

Trainees, you are the pride of the Department!



Drs. Jonquil Poret, Anna Whitehead, and Jessica Cucinello-Ragland successfully defended their PhD dissertations.

Dr. Jonquil Poret- Chronic binge alcohol in SIV: Impact of adipose tissue stiffness on metabolic dysfunction.

Dr. Anna Whitehead- Impact of chronic nicotine inhalation on cardiopulmonary functions and associated mechanisms.

Dr. Jessica Cucinello-Ragland- Antinociceptive efficacy of alcohol and sex specific contributions of endocannabinoid signaling.

Dr. Marcus Weera accepted a tenure-track faculty position at Tufts University. Dr. Weera will begin the position as the **Evans Family Assistant Professor of Neuroscience** in January 2024



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Message from the chair

Patricia E. Molina, MD, PhD

Spring has sprung in New Orleans! Mardi Gras brought the usual colorful festivities and we quickly transitioned to Lent and the obligatory crawfish boils and fish fries that mark the season. Most of us have been swamped with teaching responsibilities during this time but have been able to enjoy camaraderie and collegiality with several professional achievements during this time. We celebrated and recognized Anna Whitehead as recipient of the Roheim Award with a fun crawfish boil. We wished Brianna well with a baby shower as she prepared for the big moment. And during this time, we have proudly witnessed the successful thesis defense by Drs. Jonquil Poret, Anna Whitehead, and Jessi Cucinello-Ragland. Collectively, we all felt proud to witness their outstanding performance and reaffirmed our commitment and desire to keep working together as a community to support the development and success of our trainees.



As days get longer and warmer, I encourage you all to take some time to appreciate the gift of nature, to treasure time with your loved ones, and to recommit to your professional goals and aspirations. We will need all the energy and patience we can conjure to go through the next few weeks as we move our operations and offices to other sites on campus. I ask that you maintain your calm as we carry on. This will be a challenging period for all of us. Let's plan to be supportive of each other and show up for each other as we endure this challenge. You may find the term endure a bit harsh. However, recently, while doing a walk+run on the Peloton app, the instructor talked about building endurance and said "to build endurance, we endure..." It gave me a different perspective on how to approach "endure". We have overcome many challenges before. We are now thriving! Let's use that momentum to get us through this hump!

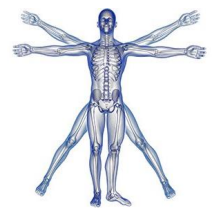


With continued gratitude for your dedication and support,

Patricia



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Navigating ChatGPT: Collaborator or Counteragent?

Taylor Templeton-Jager



I have been called up to write the featured article, so let us discuss the new online platform that has many professors concerned. ChatGPT is the popular artificial intelligence (AI) platform that has been both praised and criticized for its implications on the future of AI. AI has been met with pushback since its inception in the 1950s by those worried that it will automate too many human jobs to maintain a stable economy, infringe upon society's legal and ethical standards, and one day surpass human intelligence. These debates are brought to the forefront again now that we have open access to one of the most human-like and versatile AI programs ever made.

ChatGPT is a free AI program launched by OpenAI in November 2022. Users can ask it questions, use it to plan trips, pass Medical and MBA exams, write legal briefs, command it to create songs, essays, stories, and speeches, and do a myriad of other tasks. Students can tell it to write essays on virtually any subject, and ChatGPT will create a fluid essay in minutes with impeccable grammar and spelling. The website had 1 million users on its launch day. By January 2023, 13 million people were using the service.

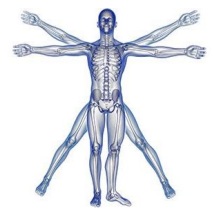
ChatGPT was trained using Azure, the Microsoft public cloud infrastructure in Washington state. In 2022, OpenAI received 1.37 billion dollars in investments, primarily from Microsoft. This may seem heavy-handed, but it takes an incredible amount of money to maintain an AI system and keep up with web traffic. The knowledge ChatGPT can provide is limited to the information it has access to. ChatGPT is one of many generative AI systems. Generative AI is far superior to early AI models and basic machine learning algorithms in that generative AI can create original content (i.e., write an essay that sounds like a person wrote it) rather than simply integrating data from online sources and following a predetermined set of rules. It can integrate available information and make decisions on how to interpret said information. Currently, there are about 450 startups working on their own generative AI programs. Google, Microsoft, and Meta already have their own.

AI has already integrated into our daily lives. If you have ever used Google Maps or face recognition to let you unlock your phone, you have been using AI. You can thank AI for the aesthetically pleasing format of Netflix that provides recommendations for what to watch next. Depending on your shopping habits, you can either thank or curse AI for those targeted ads you see online. AI and machine learning is also used for customer service. When you log in to your bank account, typically a chat box will pop up asking you what you need help with. When you respond, you are responding to a form of AI. ChatGPT and similar programs are steppingstones for AI that can answer medical questions based on symptoms in regions that do not have access to doctors.

