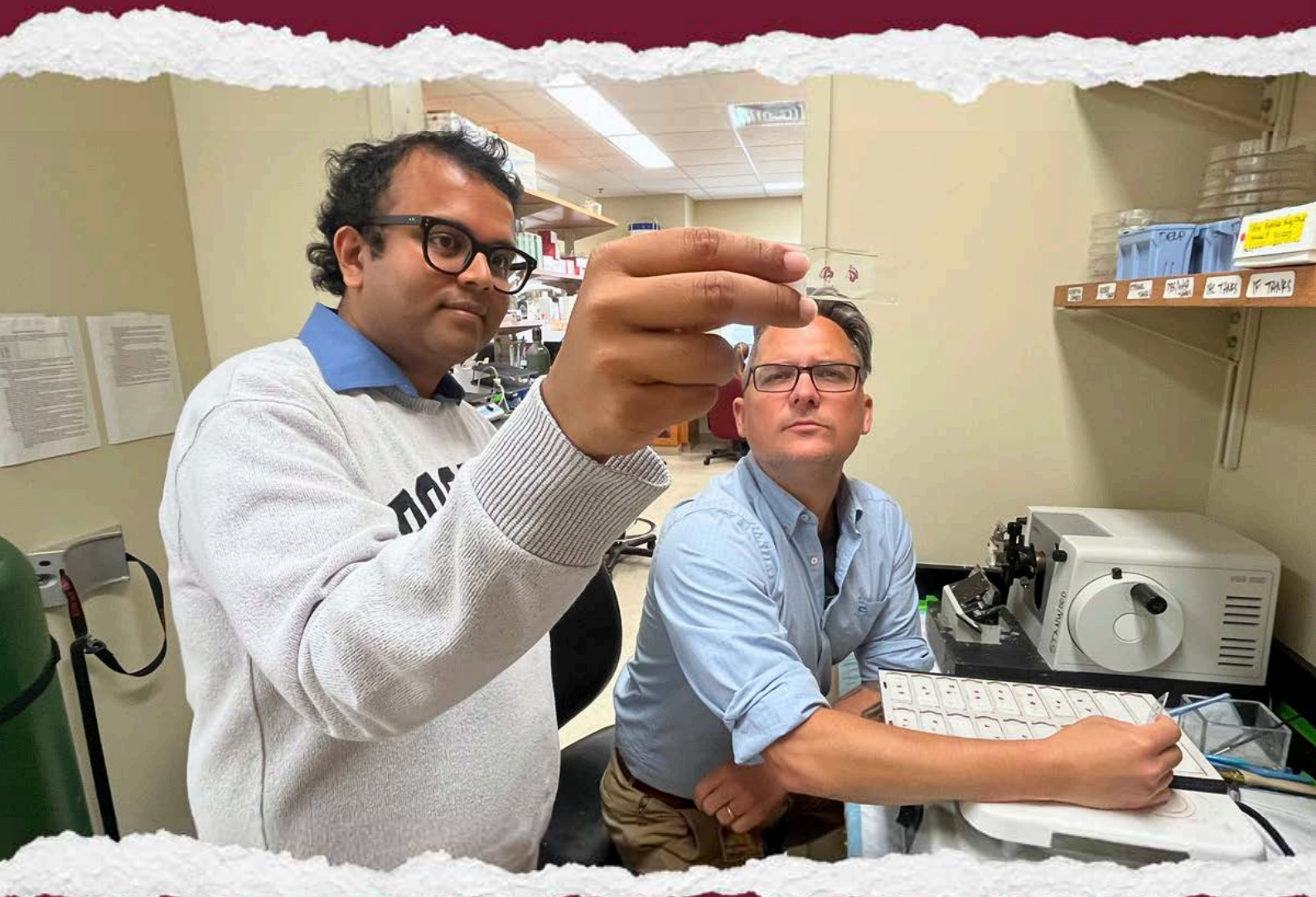
FSU | DEPARTMENT OF BIOMEDICAL SCIENCES
COLLEGE OF MEDICINE

NEWSLETTER

JULY 2026 ISSUE



GRADUATE STUDENT NEWS

FASEB CONFERENCE TRAVEL AWARD

SOPHIA OWUTEY

Sophia Owutey recently won an $800 travel award to attend the **Cell Cycle Regulation in Health and Disease FASEB Science Research Conference,** where she will be holding a talk regarding her research, "***PolySUMOylation promotes sister chromatid separation***". The FASEB conference will be held in Niagara Falls, NY at the Niagara Falls Convention Center/Sherton Hotel from July 27th - July 29th. FASEB, the Federation of American Societies for Experimental Biology, is considered the nation's largest biomedical coalition serving leading biological and biomedical researchers.

