **P.10**

Graduate Student News **P.12**

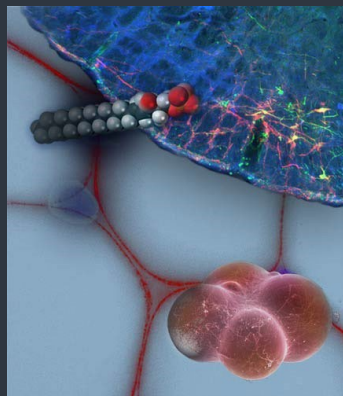
Pharm Publications **P. 16**

Upcoming Events/Save-the-Dates **P. 23**

## Message from the Chair:

Welcome to the Annual Newsletter for the Department of Pharmacology at the University of Virginia, in which we will share the many achievements and events of the past year. We describe new research and publications from the department and include our “Featured Faculty” piece, this year from Dr. Bland; she provides an overview of her exciting work exploring mechanisms at the interface of innate immunity and metabolism, with new directions examining relevance of the molecules and pathways to growth and metabolism. We also highlight the many notable successes of our trainees – papers, graduation, awards, fellowships, etc. – achieved at different stages of their training. Finally, we recognize faculty promotions, awards, as well as the departures and recruitments that contribute to the current make-up of the department. We hope that the pictures and stories we reprise here will be cause for celebration and appreciation of the work and fun we have had together over the year – and that our losses, however sad, will serve to remind us to appreciate each other even more.

As always, I hope this newsletter will leave you feeling that the “State of the Department” remains strong – and that this reflects the commitment and efforts of outstanding faculty, trainees and staff dedicated to excellence in research, education, and service to our communities. –Douglas A. Bayliss



## Recent Events:

### Black History Month 2023- Pharmacology Hosts Journal Club Event to Recognize the Work of Influential African American Scientists

Black History Month as a time to honor the achievements, rich culture and history of African Americans and to recognize the significant achievements and contributions of Black people to society. In alignment with recognizing these many contributions, the Pharmacology department dedicated Black History Month 2023 to teaching and engaging its students, faculty, and staff with the scientific discoveries of several African American scientists who have made an outstanding and lasting impact in scientific research.

In February, Pharmacology hosted an event dedicating several Journal Club presentations to teaching students about the research and individual accomplishments of several Black researchers. Faculty members were paired with students to mentor them on papers that were presented to the department each week. Each faculty member gave a brief presentation about one or more African American scientists whose careers and research had influenced their own work. The students were then given the opportunity to present papers on the research published by those scientists who had been introduced by each of the faculty members whom they were paired with. The faculty and students explored and presented the work of scientists who included:



Mary Maynard Daily, who became the first African American woman to receive a doctorate in chemistry in the United States. Dr. Daily conducted important research on cholesterol, sugar and proteins. In addition to her research, she has helped develop programs to increase the enrollment of minority students in medical schools and graduate programs.



Trevor K. Archer, Ph.D., Deputy Director of NIEHS and head of the Chromatin and Gene Expression Group. Dr Archer has published nearly 120 peer-reviewed articles and mentored many emerging scientists. In 2019, he was named a National Institutes of Health (NIH) Distinguished Investigator. In addition to these achievements, Dr. Archer has focused efforts to increase the diversity of the workforce and to encourage individuals from underrepresented groups to pursue a career in science.



Liz Johnson, PhD, an Assistant Professor of Molecular Nutrition at Cornell University in the Division of Nutritional Sciences, whose work focuses on understanding how sphingolipid production by the gut microbiome influences host phenotypes as well as how the sphingolipid content of host diets affects the establishment of the microbiome. Click on her photo above to read full interview with the American Society for Nutrition (ASN) where she shares her experience in the field, her work with lipids in health and disease, and her hopes for the next generation of Black scientists.



Professor of Biochemistry, UCSF School of Medicine. Dr. Watson's research focused on the regulation of metabolic pathways, particularly on the regulation of cholesterol and isopentenoid biosynthesis. In addition to being a researcher, when he became the admissions director at UCSF School of Medicine, he redesigned the entire admissions process to increase student diversity. His approach, which took a more holistic approach to evaluate students' strengths, has been adopted by most medical schools nationwide.

## 2022 Pharmacology Annual Scientific Retreat

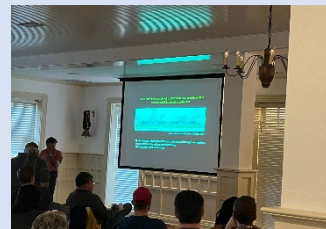
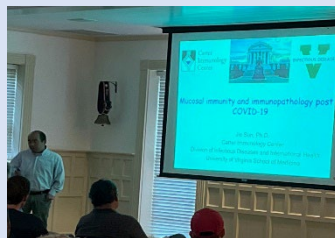


The Pharmacology department hosts an Annual Research Retreat each year that includes a wonderful day of fellowship and collaboration, a variety of fun activities that include scientific poster contests, games, and presentations of a variety of research interest/efforts of our graduate students and faculty.



This year's retreat was held on Thursday October 13, 2022 at [Morven](#). It was an enjoyable day of fellowship, sharing of research projects of our students and faculty, and various other fun activities. The line-up of faculty, postdoc & graduate student presentations were delivered by the following participants:

### **Faculty Talks**



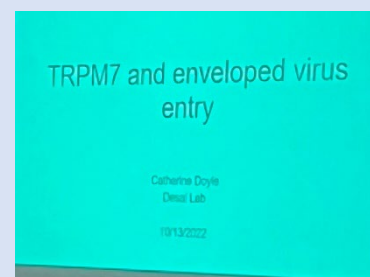
Jie Sun, Harrison Distinguished Teaching Professor of Medicine & the CIC  
Seham Ebrahim, Molecular Physiology and Biological Physics

## **Postdoc Talks**



George Souza, Stephen Abbott's Lab  
Vlad Serbulea, Gary Owen's Lab  
Yen-Lin Chen, Swapnil Sonkusare's Lab

## **Graduate Student Talks**



Catherine Doyle, Bimal Desai's Lab  
Yuntian Guan, Zhen Yan's  
Jessica Hatter, Michael Scott's Lab  
Andrew Heindel, Ku-Lung (Ken) Hsu's Lab

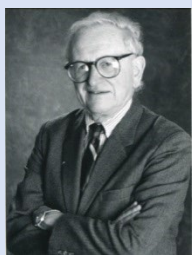
Retreat attendees voted on their favorite talks and presentations of the day. All presenters were placed on a ballot for a chance to win awards and prizes at the conclusion of the event. Thus, one of the most favorite parts of the day were the presentation of various awards. The 2022 award winners included:

- Ted W. Rall Award (outstanding paper) – Clint Upchurch (Grad Student, Leitinger lab)
- Best Predoctoral Presentation – Catherine Doyle (Grad Student, Desai Lab)
- Best Postdoctoral Presentation- Vlad Serbulea (Postdoc, Owen's Lab)
- Best Predoctoral Poster- Synphane Gibbs (Grad Student, Ukpung Lab)
- Best Postdoctoral Poster – Miyuki Suzawa (Lab Spec, Bland Lab)



All recipients of these various awards received certificates and gift cards issued by the department. Every presenter did such an amazing job which made it difficult to decide the winners of these various awards. The Pharmacology Department is proud of all of the talented, hardworking, dedicated, and scientifically passionate students and faculty! It was evident that a lot of work went into each presentation and they were well-received by all.