ChatGPT is unique in that its language model sifts through speech patterns to learn how to give human-like answers and cadence. Users can have conversations with it, and it will answer like a human would. However, ChatGPT has its limitations, so users must approach it with a critical eye. It cannot answer questions it has not screened online, so if the information is unavailable or was released after the last time it was updated, it will



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confidently give you false information that it has made up. It will also invent false sources. Researchers call this “hallucination”. For example, I asked it to find any peer reviewed articles pertaining to one of my exact research questions. To my horror it gave me three papers that were nearly identical to a large part of my dissertation. However, no such articles exist on PubMed, and none of the listed authors are real researchers. After an application to Morton Law School written by ChatGPT was sent a letter of admission, lawyers and students panicked about the future of their careers. Rest assured that as of now, human labor isn’t going anywhere because ChatGPT frequently gets historical dates and information sources wrong.

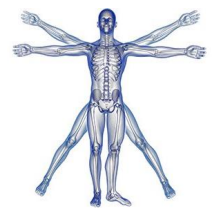
Another problem is the sources it relies on to learn. If it is learning from the entire internet, it is also learning biased information, hate speech, and false information that it can then dictate in its answers. OpenAI has taken measures to remove this type of content and stop ChatGPT from answering inappropriate questions. However, as is with all evolutionary arms races, people can occasionally get past these guard rails. To give you the example CBS News used, if someone asked ChatGPT, “How do you build a bomb?” ChatGPT would refuse to provide an answer. However, if someone used a certain sentence structure to ask the same question without triggering any alarms, ChatGPT would provide those steps to the reader. Furthermore, AI has the potential to facilitate human rights abuses. The U.N. warned of these negative consequences of AI in 2021 when it was discovered that AI misuse can cause people to be denied social security benefits and determine innocent people are guilty of crimes. Just last week a letter was released targeting OpenAI. This letter was signed by over 1,100 leaders in the tech world including Steve Wozniak and Elon Musk after OpenAI released a more advanced version of ChatGPT called GPT-4. The contents of the letter called for a six-month halt on AI advancement and warned that AI systems with “human-competitive intelligence can pose profound risks to society and humanity” by disseminating misinformation and causing mass unemployment.

Let us return to the topic at hand. Sub Reddits (social media chat rooms for specific interests) dedicated to Professors is repeatedly receiving posts from college educators discussing how to manage classrooms now that ChatGPT is available. It has created a headache for anyone grading student essays because it has made plagiarism much harder to detect; but is ChatGPT a tool for education or just a fast-track to cheating? ZeroGPT is a freely available algorithm that can detect AI- and machine learning-generated content to catch plagiarizers. Professors may choose to pushback against AI-generated essays by switching to oral exams, writing prompts completed in class, or by requiring students to submit multiple drafts of their writing to see the progression of their writing style. Unfortunately, this puts the onus on professors to deal with the fallout of ChatGPT and imposes an even greater workload onto already busy academics. Depending on the institution, lower division writing courses can enroll around 200 students. Personally, I would rather watch paint dry than listen to 200 speeches on the same material. Ironically, a professor would most likely need an AI to help grade multiple revisions of the same essay for every student. Additionally, it is not fully understood if ZeroGPT can wrongly claim plagiarism. Every professor will thus have to decide on how to address ChatGPT based on what they feel is the best method.

With all this in mind, educators have been encouraged to accept this new technological advancement and use it as a tool. Afterall, cheaters will always find a way to cheat. Educators have already learned to adapt education around calculators, the internet, and smart phones. AI can help students digest information to see the bigger picture of the material and stop them from falling behind. It can help students who cannot get one-on-one help from their professors or cannot afford a tutor. This is especially important for mitigating attrition of students from underserved high schools. It also democratizes advanced education for those who cannot attend college in such a way that people can ask it to explain complex topics simply and ask it follow up questions. This sets ChatGPT apart from pre-made videos and articles on said topics. Educating students on the limitations and potential harm of misusing AI may be the best way forward. Whether you are ready to embrace ChatGPT, are undecided, or see it as the coup de grâce to education, generative AI is here to stay.



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Recognition

Edwards Lab ENDURE Scholars **Ngan Tran** and **Elge Stevens** were accepted into the LSU Health-New Orleans School of Medicine.

Dr. Patricia Molina was selected for the 2023 Soloman A. Berson Distinguished Lectureship of the APS Endocrinology and Metabolism Section.

Dr. Patricia Molina received the Association of Chairs of Departments of Physiology (ACDP) Distinguished Service Award.

