

# Pharmacology News

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TULANE UNIVERSITY SCHOOL OF MEDICINE DEPARTMENT OF PHARMACOLOGY

## Message from the Chair: Dr. David Busija

The Department of Pharmacology continues to prosper and make major advances in career advancement, research findings, extramural funding, professional service activities, and education. There have been recent noteworthy achievements to highlight. **First**, Dr. Ricardo Mostany has been promoted to the rank of Full Professor in recognition of his research, teaching, and service activities. **Second**, Dr. Ibolya Rutkai, Assistant Professor, has advanced to the tenure track and received her first NIH R01 Grant, entitled “Understanding the role of the cerebral microvasculature in brain aging.” **Third**, Dr. Partha Chandra’s recently accepted paper on fibrinogen and the brain microcirculation during aging, published in *GeroScience*, was immediately lauded by a column on the non-profit website, Lifespan.io: “A Key Reason Why Brain Protection Declines with Aging.” **Fourth**, our graduate and medical student teaching, under the direction of Dr. Craig Clarkson, continues to prosper, providing excellent instruction in our educational programs. And **fifth**, our seminar program continues to excel with excellent speakers such as Dr. Bina Joe, who featured her research during our *Twenty-third Annual James W. Fisher Distinguished Lectureship*.

## Dr. Ricardo Mostany promoted to Professor

*It is my pleasure to announce the promotion of Ricardo Mostany, Ph.D.*, to Full Professor in the department, starting on July 1, 2023. Dr. Mostany received his Ph.D. from the Universidad de León, León, Spain in 2001. After post-doctoral fellowships at the Universidad de Cantabria in Spain and UCLA, he joined our faculty as an Assistant Professor on the tenure track in 2012. Dr. Mostany earned his promotion to Professor based upon his excellence in research productivity, extramural funding, teaching, and service. His research focuses on plasticity of the central nervous system to understand how the brain repairs itself after injury and to facilitate its recovery during rehabilitation therapy. Cortical circuits show a certain degree of plasticity during normal brain functions (e.g., sensory stimulation, memory storage and learning). Plasticity can be altered during development, e.g. autism, but also when the brain is perturbed/damaged (for example during sensory deprivation or stroke). Using state-of-the-art imaging techniques: two-photon laser microscopy in combination with transgenic mice expressing fluorescent proteins in cortical pyramidal cells, he studies the dynamics of dendritic spines in vivo during normal brain function and how these dynamics change in different models of study, e.g., ischemia, aging, sensory stimulation, etc. Dr. Mostany has shown leadership in education by becoming the Director of the Tulane Neuroscience Graduate Program. **Let’s congratulate Dr. Mostany!**



## Dr. Ibolya Rutkai receives \$2,825,855 from National Institute on Aging to study the effects of aging on the brain vasculature and mitochondria



**Dr. Ibolya Rutkai**, Assistant Professor of Pharmacology, has been awarded a \$2,825,855 grant to study the effects of aging on the brain vasculature and mitochondria, and how to counteract these changes. Our understanding of the basic processes leading to aging associated pathologies such as Alzheimer’s disease and other dementias remains limited. The vascular network of the brain occupies a large portion of the brain volume. Delicate orchestration of the small and large vessel functions is critical in the maintenance of cerebral blood flow and healthy brain functioning. The impact of aging on the brain vasculature is multifaceted and includes structural and functional changes of vascular beds as well as adverse cellular function.

One of the determinants of vascular cellular health is mitochondrial health. These small, energy producing organelles are referred to “as the powerhouses of the cell”; however, they are more than that. Mitochondria are involved in multiple biological processes, serve as important sensors of the environment, interact with each other, and play a crucial role in adaptation due to their dynamic nature. Thus, mitochondria are sensitive to stress and changes that occur during aging.

**The overall goal of her grant is to investigate how aging and decreased cerebral blood flow affect mitochondria in the brain microvasculature.** The studies, coupled with two-photon microscopy and genetically labeled mitochondria, will provide new insights into real-time mitochondria-related mechanisms that may serve as potential targets for improving adaptability during aging and aging-associated diseases.

