

# Pharmacology News

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TULANE UNIVERSITY SCHOOL OF MEDICINE DEPARTMENT OF PHARMACOLOGY

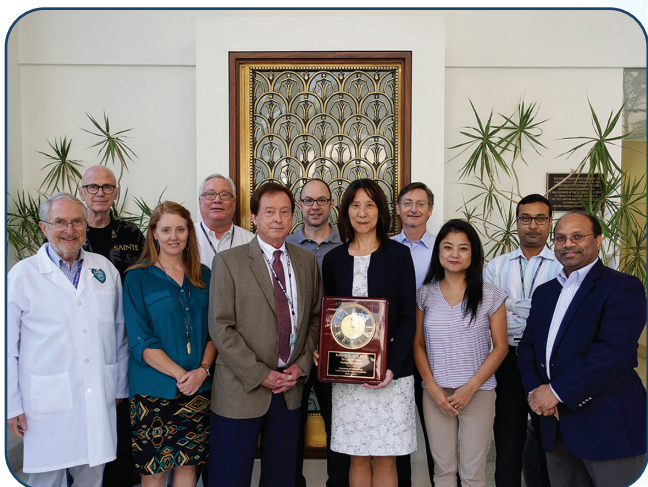
## Message from the Chair: Dr. David Busija Collaborations

*In the second article in a series highlighting the collaborative activities of the Pharmacology faculty, I focus on a faculty member who has played a valuable, major role in fostering the health and progress of the Department of Pharmacology as an inspiring mentor of early and middle level as well as established investigators in the department and across the university. **John A. McLachlan, Ph.D.** is a Professor of Pharmacology and holds the Celia Scott Weatherhead & Albert J Weatherhead III Distinguished Professor of Environmental Studies. **John has been a leader, past and present, in understanding the global health implications of chemicals in the environment that act like estrogens and has spent his career studying the effects of drugs and environmental toxins on the human body.** He is a national leader in the field of Environmental Health and in 2014 gave the 45th Homer N. Calver Lecture at the American Public Health Association's 142 annual meeting. John received his education at Johns Hopkins University (B.A., 1965) and at George Washington University (Ph.D., 1971). **He spent the early part of his career (22 years) at the National Institute of Environmental Health Sciences (NIEHS) in North Carolina where he established the institute's clinical research program, which studies the environmental components of human disorders and women's reproductive health. He has always been at the forefront of cutting-edge, and sometimes controversial themes in the environmental health area. John is generous with his time and knowledge to mentor fellow scientists.***

***John has been a recent participant in the acquisition of two major grants awarded to Tulane University.** Dr. James McLachlan, Associate Professor of Microbiology and Immunology was awarded a \$1 million grant from the W. M. Keck Foundation to study how biological sex differences shape disparate immune responses in men and women. John and Dr. Franck Mauvais-Jarvis, Professor of Medicine and Price-Goldsmith Professor of Nutrition are co-investigators on that grant. **Their goal is to learn more about how immune systems evolve differently in the two sexes and to use this information to create more precise treatments for men and women against a variety of diseases.***

***John is also a participant, as a member of the Executive Committee for creation of a U24 Telomere Research Network that supports efforts of 4 U01s across the country, in an international effort funded by the National Institute of Aging (NIA) and NIEHS.** The Principal Investigator at Tulane is Dr. Stacy Drury. Dr. Drury holds the Remigio Gonzalez MD Endowed Professorship of Child Psychiatry, Associate Professor of Psychiatry and Child Psychiatry, and Vice Chair of Research, Department of Pediatrics. The purpose of the grant is to examine the use of telomere length as a marker of psychosocial and environmental exposure and a predictor of health and aging. This five year, 2.9 million (direct cost) award places Tulane at the center of an international network charged with coordinating validation studies, large cross lab comparisons, and establishing best practices. **Dr. McLachlan's previous experience as the Scientific Director of NIEHS and as the Director of the Endocrine Network was valuable in writing the grant application.***