AHA BCVS EARLY CAREER POSTER WINNER

EMILY EHLE

Emily Ehle's Abstract was selected by the **American Heart Association's Basic Cardiovascular Sciences Scientific Sessions (AHA BCVS) Early Career Poster Competition** to be presented at the 2026 Basic Cardiovascular Sciences Scientific Sessions in Boston, Massachusetts. The conference will take place from July 19th to July 22nd. The abstract title, ***"Neutrophil Depletion During Early Disease Development Worsens Cardiac Function and Arrhythmic Risk in Arrhythmogenic Cardiomyopathy"***, was a collaborative effort along with Gallage Ariyaratne.

DEPARTMENT OF BIOMEDICAL SCIENCES

RETREAT & SCIENTIFIC SYMPOSIUM

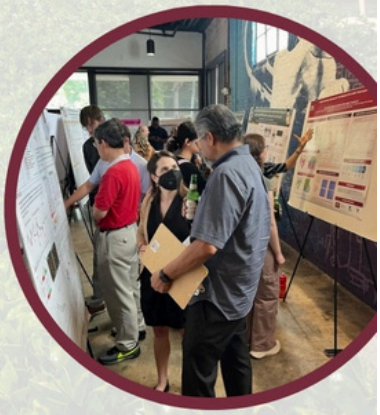
THE ANNUAL BIOMEDICAL SCIENCES RETREAT AND SCIENTIFIC SYMPOSIUM

Featuring mini-symposium talks, 3MT and poster sessions, engaging discussions, and more!

SAVE THE DATE

AUGUST 20TH , 2026
8AM - 5PM

FSU ALUMNI CENTER
1030 W TENNESSEE ST,
TALLAHASSEE FL 30304



FACULTY SPOTLIGHT

Dr. Stephen Chelko is an Assistant Professor in the Department of Biomedical Sciences, College of Medicine at Florida State University. His research focuses on understanding the underlying causes of heart disease, particularly a rare inherited condition called *arrhythmogenic cardiomyopathy* (ACM). ACM is known to lead to heart failure and sudden cardiac death.

Dr. Chelko's research explores how inflammation and immune responses contribute to disease progression, with the goal of identifying new therapeutic strategies that can improve patient outcomes. Through a combination of basic science, translational research, and mentorship; Dr. Chelko and his team are advancing our understanding of cardiovascular diseases while training the next generation of scientists.

Dr. Stephen Chelko, FHRS, FACC

Q: What inspired you to pursue cardiovascular research, and what led you to focus on arrhythmogenic cardiomyopathy?

Horses! I was a Western Stock Seat rider for Emory University's Equestrian Team throughout undergrad. Following graduation, I enrolled into the graduate program at the University of Georgia College of Veterinary Medicine to join their infamous Equine Laminitis Research Program.

Equine laminitis is a debilitating inflammatory vascular disease and a leading cause of equine lameness and long-term disability, eventually leading to horse euthanasia. As an equestrian rider and former horse owner, to my sweet-sweet boy *Cajun*, it became too unbearable to watch healthy horses being euthanized as comparable "controls." My graduate committee immediately recognized this aversion and introduced me to rodent models of heart disease. Thus began my new found love of creating rodent models of acquired and inherited heart diseases and using these models as tools for drug-efficacy studies. I cherished one of my graduate committee members mentorship. He was known as one of the best Feline Kidney Transplant Surgeons in Georgia at the time. He taught me the importance of sterile techniques, and was an expert of his craft. Particularly, his genuine pre- and post-operative care of animals.

He instilled in me a fascination on how the vascular system can affect the kidney's production of potent vasoconstrictors, ultimately, amplifying blood pressure (i.e., Renovascular Hypertension [RVH]). Following graduation, I sought a postdoctoral fellowship position who needed my small animal surgical expertise. I had never heard of Arrhythmogenic Cardiomyopathy (ACM) when I accepted my postdoctoral fellowship at Johns Hopkins University School of Medicine. But I immediately fell in love with it! I fell in love with the clinical ACM Program (www.arvd.com), their approach to patient care and conducting research in patients living with ACM. I never really left the cardiovascular field, I just adapted along the way until I found the cardiovascular disease that felt right for me.

Q: How do graduate students contribute to the research in your laboratory, and what opportunities are available for trainees to develop as scientists?

