

Fall 2012

Pharmacology News

Message from the Chair

As I complete my second year as Chair, I am amazed at the changes in the department as well as in New Orleans. We are continuing to renovate offices and laboratories and recruit additional faculty. Joining our faculty are several excellent new Assistant Professors and each of them brings something new and different to our department. Similarly, each day when I drive to the School of Medicine I am amazed at the ongoing restoration of New Orleans. We again have an excellent class of students for our Masters in Pharmacology Program. Several of our Ph.D. students will be finishing their programs during the winter and spring. Additionally, we have continued to have excellent speakers in for our seminar series. Dr. Mark Nelson was our Fisher Distinguished Lecturer on November 1, 2012 and Dr. Hal Broxmeyer will be our Schueler Distinguished Lecturer on March 1, 2013. In the upcoming year we will seek to recruit another Assistant Professor and to renovate additional laboratory space. A number of faculty members have received recognition for their efforts and more information on their accomplishments is provided in this newsletter.

In the News

Recently, **Dr. Barbara Beckman** gifted \$100,000 to create the Dr. Barbara S. Beckman Professorship in Pharmacology. Featured in *Tulane New Wave* she stated that she wanted to create a professorship that would encourage diversity and propel the careers of women scientists. She hopes that the professorship will encourage more women to take a leadership role within the basic sciences. Decidedly a leader herself, Barbara has recently been chosen by the editors of *New Orleans City*

Business to be included in its annual Women of the Year list. Dr. Beckman and other nominees will be honored at a luncheon on Nov. 16th. Dr. Beckman, an alumnus of Newcomb College and Johns Hopkins School of Medicine, began her professional career at Tulane with a postdoctoral fellowship in Pharmacology. She served as interim chair of Pharmacology, 2010-1011, and is currently Associate Dean of Admissions for the Tulane School of Medicine.

Faculty Additions

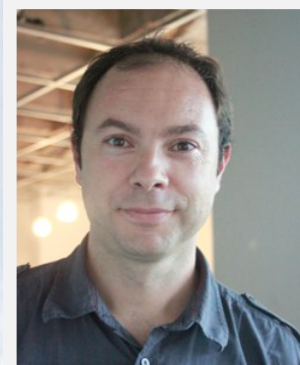
Dr. Sarah Lindsey, a New Orleans native and an alumnus of Ben Franklin Senior High School., graduated from the University of Mississippi; master's from the University of Memphis, and Ph.D. from Pharmacology at LSU under the direction of Dr. Emel Songu-Mize. Postdoctoral training was completed with Dr. Mark Chappell at Wake Forest Hypertension and Vascular Research Center. Dr. Lindsey received an NIH Pathway to Independence Award (2011) for *Vascular Interactions of Estrogen Receptor GPR30 and the Renin-Angiotensin System*. The award funded a year of mentored training and three years of independent grant support. Dr. Lindsey came as Assistant Professor in Pharmacology, April, 2012. Her research investigates the role of the novel estrogen receptor GPR30 in cardiovascular health, and she is particularly interested in the interactions between estrogenic signaling and the renin-angiotensin system. Her research will help to determine the cardiovascular benefits and risks of hormone replacement therapy.

Dr. Lindsey and husband, Jason, have settled in Mid-city and enjoy the city's music venues

such as Jazz Fest, The Maple Leaf, and Tipinina's

Dr. Ricardo Mostany, Assistant Professor, came to Pharmacology September 1, 2012. He is from Palencia, a small town in Castilla y León in northern Spain. His education included: an undergraduate and Ph.D. in Biological Sciences and Neurobiology from the Universidad de León (Spain). His Ph.D. mentor was Dr. Arsenio Fernández-López. Postdoctoral training included work with Dr. Angel Pazos at the Universidad de Cantabria (Spain) studying the effects of antidepressant drugs on hippocampal neurogenesis and with Dr. Carlos Portera-Cailliau at UCLA where he was trained in *in vivo* two-photon microscopy. Dr. Mostany's research focuses on cortical plasticity in the cerebral cortex after stroke to elucidate brain recovery from ischemia. The results from these investigations may help in the design of more efficient rehabilitation therapies.

Being from Spain, fútbol (commonly referred to as soccer) and cooking are a couple of his favorite hobbies.