## The Twenty-Second Annual James W. Fisher Distinguished Lectureship in Pharmacology Dr. Rong Tian



***Dr. Rong Tian** (holding commemorative plaque) with Dr. Busija and Department of Pharmacology faculty, delivered the annual Fisher lecture on October 11, 2019. Dr. Tian's topic, "**Mitochondrial Function and Heart Failure,**" drew a sizable audience. *At a time when the concept was unpopular, Dr. Tian's research focused on understanding how metabolism affects heart function. What she found has challenged established assumptions about how simple sugar, fat, and amino acids affect the body.* Interest in this topic brought together members of many scientific disciplines at Tulane School of Medicine to hear her lecture. A number of speakers in this lectureship have become members of the National Academy of Sciences and some have received the Nobel Prize.*

## Faculty News

### Dr. David Busija

- **Grant Awards:** (1) NIH R01, PI: David Busija, "Mitochondrial structure and function in cerebral arteries during diabetes and ischemic stress," 12/01/19–11/31/23; and (2) NIH R21, PI: David Busija, "High throughput assay for mitochondrial respiration in aged brain microvessels," 8/01/19–4/30/21, \$430,125.00.
- **Invited Speaker:** Medical College of Georgia, "Mitochondria in vascular smooth muscle of the cerebral circulation: sex, diabetes, and ischemic stress," Department of Physiology Mini Symposium: Smooth muscle physiology in cardiovascular system and beyond," Augusta, GA, 5/16/19.
- **Submitted Grants:** (1) NIH R01, 6/5/19; (2) NIH R01, 10/5/19.

### Dr. Stephen Braun

- **Grant Award:** Alliance for Cardiovascular Research, Co-PI: Stephen Braun, "Targeting CCR5 in Stem Cells from Rhesus Macaque Tissues," 7/01/19–6/30/21, \$200,000.
- **Submitted Grants:** (1) U19 NIH NIAID 1U19 AI149678-01, Co-I: Stephen Braun, MPI: Jay Rappaport; (2) SBIR NIH NIAID, Co-I: Stephen Braun, PI: Richard P. Junghans, submitted 9/7/19; (3) US-Egypt Joint Board, MPI: Stephen Braun, PI: Magda Mohamed Hagra, submitted 9/7/2019; and (4) NIH R01, Stephen Braun: Co-PI with Partha Chandra, 5/03/19.
- **Invited Speaker:** (1) Indiana University Presidential Symposium honoring Hal E. Broxmeyer, "Combined Immunotherapy using MSCs for Reactivation and CAR Tc for Targeting Latent HIV," Indiana University School of Medicine, Indianapolis, 8/23/19; and (2) Department of Tropical Medicine, "Genetically Modified T cells as Immunotherapy against HIV," Tulane School of Public Health and Tropical Medicine, New Orleans, LA.
- **Grant Reviewer:** 2019 NIAID Study Section (Ad hoc member), K22 NIAID Career Transition Awards.

### Dr. Partha Chandra

- **Poster Presentation:** "Latent-HIV-1 Exosome Blockade Mitophagy Flux in Human Brain Microvascular Endothelial Cells," Experimental Biology Meeting 2019, Orlando, FL, April 2019 (EB2019).
- **Grant Submission:** NIH R01, Co-PI with Stephen Braun, 5/03/19.

### Dr. Craig Clarkson

- **Educational Workshop:** 2019 International Association Medical Science Educators meeting, "Flipping without Flopping": Developing engaging digital resources for mil-

lennial and Gen Z learners." Clarkson C & Gorman L., Roanoke, Virginia, 6/10/19.