## Pharmacology welcomes Dr. Bina Joe to deliver the Twenty-Third Annual James W. Fisher Distinguished Lecture in Pharmacology

**Dr. Bina Joe** began her life's work of studying the causes of hypertension with her move to the University of Toledo in 2001. *The Physiological Genomics Lab (Joe Lab)* uses an integrated approach to genetics, epigenetics, genomics, physiology of model organisms, and bioinformatics to delineate the genetic elements controlling blood pressure. *Her laboratory was the first to use CRISPR-Cas9 gene editing to positionally clone non-coding variants causing hypertension.* More recent pioneering discoveries of her laboratory include (1) the identification of gut microbiota as causal factors for blood pressure



regulation, (2) the ketone body betahydroxybutyrate as an antihypertensive metabolite, (3) the link between energy metabolism and hypertension and (4) the association between diurnal rhythms of gut microbiota with hypertension. Dr. Joe's lab is on the cutting edge of new research on the gut biome and how it influences blood pressure. *New efforts are toward using artificial intelligence to drive accumulation of data for these efforts.* She is a national and internationally recognized leader in hypertension research, organizing conferences in both Japan and China.

## Faculty News

### Dr. David Busija

- **Invited Speaker:** "Mitochondrial dynamics in the cerebral vasculature during health and disease," Pharmacology Seminar Series, Tulane School of Medicine, 9/15/23
- **Grant Submissions:** (1) NINDS, 7/23; and (2) NIA, 11/23
- **Grant Reviewer:** NIH, Atherosclerosis and Vascular Inflammation Study Section, 10/23
- **Professional Service:** (1) American Physiological Society (APS) Finance Committee; (2) member of the Editorial Board: *American Journal of Physiology-CV and Heart Physiology*, (3) Secretary Treasurer of the Cardiovascular Section of APS, (4) Elected as Councilor for Association of Medical School Pharmacology Chairs

### Dr. Stephen Braun

- **Grant Awards:** (1) "Advanced Generation Infection-proof Anti-HIV CAR T with YY1 RNAi to Block T cell Exhaustion," PI (subcontract): Braun, \$539,556 & Contract TNPRC \$1,125,835, PI: Richard Paul Junghans; (2) NIH NIDA R01 DA056875 "Ionic Liquid-Assisted Drug Delivery to Brain Reservoirs for Treatment of NeuroHIV," MPI (subcontract): S. Braun, V Traina-Dorge; MPI: Eden Tanner, Jason Paris, \$1,439,458, MPI (subcontract): S. Braun, V Traina-Dorge; (3) 2023 TNPRC Career Enhancement Grant, "Develop A Novel Quantitative Viral Infection Assay and Evaluate the Sensitivity in Tissue Samples," 9/1/23-8/31/24, \$5,000
- **Grant Submissions:** R21 NIH NIAID, MPI with S. Braun and P. Chandra
- **Journal Reviewer:** *iScience, Stem Cells Review and Report, Tissue Cell*

### Dr. Jorge Castorena-Gonzalez

- **Invited Speaker:** (1) "Trpv4 Modulation of Lymphatic Vascular Function: Implications in Metabolic Syndrome, Lymphatic Forum 2023. North American Vascular Biology Organization, Banff, Alberta, Canada, 6/23; and (2) "Novel Insights from Spatiotemporal Calcium Imaging in the Microcirculation. Trpv4-

mediated regulation of lymphatic vascular function and dysfunction," Vascular Biology 2023, North American Vascular Biology Organization, MCS President's Symposium, Newport, RI, 10/23

- **Journal Reviewer:** *Scientific Reports, Microcirculation, Journal of Vascular Research, MDPI, and Life Sciences*
- **Editorial Boards:** *Frontiers in Physiology* (Editor), *Microcirculation - Lymphatic System Research Special Topics Issue* (Guest Editor)
- **Professional Service:** (1) Council and Membership Committee Member - The Microcirculatory Society, Inc., and (2) Awards Committee - APS Cardiovascular Section