# 2022 Joseph Larner Memorial Lecture in Pharmacology



An annual lectureship was established to honor the memory of Joseph

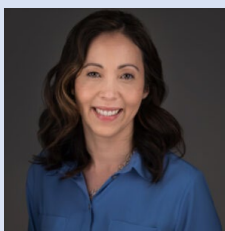
Larner, who served as Professor and Chair of the Pharmacology Department for many years. During his time as Chair he recruited and mentored numerous successful faculty, including Al Gilman. He continued to be an inspiration to everyone who knew him, especially our graduate students, who were in awe of his energy and enthusiasm as he kept up his science and maintained an active departmental presence well into his 90s. In addition to honoring Dr. Larner's memory, the goal of this lectureship is to highlight exciting new advances in an area that held great interest for him: the pervasive role of metabolism/cell signaling in human disease.

We held our 2022 Joseph Larner Memorial Lecture in Pharmacology on Friday, October 21, 2022 at in the Pinn Hall Conference Center Auditorium.



Hosted by Dr. Stephen Abbott, Assistant Professor of

Pharmacology, this year's guest speaker was Dr. Marcia C. Haigis from Harvard Medical School.

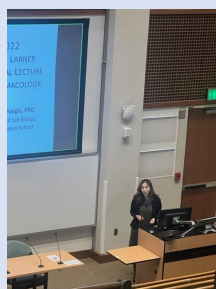


Marcia C. Haigis, Ph.D., is a Professor in the

Department of Cell Biology at Harvard Medical School in Boston, MA, a member of the Paul F. Glenn Center for the Biology of Aging, and the Ludwig Center at Harvard Medical School. The Haigis laboratory focuses on the role that mitochondria play in mammalian aging and

disease with the goal of identifying molecular mechanisms that control aging, such as sirtuins. The Haigis laboratory has made key contributions to our understanding of metabolic reprogramming in cancer, including identifying nodes of metabolic vulnerability in the control of fat oxidation in leukemia and metabolic recycling of ammonia to generate amino acids important for tumor growth.

At this year's memorial lecture, Dr. Haigis spoke on "Multifaceted Mitochondria in Health and Disease." The talk was very engaging and well-received by all in attendance. The lecture was free and open to all. Attendees were also welcomed to a free fellowship breakfast with the Dr. Haigis and the Larner Family. The department hosted over 140 participants of this year's event.



# 2022 Pharmacology Department Holiday Party in Honor of Drs. Paula Barrett & John Lazo

On Friday, December 09, 2022, we held a very fun – and very special – Holiday Party.



best DJ's in town! Boy, we had a groovy time...



Upon her retirement and election to an Emeritus position, Dr. Paula Barrett had a single request: *“Please hold a departmental Holiday Party, like the ones we used to have”* – and so that is exactly what we did ...Paula worked together with our “Committee on Parties” (Dr. Michelle Bland, Dr. Mark Beenhakker, Ms. Antoinette Reid), and after cajoling Ms. Deborah Steele to open up the coffers a bit, they organized an

enjoyable evening event at Alumni Hall with good food, generous libations, live music, and livelier dancing. There were activities for the kids (and adults) to enjoy, like gingerbread cookie decorating. Also, as represented in the pictures below, we had a digital camera setup to satisfy the “ham” in all of us.



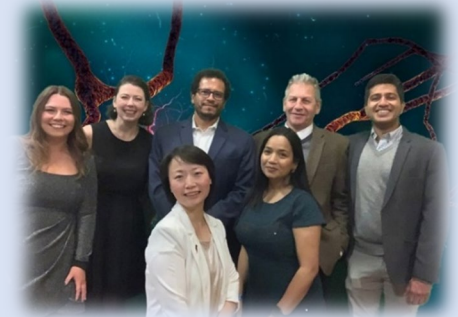
A special thanks to Serapio Baca in the Bayliss Lab for the cool photo booth setup, and to Nick Guagliardo for finding us one of the



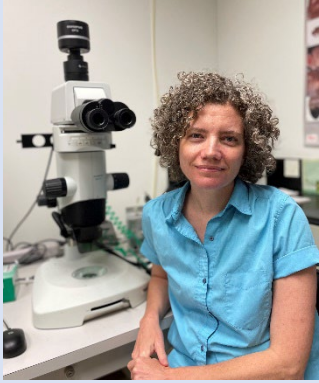
Finally, this event also gave us a chance to recognize Paula, as well as Dr. John Lazo, on their recent retirements.

For John, who retired during the COVID pandemic, and for Paula at her long-desired Holiday Party, we all had an opportunity to express our thanks for their many contributions to the department over many years and to wish them all the best in their retirement. We hope to continue to see them in our hallways -- and at all our future parties!





# Featured Faculty



## Michelle Bland, Ph.D., Associate Professor of Pharmacology

What does an animal give up during an infection? Infections cannot be ignored, and they are energetically costly to fight. My lab is working to understand the mechanisms that underlie impaired growth, altered metabolism, and insulin resistance that occur during infection and in response to chronic activation of the immune system.

We use the genetic model organism *Drosophila melanogaster* to address these questions because of the conservation of immune, hormonal and metabolic processes between fruit flies and humans and the powerful genetic tools in flies that allow us to manipulate gene function in time and space. We focus our work on the *Drosophila* larval fat body, an organ that shares functional homology with liver, adipose tissue, and macrophages. Our work shows that infection and immune signaling redirect the fat body from its growth promoting and nutrient storage functions to the production of immune effectors called antimicrobial peptides.

We discovered that infection triggers phospholipid synthesis in the fat body at the expense of triglyceride storage. Over the short-term, this is advantageous for the animal because phospholipid synthesis supports production and secretion of antimicrobial peptides thereby reducing infection severity. However, diverting lipids away from fat storage comes with a tradeoff in the long-run: reduced resistance to stress in adulthood. These results were published in PLOS Genetics, and we were gratified to include several colleagues in Pharmacology as co-authors on this paper. To follow up this work, we are working to discover how immune signaling mechanistically regulates phospholipid synthesis and to determine the role(s) of phospholipids that are synthesized during infection. Another key project in the lab investigates how infection in the juvenile stage suppresses whole-animal growth. We discovered that innate immune signaling disrupts production of the IGF1 homolog *Drosophila* insulin-like peptide 6 (Dilp6). With our NIH R01 grant, we seek to understand how infection and immune signaling disrupt production of IGF1 in mammalian liver, extending our findings from flies to mice.

Insulin-like peptides are major regulators of growth and metabolism across the animal kingdom. Our work shows that infection inhibits secretion of Dilp6, made by the fat body, but not Dilp2, made by a group of 14 neurons in the fly brain, the insulin-producing cells. Recent work in the lab shows that Dilp2 and Dilp6 also respond in opposite directions to key dietary nutrients: carbohydrates and protein. We are employing new genetic tools and approaches to investigate how the single insulin receptor encoded in the fly genome discriminates among its ligands, providing a window into the complex regulation of growth and metabolism in response to diverse environmental input.

## Faculty News

Our faculty have had another eventful year, with lots of exciting developments and happy news ... but also some extremely sad passings that we recognize here at the outset.

Our colleague Dr. Mark Kester was taken from us in a shockingly sudden fashion on July 20, 2022. Mark was an outstanding scientist who was internationally recognized for his work on design and validation of nanotechnologies for targeted drug delivery, and for developing that technology to deliver bioactive pro-apoptotic ceramide in multiple in vivo cancer models – and in patients. Mark was further interested in understanding the basic mechanisms by which ceramide mediates its pro-apoptotic actions. Notably, Mark's legacy lives on in the continued scientific research of his collaborators and the many successful patents and spin-off companies he was able to generate.



The Comprehensive Cancer Center at UVA hosted a wonderful symposium to honor Mark on June 27, 2023, with expert speakers and esteemed colleagues from around the country. Importantly, and apart from his science, Mark was a wonderful colleague and friend who lived his life with an inimitable gusto – and he will be sorely missed.

