

Congratulations.



Dr. Scott Edwards was promoted to **Tenured Professor**. Dr. Edwards serves as Associate Director of the NIH/NIAAA T32 & T35 Training Programs. He is the Vice Chair for Training & Mentoring, Department of Physiology. Dr. Edwards' research centers around the investigation of neurobiological changes associated with altered motivational systems in the context of substance use disorders (SUDs). He is integral to the NIH/NIAAA P60 Comprehensive Alcohol-HIV/AIDS Research Center.



Dr. Stefany Primeaux was promoted to **Professor (Educator Track)**. Dr. Primeaux is Director of Curriculum School of Graduate Studies. She directs or co-directs several of the Physiology Courses in the School of Graduate Studies and Nursing. She is Chair of the American Physiology Society Central Nervous System Section. Dr. Primeaux's research centers around regulation of feeding behavior and food preferences by taste-related mechanisms.



Dr. Rajani Maiya was promoted to **Associate Professor with tenure**. Dr. Maiya has a very robust research portfolio. Dr. Maiya's lab investigates how experience-dependent changes in gene expression drive neuroadaptive processes that contribute to alcohol dependence. The lab is particularly interested in the neural mechanisms by which social defeat stress escalates alcohol use.



Dr. Flavia Souza-Smith was promoted to **Associate Professor (Educator track)**. Dr. Souza-Smith directs or co-directs multiple physiology courses in the School of Allied Health and Nursing. Dr. Souza-Smith's research centers around how alcohol disrupts mesenteric lymphatic function, affecting immune cell trafficking from the gut, contributing to systemic metabolic disorders.

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CHAIR'S MESSAGE

Dear team members,

We have passed the mid-year mark and are now preparing to tackle the fall semester. So many good things have happened since I last wrote in April.

We successfully promoted four of our faculty members. Dr. Scott Edwards came to the department as an Assistant Professor on a K99/R00. He has excelled in research, teaching and administration and has now been promoted to Professor with Tenure. Perhaps his most notable achievement has been his ability to become a leader in our mentoring efforts, while maintaining a fully funded research enterprise! Dr. Rajani Maiya came to us as an R01 funded Assistant Professor, rapidly establishing a productive and innovative research lab, while assuming leadership in course administration and mastering physiology topics outside her immediate area of expertise. Dr. Maiya was promoted to Associate Professor with Tenure and during this recent quarter secured R01 funding and is poised to receive additional R21 funding soon. Dr. Stefany Primeaux came to our department via the Medicine Department Diabetes joint program with Pennington Biomedical Research Center. Dr. Primeaux advanced research in obesity, taste preferences, and gustatory physiology. This area of expertise has provided fertile ground for mentoring multiple nursing, medical, and undergraduate students, frequently paving their way for progressing to the dual degree program or graduate school. Dr. Primeaux has flourished in her roles in our department, Nursing and Graduate School and has been instrumental in supporting the revitalization and restructuring of the Biomedical Sciences Graduate Program. She was promoted to Professor on the Educator track. Dr. Flavia Souza-Smith started her professional career in Pharmacology, transitioning to Physiology upon departure of her mentor, Pam Luchessi, PhD. Under mentorship from Dr. Jerry Breslin, she developed a unique area of research on mesenteric lymphatic physiology that led to F32 and K01 funding. As scientists often do, she changed direction and opted to focus on teaching. Since moving away from research, she has embraced her role as an educator, integrating diverse approaches to enhance student performance. She was promoted to Associate Professor on the Educator Track. I invite you to congratulate them when you get a chance. Their contributions are critical to our overall success.

Personally, I am proud of their advancement. Having touched their professional lives there is a sense of accomplishment in looking at how well they are doing. And no better time to think of how each person's role contributes to Physiology's overall excellence than when watching the games of the World Cup. Not every player scores a goal. Not every player effectively prevents the other team from scoring. The magic is in the play, the passes, the anticipation, the awareness that there are others in the field there to help achieve that coveted goal (GOOOOOOOLLL!!).