### Dr. Partha Chandra

- **Grant Award:** "Understanding the role of the cerebral microvasculature in brain aging," PI: Ibolya Rutkai, Co-I: Partha K Chandra, 8/01/2023-4/30/2028
- **Award:** "Early Career Investigator Travel Award," The American Society for Interdisciplinary Communication Annual Meeting, 2023, Bolger Center, Potomac, Maryland, 10/12-14/23
- **Invited Speaker:** "Plasma extracellular vesicle proteins show evidence of CNS dysfunction in SHIV-infected rhesus macaque," the American Society for Interdisciplinary Communication Annual Meeting 2023, Bolger Center, Potomac, Maryland, 10/13/23
- **Grant Submission:** (1) Two NIH R01 grant submissions as PI, 9/23; (2) R21, MPI with Stephen Braun, 9/23, (3) R01 as Co-I, David Busija PI, 7/23; and (4) R01 as Co-I, PI: Andrew G. MacLean, 8/23
- **Service to SOM:** Poster Judge at the Tulane BMS Retreat, 10/2023
- **Grant Reviewer:** NIH Study Section: HIV Immunopathogenesis and Vaccine Development, 7/13-14/2023
- **Journal Reviewer:** *Journal of Agricultural and Food Chemistry and Cellular and Molecular Life Sciences*

### Dr. Suttira Intapad

- Please see Pages 4 and 6

## Faculty News continued

### Dr. Prasad Katakam

- **Grant Award:** NIA, R01 AG082899, "The Role of Viral Exposure and Age in Alzheimer's Disease Progression," PI: Zvezdaryk, Co-I: Katakam
- **Grant Submissions:** (1) LACaTS Pilot Grant: MPIs: Rajesh Mohandas (LSUHSC) and Prasad Katakam (Tulane); (2) Co-Investigator of four NIH RO1 grants and co-sponsor of AHA postdoctoral fellowship grant, LA
- **Invited Speaker:** (1) "Female Sex and Age Dependent Paradoxical Alterations of Mouse Brain Microvascular Bioenergetics," symposium: Vascular Dementia; Brain & Brain PET 2023, Brisbane, Australia, 6/15/2023; (2) "Two-photon microscopy as a tool to study cerebrovascular function in mice," Education course: Adding long-term functional testing to existing preclinical brain injury research, Brain & Brain PET 2023, Brisbane, Australia, 6/12/2023; (3) "Mechanisms Regulating Cerebral Microvascular Bioenergetics," LMU CDM Distinguished Lecturer Seminar Series, Lincoln Memorial University College of Dental Medicine, Knoxville, Tennessee, 9/3/2023; (4) "Impact of hypoglycemia on the interaction of erythropoietic system with brain microvasculature and neurons," Session: Vascular Cell-Cell Communication II, Tulane University, New Orleans, 7/17/2023; (5) "Cerebral Microvascular Bioenergetics: Impact of Sex, Aging and Stroke," Symposium 11: Novel mechanisms and therapies to mitigate secondary brain damage, 41st Annual Meeting of the Indian Academy of Neurosciences; International Conference on Brain: Chemistry to Cognition, Gwalior, India; 10/5/2023; (6) "Regulation of Cerebral Microvascular Bioenergetics by Sex, Age, and Hypoglycemia," Department of Cancer Biology and Pharmacology, University of Illinois College of Medicine at Peoria, Department of Cancer Biology and Pharmacology, 10/19/2023
- **Grant Reviewer:** (1) NIH NHLBI Program Project Study Section, 10/24/2023; (2) NIH Study Section: Acute Neural Injury and Epilepsy Study Section (ANIE), Co-Chairman, 6/22/23 and 10/26/23, (3) 2023/05 ZRD1 NURC-C (01) 1 Neurobiology; VA Biomedical Laboratory/Clinical Science (BL/CS) Scientific Merit Review Board, 11/30/2023
- **Outreach:** Judge of Poster Presentation Competition, 41st Annual Meeting of the Indian Academy of Neurosciences; International Conference on Brain: Chemistry to Cognition, Gwalior, India; 10/5/2023
- **Professional Service:** Chairman, Nominating Committee (American Physiological Society Cardiovascular Section and Microcirculatory Society)