We also received the sad news that Dr. Rod Biltonen passed away on March 29, 2023. Rod spent the majority of his faculty career at UVA (1972-2003) and was Professor Emeritus of Pharmacology and Biochemistry. Rod was a distinguished biophysicist; he won the Huffman Award in 1989 for his contributions to thermochemistry and thermodynamics, and was elected as a Fellow of the Biophysical Society. The symposium held upon his retirement in 2003 highlighted the broad impact Rod had, both in his science and on the many colleagues, trainees, and lab personnel he influenced over his illustrious career.

We noted last year that Dr. Patrice Guyenet and Dr. John Lazo (in 2020) and Dr. Paula Barrett (in 2022) had chosen to retire and move to Emeritus status – and they were finally all properly fêted earlier this year in a lovely University-wide celebration that recognized everyone elected to emeritus over the last four academic years. Congratulations to Patrice, John and Paula; we remain grateful that they continue to play a part in many of our academic and social events.

Our two new faculty recruits mentioned in this publication last year, Dr. Stephen Abbott and Dr. Edward Nieh, are now both on-site and getting settled into their independent laboratories. In addition, we were the lucky



*Edward Nieh*

beneficiaries of two additional recruitments this year. First, Dr. Jeffrey Martens moved from the University of Florida, where he was Thomas H. Maren Professor and Chair of Pharmacology and Therapeutics, to join our School of Medicine as the new Senior Associate Dean for Research. We are grateful that Jeff chose to join our department, where he will continue his research in mechanisms of olfaction, olfactory dysfunction in ciliopathies, and the use of gene therapy approaches to correct those olfactory pathologies. Second, Dr. Shengyi (Iris) Sun was part of a joint recruitment that brought her to Pharmacology and her husband, Dr. Ling



*Jeffrey Martens*

Qi, to Physiology from Wayne State University and University of Michigan. Dr. Sun was an HHMI International Predoctoral Fellow at Cornell and held a Helen Hay Whitney Foundation Postdoctoral Fellow at UT Southwestern before starting her own laboratory at Wayne State. Iris will add to our departmental expertise in metabolism by bringing her exciting new in vivo studies into mechanisms by which ER-associated degradation (ERAD) affects liver metabolism and physiology. We are excited to have each of these new faculty members as colleagues.

Last, but not least, some faculty promotions and awards. Dr. Irina Bochkis was promoted to Associate Professor; Dr. Mark Beenhakker was awarded tenure (as of July 1, 2023). Dr. Beenhakker will also begin a term as the Director of the Neuroscience Graduate Program. Finally, Dr. Bimal Desai was chosen to be among a select inaugural class of Shannon Fellows at the University of Virginia, in recognition of his groundbreaking research and commitment to service at the University. Well done to these three for these well-deserved honors.

Overall, with both new and familiar faces, the faculty continue to make the department a vibrant and collegial environment to perform outstanding research, teach and mentor enthusiastic students and serve our UVA and broader scientific communities.

## Faculty Research Highlights



In recent news, Payam Pourtaheri and Ameer Shakeel – with Virginia Gov. Glenn Youngkin in attendance– announced plans to build a pilot fermentation plant in a building near AgroSpheres's headquarters on Seminole Trail in Charlottesville. They will do so using \$25 million from a recent AgroSpheres investment round. **Mark Kester, PhD, Professor of Pharmacology**, was a cofounder of the company, and mentor to both Pourtaheri and Shakeel, and passed away suddenly last August.

AgroSpheres is a product of the Darden School of Business' i.Lab Incubator. UVA Assistant Vice President for Economic Development Pace Lochte, whose office supports the region and commonwealth's efforts to expand and recruit knowledge-based industry, said AgroSpheres is a shining example of how the entrepreneurial ecosystem that the University and community foster can lead to societal impact. Click [here](#) to read more about the plans for the company.



**Irina Bochkis, PhD**, Associate Professor of Pharmacology and her research team, recently observed that the nuclear membranes that house our cells' DNA get crinkly over time, which may be a reason for declines in functioning. Aging goes hand in hand with increased inflammation and metabolic syndrome. In the liver, this can lead to nonalcoholic fatty liver disease. Bochkis' research directly connects the integrity of the DNA's envelope to that condition. She believes other aspects of aging may directly relate as well. "In the aging field, there are two camps: improving healthspan and increasing lifespan," Bochkis said. "Some genes might contribute to both, but not necessarily. We should focus on improving healthspan and quality of life for the current lifespan before we start talking about increasing it." Read more about the work being done at UVA on aging [here](#).

Recent School of Medicine findings about how the brain responds to seizures could facilitate the development of much-needed treatments for the third of patients who don't respond to existing options.

The research, from the labs of **UVA's Ukpong B. Eyo, PhD, and Edward Perez-Reyes, PhD**, suggests that immune cells called microglia play important, beneficial roles in controlling various types of seizures. Prior research had left scientists uncertain whether these cells were helpful or harmful during the brain's seizure response, so UVA's new discovery offers useful direction for researchers developing new treatments.

Seizure disorders affect more than 65 million people around the world. In addition to the immediate dangers seizures cause, prolonged seizures called status epilepticus can cause permanent brain damage. Seizures are commonly associated with epilepsy, but they can have a variety of causes, including infections, trauma, and even low blood sugar.

The researchers have [published their findings in the scientific journal Glia](#). The team consisted of Synphane Gibbs-Shelton (Pharmacology Graduate Student in Dr. Eyo's lab), Jordan Benderoth, Ronald P. Gaykema, Justyna Straub, Kenneth A. Okojie, Joseph O. Uweru, Dennis H. Lentferink, Binita Rajbanshi, Maureen N. Cowan, Brij Patel, Anthony Brayan Campos-Salazar, Perez-Reyes and Eyo. Read more about their findings [here](#).

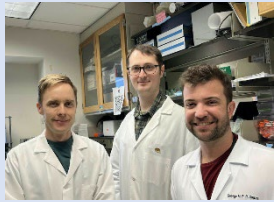




**Dr. Brant Isakson** of the Department of Molecular Physiology and Biological Physics and PSTG Preceptor in the department of Pharmacology, has been named the recipient of the 2024 Robert M. Berne Distinguished Lectureship award.

The Robert M. Berne Distinguished Lectureship is in honor of one of the most distinguished members of the Cardiovascular Section, Robert M. Berne, whose research focused on the local chemical regulation of tissue blood flow, with an emphasis on understanding the role of adenosine and how it elicits vasodilation. This award is presented to an emerging leader in cardiovascular research whose current research is particularly stimulating, such that the presentation of this work would contribute to interest in, and growth of, the Cardiovascular Section.

The Isakson lab focuses on microcirculation, which consists of the smallest arteries and veins. These small blood vessels are responsible for modulating blood pressure, delivery of oxygen to tissue, and regulating the inflammatory response. The Isakson lab has made important discoveries in each of these areas that includes development of genetically modified mouse models, several patented products, as well as research disclosures.



**Stephen Abbott's lab** in the Department of Pharmacology recently published an article in *Cell Reports* describing cells in the brain that protect the body against blood loss. Check out the associated UVA press release here (<https://newsroom.uvahealth.com/2022/03/28/uva-discovers-body-s-natural-alarm-to-battle-blood-loss/>). Way to Go, Abbott Lab! Congratulations to the whole team!

**Irina Bochkis, PhD**, recently published new research that discovered a key trigger for non-alcoholic fatty liver disease, a mysterious condition that causes fat to build up in the liver for no clear reason. The new insights help explain the condition in younger people and could lead to the first treatment for the most common liver disease in the world. Find more information on her research [here](#). Find the NBC29 news story [here](#).



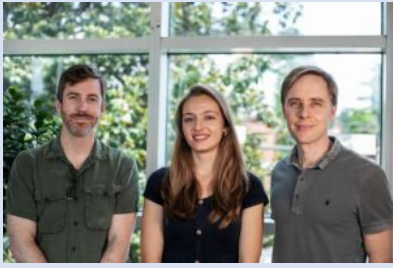
Pharmacology was proud to recently announce that **Dr. Bimal Desai, PhD, Associate Professor of Pharmacology**, was one of three recipients of the Shannon Center Mid-Career Fellowship from the University of Virginia!

