

Pharmacology News

Volume 14, Issue 2
Spring 2025

TULANE UNIVERSITY SCHOOL OF MEDICINE DEPARTMENT OF PHARMACOLOGY

Message from the Chair: Dr. David Busija

Despite financial and administrative uncertainty concerning changes at the National Institutes of Health (NIH), the Tulane Pharmacology Department continues to prosper and make substantial advances in the areas of collaborative research, funding, graduate student education, service, and medical student instruction. The NIH is facing significant changes which include budget cuts, reorganization of institutes, and a shift in research priorities to areas such as chronic disease and epidemic prevention. *The most immediate concern is the planned reduction in indirect costs from current levels, which vary upon negotiations between NIH and research institutions, to a blanket overall level of 15%.* The current indirect cost rate for Tulane University School of Medicine is 55% of the direct costs for a grant. NIH also plans to consolidate several NIH institutes and centers into fewer, broader-in-scope entities. *In response, national organizations such as the American Society for Pharmacology and Experimental Therapeutics and the American Physiological Society, as well as elected officials and individuals, have voiced concerns about these changes. Whatever the outcome, these changes have not reduced our commitment to conduct state of the art research or reduce our level of grant submissions or interfere with our commitments to service and teaching.* Our faculty members continue to support NIH by serving on study sections. Several of our laboratories have expanded their efforts into new and exciting areas. The department has aided these efforts by investing in new equipment. We have purchased the BIO-RAD ChemiDoc Go system for the rapid analysis of western blots and the Applied BioPhysics ECIS Z-Theta instrument for measuring cellular behaviors in real time including proliferation, migration, and barrier function. We are considering quotes for an additional confocal microscope, and we are establishing a colony of genetically modified mice in which fibrinogen production is reduced by half to aid studies of pathophysiology of the cerebral circulation.

I want to applaud and thank the ceaseless efforts of the pharmacology faculty in their pursuit of grant funding for original research. *This year our faculty, fall and spring, has submitted approximately 15 individual NIH R01 or AHA grants and approximately 20 grants as Co-investigators on NIH or AHA grants.* This is a rough estimate, but this effort is in addition to their continued teaching efforts, both in the classroom and in the laboratory with their many trainees.

Dr. Sarah Lindsey awarded prestigious Student/Trainee Research Mentoring Award



Dr. Sarah Lindsey, right, was awarded the 2024 Student/Trainee Research Mentoring Award, presented by Dr. Tonette Krousel-Wood, Associate Provost for the Health Sciences, left, at the 2024 Research, Scholarship, and Artistic Achievement Award ceremony, Tulane University on Friday, November 1, 2024. This award recognized Dr. Lindsey, Associate Professor and Barbara B. Beckman Professor in Pharmacology, as an exceptional research mentor. Dr. Lindsey has made it a feature of her scientific endeavors and is deeply committed to mentoring students and Postdoctoral Fellows. All of the students in her laboratory are at different stages in their development as scientists. Dr. Lindsey has individualized training methods that can pinpoint gaps in knowledge or experience to mentor her trainees in their progress as scientists. She also has the rare ability to foster excitement in her

trainees in a well-balanced environment which allows for maximum educational benefit. She also freely offers career advice and support to other students or colleagues who approach her for input. As a mentor, scientist, professor, and with an active personal life, she is a premier mentor for students and fellows. Since coming to Tulane in 2012 Dr. Lindsey has mentored approximately 22 undergraduate students, 9 graduate students, 5 postdoctoral fellows, and 5 junior faculty members, contributing to their academic and professional development. Dr. Lindsey fully satisfies the criteria for her well-deserved award from Tulane as well as contributing to the collegial environment at Tulane University School of Medicine.

Faculty News

Dr. David Busija

- **Grant Submissions:** NIA, 02/2025, Role: PI
- **Journal Reviewer:** *American Journal of Physiology*
- **Professional Service:** (1) American Physiological Society (APS) Finance Committee; (2) Editorial Board: *American Journal of Physiology-Heart and Circulatory Physiology*; (3) Secretary Treasurer of APS - Cardiovascular Section; (4) Councilor for the Association of American Pharmacology Chairs

Dr. Stephen Braun

- **Grant Awards:** UTSW Contract Extension #2: R01 NS095867, "Directed Evolution of Novel AAV Capsids for Global CNS Delivery in Rodents and Primates," 01/01/2025–03/31/2025, \$36,732
- **Submitted Grants:** (1) NIH R01, 01/2025; (2) NIH R01, MPI with Drs. Partha Chandra and Manesh Panner Selvam, 05/07/2025