### Dr. Sarah Lindsey

- **Grant Submissions:** (1) NIH R01, 10/2023; (2) NIH R01, 11/2023
- **Invited Speaker:** (1) "Impact of Estrogen Loss on Vascular Health," Vasculata - North American Vascular Biology Organization, New Orleans, LA, 7/19/23; (2) "Vascular Changes After Menopause," LSUHSC Cardiovascular Center, 8/29/23; (3) "Vascular Changes After Menopause," Medical College of Wisconsin, 9/27; (4) "Loss of the Contractile Phenotype after Estrogen Loss," Tulane Cell & Molecular Biology, 10/13/23
- **Moderator:** Session: "Orphan and Novel Receptors," AHA Hypertension Scientific Sessions, Boston, MA, 9/8/2023
- **Poster Presentations:** (1) "G Protein-Coupled Estrogen Receptor (BPER) Stimulation Attenuates Hypertension and Cardiac Dysfunction in the Reduced Uterine Perfusion Pressure Model of Preeclampsia," AHA Hypertension Scientific Sessions, Boston, MA, 9/7-1/23
- **Grant Reviewer:** NIH IVPP Study Section, 10/23-24/23
- **Editor and Editorial Boards:** (1) Associate Editor: *Endocrine Research*; (2) Editorial Board: *Biology of Sex Differences*; (3) Editorial Board: *American Journal of Physiology-Heart & Circulatory*

### Dr. Ricardo Mostany

- **Grant Submissions:** (1) NIMH, R01, 9/23, Chandra as PI, Mostany Co-I (2) NIA, R21, 10/23, (Belancio, PI; Mostany, Co-I; and (3) Alzheimer's Association, 11/23, PI: Belancio, Mostany as Co-I
- **Poster Presentations:** (1) "Role of the cannabinoid receptor type 2 in microglia function in a mouse model of Alzheimer's disease," 16th European Meeting on Glial Cells in Health and Disease, Berlin, Germany, 7/8-11/2023. (2) "The role of microglia in 5xFAD/FAAH<sup>-/-</sup> mice: An in vivo multiphoton microscopy and molecular study," 33rd Annual International Cannabinoid Research Society Symposium, Toronto, Canada, 6/24-29/2023
- **Grant Reviewer:** (1) NIH Center for Scientific Review (CSR), Neurodegeneration: Alzheimer's, Parkinson's, and Related Dementia special emphasis panel (ZRG1 AN-T(90)), 5/23; (2) Ad hoc reviewer: NIH Center for Scientific Review, Sensory-Motor Neuroscience Study Section, 10/2023; and (3) Society for Neuroscience's Trainee Professional Development Awards (TPDA), 7/23

### Dr. Ibolya Rutkai

- **Grant Award:** R01 NIH/NIA, PI: Rutkai, "Understanding the role of the cerebral microvasculature in brain aging," 8/01/23 - 04/30/28, \$2,825,855

**University and SOM Committees:** **Dr. Braun:** Tulane Primate Research Center (TNPRC) Space Committee; **Dr. Busija:** Tulane Professionalism Program Advisory Board; **Dr. Castorena-Gonzales:** SOM Nominating Committee; **Dr. Clarkson:** SOM Pass/Fail Task Force, BMS Steering, Student Professionalism & Promotion, Phase 2 Curriculum Advisory, Innovation Council; **Dr. Lindsey:** University Senate, Professionalism Program Peer Messenger, Faculty Co-Advisor, Tulane Chapter of the American Medical Women's Association, LACaTS Advisory Board, SOM Medicine Grievance, SOM Curriculum, Biomedical Sciences Retreat Committee; **Dr. Intapad:** Faculty Advisory, BMS Social Media-Recruiting; **Dr. Katakam:** BMS PhD Admissions, BMS Steering (Standby), GMF Faculty Advisory and Admissions, Vice-Chair; GMF Personnel & Honors, SOM Admissions Committee; **Dr. Mostany:** Director, Tulane Brain Institute Neuroscience PhD Program, Tulane Brain Institute Executive Committee, Student Professionalism and Promotion (SOM), Graduate Programs Committee, (SSE), and Society for Neuroscience's Trainee Professional Development Awards (TPDA) Selection Committee.