### Dr. Suttira (Joy) Intapad

- **Grant Award:** NIH R01, Co-I: Suttira Intapad, "Placental functional imaging to predict preeclampsia therapeutic outcomes," PI: Carolyn Bayer, 8/15/19–7/30/24, total grant: 1.6 million.
- **Invited Speaker:** Brain Institute, Tulane University, "Developmental programming of cardiovascular diseases; role of leptin?" 9/11/29.
- **Invited Review:** Renal Section of American Physiological Society, *Please see Page 6*.
- **Editorial Boards:** Volume editor, *Frontiers in Physiology - Renal and Epithelial Physiology*, Member, *Kidney360*.
- **Reviewer:** *Hypertension, Cardiovascular Research*.
- **Outreach:** AHA HBCU Scholar Mentor, 2019–2020.

### Dr. Prasad Katakam

- **Invited Speaker:** (1) Cardiology Grand Rounds, Department of Medicine, "Hypoglycemia-Induced Cerebral Microvascular Injury," 10/15/2019; (2) The University of Wisconsin at Madison, Department of Neurological Surgery, "Mitochondrial and Cerebrovascular Remodeling in Ischemia," 10/18/2019.
- **Grant Submission:** (1) NIH R01, Co-PI: Prasad Katakam with Ricardo Mostany, 10/9/2019; (2) NIH R01, Co-PI: Prasad Katakam with Ricardo Mostany, 11/5/19.
- **Poster Presentations:** BRAIN & BRAIN PET 2019 meeting, Yokohama, Japan, "Acute insulin-induced hypoglycemia impairs mitochondrial respiration and vasoreactivity in brain microvasculature without altering blood-brain-barrier permeability." 7/4–7/19.
- **Reviewer:** *Grants:* ZAG1 ZIJ-7 (J1) M, National Institute of Aging, AHA Vascular Wall Endothelial Biology Fellowships Panel, 10/2019; NSF's CAREER Program, 9/2019; NIH Brain Disorders and Clinical Neuroscience, 7/2019. *Journals:* *Circulation Research, Stroke*.
- **Editorial Board Member:** *Scientific Reports, AJP Heart and Circulatory Physiology, Journal of Cardiovascular Pharmacology*.
- **Outreach:** AHA HBCU Scholar Mentor, 2019–2020.

### Dr. Sarah Lindsey

- **Grant Award:** NIH R01, Co-I: Sarah Lindsey, "Placental Functional Imaging to Predict Preeclampsia Therapeutic Outcomes," PI: Carolyn Bayer, 8/15/19–7/30/24, total grant: 1.6 million.
- **Grant Submission:** (1) NIH R01, Co: I: Sarah Lindsey, PI: Minolfa Prieto; and (2) NIH R21 Co-I: Sarah Lindsey,

## Faculty News continued

PI: Carolyn Bayer.

- **Editorial Boards:** (1) *American Journal of Physiology-Heart & Circulatory*, beginning 2019; and (2) *Frontiers in Physiology*, beginning 2019.
- **Poster Presentations:** (1) "Females Have Enhanced Purinoreceptor-dependent Regulation of Sodium Excretion: Role for GPER," Organization for the Study of Sex Differences, Washington, D.C., 5/5–8/19; and (2) "Multi-modal functional imaging to detect therapeutic responses in the ischemic placenta." World Molecular Imaging Conference, Montreal, Quebec, Canada, 9/4–7/19.
- **Invited Speaker:** (1) Pan American Congress of Physiological Sciences, "Cardioprotection Induced by Membrane-Initiated Estrogen Signaling," Havana, Cuba, 5/27–31/19; (2) LSUHSC Department of Physiology, "Sex Differences in Arterial Stiffness," New Orleans, LA, 8/22/19.
- **Session Moderator:** AHA Council on Hypertension 2019: "Gender Differences and Sex Hormones," New Orleans, LA, 9/5–8/19.
- **Reviewer:** (1) Department of Veterans Affairs, Mental Health and Behavioral Sciences-A Spring 2019 BL&CS Merit Review, (2) American Heart Association, Co-Chair, Fellowship Cardiorenal Basic Sciences Review.
- **Outreach:** AHA HBCU Scholar Mentor, 2019–2020.