Dr. Jorge Castorena

- **Invited Speaker:** (1) "Insights into Mechanisms of Lymphatic Vessel Dysfunction in Secondary Lymphedema," Saint Louis University, Department of Pharmacology and Physiology, St. Louis, MO, 02/2025; and (2) "Insights into Mechanisms of Lymphatic Vessel Dysfunction in Secondary Lymphedema," University of Nebraska Medical Center, Department of Cellular and Integrative Physiology, Omaha, NE, 02/2025
- **Professional Service:** (1) Council and Committee Member of The Microcirculatory Society, Inc. (MCS); (2) Awards Committee - APS Cardiovascular Section
- **Editorial Boards:** Editorial Boards: *Frontiers in Physiology* (Research Topic Guest Editor)

Dr. Partha Chandra

- **Grant Submission:** (1) NIH R21 04/2024 (Role: PI, Co-PI: Dr. Manesh Panner-Selvam); (2) NIH R01, MPI with Drs. Stephen Braun and Manesh Panner Selvam, 05/07/2025
- **Invited Speaker:** (1) "Deactivation of androgen receptor with aging shows a link to mitochondrial dysfunction in mice cortical microvessels," American Physiological Summit, Foundational Science Session: "Cellular Signaling: Proteins, Pathways, and Mechanisms," Baltimore, MA, 04/26/2025.
- **Poster Presentations:** "Deactivation of androgen receptor with aging shows a link to mitochondrial dysfunction in mice cortical microvessels," American Physiological Summit 2025 (APS Summit 2025), Baltimore, MA, 04/26/2025.
- **Grant Reviewer:** Ad hoc Reviewer, NIH study section: Clinical Care and Health Interventions (CCHI) Re-

view Branch, 05/2025 ZRG1 CCHI-E (50) R meeting, 05/1–2/2025.

- **Journal Reviewer:** *Molecular Psychiatry*, *Science Signaling*
- **Service to SOM:** (1) Interviewer, Tulane Brain Institute PhD student recruitment, Neuroscience Program 02/14/2025; (2) Judge, Annual Tulane Brain Institute Retreat, PhD student oral presentation 02/15/2025

Dr. Prasad Katakam

- **Grant Submissions:** Submitted NIH and AHA grants as a co-investigator
- **Moderator of Symposium:** Sex Differences in Health and Disease, APS Summit, Baltimore, Friday, 01/25/2025
- **Grant Reviewer:** (1) NIH Study Section: Brain Injury and Neurovascular Disorders (BIND), 04/2025; (2) American Heart Association (AHA) IPA Vascular Basic Sciences peer review panel, Chairman and panel member, 05/07/2025; AHA TPA Brain peer review panel member, 05/08/2025
- **Professional Service:** (1) Chairman, Nominating Committee, Microcirculatory Society, US

Dr. Sarah Lindsey

- **Grant Submissions:** (1) AHA Established Investigator Award, 1/8/2025; (2) NIH R01, (Role: PI), 2/05/2025; and (3) R01, (Role: PI) 03/05/2025
- **Invited Speaker:** (1) "Career Pathways Panel, KUH PRIME Research and Training Symposium, UAB, Birmingham, AL, 01/17/2024; and (2) "Menopause-Induced Arterial Stiffness," Johns Hopkins Department of Physiology, Baltimore, MD, 03/19/2025

Dr. Ricardo Mostany

- **Grant Submissions:** (1) NIH R01, 02/2025, (Role: PI); (2) NIA R01, 02/2025, (Role: Co-I, PI: Dr. Engler-Chiurazzi); and (3) NIDA R21 (Role: Co-I, PI: Dr. Norton), 03/2025
- **Grant Reviewer:** (1) Sensory-Motor Neuroscience Study Section (Permanent Member), 04/2025, and (2) LA CaTS Center Pilot Grants, 04/2025
- **Journal Reviewer:** *European Journal of Pharmacology*, *iScience*
- **Outreach:** New Orleans STEM Fest - Tulane Brain Institute Volunteer, 03/15/2025

Dr. Ibolya Rutkai-Green

- **Poster Presentation:** (1) Senior author, "Sex-associated changes in the murine brain microvascular mitochondrial and extracellular matrix proteomes during aging," APS Summit 2025, Baltimore, MD, 04/24–27/2025, and (2)