That is how I think of our department. As a team. One that has players with diverse skill sets, that when playing together form a cohesive wave of successes. Some small, some large! And it is by watching each other, supporting each other, and encouraging each other when things are rough, that we move ahead and continue fulfilling our mission while drawing satisfaction from each achievement, your own and those of the other members of the team.

May you enjoy the rest of the summer and find time to congratulate yourself and others on a job well done!

Best wishes,

Patricia

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GLUCAGON LIKE PEPTIDE 1: THE SPOTLIGHT HORMONE REVOLUTIONIZING MEDICINE

From the Editor's desk

History. As early as 1906, scientists in Liverpool had observed that intestinal extracts lowered blood glucose. But with the discovery of insulin in 1921 by Banting and Best, the quest for alternative therapies for treating type 2 diabetes (T2DM) lost momentum. Fast forward to the 1980's, and glucagon like peptide-1 (GLP-1), the *gut signal was discovered almost by accident*. Scientists studying the genetic sequence of proglucagon, the precursor for the hormone glucagon, found that the gene coded for extra fragments beyond glucagon itself. Two of these fragments looked like they might be biologically active hormones. One of them turned out to be GLP-1. Two parallel lines of work converged on this discovery. Joel Habener's laboratory at Massachusetts General Hospital and Svetlana Mojsov, working independently at the same institution, identified that a truncated form of GLP-1 (7-37 amino acid sequence), powerfully stimulated insulin release from pancreatic cells. Around the same time, physiologist Jens Juul Holst in Copenhagen and others helped establish that GLP-1 is released from the gut after eating and acts as an "incretin", a hormone that amplifies insulin secretion in response to food. However, the hormone is degraded within one to two minutes by an enzyme called Dipeptidyl peptidase-4 (DPP-4). It was not until decades later, Lotte Bjerre Knudsen at Novo Nordisk led the chemistry that turned this fragile, short-lived hormone into durable, long-acting drugs. GLP-1 receptor agonists (GLP-1RAs) are chemically modified either by amino acid substitutions or by adding a fatty-acid "tail" that binds to albumin in the blood to make it long acting.

For the scientific discovery and development of GLP-1-based drugs that have revolutionized the treatment of obesity, the prestigious Lasker-DeBakey Clinical Medical Research Award was presented to Joel Habener, Lotte Bjerre Knudsen, and Svetlana Mojsov in 2024. Other scientists central to the advancement of these group of drugs are Jens Juul Holst, Daniel Drucker, and Richard DiMarchi.

How It Works. GLP-1 is released from L-cells of the intestine within minutes of eating. It acts on the GLP-1 receptor, primarily found on pancreatic beta cells, and the brain. The receptors are also present in the stomach, heart, and several other tissues and cells. Its primary functions are to stimulate insulin release when blood glucose is elevated, suppress glucagon secretion, slow gastric emptying, and act on appetite centers in the hypothalamus and brainstem to increase satiety and reduce hunger.

From Twice-Daily Shots to Weekly Pens to Pills. Exenatide (Byetta), was approved for type 2 diabetes (T2DM) in 2005, and the dosing was twice-daily injections. The field then moved to once-weekly injectables including the most common semaglutide (Ozempic, and later Wegovy for obesity), and the dual GLP-1/ glucose-dependent insulintropic polypeptide (GIP) agonist tirzepatide (Mounjaro, Zepbound). Oral options followed, the first oral GLP-1, Rybelsus (semaglutide, Novo Nordisk), was approved in 2019. In 2026, the FDA approved orforglipron (Eli Lilly), the first small-molecule non-peptide oral GLP-1RA. Unlike oral semaglutide, orforglipron can be taken at any time of day without food or water restrictions. Though injectables generally still produce greater weight loss than oral versions, the efficacy of oral versions is improving significantly.