### Dr. John McLachlan

- **Grant Awards:** (1) W.M. Keck Foundation, Co-I: John McLachlan, "Defining how extra-lymphoid tissue regulates sex differences in the immune response," PI: James McLachlan, 1 million; (2) NIH: NIEHS and NIA, Co-I: John McLachlan, "Elucidating the measurement of telomeres: Development of a Transdisciplinary, high-impact telomere research network," PI: Stacy Drury, 9/30/19–5/31/24, 2.6 million.

### Dr. Howard Mielke

- **Grant Award:** "The New Orleans Topsoil Survey 2013–2017," PI: Howard Mielke, supported by private and institutional support from The Ling and Ronald Cheng Fund, Al French and Mary An Godshall, Allen and Laura Carmen, Paul W. Jr. and Roberta R. Mielke, Thomas Beller, Jack Eichenbaum, Gabriel Filippelli, members

of the Community Church Unitarian Universalist, and support from the Department of Pharmacology, Tulane SOM, New Orleans, LA.

- **Advisory Committee appointment:** Appointed to the Lead Exposure and Prevention Advisory Committee of the Centers for Disease Control and Prevention (CDC) 7/1/19–6/30/21.
- **Invited Speaker:** Peoples' Friendship University of Russia (RUDN University) New Moscow, Summer School Program: Anthropogenic and Natural Soil Landscapes in European Russia: From Sea to Sea, "Soil pollution and human health: Monitoring, modeling, and managing urban soils," Moscow, Russia, 7/22–26/19.
- **Reviewer:** Journals: *Environmental Research*, *Science of the Total Environment*.
- **Outreach:** (1) Presentation to the U.S. Commission on Human Rights, Indiana, 4/30/19; (2) Meeting with Councilwoman Cyndi Nguyen, District E, New Orleans, LA, 6/4/19; (3) Prominently included in an article by Thomas Beller entitled "Wearing the Lead Glasses: Lead Contamination in New Orleans and Beyond." Published by *Places Journal* as the fifth article in an ongoing series, "The Inequality Chronicles." <https://placesjournal.org/article/wearing-the-lead-glasses/?cn-reloaded=1&cn-reloaded=1> [accessed 9 October 2019].

### Dr. Ricardo Mostany

- **Grant Reviewer:** NIH Center for Scientific Review, Neurodifferentiation, Plasticity, Regeneration and Rhythmicity Study Section, Ad hoc reviewer, June 2019.
- **Grant Submission:** (1) NIH R01 Co-PI: Ricardo Mostany with Prasad Katakam, 10/9/19; (2) NIH R01, Co-PI: Ricardo Mostany with Prasad Katakam, 11/5/19.
- **Outreach:** President of the Greater New Orleans Society for Neuroscience (GNOSN) Chapter.

### Dr. Margaret Zimmerman

- **Submitted Grant:** NIH K01, submitted 10/12/19.
- **Poster Presentations:** "Medroxyprogesterone Prevents the Decline in Renal Health Due to Estradiol," AHA Hypertension Meeting, New Orleans, LA, 9/7/19.
- **Journal Reviewer:** *Journal of Applied Physiology*.

**SOM Committees/Subcommittees:** **Dr. Braun:** Tulane Primate Research Center Space Committee (TNPRC); **Dr. Bunnell:** Chair: Faculty Grievance, Chair: Personnel and Honors, Research Advisory, TNPRC Executive Committee; **Dr. Busija:** Head: Basic Science Chairs; **Dr. Clarkson:** Curriculum, BMF Steering, Personnel & Honors, Student Professionalism & Promotion, and Phase 2 Curriculum Advisory; **Dr. Lindsey:** Campus Climate Task Force-Harrassment by Faculty, Institutional Animal Care and Use; Faculty Co-Advisor, Tulane Chapter of the American Medical Women's Association, Tulane Professionalism Program Peer Messenger; Women in Medicine and Science, **Dr. Intapad:** Faculty Advisory; **Dr. Katakam:** Faculty Advisory, Curriculum, Admissions, BMS Steering and Admissions; **Dr. Mostany:** Tulane Brain Institute Executive; Chair: Tulane Brain Institute Seminar Series; Nominating (Basic Science Representative), Student Professionalism and Promotion Committee.