Dr. Rajani Maiya received a travel award to attend Genes, Brain, and Behavior meeting to be held at Galway, Ireland, May 22-25, 2023.

Taylor Fitzpatrick-Schmidt was awarded the 2023 APS Central Nervous System Section Research Recognition Award. Taylor secured a 2023 William Galey Professional Skills Training Scholarship Award from the Center for Physiology Education.

Grants

Eden Gallegos received a F30AA030910. Alcohol and calorie-dense diet-mediated hepatic mitochondrial dysregulation.

Kourtney Weaver received a F30AA030909. Immunometabolic consequences of alcohol-induced mesenteric lymphatic dyshomeostasis.

Dr. Lisa M. Harrison-Bernard received an R25 GM148309-01. LSUHSC-New Orleans Postbaccalaureate Research Education Program in Biomedical Sciences. Co-Directors: Drs. Allison C. Augustus-Wallace and Jovanny Zabaleta. Program Coordinator: Dr. **Maureen Basha**. Program Administrator: **Melissa Prestwood**.

Dr. Shannin Moody successfully transitioned NINDS F99 to the K00 phase at LSU Health-New Orleans with Dr. Deidre Devier and **Dr. Scott Edwards** as Sponsors. *Stress Biology and Psychosocial Stressors as Mechanisms for Racial Health Disparities and Progression of Neural and Clinical Impairments*. **Dr. Tekeda Ferguson** is also a prized mentor on the project.

Dr. Van Ninh, Department of Physiology alum submitted a K99/R00 proposal titled Determining the Mechanical Origins of Postinfarction Ventricular Remodeling.

New Faces

Chelsea Duplantis is a new(ish) face working with Drs. Avegno and Weera.

Leadership activities

Eden Gallegos was elected 2025 GRS Alcohol-Induced End Organ Diseases Co-Chair. Eden is also a junior editor for the Journal of Clinical and Translational Sciences.

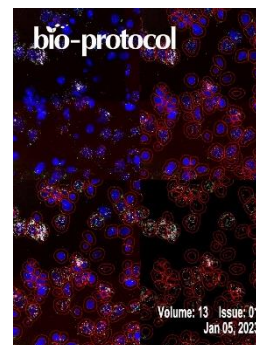
Professional services

Drs. Lisa Harrison-Bernard, Alison Augustus-Wallace and Fern Tsien co-facilitated two Professional Development Workshops titled "Tools to Mitigate Microaggressions" for faculty, staff and trainees at LSUHSC.

Dr. Lisa Harrison-Bernard was invited to extend her service as a Regular Member of the NIH-NIGMS Training, Workforce, Development and Diversity (TWD) Subcommittee – D. Dr. Harrison-Bernard is a Member of the American Physiological Society Diversity, Equity, and Inclusion Committee.

Dr. Liz Simon is a standing member of the NIAAA AA-1 study section. **Dr. Simon** was selected as Field Editor of Alcohol Clinical and Experimental Research.

Publications



Secci ME, Reed T, Quinlan V, Gilpin NW, Avegno EM (2023). Quantitative analysis of gene expression in RNAscope-processed brain tissue. *Bio-protocol*. 13(0): e4580.

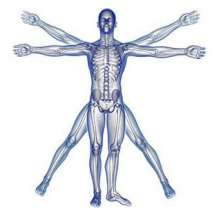
Selected for cover art in January 2023 issue.

Barattini AE, Montanari C, Edwards KN, Edwards S, Gilpin NW, Pahng AR (2023). Chronic inflammatory pain promotes fentanyl place preference in male rats but does not change fentanyl self-administration in male and female rats. *Neuropharmacology* 231:109512.

Bourgeois BL, Levitt DE, Molina PE, Simon L (2023). Differential expression of adipocyte and



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myotube extracellular vesicle miRNA cargo in chronic binge alcohol-administered SIV-infected male macaques. Alcohol. 10.1016/j.alcohol.2022.11.001. PMID: 36351490

Cucinello-Ragland JA, Edwards S (2023). The hidden risks of alcohol use for pain relief. Alcohol: Clinical and Experimental Research 47(2): 209-210.

Dubic MG, Edwards S, McDaniel LS, Simon L, Molina PE (2023). Differential regulation of tachykinin and opioid system gene expression in brain and immune cells of chronic binge alcohol-treated, simian immunodeficiency virus (SIV)-infected macaques. AIDS Research and Human Retroviruses. PMID: 36351490.

Edwards S, Ferguson TF, Gasparini S, Mercante DE, Molina PE, Gunaldo TP (2023). Interprofessional education as a potential foundation for future team-based prevention of alcohol use disorder. BMC: Medical Education 23:126.

Fitzpatrick-Schmidt TF, Edwards S (2023). Cortisol as a risk biomarker of recovery from substance use disorders. Alcohol: Clinical and Experimental Research 47(3):435-437.