A new University of Virginia program announced this year has awarded 15 faculty members with fellowships to honor what Executive Vice President and Provost Ian Baucom called their “groundbreaking research” and “commitment to service” to the University.

The first group of Shannon Center Mid-Career Fellows represents faculty from nine of the University's schools. The fellowship honors tenured faculty members who have made significant contributions to their departments and schools, but are not yet chairholders of endowed professorships.

The fellows will serve three-year terms. Each year, deans will nominate a new group of faculty members for the fellowship, supported through the University's Shannon Center for Advanced Studies. The center, named for former UVA president Edgar F. Shannon Jr., has bolstered University faculty for nearly six decades. Read more about the award [here](#) and [here](#)

## Graduate Student News



The Pharmacology department would like to send a huge congrats to **Tatianna Coverdell, PhD** (former Pharmacology Student in labs of Drs. John Campbell & Scott Abbott) for leading a study that discovered a neural pathway from the brain to the esophagus that could improve treatment of esophageal motility disorders. Please visit [UVA Today](#) for the full story.



**Binita Rajbanishi, PhD** (a recent graduate from the lab of George Bloom, PhD) and her team discovered how tauPT217, an early biomarker for Alzheimer's, builds up in the brain and compromises neuronal health in Alzheimer's pathogenesis, thus opening new roads for early Alzheimer's therapy"

See several articles on the research [here](#) and [here](#).



**Claire Ruddiman PhD** focused on understanding the role of arterial structure to function, with important implications in blood pressure control. Specifically, Dr. Ruddiman studied how endothelial cells organized lipids and specific ion channels close to smooth muscle cell to regulate blood vessel dilation. Claire was on the UVA Cardiovascular Training Grant and obtained her own extramural support from a NIH F31 to pursue this work. She is the 2023 recipient of the Pharmacology Outstanding Graduate Student and Robert Haynes Award. Way to go, Claire!



Congratulations to both **Maddie Failor** and **Katie Pavelec** on receiving the Double Hoo award! They each paired with an Undergraduate student to pursue a research topic, and will receive funding for some of this research. This what they had to say about the working they are doing:

Our project will focus on studying a newly discovered population of astrocytes that express cFos. These cFos+ astrocytes have never been studied in epilepsy. We will examine if these cFos+ astrocytes contribute to seizure outcome measures and neuronal death, and if

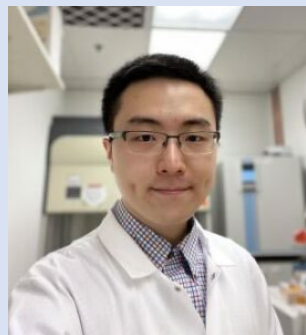
they could be targeted by genetic therapies for epilepsy treatment. – Maddie Failor and Jennifer San Pietro

Our project will explore the role of Pannexin 1 released metabolites in neutrophil recruitment and activation. We will explore how Pannexin 1 in cardiomyocytes releases metabolites in response to beta-adrenergic stimulation and what effect that has on the number and type of neutrophils recruited both *in vivo* and *in vitro*. – Katie Pavelec and Hannah Luviano.

Find out more about the Double Hoos award [here](#)

## Graduate Student News continued...

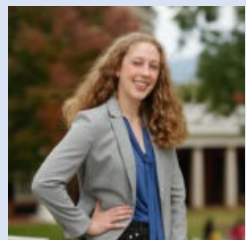
Congratulations to Pharmacology Graduate Students **Michael Chi** and **Mike Lemke** on placing 1st and 3rd place respectively for their poster presentations at the 31st annual Graduate Bioscience Society Symposium on March 17th, 2023.



**Michael Chi** (1st place) presented on: "The Mechanism of Shieldin-mediated DNA Double-Strand Break Repair and Role in Mediating Sensitivity to PARP Inhibitors" --My project focuses on the role of the Shieldin protein complex in DNA double strand break (DSB) repair and how its loss confers resistance to the PARP inhibitor olaparib. Currently, my data suggests that the effect of losing the Shieldin subunit proteins or its recruiting cofactors, RIF1 and 53BP1, on the two principal DSB repair pathways, namely nonhomologous end-joining (NHEJ) and homologous recombination (HR), is dependent on the number of double strand breaks.

Furthermore, the loss of 53BP1 or RIF1 does not confer the same level of resistance to olaparib as the loss of the Shieldin subunits, suggesting a separation of function that is independent of BRCA1 status.

**Mike Lemke** (3rd place) presented on: "Characterization of Microtubule Associated Serine/Threonine Kinase 2 in Anabolic Signaling" --The mammalian microtubule-associated serine-threonine (Mast) family of protein kinases are an understudied group of proteins downstream of mTOR that have been implicated in a diverse array of pathologies including dysregulated lipid homeostasis in metabolic disease, cancer, and brain malformations. Despite these associations, the activity and function of the canonical Mast kinases are currently unknown. Using both biochemical and proteomic methods, my work focusses on defining the enzymatic profile and the physiological role of the first Mast protein to be identified, now called Mast2, as a potential pharmacological therapeutic target



Pharm sends a special thanks to **Katie Pavelec** for her dedicated efforts to help organize this year's GBS Symposium. We appreciate you Katie!



Congratulations **Blair Towers** on her NIH National Institute on Drug Abuse F30 fellowship! The four-year grant totals over \$150,000. The project title is Sex Differences in a Rat Model of Opioid Use disorder.

Opioid use disorder (OUD) is a major epidemic in the United States and women appear be more vulnerable than men to certain aspects of the disease. Despite the severity of this problem in women, very little information is known regarding mechanisms underlying OUD in females or sex-specific differences in the development, expression, and molecular mechanisms of OUD.

Thus, the goal of this F30 application is to fill these research gaps using a novel rat model of OUD with fentanyl, and in doing so, provide foundational information on sex differences in OUD that can be used to refine the use of already approved treatments for OUD in women versus men as well as guide the development of new sex-specific treatments for OUD. Blair is in her third year of her Pharmacology Degree Training in the Medical Sciences Training Program, in the lab of Dr. Wendy Lynch.

## Graduate Student News continued...



The Pharmacology Department would like to send kudos to Synphane Gibbs-Shelton, Pharmacology Graduate Student in Ukpong Eyo's Lab, for making headlines for being one of the two PhD students at the University of Virginia School of Medicine that recently established a pioneering organization called the Society for Black Biomedical Scientists and Engineers. The Society for Black Biomedical Scientists and Engineers is driven by a resolute mission: to cultivate and advance a profound sense of belonging among students of the Black Diaspora within the esteemed Biomedical Science Graduate Program (BIMS) and Biomedical Engineering Graduate Program at the University of Virginia. For more information about the society and details on how to get involved, please read the full School of Medicine Minds in Motion News story [here](#).



Pharmacology sends a huge congrats to Synphane Gibbs-Shelton and Daniel Lank for being recipients of the prestigious Wagner Fellowship Award. Dr. Wagner served as Professor and Chair of Microbiology from 1967-1994 and contributed in so many ways to the School of Medicine, UVA, and the scientific community at large. These fellowships are a lasting tribute to his dedication to student training, his encouragement of young scientists, and his love of UVA.



Pharmacology also sends a huge congrats to Elzbieta Dulko, Neuroscience Graduate Student in the lab of Mark Beenhakker for being also awarded the Wagner Fellowship.

Synphane, Daniel and Elzbieta, Pharm is proud of you!

