MPB GSA NEWSLETTER

Winter 2020

The purpose of this newsletter is to serve as a resource for MPB faculty, postdocs, students, and staff to get to know the department better.

Molecular Physiology & Biophysics

Graduate Student Association

As we look back and reflect on quite a unique year, the MPBGSA hopes that this newsletter finds everyone safe, healthy, and well as 2020 draws to a close!

Newsletter Highlights:

Congratulations, MPB!

Despite the many circumstances unforeseen in 2020, those in the MPB Department still managed to be incredibly prolific in their work, and a number of individuals accomplished outstanding achievements. This department houses a very talented and resilient group of scientists – congratulations to all the faculty, post-docs, and students highlighted below for their exceptional work! We apologize to any individuals whom we may have missed. **Please let us know of any recent grants, awards, and publications so we can feature it in the next newsletter.** «»

- January 2020: Jack Walker (Powers lab) published a co-first author paper titled, "Tacrolimus- and sirolimus-induced human beta cell dysfunction is reversible and preventable" in *JCI Insight* 5(*1*).
- May 2020: Dr. Sheila Collins published a paper titled, "The scaffold protein p62 regulates adaptive thermogenesis through ATF2 nuclear target activation" in *Nature Communications* 11(*1*).
- May 2020: Dr. Sheila Collins published a paper titled, "Control of Adipocyte Thermogenesis and Lipogenesis through β3-Adrenergic and Thyroid Hormone Signal Integration" in *Cell Reports* 31(5).
- May 2020: Jack Walker (Powers lab) also published a co-first author paper titled, "Integrated human pseudoislet system and microfluidic platform demonstrate differences in GPCR signaling in islet cells" in *JCI Insight* 5(*10*).
- June 2020: Dr. Samuel Centanni (Winder lab) was awarded a K99/R00 award from the NIAAA: "Insular Cortex-BNST neural circuit regulation of chronic alcohol abstinence-induced negative affect."
- June 2020: Dr. Samuel Centanni also received the 2020 Vanderbilt Postdoctoral Association Postdoc Honorable Mention Award for demonstrating his excellence in research, scholarship, service and mentoring.
- June 2020: Dr. Alyssa Hasty was awarded NIA funding for an Alzheimer's Disease-focused Administrative Supplement to her parent NIDDK R01 grant: "Adipose Macrophage Iron Handling."
- August 2020: Dr. Sheila Collins published a paper titled, "Manipulation of Dietary Amino Acids Prevents and Reverses Obesity in Mice Through Multiple Mechanisms That Modulate Energy Homeostasis" in *Diabetes* 69(11).
- August 2020: Ashley Christensen (Gannon lab) was awarded funding for her F31 NRSA grant award: "Physiological and functional effects of beta-cell-specific inactivation of the PGE2 receptor EP3" from the NIDDK.
- August 2020: Tiffany Richardson (Powers lab) was awarded the Dean's Award for Exceptional Achievement.
- August 2020: Slavina Goleva (Davis lab) was awarded the Dean's Award for Exceptional Achievement.
- August 2020: Jack Walker (Powers lab) published another paper titled, "Dapagliflozin Does Not Directly Affect Human α or β cells in *Endocrinology* 161(*8*).
- September 2020: Dr. Sheila Collins was awarded funding for her lab's R01 Grant Award: "Regulation of Natriuretic Peptide Signaling in Adipose Tissue and Energy" from the NIDDK.
- September 2020: Dr. Elizabeth Rendina-Ruedy was awarded funding for her lab's R01 Grant Award: "Parathyroid hormone (PTH) modulates lipid metabolism in the skeletal niche" from the NIA.
- September 2020: Dr. Rafael Arrojo e Drigo was awarded an R03 New Investigator Gateway Awards for Collaborative T1D Research Grant: "Mapping the association of beta cell longevity and cell senescence in type 1 diabetes" from the Human Islet Research Network.
- November 2020: Dr. Jessica Biddinger (Simerly lab) published a paper titled "Leptin suppresses development of GLP-1 inputs to the paraventricular nucleus of the hypothalamus" in *eLife*, 9.

What's New in MPB?