Dr. Ricardo Mostany

Inside this issue:

Message from the Chair	1
In the News	1
Faculty Additions	1
Noteworthy News	2
Student Spotlight – Class of 2014	3
Graduate Spotlight	3
Departmental Publications	4

Pharmacology News is the departmental newsletter and is published semi-annually.

Dr. David Busija—Chair
Debbie Sanders—Dept. Admin
Sewann Strong—Program Coordinator
Nancy Busija—Senior Editor

Noteworthy News

Dr. Craig Clarkson presented a workshop: "Just-in-Time-Teaching (JiTT) and Peer Instruction (PI) in Medical Education" with Dr. David Franklin (Dept. of Biochemistry) at the 2012 Annual Conference of the International Association of Medical School Educators in Portland Oregon on June 24, 2012.

Dr. Milton Hamblin, was recently selected as a Tulane BIRCWH Scholar. This prestigious award includes salary support and research, supply, equipment and travel support. Dr. Hamblin's research focuses on gender-related differences in vascular biology and vascular remodeling-related pathophysiological diseases, including atherosclerosis and vascular lesion formation.

Dr. Sarah Lindsey: Seminar: "Protective Effects of Estrogen Receptor GPR30 in a Model of Angiotensin-II Dependent Hypertension." June 21st, Tulane Hypertension & Renal Center of Excellence:

Dr. Melyssa Bratton, postdoctoral fellow, poster: "Silencing the ER α promoter using DIF-1, a naturally occurring differentiation molecule of the slime mold *Dictyostelium discoideum*", American Society of Pharmacology and Experimental Therapeutics, April 2012. The poster was also featured in the Scientific American Science Blog on April 23 2012. Other authors include Stutts, WL, Pandey, A, Burow, ME, and McLachlan, JA.

Dr. Howard Mielke, seminar: "Lead guidelines for children's play areas: The need for clean soil policies to protect children", National Environmental Health Association Conference in San Diego, June 29, 2012. His HUD funded project to recover lead-safe play areas at childcare centers of New Orleans is progressing with 8 of the 15 play areas completed as of mid-June.

Dr. John McLachlan participated in RCMI External Advisory Committee meeting for the Center for Environmental Health at Jackson State University in Jackson, MS April 13 2012. He spoke on The Role of Mentors at the 25th Biennial Symposium of the Intercultural Cancer

Council on Minorities, The Medically Underserved and Health Equities held in Houston, TX on June 27th, 2012. He has also presented several keynote lectures: "The Causes and Consequences Connecting Environmental and Human Health", a Spring symposium at Duke University in Durham, NC, and "Environmental signaling and gene expression: Integrating the outside with the inside", at the Ninth International Symposium on Recent Advances in Environmental Health sponsored by Jackson State University, 9/18/2012. On 11/7/2012 he will present an invited seminar in Chicago, Northwestern University Center for Reproductive Sciences', Lectures in Reproductive Science seminar series.

Dr. Steven Braun: Oral presentation: "Increased Granulocyte/Macrophage Progenitor Activity Leads to Thrombocytopenia and Anemia in SIV-infected Rhesus Macaque Monkey", the Annual NHP Model for AIDS Symposium in San Francisco, Oct. 24-27. He also received an Early Investigator Award at the meeting.

Shijia Zhang, PhD student, poster: "Co-culturing Adipose derived Stem Cells (ASCs) with Adult Keratocytes, a Novel Method of Differentiation" at the Assoc. for Research in Vision and Ophthalmology Annual Meeting, Fort Lauderdale, FL

Brittini Scruggs, PSP student in **Dr. Bruce Bunnell's** lab, Oral presentation: "High-Throughput Therapeutic Screening for Globoid Cell Leukodystrophy using Automated Neurophenotyping of Twitcher Mice" at the 18th International Conference on Neuroscience and Biological Psychiatry in New Orleans, Louisiana.

Dr. Samantha L. Gerlach, Postdoctoral Fellow, received travel grants from The Center for Infectious Disease and the Office of Graduate and Postdoctoral Studies at Tulane to present, "Potential Application of Naturally Occurring Membrane Disrupting Peptides in HIV Therapeutics" at the International Conference on Circular Proteins, Heron Island, Australia, Oct. 2012.