**Congratulations to all of the 2023 Graduates! Pharmacology wishes you the very best on your continuing journey.....**





## 2023 Pharmacology Graduates & Dissertations

**Philip Seegren, Ph.D.**, October 2022 (Desai Lab)

Dissertation Defense: "Mitochondrial Ca<sup>2+</sup> Signaling in Inflammation and Innate Immunity"

**Binita Rajbanshi, Ph.D.**, November 2022 (Bloom Lab)

Dissertation Defense: "Localization and functional role of TaupT217 in Alzheimer's Disease"

**Clint Upchurch, Ph.D.**, February 2023 (Leitinger Lab)

Dissertation Defense: "Targeting oxidized phospholipids by AAV-mediated Gene Therapy in Nonalcoholic Fatty Liver disease"

**Merci Best, Ph.D.**, April 2023 (Bloom Lab)

Dissertation Defense: "Breaking Barriers: A Quantitative Analysis of Axon Initial Segment Damage in Neurodegenerative Diseases"

**Anders Nelson, Ph.D.**, April 2023 (Hsu Lab)

Dissertation Defense: "Phenotypic Screen Data Integration Infers Regulators of Fibroblasts"

**Andrew Heindel, Ph.D.**, April 2023 (Saucerman Lab)

Dissertation Defense: "Developing a Chemical Proteomics Platform for Capturing and Liganding RNA-Binding Activity in Cells"

**Jessica Hatter, Ph.D.**, May 2023 (Scott Lab)

Dissertation Defense: "Neuronal Regulation of Impulsivity and Metabolic Adaptation"



## 2022-23 Pharmacology Publications

1. [Rostral ventrolateral medulla, retropontine region and autonomic regulations.](#)  
Guyenet PG, Stornetta RL.  
Auton Neurosci. 2022 Jan;237:102922. doi: 10.1016/j.autneu.2021.102922. Epub 2021 Nov 19.  
PMID: 34814098 Review.
2. [Alterations in sphingolipid composition and mitochondrial bioenergetics represent synergistic therapeutic vulnerabilities linked to multidrug resistance in leukemia.](#)  
Fisher-Wellman KH, Hagen JT, Kassai M, Kao LP, Nelson MAM, McLaughlin KL, Coalson HS, Fox TE, Tan SF, Feith DJ, Kester M, Loughran TP Jr, Claxton DF, Cabot MC.  
FASEB J. 2022 Jan;36(1):e22094. doi: 10.1096/fj.202101194RRR.  
PMID: 34888943
3. [Transcriptome and Translatome Regulation of Pathogenesis in Alzheimer's Disease Model Mice.](#)  
Eastman G, Sharlow ER, Lazo JS, Bloom GS, Sotelo-Silveira JR.  
J Alzheimers Dis. 2022;86(1):365-386. doi: 10.3233/JAD-215357.  
PMID: 35034904
4. [Central respiratory chemoreception.](#)  
Guyenet PG, Bayliss DA.  
Handb Clin Neurol. 2022;188:37-72. doi: 10.1016/B978-0-323-91534-2.00007-2.  
PMID: 35965033 Review.
5. [Respiratory alkalosis provokes spike-wave discharges in seizure-prone rats.](#)  
Salvati KA, Souza GMPR, Lu AC, Ritger ML, Guyenet P, Abbott SB, Beenhakker MP.  
Elife. 2022 Jan 4;11:e72898. doi: 10.7554/eLife.72898.  
PMID: 34982032
6. [INPP5E controls ciliary localization of phospholipids and the odor response in olfactory sensory neurons.](#)  
Ukhanov K, Uyttingco C, Green W, Zhang L, Schurmans S, Martens JR.  
J Cell Sci. 2022 Mar 1;135(5):jcs258364. doi: 10.1242/jcs.258364. Epub 2021 May 7.  
PMID: 33771931
7. [Identification of ritanserine analogs that display DGK isoform specificity.](#)  
Granade ME, Manigat LC, Lemke MC, Purow BW, Harris TE.  
Biochem Pharmacol. 2022 Mar;197:114908. doi: 10.1016/j.bcp.2022.114908. Epub 2022 Jan 6.  
PMID: 34999054
8. [Adrenergic C1 neurons monitor arterial blood pressure and determine the sympathetic response to hemorrhage.](#)  
Souza GMPR, Stornetta RL, Stornetta DS, Guyenet PG, Abbott SBG.  
Cell Rep. 2022 Mar 8;38(10):110480. doi: 10.1016/j.celrep.2022.110480.  
PMID: 35263582
9. [Impact of a short-term low calorie diet alone or with interval exercise on quality of life and oxidized phospholipids in obese females.](#)  
Gilbertson NM, Eichner NZM, Gaitán JM, Pirtle JM, Kirby JL, Upchurch CM, Leitingner N, Malin SK.  
Physiol Behav. 2022 Mar 15;246:113706. doi: 10.1016/j.physbeh.2022.113706. Epub 2022 Jan 13.  
PMID: 35033556 Clinical Trial.

## Publications Continued..

10. [Adipocyte-Specific Modulation of KLF14 Expression in Mice Leads to Sex-Dependent Impacts on Adiposity and Lipid Metabolism.](#)  
Yang Q, Hinkle J, Reed JN, Aherrahrou R, Xu Z, Harris TE, Stephenson EJ, Musunuru K, Keller SR, Civelek M. Diabetes. 2022 Apr 1;71(4):677-693. doi: 10.2337/db21-0674. PMID: 35081256
11. [Nanoliposome C6-Ceramide in combination with anti-CTLA4 antibody improves anti-tumor immunity in hepatocellular cancer.](#)  
Qi X, Wu F, Kim SH, Kaifi JT, Kimchi ET, Snyder H, Illendula A, Fox T, Kester M, Staveley-O'Carroll KF, Li G. FASEB J. 2022 Apr;36(4):e22250. doi: 10.1096/fj.202101707R. PMID: 35294071
12. [Detecting and correcting false transients in calcium imaging.](#)  
Gauthier JL, Koay SA, Nieh EH, Tank DW, Pillow JW, Charles AS. Nat Methods. 2022 Apr;19(4):470-478. doi: 10.1038/s41592-022-01422-5. Epub 2022 Mar 28. PMID: 35347320
13. [Antihyperlipidemic Activity of Gut-Restricted LXR Inverse Agonists.](#)  
Griffett K, Hayes M, Bedia-Diaz G, Appourchaux K, Sanders R, Boeckman MP, Koelblen T, Zhang J, Schulman IG, Elgendy B, Burris TP. ACS Chem Biol. 2022 May 20;17(5):1143-1154. doi: 10.1021/acscchembio.2c00057. Epub 2022 Apr 13. PMID: 35417135
14. [A Novel Sphingosine Kinase Inhibitor Suppresses Chikungunya Virus Infection.](#)  
Oyewole OO, Dunnavant K, Bhattarai S, Kharel Y, Lynch KR, Santos WL, Reid SP. Viruses. 2022 May 24;14(6):1123. doi: 10.3390/v14061123. PMID: 35746595
15. [5-HT7 receptors expressed in the mouse parafacial region are not required for respiratory chemosensitivity.](#)  
Shi Y, Sobrinho CR, Soto-Perez J, Milla BM, Stornetta DS, Stornetta RL, Takakura AC, Mulkey DK, Moreira TS, Bayliss DA. J Physiol. 2022 Jun;600(11):2789-2811. doi: 10.1113/JP282279. Epub 2022 Apr 21. PMID: 35385139
16. [Discovery of In Vivo Active Sphingosine-1-phosphate Transporter \(Spns2\) Inhibitors.](#)  
Fritzscheier R, Foster D, Peralta A, Payette M, Kharel Y, Huang T, Lynch KR, Santos WL. J Med Chem. 2022 Jun 9;65(11):7656-7681. doi: 10.1021/acs.jmedchem.1c02171. Epub 2022 May 24. PMID: 35609189
17. [Efferocytosis requires periphagosomal Ca<sup>2+</sup>-signaling and TRPM7-mediated electrical activity.](#)  
Schappe MS, Stremska ME, Busey GW, Downs TK, Seegren PV, Mendu SK, Flegel Z, Doyle CA, Stipes EJ, Desai BN. Nat Commun. 2022 Jun 9;13(1):3230. doi: 10.1038/s41467-022-30959-4. PMID: 35680919
18. [Genetic encoding of an esophageal motor circuit.](#)  
Coverdell TC, Abraham-Fan RJ, Wu C, Abbott SGB, Campbell JN. Cell Rep. 2022 Jun 14;39(11):110962. doi: 10.1016/j.celrep.2022.110962. PMID: 35705034
19. [Influence of ceramide on lipid domain stability studied with small-angle neutron scattering: The role of acyl chain length and unsaturation.](#)  
DiPasquale M, Deering TG, Desai D, Sharma AK, Amin S, Fox TE, Kester M, Katsaras J, Marquardt D, Heberle FA. Chem Phys Lipids. 2022 Jul;245:105205. doi: 10.1016/j.chemphyslip.2022.105205. Epub 2022 Apr 26. PMID: 35483419
20. [ThalaMS: New Evidence Linking Epilepsy, Multiple Sclerosis, and the Thalamus.](#)  
Beenhakker MP. Epilepsy Curr. 2022 May 6;22(4):246-248. doi: 10.1177/15357597221097592. eCollection 2022 Jul-Aug. PMID: 36187140 No abstract available.
21. [A nano-enhanced vaccine for metastatic melanoma immunotherapy.](#)  
Salotto KE, Olson WC Jr, Pollack KE, Illendula A, Michel E, Henriques S, Fox T, Walker S, Dunlap-Brown M, Slingluff CL Jr, Kester M, Snyder HW. Cancer Drug Resist. 2022 Jul 7;5(3):829-845. doi: 10.20517/cdr.2021.132. eCollection 2022. PMID: 36176766