2020 brought quite a mix of events none of us could have predicted… As America and the world reeled from the rippling effects of COVID-19, we had to learn how to shift our 'normal' routines, moved weekly lab meetings and departmental seminars to our favorite new digital technology (Zoom, we are thankful for you despite the increased 'Zoom' fatigue and eye strain we may have experienced), added a necessary new piece to our wardrobes (Anchor Down, Mask Up), and many of us learned more deeply our desire for and the unmistakable value of social connection. Out of this experience, the MPB GSA implemented a new **"MPB Buddy" System.** We gauged interest from graduate students and post-docs and worked to set up groups which include a mix of younger and older students, along with post-doctoral fellows. While many of the first group meetings were via Zoom, the department more recently provided each Buddy group with a Starbucks gift card for ~socially-distant coffee hang-outs. It is a hope of the department that these groups may serve as points of connection for members in the department, spaces for conversation (anything from learning about new recipes to try at home, to garnering advice on how to apply for a postdoctoral position), and as opportunities to enhance departmental cohesion. ***Please reach out to us if you'd like to be in a Buddy group!*** Laboratory staff are welcome as well.

In the midst of the pandemic, America also faced a tough moment of racial reckoning, as a series of high-profile incidents of police violence committed against blacks were caught on film and shared instantly. Renewed cries for racial justice, reconciliation, and equitable treatment for all were sounded across the nation, including within the MPB department itself. Particularly, conversations related to the presence of racial and ethnic disparities in STEM fields, discrimination against PEERs (people excluded based on ethnicity or race), and the unique challenges and difficulties faced by minorities in science became regular topics of dialogue between many members in the department. Out of this, a new **MPB DEI Committee** was created to be a group dedicated to fostering diversity, equity, and inclusivity in the MPB department.

Members of the MPB DEI committee include:

- Danny Winder, Chair
- Kandi Granberry
- Roger Colbran
- Serena Sweet (Simerly lab)
- Michelle Bales (Ayala lab)
- Rama Alli (Neuert lab)
- Paola Torres Manzo (Carrasco lab)
- Thao Le (Ayala lab)
- Louise Lantier (Wasserman lab)
- Darian Thomas (Gannon lab)

Please reach out to any of the above members if you have any questions, comments, concerns, suggestions, etc. for this committee!

Additionally, an open anonymous Google form is continuously monitored by the GSA for any questions, comments, suggestions for programming, concerns, etc. individuals in the department would like to voice: https://forms.gle/KFbEQypAr8kFtsAy5 «»

Welcome to MPB!

MPB is growing even more!! Our newest faculty hire, Dr. Hinton will officially join the MPB faculty in August and will move his lab to Vanderbilt in the summer of 2021. He recently (Zoom) sat down with the MPBGSA to share his path that led to Vanderbilt, his interests in mitochondrial biology and function, his extensive work in promoting diversity in STEM, and his deep love for travel, among other things – for this edition of the newsletter.

Dr. Antentor ("A.J.") Hinton Jr., Ph.D.

When asked about a few reasons he was especially drawn to Vanderbilt… Vanderbilt is ripe with opportunities for collaboration, and houses "one of the finest diabetes centers in the country," Dr. Hinton stated. Along with this, Dr. Hinton's familiarity with the Mouse Metabolic and Phenotyping Core and the opportunity to conduct high-quality animal research without having to outsource were two major draws to Vanderbilt. Alluding to another strong point of interest in bringing him to Vanderbilt, Dr. Hinton applauded the many accomplishments of the IMSD program in enhancing the level of diversity at Vanderbilt and expressed his excitement to participate in actively training minority scientists while in Nashville. One last factor heavily involved in bringing Dr. Hinton to Nashville was related to the proximity of the city to his hometown of Asheville, NC. His mother and stepfather still live in Asheville currently, and his grandmother resides in nearby Burlington, NC. "Family is important, and I'm a Southern boy," added Dr. Hinton. In choosing Vanderbilt, Dr. Hinton said that he is excited to feel "home" when he returns to living in the South.