Faculty News continued

Contributing author, "Deactivation of androgen receptor with aging indicates a link to mitochondrial dysfunction in mice cortical microvessels." APS Summit 2025, Baltimore, MD, 04/24–27/2025

- **Outreach:** Judge for the 2025 Research Appreciation Day (RAD) at University of North Texas Health Science Center, TX, 03/21/2025–3/26/2025
- **Professional Service:** Dissertation Committee member for Meagan Donovan, Louisiana State University Health Science Center

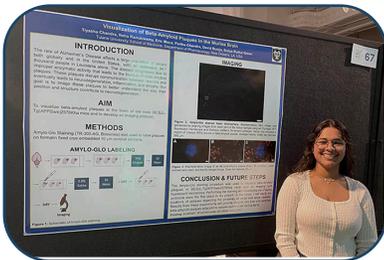
Dr. Rebecca Solch-Ottaiano

- **Awards:** "Outstanding Achievement and Commitment to Excellence in Total Competitive Research Funding," presented by Tulane School of Medicine at the 15th Annual Synergy Event, 02/21/2025

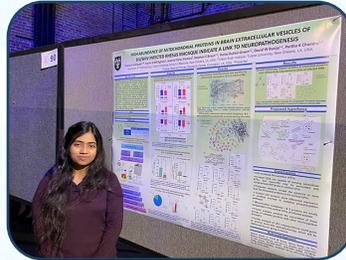
- **Grant Submissions:** LA CaTS Center Pilot Grants Program
- **Invited Speaker:** (1) Tulane Brain Institute Seminar, "Diet and Brain Health," 03/2025
- **Poster Presentation:** (1) "Validation of a humanized APOE E4 rat model: preliminary findings, Southern Society for Clinical Investigation, 02/2025; (2) "The Effect of Short- and Long-term Diets on Mechanisms of Healthy Brain Aging: A Protocol," Association for Clinical and Translational Research, 04/15-17/25, Washington D.C.
- **Journal Reviewer:** *Journal of Nutrition in Gerontology and Geriatrics*, *npj Parkinson's Disease*
- **Outreach:** Invited talk: "From Plate to Brain: The Gut-Brain Axis," Tulane University Neuroscience Association, 04/2025

