

Physiology News

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Dear all,

I have mixed feelings about getting out of the intense heat we had during the summer months and feeling the change in the air of Fall approaching. While I welcome the nice days, I know it just means that the busy holiday season is right around the corner, and it can sometimes feel overwhelming to keep things going while thinking of all our commitments with family, colleagues, and friends as well as our responsibilities at work. I felt immense pride to see Physiology listed at the top of departments that are doing well in Dr. Nelson's Town Hall presentation. However, I find myself frequently finding that pride can hinge on anxiety driven by the desire to keep going, to excel, to support and help others, and to provide as much support for the advancement and satisfaction of all of those that form this amazing team.

I recently read an article that speaks to the burnout that many of us can and have experienced at one time or another. I wanted to share the main messages from the article. The author described burnout as consisting of three main elements of emotional exhaustion, inefficacy, and cynicism. The article spoke of ways to deal with these elements, which included a) developing emotional literacy as well as awareness of one's emotional state; b) increasing awareness of negative thoughts and trying to appreciate and recognize the value we each bring to the institution or department, and c) giving and receiving empathy. As we make our transition into the Fall, I invite you to take time to reflect on your accomplishments, to make time to appreciate and enjoy all the blessings and gifts we receive, and to remember to reach out to someone offering support and encouragement. Everyone around you is a husband, partner, wife, mother, brother, or sister with their own personal challenges to deal with. Let's make the Fall of 2023, the season of compassion and empathy. Don't forget how much we have to be grateful for!



Predjama Castle, Renaissance castle built within a cave mouth in south-central Slovenia.

With best wishes for a crisp Fall!

Patricia

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Editor, Liz Simon

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Transformative power of mentorship

Xavier Chapa-Dubocq, PhD

"Sometimes people come into your life, and you know right away that they were meant to be there. To serve a purpose, teach you a lesson, or to help you figure out who you are or who you want to become. You never know who these people may be". In high school. I was a struggling student, facing financial hardships and frequent power cuts at home. Wearing worn-out clothes to school was a daily reality. It was a tough journey. I was fortunate to meet MSgt Fletcher in the JROTC, someone who genuinely invested in my development. His daily mantra, "If you look good, you feel good, and if you feel good, then you are good" became a guiding principle, shaping my journey forward. Thanks to his encouragement, I embarked on a path of education, bolstered by service in the US Air Force.

In joining the US Air force, I shared a memorable basic training experience with people from diverse backgrounds. I learned discipline and how to diligently pursue my goals in life. My first job in the military was as a medical technician at an Intensive Care Unit at the Travis AFB, which provided a glimpse into healthcare, sparking a passion that needed direction. It was a winding road, from volunteering in hospitals to almost completing a nursing program, until a fortuitous encounter with my mathematics professor redirected my trajectory. He was the one who first introduced me to the concept of mathematical modeling of biological systems. It began with the challenging problems he would give to the class from online publications that dealt with mathematical applications in biology. Enthusiastically, I would spend countless hours recreating mathematical models specifically active ion transport in cells. From there on out the foundation was set and I have been adapting my life towards performing research in biological systems.

Balancing military and academic life with tutoring in math, biology, and chemistry, I honed not only my knowledge but also my teaching abilities. Joining Dr. Javadov's lab at the University of Puerto Rico Medical Sciences Campus opened doors to an entirely new realm of understanding research- I was deeply intrigued by the team's focus on understanding the critical role of mitochondria in cellular energy production, as well as their involvement in signaling pathways and cell death regulation under oxidative stress. This marked my initial foray into non-computational research, where I gained valuable hands-on experience, from isolating mitochondria in heart tissue to conducting various functional assays. The lab not only enhanced my technical skills but also emphasized the importance of collaboration, organization, and interdisciplinary communication in the scientific community.