On his academic path leading up to Vanderbilt… Dr. Hinton attended T.C. Roberson High School in Asheville, NC before heading to Winston-Salem State to earn his B.S. in Biology with a Minor in Chemistry, where he conducted research work in neuropharmacology and plant sciences. Following his undergraduate career, Dr. Hinton began a post-bac program at Baylor College of Medicine, where he then stayed on for his Ph.D. in Integrative Molecular Biomedical Sciences in Dr. Yong Xu's laboratory. There, he studied the importance of neuronal Estrogen Receptor-Alpha and steroid receptor co-activator 1 in regulating stress-induced blood pressure in females. After obtaining his doctoral degree, Dr. Hinton then moved to Iowa to begin his postdoctoral tenure with a primary appointment in Dr. E. Dale Abel's lab at the University of Iowa, where his critical work in elucidating the mechanisms by which mitochondria communicate with the ER through mito-ER contact sites began. Specifically, several of his primary interests lie in determining how alterations in mitochondrial function and morphology impact communication through mitochondrial-associated membranes (MAMs) and coordinate with the ER stress response pathway.

On what he's excited to expand upon as he starts his lab at Vanderbilt… In joining a department renowned for its work in studying diseases such as diabetes and cardiovascular disease, Dr. Hinton discussed his excitement to study how changes in mitochondrial function cause pathophysiology related to these diseases. Specifically, he mentioned a family of proteins which comprise MICOS (mitochondrial contact site and cristae organizing system) that help regulate changes in mitochondrial cristae morphology. "Without these proteins," he stated, "the cristae fall apart." Interested in why this happens and how it relates to pathophysiology, Dr. Hinton is excited to "create a niche here" where he will utilize his expertise in structural imaging (he is also currently a Visiting Postdoctoral Fellow at Mayo Clinic under the tutelage of Dr. Jeffrey Salisbury, where he conducts research using techniques like Serial Block-Face Scanning Electron Microscopy and Transmission Electron Microscopy) to further understand how alterations in mitochondrial morphology and function impact intracellular communication and cause disease.

On mentorship and his work in promoting diversity within STEM… In addition to his research contributions, Dr. Hinton has been widely recognized for his outstanding mentorship and active engagement in issues of diversity, equity, and inclusion (DEI) in STEM fields. Aside from his research work in Iowa, Dr. Hinton also acts as the Academic and Career Development Instructor at the University of Iowa Carver College of Medicine, where he directs the recruitment and training of students from diverse backgrounds in innovative career development strategies. Upon coming to Vanderbilt, he is also excited to join in the many efforts already being done here to foster diversity in the sciences; in particular, he will participate in the VERTICES (Vanderbilt Experimental Research Training Inclusion Community Engagement Skills) PREP (Postbaccalaureate Research Education Program) program spearheaded by Drs. Linda Sealy and Joey Barnett, where individuals from backgrounds underrepresented in the biomedical sciences receive dedicated research training following undergraduate graduation. For Dr. Hinton, the ability to "actively train minority scientists" while also performing high-quality research is incredibly important.

On how researchers can help foster a more diverse and inclusive environment in the sciences… "Identify safe spaces for minorities," Dr. Hinton advises, "and let people know where those spaces are at." He hopes that papers such as the several he penned this year on mentorship and/or DEI-related topics, (e.g., "Patching the Leaks: Revitalizing and Reimagining the STEM Pipeline" in *Cell*) will help promote conversation surrounding DEI issues in academia and best mentorship practices for individuals from diverse backgrounds. At the individual level, "embracing a conversation is a low-risk [place to] start," Dr. Hinton says. He encourages all individuals to "listen and not judge" one another, and to "open [our] hearts and create a safe space" for listening to others. In creating "one small hole" for matters related to DEI to live in our hearts and in being "dedicated to having the conversation expand," Dr. Hinton asserts that we can help further aid in the efforts to cultivate a diverse, inclusive, and welcoming scientific arena for individuals from a variety of backgrounds and experiences. It will take time, he says, but "there is a lot in motion."