Pharmacology Trainees Present - TRICS 2025

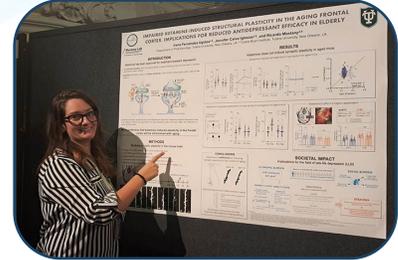
Tiyasha Chandra
RUTKAI-GREEN LAB



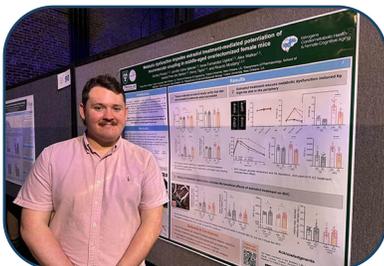
Tasniya Zulfiqar
CHANDRA LAB



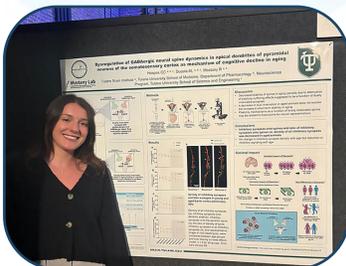
Dr. Irene Fernandez Uguidos
MOSTANY LAB



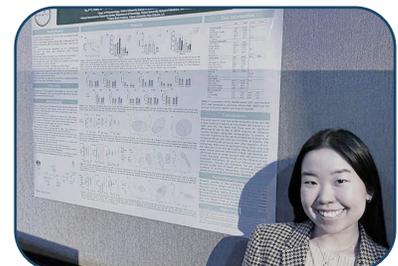
Zach Plumley
MOSTANY LAB



Courtney Hospes
MOSTANY LAB



Irene Yu
SOLCH-OTTAIANO LAB



University and SOM Committees: **Dr. Braun:** Tulane Primate Research Center (TNPRC) Space Committee; **Dr. Busija:** Tulane Professionalism Program Advisory Board; **Dr. Castorena:** SOM Nominating Committee; **Dr. Clarkson:** SOM Curriculum Committee; **Dr. Lindsey:** University Senate, SOM Grievance, SOM Curriculum, SOM BMS Retreat Committee; Tulane Professionalism Program Peer Messenger; **Dr. Katakam:** BMS: PhD Admissions Committee, Vice-Chair: GMF Personnel & Honors, Member: SOM Physician-Scientist Pipeline Program; Member: **Dr. Mostany:** Director, Tulane Brain Institute Neuroscience PhD Program; Neuroscience PhD Program Doctoral Training Committee; Tulane Brain Institute Executive Committee; Graduate Studies Committee (SSE); **Dr. Solch-Ottaiano:** Tulane Brain Institute Outreach Committee, Tulane Brain Institute Seminar Committee

Laboratory News: Pharmacology (Pharm), Brain Institute (BI), Neuroscience Undergraduate (NU), Neuroscience Program (NP), School of Science and Engineering (SSE), Biomedical Engineering (BE), Tulane National Primate Research Center (TNPRC), Public Health and Tropical Medicine (PHTM), Public Health Undergraduate (SPHU), Cell and Molecular Biology (CMB)

Laboratory of Dr. Castorena

Mary Schulz, (BMS) Ph.D. student presented a poster, "TRPV4-Mediated Lymphatic Contractile Dysfunction: Unraveling Sex Differences in Collecting Lymphatic Vessels" at the Tulane University Biomedical Sciences Retreat, 10/24/2024.

Laboratory of Dr. Partha Chandra

Tasniya Zulfiqar, Ph.D. student (NP) was first author on two posters, (1) "Altered ATP levels in cortical extracellular vesicle subpopulations in SIV/SHIV-infected rhesus macaque," presented at the Annual Tulane Brain Institute Retreat on 02/15/2025; and (2) "High abundance of mitochondrial proteins in brain extracellular vesicles of SIV/SHIV-infected rhesus macaque indicate link to neuropathogenesis," presented at the Tulane Research, Innovation, and Creativity Summit 04/9-10/2025 (TRICS 2025); and (3) passed her Ph.D. Preliminary Exams on 03/30/2025. **Congratulations Tasniya!**

Kurtis Willingham, Postdoctoral Fellow (Pharm), was first author on a poster, "Differential characteristics of isolated extracellular vesicles in relation to HIV-1 Tat," at TRICS 2025.

Jacey Paoli, MS student (Pharm) was first author on a poster, "Characterization of small extracellular vesicles from mesenchymal stem cells," presented at TRICS 2025.

Laboratory of Dr. Sarah Lindsey, [Our webpage](#)

Dr. Bruna Visniauskas, Instructor (Pharm) (1) submitted an NIH, R21 grant on 2/26/2025, and (2) was a reviewer for two journals: *British Journal of Pharmacology* and the *American Journal of Physiology-Renal Physiology*.

Laboratory of Dr. Ricardo Mostany

[Our website](#)

Zach Plumley (NP) **presented a poster**, "Metabolic dysfunction impedes estradiol treatment-mediated potentiation of neurovascular coupling in middle-aged ovariectomized female mice," TRICS 2025.

Sebastian Milanes, (M1) presented a poster, "Age-related dendritic changes in layer V pyramidal neurons of the dorso-medial prefrontal cortex," TRICS 2025.

Courtney Hospes, (NU) presented a poster, "Dysregulation

of GABAergic neural spine dynamics in apical dendrites of pyramidal neurons of somatosensory cortex as mechanism of cognitive decline in aging," TRICS 2025.

Dr. Irene Fernandez Ugidos, Postdoctoral Fellow (Pharm) (1) gave a seminar, "Aging and synaptic plasticity: implications for ketamine-induced dendritic spine remodeling in the frontal cortex," Pharmacology Department Seminar, 04/04/2025, and (2) presented a poster, "Impaired ketamine-induced structural plasticity in the aging frontal cortex: implications for reduced antidepressant efficacy in elderly," TRICS 2025

Contributing authors from the **Mostany Lab** to the posters presented above include: Jennifer Calvo-Iglesias, Alexis Ducote, A. Walker, I. Pires Dos Santos, and H. Taylor

Laboratory of Dr. Ibolya Rutkai-Green

Neha Ramaswamy (Pharm) presented a poster, "Mitochondrial changes in the aging microvasculature," was author on another poster, "Visualization of beta-amyloid plaques in the murine brain," at TRICS 2025.