## Publications Continued..

22. [Targeting oxidized phospholipids by AAV-based gene therapy in mice with established hepatic steatosis prevents progression to fibrosis.](#)  
Upchurch CM, Yeudall S, Pavelec CM, Merk D, Greulich J, Manjegowda M, Raghavan SS, Bochkis IM, Scott MM, Perez-Reyes E, Leitinger N.  
Sci Adv. 2022 Jul 15;8(28):eabn0050. doi: 10.1126/sciadv.abn0050. Epub 2022 Jul 15.  
PMID: 35857497
23. [Modulation of Primary Cilia by Alvocidib Inhibition of CILK1.](#)  
Wang EX, Turner JS, Brautigan DL, Fu Z.  
Int J Mol Sci. 2022 Jul 23;23(15):8121. doi: 10.3390/ijms23158121.  
PMID: 35897693
24. [AMPK-mediated potentiation of GABAergic signalling drives hypoglycaemia-provoked spike-wave seizures.](#)  
Salvati KA, Ritger ML, Davoudian PA, O'Dell F, Wyskiel DR, Souza GMPR, Lu AC, Perez-Reyes E, Drake JC, Yan Z, Beenhakker MP.  
Brain. 2022 Jul 29;145(7):2332-2346. doi: 10.1093/brain/awac037.  
PMID: 35134125
25. [Lifespan of mature olfactory sensory neurons varies with location in the mouse olfactory epithelium and age of the animal.](#)  
Gaun V, Martens JR, Schwob JE.  
J Comp Neurol. 2022 Aug;530(12):2238-2251. doi: 10.1002/cne.25330. Epub 2022 Apr 17.  
PMID: 35434783
26. [Reversal of ciliary mechanisms of disassembly rescues olfactory dysfunction in ciliopathies.](#)  
Xie C, Habif JC, Ukhanov K, Uytingco CR, Zhang L, Campbell RJ, Martens JR.  
JCI Insight. 2022 Aug 8;7(15):e158736. doi: 10.1172/jci.insight.158736.  
PMID: 35771640
27. [The arcuate nucleus: A site of synergism between Angiotensin II and leptin to increase sympathetic nerve activity and blood pressure in rats.](#)  
Shi Z, Stornetta RL, Stornetta DS, Abbott SBG, Brooks VL.  
Neurosci Lett. 2022 Aug 10;785:136773. doi: 10.1016/j.neulet.2022.136773. Epub 2022 Jul 6.  
PMID: 35809879
28. [Combined epigenetic and immunotherapy for blastic and classical mantle cell lymphoma.](#)  
LeBlanc FR, Hasanali ZS, Stuart A, Shimko S, Sharma K, Leshchenko VV, Parekh S, Fu H, Zhang Y, Martin MM, Kester M, Fox T, Liao J, Loughran TP, Evans J, Pu JJ, Spurgeon SE, Aladjem MI, Epner EM.  
Oncotarget. 2022 Aug 16;13:986-1002. doi: 10.18632/oncotarget.28258. eCollection 2022.  
PMID: 36093297
29. [Sphingosine 1-phosphate signaling in perivascular cells enhances inflammation and fibrosis in the kidney.](#)  
Tanaka S, Zheng S, Kharel Y, Fritzemeier RG, Huang T, Foster D, Poudel N, Goggins E, Yamaoka Y, Rudnicka KP, Lipsey JE, Radel HV, Ryuh SM, Inoue T, Yao J, Rosin DL, Schwab SR, Santos WL, Lynch KR, Okusa MD.  
Sci Transl Med. 2022 Aug 17;14(658):eabj2681. doi: 10.1126/scitranslmed.abj2681. Epub 2022 Aug 17.  
PMID: 35976996
30. [Harnessing the power of sphingolipids: Prospects for acute myeloid leukemia.](#)  
Ung J, Tan SF, Fox TE, Shaw JJP, Vass LR, Costa-Pinheiro P, Garrett-Bakelman FE, Keng MK, Sharma A, Claxton DF, Levine RL, Tallman MS, Cabot MC, Kester M, Feith DJ, Loughran TP Jr.  
Blood Rev. 2022 Sep;55:100950. doi: 10.1016/j.blre.2022.100950. Epub 2022 Apr 9.  
PMID: 35487785 Review.
31. [Feeding desensitizes A1 adenosine receptors in adipose through FOXO1-mediated transcriptional regulation.](#)  
Granade ME, Hargett SR, Lank DS, Lemke MC, Luse MA, Isakson BE, Bochkis IM, Linden J, Harris TE.  
Mol Metab. 2022 Sep;63:101543. doi: 10.1016/j.molmet.2022.101543. Epub 2022 Jul 7.  
PMID: 35811051
32. [BAFF antagonism via the BAFF receptor 3 binding site attenuates BAFF 60-mer-induced classical NF-κB signaling and metabolic reprogramming of B cells.](#)  
D Lempicki M, Paul S, Serbulea V, Upchurch CM, Sahu S, Gray JA, Ailawadi G, Garcia BL, McNamara CA, Leitinger N, Meher AK.  
Cell Immunol. 2022 Sep 9;381:104603. doi: 10.1016/j.cellimm.2022.104603. Online ahead of print.  
PMID: 36182705