Dr. David Busija, Invited Seminars: September, 2012. Department of Physiology and Pharmacology, University of Missouri Medical School, Columbia, MO, "Mitochondrial Influences on Cerebral Vascular Tone in Health and Disease".

September, 2012. Department of Pharmaceutics, North Dakota State University, Fargo, ND, "Mitochondrial influences on the cerebral vasculature during health and disease".

Dr. David Busija, Invited Keynote Speaker, 2012 Reynolds Oklahoma Center on Aging Symposium, University of Oklahoma, Oklahoma City, Oklahoma, "Mitochondrial influences on the cerebral circulation during health, disease, and aging". October, 2012.

Invited Speaker, Trans-Pacific Workshop on Stroke 2012, New Orleans, LA, "Mitochondrial influences on the cerebral vasculature during health and disease".

July, 2012 Invited Speaker and Participant in Research Summer School at Angers Medical School, Angers France.

Dr. Prasad Katakam, Invited Presentations:

Katakam PV. "Mechanisms of Cerebrovascular Insulin Resistance. Department of Cellular Biology and Anatomy", LSU Health Sciences Center, Shreveport, Louisiana. Invited Lecture, October 18th, 2012.

Katakam PV, Dutta S, Wappler EA and Busija DW. "Mitochondria-dependent cerebral vasodilation is mediated by the activation of neuronal nitric oxide synthase following mitochondrial depolarization of perivascular nerves". Invited talk at Nanosymposium Session 726, Title: Metabolism and Brain Function. October 17th, Neuroscience Meeting 2012, NO, Louisiana.

P.V.G Katakam, E. Wappler, I. Rutkai, P.S. Katz, A. Institoris, F. Domoki, T. Gáspár, S. Grovenburg, J. A. Snipes and D.W. Busija.

"Mitochondrial depolarization of brain microvascular endothelial cells promotes vasodilation by activation of nitric oxide synthase". British Microcirculation Society and The Microcirculatory Society Joint Meeting, Keble College, Oxford, United Kingdom. July 6th, 2012.

Katakam PVG and Busija DW. "Mitochondrial Depolarization without Reactive Oxygen Species Production leads to Augmented Cerebral Vascular Relaxation via Diverse Calcium-related events in Smooth Muscle and Endothelium". February 2, AHA International Stroke Conference 2012, New Orleans, Louisiana.

Dr. Prasad Katakam: Posters:

PVG Katakam, S Dutta, EA Wappler and DW Busija. *Mitochondria-dependent cerebral vasodilation is mediated by the activation of neuronal nitric oxide synthase following mitochondrial depolarization of perivascular nerves*. Poster# 726.02. October 17th Neuroscience Meeting 2012, New Orleans, Louisiana.

Katakam PVG, Wappler EA, Dutta S, Busija DW. *Mitochondria-Dependent Cerebral Artery Vasodilation is Mediated by the Activation of Neuronal Nitric Oxide Synthase following Mitochondrial Depolarization of Perivascular Nerves*. The FASEB Journal. 2012;26:1058.1059.

Katakam PVG and Busija DW. *Mitochondrial Depolarization without Reactive Oxygen Species Production leads to Augmented Cerebral Vascular Relaxation via Diverse Calcium-related events in Smooth Muscle and Endothelium*. February 2, AHA International Stroke Conference 2012, New Orleans, Louisiana.

Crawfish Boil 2012

The annual crawfish boil, which was held in April, culminated the 2011-2012 academic year. The picnic took place at The Fly. Sunny skies, a modest breeze and the Mississippi River as the background made for a picture-perfect day. Some of the students, faculty, and staff played volleyball, softball, and Frisbee. Some sunbathed while others rested beneath the peaked tent and enjoyed the vittles, which included an endless supply of crawfish.

Department of
Pharmacology's

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.

Student Spotlight — Class of 2013

David Warnock, West Springfield, Massachusetts, majored in chemistry at James Madison University. He is interested in either surgical medicine or radiation oncology. He has previously volunteered as a patient advocate and outreach programs in Nicaragua. He likes to fence, read, and ski.

Srinath Senguttavan graduated from Univ. Texas-Austin and looks to a career in sports medicine or orthopedic medicine. He has volunteered with Best Buddies and helped raise over \$9,000 for programs helping mentally disabled adults with jobs.