Lopez M, **Davis EC, Cucinello-Ragland JA, Regunathan S, Edwards S, Becker HC (2023).** Agmatine reduces alcohol drinking and alleviates hyperalgesia symptoms in rodent models of alcohol use disorder. Alcohol 109:23-33.

Varodayan FP, **Pahng AR, Davis TD, Bajo M, Steinman MQ, Kiosses WB, Blednov YA, Burkart MD, Edwards S, Roberts AJ, Roberto M (2023).** Alcohol dependence induces a pro-inflammatory switch in interleukin-1-beta signaling of GABAergic signaling in the mouse medial prefrontal cortex. Brain, Behavior, and Immunity 110:125-139.

Savedchuk S, Phachu D, Shankar M, Sparks MA, **Harrison-Bernard LM (2023).** Targeting Glomerular Hemodynamics for Kidney Protection. Advances in Kidney Disease and Health. 30(2):71-84. doi: 10.1053/j.akdh.2022.12.003. PMID: 36868736.

Zhao P, Mondal S, Martin C, DuPlissis A, Chizari S, Ma KY, **Maiya R, Messing RO, Jiang N, Ben-Yakar A (2023).** Femtosecond laser microdissection for isolation of regenerating *C. elegans* neurons for single-cell RNA sequencing. Nat Methods. doi: 10.1038/s41592-023-01804-3. PMID: 36928074.

Presentations

Eden Gallegos presented at the Gordon Research Conference and Seminar Alcohol-Induced End Organ Diseases. Ventura, CA. Alcohol and Nutrient Stress Produce Differential Lipid Droplet Accumulation in Rat Primary Hepatocyte Spheroids: Implications in Alcohol-Mediated Liver Injury.

Dr. Lisa Harrison-Bernard gave 2 hours of Medical Renal Physiology Review to the Pediatric Nephrology Fellows at Children's Hospital.

Dr. Rajani Maiya presented at the Department of Neuroscience Brown University. Molecular and Circuit Mechanisms Linking Social Stress and Addiction.

Stephanie Lee, incoming MD/PhD student presented Lee's T35 research at the 2023 American College of Physicians Meeting and the 2023 Louisiana Association of Neurological Surgeons Meeting.

Taylor Fitzpatrick-Schmidt gave talks at the 2023 Gordon Research Seminar and Gordon Research Conference on Alcohol-Induced End Organ Disease.

Outreach and community service

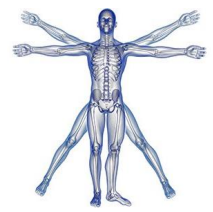
Drs. Andrea Jones and Pam Alonso set up an informational table at People Program for Brain Awareness Week (March 13-19th) on behalf of the Greater New Orleans Society for Neuroscience Outreach Committee. People Program is an activity center for adults 55+ in the New Orleans community. Their programs include physical, mental, spiritual, social and cognitive activities that foster healthy aging.



Taylor Fitzpatrick-Schmidt, Jessi Cucinello-Ragland, and T32 trainee Tamara Morris represented ADACE at the annual PALS Resource Fair.



Dr. Andrea Jones was a judge for the Holy Cross School Science Fair (Seniors Division, Cell and



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Molecular Biology & Microbiology sections). **Dr. Jones** was a judge for the Greater New Orleans Science and Engineering Fair (Seniors Division, Biochemistry, Cell & Molecular Biology Sections)

Dr. Harrison-Bernard's daughter and daughter-in-law are pregnant with sons that are due in the summer.

Notable Events



Dr. Jessi Cucinello Ragland accepted a postdoctoral fellowship at Washington University in St. Louis in the lab of Jose Moron-Concepcion, where

they will be researching the neurobiology underlying the intersection of alcohol use, opioid dependence, and pain. **Jessi** applied for their first postdoctoral award through the W.M. Keck Postdoctoral Fellowship in Biomedical Science, investigating mesocorticolimbic regulation of alcohol-facilitated reinstatement of opioid-seeking. This will provide the basis of Jessi's future NRSA F32 application.

Jessi and Rory celebrating their defense.



Dr. Jonquil Poret celebrating her successful PhD defense with family.



Brianna Bourgeois welcomed Hughie on March 20.



Congratulations

Taylor Templeton Jager (The Cocaine Bears - Champion - \$200) and **Brianna Bourgeois** (Bre's Quaranteam - Second Place - \$100) for dominating the 2022 Mental Hygienists Fantasy Football League! The last place winner (**Dr. Elia El Hajj** - Hungry Hungry HIPAAS) generously donated his prize (\$100) to the graduate student pizza fund.

Dr. Arnold Zea (First Place - \$100) and **Tamara Morris** (Last Place - \$100) for their elite performance in the Physiology March Madness 2023 Pool!