## Publications Continued..

33. [A Case of Allergic Bronchopulmonary Aspergillosis With Bronchial Asthma.](#)  
Rajpopat PB, Desai BN, Abro S, Garg T, Amedu OS, Ejiyooye TF, Fonseca A, Sajjad T, Hambolu E, Khan A. Cureus. 2022 Sep 25;14(9):e29552. doi: 10.7759/cureus.29552. eCollection 2022 Sep. PMID: 36312634
34. [Chemogenetic activation of noradrenergic A5 neurons increases blood pressure and visceral sympathetic activity in adult rats.](#)  
Souza GMPR, Stornetta DS, Vitali AJ, Wildner H, Zeilhofer HU, Campbell JN, Abbott SGB. Am J Physiol Regul Integr Comp Physiol. 2022 Oct 1;323(4):R512-R531. doi: 10.1152/ajpregu.00119.2022. Epub 2022 Aug 22. PMID: 35993562
35. [Ceramide nanoliposomes augment the efficacy of venetoclax and cytarabine in models of acute myeloid leukemia.](#)  
Khokhlatchev AV, Sharma A, Deering TG, Shaw JJP, Costa-Pinheiro P, Golla U, Annageldiyev C, Cabot MC, Conaway MR, Tan SF, Ung J, Feith DJ, Loughran TP Jr, Claxton DF, Fox TE, Kester M. FASEB J. 2022 Oct;36(10):e22514. doi: 10.1096/fj.202200765R. PMID: 36106439
36. [Cardiomyocyte p38 MAPK \$\alpha\$  suppresses a heart-adipose tissue-neutrophil crosstalk in heart failure development.](#)  
Bottermann K, Kalfhues L, Nederlof R, Hemmers A, Leitner LM, Oenarto V, Nemmer J, Pfeffer M, Raje V, Deenen R, Petzsch P, Zabri H, Köhrer K, Reichert AS, Grandoch M, Fischer JW, Herebian D, Stegbauer J, Harris TE, Gödecke A. Basic Res Cardiol. 2022 Oct 7;117(1):48. doi: 10.1007/s00395-022-00955-2. PMID: 36205817
37. [Sphingosine Kinase 2 Inhibitors: Rigid Aliphatic Tail Derivatives Deliver Potent and Selective Analogues.](#)  
Pashikanti S, Foster DJ, Kharel Y, Brown AM, Bevan DR, Lynch KR, Santos WL. ACS Bio Med Chem Au. 2022 Oct 19;2(5):469-489. doi: 10.1021/acsbiochemchemau.2c00017. Epub 2022 Jun 29. PMID: 36281302
38. [High content screening miniaturization and single cell imaging of mature human feeder layer-free iPSC-derived neurons.](#)  
Sharlow ER, Llana DC, Grever WE, Mingledorff GA, Mendelson AJ, Bloom GS, Lazo JS. SLAS Discov. 2022 Oct 21:S2472-5552(22)13703-2. doi: 10.1016/j.slasd.2022.10.002. Online ahead of print. PMID: 36273809
39. [Virtual reality and haptic interfaces for civilian and military open trauma surgery training: A systematic review.](#)  
Mackenzie CF, Harris TE, Shipper AG, Elster E, Bowyer MW. Injury. 2022 Nov;53(11):3575-3585. doi: 10.1016/j.injury.2022.08.003. Epub 2022 Aug 7. PMID: 36123192 Review.
40. [Intrinsic Adrenal TWIK-Related Acid-Sensitive TASK Channel Dysfunction Produces Spontaneous Calcium Oscillations Sufficient to Drive AngII \(Angiotensin II\)-Unresponsive Hyperaldosteronism.](#)  
Gancayco CA, Gerding MR, Breault DT, Beenhakker MP, Barrett PQ, Guagliardo NA. Hypertension. 2022 Nov;79(11):2552-2564. doi: 10.1161/HYPERTENSIONAHA.122.19557. Epub 2022 Sep 21. PMID: 36129175
41. [Redistribution of lamina-associated domains reshapes binding of pioneer factor FOXA2 in development of nonalcoholic fatty liver disease.](#)  
Wei X, Murphy MA, Reddy NA, Hao Y, Eggertsen TG, Saucerman JJ, Bochkis IM. Genome Res. 2022 Nov-Dec;32(11-12):1981-1992. doi: 10.1101/gr.277149.122. Epub 2022 Dec 15. PMID: 36522168
42. [Macrophage acetyl-CoA carboxylase regulates acute inflammation through control of glucose and lipid metabolism.](#)  
Yeudall S, Upchurch CM, Seegren PV, Pavelec CM, Greulich J, Lemke MC, Harris TE, Desai BN, Hoehn KL, Leitinger N. Sci Adv. 2022 Nov 25;8(47):eabq1984. doi: 10.1126/sciadv.abq1984. Epub 2022 Nov 23. PMID: 36417534

## Publications Continued..

43. [Smooth muscle cell FTO regulates contractile function.](#)  
Luse MA, Krüger N, Good ME, Biwer LA, Serbulea V, Salamon A, Deaton RA, Leitingner N, Gödecke A, Isakson BE.  
Am J Physiol Heart Circ Physiol. 2022 Dec 1;323(6):H1212-H1220. doi: 10.1152/ajpheart.00427.2022. Epub 2022 Oct 28.  
PMID: 36306211
44. [Assessment of Clinical Information Quality in Digital Health Technologies: International eDelphi Study.](#)  
Fadahunsi KP, Wark PA, Mastellos N, Neves AL, Gallagher J, Majeed A, Webster A, Smith A, Choo-Kang B, Leon C, Edwards C, O'Shea C, Heitz E, Kayode OV, Nash M, Kowalski M, Jiwani M, O'Callaghan ME, Zary N, Henderson N, Chavannes NH, Čivljak R, Olubiyi OA, Mahapatra P, Panday RN, Oriji SO, Fox TE, Faint V, Car J.  
J Med Internet Res. 2022 Dec 6;24(12):e41889. doi: 10.2196/41889.  
PMID: 36472901
45. [Patterns of Pathology.](#)  
Kilianski S, Beenhakker MP. Epilepsy Curr. 2022 Nov 29;23(1):56-57. doi: 10.1177/15357597221137212.  
eCollection 2023 Jan-Feb.  
PMID: 36923347 No abstract available.
46. [Old bones control smooth muscle clones.](#)  
Serbulea V, Deaton RA, Owens GK.  
Nat Aging. 2023 Jan;3(1):9-10. doi: 10.1038/s43587-022-00346-1.  
PMID: 37118515 No abstract available.
47. [The role of a ciliary GTPase in the regulation of neuronal maturation of olfactory sensory neurons.](#)  
Habif JC, Xie C, de Celis C, Ukhanov K, Green WW, Moretta JC, Zhang L, Campbell RJ, Martens JR.  
Development. 2023 Jan 15;150(2):dev201116. doi: 10.1242/dev.201116. Epub 2023 Jan 19.  
PMID: 36661357
48. [A New Autosomal Myh11-CreER<sup>T2</sup> Smooth Muscle Cell Lineage Tracing and Gene Knockout Mouse Model-Brief Report.](#)  
Deaton RA, Bulut G, Serbulea V, Salamon A, Shankman LS, Nguyen AT, Owens GK.  
Arterioscler Thromb Vasc Biol. 2023 Feb;43(2):203-211. doi: 10.1161/ATVBAHA.122.318160. Epub 2022 Dec 15.  
PMID: 36519470
49. [Ceramide Nanoliposomes as Potential Therapeutic Reagents for Asthma.](#)  
Sakae H, Ogiso Y, Matsuda M, Shimora H, Deering T, Fox TE, Kester M, Nabe T, Kitatani K.  
Cells. 2023 Feb 11;12(4):591. doi: 10.3390/cells12040591.  
PMID: 36831258
50. [An acute respiratory distress syndrome drug development collaboration stimulated by the Virginia Drug Discovery Consortium.](#)  
Lazo JS, Colunga-Biancatelli RML, Solopov PA, Catravas JD.  
SLAS Discov. 2023 Feb 15:S2472-5552(23)00014-X. doi: 10.1016/j.slasd.2023.02.001. Online ahead of print.  
PMID: 36796645 Review.
51. [Thalamus sends information about arousal but not valence to the amygdala.](#)  
Leppla CA, Keyes LR, Globler G, Matthews GA, Batra K, Jay M, Feng Y, Chen HS, Mills F, Delahanty J, Olson JM, Nieh EH, Namburi P, Wildes C, Wichmann R, Beyeler A, Kimchi EY, Tye KM.  
Psychopharmacology (Berl). 2023 Mar;240(3):477-499. doi: 10.1007/s00213-022-06284-5. Epub 2022 Dec 16.  
PMID: 36522481
52. [Disruption of Ovarian Cancer STAT3 and p38 Signaling with a Small-Molecule Inhibitor of PTP4A3 Phosphatase.](#)  
Lazo JS, Isbell KN, Vasa SA, Llana DC, Rastelli EJ, Wipf P, Sharlow ER.  
J Pharmacol Exp Ther. 2023 Mar;384(3):429-438. doi: 10.1124/jpet.122.001401. Epub 2023 Jan 10.  
PMID: 36627205
53. [Pioneer factor Foxa2 mediates chromatin conformation changes in ligand-dependent activation of nuclear receptor FXR.](#)  
Hao Y, Han L, Wu A, Bochkis IM.  
bioRxiv. 2023 Mar 8:2023.03.06.531297. doi: 10.1101/2023.03.06.531297. Preprint.  
PMID: 36945375