**Laboratory News:** Pharmacology (Pharm), Neuroscience Undergraduate (NU), Stem Cell and Regenerative Medicine (SCRM), Neuroscience Program (NP), Cell & Molecular Biology Program (CMB), School of Science and Engineering (SSE), Biomedical Engineering (BE), School of Public Health and Tropical Medicine (SPHTM), Tulane National Primate Research Center (TNPRC)

### Laboratory of Dr. David Busija

**Dr. Siniša Čikić**, Postdoctoral Fellow (Pharm) presented a poster, (1) "Sexual disparities of mitochondria-associated proteins in rat brain micro-vessels: Using tandem-mass-tags to elucidate metabolic phenotypes," at Neuroscience 2019, Chicago, IL, 10/19–23/19 (Neuroscience 2019); (2) co-authored a poster, "A LC-MS/MS based proteomic study indicates major sex-dependent differences of mitochondria-related proteins in rat brain microvessels" Mitochondrial Biology Symposium, Bethesda, MD, 9/26-27/19; and (3) co-authored a poster, "Correlation between Hofstede's model of national culture and healthcare models of representative countries-United States, Germany, United Kingdom, and Croatia," International Society for Pharmacoeconomics and Outcomes in Research, New Orleans, LA, 5/18-22/19.

### Laboratory of Dr. Stephen E. Braun

**Nathan Johnson**, MD/PhD student (TNPRC) gave two oral presentations on the subject: "In Vivo Expansion of CMV-Specific anti-HIV CAR T cells following CMV Superinfection" at (1) the Bioedical Science Retreat; October 18, 2019, New Orleans, LA (BMS-Retreat); and (2) the South Central Branch American Society for Microbiology meeting at University of Mississippi, Oxford, MS, 11/2/2019; and (3) was first author on a poster, "In Vivo Expansion of CMV-Specific anti-HIV CAR T cells following CMV Superinfection," at the American Gene Cell Therapy meeting, Washington, DC, May 2019. Nathan received the **Top Talk** Award for the morning session at the BMS-Retreat. **Congratulations Nathan!!**

**Giorgio Zenere**, Ph.D. student (TNPRC) gave an (1) oral presentation "NKTT320 mab-induced Natural Killer T lymphocyte activation promotes slower depletion of CCR5+ CD4+ T lymphocytes in acute SIV infection," at the BMS-Retreat, and then (2) a poster on this topic at the Nonhuman Primate Models for AIDS meeting, San Antonio, TX, 11/12/19.

**Fayez Saleh**, Ph.D. student (TNPRC) gave (1) an oral presentation on the subject "A new humanized mouse model mimics humans by lacking  $\alpha$ -Gal epitopes and secreting anti-Gal antibodies" at the BMS Retreat, and a then, (2) a poster on the topic at the South Central Branch American Society for Microbiology, University of Mississippi, Oxford, MS, 11/2/19.

### Laboratory of Dr. Prasad Katakam

**Dr. Siva Sakamuri**, Postdoctoral Fellow (Pharm), Pharmacology Seminar Series, "Effect of acute hypoglycemia on mitochondrial function in cerebral microvasculature," 1/11/19.

**Wesley Evans**, Ph.D. student (NP), (1) received a travel award from the Neuroscience Program to (2) give an invited talk, "Recurrent hypoglycemia promotes cerebral microvascular mitochondrial dysfunction and enhanced ischemia-reperfusion injury to the brain," Neuroscience 2019, and (3) **was awarded a Pre-doctoral Fellowship from AHA: "The effects of recurrent hypoglycemia on microvascular ischemic injury," 1/1/2020–12/31/2020, \$31,016. Congratulations Wes!!**

**Aaron Albuck** (NU), gave an oral presentation in the Pharmacology Seminar Series, "The effects of peroxynitrite on mitochondrial respiration," 1/11/19.