I introduce my graduate students to my lab's most recent work/publication. I have them carefully review the Results and the Limitations of my work and include unanswered questions that my work suggests should be followed up on in future studies. My graduate students can either "bite" and pick-up where I left off or they can propose something entirely different but still relevant to my lab's research focus. I think it is vitally important that my students feel connected to their work and LOVE what they are investigating. My goal is to always provide as many opportunities to my students as my mentors did for me. I never shy away from introducing my students to my internal, external, and international collaborators to expand their scope of knowledge and experimental access, but also to expand their concept of multi-institutional and multi-international research collaborations.

There is a requirement for my students to attend at least one conference a year. Conferences are an important aspect of disseminating one's work, becoming comfortable around both like-minded and opposing thoughts, and build a network of cherished colleagues and powerhouse collaborators. I require my students to always sign up for the "oral" presentations! Oral presentations are opportunities to disseminate your research effectively, but also as a great "CV Building" line item.

I am a big believer in getting that first author paper out ASAP! Thus, when I'm presented with an invited submission for a Review manuscript, I present this opportunity to my first- and second-year graduate students, who lack a first author publication. This not only gets them familiarized with my field effectively, and much more quickly, but it also starts to build that CV/Resume for a strong predoctoral award submission.

> *"I think it is vitally important that my students feel connected to their work and LOVE what they are investigating."*

Q: What skills or qualities do you think are most important for graduate students interested in pursuing research in cardiovascular biology or translational medicine?

A phrase my Graduate Committee would say all the time is, **"Know your disease! Know your model!"** They simply meant, if you are truly knowledgeable in the disease you are studying, then you should know the standard phenotypes associated with that disease.

And by "model," they simply meant – can you successfully and repeatedly recapitulate the same disease phenotypes in your model as those observed in patients with disease? This is a pilar of translational research. If you have a robust model of XYZ disease, then the translational research naturally comes next, e.g., "how do I prevent disease phenotypes from developing or, at least, further progressing?". Answering these questions, time and time again, both through my works and of those by phenomenal researchers in my field, has transformed a mechanistic pathway that once looked like two boxes within a cell on a PowerPoint slide with no connecting lines and/or up- or downstream regulators. I've contributed to and watched the development of this simplistic mechanism turn into a complex pathway. Where aberrancies in each arm of the signaling pathway gives rise to its own specific and debilitating phenotypes. This, alone, has been powerfully rewarding. I also believe one must have a strong grasp on "multisystem physiology" to be a great translational researcher.

Regarding "technical skills," my graduate students must be able to perform and analyze echocardiograms and electrocardiograms (ECGS), both are essential tools for my research program. That said, I am a firm believer in a phrase that I am notorious for repeating, "everyone is teachable." Everyone wants to succeed, and with time, proper tutelage, and patience, I believe graduate students want that same thing – *to succeed!* And I have every intent on making that happen for my students.

Q: Looking back on your career, what is one lesson you've learned about scientific discovery that you wish you had known as a graduate student?

Only one lesson?! Sorry, but I have two that I feel must be stressed: Life is so much more fluid than you think! Ride the wave and see where it takes you! When I accepted a graduate position at UGA Vet Med, I never thought I'd be researching a rare disease at FSU College of Medicine.

I thought I'd be living on an Equine Farm making bagoodles of money, living "high on the hog." I think the fact that I study a rare disease is proof that you never know where that wave will break. It is much harder to secure funding for Orphanet Diseases, yet here I am. Which leads me to my second point, *"while a rare disease is rare, the prevalence of a disease is of no consolation to those afflicted by it."* (J. Reid)

Rare diseases deserve the same attention and intention. Keep this historical point in mind, *inherited/familial hypercholesterolemia* is also a rare disease. What may seem like a unique discovery specific to your disease/field may have much larger implications and/or applications in other diseases. Ok, I lied. Three points. ***Your Name is EVERYTHING!*** While you build your network of collaborators, never devalue your time and NEVER cut corners for anyone! "The data is the data" regardless of whether the collaborator was expecting different results. Your name is everything, do not tarnish it. For the sake of patient lives, NEVER falsify data. Also, live up to your commitments or no one will want to work with you.