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Approved uses of GLP-1 drugs. Originally approved for T2DM, GLP-1 therapies are approved for chronic weight management, secondary cardiovascular risk reduction, obstructive sleep apnea, metabolic dysfunction-associated steatohepatitis (MASH). Research is also underway for kidney disease, Alzheimer's disease, addiction, and polycystic ovary syndrome. GLP-1RAs are actively being researched for the use in Alcohol Use Disorder. Pioneering work done by groups in the US (NIH/NIAAA- Lorenzo Leggio, Mehdi Farokhnia) and in Denmark (Mette Kruse Klausen, Mathias Ebbesen Jensen) have made considerable progress in the use of GLP1RAs to treat AUD. The potential primary mechanism of action for the treatment of AUD is considered to be reducing alcohol-induced dopamine release.

Side Effects. GLPs having multifaceted roles and adverse effects are inevitable. The most common adverse effects are gastrointestinal including nausea, vomiting, diarrhea, constipation, and reduced appetite, especially when doses are increased too quickly. Less common but more serious concerns include gallbladder disease, pancreatitis, and a small risk of severe gastrointestinal obstruction. Contraindications include medullary thyroid carcinoma or Multiple Endocrine Neoplasia syndrome type 2. Rapid weight loss also raises concerns about loss of lean muscle mass, and reduced bone density. Several next-generation drug combinations are specifically trying to address these aspects.

Research now. The pipeline in 2026 is best understood as a "staircase of efficacy." The triple agonist which engages GIP, GLP-1, and glucagon receptors is increasing the efficacy of weight loss compared to the dual GLP-1/GIP agonist than the single GLP-1RAs. Muscle-sparing approaches combining myostatin inhibitors or activin type II receptors inhibitors with GLP-1 therapy are being investigated. Combinations of GLP1RAs with the hormone, amylin, which slows gastric emptying, is now under FDA approval review. Semaglutide's patent in Canada expired early 2026, clearing the way for generic formulations to enter the market, which is expected to make the drug more affordable. Other countries are likely to follow as their own patents lapse. What began as a curiosity in gut hormone genetics has become one of the most consequential drug classes in modern medicine and has not finished evolving!



Grants

Kaitlin Couvillion. 1F30AA033247. 2026-2031. NIH/NIAAA. Immune-Mediated Hepatocyte Injury: Interplay of Alcohol and T Cells.

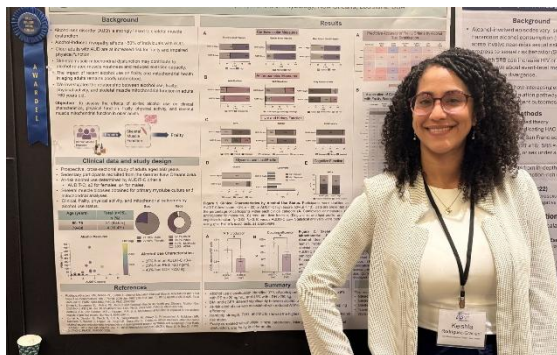
Dr. Nicholas Gilpin. 1R01AA032025 2026-2031. NIH/NIAAA. Reducing alcohol drinking with a nonmuscle myosin II small molecule in development. Role: MPI (with Courtney Miller at U. of Florida)

Awards

Dr. Scott Edwards was awarded the 2026 Outstanding Service to the Community Award from the LSU Health New Orleans School of Medicine Faculty Assembly.



Dr. Keishla Rodriguez-Graciani was awarded the prestigious 2026 Nadia Chaudhri Rising Scholar Award (NCRSA) of the Research Society of Alcohol.



Trainee corner

Evan Doré successfully defended his Master of Science Thesis titled *Behavioral and Molecular Signatures of Social Stress-Escalated Alcohol Drinking*.

Professional services

Dr. Scott Edwards served on the National Institutes of Health (NIH) *Topics in Addiction Risks and Mechanisms* study section in April.

Dr. Scott Edwards was appointed to serve on the NIH/NIAAA National Advisory Council (2026-2028).

Dr. Janos Paloczi co-chaired the Symposium, Endocannabinoid system: a gatekeeper of alcohol behavioral and physiological effects at the 2026 American Physiology Society Summit.

Dr. Stefany Primeaux was elected Chair of American Physiology Society Central Nervous System Section 2026-2029.