## Publications Continued..

54. [Simultaneous Inhibition of Ceramide Hydrolysis and Glycosylation Synergizes to Corrupt Mitochondrial Respiration and Signal Caspase Driven Cell Death in Drug-Resistant Acute Myeloid Leukemia.](#)  
Fisher-Wellman KH, Kassai M, Hagen JT, Neuffer PD, Kester M, Loughran TP Jr, Chalfant CE, Feith DJ, Tan SF, Fox TE, Ung J, Fabrias G, Abad JL, Sharma A, Golla U, Claxton DF, Shaw JJP, Bhowmick D, Cabot MC. Cancers (Basel). 2023 Mar 21;15(6):1883. doi: 10.3390/cancers15061883. PMID: 36980769
55. [Oxadiazolopyridine Derivatives as Efficacious Mitochondrial Uncouplers in the Prevention of Diet-Induced Obesity.](#)  
Murray JH, Burgio AL, Beretta M, Hargett SR, Harris TE, Olzomer E, Grams RJ, Garcia CJ, Li C, Salamoun JM, Hoehn KL, Santos WL. J Med Chem. 2023 Mar 23;66(6):3876-3895. doi: 10.1021/acs.jmedchem.2c01573. Epub 2023 Mar 7. PMID: 36882080
56. [Regulating metabolism to shape immune function: Lessons from Drosophila.](#)  
Bland ML. Semin Cell Dev Biol. 2023 Mar 30;138:128-141. doi: 10.1016/j.semcdb.2022.04.002. Epub 2022 Apr 16. PMID: 35440411 Review.
57. [Acute myeloid leukemia stratifies as two clinically relevant sphingolipidomic subtypes.](#)  
Paudel BB, Tan SF, Fox TE, Ung J, Shaw J, Dunton W, Lee I, Sharma A, Viny AD, Barth BM, Tallman MS, Cabot M, Garrett-Bakelman FE, Levine RL, Kester M, Claxton D, Feith DJ, Janes KA, Loughran TP. bioRxiv. 2023 Apr 17:2023.04.13.536805. doi: 10.1101/2023.04.13.536805. Preprint. PMID: 37131653
58. [cAMP-EPAC-PKC \$\epsilon\$ -RIM1 \$\alpha\$  signaling regulates presynaptic long-term potentiation and motor learning.](#)  
Wang XT, Zhou L, Dong BB, Xu FX, Wang DJ, Shen EW, Cai XY, Wang Y, Wang N, Ji SJ, Chen W, Schonewille M, Zhu JJ, De Zeeuw CI, Shen Y. Elife. 2023 Apr 26;12:e80875. doi: 10.7554/eLife.80875. PMID: 37159499
59. [2-Aminobenzoxazole Derivatives as Potent Inhibitors of the Sphingosine-1-Phosphate Transporter Spinster Homolog 2 \(Spns2\).](#)  
Burgio AL, Shrader CW, Kharel Y, Huang T, Salamoun JM, Lynch KR, Santos WL. J Med Chem. 2023 Apr 27;66(8):5873-5891. doi: 10.1021/acs.jmedchem.3c00149. Epub 2023 Apr 3. PMID: 37010497
60. [Emerging drug discovery ecosystems.](#)  
Sharlow ER. SLAS Discov. 2023 May 31:S2472-5552(23)00046-1. doi: 10.1016/j.slasd.2023.05.003. Online ahead of print. PMID: 37268195 No abstract available.
61. [Reduced mitochondrial calcium uptake in macrophages is a major driver of inflammaging.](#)  
Seegren PV, Harper LR, Downs TK, Zhao XY, Viswanathan SB, Stremiska ME, Olson RJ, Kennedy J, Ewald SE, Kumar P, Desai BN. Nat Aging. 2023 Jun 5. doi: 10.1038/s43587-023-00436-8. Online ahead of print. PMID: 37277641
62. [Predicting small molecule binding pockets on diacylglycerol kinases using chemoproteomics and AlphaFold.](#)  
Mendez R, Shaikh M, Lemke MC, Yuan K, Libby AH, Bai DL, Ross MM, Harris TE, Hsu KL. RSC Chem Biol. 2023 May 15;4(6):422-430. doi: 10.1039/d3cb00057e. eCollection 2023 Jun 7. PMID: 37292058
63. [Neuromedin B-expressing neurons in the retrotrapezoid nucleus regulate respiratory homeostasis and promote stable breathing in adult mice.](#)  
Souza GMPR, Stornetta DS, Shi Y, Lim E, Berry FE, Bayliss DA, Abbott SBG. J Neurosci. 2023 Jun 8;JN-RM-0386-23. doi: 10.1523/JNEUROSCI.0386-23.2023. Online ahead of print. PMID: 37290937
64. [Microglia play beneficial roles in multiple experimental seizure models.](#)  
Gibbs-Shelton S, Benderoth J, Gaykema RP, Straub J, Okojie KA, Uweru JO, Lentferink DH, Rajbanshi B, Cowan MN, Patel B, Campos-Salazar AB, Perez-Reyes E, Eyo UB. Glia. 2023 Jul;71(7):1699-1714. doi: 10.1002/glia.24364. Epub 2023 Mar 23. PMID: 36951238

## Publications Continued..

65. [Sleep Fragmentation, Electroencephalographic Slowing, and Circadian Disarray in a Mouse Model for Intensive Care Unit Delirium.](#)

Dulko E, Jedrusiak M, Osuru HP, Atluri N, Illendula M, Davis EM, Beenhakker MP, Lunardi N.  
Anesth Analg. 2023 Jul 1;137(1):209-220. doi: 10.1213/ANE.00000000000006524. Epub 2023 May 16.  
PMID: 37192134

## Upcoming Department Events

### **Fall 2023 Pharmacology Seminar Schedule Thursdays**

**@4PM in PINN 1-17:**

**September 14**

*Eunhee Cho, PhD, Columbia University*

**September 28,**

*Leo Tsiokas, PhD, University of Oklahoma Health Sciences Center*

**October 12**

*Speaker-TBD*

**November 09**

*Felix Viana, PhD, Universitas Miguel Hernandez, Spain*

**November 30**

*Speaker- Xi Huang, PhD, University of Toronto*

### **Other Save-the Dates:**

**Thursday, October 26, 2023**

*Annual Pharmacology Research Retreat @ Morvn*

**Friday, December, 15, 2023**

*Joseph Larner MeMemorial Lecture in Pharmacology*

*Guest Speaker: Ron Evans, PhD, Salk Institute for Biological Studies*

**Fall 2023**

*Women in Science Diversity Symposium*

*Save the date forthcoming...*