## Master's in Pharmacology Graduate Spotlight: Anna Alvarado, M.D./M.P.H. Candidate Tulane SOM Class of 2024



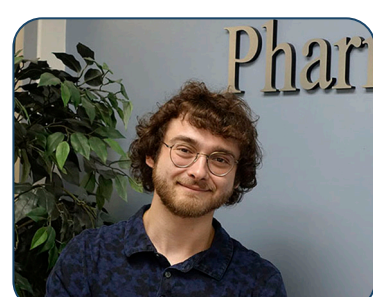
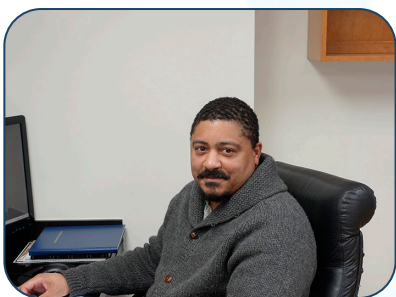
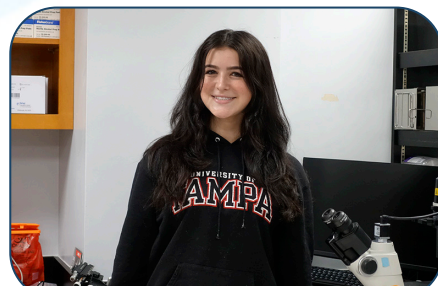
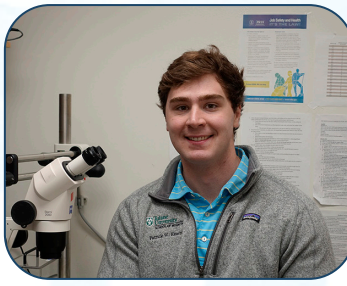
After earning my Bachelor of Science, I took an unconventional path to medical school. Opting for a break from academia, I spent several years as a clinical researcher in the pharmaceutical industry. Uncertain about directly returning to school, *I applied to Tulane's Masters of Pharmacology program to deepen my understanding of medicine, enhance my knowledge in pharmacology and pharmacokinetics, and instill effective study habits for the challenges of medical school.*

My time in the master's program was transformative, shaping me into the student I am today. The mentorship that Dr. Katakam and Dr. Clarkson provided me was invaluable in helping me prepare for medical school. There were also opportunities to be involved in research and was exposed to leaders in the medical and pharmacological field through didactics and grand rounds. I was able to work with Dr. Braun on a project that we were able to publish by the time I finished my degree. *The program also provided a space for me and my fellow cohort members to develop lifelong relationships that continues to this day.*

Tulane's Master of Pharmacology program not only nurtured my passion for learning but also equipped me with foundational skills for success in medical school and beyond. *As a fourth-year medical student at Tulane School of Medicine, I continue to look back fondly at my time there and it continues to be a main talking point for me during my residency interviews. I am grateful for the opportunities the program opened for me, and I cannot wait to see how it continues to grow in the future.*

## New Faces in Pharmacology

There have been a number of additions to the laboratories in Pharmacology. In the **Chandra lab** are **Tasniya Zulfiquar** (upper left) and **Roma Kolluru** (lower middle); In the **Castorena-Gonzales lab** is **Tatia Goldberg** (upper right); in the **Rutkai lab** are **Trevon Clark** (lower left) and **Eric Moca** (lower right); and in the **Mostany lab** is **Patrick Kearns** (upper middle). There are three new



additions to the **Lindsey lab**: **Hannah Petillo**, **Alexis Walden**, and **Nikil Jasti**. Please refer to Laboratory News, Page 5, for more information on all of our new staff and students in Pharmacology.

*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,

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Tulane University School of Medicine Office of Development #8745, 1430 Tulane Avenue, New Orleans, Louisiana 70112

**Laboratory News:** Pharmacology (Pharm), Brain Institute (BI), Biomedical Sciences (BMS), 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), Cell and Molecular Biology (CMB)

### Laboratory of Dr. Partha Chandra

**Tasniya Zulfiquar**, Ph.D. student (NP), has joined the Chandra lab. Tasniya has an MS in Pharmacology and has worked for BSMRSTU and Square Pharmaceutical LTD, both in Bangladesh. She is working on the characterization and functional activities of extracellular vesicles.