Using the knowledge developed from my math professor and tutoring, I developed and published a kinetic model of mitochondrial swelling, an intersection of math, chemistry, and biology during my undergrad years. I recognize that the academic scientific community is filled with people who are more than willing to take time to professionally develop others as they did for me. I realized I wanted to be a part of that -I graduated from the University of Puerto Rico Medical Sciences Campus with a PhD in physiology. Graduate school helped me hone my soft skills and biomedical laboratory skills and be a worthy competitor in the modern scientific community as both an educator and a researcher. Collaboration with fellow scientists facilitated both personal and professional growth, leading not only to the PhD but over ten publications.

Eager to expand my horizons, I joined the T32 postdoc position here and elucidating the impact of alcohol and traumatic brain injury on metabolism. I am still a proud member and section supervisor of the Puerto Rico Air National Guard (PRANG), where I ensure enlisted personnel are up to date with their training requirements and I provide them with guidance for their career progression. Even though this becomes overwhelming at times, I appreciate the small contribution I could have made to my local community. I am fortunate to have had all these experiences, and I look forward to continuing my career in biomedical sciences. I aim to transmit the same passion for science I hold just as my professors, supervisors, and collaborators have done for me.



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In reflecting on my journey, I am reminded of the profound impact that certain individuals can have on our lives. From the moment I met MSgt Fletcher in the JROTC, he instilled in me the importance of self-confidence and the pursuit of education. This lesson carried me through my military training and ultimately led me to a career in healthcare. Along the way, my math professor and Dr. Javadov's lab team further shaped my path, introducing me to the world of mathematical modeling and mitochondrial research. These experiences propelled me towards graduate school and postdoctoral research. Through it all, I remain committed to my role in the Air National Guard. I am grateful for the opportunities that have molded me both personally and professionally, and I am eager to give back as an investigator and educator in the STEM field. My journey is a testament to the transformative power of mentorship and the potential we all have to inspire and uplift those around us.

Recognition

Joshua Edavettal was awarded a travel award and will be giving a ten-minute talk at the University of Mississippi Medical Center Cardiorenal Conference.

Trainee corner

Nick Harris and Stephanie Lee passed the Physiology Qualifying Exam and are all set to pursue their graduate work.

Nick Harris submitted an F30 and an AHA predoctoral fellowship application.

Former T35 Fellow **Amy Brouillette** has been accepted into the School of Medicine Honors Research Program to work in the Edwards Lab.

Grants

Dr. Scott Edwards renewed an NIAAA contract titled "Preclinical Medications Development Screening in Dependent, Affect, and Pain Models of Alcoholism" (2023-2028).

Dr. Liz Simon- NIH/NIAAA R21 entitled "Alcohol and dysfunctional skeletal muscle mass: implications in aging".

New Faces

Xavier Chapa-Dubocq, PhD joined as a T32 postdoctoral fellow in Physiology. Xavier's research focuses on alcohol and traumatic brain injury mediated brain mitochondrial metabolic dysregulation. Xavier graduated from the University of Puerto Rico.



Keishla M Rodriguez-Graciani, PhD joined as a T32 postdoctoral fellow in Physiology. Keishla's research focuses on cellular bioenergetic

regulation by alcohol in the skeletal muscle. Keishla graduated from the University of Puerto Rico.



Rishith Vaddavalli joined the Maiya lab as a technician.

Professional services

Dr. Lisa M. Harrison-Bernard served as a member of the study section for the NSF Leading Cultural Change through Professional Societies of Biology (BIO-LEAPS) Panel P232536 and for the Florida Department of Health James and Esther King Biomedical Research Program.

Eden Gallegos, Taylor Fitzpatrick-Schmidt, and Joshua Edavettal have started a LSUHSC-NO chapter of the American Physician Scientist Association. They are planning events for the upcoming year.

Publications

McMahan RH, Anton P, Coleman LG, Cresci GAM, Crews FT, Crotty KM, Luck ME, **Molina PE**, Vachharajani V, Weinberg J, Yeligar SM, Choudhry MA, McCullough RL, Kovacs EJ (2023). Alcohol and Immunology: Mechanisms of multi-organ damage. Summary of the 2022 alcohol and Immunology research interest group (AIRIG) meeting. Alcohol. 110:57-63. doi: 10.1016/j.alcohol.2023.04.002.