**Jared Sperling**, (Pharm) has a first author paper. *Please see Page 6. Congratulations Jared!!*

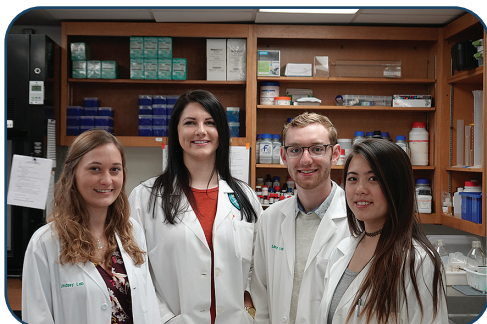
### Laboratory of Dr. Sarah Lindsey, [Visit our webpage](#)

**Dr. Benard Ogola**, Postdoctoral Fellow (Pharm), (1) presented a poster, "Sex Differences and the Role of G Protein-Coupled Estrogen Receptor in Arterial Stiffening." AHA Hypertension Scientific Sessions, New Orleans, LA, 9/5/19; (2) Dr. Ogola has a first-author paper. *Please see Page 6*, and (3) **was awarded an AHA Post-doctoral Fellowship for his grant, "Interactions of sex hormones and chromosomes in vascular oxidative stress and arterial stiffening," 1/1/2020–12/31/21, \$131,356. Congratulations Dr. Ogola!!**

### Laboratory of Dr. Ricardo Mostany, [Visit our webpage](#)

**Drew Davidson** (CMB), (1) successfully defended his Ph.D. Dissertation: "Aging-related changes in connectivity of the primary motor cortex," on 7/25/19, and (2) has a first-author paper. *Please see Page 6. Drew is now a postdoctoral fellow in the laboratory of Dr. Toshihide Hige, Department of Cell Biology and Physiology at the University of North Carolina at Chapel Hill. Congratulations Dr. Davidson!!*

## New Faces



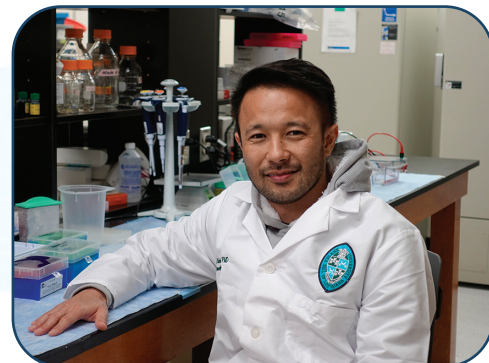
Pictured left to right are new members of the **Lindsey Lab**: **Isabella Kilanowski-Dorah**, Ph.D. student in the BMS program, is studying the effects of GPER on glycosaminoglycans to reduce arterial stiffness; **Kristin Chandler**, M.S., is Lab Manager and a Medical Research Specialist. Kristin has been a member of the Air Force Reserve since 2009 and plans to pursue a Ph.D. in biomedical sciences. She is researching the role that environmental estrogens play in women's cardiovascular health; **Nicholas Harris** is an undergraduate student in Biomedical Engineering studying the trafficking of the prorenin receptor in endothelial cells and vascular damage in type 2 diabetes; and **Tristen Wong** is an undergrad in Neuroscience studying the impact of sex hormones and GPER on arterial stiffness.

## New Faces, continued



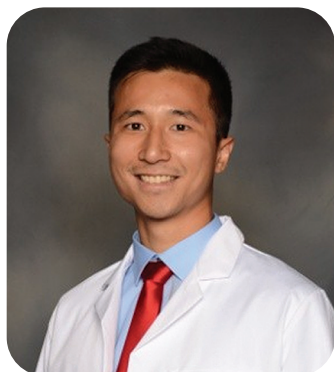
Pictured above, left to right, are new members of the **Intapad Lab**: **Benjamin Bhunu**, Pharmacology Ph.D. student, is working on developmental programming of cardiovascular diseases; and **Isabel Riccio** is in the NU program working on brain S1P signaling pathway and blood pressure. **Brennan Gagen** is a Tulane medical student. Dr. Intapad is his mentor in the DeBakey Scholars program. **Katherine Chan** is a Lab Technician. She graduated from Tulane with a Masters from the School of Public Health and Tropical Medicine. Katherine manages the lab and assists other lab members with their projects.