Dr. Liz Simon was elected Chair of American Physiology Society Endocrinology and Metabolism Section 2026-2029.

Dr. Liz Simon co-chaired the Symposium, Mitochondrial Dysfunction in Metabolically Active Tissues: From Mechanisms to Disease, at the 2026 American Physiology Society Summit.

Dr. Sydney Vita chaired the Teaching Education and Mentoring (TEAM) session at the 2026 National Neurotrauma Society Symposium.

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New faces

Linda Hardy is the Associate Business Manager of the Department of Physiology effective 7/1/2026. She earned her bachelor's and master's degree from Tulane University. She has over 25 years of experience working in higher education and has worked in similar administrative roles. She has extensive practical experience in many aspects of human resources, office management, grants and contracts management, administrative operations, and financial operations. Welcome.



Rand Mohd, is a Research Associate in the Gardner and Paloczi Labs. Rand graduated with a BS in Biological Sciences with a minor in Chemistry. Rand's long-term goal is to attend medical school, and hopes to combine patient care with research.

Joseph Rivera is a nursing (pre)MUSES student from LSU Health, New Orleans. He is conducting research in Dr. Paloczi lab for the year.

Summer Interns

Taj Oberhelman- Undergraduate at the University of Utah, Doing research in the Paloczi lab.

Tiffany Nguyen- first-year MD student at Tulane University. Doing research in the Paloczi lab.

Avery Pernia- freshman at Tulane University. Doing research in the Simon lab

The NIH/NIAAA T35 Medical Student Alcohol Research Internship began in June with seven outstanding fellows: **Ayla Allen (Maiya Lab)**, **Shelby Disorbo (Gilpin Lab)**, Hannah El Kholi (Salling Lab), **Emmanuel Levy (Edwards Lab)**,

Rachel Lonergan (Simon Lab), **Haley Marchese (Gardner Lab)**, and **Sarah Velarde (Siggins Lab)**.

Publications

Gill L, **Molina P**, **Simon L**. Sepsis Dysregulates Mitochondrial microRNA and Biogenesis in the Diaphragm but Not Limb Muscle. *Int J Mol Sci*. 2026 9;27(10):4222. doi: 10.3390/ijms27104222. PMID: 42196205.

Li Z, **Edwards S**. Cognitive and Affective Elements of Pain Pathophysiology: Relevance for Substance Use Disorders. *Current Addiction Reports* 2026 13:33.

Murnane PM, Xia F, Afshar M, Brown JL, Chamie G, Cook RL, Couture MC, DiClemente RJ, Fatch R, Ferguson T, Francis JM, Haberer JE, Jacobson KR, Justice AC, Kapiga S, Kim TW, Krupitsky E, Marcus GM, **Molina PE**, Muyindike WR, Myers. B, Page K, Phillips SA, Piano MR, Richards VL, So-Armah K, Stewart S, Sulkowski MS, Tien PC, Woolf-King S, Hahn JA. Exploring Phosphatidylethanol Cutoffs for Self-Reported Unhealthy Alcohol Use: An International Multi-Site Analysis. *Alcohol Clin Exp Res* (Hoboken). 2026 e70361. doi: 0.1111/acer.70361. PMID: 42345465.

Paloczi J, **Byerley LO**, **Primeaux SD**. The aftermath of alcohol misuse: Linking cellular damage, suboptimal micronutrient nutrition, and organ dysfunction. *Pharmacol Ther*. 2026 283:109038. PMID: 42049155. doi: 10.1016/j.pharmthera.2026.109038.

Simon L, **Mire M**, **McTernan PM**, **Gallegos EM**, **Coleman L**, **Siggins RW**, **Caro AC**, **Baker CL**, **Molina PE**. Alcohol and calorie-dense diets modulate immune phenotype and metabolic health in simian immunodeficiency virus infection. *Function (Oxf)*. 2026 doi: 10.1152/function.033.2026.