Alexander Horwitz, Napa, CA, graduated from UC-Davis where

he worked in a neurology lab studying behavioral pharmacology and spinal transmission of itch and pain. He would like to volunteer at Tulane Hospital and Habitat for Humanity. He is interested in neurology, pharmacology, and public health policy. He likes to cook, cycle, run, read, films, and music.

Paul Ehlers, Mercer Island, WA, was born in Boston. Both parents were from Cape Town, South Africa and he has lived in Delaware and Nebraska. He is interested in emergency, internal medicine, and infectious disease. He has been involved in "Rent-a-Rower" as part of his college rowing team. These events fundraised for community outreach and service work. His pastimes include: rowing, working out, reading,

going out, and meeting new people.

Jamie Alexander, New Iberia, LA, graduated from Xavier University and Community Health at Tulane School of Public Health. She is interested in Internal Medicine focusing on Emergency Medicine. She loves thinks the heart is the most intriguing organ. Emergency Medicine will allow her to "think on her feet". She would like to work in rural areas to help the most disenfranchised people. She volunteers in Emergency in the LSU Interim Hospital and several local housing developments as a mentor. She likes Salsa dancing, reading (during her salsa dancing recovery time).

Graduate Spotlight: Dr. Amy Paulik

Since beginning residency this past summer, days seem to speed by filled with an invigorating blur of seeing patients, reading, and learning. While I knew in high school—and even more so in college—that this was my ultimate destination, I had very little idea of the route to get me there. The Tulane University School of Medicine Pharmacology Masters Program gave me the direction and the assistance I needed to realize my goal. Not until I neared the end of my undergraduate education did I fully appreciate the competitiveness of medical school admissions; I realized I needed to strengthen my candidacy to take the next step toward becoming a doctor. When I came across a brochure for the Pharmacology Masters Program, I knew it was exactly what I needed.

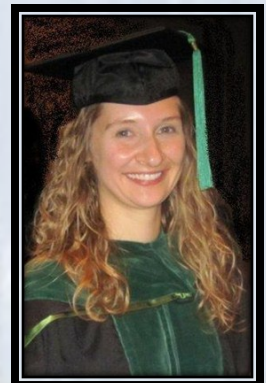
From the moment I was accepted into the program to my graduation, and even through my graduation from medical school, I felt tremendous support and encouragement from everyone in the program. From finding a place to live or the best sushi restaurants to discussing coursework to medical school applications and letters of recommendation, I felt I always

had a place to turn to for advice. For the first time ever, I felt I was able to establish both a personal and professional relationship with my educators, a truly enriching quality of my experience at Tulane. The teaching faculty—esteemed and accomplished as they are—took a vested interest in my learning and success and pushed me to realize my potential and achieve my goals. The program's culture encouraged a strong collaborative environment that extended beyond classroom; the other students in the program became some of my best friends. I smile each time I reminisce about our endless hours studying and exploring New Orleans together.

I felt anxious starting medical school but that soon faded when I realized how well the Pharmacology Masters Program had prepared me. Much of the information and the tools I learned have continued to help me in residency, and I am sure they will stay with me throughout my life as I practice medicine. I had always known that I possessed the potential to become a successful physician; I just needed the right

direction and encouragement. The Pharmacology Masters Program gave me the opportunity to make my medical school and residency application stand out among a sea of applicants, the faculty gave me the support I needed to confidently reach for my educational and career goals, and the friends I made during my year in the program will last a lifetime.

My journey isn't over yet, but through hard work, dedication, and Tulane University, I am well on my way to having the career I have always desired. And right now I am loving every minute of this intense and exciting thing called residency...or almost every minute.



Publications

Collins-Burow BM, Antoon JW, Frigo DE, Elliott S, Weldon CB, Boue SM, **Beckman BS**, Curiel TJ, Alam J, **McLachlan JA**, Burow ME. Antiestrogenic activity of flavonoid phytochemicals mediated via the c-Jun N-terminal protein kinase pathway. Cell-type specific regulation of estrogen receptor alpha. *J Steroid Biochem Mol Bio* 2012 May 24. PMID: 22634477

Bratton MR, Antoon JW, Dong BN, Frigo DE, Tilghman S, Collins-Burow B, Elliott S, Tang Y, Melnik LI, Lai L, **Beckman BS**, Alam J, Hill SM, Rowan B, **McLachlan JA**, Burow ME. $G\alpha O$ Potentiates Estrogen Receptor- α Activity Via the Erk Signaling Pathway. *J Endocrinol* 2012 May 4. PMID: 22562654

Antoon JW, White MD, Rhodes LV, Driver JL, Burow ME, **Beckman BS**. Sphingosine kinase isoforms as a therapeutic target in endocrine therapy resistant luminal and basal-A breast cancer. *Exp Biol and Med*, in press, 2012.