**Roma Kolluru**, (NU) has joined the Chandra lab. She is studying the effects of size, charge, and concentration of small vs. large extracellular vesicles via ultracentrifugation and ZETAVIEW Protein Analysis.

### Laboratory of Dr. Castorena-Gonzalez

**Mary Schulz**, Ph.D. student (BMS), presented three posters with the title "Trpv4 Regulation of Lymphatic Function in Diet-Induced Obesity," at (1) NAVBO Lymphatic Forum 2023, Banff, Alberta, Canada 6/2023; (2) NAVBO Vasculata 2023, Tulane University, New Orleans, LA, 7/2023; and (3) Tulane BMS Fall Retreat, New Orleans, LA, 10/2023. Mary also received (4) a travel award to attend the NAVBO Lymphatic Forum, and (5) a poster award at the Lymphatic Forum 2023, awarded by the North American Vascular Biology Organization (NAVBO) and the Lymphatic Education & Research Network (LE&RN), Banff, Alberta, Canada, 6/2023.

**Tatia Goldberg**, (PHTM) has joined the Castorena-Gonzalez lab. Tatia is a Sophomore at Tulane.

### Laboratory of Dr. Suttira Intapad

**Benjamin Bhunu** passed his Ph.D. thesis defense on 7/24/23. **Congratulations Ben!!**

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

**Dr. Bruna Visniauskas**, Instructor (Pharm) (1) presented a poster, "Disruption of blood pressure rhythms and circadian gene expression in hypertensive males and females, Vasculata, New Orleans, 7/17-20/2023; (2) submitted a Sleep Society CDA, 9/2023; and (3) submitted a Tulane-TUTSI Pilot Grant Program, 10/2023.

**Isabella Kilanowski-Dorah**, Ph.D. student (BMS), presented a poster, "Impact of the Timing of Hypertension on the Cardiovascular Response to Estrogen," at the 2023 Annual Biomedical Research Conference For Minoritized Scientists (ABRCMS), Phoenix, AZ, 11/15-18/2023.

**Richard Chase**, (SSE), (1) gave a seminar, "Role of arterial stiffness in dendritic plasticity and neurovascular coupling after estrogen loss," at NAVBO In-Focus Online Session on Vascular Bioengineering, 9/28/2023; (2) presented a poster at Society for Neuroscience, "Interaction of Estrogen loss and Cardiovascular Disease in Neurovascular Coupling," 11/11-15/2023, Washington, DC; (3) submitted an NIH Diversity Supplement, 9/2023; and (4) passed his Ph.D. preliminary exam, 11/2023. **Congratulations Richard!!**

**Ariane Imulinde Sugi**, (BMS), (1) presented a poster, "Impact of the Timing of Hypertension on the Cardiovascular Response to Estrogen," at ABCRMS, 11/15-18, Phoenix, AZ; (2) was given a sponsorship award from the Tulane BMS Program to attend the 2023

ABRCMS; and (3) submitted an AHA Predoctoral grant.

**Dr. Ana Paula de Oliveira Leite**, Postdoctoral Fellow (Pharm) (1) presented a poster, "Impact of cardiovascular disease prior to menopause on the protective effects of estrogen in cardiometabolic health," at Vasculata, New Orleans, LA, 7/17-20/2023; and (2) submitted an AHA Postdoctoral Grant.

**Alex McNally**, Research Technician (Pharm), presented a poster, "Estradiol Treatment Reverses Ovariectomy-Induced Arterial Stiffening," at Vasculata, New Orleans, LA, 7/17-20/2023.

Other authors on the posters presented above included: *Fernandez-Ugidos I, Diaz ZT, Ogola BO, Harris NR, Menon R, and Walker A*, neuroscience faculty member Jill Daniel, as well as faculty collaborators and mentors **Drs. Sarah Lindsey and Ricardo Mostany**.