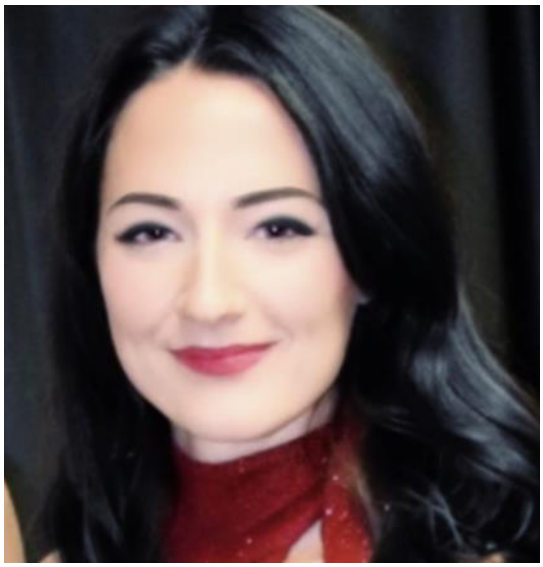
On what he is most excited about in moving to Nashville… "Truly," he says, "I am most excited about doing good service, good research, and being a good mentor." On things outside of the research realm, coming back to the Southern experience is something Dr. Hinton is incredibly excited about and has missed for more than ten years. He loves to travel and looks forward to being able to see all that the South has to offer. "The good, the bad, the ugly, the amazing," he says, "I want all of it!"

When asked about a meal he would pick to eat every day if he had to… "Without gaining weight?" Dr. Hinton laughed. "For the first course, I'd have an arugula salad with pecans, chicken, and raspberry vinaigrette, followed by a medium-well steak with shrimp and lobster and a few sides – cauliflower and collard greens, with caramelized, brown-sugar sweet potatoes." For dessert, panna cotta.

And on something people might be surprised to know about him… "I played NCAA tennis in college! It was okay, not great. But I had a lot of fun." "I also was a former 3rd Degree Black Belt and Super Junior Champion in Tae Kwon Do (Tiger Rock Style) through the International Tae Kwon Do Alliance and was ranked top-ten in the nation for several years."

Welcome to MPB!

Introducing our newest students:



Name: Brittney Covington
Lab joined: Dr. Wenbiao Chen
Hometown: Clarksville, TN
Undergraduate: Austin Peay State University
Hobbies: Tennis, yoga, wakesurfing, rock climbing, hiking, traveling and much more!

Name: Emily Overway
Lab joined: Dr. Richard O'Brien
Hometown: Logansport, IN
Undergraduate: Purdue University
Hobbies: Hiking, painting, and playing with dogs

Name: Yasminye Pettway
Lab joined: Dr. Al Powers, MSTP program
Hometown: Birmingham, AL
Undergraduate: Duke University

Name: Elizabeth (Liz) Semler
Lab joined: Dr. Kasey Vickers
Hometown: Elmira, NY
Undergraduate: SUNY College of Environmental Science & Forestry
Fun fact: I love to put ketchup on my macaroni and cheese

Name: Jade Stanley
Lab joined: Dr. Danielle Dean
Hometown: Birmingham, AL
Undergraduate: Tuskegee University
Hobbies: Drawing

Name: Darian Thomas
Lab joined: Dr. Maureen Gannon
Hometown: Spartanburg, SC
Undergraduate: Clemson University
Favorite movie: Lilo and Stitch

Name: Baltazar Zuniga
Lab joined: Dr. Jamey Young
Undergraduate: University of Texas

Connect with us!

Our website can be found at: https://medschool.vanderbilt.edu/mpb/the-mpb-graduate-program/mpb-graduate-student-association/

Keep up with us on Twitter: @VanderbiltMPB

Find us on Slack: @vumpbgraduatestudents.slack.com

Join our Facebook group for updates! @Vanderbilt MPB Graduate Student Association

We want to hear from you!

Individuals in MPB know how to get things done! **Let us know of recent grants, awards and publications so we can feature it in future newsletters.** Also, if you would like to contribute to the newsletter, please let us know! You can submit articles and photos to katrina.m.volk@vanderbilt.edu. It's a great way to improve your writing skills and would look great on your CV! Comments and suggestions are encouraged as well.

2020-21 MPB GSA Officers

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Secretary: Slavi Goleva
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