Munshi S, **Albrechet-Souza L**, Dos-Santos RC, Stelly CE, **Secci ME, Gilpin NW**, Tasker JG (2023). Acute ethanol modulates synaptic inhibition in the basolateral amygdala via rapid NLRP3 inflammasome activation and regulates anxiety-like



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behavior in rats. *J Neurosci*. JN-RM-1744-22. doi: 10.1523/JNEUROSCI.1744-22.2023.

Secci ME, Kelley LK, Avegno EM, Holmgren EB, Chen L, Rein SL, Engi SA, Quinlan V, Wilson L, Gilpin NW, Wills TA (2023). Adolescent alcohol exposure produces sex-specific long-term hyperalgesia via changes in central amygdala circuit function. *Biol Psychiatry*. S0006-3223(23)01566-4. doi: 10.1016/j.biopsych.2023.09.006.

Simkin, Jennifer, Mike Adam, Ajoy Aloysius, Fatemah Safaee, Shishir Biswas, Zohaib Lakhani, John C. Gensel, David Thybert, Steven Potter, and Ashley Winn Seifert. "Csf1r+; Cd68+ Macrophages Uniquely Express Lactotransferrin and Vegfc During Ear Pinnæ Regeneration in Spiny Mice. *Developmental Cell*. (2023): in press.

Stefan S, Issa PA, Longanecker A, Martin D, Redondo K, **McTernan P, Simkin J**, Marrero L (2023). "Minoxidil weakens newly synthesized collagen in fibrotic synoviocytes from osteoarthritis patients. *Journal of Experimental Orthopaedics*. 10, no. 1: 84.

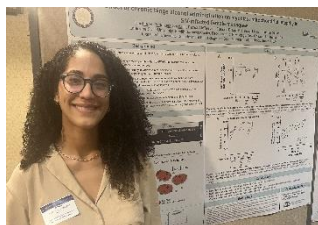
Symposiums organized at National and International Meetings

Dr. Patricia Molina chaired a symposium "Alcohol-related multisystemic organ injury" and was a speaker "Contribution of alcohol associated metabolic instability to aging comorbidities" at the 19th European Society for Biomedical research on alcoholism conference, at Graz, Austria.

Dr. Patricia Molina chaired a symposium "Cross vulnerabilities that promote substance use disorder" at the 2023 National Hispanic Society Network Conference. Dr. Molina was a panelist at the Grant Writing Workshop of the Conference.

Presentations

Rodríguez-Graciani KM, McTernan P, Levitt DE, Molina PE, Simon L. Effect of chronic binge alcohol administration on myoblast mitochondrial integrity in SIV-infected female macaques. (Poster). 2023 National Hispanic Science Network Annual Conference.



Outreach and community service

Stephanie Lee, Taylor Fitzpatrick-Schmidt, and Linh Ha represented ADACE at Xavier University's Recovery Month Sober Fest on September 13.



ADACE is also partnering with the School of Medicine student mobile health clinics to distribute fentanyl test strips and we will soon have xylazine test strips.

Physiology was represented at the Association for Women in Science-Southern Louisiana Chapter's (AWIS-SL) science exhibit at the Believe in Girls Southeast Louisiana Girl Scouts event held on September 23, 2023. The AWIS-SL exhibits included: Dress Like a Scientist, Learn to Pipette, Make a Neuron, and touch and learn about the Human Brain. Over 1,000 girl scouts visited exhibits held throughout the Southern University of New Orleans campus. It was a fun day of supporting women and girls in science.



Notable Events

Joshua Edavettal performed a kendo demonstration at the CALS gym on August 29.

Mary Secci became permanent resident of the United States.

The Mental Hygienists Fantasy Football League started its sixth season. **Dr. Patrick McTernan** (CH₃CH₂OH) is off to a blistering 4-0 start.

Call for featured story. Please contact Liz Simon if you would like to write featured stories in the newsletters. It can be on physiological breakthroughs, Inner engineering tips, personal growth and motivational pieces, or anything not listed here!