Antoon JW, Lai R, Struckhoff AP, Nitschke AM, Elliott S, Rhodes LV, Nam SY, Salvo VA, Shan B, **Beckman BS**, Nephew KP, Burow ME. Altered death receptor signaling promotes the epithelial-to-mesenchymal transition and acquired chemoresistance. *Sci Rep*, in press, 2012

Braun SE, Taube R, Zhu Q, Wong FE, Murakami A, Kamau E, Dwyer M, Qiu G, Daigle J, Carville A, Johnson RP, Marasco WA. In Vivo Selection of CD4+ T Cells Transduced with a Gamma-Retroviral Vector Expressing a Single-Chain Intrabody Directed Against HIV-1 Tat. (*Hum Gene Ther*, in press).

Sutton, G.M., Ptitsyn, A.A., Floyd, Z.E., Yu, G., Wu, X., Hamel, K., Centanni, A., Eilertsen, K., Kheterpal, I., Newman, S., Leonardi, C., Freitas, M.A., **Bunnell, B.A.** and Gimble, J.M. (2012) Biological aging alters circadian mechanisms in murine adipose tissue depots. *AGE*, in press. PMID: 22411258

Flanagan, M.B., Gimble, J.M., Yu, G., Xia, X., **Bunnell, B.** and Li, S. (2012) Competitive DNA transfection formulation via electroporation for human adipose stem cells and mesenchymal stem cells. *Biological Procedures Online*, 14:7.

Bonvillain, R.W., Danchuk, S., Sullivan, D.E., Betancourt, A.M., Semon, J.A., Eagle, M.E., Mayeux, J.P., Gregory, A.N., Wang, G., Townley, I., Borg, Z., Weiss, D.J. and **Bunnell, B.A.** (2012) A non-human primate model of lung regeneration: detergent-mediated decellularization and recellularization with mesenchymal stem cells. *Tissue Engineering*, in press.

Bratton MR, Frigo DE, Segar HC, Nephew KP, **McLachlan JA**, Wiese TE, Burow ME. The Organochlorine o,p'-DDT Plays a Role in Coactivator-Mediated MAPK Crosstalk in MCF-7 Breast Cancer Cells. *Environ Health Prospect* 2012 May 18. PMID: 22609851

McLachlan JA, Tilghman SL, Burow ME, Bratton MR. Environmental signaling and reproduction: a comparative biological and chemical perspective. *Cell Endocrinol* 2012 May 6;354(1-2):60-2. PMID: 22178089

Mielke HW. Environmental lead after hurricane Katrina. *Environ Health Prospect* 2012 May; 120(5):A188. PMID: 22548749

Zahran S, **Mielke, H.W.**, Weiler, S., Hempel, L., Gonzales, C.R., Berry, K.J. Associations between Standardized School Performance Tests and Pb, Zn, Cd, Ni, Mn, Cu, Cr, Co, and V in New Orleans Soils, *Environmental Pollution* 2012; 169:128-135. doi:10.1016/j.envpol.2012.05.019.

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Geetika Chakravarty and **Debasis Mondal**. Book Title: Updates in the Understanding and Management of Thyroid Cancer. Chapter Title: Insulin-Like Growth Factor Receptor Signaling In Thyroid Cancers: Clinical Implications and Therapeutic Potential. Intech Open Access Publications. 2012. ISBN: 978-953-51-0299-1.

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Katakam PV, Rutkai I, **Katz P**, **Wappler E**, Institoris A, Domoki F, Gaspar T, Grovenburg SM, Snipes JA, and **Busija DW**. Depolarization of Mitochondria in Endothelial Cells Promotes Cerebral Vascular Vasodilation by Activation of Nitric Oxide Synthase. In Review: Arteriosclerosis, Thrombosis, and Vascular Biology, 2nd revision-pending approval.

*This list of publications was the most accurate list available at time of our newsletter publication. Any omissions will be included in the following issue.