Pictured below are two new members of the **Mostany's Lab**: **Anushka Ghosh** (Left) has a B.A. and M.S. degree in Neuroscience and a M.S. in Pharmacology from Tulane. She is a Research Technician in the lab and is using mouse models to study effects of aging on synaptic plasticity. **Bryn Wooten** (Right) is a Neuroscience undergraduate with a minor in Psychology. She is studying synaptic plasticity in the aging brain using rota-rod training and motor skills.



**Dr. Rodrigo Yokota** (above) recently arrived from Brazil for a Postdoctoral Fellowship with **Dr. Intapad**. He received his Ph.D. from the Federal University of São Paulo, São Paulo, Brazil. His Ph.D. research, under the direction of Professor Dulce Elena Casarini, was on the renin angiotensin system using mass spectrometry. His favorite sports in Brazil are soccer and surfing. Since arriving in the U.S. he has been to Champions Square to watch the last Saints game, has been to a Pelicans game, and is embracing life in New Orleans.

## Master's in Pharmacology Graduate Spotlight: Allen Chen Tulane School of Medicine, Class of 2021



I graduated in 2014 with a BS in Biochemistry and didn't have a defined path forward. I had taken the prerequisites for med school but didn't take the final step of applying. After I graduated, I took a job in toxicology to work and decide what I wanted to do with my future. I quickly realized that I would require additional education. After thorough research, **I discovered the Masters in Pharmacology program at Tulane School of Medicine. I saw the program as a great opportunity to improve my credentials for medical school or enhance my opportunities in the biotech industry.**

Throughout my time in the program, I realized that a career as a physician would be a great fit for me. The program does an excellent job of preparing students to apply to medical or other health professional school because of the coursework, the research, and volunteer opportunities. **The Pharmacology Department also felt like a tight knit community, with approachable faculty and annual events.**

**I became involved with research and completed a thesis with Dr. Katakam**, a wonderful and supportive mentor. I gained valuable experience in performing basic science experiments, collecting/analyzing data, drawing conclusions from research, and preparing/publishing manuscripts. I graduated from the

Pharmacology Program with renewed confidence in my academic and research abilities and enrolled in the Tulane SOM Class of 2021.

The city of New Orleans is exciting to explore and there are many opportunities to enjoy it with classmates to unwind from coursework. The culture is unlike anywhere else in the country and there are some world class dining options, not to mention the spectacle that is Mardi Gras. I am glad I came to Tulane. **I have made lifelong friends and have met influential mentors during my time in the program and will think about these experiences fondly as I train and work as a physician.**

Please donate 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, contact Mark McKeown, Senior Director of Development for Tulane University School of Medicine, 504-314-7380, or [mmckeown@tulane.edu](mailto:mmckeown@tulane.edu)  
Tulane University School of Medicine Office of Development #8745, 1430 Tulane Avenue, New Orleans, Louisiana 70112

## Publications

Merdzo I, Rutkai I, Sure VNLR, **Katakam PVG, Busija DW**. Effects of prolonged type 2 diabetes on mitochondrial function in cerebral blood vessels. *Am J Physiol Heart Circ Physiol*. Nov 1; 317(5):1086-1092.

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Pharmacology News is a publication of the Department of Pharmacology at Tulane University

Chair: Dr. David W. Busija

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.*

Senior Editor/Newsletter Preparation: Nancy Busija

Department Administrator: Debbie Sanders

Newsletter Oversight: Dr. Sarah Lindsey

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