Tiyasha Chandra (SSE) (1) presented a poster, "Visualization of beta-amyloid plaques in the murine brain," at TRICS 2025; and (2) received a \$1,500 research award from Newcomb-Tulane College, Undergraduate Research & Fellowships, Undergraduate Grants & Programs, 05/02/2025.

Laboratory of Dr. Rebecca Solch-Ottaiano

Irene Yu (BI, NP), presented a poster, "The Effect of a Short-Term Diet Intervention on Brain Health and Sex-Dependent Differences," at TRICS 2025.

Malaika Subramanian (NU) presented a poster, "Effects of Diet and Strain on Cognitive Performance," at TRICS 2025.

Nicholas Prus (NU), presented a poster, "A Perspective on the Mediterranean Diet: A Shift Towards Adaptability," at TRICS 2025.

Sanjana Punyamurthula (SOM) presented a poster, "A Perspective on the Mediterranean Diet: A Shift Towards Adaptability," at TRICS 2025.

Masters in Pharmacology Graduate Spotlight: Amélie Jacobs, M.S. M.D. Candidate, Class of 2028



I grew up in France, had family in the UK, and was an undergraduate at McGill University in Canada, where I volunteered for a comparative healthcare systems program between Canada, the US, and Taiwan. I have witnessed various aspects of healthcare, both culturally and practically. I feel fortunate to have had this background. Advocating for global health, while simultaneously learning about biochemistry and epidemiology, I knew I would someday end up in the field of medicine, and am driven by a desire to integrate my global background into medical practice.

Following my undergraduate studies, I knew my education wouldn't end there, so I chose to pursue the Pharmacology Master's program at Tulane. My background in biochemistry provided a strong foundation for understanding the intricacies of medical pharmacology. ***With the guidance of my mentors—Dr. Katakam, Dr. Mostany, and Dr. Clarkson—I came to realize that my lifelong dream of attending medical school was truly within reach. They not only believed in me but also equipped me with the tools to succeed.***

Now, as I learn new material each day in medical school, I often reflect on how pivotal my time in the pharmacology program was. ***Choosing to pursue it was one of the best decisions I have made—it laid an essential foundation for my medical education, and I couldn't be more grateful to have completed it. I'm especially***

thankful for the continued support of the pharmacology department, and I always enjoy catching up with Linda Martin during breaks between labs and studying!

New Faces in Pharmacology



Pictured from left to right are Dr. Swathi Pasupulati, Dr. Kurtis Willingham, and Claire Alexander.

Dr. Swathi Pasupulati is a Postdoctoral Fellow working with **Dr. Katakam**. She has a Ph.D. in Nutrition from the Indian Council of Medical Research, National Institute of Nutrition in India. Before coming to Tulane, she was as a Research Scientist-III at the National Institute of Nutrition in India. She will be studying the cerebral microcirculation in the **Katakam Lab**. **Dr. Kurtis Willingham** has a Ph.D. in Aging Studies from Tulane University and is a Postdoctoral Fellow in the **Chandra Lab** working on the effects of HIV-associated extracellular vesicles and aging on blood-brain barrier dysfunction, neurodegeneration, and cognitive decline. **Ms. Claire Alexander** is a Ph.D. student in Neuroscience working in the **Mostany Lab**. Claire earned a B.S. in Biology from LSU, and an M.S. in Biology from Lamar University where she was a Teaching Assistant. Claire is in the in the Neuroscience Ph.D. Program. She is studying the impact of stress on Alzheimer's Disease pathology and behavior.

Thank you to those who have donated to The Dr. Krishna C. Agrawal Education Fund to support our students

This endowed fund supports students in the Department of Pharmacology.

To read the biography of Dr. Krishna please go to: [Agrawal Fund](#)

To support Pharmacology students through The Dr. Krishna C. Agrawal Education Fund or to make a gift to the Department of Pharmacology, please contact Michael Johnson, Senior Development Officer

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Publications

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1430 Tulane Avenue, Suite 3700, #8683, New Orleans, LA 70112; Phone: 504-988-5444

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Chair: Dr. David W. Busija

Department Administrator: Debbie Sanders

Senior Editor/Newsletter Preparation: Nancy Busija

Newsletter Oversight: Dr. Sarah Lindsey

Departmental Mission Statement:

We will educate and train medical and graduate students in the principles of pharmacology using modern techniques and will conduct state-of-the-art research in pharmacology-related fields in order to expand the frontiers of science and medicine.