To learn more about Dr. Stephen Chelko and the amazing things his lab is doing, visit his lab's website: https://med.fsu.edu/biosci/chelko-lab

PUBLICATIONS

Desmoglein-2 Deficiency Drives Mitochondrial Morphological Remodeling in Cardiomyocytes

Gonçalves A, Zhelan Chen E, Rastegarpouyani H, Araújo Fernandes A, N Alves I, Sequeira V, Kwon C, Landim-Vieira M,* Chelko SP*. ***Desmoglein-2 Deficiency Drives Mitochondrial Morphological Remodeling in Cardiomyocytes***. Am J Physiol Heart Circ Physiol. 2026 Jun 27. doi: 10.1152/ajpheart.00368.2026 PMID: 42363865. *Co-Corresponding Authors

Elamipretide: a mitochondria-targeting drug for Barth syndrome

Villatore, A., Ehle, E., Chelko, S., ***Elamipretide: a mitochondria-targeting drug for Barth syndrome. Trends in Pharmacological Sciences***. 2026 July 14. doi: 10.1016/j.tips.2026.06.011

Conformational gating governs nucleotide incorporation by a DNA-crosslinked polymerase

Betancourt,D., Gaur,A., Seay,T., Zalenski,N., Suo,Z. ***Conformational gating governs nucleotide incorporation by a DNA-crosslinked polymerase***, Nucleic Acids Research, Volume 54, Issue 10, 10 June 2026, gkag539, https://doi.org/10.1093/nar/gkag539

Assessing the contribution of rare DNA states to cancer mutational signatures using sequence-specific conformational fingerprinting

Szekely, O., Lee, Y., Rangadurai, A.K., Guseva, S., Cooksey, J., Faison, E. M., Zalenski, N., Zhang, Q., Suo, Z., and Al-Hashimi, H. M. ***Assessing the contribution of rare DNA states to cancer mutational signatures using sequence-specific conformational fingerprinting***. Nat Commun 17, 5615 (2026). https://doi.org/10.1038/s41467-026-71596-5

PUBLICATIONS

Mechanistic Investigation of the DNA Ligase I Deficiency Variant A624T

Zalenski, N., Savoie, D. J., Gaur, A., and Suo, Z. (2026). ***Mechanistic Investigation of the DNA Ligase I Deficiency Variant A624T***. Biochemistry, 65(10), 1658–1667. https://doi.org/10.1021/acs.biochem.5c00745

An Open Label, Cross-Over Phase 1 Study to Determine the Safety, Tolerability and Pharmacokinetics of Multiple Oral Doses of Niclosamide Under Fed and Fasted Conditions in Healthy Volunteers

Ostrander, G. K., & Holmes, E. H. (2026). ***An Open Label, Cross-Over Phase 1 Study to Determine the Safety, Tolerability and Pharmacokinetics of Multiple Oral Doses of Niclosamide Under Fed and Fasted Conditions in Healthy Volunteers***. Journal of Clinical Medicine, 15(14), 5330. https://doi.org/10.3390/jcm15145330

Exploring the effects of holistic performance training in tactical athletes: a pilot longitudinal study of the game plan training programming

Truett, J., Dodd, LA., Kersey, K., Golden, M., Cohen, A., Kulkarni, M. and Anz, A. (2026) ***Exploring the effects of holistic performance training in tactical athletes: a pilot longitudinal study of the game plan training programming***. Front. Sports Act. Living 8:1879693. doi: 10.3389/fspor.2026.1879693

Unlocking the potential of ommatins as sustainable photosensitizers for photodynamic therapy

Arif Hussain*, Anthony A. Ruberto*, Harsh Bhatia, Steven P. Maher, Yifan Quan, Lili Huang, André Barateiro, Gia-Bao Nguyen, David Budil, Hannah Sayre, Robert G. Griffin, Dennis E. Kyle, Prakash T. Parvatkar, & Roman Manetsch. (2026). ***Unlocking the potential of ommatins as sustainable photosensitizers for photodynamic therapy***. Bioorganic & Medicinal Chemistry Letters. doi:10.1016/j.bmcl.2026.130737 *Co-first author.

PATENTS & GRANTS

Holmes, E.H. & Ostrander, G.K. | Patent: *Treatment of Human Coronavirus Infections using Alpha Glucosidase Glycoprotein Processing Inhibitors*. United States Patent #12,667,558. June 30, 2026.

Xiaofei Jia, PhD | New R01 grant from NIH/NIAID titled *"Small Molecule Inhibitors of Nef-Mediated Immune Evasion"*. The grant is a supported project from 2026 to 2031.

Akash Gunjan, PhD | New grant from the Casey DeSantis Florida Cancer Innovation Fund for the supported project "*Combination therapy for fatal pediatric high-grade gliomas using repurposed drugs*", starting August 1st, 2026.

Zucai Suo| Merck: Pharmaceuticals | *Mechanistic dissection of Islatravir: elucidating its mechanism of action as a novel nucleoside reverse transcriptase translocation inhibitor*