Three students have joined the Lindsey lab: **Hannah Petillo** (NP) and **Alexis (Lexi) Walden** (NU) are working with **Dr. Ana Leite** in the Lindsey laboratory on the impact of estradiol on vascular health and implications for cognitive aging. **Nikhil Jasti**, undergraduate (CMB), is working with hypertensive rats on the uptown campus.

### Laboratory of Dr. Ricardo Mostany [Our website](#)

**Cemo Semmedi**, Ph.D. student (NP), presented a poster (1) "Amyloid- $\beta$  pathology exacerbates aging-induced dysregulation of C1q expression in cortical neurons." Alzheimer's Association International Conference in Amsterdam, Netherlands, 7/16-20/2023; (2) "Age-related alterations in the expression of neuronal regulators of synaptic plasticity in the mouse cortex," Neuroscience Meeting Planner, Washington, DC, Neuroscience 2023, 11/11-15/2023; and (3) defended her Dissertation Prospectus, 5/31/2023. **Congratulations Cemo!!**

**Alexis Ducote** (NP) (1) presented a poster, "Volumetric volatility of apical dendritic spines is decreased in layer 5 pyramidal neurons of the aging somatosensory cortex," and (2) received a Connolly Alexander Summer Graduate Research Award from the Tulane University Connolly Alexander Institute for Data Science. **Congratulations Alexis!!**

**Zach Plumley** (NP) defended his Qualifying Examination, 11/10/2023. **Congratulations Zach!!**

**Patrick Kearns** (M2) has joined the Mostany Lab where he is studying Alzheimer's disease and surgical techniques for mice models. Patrick has a BA from Virginia Tech and an MS from the Tulane Masters in Pharmacology Program. He is following an MD/MBA course of study.

### Laboratory of Dr. Ibolya Rutkai

**Trevon Clark**, Medical Research Technician, joined the Rutkai Lab on 10/2/23. Trevon holds a B.S. in Biology from Clark Atlanta University. He is studying endothelial mitochondria in the brain vasculature.

**Eric Moca** (M2), has joined the Rutkai laboratory. Eric is in the DeBakey Scholar program and is studying endothelial mitochondria in the brain vasculature during aging. He has a BA in Biochemistry and Neuroscience from Grinnell College, Grinnell, IA.

## Publications

Alencar AK, Swan KF, **Lindsey SH**, Bayer CL. (2023) Connecting G protein-coupled estrogen receptor biomolecular mechanisms with the pathophysiology of preeclampsia: a review. *Reproductive Biology and Endocrinology*. 21(1):60. PMID: 37393260

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Abdullah S, Ghio M, Cotton-Betteridge A, Vinjamuri A, Drury R, Packer J, Aras O, Friedman J, Karim M, Engelhardt D, Kosowski E, Duong K, Shaheen F, McGrew PR, Harris CT, Reily R, Sammarco M, **Chandra PK**, Pociask D, Kolls J, **Katakam PV**, Smith A, Taghavi S, Duchesne J, Jackson-Weaver O. Succinate metabolism and membrane reorganization drives the endotheliopathy and coagulopathy of traumatic hemorrhage. *Sci Adv*. 2023 Jun 16;9(24):eadf6600. (PMID: 37315138)

Seman A, **Chandra PK**, Byrum SD, Mackintosh SG, Gies AJ, **Busija DW**, **Rutkai I**. Targeting mitochondria in the aged cerebral vasculature with SS-31, a proteomic study of brain microvessels. *GeroScience*. 2023 Oct;45(5):2951-2965. doi: 10.1007/s11357-023-00845-y

Daniel, JM, **Lindsey SH**, **Mostany R**, Schrader, LA, Zsombok A. (2023). Cardiometabolic health, menopausal estrogen therapy and the brain: how effects of estrogens diverge in healthy and unhealthy preclinical models of aging. *Frontiers in Neuroendocrinology*, 70:101068. PMID: 37061205

**Intapad S** Uromodulin and Estrogen, *Kidney360*, 4(9):p e1201-e1202, online September 18 2023, doi: 10.34067/KID.0000000000000259

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**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.*