Simon L. microRNA profiles in slow and fast skeletal muscle fibers. *Physiol Genomics*. 2026

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1;58(6):270-271 PMID: 42187049. doi: 10.1152/physiolgenomics.00047.2026.

St. Onge CM, Erickson C, Cruz B, Borgonetti V, Hashimoto JG, **Cucinello-Ragland JA**, **Fitzpatrick-Schmidt T**, Rodriguez L, Khom S, Palmisano M, Vlkolinsky R, Oleata CS, Nadav T, Salem NA, **Edwards S**, Mayfield RD, Guizzetti M, Roberts AJ, Bajo M, Roberto M. Translational Evidence for Increased Central Amygdala IL-6 Activity in Alcohol Dependence. *Journal of Neuroinflammation* 2026 23(1):211.

Presentations

Dr. Laury Byerely gave a talk, Physical activity is associated with a distinct gut microbial metabolic profile in healthy adults: a pilot study with implications for musculoskeletal health, at the 22nd Annual Robert D. D'Ambrosia Lectureship & Research Day, Department of Orthopedic Surgery, LSU Health, June 21, 2026.

Kaitlin Couvillion gave an oral presentation "Extracellular Vesicles from Ethanol- and Metabolically Stressed Hepatocyte Spheroids Increase Immune Cell Activation in PBMCs from People With HIV. At the Research Society on Alcohol- HIV Satellite. San Antonio, TX.



Dr. Scott Edwards discussed the impact of our department's research and training during his presentation titled *Intersection of Substance Use with Chronic Disease in Vulnerable Populations* at the April LSU Board of Supervisors meeting in Baton Rouge.

Dr. Scott Edwards, Dr. Eden Gallegos, and Dr. Nicholas Harris presented on the *Basics of Submitting Extramural Fellowship Applications* at the School of Medicine Research Café in May.

Dr. Scott Edwards presented *Get Rich Slowly: Investing for Busy Professionals* at the May Lunch and Learn Meeting of the Association for Women in Science-South Louisiana Chapter.

Dr. Scott Edwards presented a talk titled *Comparative Effects of Alcohol and Cannabis Use on Pain and Cognitive Outcomes in the New Orleans Alcohol Use in HIV (NOAH) Cohort* at the June Research on Alcohol and HIV RSA Satellite Meeting.

Dr. Nicholas Gilpin gave a talk, Old Dogs and New Tricks in the Search for Treatments to Reduce Escalated Alcohol Drinking after Stress, at the Stress & Alcohol meeting in Volterra, Italy, 2026.

Dr. Nicholas Gilpin gave a talk, Adolescent alcohol exposure leads to lasting hyperalgesia that is mediated by central amygdala circuits, at the Pain Mechanisms and Therapeutics Conference, Verona, Italy, 2026.

Dr. Patrick McTernan gave an oral presentation Harmful Alcohol Use Dysregulates Immunometabolism in Peripheral Senescent CD8+ T cells in People in HIV at the 2026 Research Society on Alcohol.

Dr. Janos Paloczi gave an oral presentation at the 2026 American Physiology Summit "Effects of Alcohol Consumption on Cardiovascular Function During Aging" at the 2026 American Physiology Summit.

Dr. Keishla Rodriguez-Graciani presented a poster at the 2026 Research Society on alcohol Annual Meeting. "Alcohol Use is Associated with Frailty and Mitochondrial Dysfunction in Older Adults."

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Dr. Keishla Rodriguez-Graciani gave a talk, Electrical Pulse Stimulation on SIRT1 Signaling and Mitochondrial Function in Ethanol-Treated Myotubes. **Selected for Oral Talk** in Session: Hot Topics in Endocrinology and Metabolism at the 2026 American Physiology Summit. This was also presented as a poster.



Dr. Jason Gardner (President) and **Stefany Primeaux** (Secretary) of the SOM Faculty Assembly were recognized at the Spring Faculty Meeting.



Notable events

Dr. Lauri Byerely was the Faculty Champion for Nutrition Education, SOM.
(https://www.medschool.lsuhs.edu/nutrition_curriculum_initiative/default.aspx)